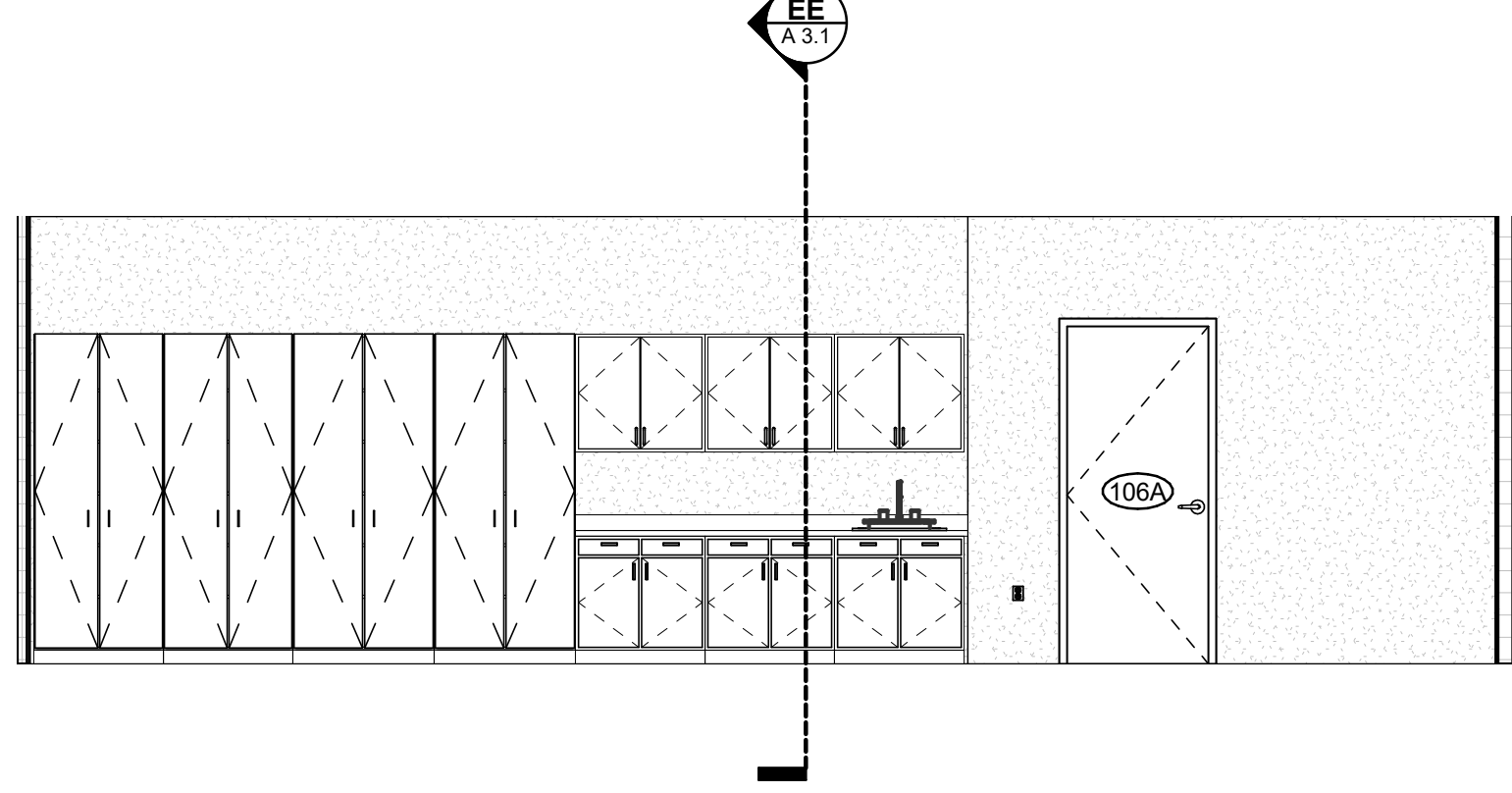
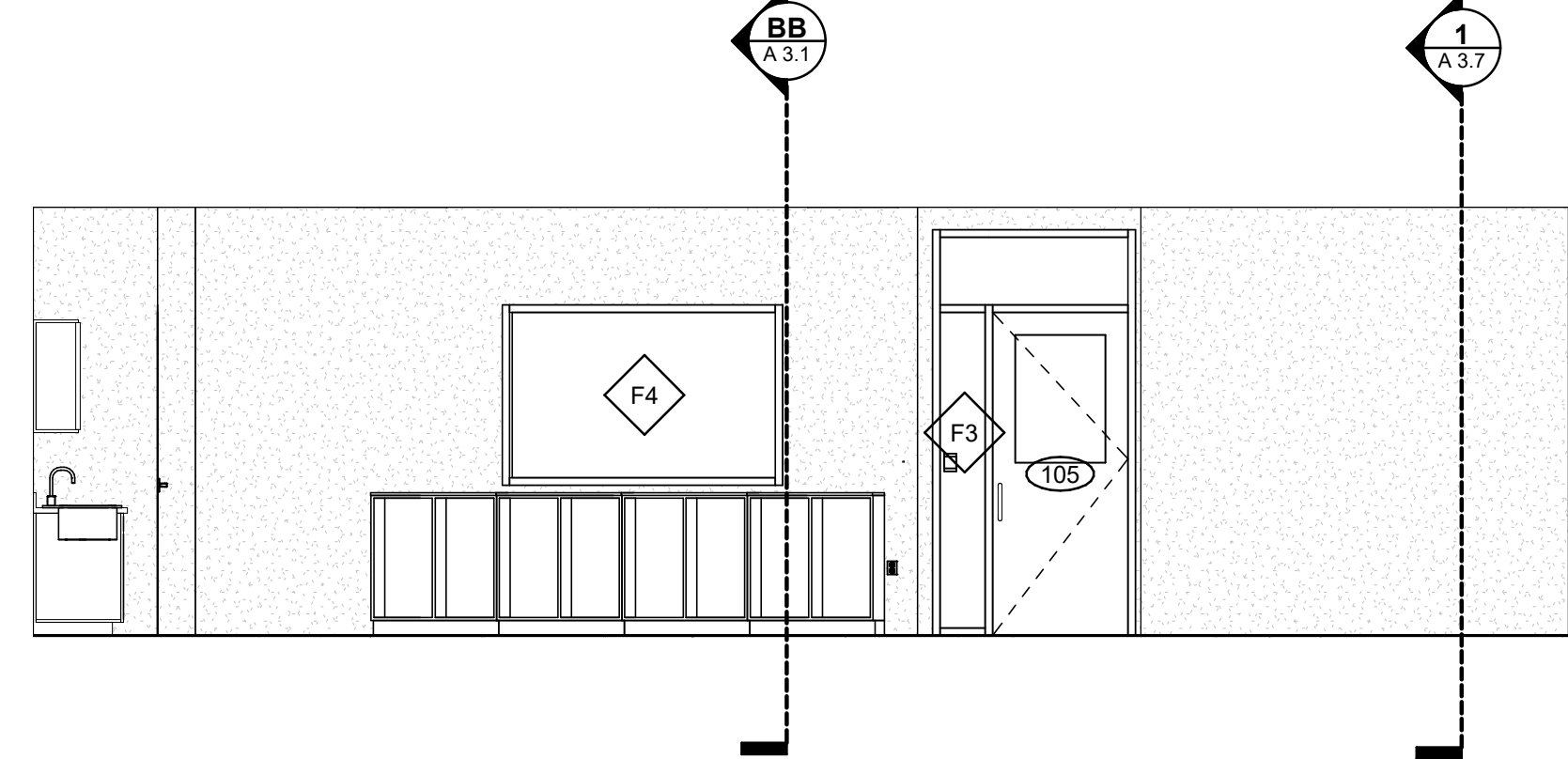


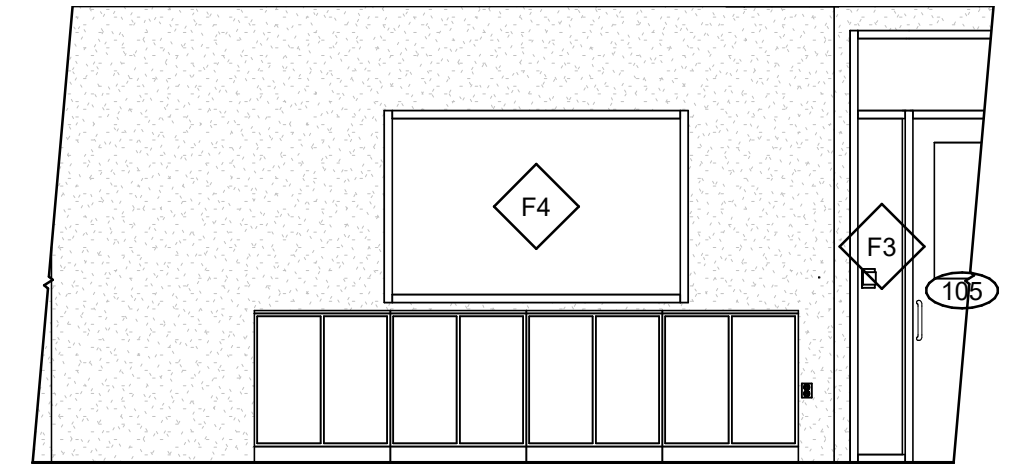
1 105 NORTH ELEVATION  
SCALE: 1/4" = 1'-0"



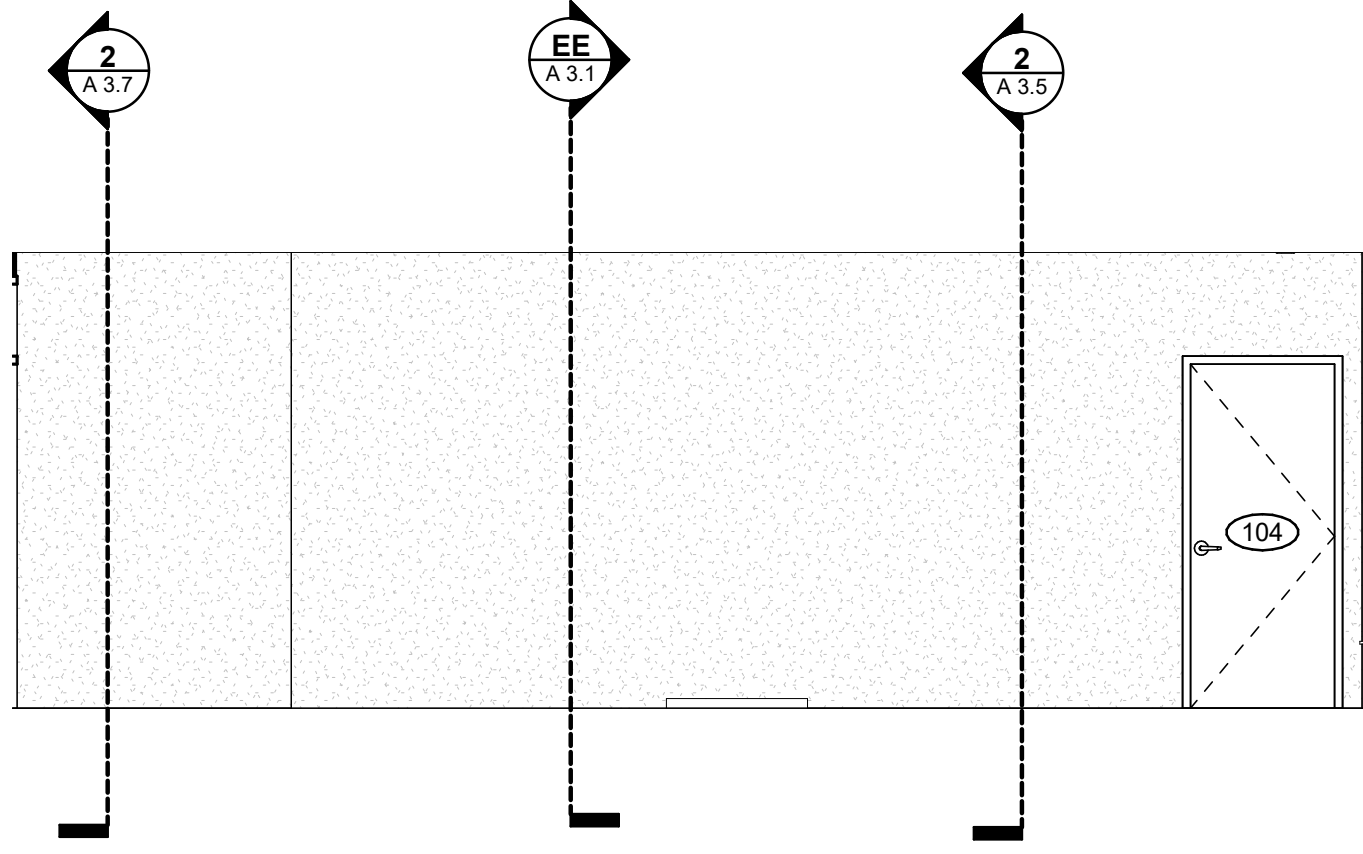
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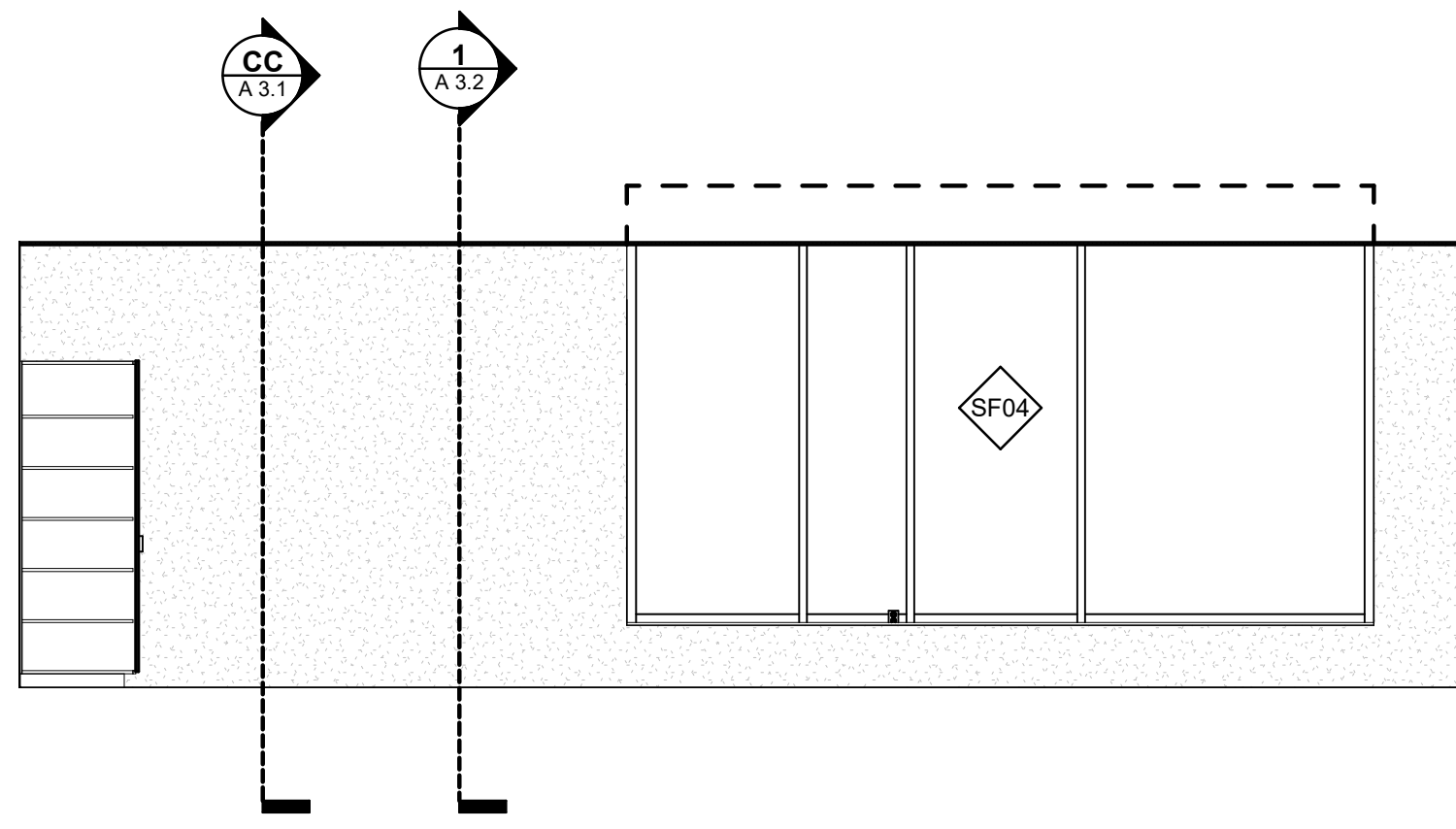
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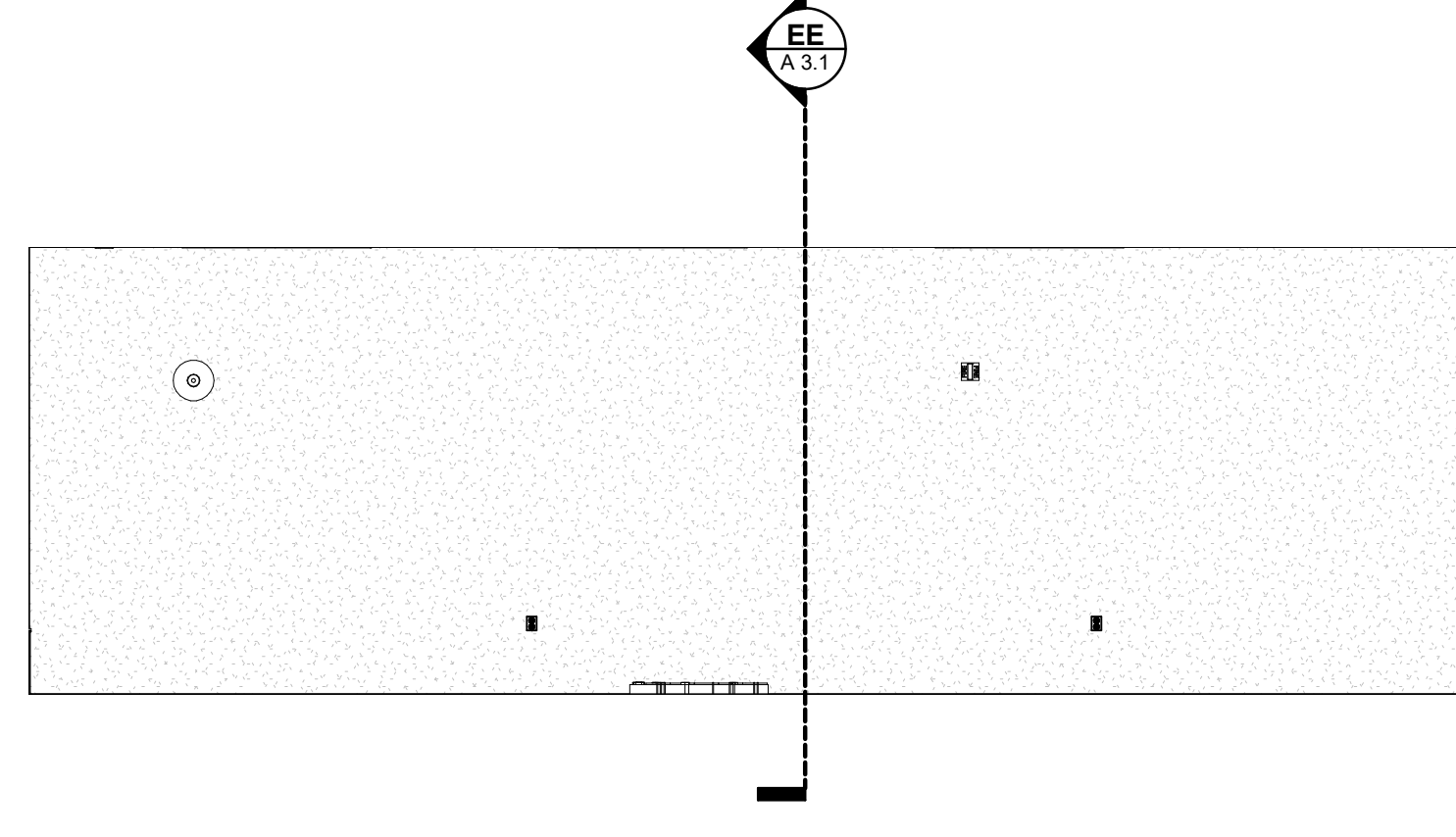
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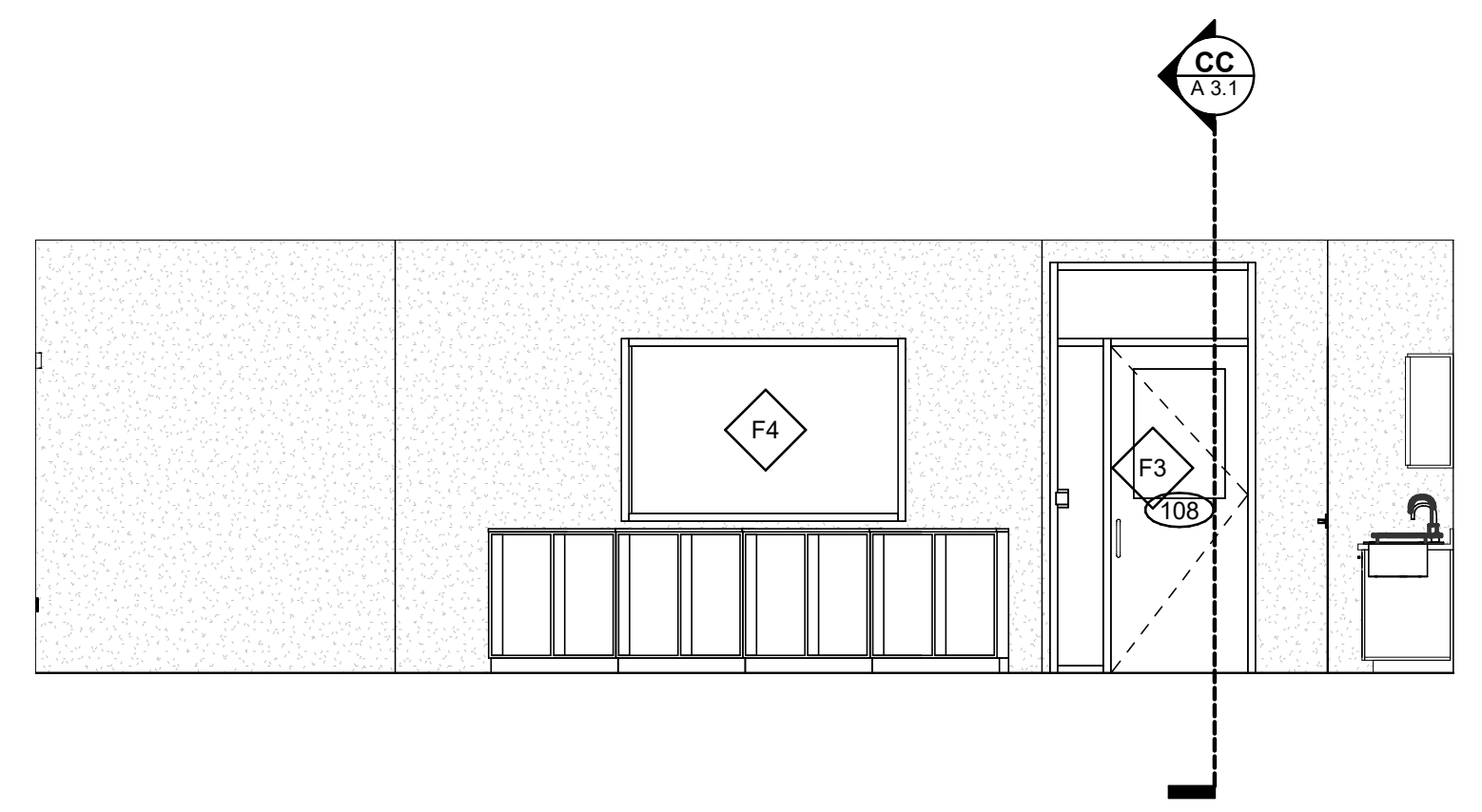
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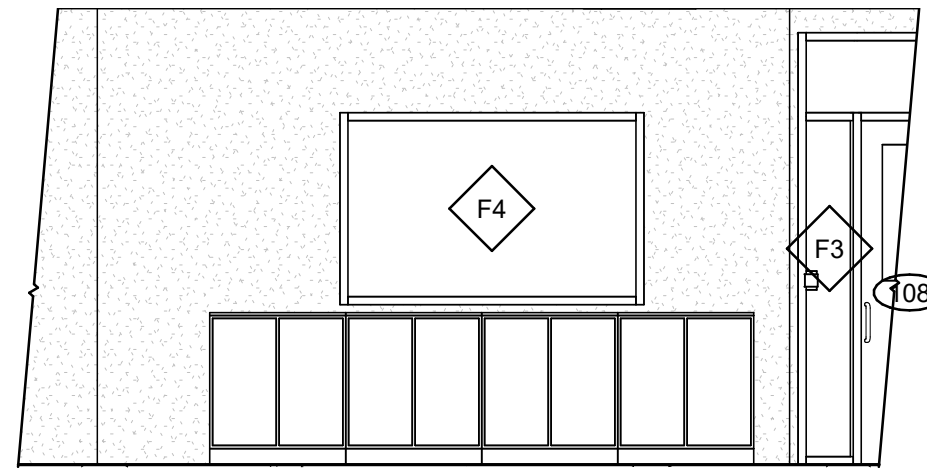
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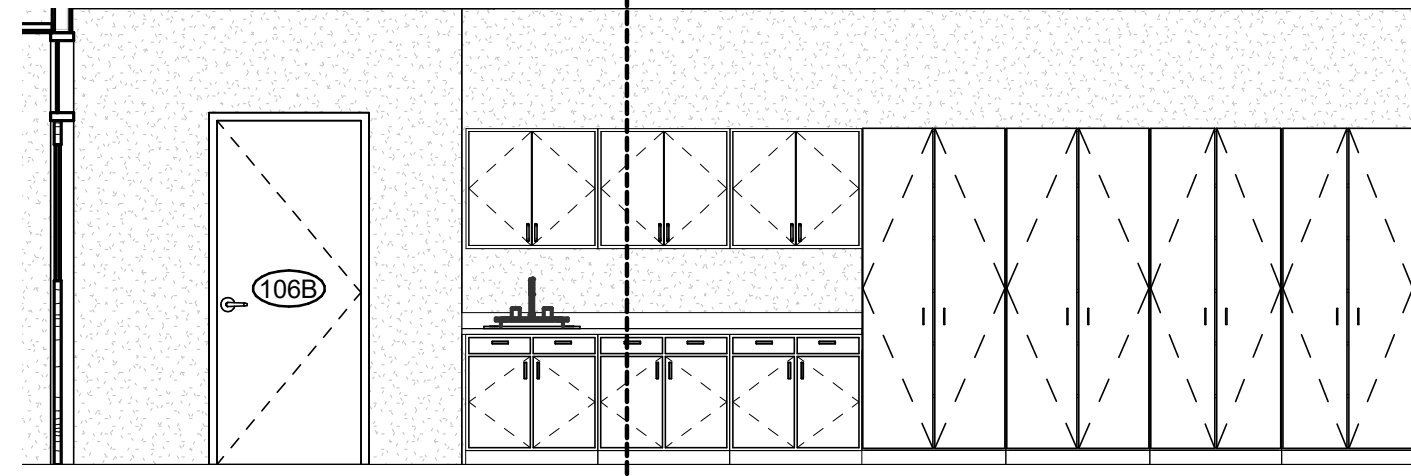
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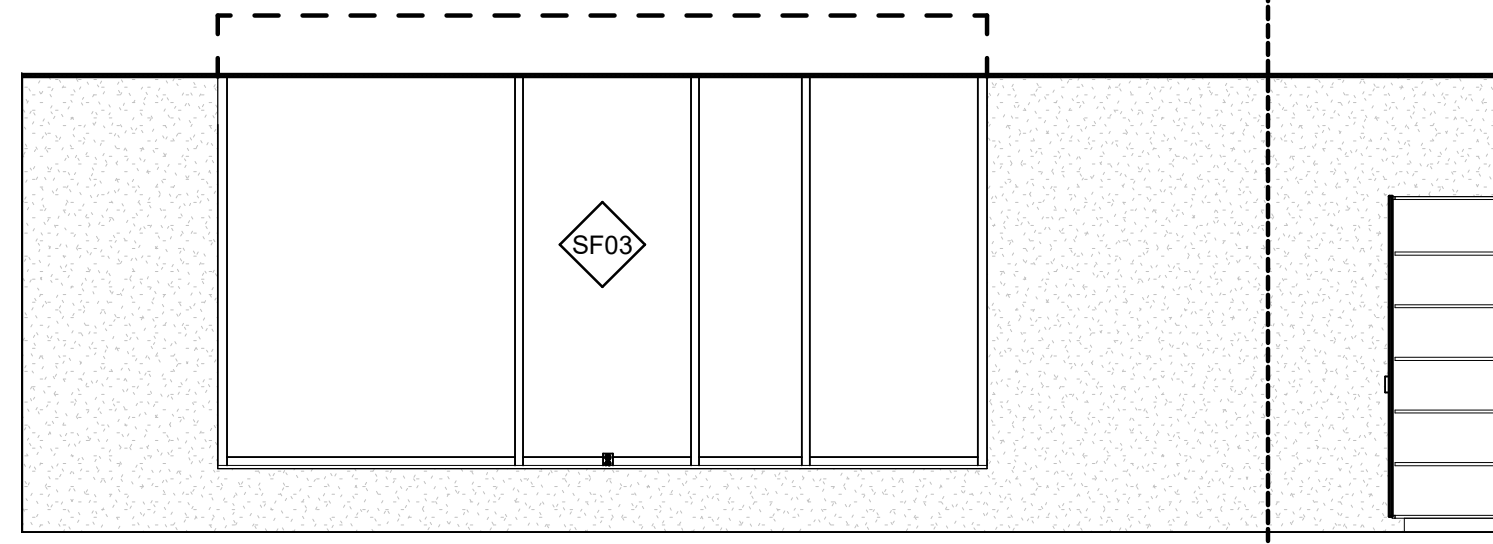
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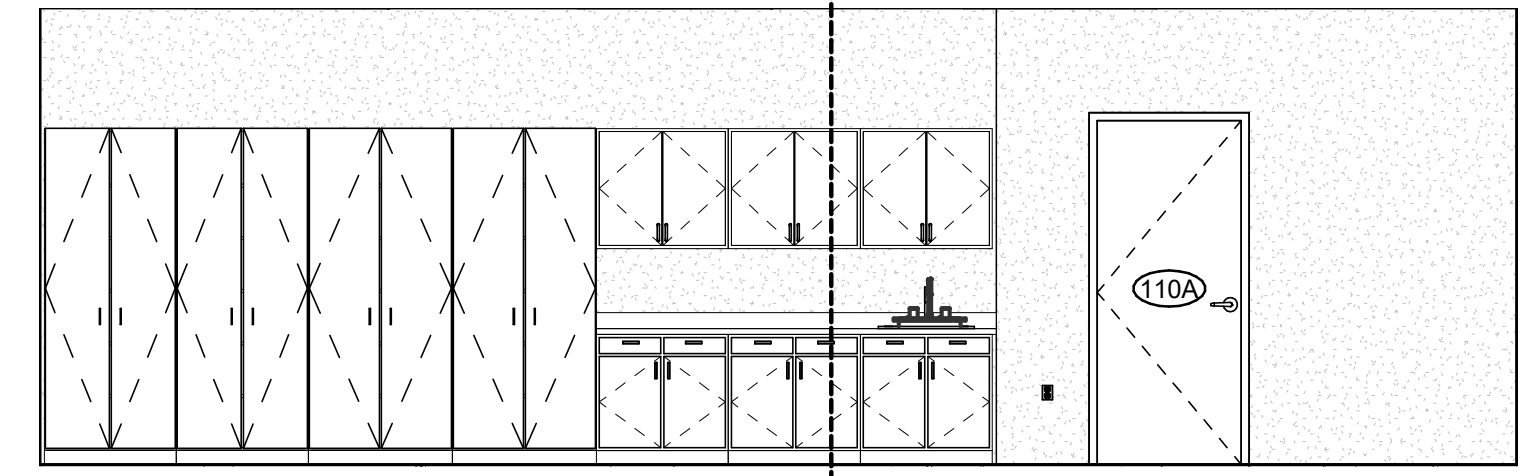
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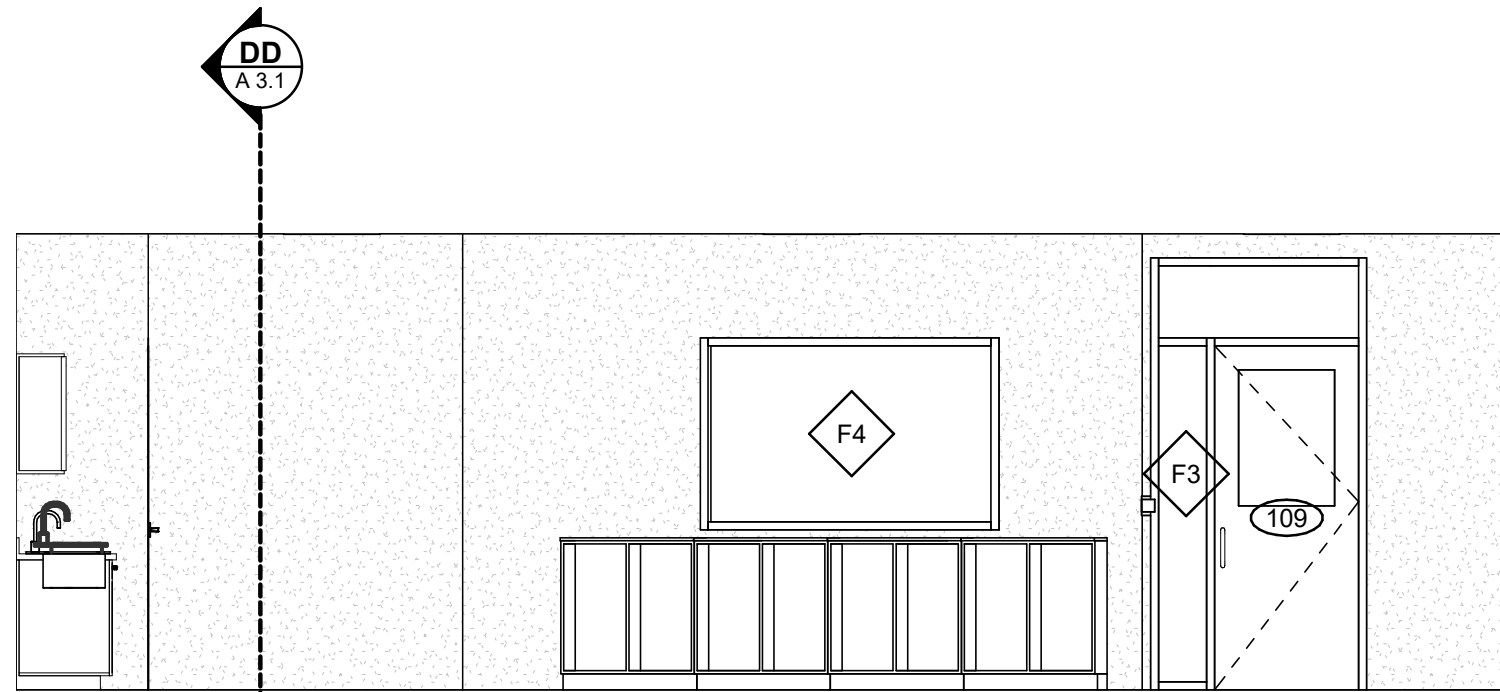
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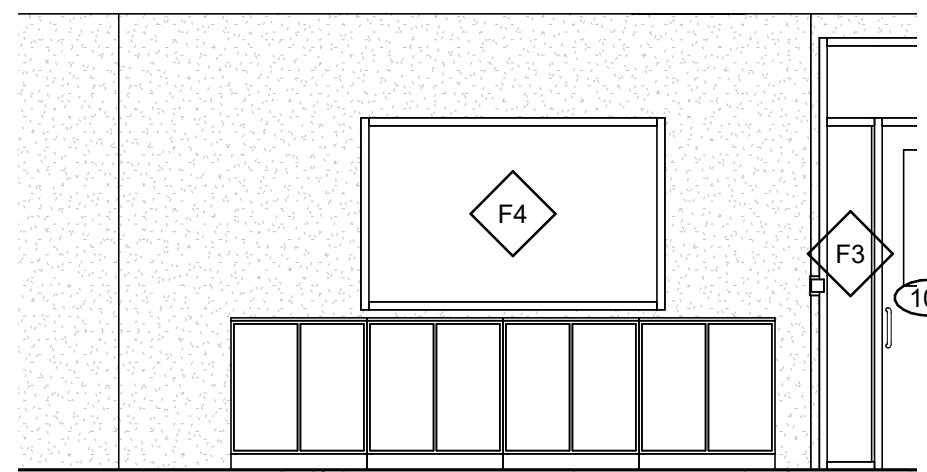
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12 109 EAST ELEVATION  
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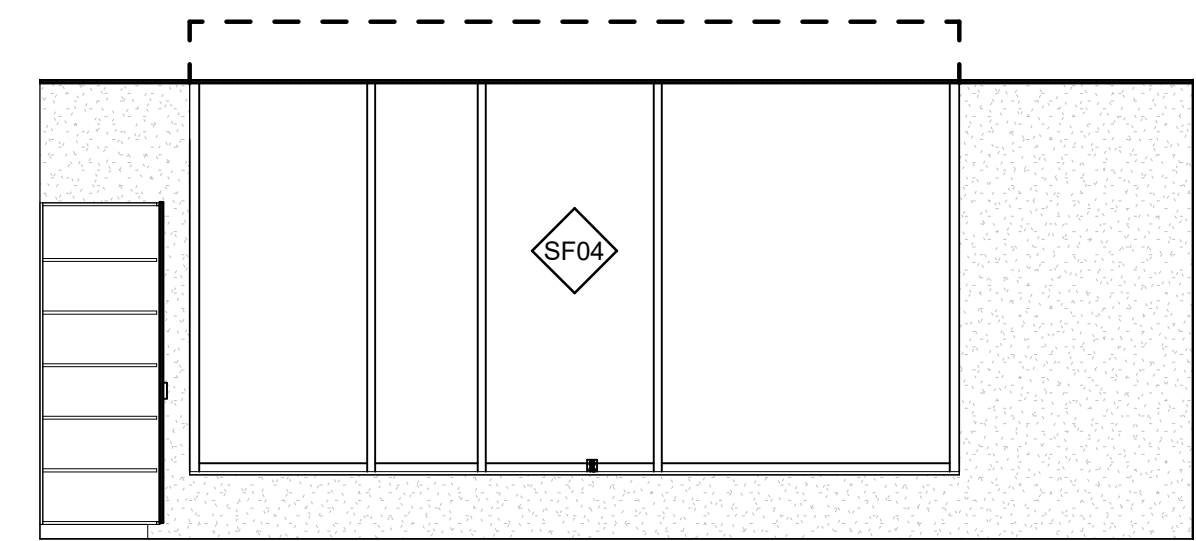
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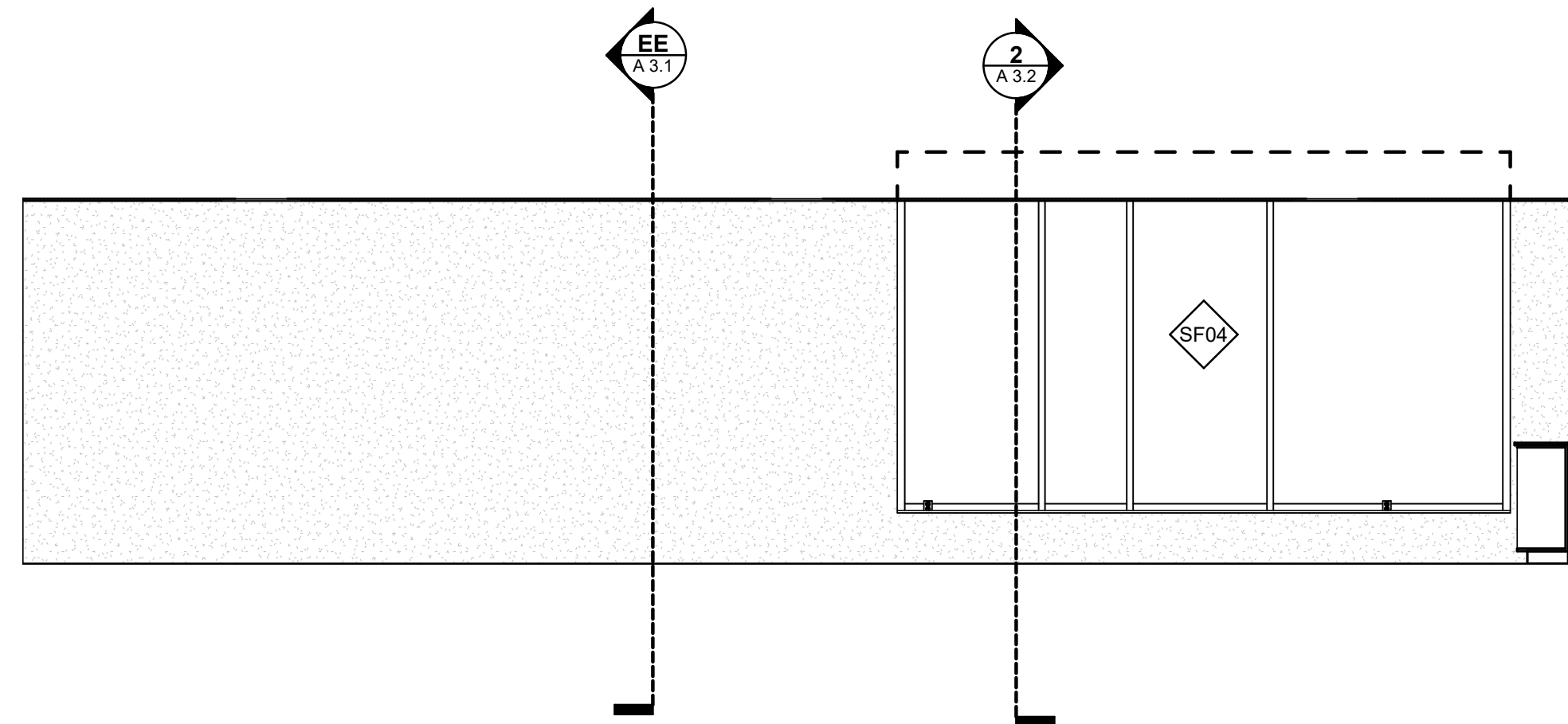
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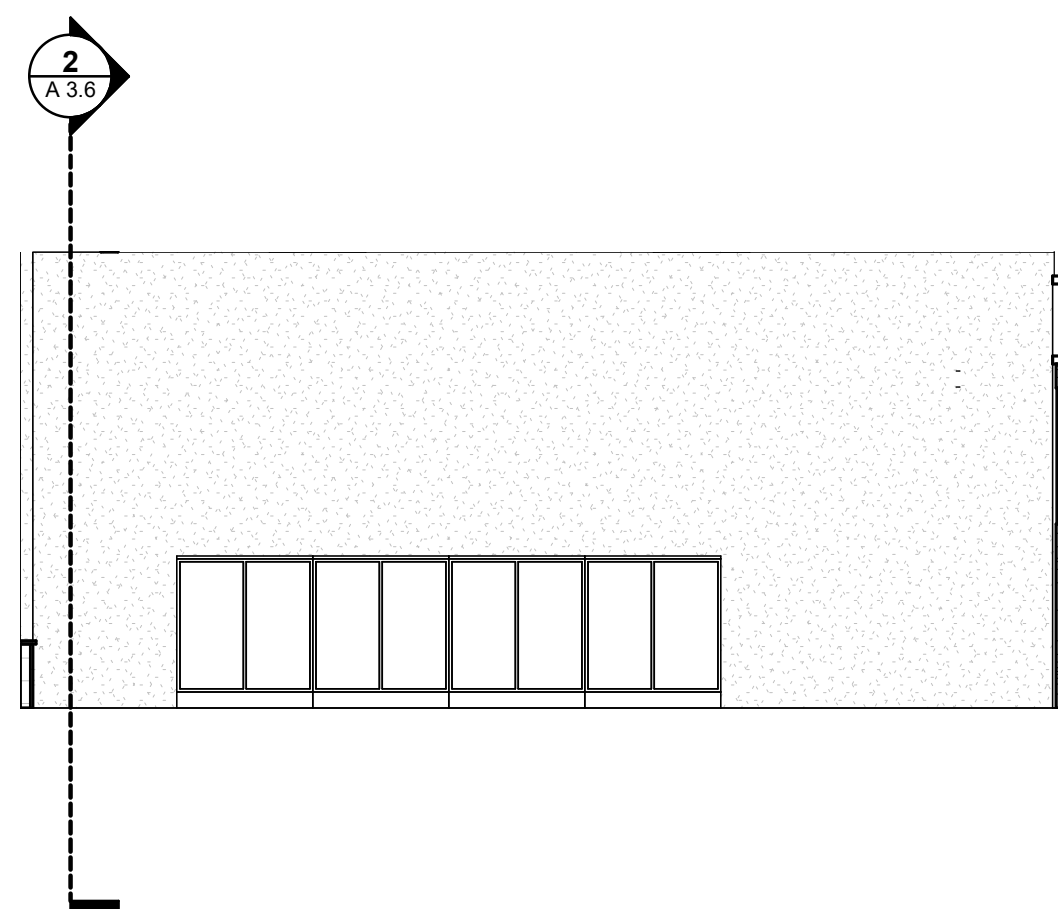
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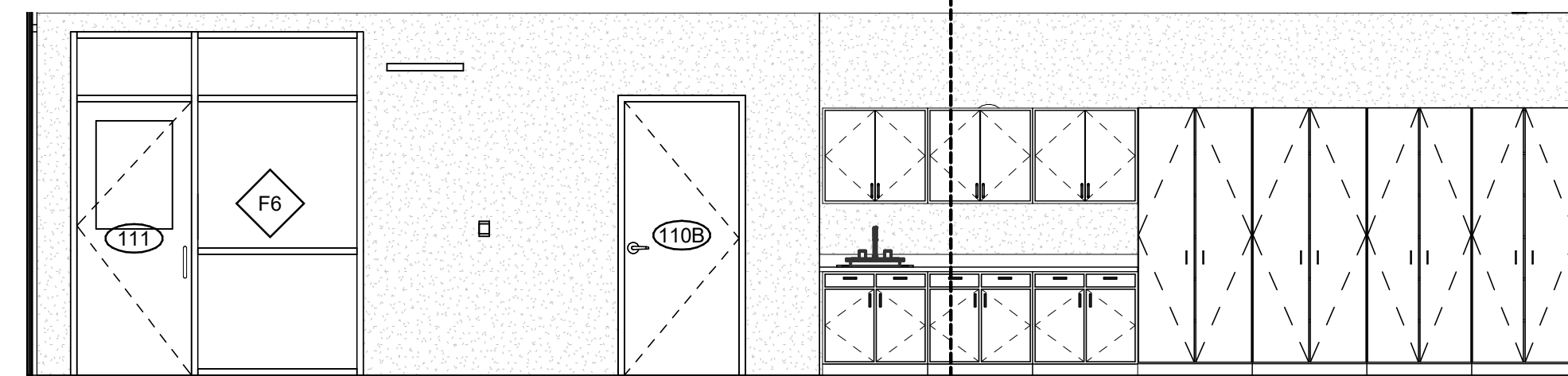
16 111 NORTH ELEVATION  
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17 111 EAST ELEVATION  
SCALE: 1/4" = 1'-0"



18 111 SOUTH ELEVATION  
SCALE: 1/4" = 1'-0"

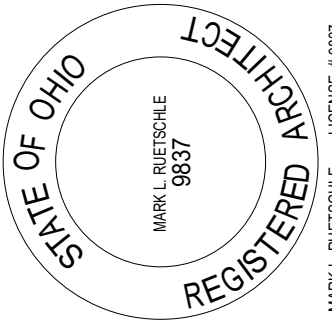


19 111 WEST ELEVATION  
SCALE: 1/4" = 1'-0"

## GENERAL NOTES

- REFER TO SHEET A 4.2 FOR TOILET ACCESSORY SCHEDULE.
- REFER TO SHEET A4.2 FOR TYPICAL MOUNTING HEIGHTS OF TOILET ACCESSORIES, INTERIOR SIGNAGE, AND SWITCHES.
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Package 3A - Masonry  
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Revisions:

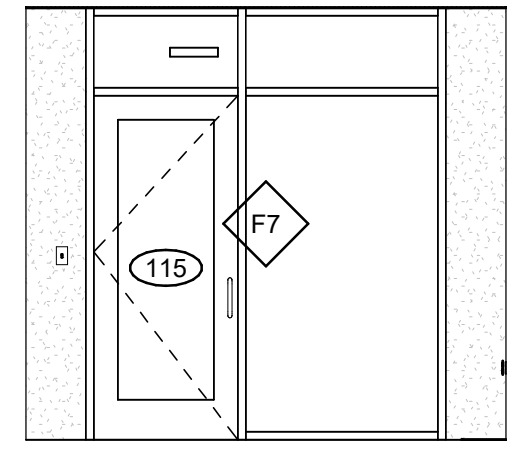
NEW ADDITION TO:  
**KETTERING SEVENTH-DAY ADVENTIST CHURCH**

3839 Stonebridge Rd., Kettering, Ohio

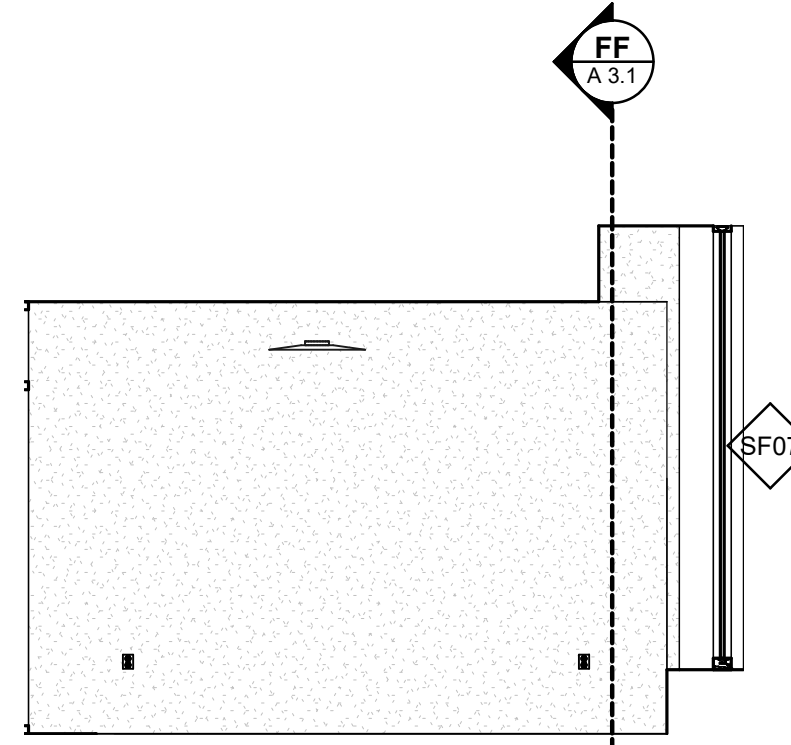
Comm. No.  
61716  
INTERIOR  
ELEVATIONS

Sheet No.

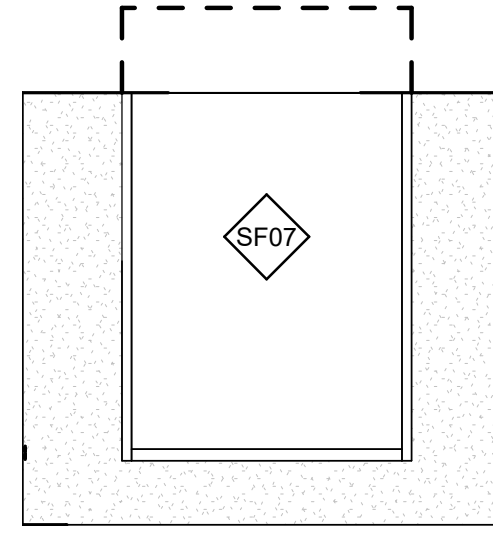
**A 2.6**



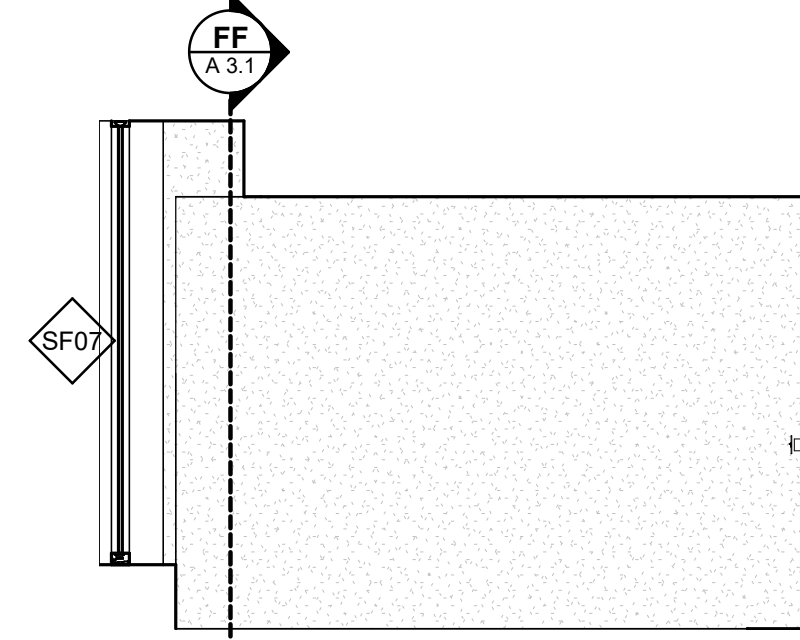
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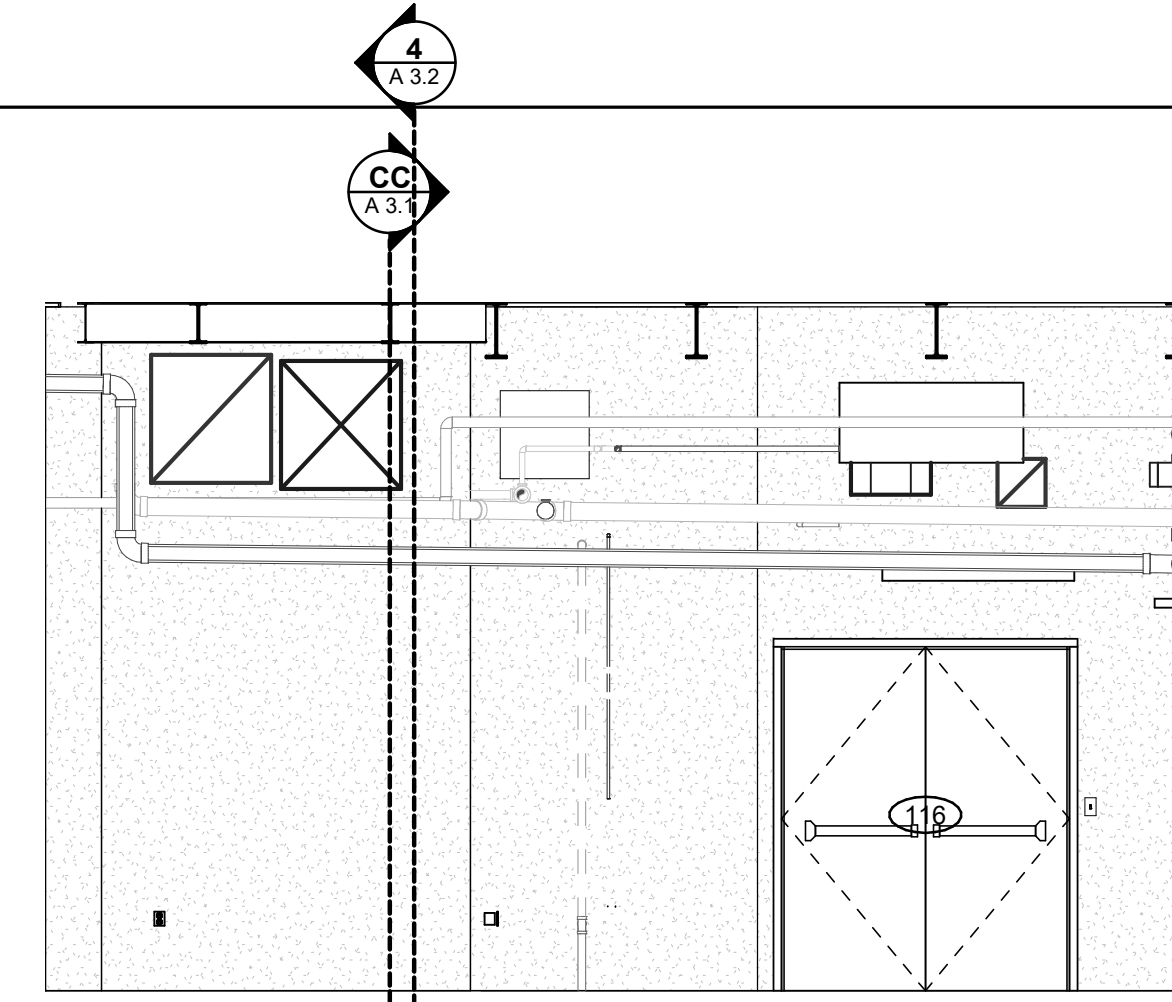
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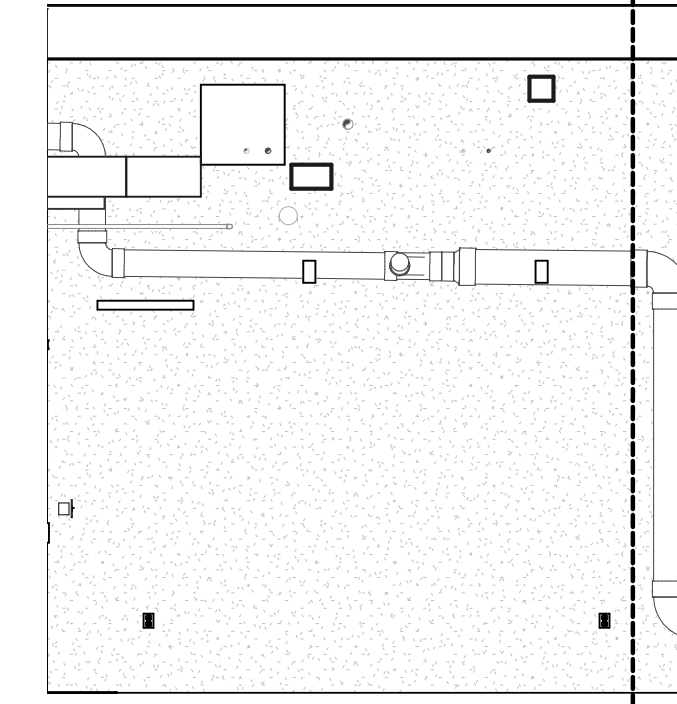
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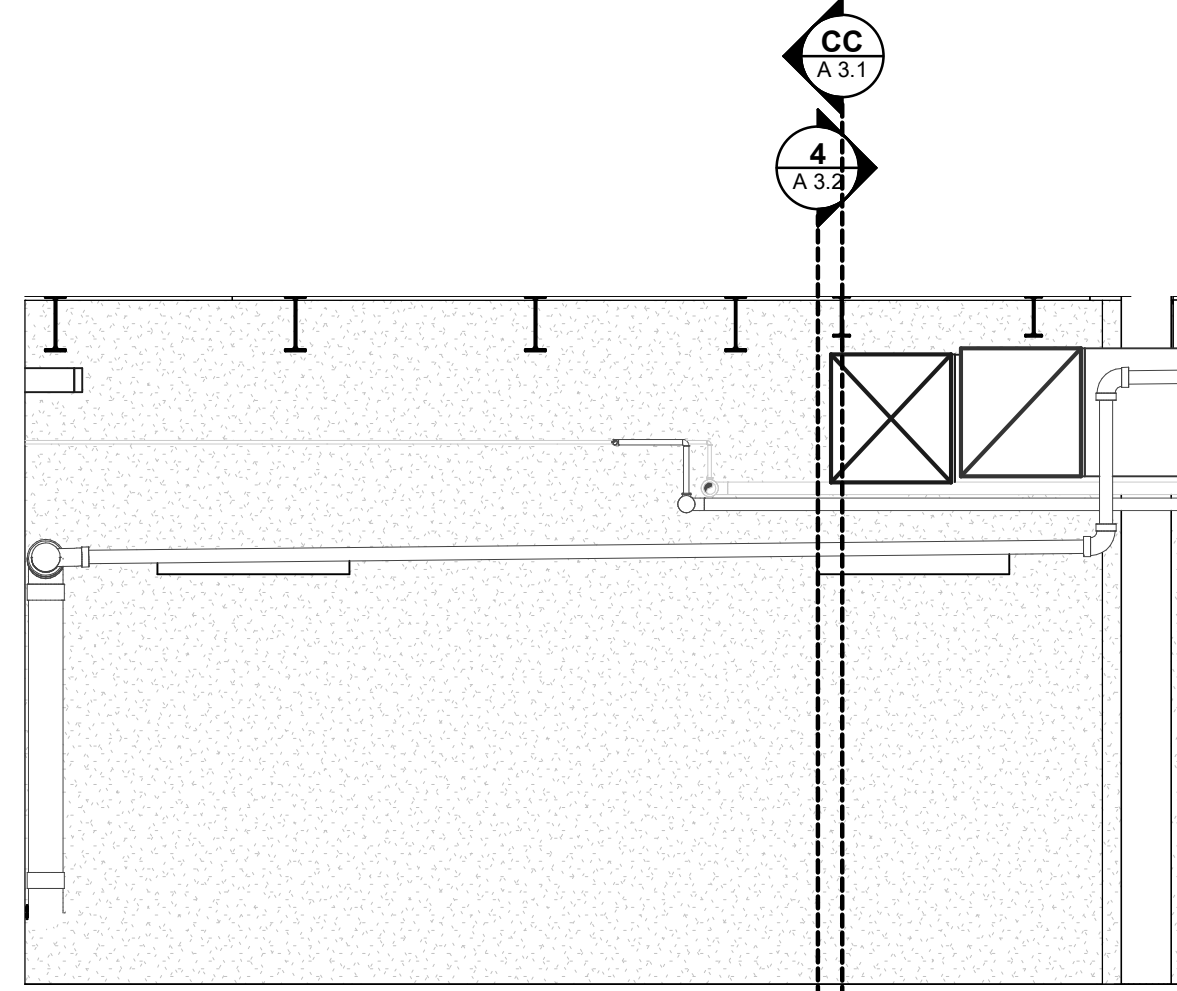
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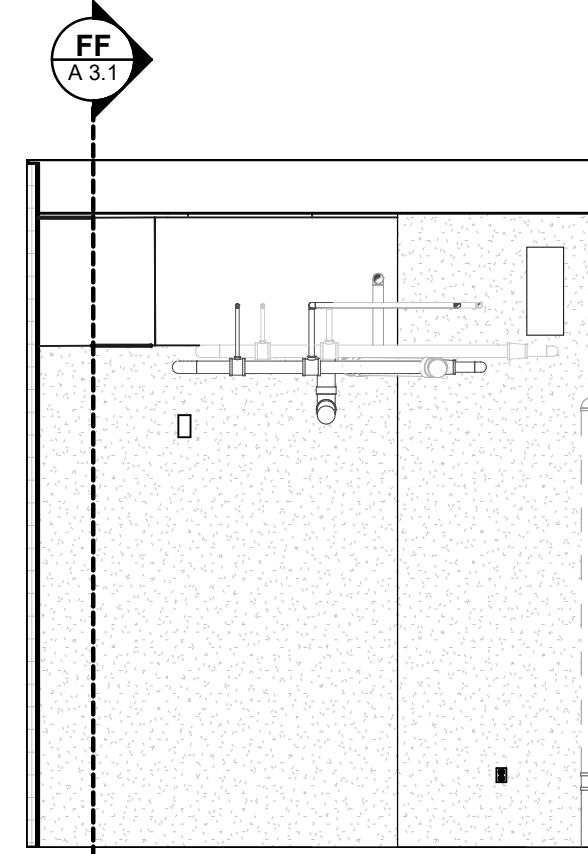
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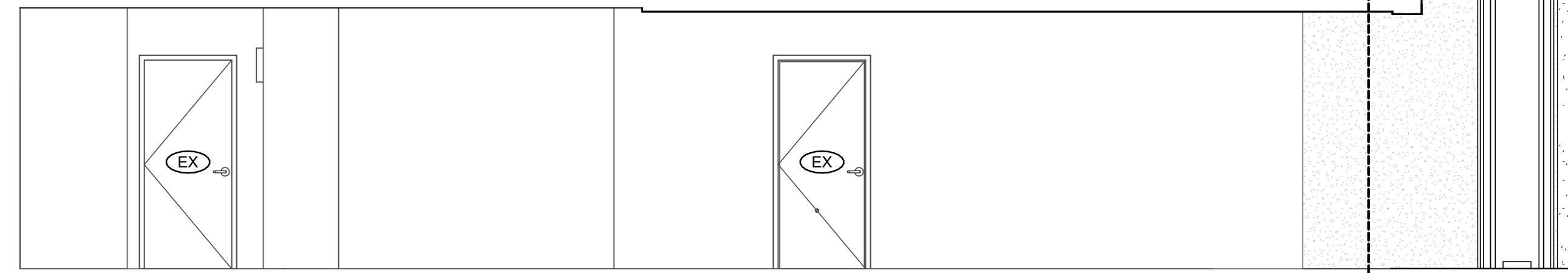
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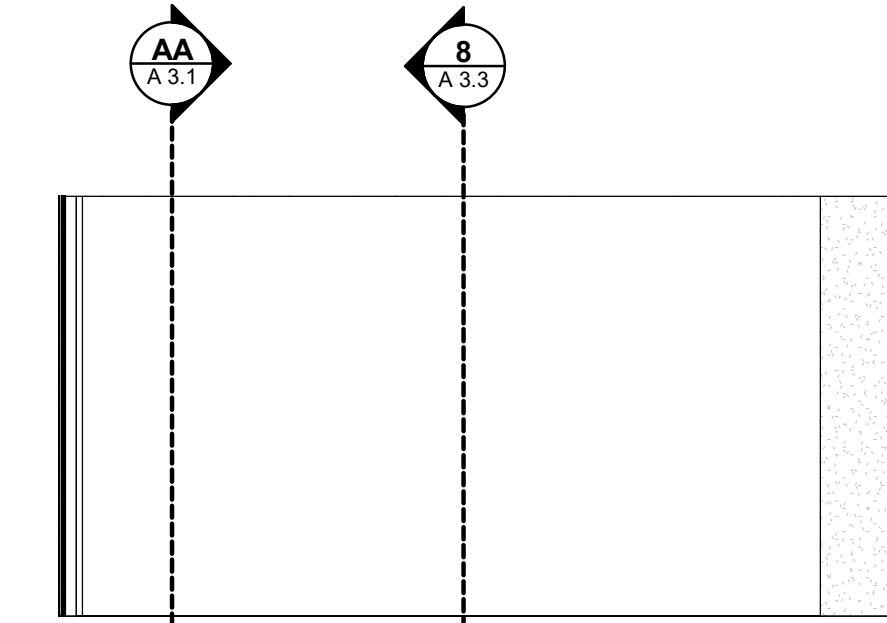
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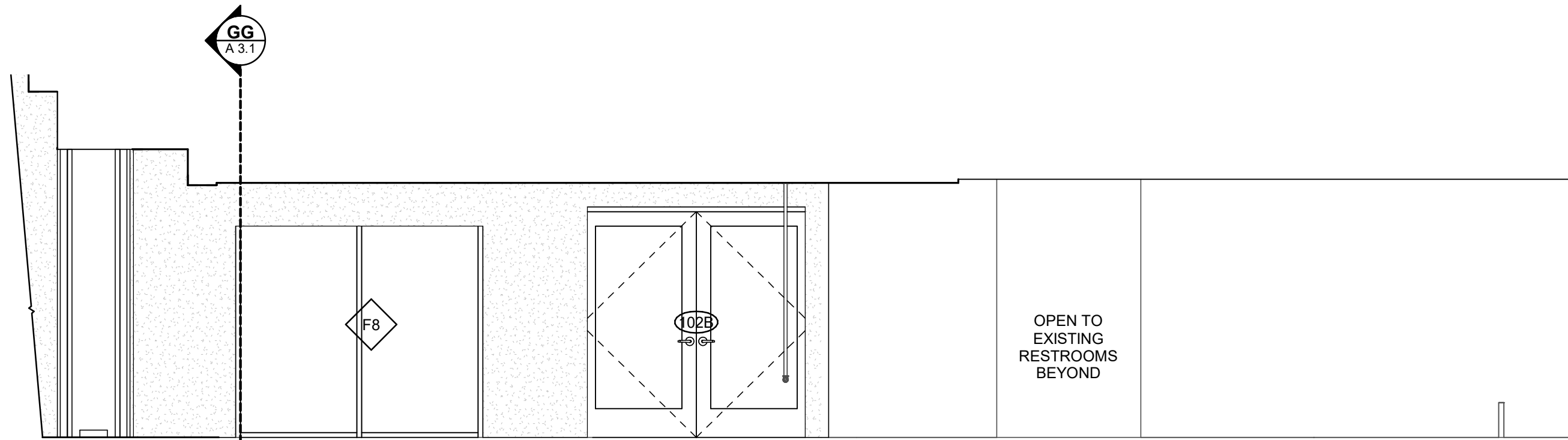
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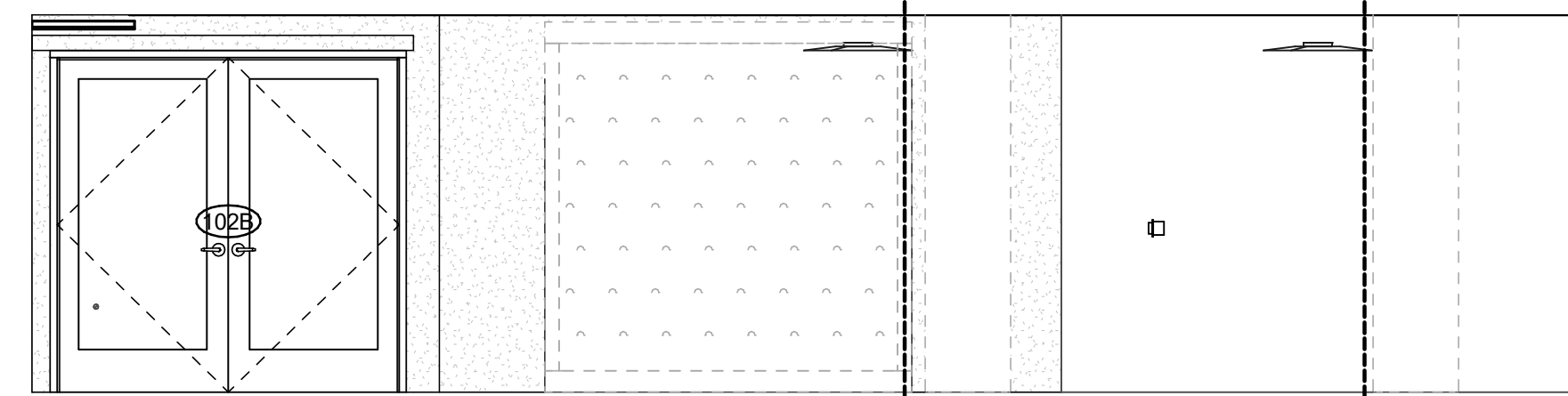
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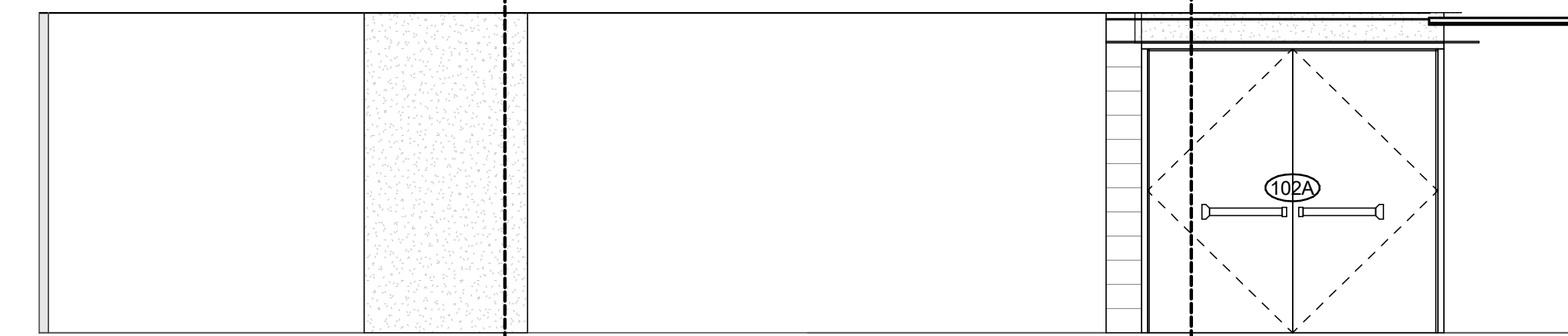
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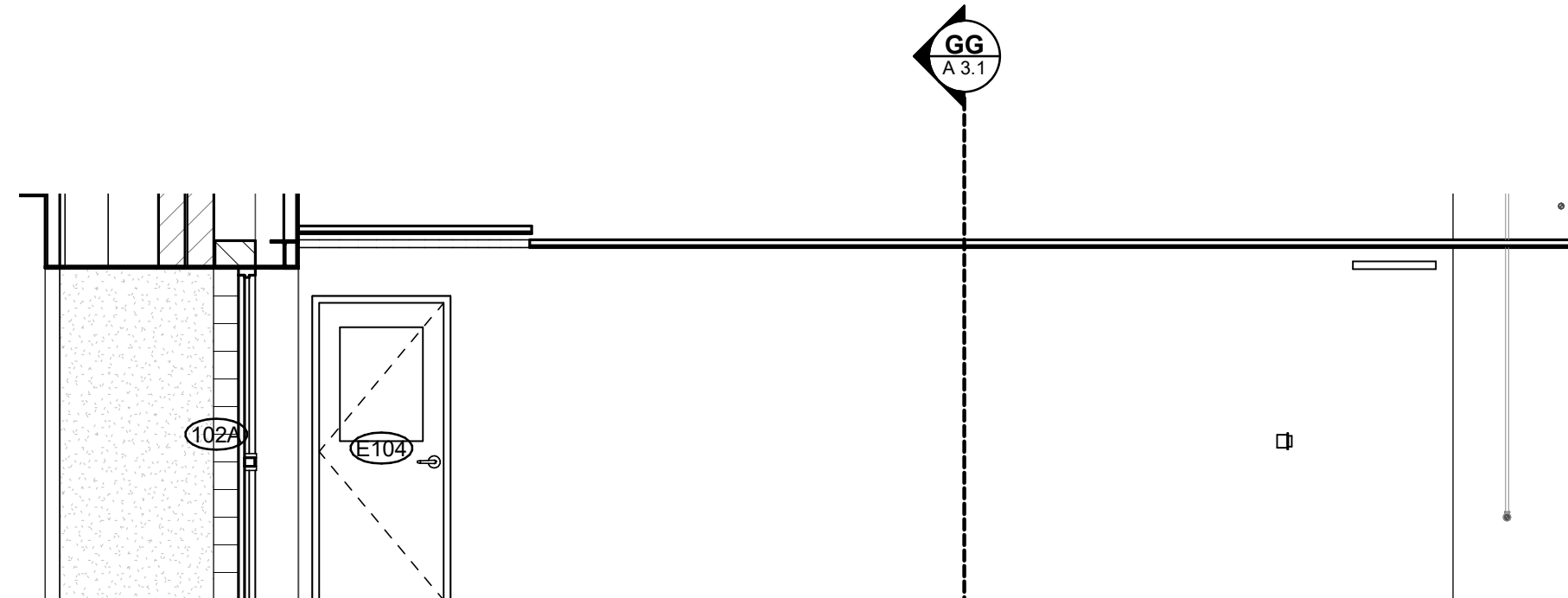
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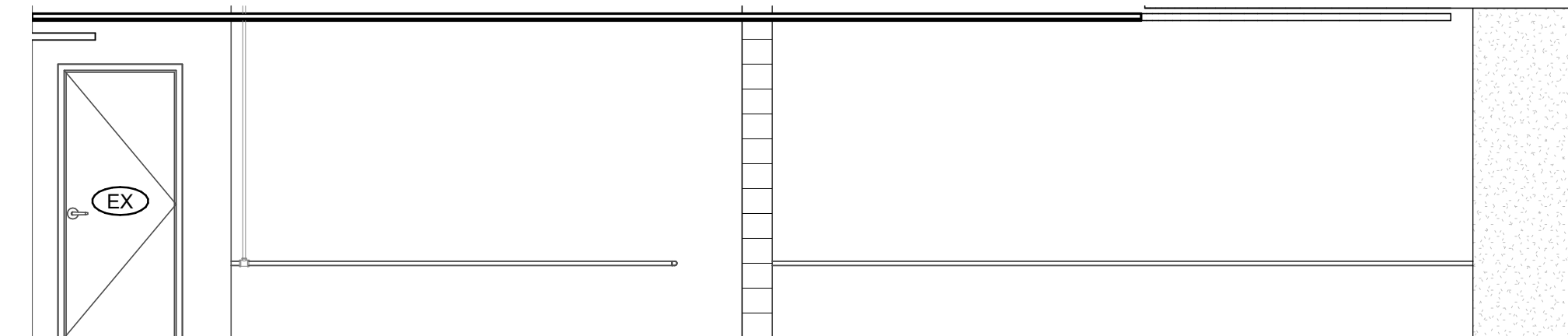
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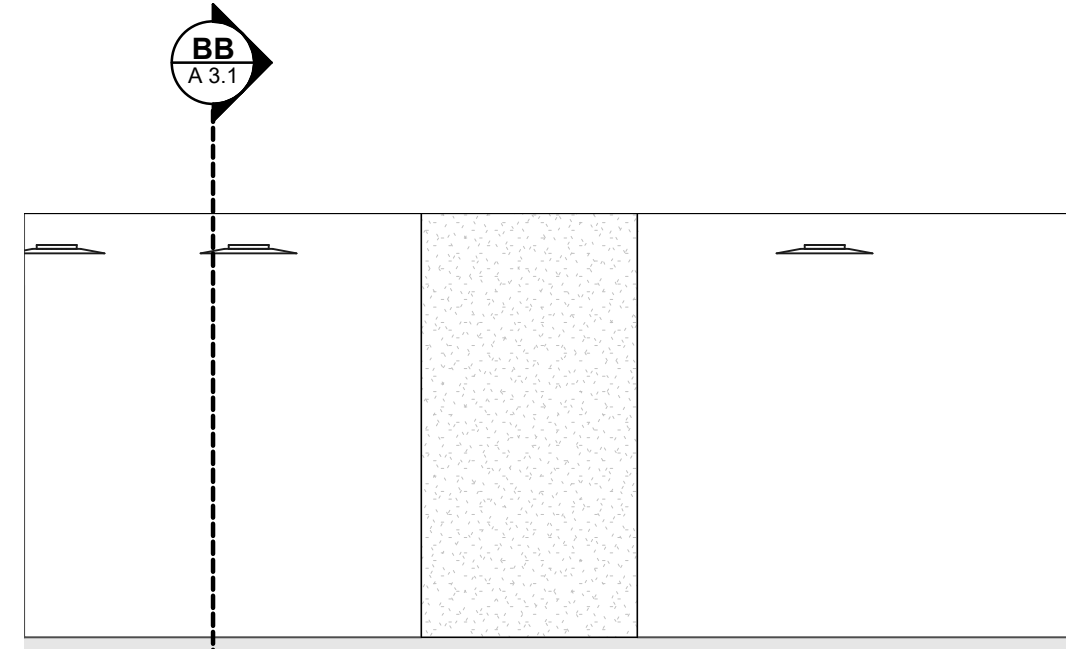
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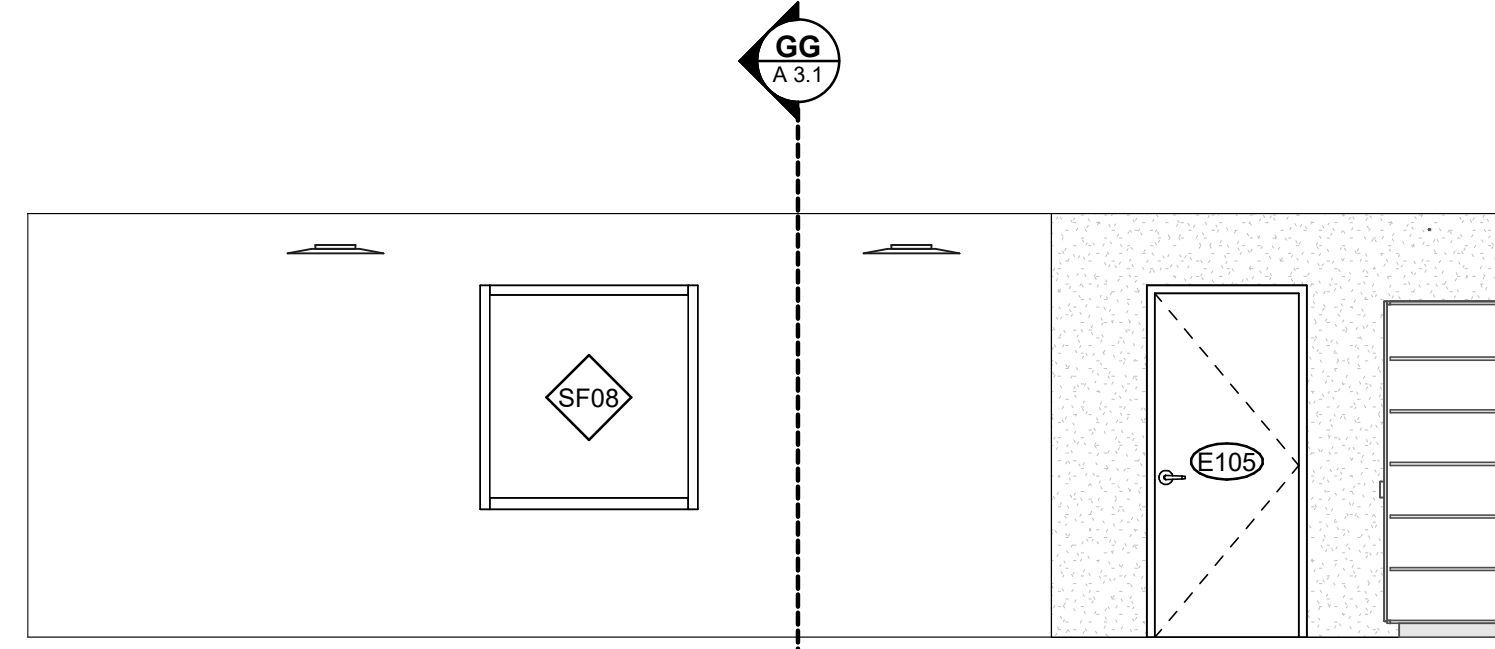
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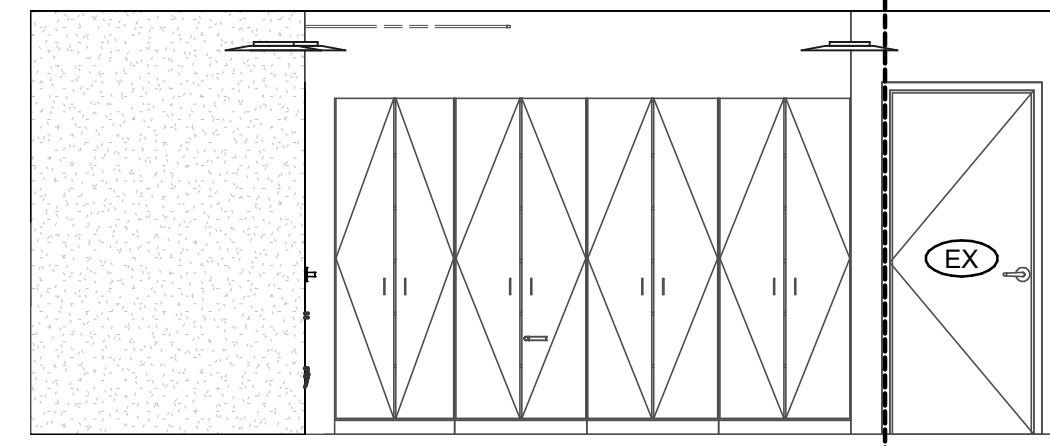
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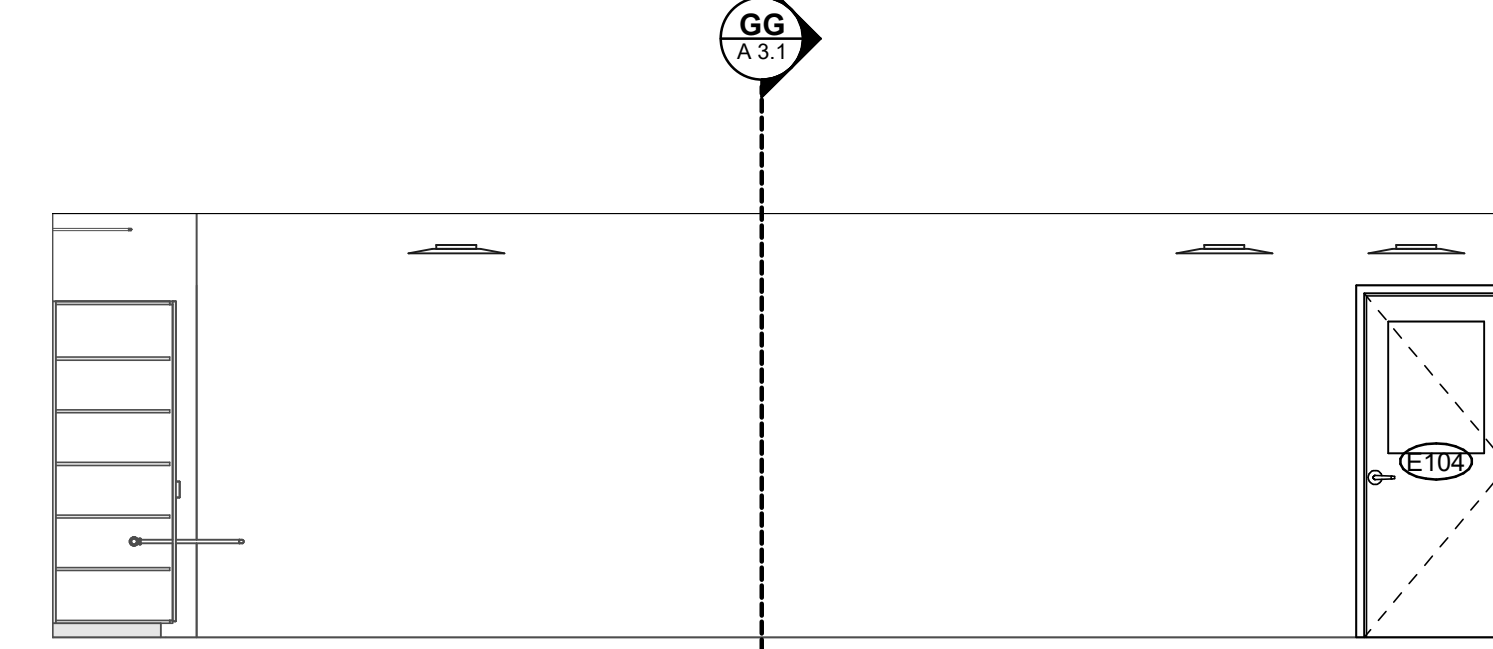
16 104 EXISTING NORTH ELEVATION  
SCALE: 1/4" = 1'-0"



17 104EX EXISTING EAST ELEVATION  
SCALE: 1/4" = 1'-0"



18 104EX EXISTING SOUTH ELEVATION  
SCALE: 1/4" = 1'-0"



19 104EX EXISTING WEST ELEVATION  
SCALE: 1/4" = 1'-0"

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- REFER TO SHEET A4.2 FOR TYPICAL MOUNTING HEIGHTS OF TOILET ACCESSORIES, INTERIOR SIGNAGE, AND SWITCHES.
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Issued:  
May 20, 2019  
Package 3A - Masonry  
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Revisions:

NEW ADDITION TO:  
**KETTERING SEVENTH-DAY ADVENTIST CHURCH**

3839 Stonebridge Rd., Kettering, Ohio

Comm. No.  
61716

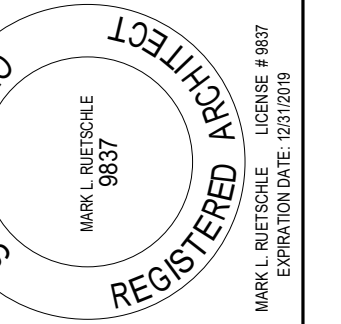
INTERIOR  
ELEVATIONS

Sheet No.

**A 2.7**

**RUETSCHLE**

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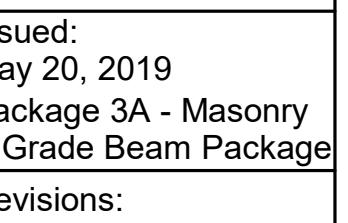




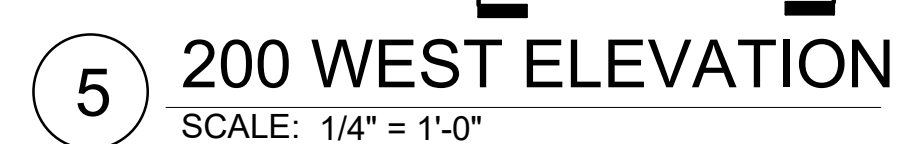
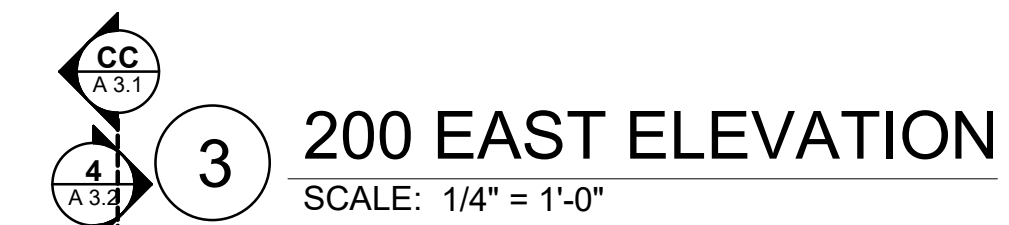
- A. REFER TO SHEET A 4.2 FOR TOILET ACCESSORY SCHEDULE.
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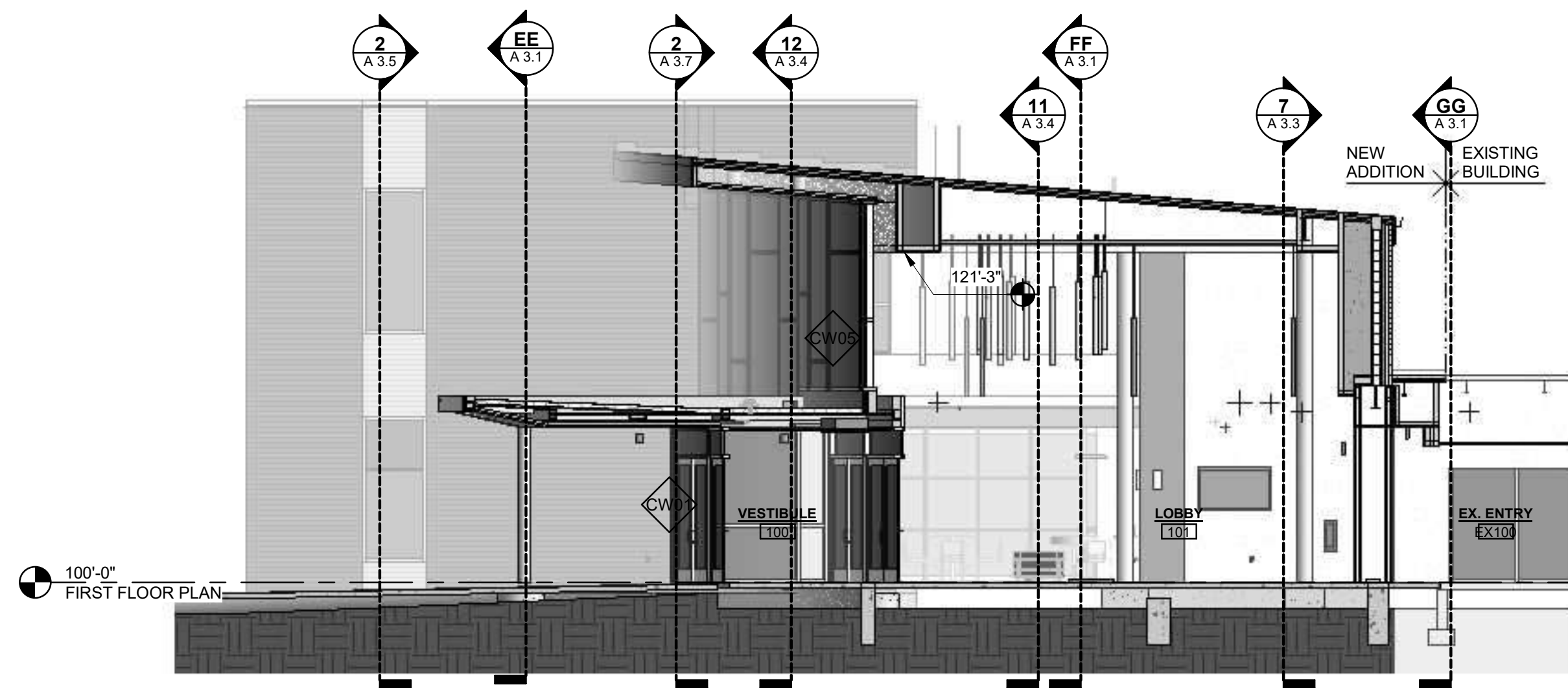
RUETSCHLE

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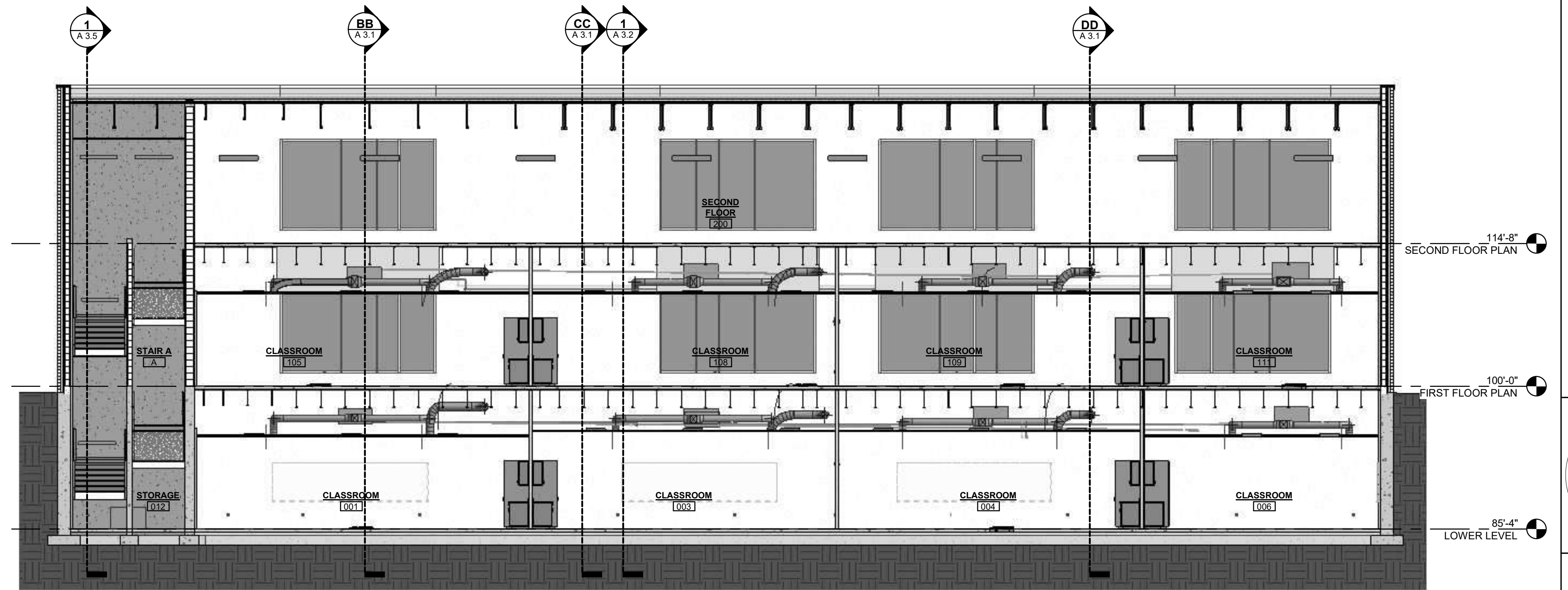
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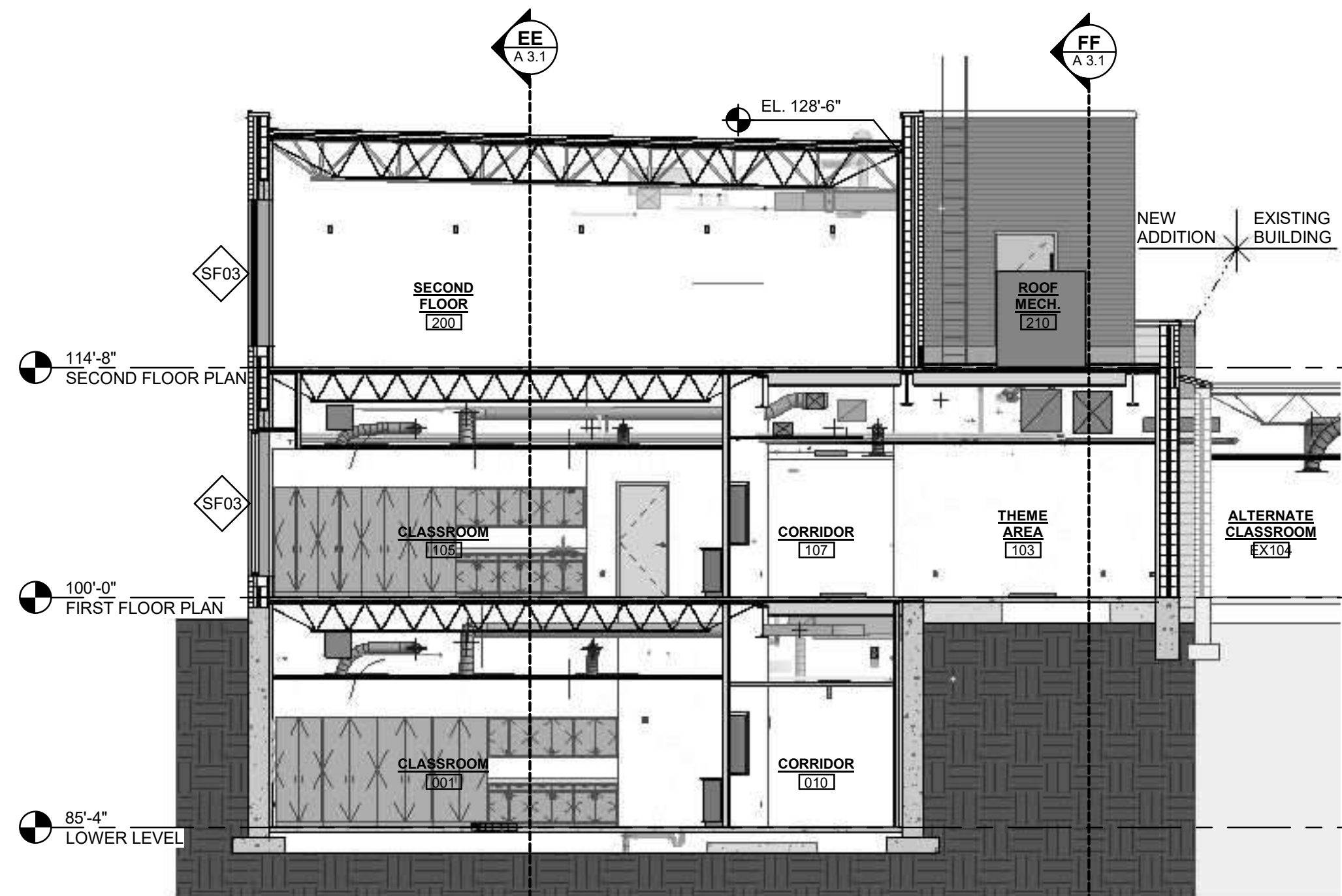




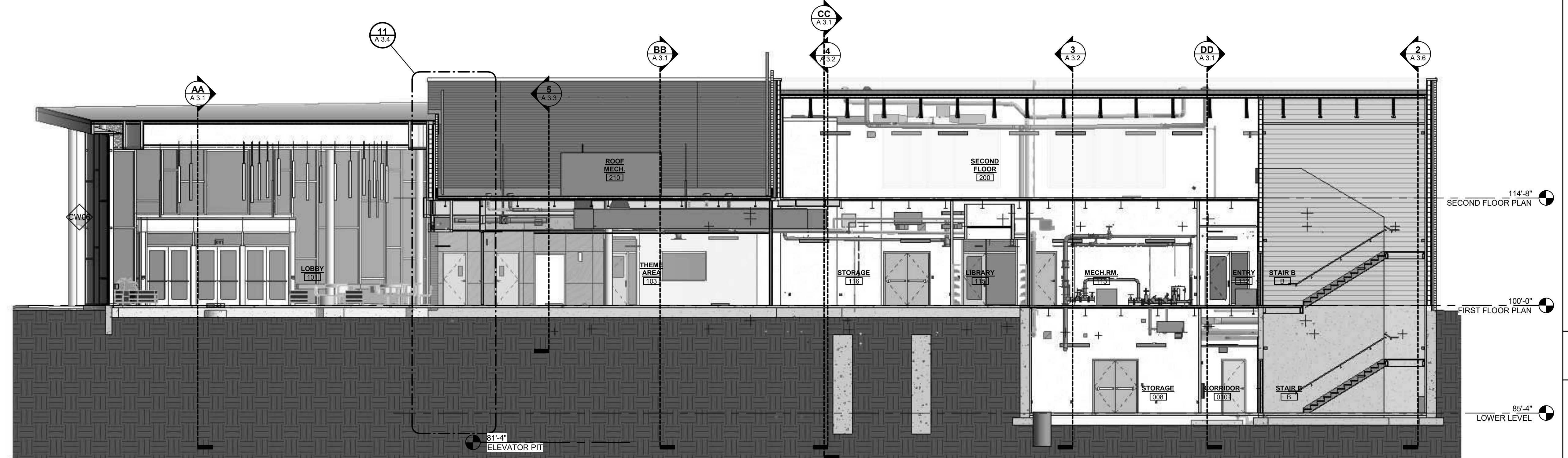
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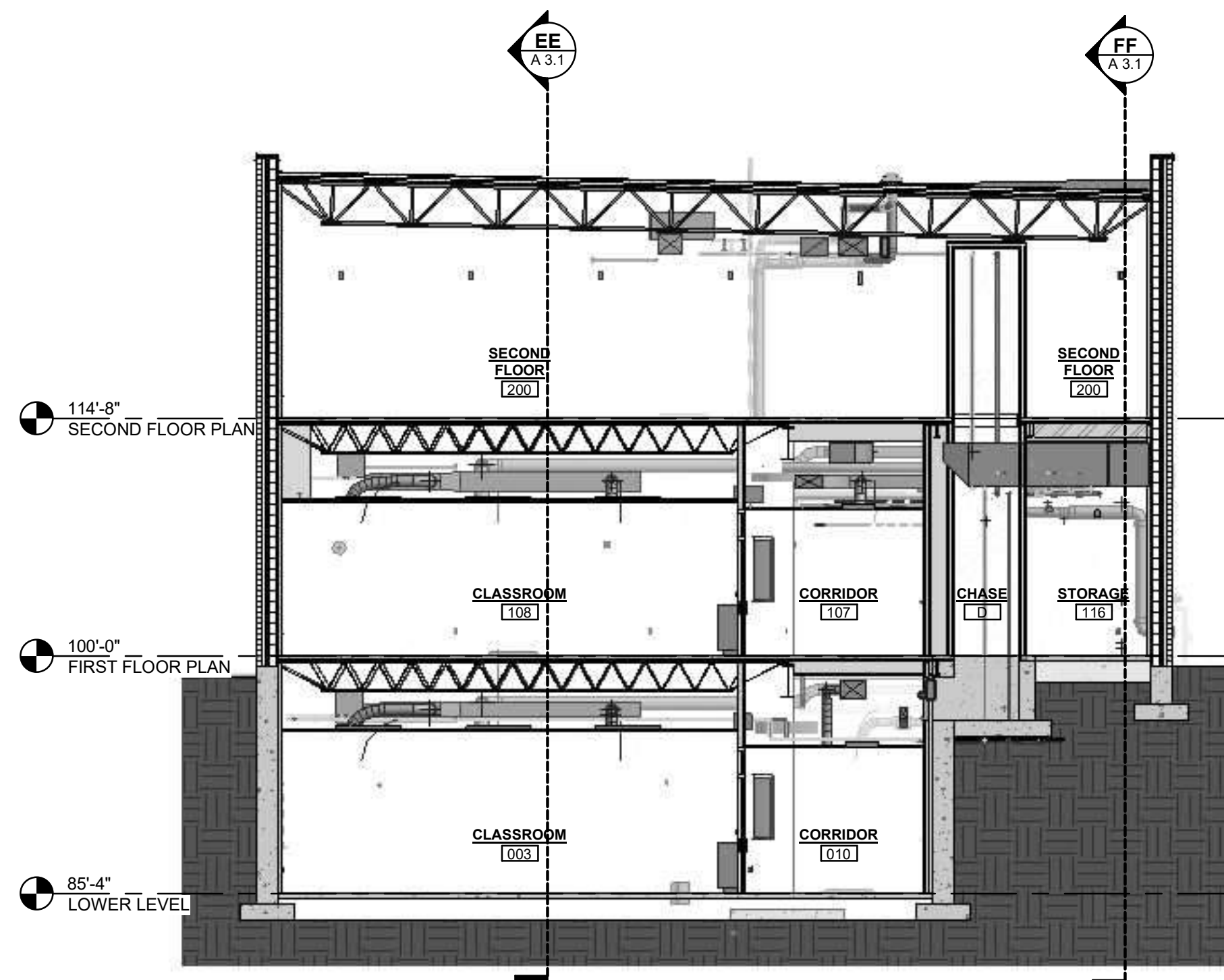
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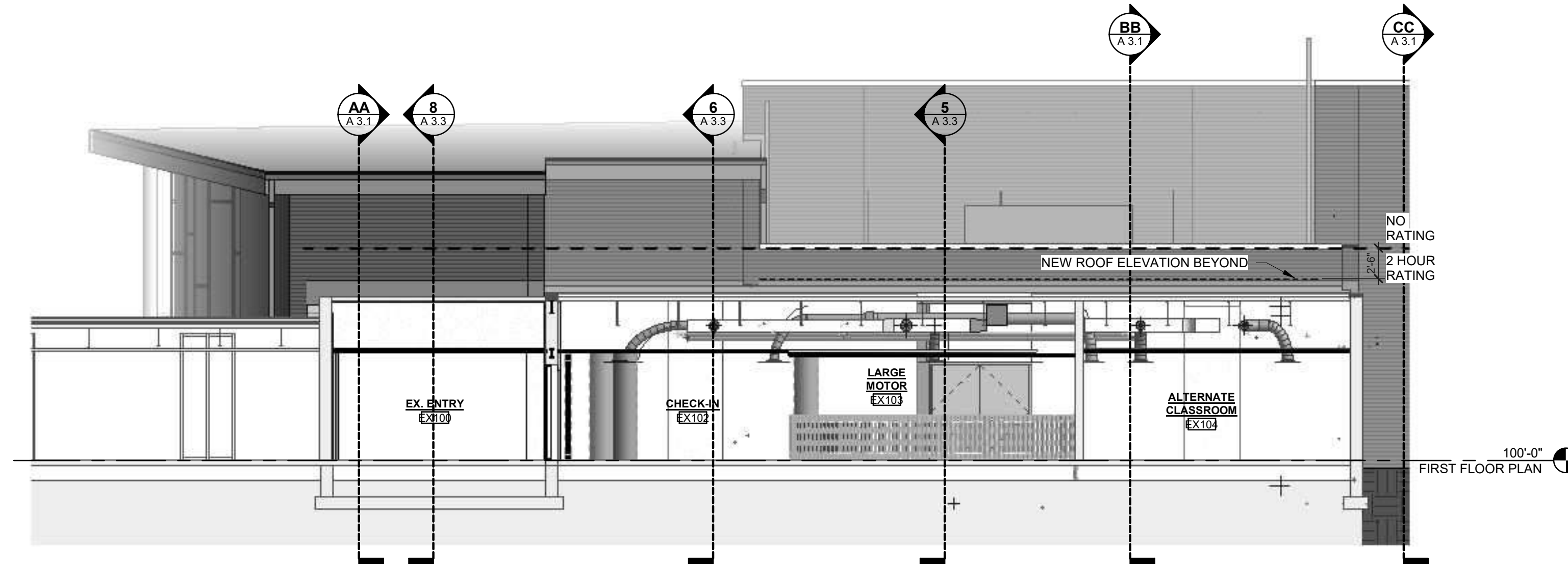
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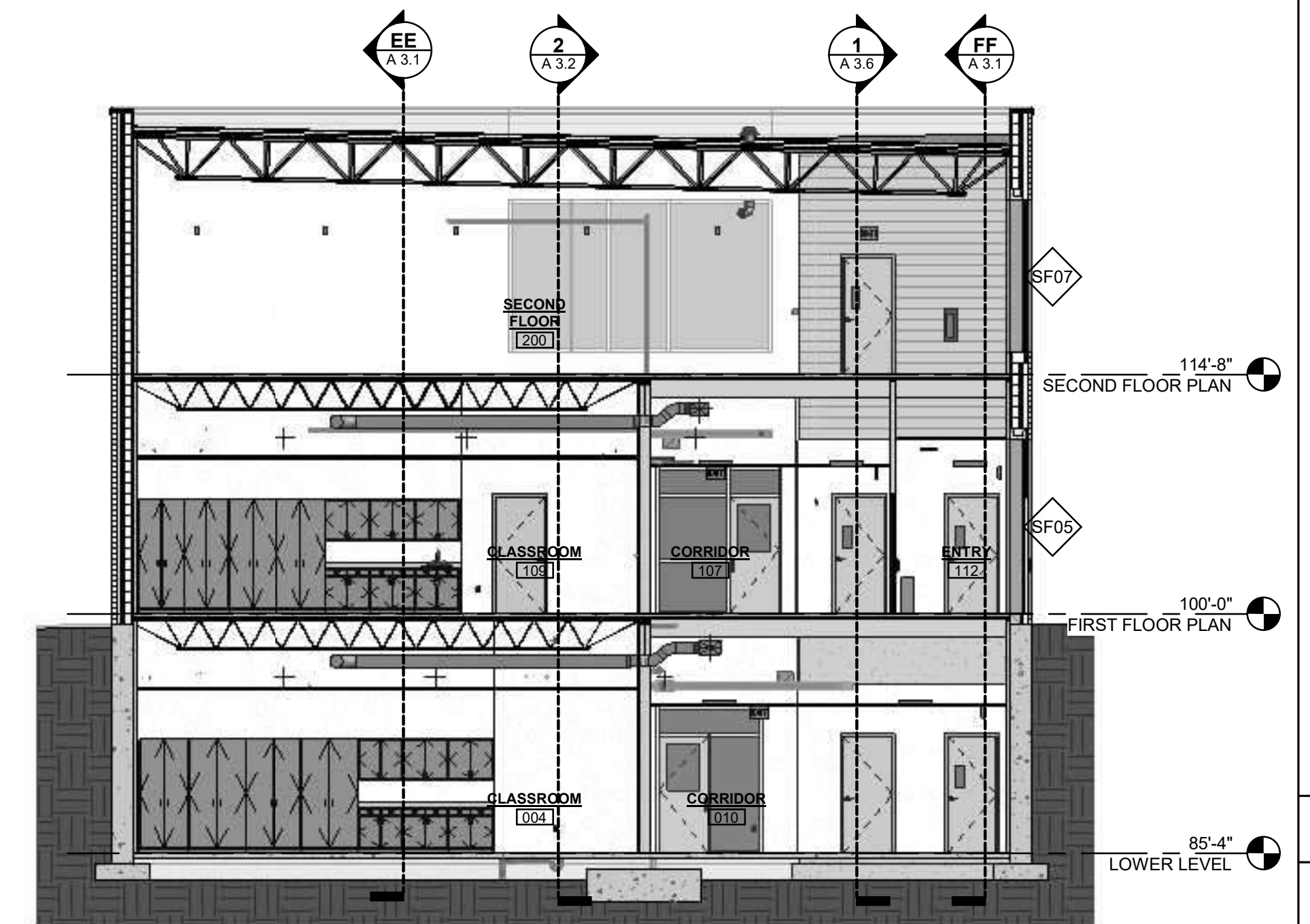
**FF BUILDING SECTION**  
SCALE: 1/8" = 1'-0"



**CC BUILDING SECTION**  
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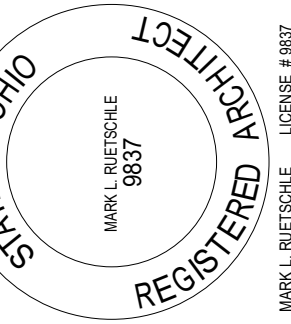
**GG BUILDING SECTION**  
SCALE: 1/8" = 1'-0"



**DD BUILDING SECTION**  
SCALE: 1/8" = 1'-0"

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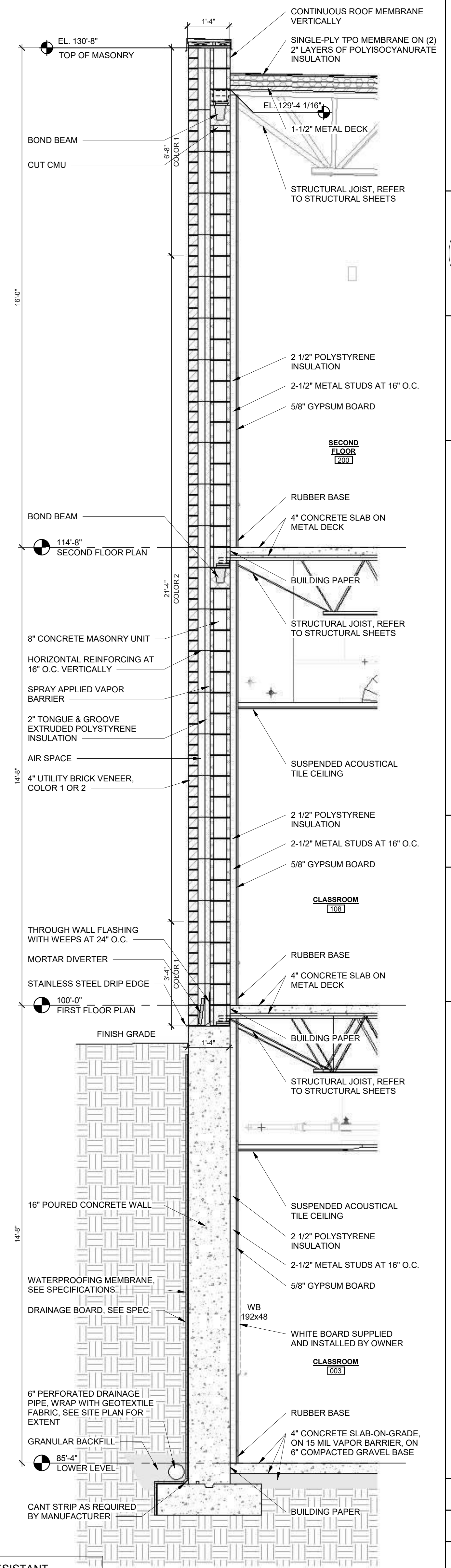
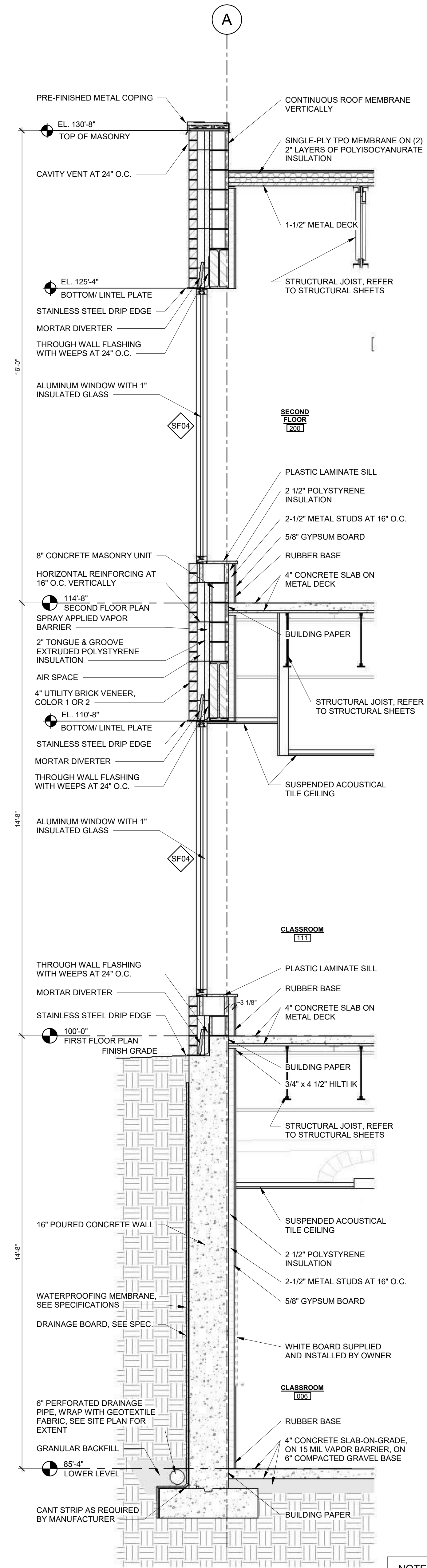
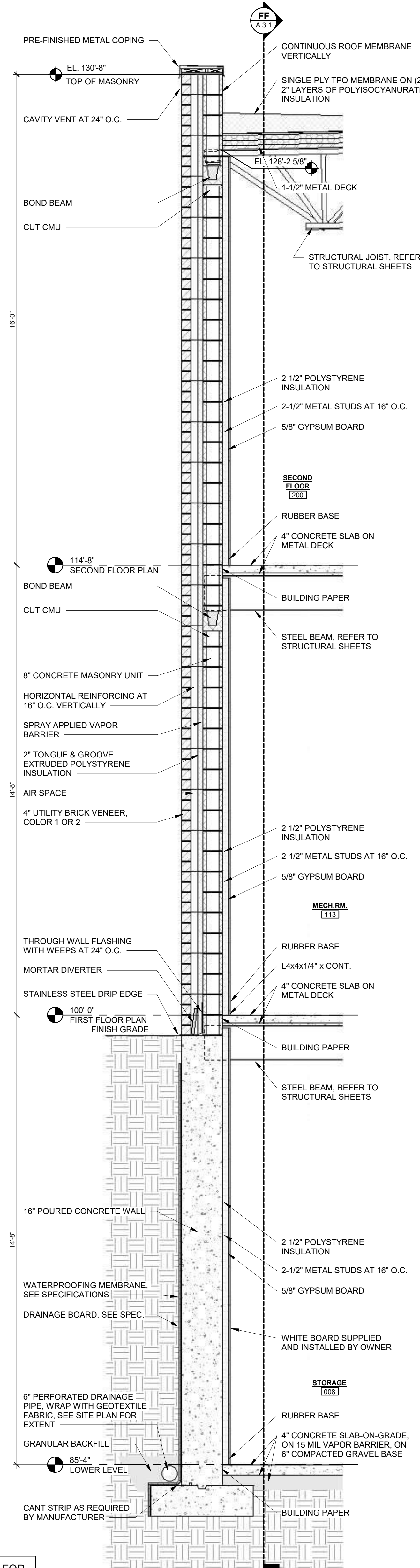
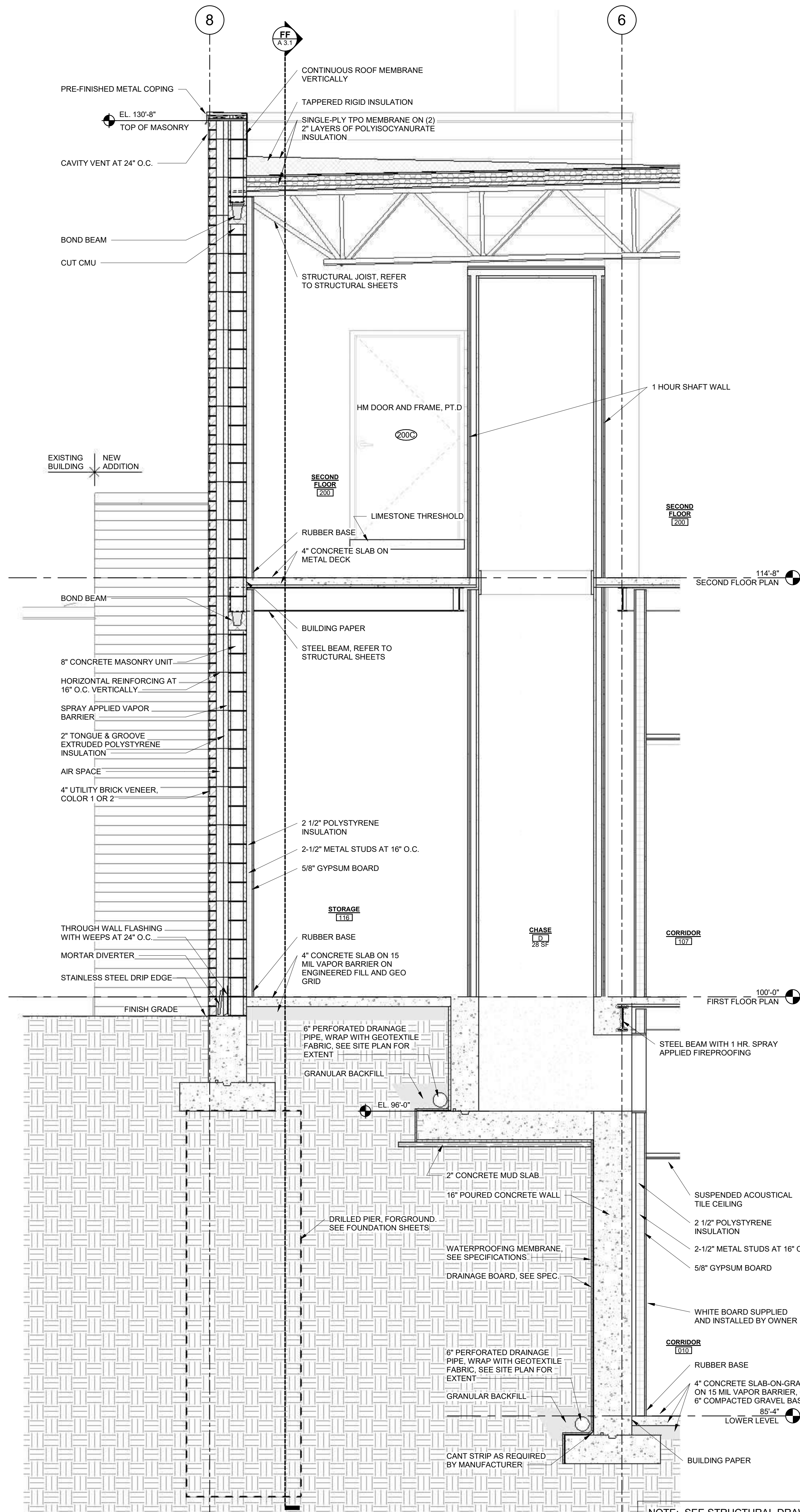
Issued:  
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**KETTERING SEVENTH-DAY ADVENTIST CHURCH**  
3839 Stonebridge Rd., Kettering, Ohio

Comm. No.  
61716  
BUILDING SECTIONS

Sheet No.  
**A 3.1**



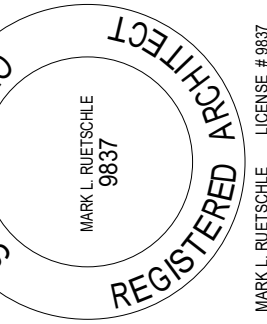


NOTE: SEE STRUCTURAL DRAWINGS FOR TOP OF FOUNDATION, MASONRY STARTER COURSING AND OTHER MASONRY NOTES

NOTE: ABUSE RESISTANT GYPSUM BOARD USED BELOW 8'-0" AFF UNLESS NOTED OTHERWISE

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**KETTERING SEVENTH-DAY ADVENTIST CHURCH**  
3539 Stonebridge Rd., Kettering, Ohio

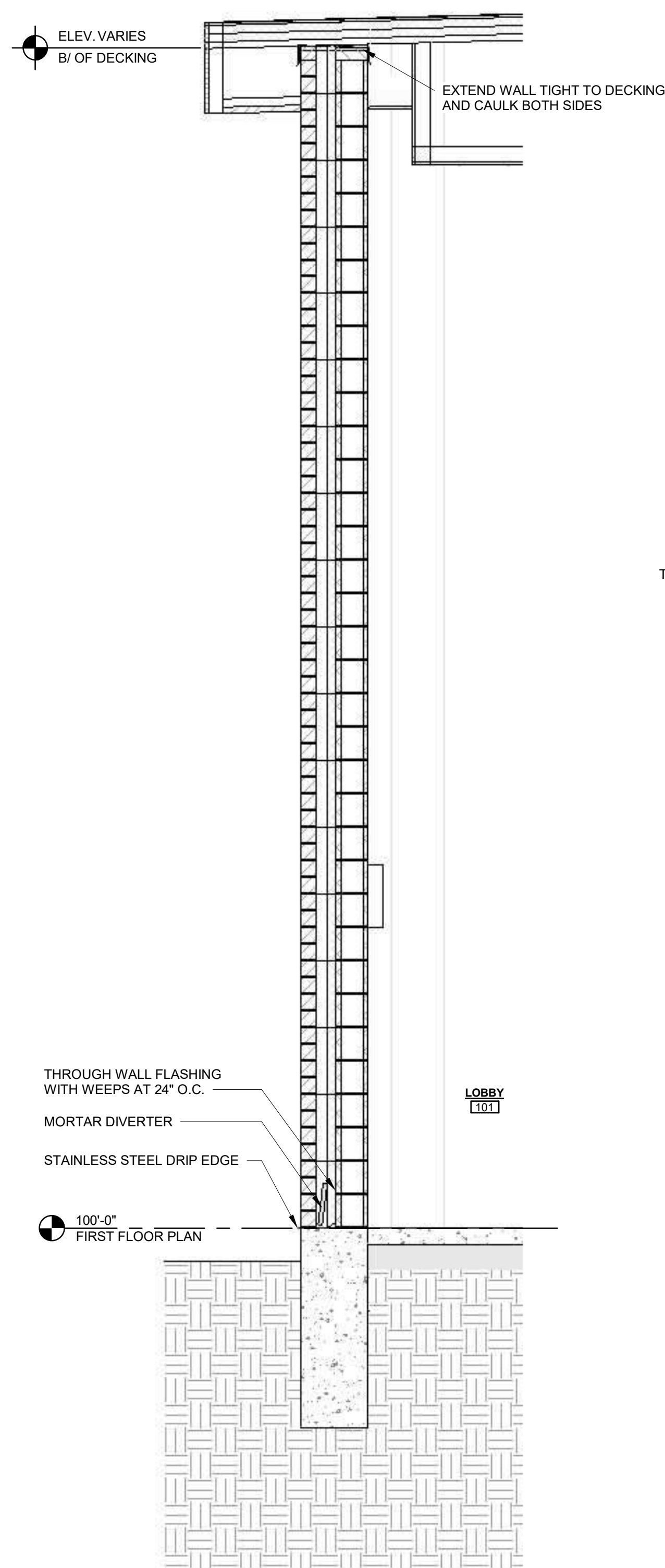
Comm. No.  
61716

WALL SECTIONS

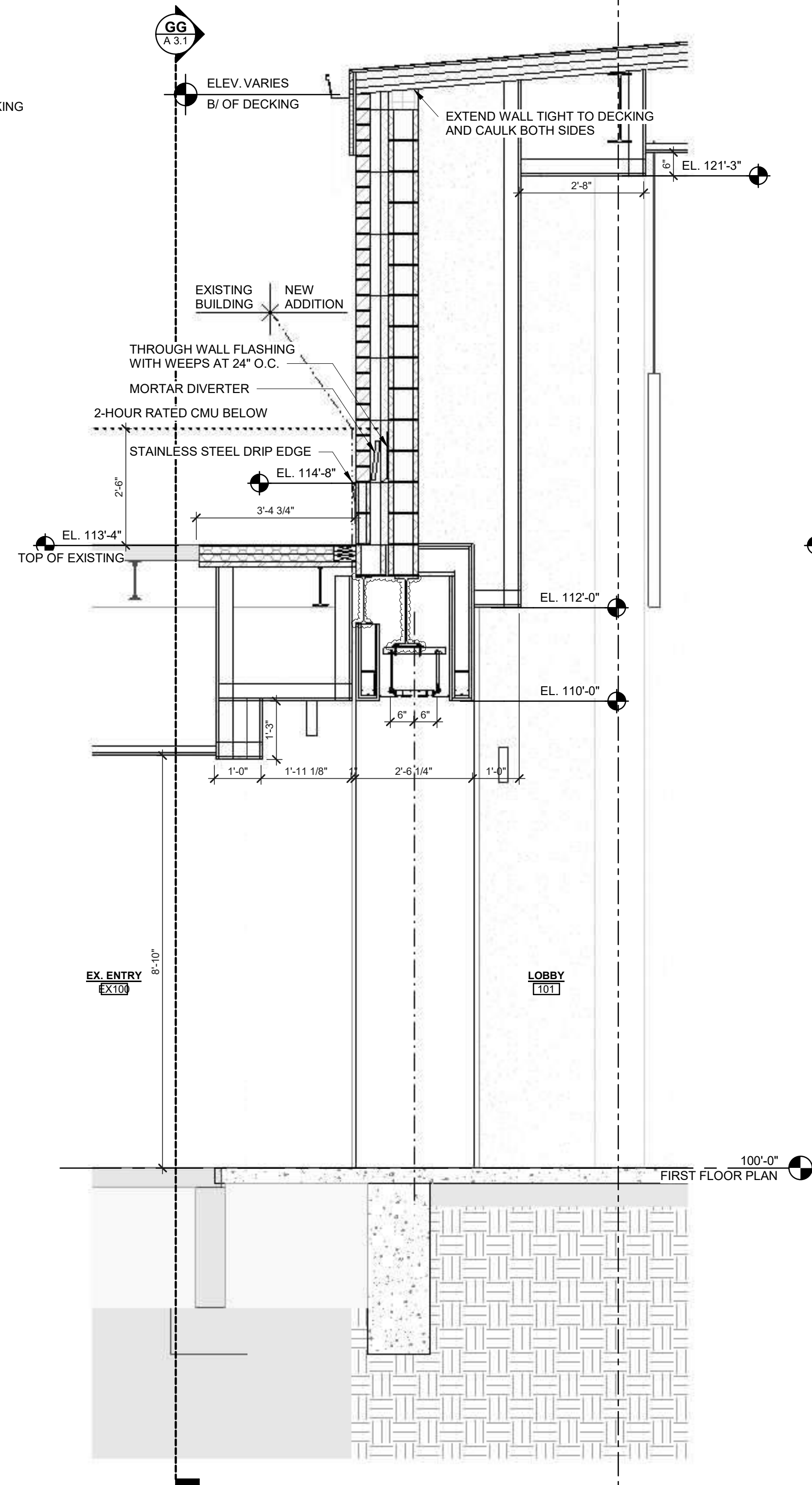
Sheet No.

**A 3.2**





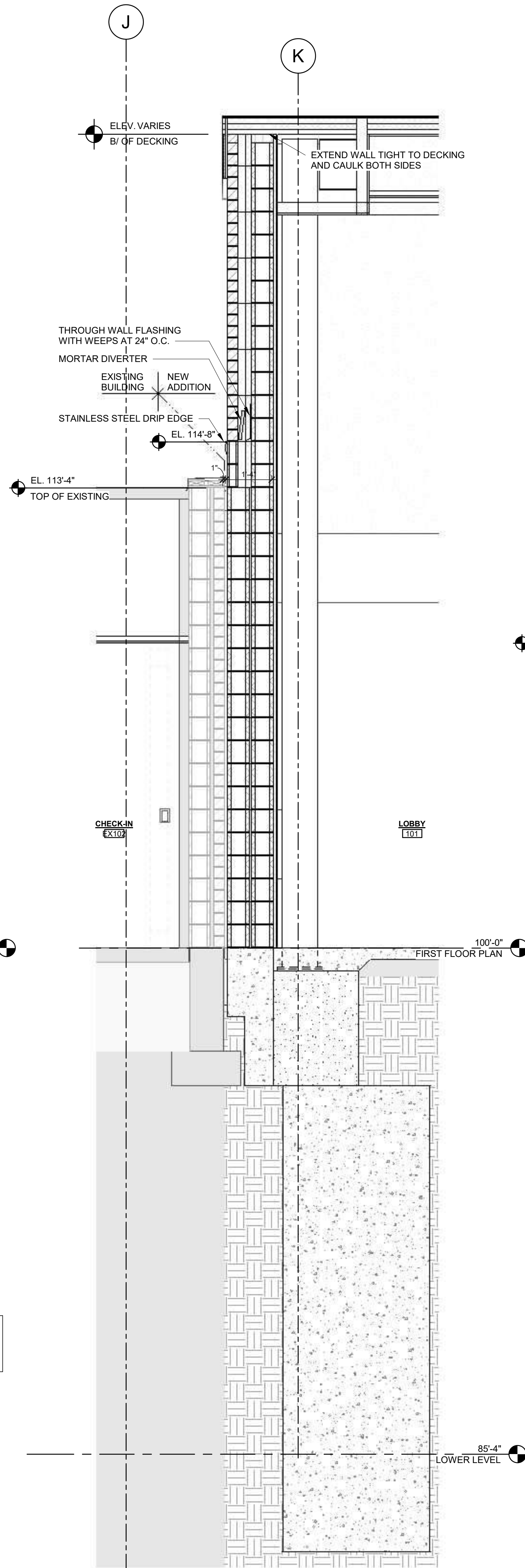
9 WEST WALL SECTION  
SCALE: 1/2" = 1'-0"



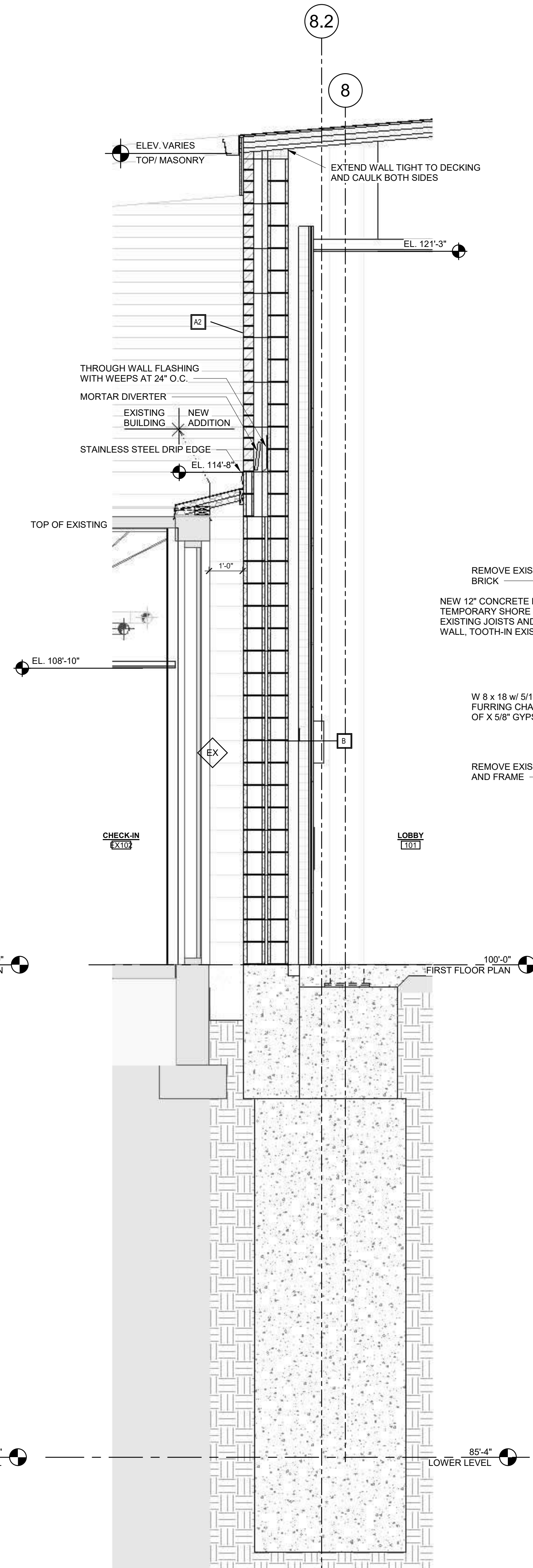
8 FIREWALL SECTION  
SCALE: 1/2" = 1'-0"

NOTE: SEE STRUCTURAL DRAWINGS FOR TOP OF FOUNDATION, MASONRY STARTER COURSING AND OTHER MASONRY NOTES

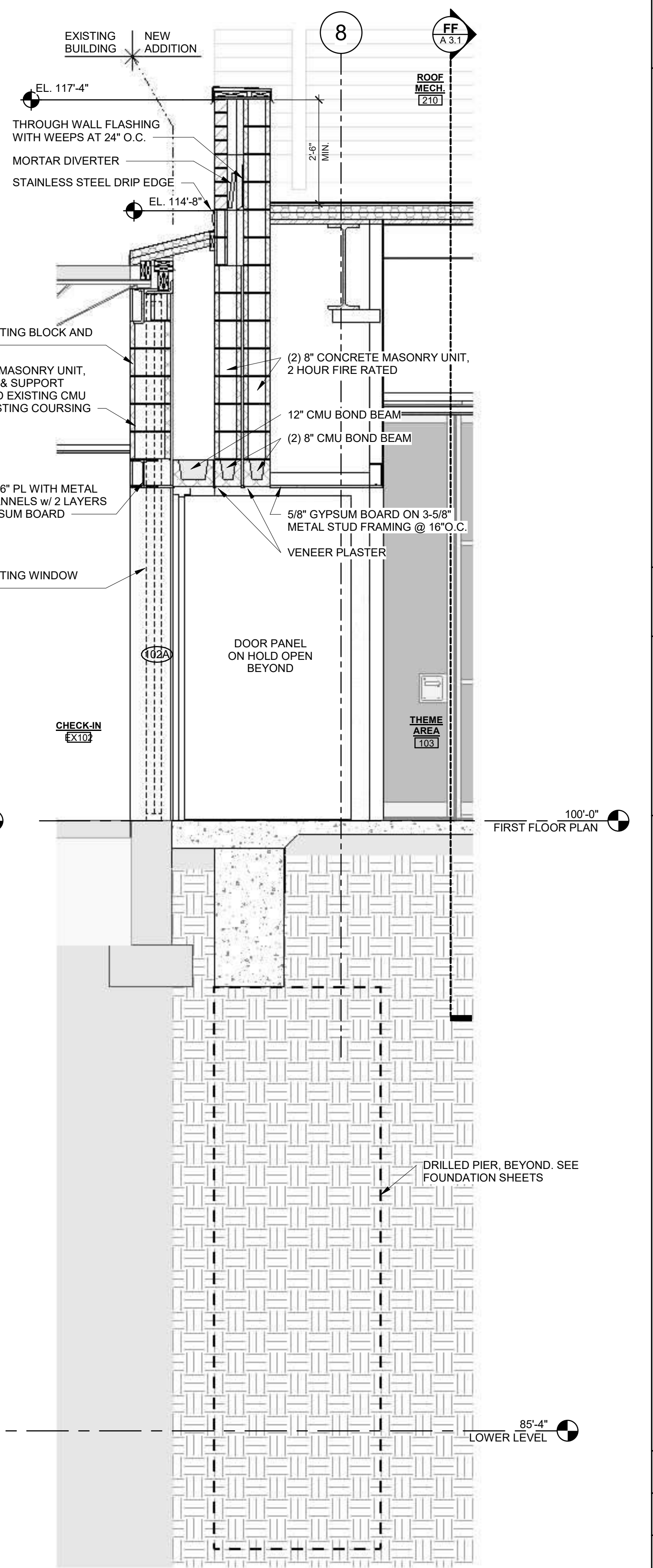
NOTE: ABUSE RESISTANT GYPSUM BOARD USED BELOW 8'-0" AFF UNLESS NOTED OTHERWISE



7 FIREWALL SECTION  
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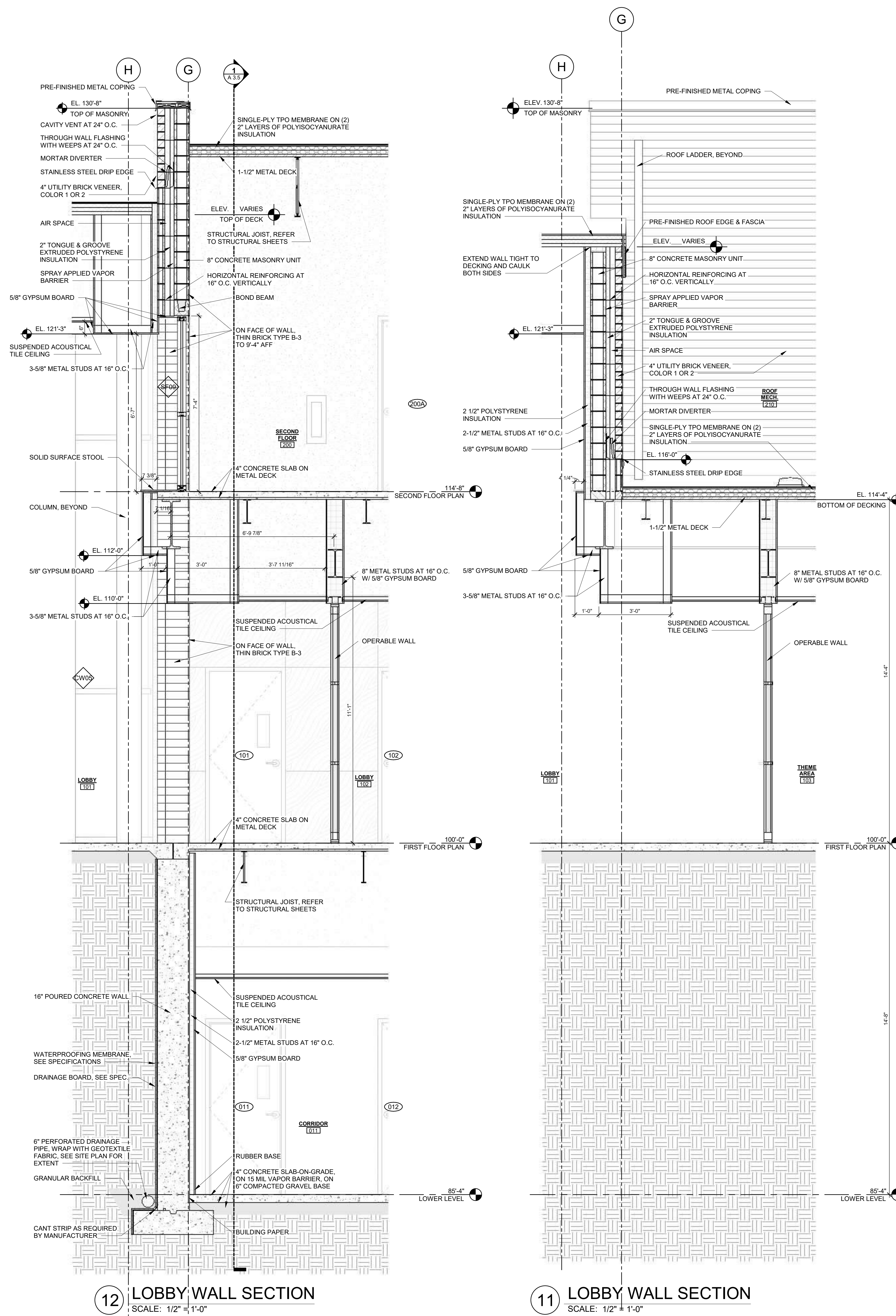


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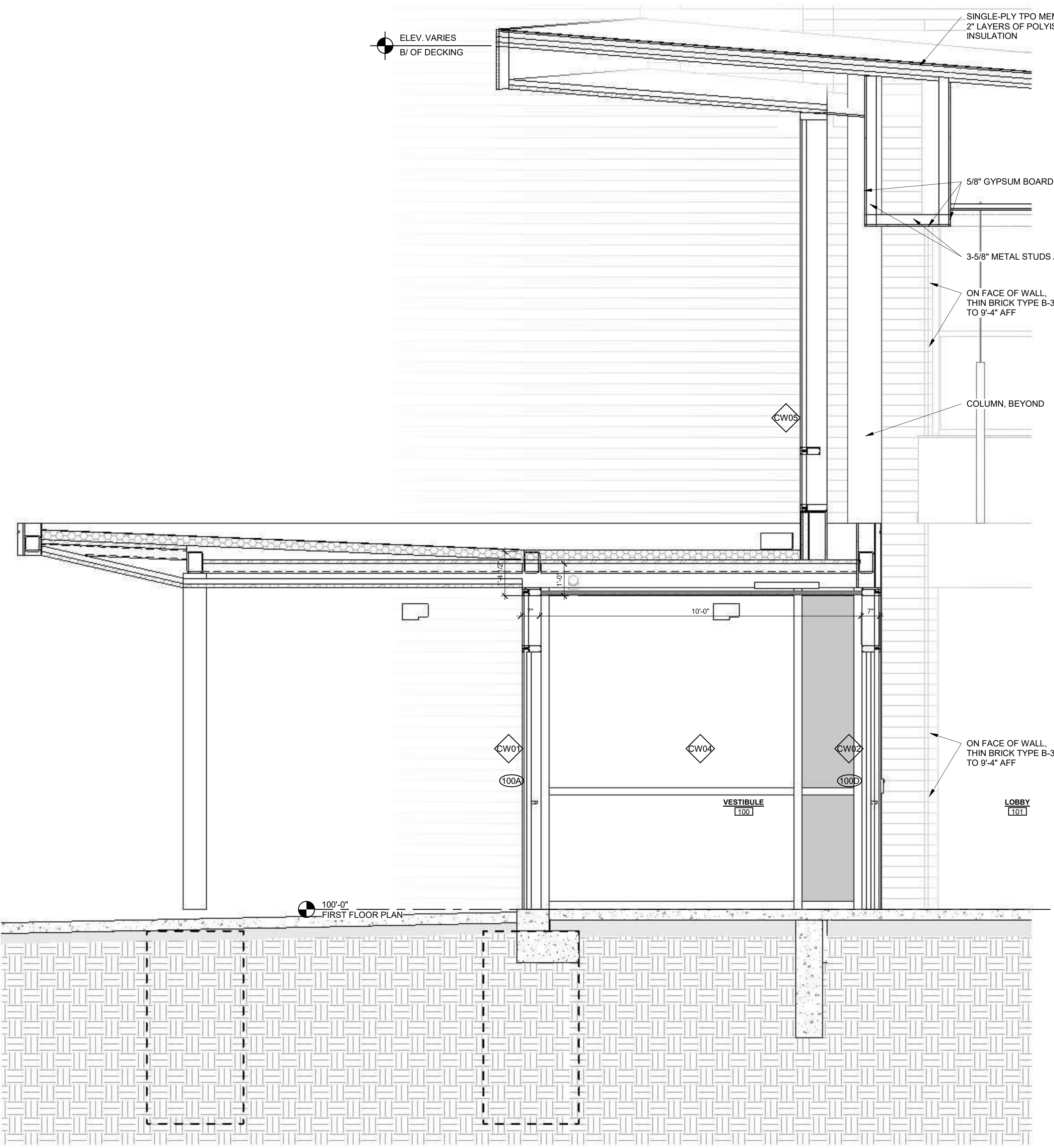
5 FIREWALL SECTION  
SCALE: 1/2" = 1'-0"





NOTE: SEE STRUCTURAL DRAWINGS FOR  
TOP OF FOUNDATION, MASONRY STARTER  
COURSING AND OTHER MASONRY NOTES

NOTE: ABUSE RESISTANT  
GYPSUM BOARD USED BELOW 8'-0"  
AFF UNLESS NOTED OTHERWISE

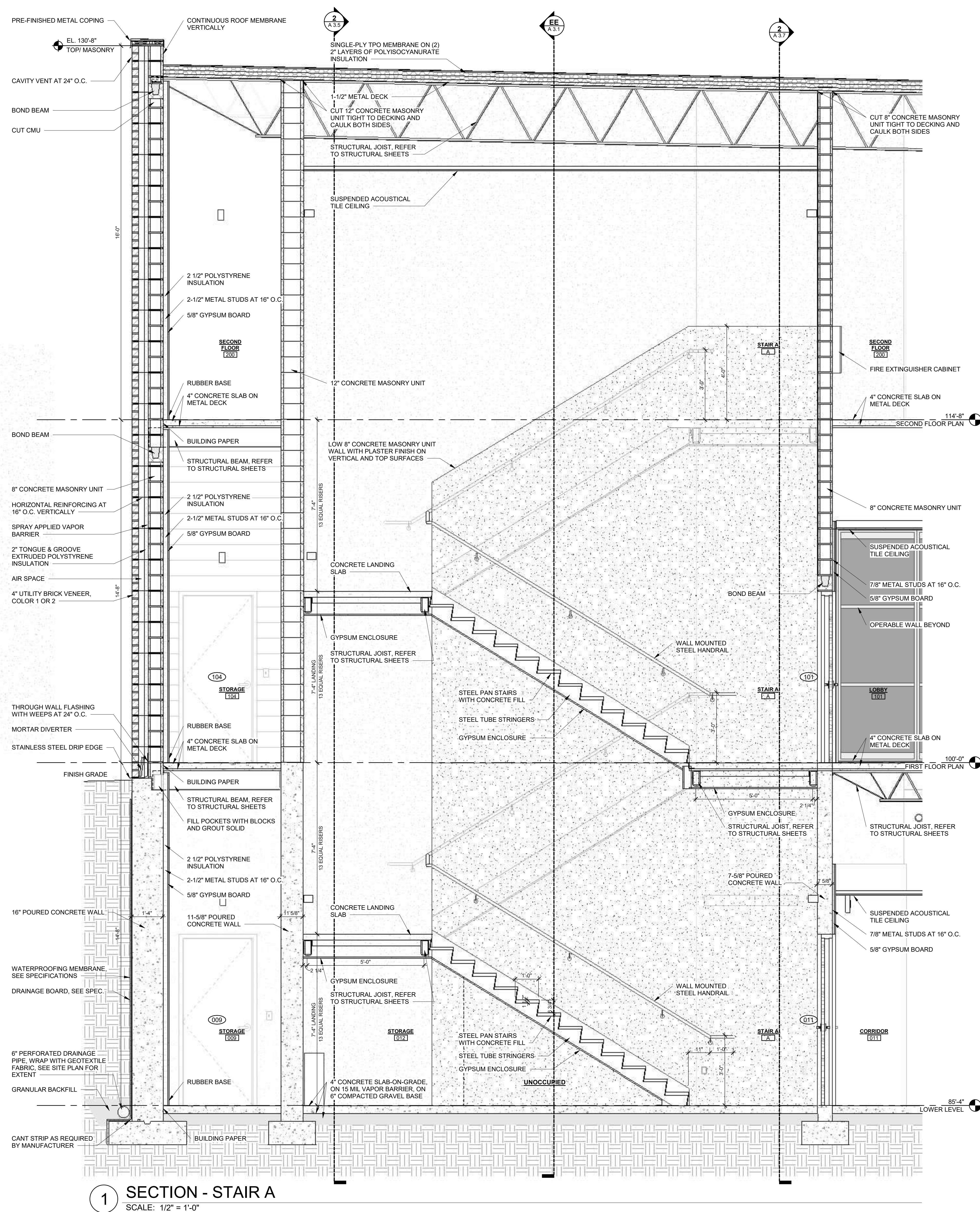
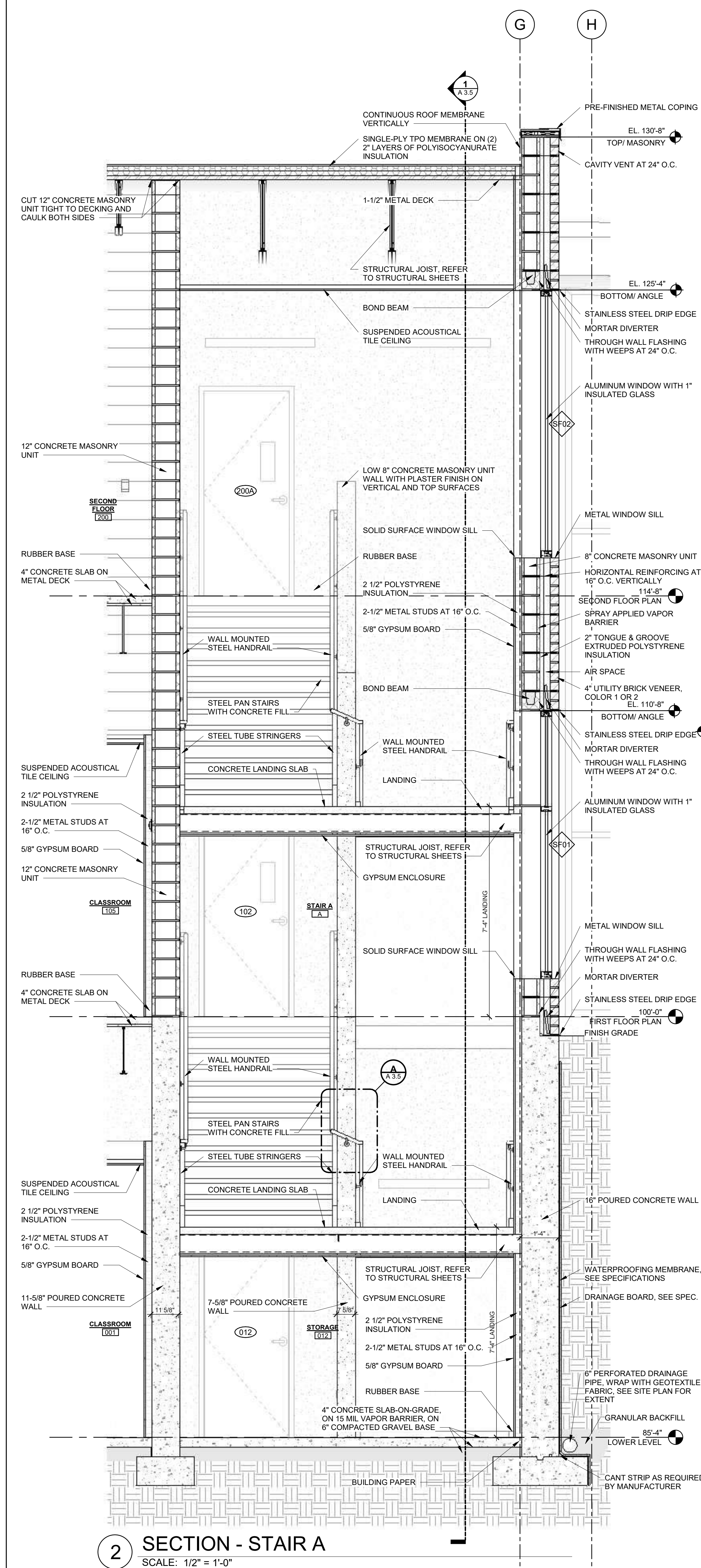


**12** LOBBY WALL SECTION  
SCALE: 1/2" = 1'-0"

**11** LOBBY WALL SECTION  
SCALE: 1/2" = 1'-0"

**10** WALL SECTION - BASE BID  
SCALE: 1/2" = 1'-0"



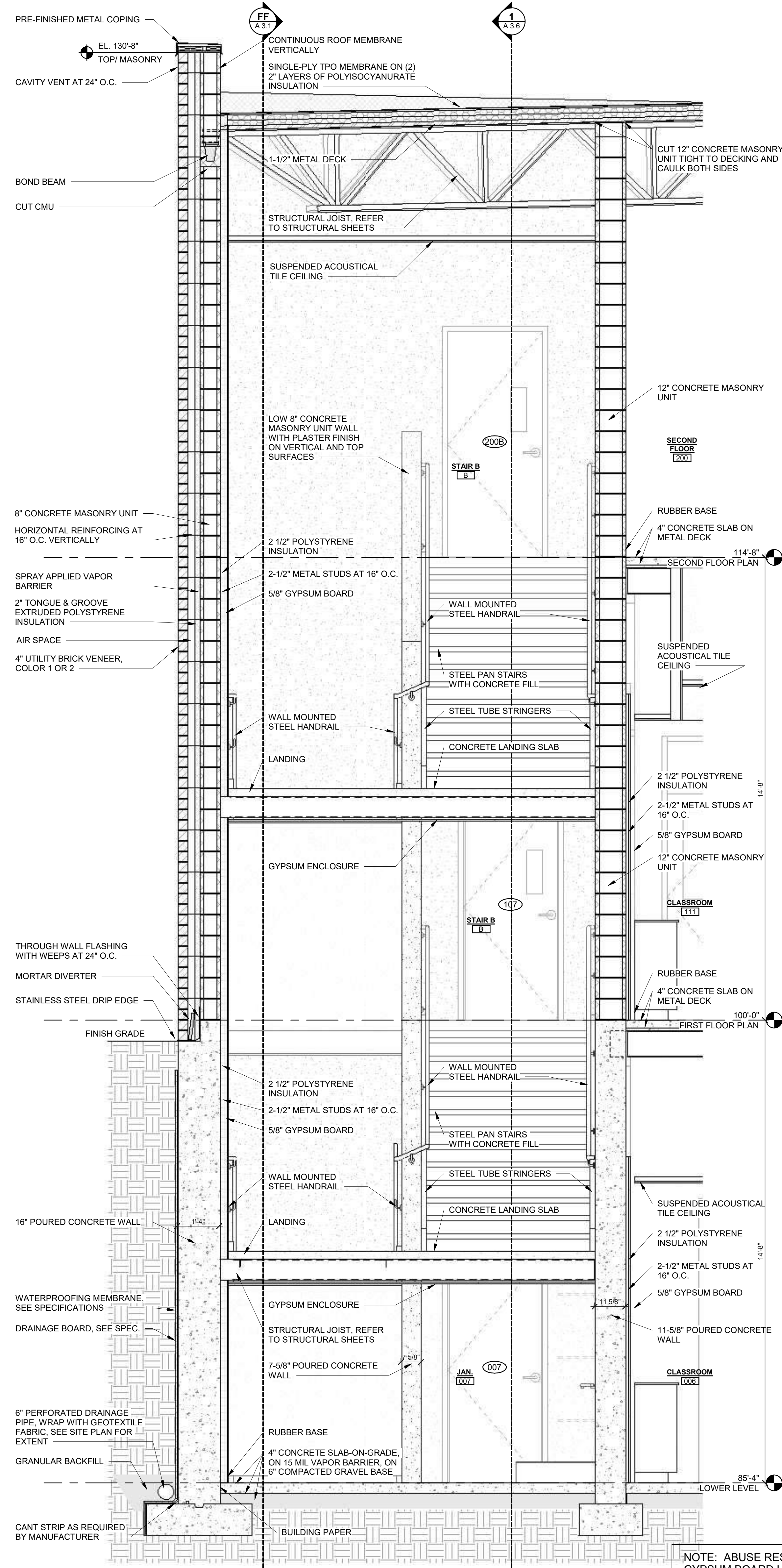


**A** DETAIL - RAILING  
SCALE: 3" = 1'-0"

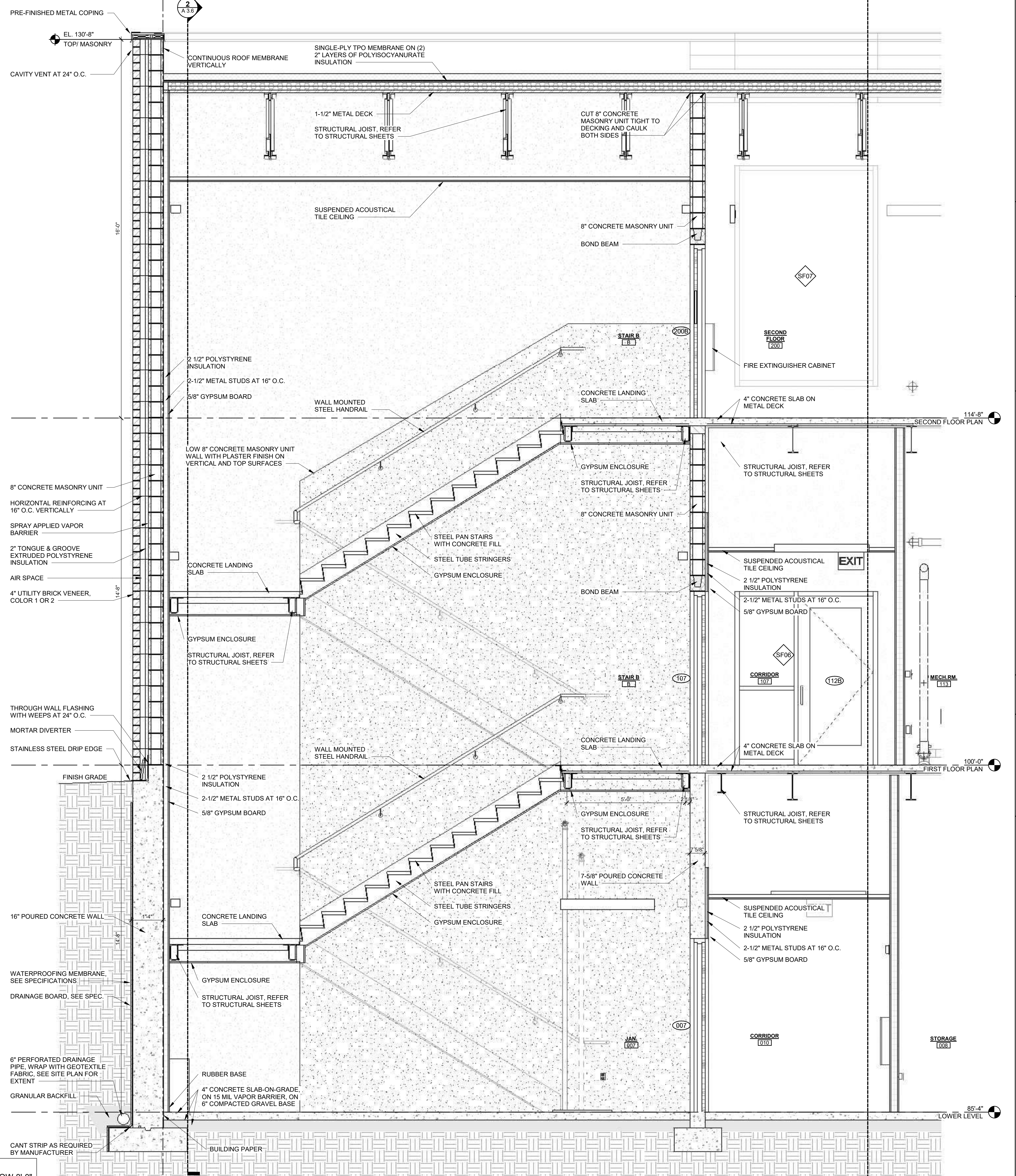
NOTE: ABUSE RESISTANT  
GYPSUM BOARD USED BELOW 8'-0"  
AFF UNLESS NOTED OTHERWISE

NOTE: SEE STRUCTURAL DRAWINGS FOR  
TOP OF FOUNDATION, MASONRY STARTER  
COURSING AND OTHER MASONRY NOTES





2 SECTION - STAIR B  
SCALE: 1/2" = 1'-0"

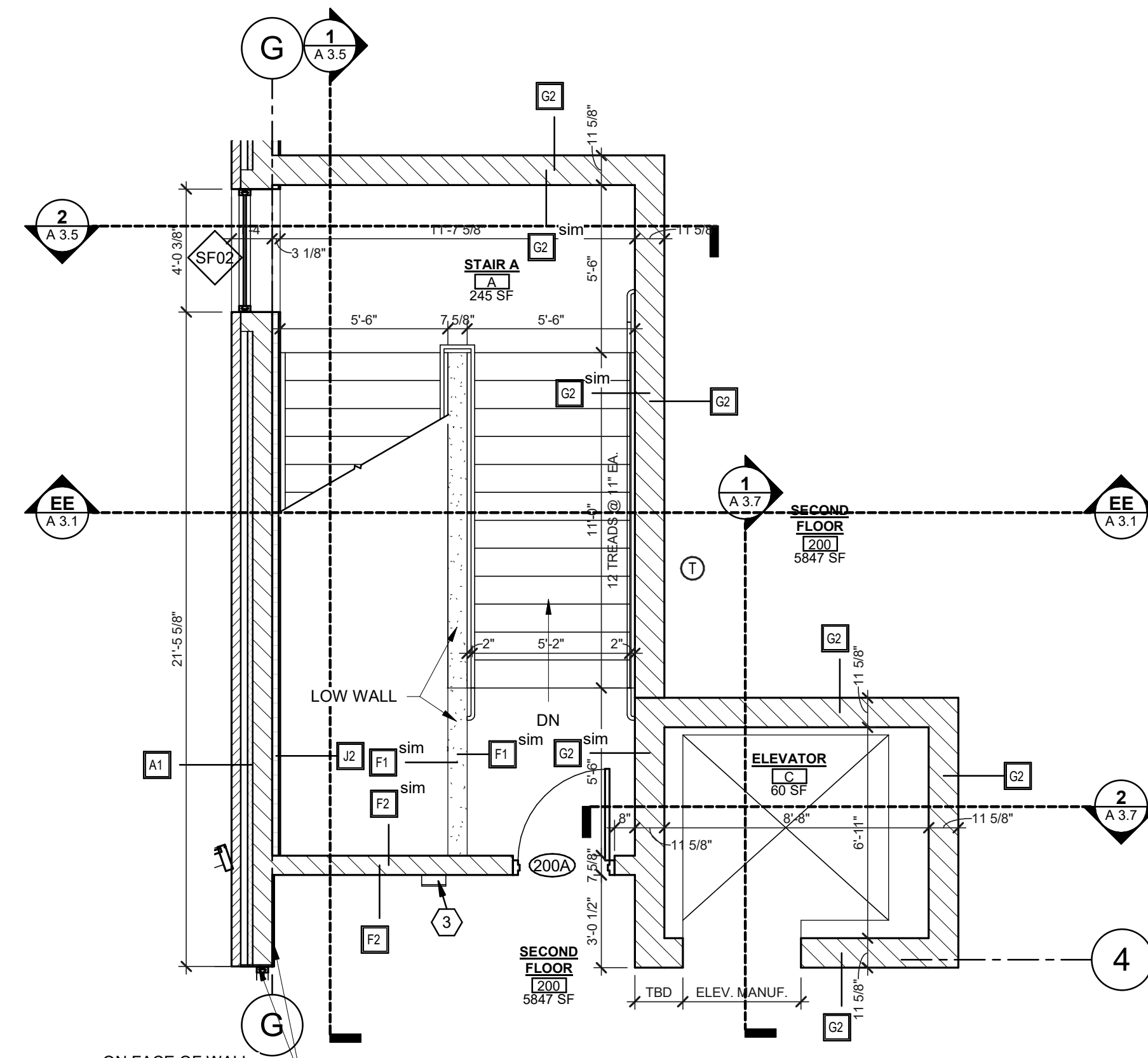


1 SECTION - STAIR B  
SCALE: 1/2" = 1'-0"

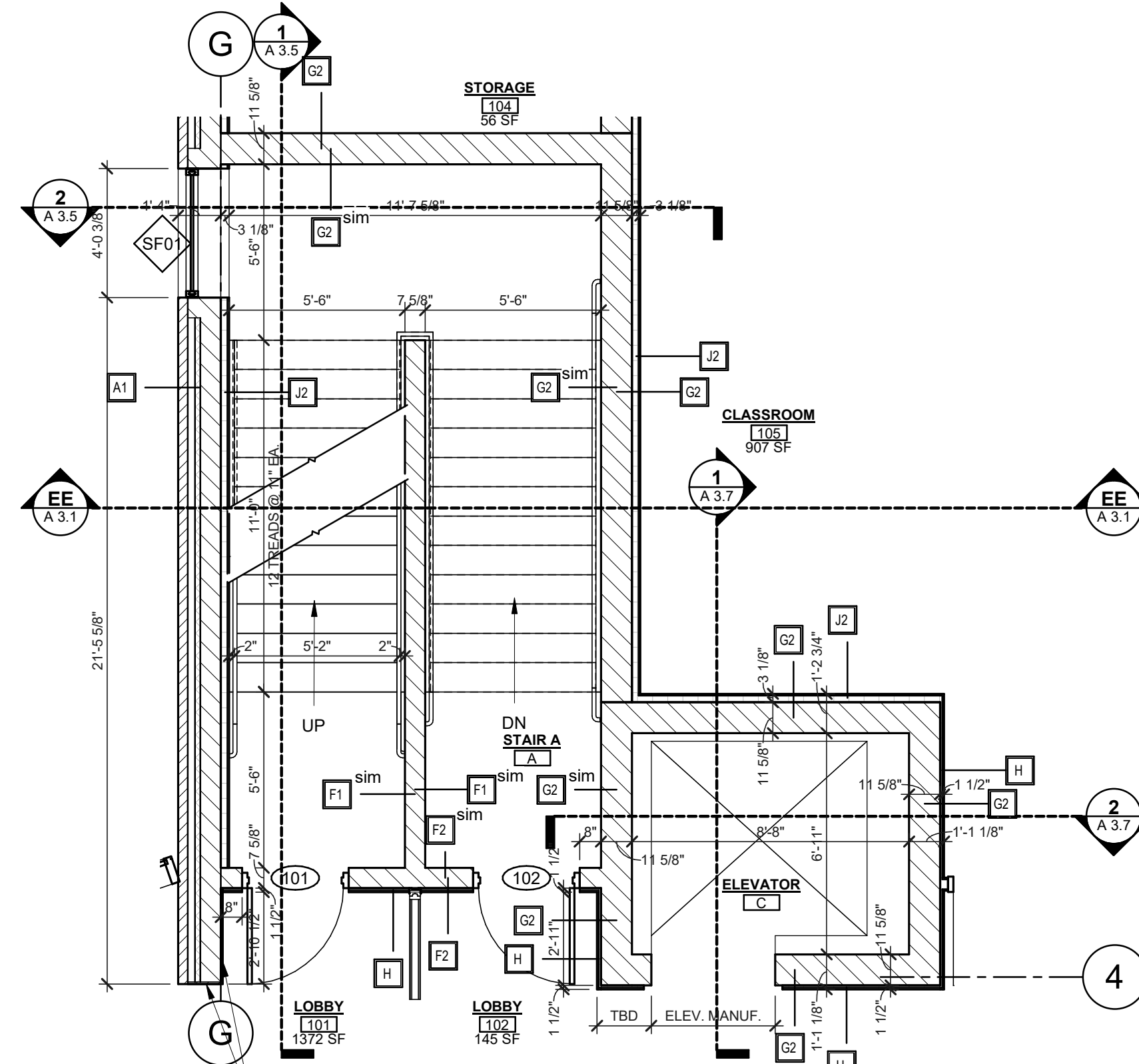




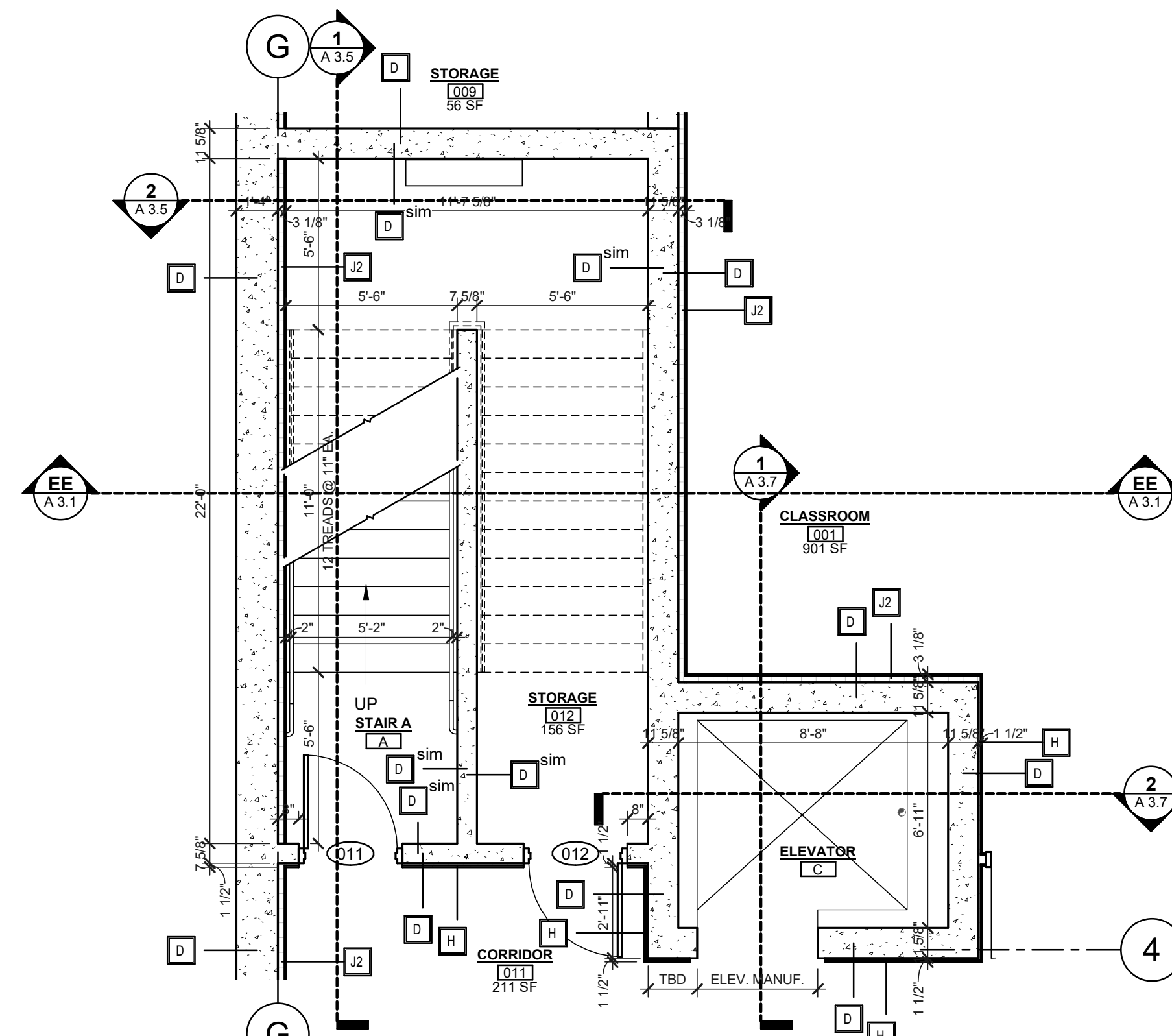




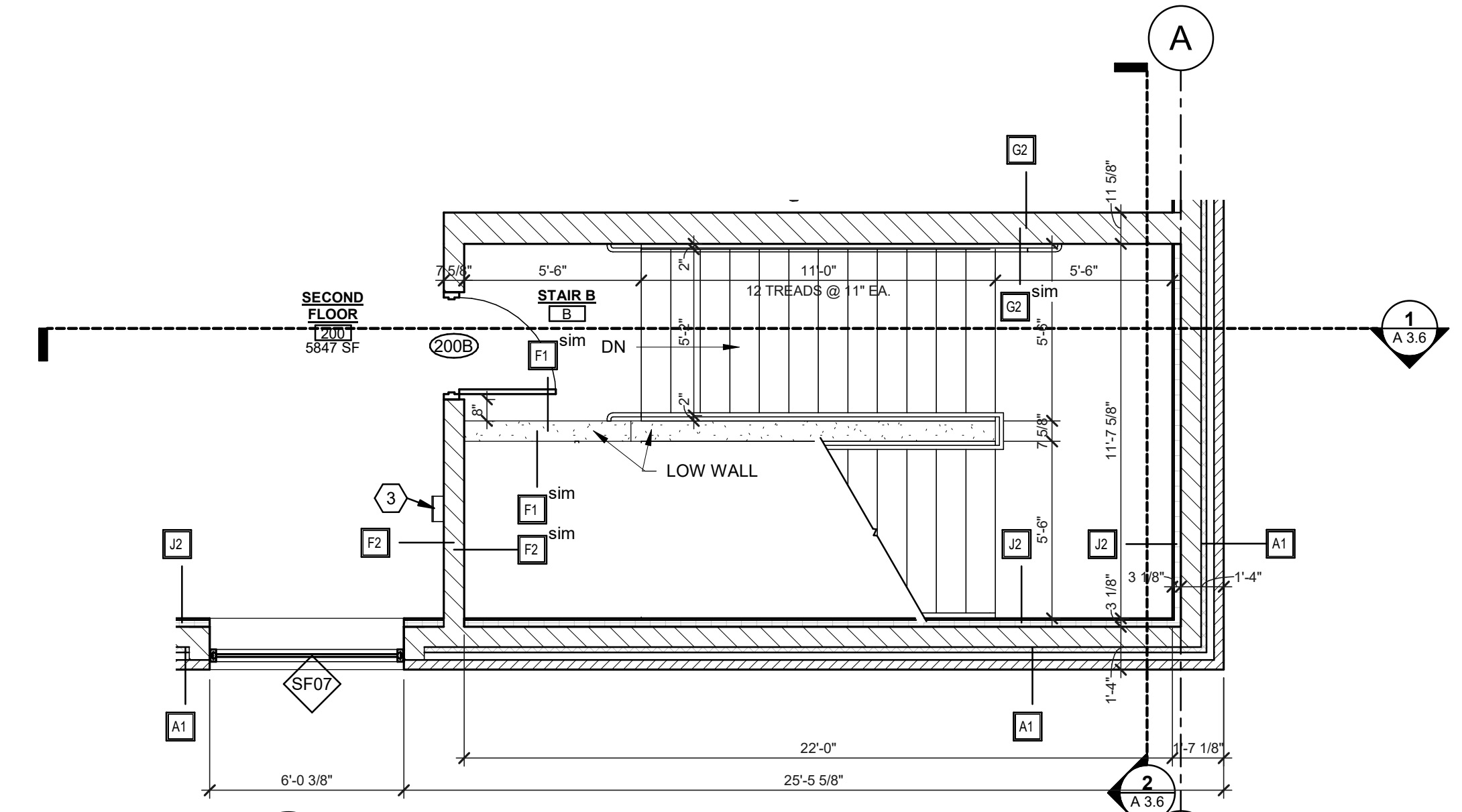
3 SECOND FLOOR PLAN - STAIR A  
SCALE: 1/4" = 1'-0"



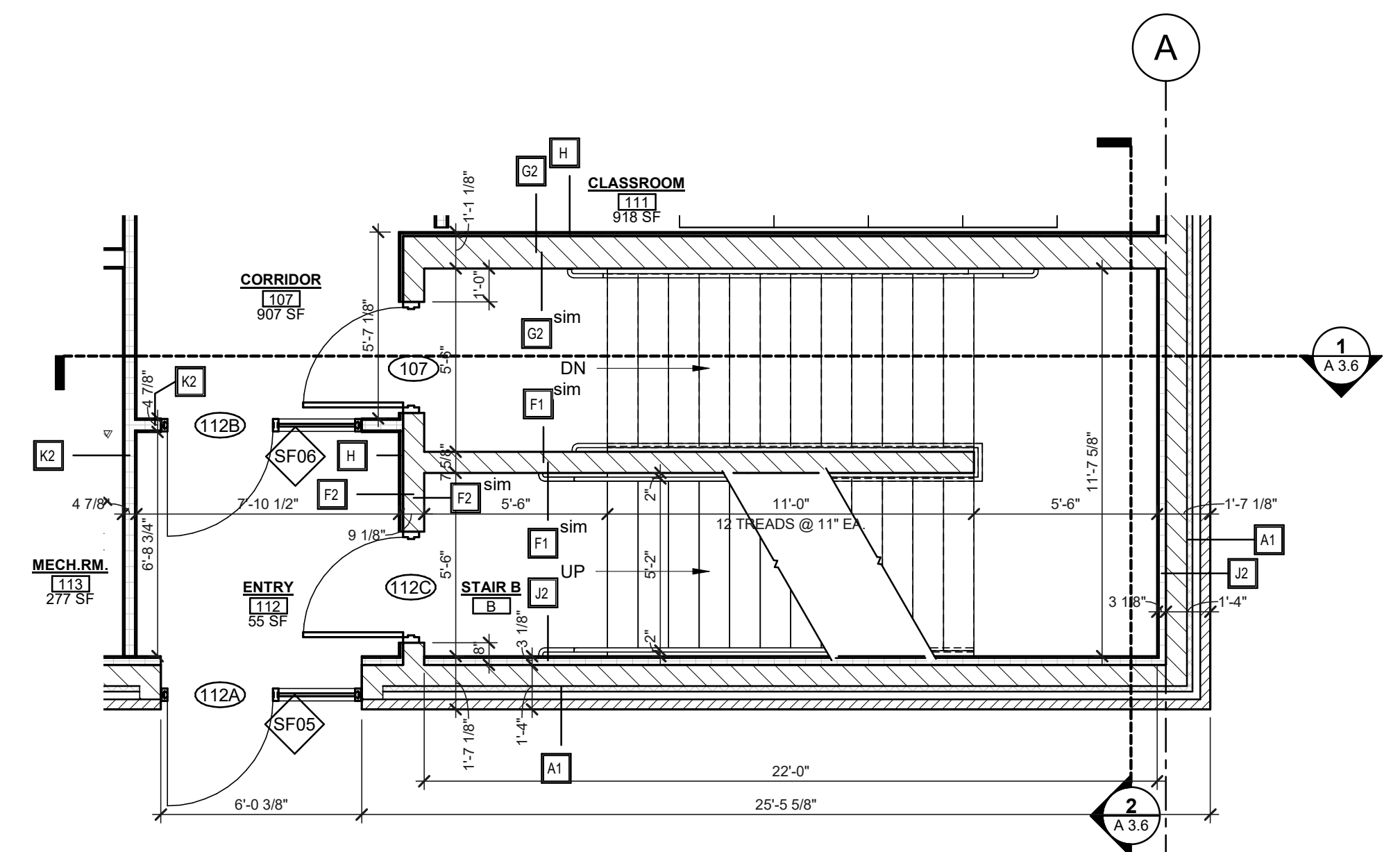
2 FIRST FLOOR PLAN - STAIR A  
SCALE: 1/4" = 1'-0"



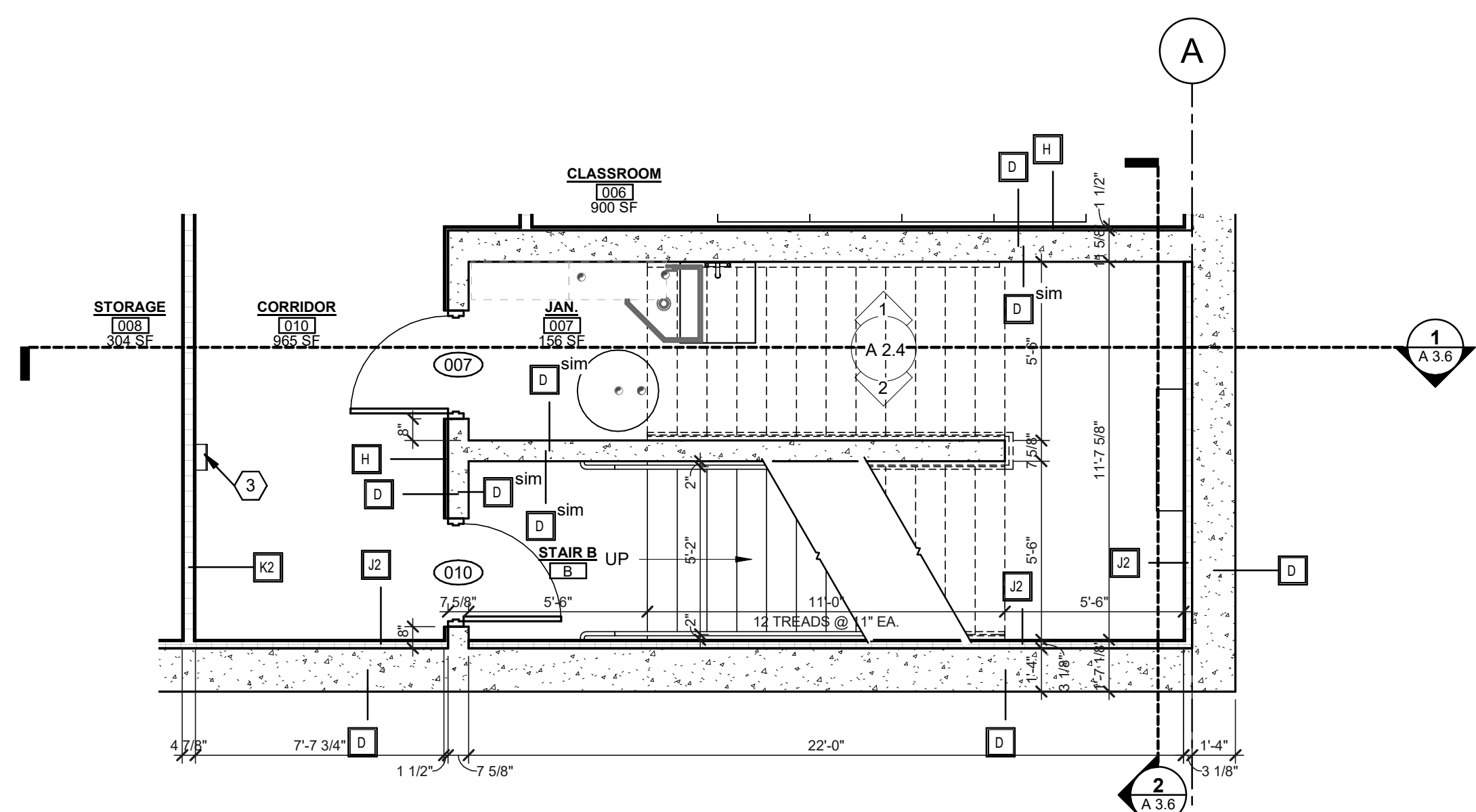
1 LOWER LEVEL PLAN - STAIR A  
SCALE: 1/4" = 1'-0"



6 SECOND FLOOR PLAN - STAIR B  
SCALE: 1/4" = 1'-0"



5 FIRST FLOOR PLAN - STAIR B  
SCALE: 1/4" = 1'-0"



4 LOWER LEVEL PLAN - STAIR B  
SCALE: 1/4" = 1'-0"

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STATE OF OHIO  
REGISTERED ARCHITECT  
BRIAN A. RUETSCHLE  
9837  
EXPIRATION DATE: 12/31/2018

Issued:  
May 20, 2019  
Package 3A - Masonry  
& Grade Beam Package  
Revisions:

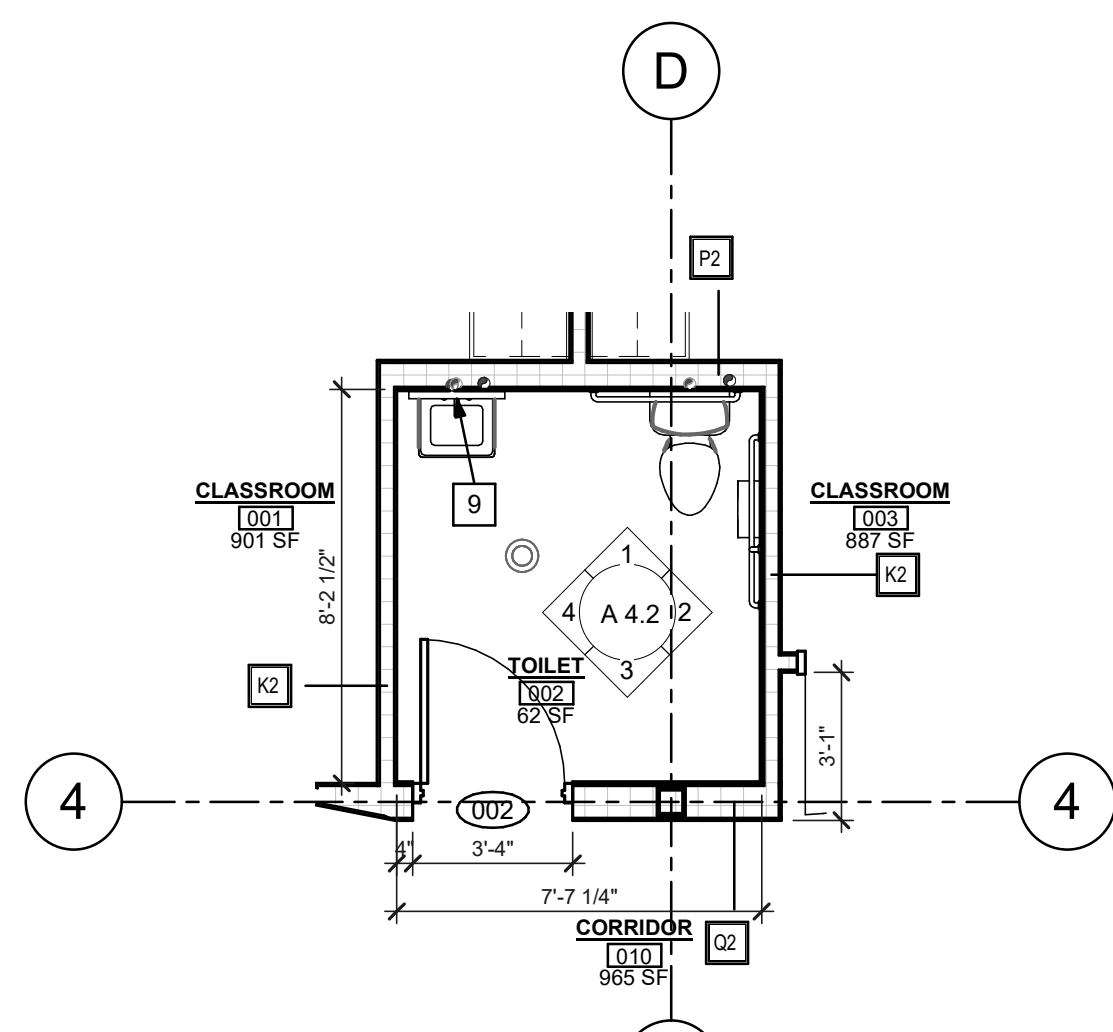
NEW ADDITION TO:  
**KETTERING SEVENTH-DAY ADVENTIST CHURCH**

3839 Stonebridge Rd., Kettering, Ohio

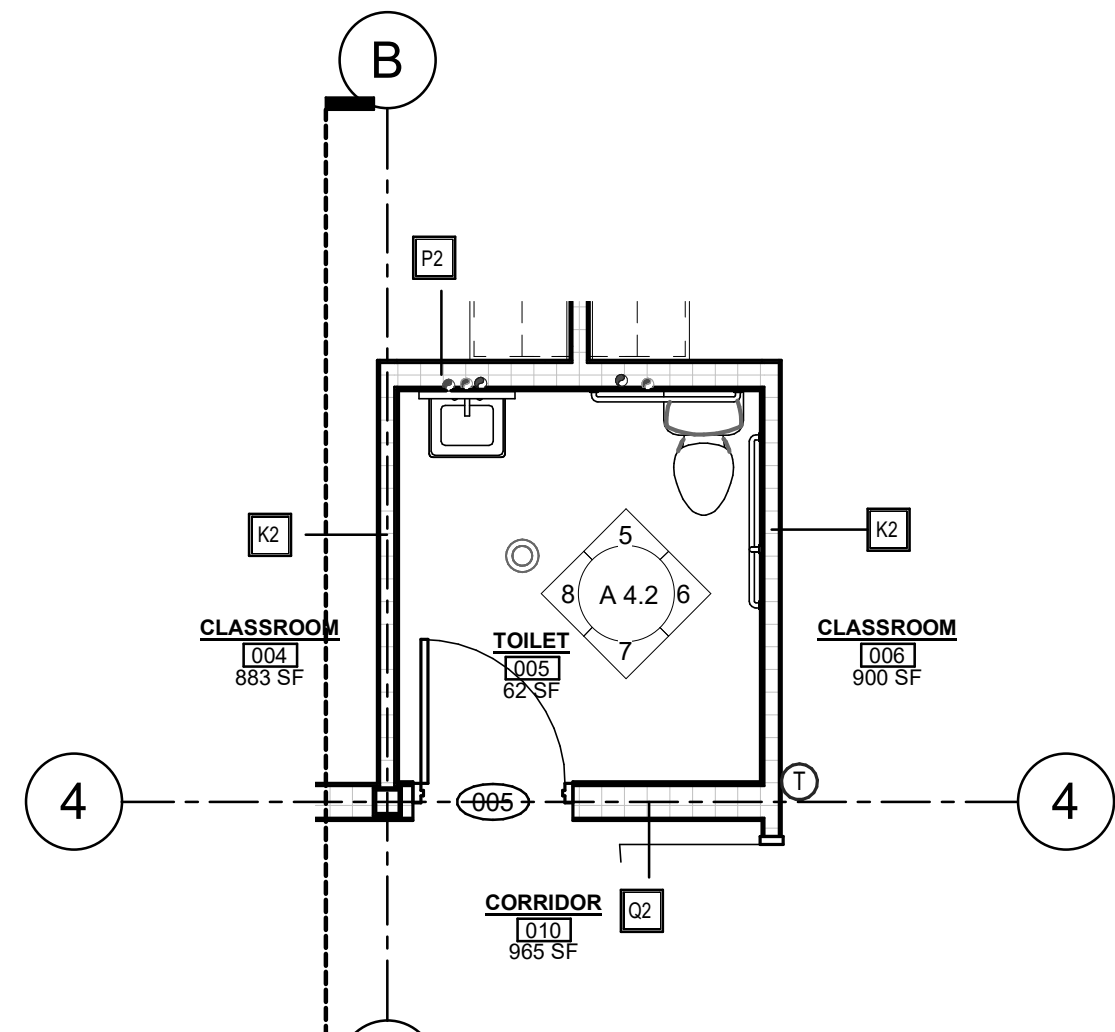
Comm. No.  
61716  
ENLARGED STAIR &  
ELEVATOR PLANS  
Sheet No.

**A 4.1**

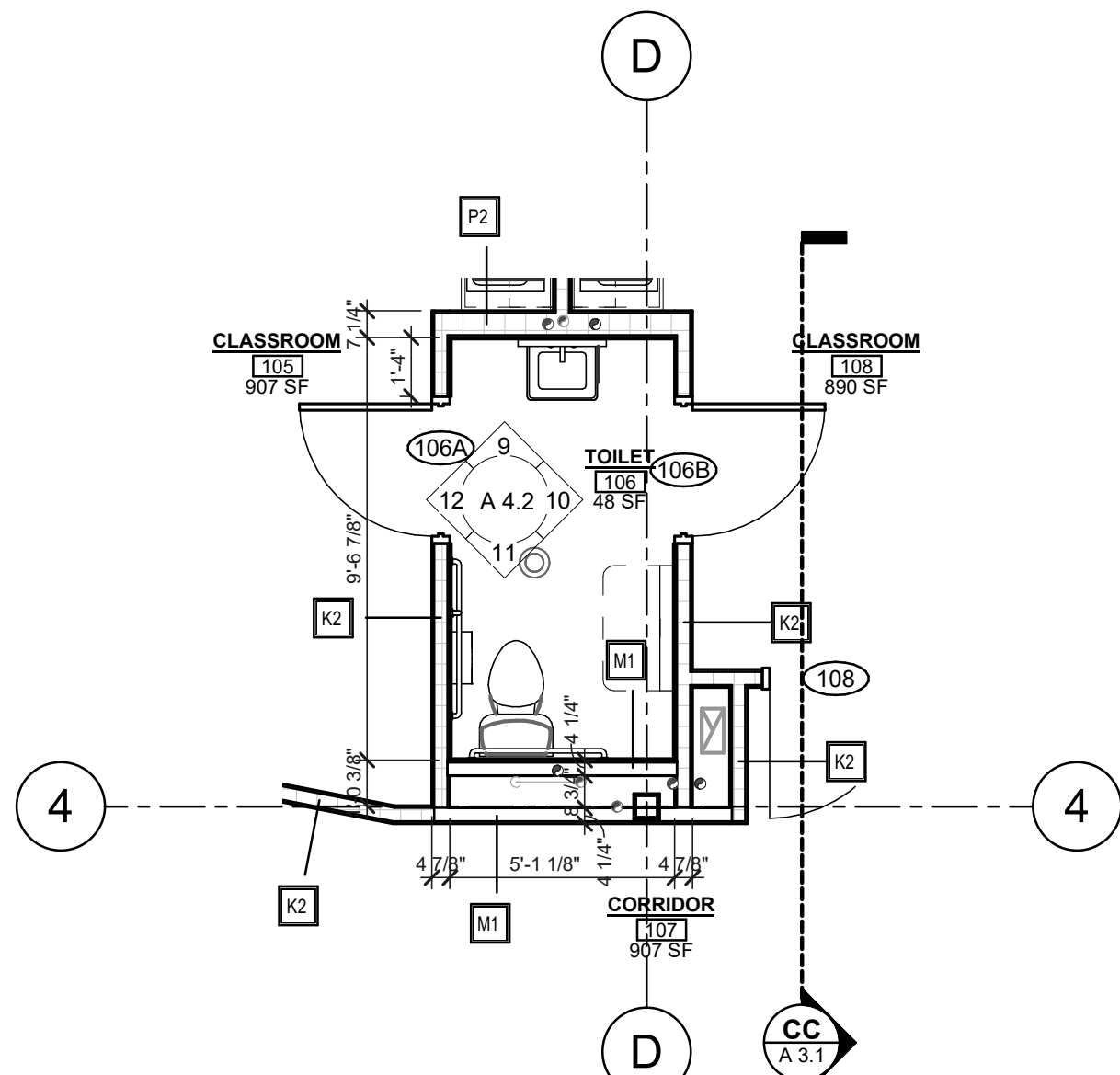




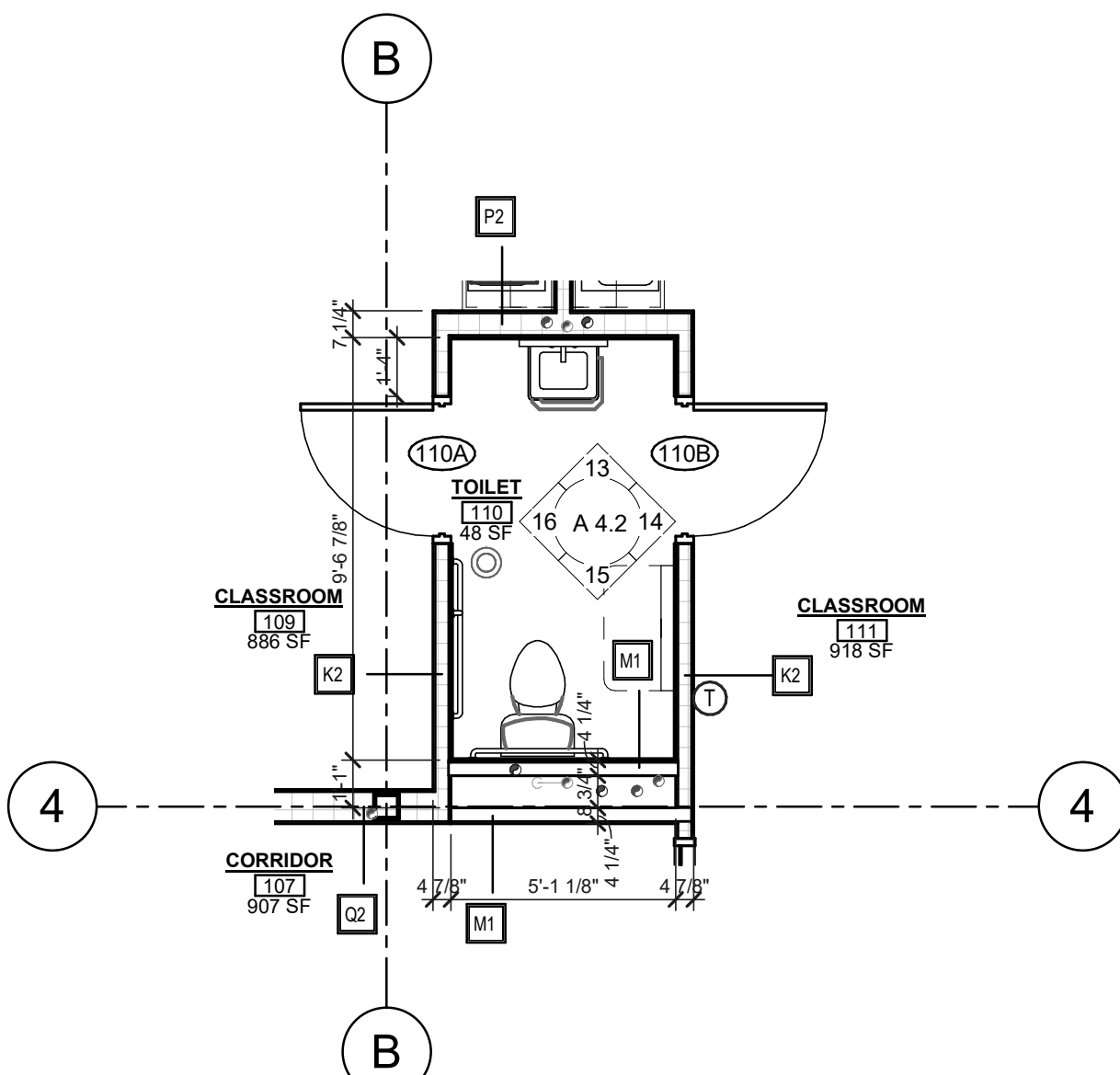
**A ENLARGED PLAN - 002**  
SCALE: 1/4" = 1'-0"



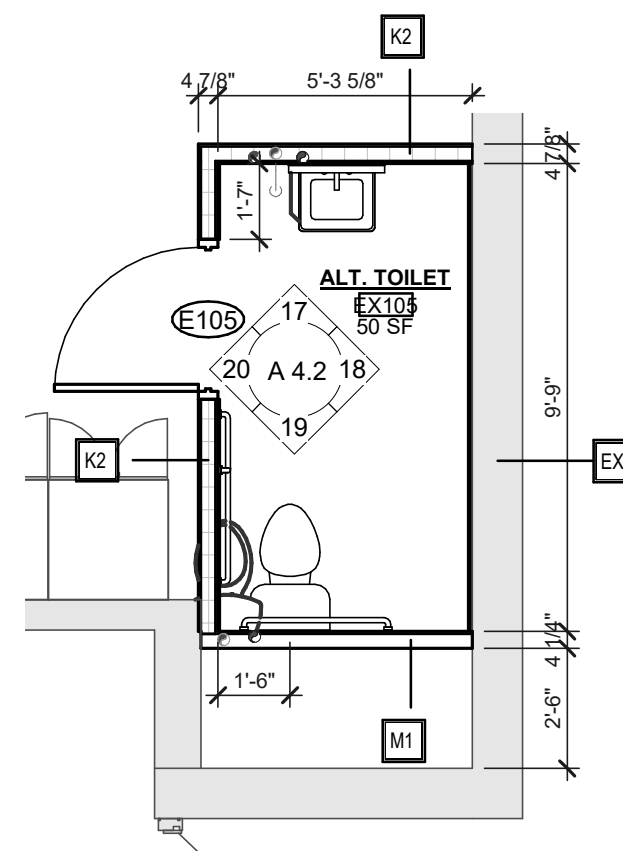
**B ENLARGED PLAN - 005**  
SCALE: 1/4" = 1'-0"



**C ENLARGED PLAN - 106**  
SCALE: 1/4" = 1'-0"



**D ENLARGED PLAN - 110**  
SCALE: 1/4" = 1'-0"



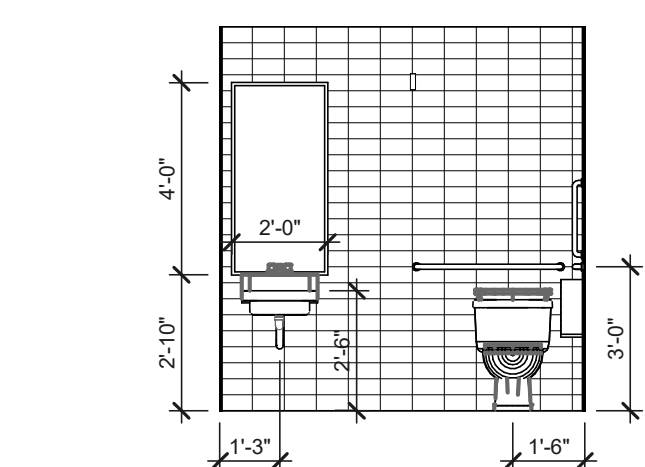
**E ALTERNATE ENLARGED PLAN - EX105**  
SCALE: 1/4" = 1'-0"

TOILET ROOM ACCESSORY LEGEND				
ITEM	ACCESSORY	CAT. NO.	M'T'G.	H'G'T./REMARKS
1	GRAB BAR 36"	B-5806 x 36	S	33" TO CENTERLINE
2	GRAB BAR 42"	B-5806 x 42	S	33" TO CENTERLINE
3	GRAB BAR 18"	B-5806 x 18/ B-5806.99 x 18	S	40" TO BOTTOM
4	SANITARY NAPKIN DISPOSAL	B-4353	R	28" TO TOP
5	SANITARY NAPKIN DISPOSAL	B-XXXX	P	28" TO TOP
6	TOILET SEAT COVER DISPENSER	B-301	R	54" TO TOP
7	TILT MIRROR W/ FRAME	B-293 x 2448	S	BOTTOM 34" MAX. A.F.F.
8	ELECTRIC HAND DRYER	XLERATOR BY EXCEL DRYER INC.	S	46" TO BOTTOM
9	WASTE RECEPTACLE	B-43644	R	45" TO TOP
10	UTILITY SHELF W/MOP ABBROOM HOLDERS & HOOKS	B-239 x 34	S	6'-5" A.F.F. TO TOP
11	DIAPER CHANGER	KB200-05SS BY KOALA KARE PRODUCTS	S	33" TO CHANGING SURFACE
12	TOILET TISSUE DISPENSER	BY OWNER	S	28" TO TOP
13	SOAP DISPENSER	BY OWNER	S	39" TO BOTTOM
14	ROBE HOOK	B-7671	S	54" TO BOTTOM

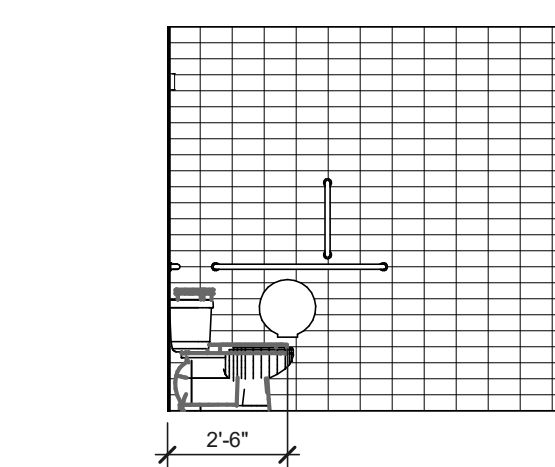
NOTE:  
BY OWNER' ACCESSORY IS TO BE SUPPLIED BY OWNER AND INSTALLED BY GENERAL CONTRACTOR  
REFER TO SHEET G-002 FOR HEIGHT AND ADA CLEARANCE ILLUSTRATIONS  
ALL CATALOG NUMBERS ARE BY "BOBRICK" UNLESS NOTED OTHERWISE.  
ALL ITEMS INSTALLED BY GENERAL CONTRACTOR.  
MOUNTING TYPE KEY:  
R = RECESSED  
S = SURFACE  
P = PARTITION

## GENERAL NOTES

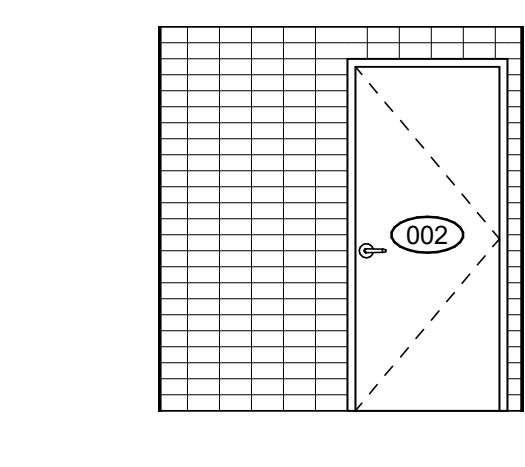
- REFER TO SHEET A 4.2 FOR TOILET ACCESSORY SCHEDULE.
- REFER TO SHEET A4.2 FOR TYPICAL MOUNTING HEIGHTS OF TOILET ACCESSORIES, INTERIOR SIGNAGE, AND SWITCHES.
- REFER TO SHEET FF 0.1 FOR FINISH MATERIALS SCHEDULE.
- PROVIDE MIN. 1" FILLER AT BASE AND WALL CABINETS.
- PROVIDE FINISHED PANELS ON ALL EXPOSED ENDS AND BACKS OF BASE AND WALL CABINETS.
- ALL COUNTERS SHOULD BE 1" OVER BASE CABINET WITH A RADIUS CORNER AND EDGE (EXCEPT AT EQUIP. LOCATIONS). INSTALL 4" BACKSPASH ON ALL 3 SIDES WITH WALL.
- CAULK ALL CABINETS AND COUNTERS AT WALL JOINTS.
- INSTALL SOLID WOOD BLOCKING IN WALLS BEHIND WALL-MOUNTED ITEMS INCLUDING CASEWORK, RAILINGS, TOILET ACCESSORIES, ETC.
- G.C. IS RESPONSIBLE TO PROVIDE WOOD BLOCKING AT WALL MOUNTED T.V. LOCATIONS. REFER TO ELECTRICAL SHEETS FOR LOCATIONS.
- REFER TO ELECTRICAL DRAWINGS FOR ELECTRICAL RECEPTACLES AND TECHNOLOGY ROUGH-INS IF NOT LOCATED ON INTERIOR ELEVATION. DEVICES SHOULD BE GANG TOGETHER WHENEVER POSSIBLE.



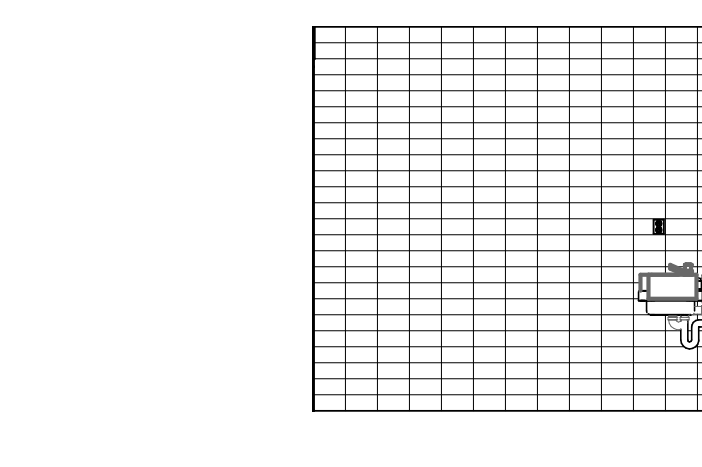
**1 002 NORTH ELEV.**  
SCALE: 1/4" = 1'-0"



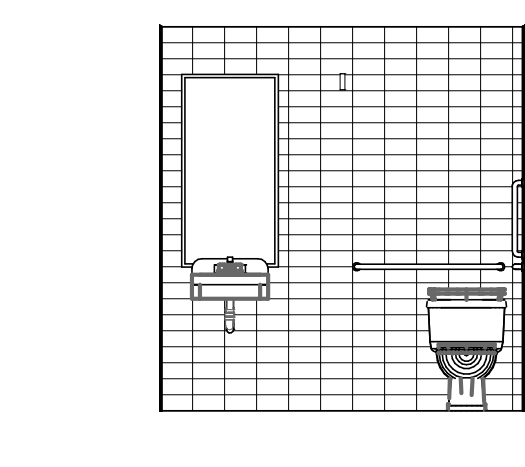
**2 002 EAST ELEV.**  
SCALE: 1/4" = 1'-0"



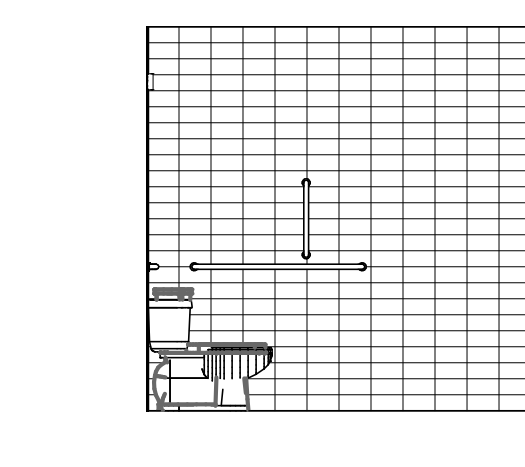
**3 002 SOUTH ELEV.**  
SCALE: 1/4" = 1'-0"



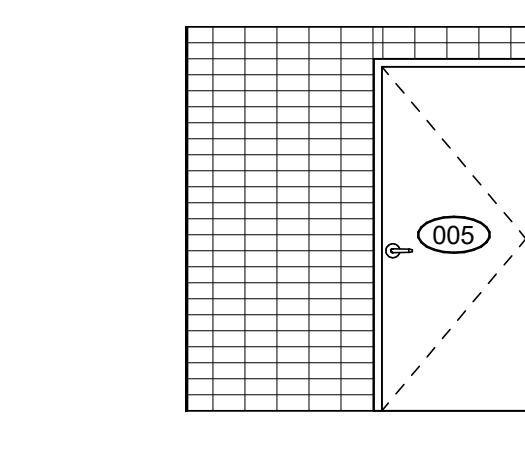
**4 002 WEST ELEV.**  
SCALE: 1/4" = 1'-0"



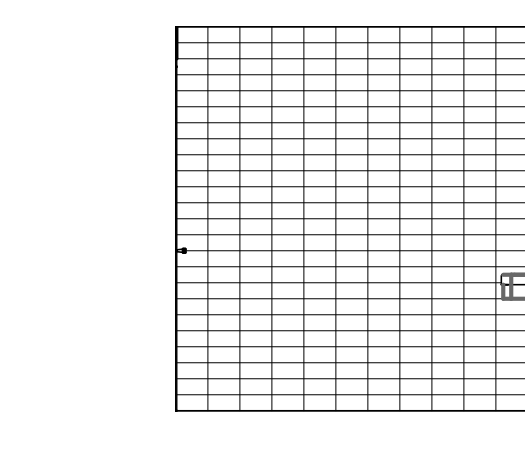
**5 005 N**  
SCALE: 1/4" = 1'-0"



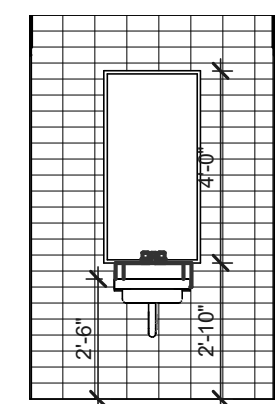
**6 005 E**  
SCALE: 1/4" = 1'-0"



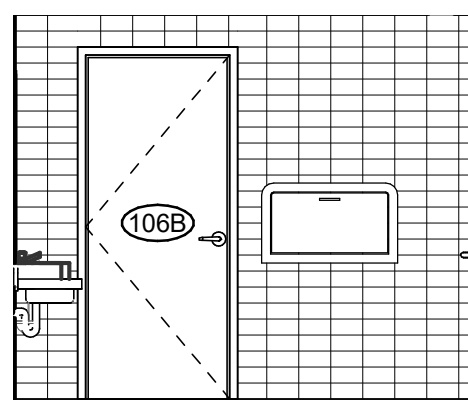
**7 005 S**  
SCALE: 1/4" = 1'-0"



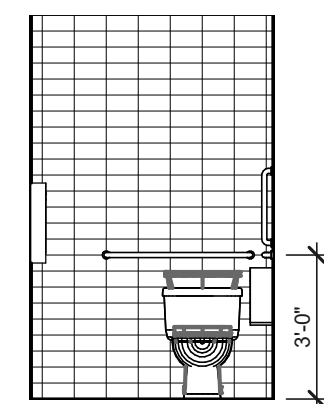
**8 005 W**  
SCALE: 1/4" = 1'-0"



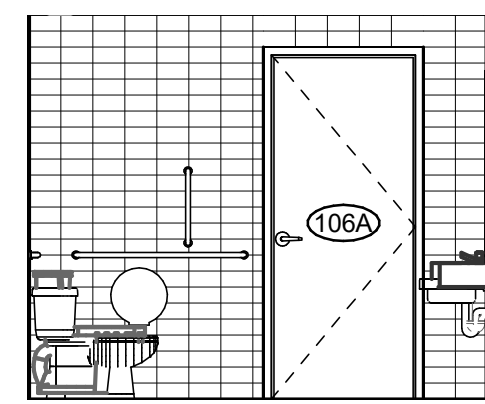
**9 106 N**  
SCALE: 1/4" = 1'-0"



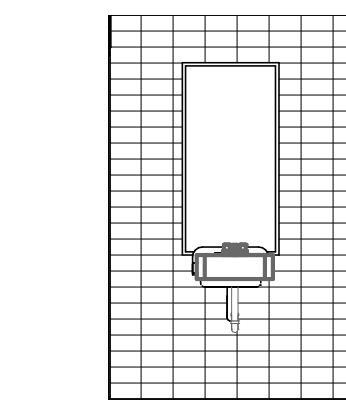
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SCALE: 1/4" = 1'-0"



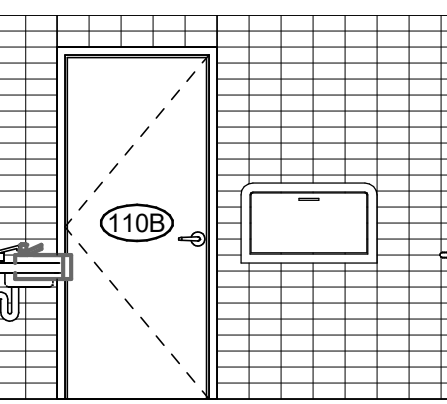
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SCALE: 1/4" = 1'-0"



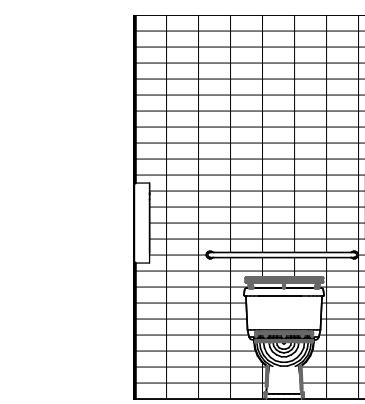
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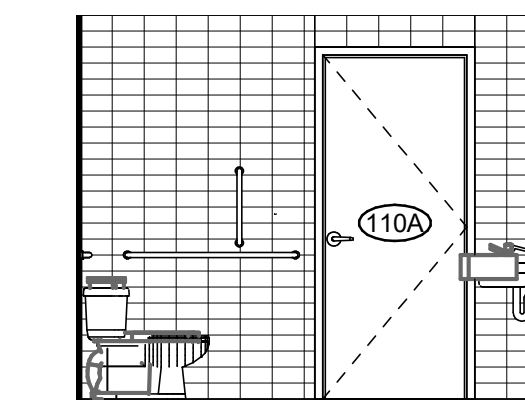
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SCALE: 1/4" = 1'-0"



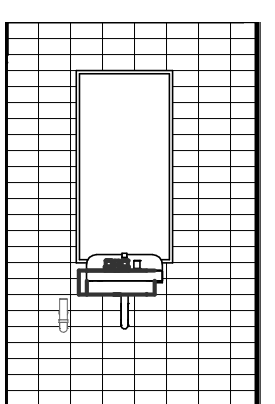
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SCALE: 1/4" = 1'-0"



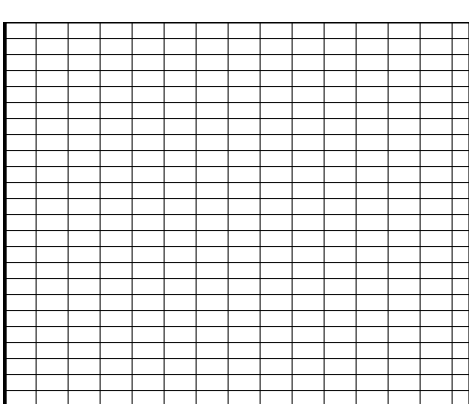
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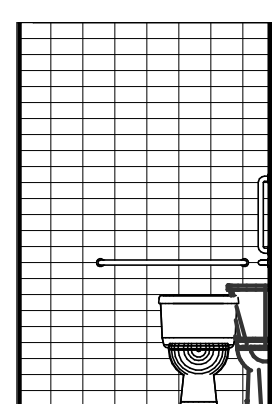
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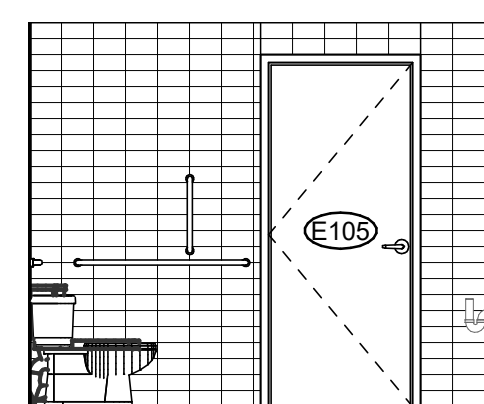
**17 105EX N**  
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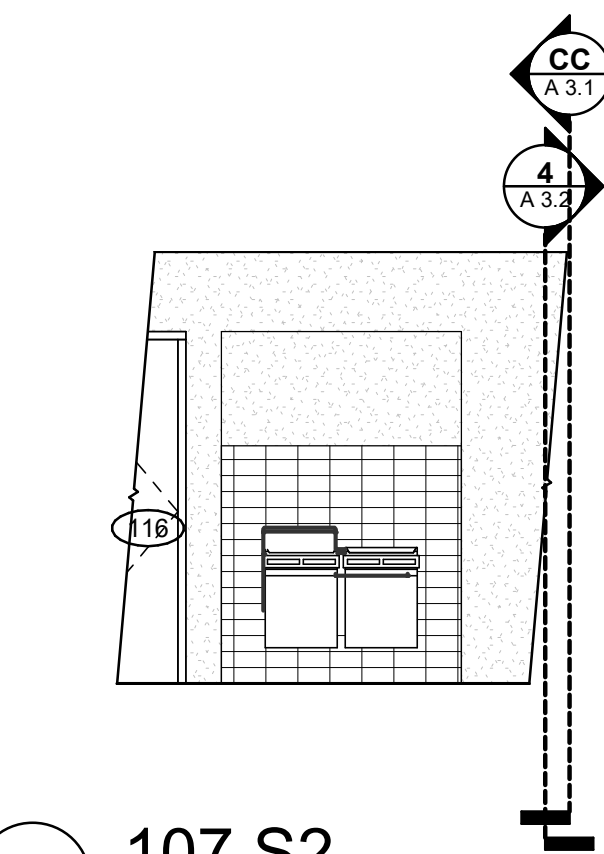
**18 105EX E**  
SCALE: 1/4" = 1'-0"



**19 105EX S**  
SCALE: 1/4" = 1'-0"



**20 105EX W**  
SCALE: 1/4" = 1'-0"



**21 107 S2**  
SCALE: 1/4" = 1'-0"

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& Grade Beam Package  
Revisions:

NEW ADDITION TO:  
**KETTERING SEVENTH-DAY ADVENTIST CHURCH**  
3839 Stonebridge Rd., Kettering, Ohio

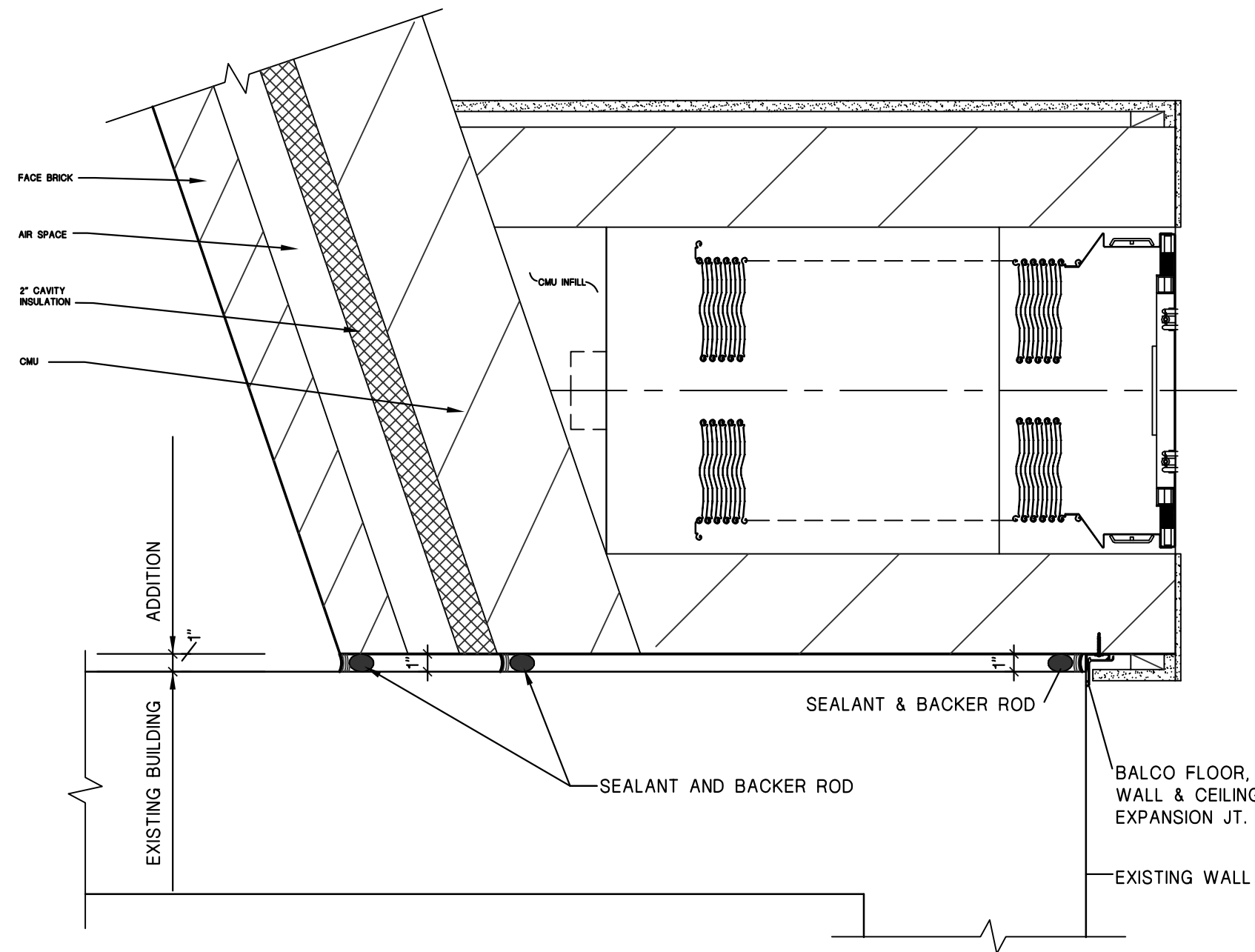
Comm. No.  
61716

ENLARGED TOILET  
ELEV. & PLANS

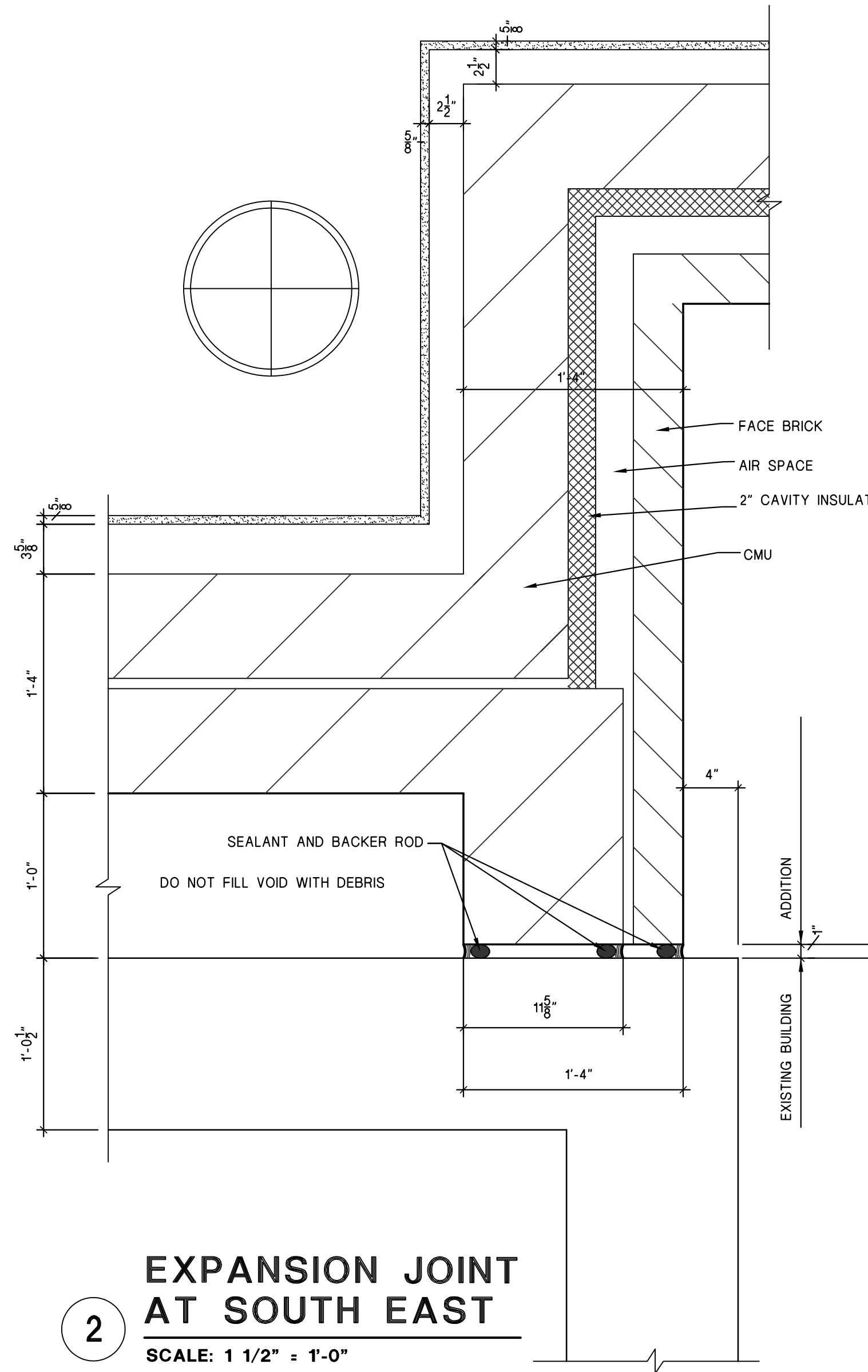
Sheet No.

**A 4.2**

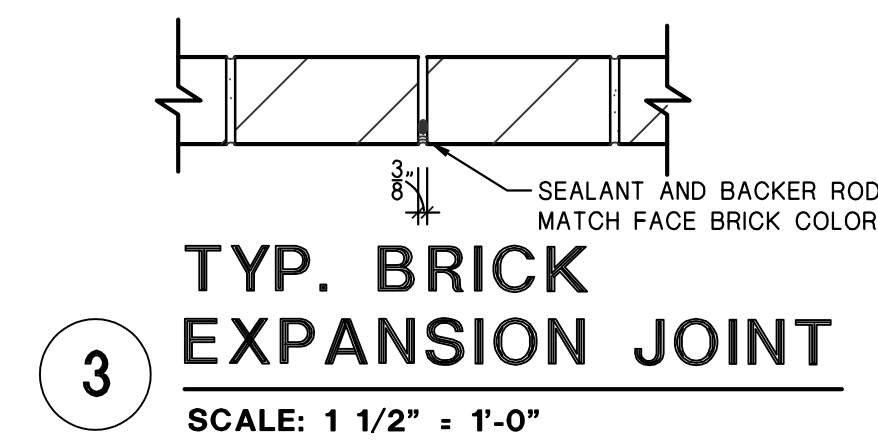




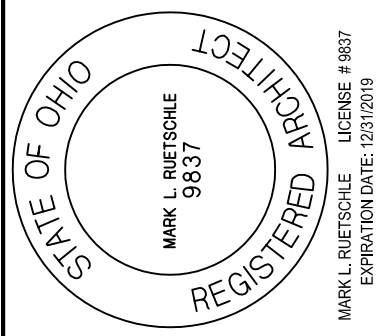
**1**  
**EXPANSION JOINT  
 AT SOUTH WEST**  
 SCALE: 1 1/2" = 1'-0"



**2**  
**EXPANSION JOINT  
 AT SOUTH EAST**  
 SCALE: 1 1/2" = 1'-0"



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Bid Package 3A  
 Masonry & Grade Beam  
 Package

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NEW ADDITION TO  
 KETTERING SEVENTH-DAY ADVENTIST CHURCH  
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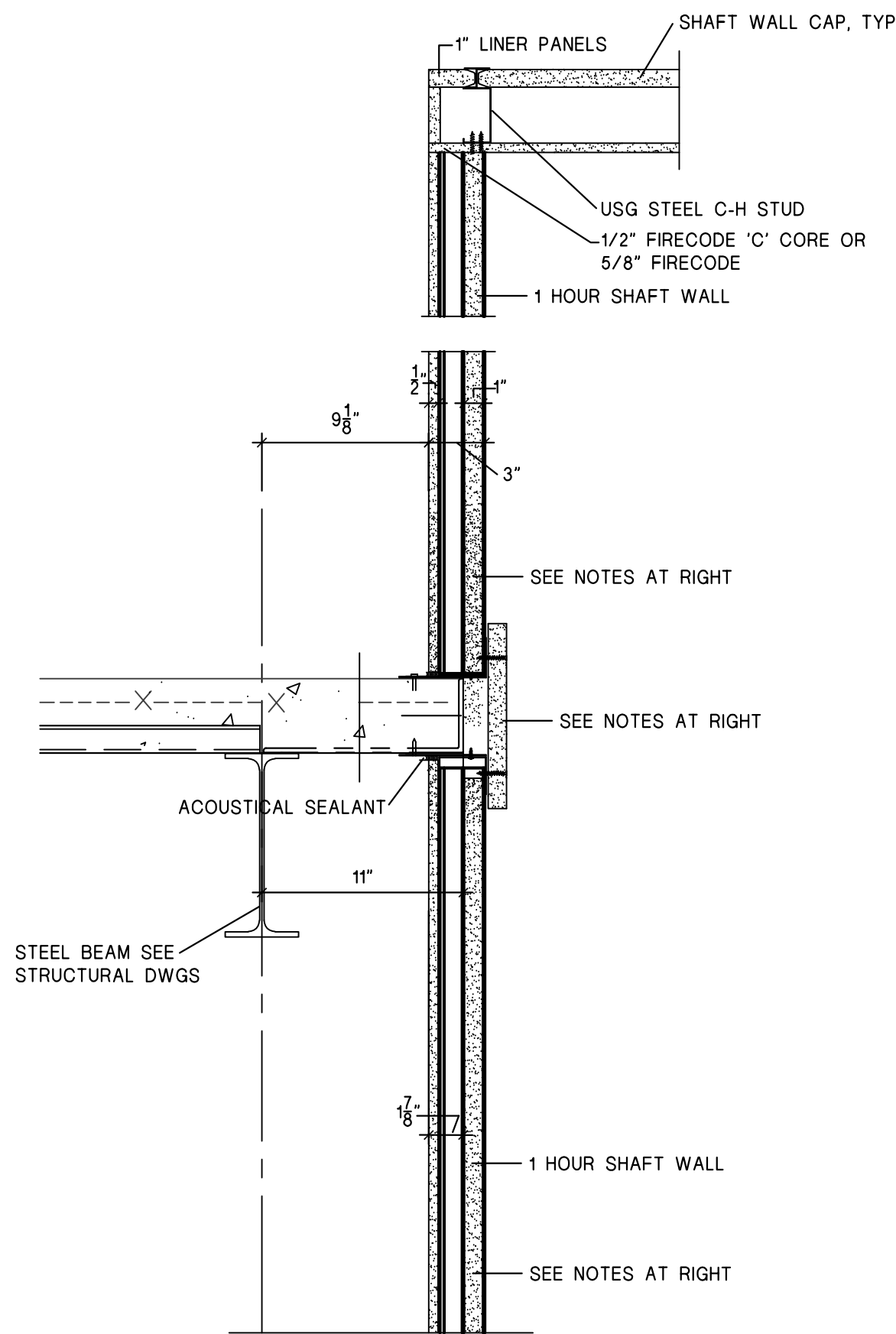
Comm No.  
 61716

Building  
 Details

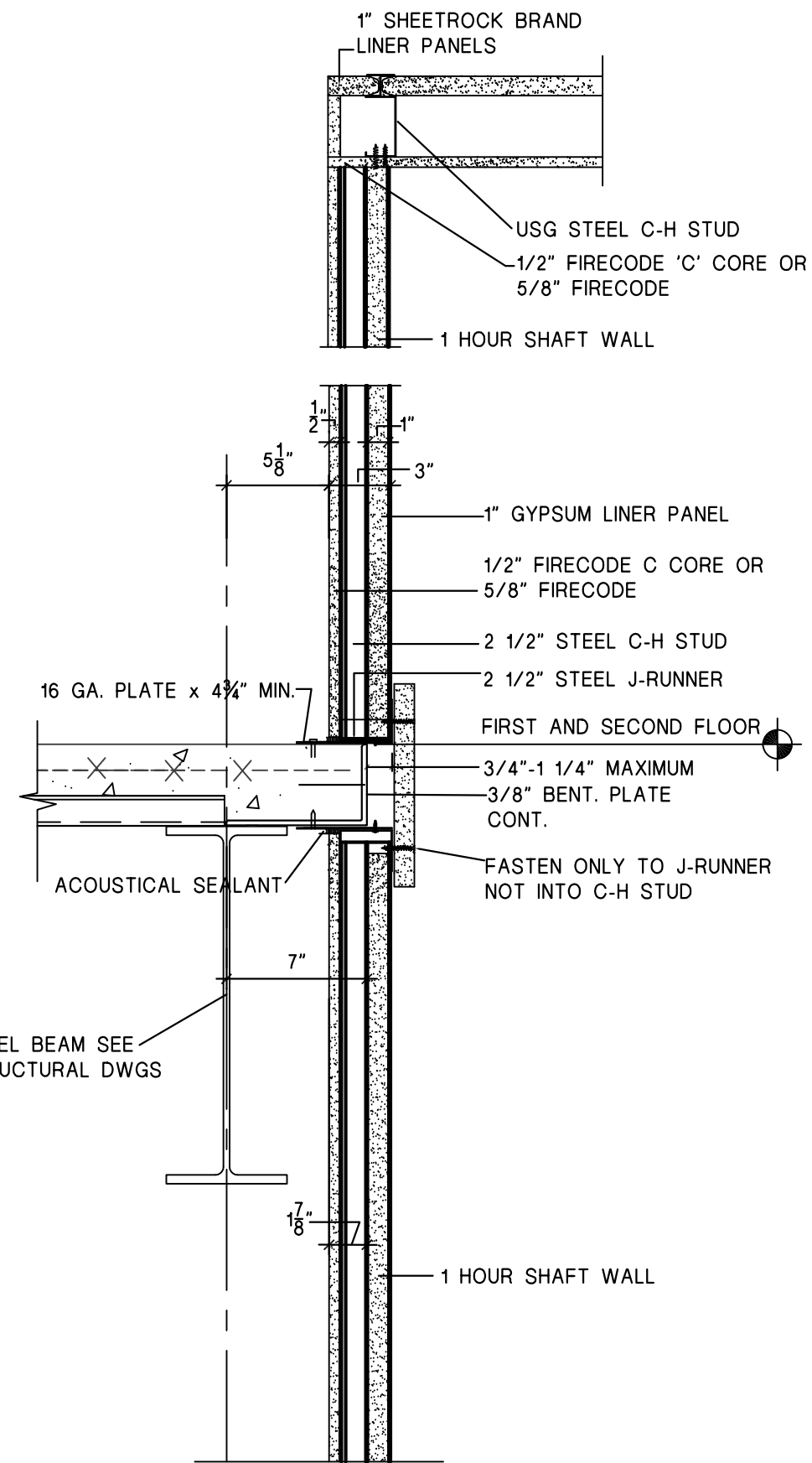
Sheet No.

**A5.0**

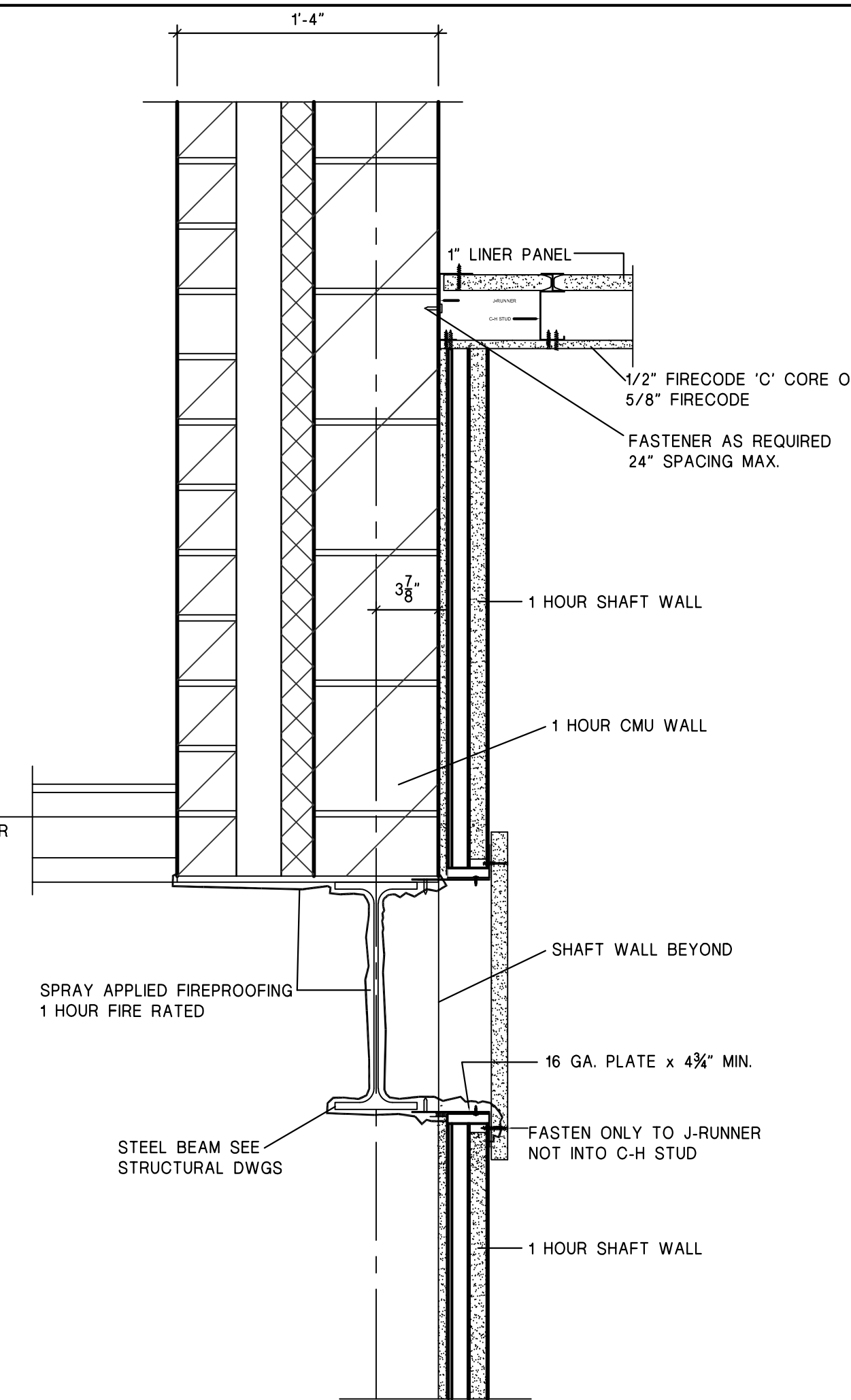




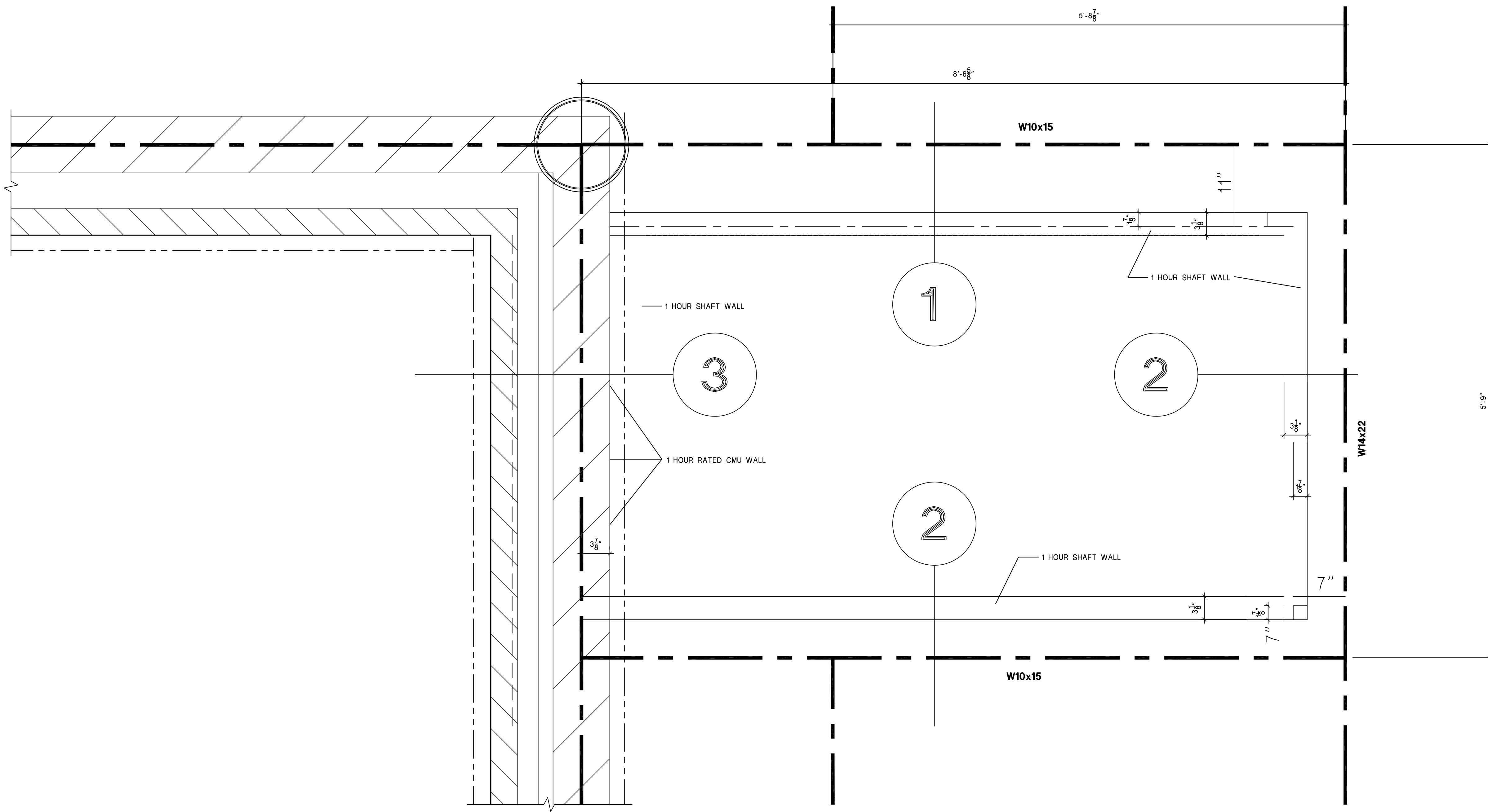
**1 SECTION**  
SCALE: 1 1/2" = 1'-0"



**2 SECTION**  
SCALE: 1 1/2" = 1'-0"

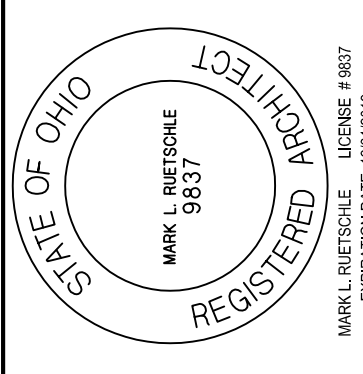


**3 SECTION**  
SCALE: 1 1/2" = 1'-0"



**PARTIAL PLAN HVAC SHAFT WALL CHASE**  
SCALE: 1 1/2" = 1'-0"

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Package

Revisions:

NEW ADDITION TO  
KETTERING SEVENTH-DAY ADVENTIST CHURCH  
3939 Stonebridge Rd. Kettering, Ohio

Comm No.  
61716  
Building  
Details  
Sheet No.

**A5.1**



AA. REINFORCE CURTAIN WALLS/ STOREFRONT FRAMING AS REQUIRED TO MEET ALL LOAD REQUIREMENTS.

AA. REINFORCE CURTAIN WALLS/ STOREFRONT FRAMING AS REQUIRED TO MEET ALL LOAD REQUIREMENTS.

A. EXTENSION OF VERTICAL MULLIONS TO  
STRUCTURE, REFER TO DETAILS.  
B. ALUMINUM BREAK METAL

A. EXTENSION OF VERTICAL MULLIONS TO  
STRUCTURE, REFER TO DETAILS.  
B. ALUMINUM BREAK METAL

TYPE	DESCRIPTION
1	1" CLEAR, INSULATED, TEMPERED

TYPE	DESCRIPTION
1	1" CLEAR, INSULATED, TEMPERED

OUTER LIGHT - 1/4" CLEAR TEMPERED W/ LOW E COATING  
AIR SPACE - 1/2"  
INNER LIGHT - 1/4" CLEAR TEMPERED

2 1/4" CLEAR, TEMPERED

3 SPANDREL GLASS TO BE 1" INSULATED LOW E AN  
WHERE REQUIRED BY CODE

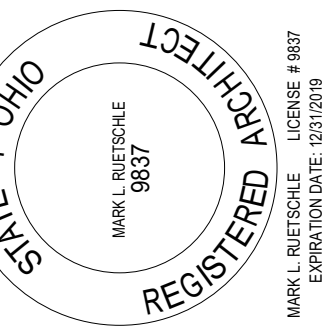
4 1/4" ONE WAY

5 ALUMINUM COMPOSITE PANEL

6 3/4 HOUR RATED GLASS



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Revisions:

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3939 Stonebridge Rd., Kettering, Ohio

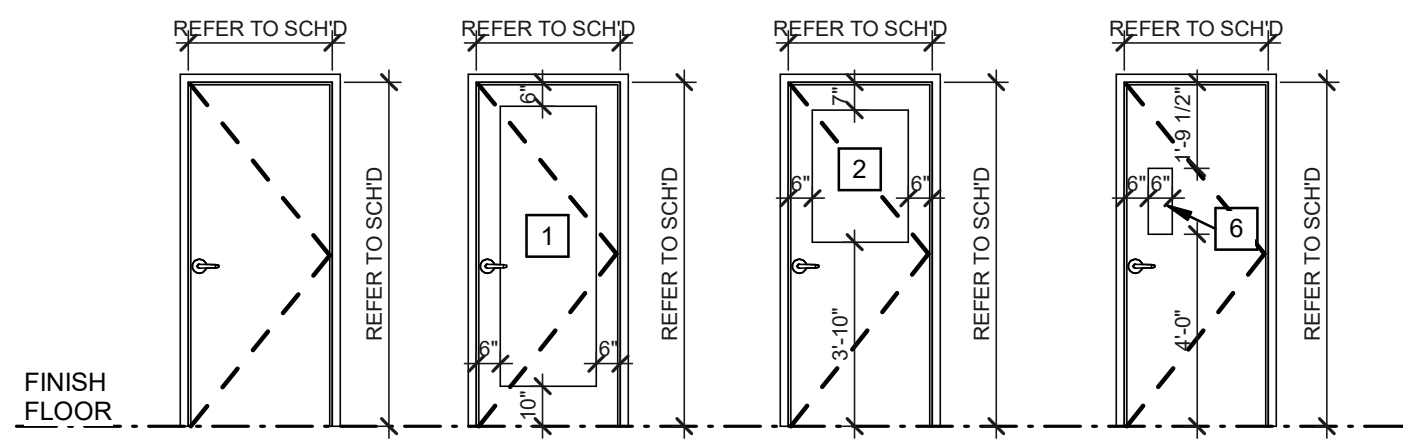
Comm. No.  
1716

## WINDOW TYPES

Sheet No.

## A 6.1

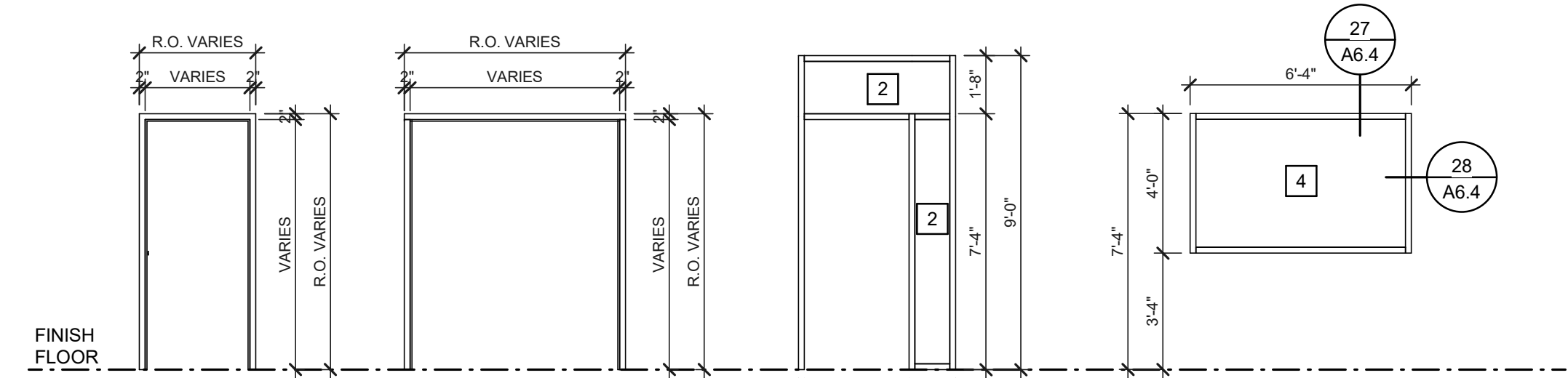




**D1 D2 D3 D4**

**DOOR TYPES**

SCALE: 1/4" = 1'-0"

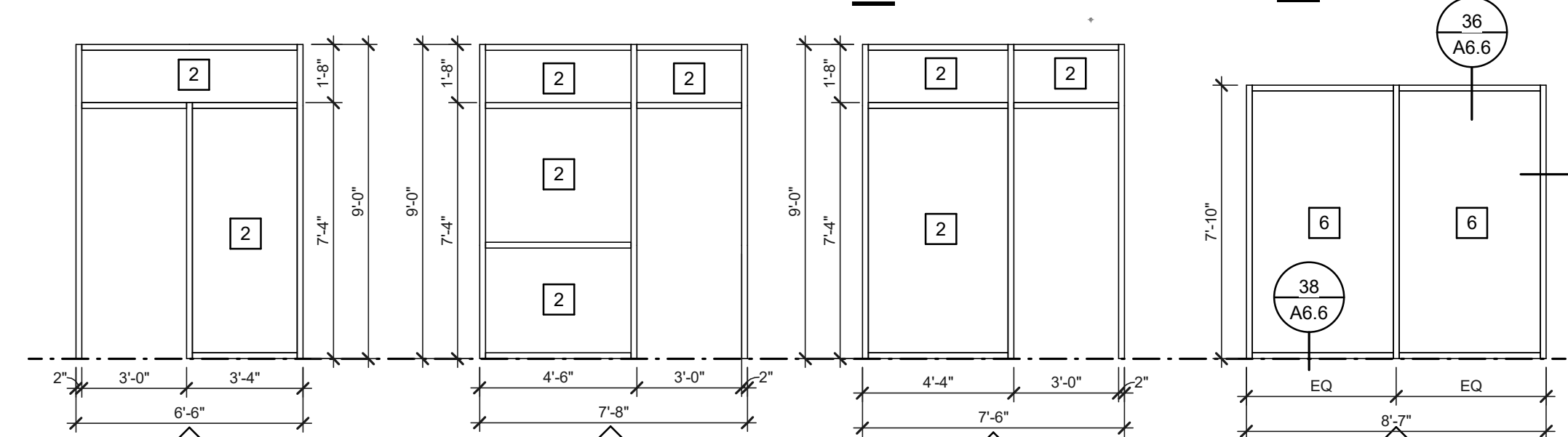


**F1 F2 F3 F4**

DOORS: 001, 003, 004, 105, 108, 109

**F4**

ROOMS: 001, 003, 004, 105, 108, 109



**F5 F6 F7 F8**

**FRAME TYPES**

SCALE: 1/4" = 1'-0"

**GENERAL NOTES**

AA. REINFORCE CURTAIN WALLS/ STOREFRONT FRAMING AS REQUIRED TO MEET ALL LOAD REQUIREMENTS.

**WINDOW NOTES**

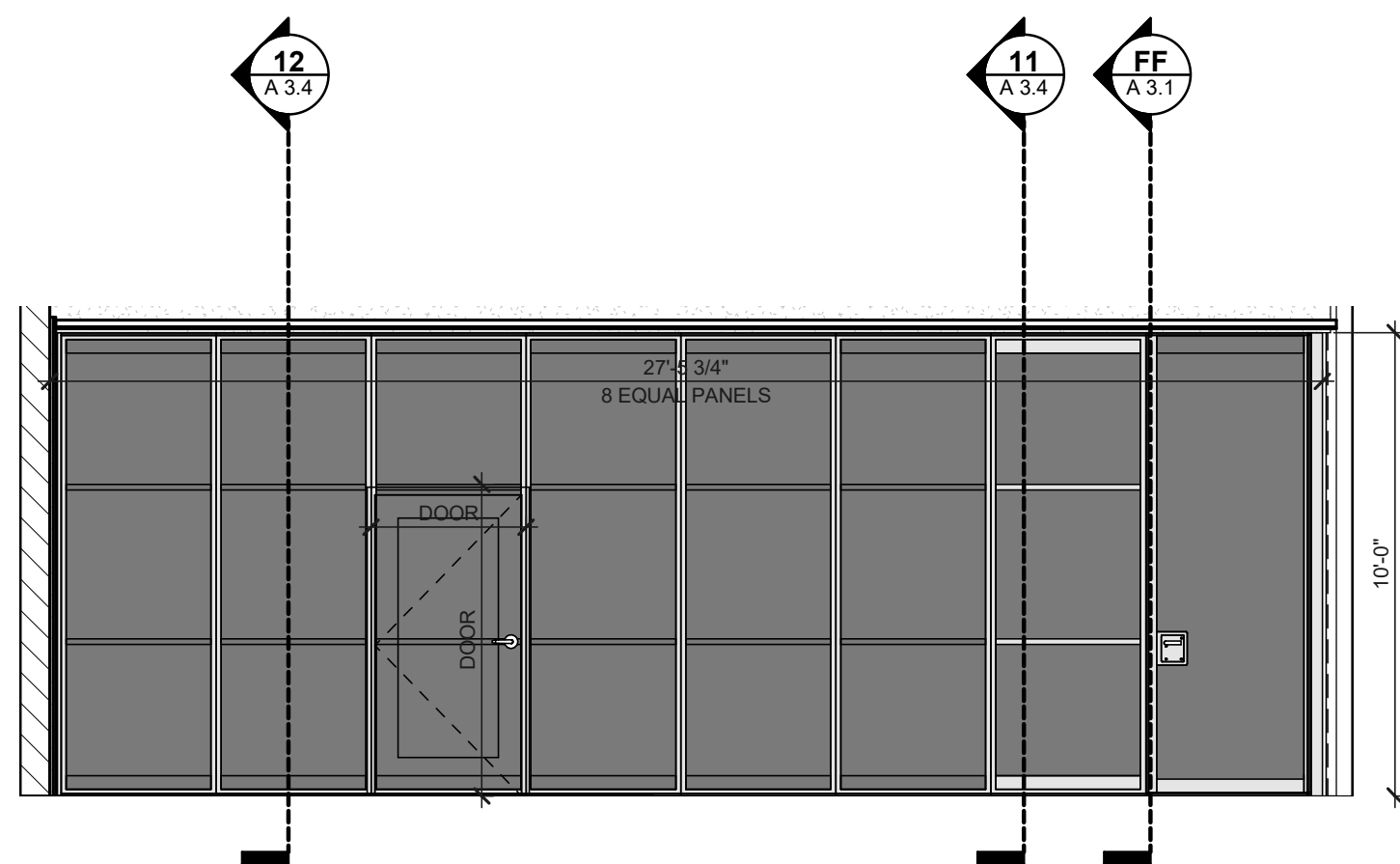
A. EXTENSION OF VERTICAL MULLIONS TO STRUCTURE, REFER TO DETAILS.  
B. ALUMINUM BREAK METAL

**GLAZING SCHEDULE**

BLIND TYPE	TYPE	DESCRIPTION
1	1"	CLEAR, INSULATED, TEMPERED OUTER LIGHT - 1/4" CLEAR TEMPERED W/ LOW E COATING AIR SPACE - 1/2" INNER LIGHT - 1/4" CLEAR TEMPERED
2	1/4"	CLEAR, TEMPERED
3	SPANDREL GLASS TO BE 1"	INSULATED LOW E AND TEMPERED WHERE REQUIRED BY CODE
4	1/4"	ONE WAY
5	ALUMINUM COMPOSITE PANEL	
6	3/4 HOUR RATED GLASS	

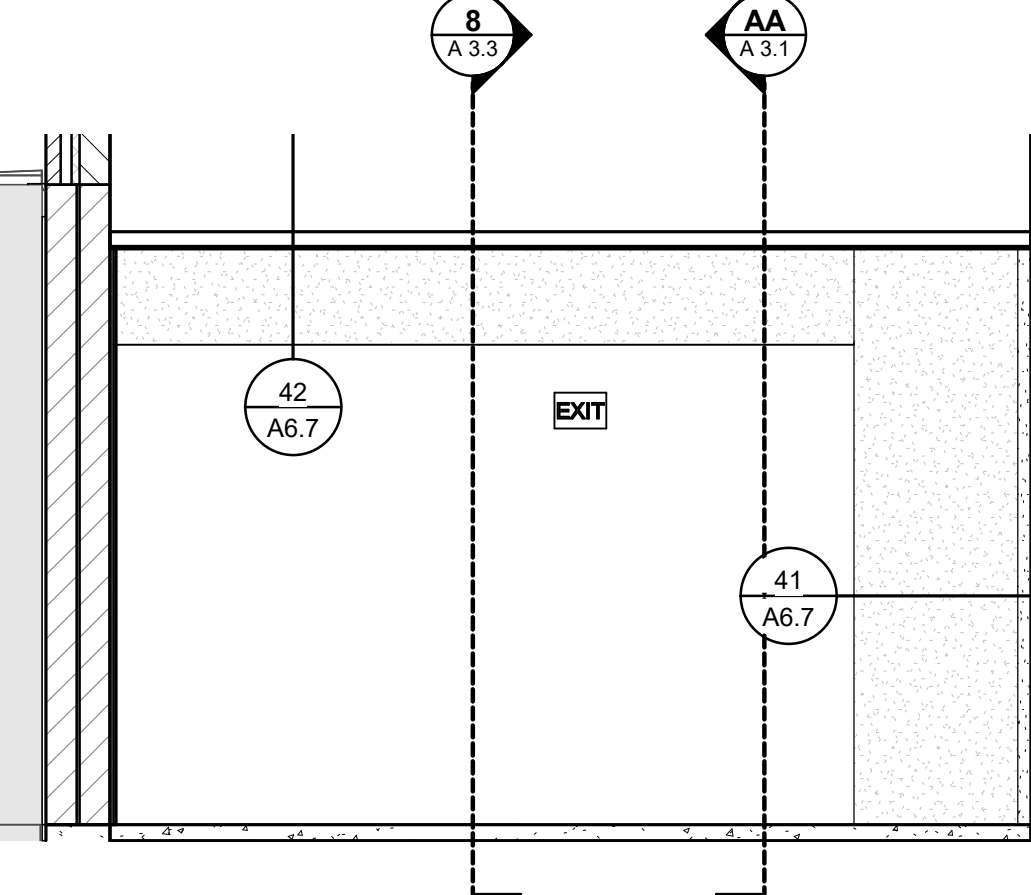
**LOBBY OPERABLE WALL**

SCALE: 1/4" = 1'-0"



**FIRE RATED OPENING TO EXISTING BUILDING**

SCALE: 1/4" = 1'-0"



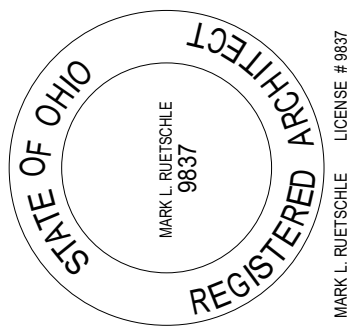
**NOTES:**

A. HARDWARE SET NUMBERS ARE LISTED IN THE SPECIFICATIONS.

B. FOR UNDER CUT DOORS OR LOUVER DOORS REFER TO MECHANICAL DRAWINGS.

DOOR NO.	DOOR							FRAME				FIRE RATING	HEAD / JAMB / SILL	HARDWARE SET NO.	NOTES
	WIDTH	HEIGHT	THK.	NO. of PANELS	TYPE	MATERIAL	FINISH	TYPE	MATERIAL	FINISH	DEPTH				
001	3'-0"	7'-2"	1 3/4"	S	D3	S.C.WOOD	PRE-FINISHED	F3	H.METAL	PAINT	5-3/4"		23, 24	01	
002	3'-0"	7'-2"	1 3/4"	S	D1	S.C.WOOD	PRE-FINISHED	F1	H.METAL	PAINT	5-3/4"		25, 26	02	
003	3'-0"	7'-2"	1 3/4"	S	D3	S.C.WOOD	PRE-FINISHED	F3	H.METAL	PAINT	5-3/4"		23, 24	03	
004	3'-0"	7'-2"	1 3/4"	S	D3	S.C.WOOD	PRE-FINISHED	F3	H.METAL	PAINT	5-3/4"		23, 24	03	
005	3'-0"	7'-2"	1 3/4"	S	D1	S.C.WOOD	PRE-FINISHED	F1	H.METAL	PAINT	5-3/4"		25, 26	02	
006	3'-0"	7'-2"	1 3/4"	S	D3	S.C.WOOD	PRE-FINISHED	F5	H.METAL	PAINT	5-3/4"		23, 24	01	
007	3'-0"	7'-2"	1 3/4"	S	D1	S.C.WOOD	PRE-FINISHED	F1	H.METAL	PAINT	5-3/4"	60 MIN.	13, 14	04	
008	6'-0"	7'-2"	1 3/4"	Pair	D1	H.METAL	PAINT	F2	H.METAL	PAINT	5-3/4"		23, 24	05	
009	3'-0"	7'-2"	1 3/4"	S	D1	S.C.WOOD	PRE-FINISHED	F1	H.METAL	PAINT	5-3/4"		15, 16	06	
010	3'-0"	7'-2"	1 3/4"	S	D4	S.C.WOOD	PRE-FINISHED	F1	H.METAL	PAINT	5-3/4"	60 MIN.	13, 14	07	
011	3'-0"	7'-2"	1 3/4"	S	D4	S.C.WOOD	PRE-FINISHED	F1	H.METAL	PAINT	5-3/4"	60 MIN.	13, 14	07	
012	3'-0"	7'-2"	1 3/4"	S	D1	S.C.WOOD	PRE-FINISHED	F1	H.METAL	PAINT	5-3/4"	60 MIN.	13, 14	08	
100A	6'-4 1/8"	8'-0"	1 3/4"	Pair	D2	ALUM.	PRE-FINISHED	CW01	ALUM.	PRE-FINISHED	7"		TBD	09	
100B	6'-4"	8'-0"	1 3/4"	Pair	D2	ALUM.	PRE-FINISHED	CW01	ALUM.	PRE-FINISHED	7"		TBD	09	
100C	6'-4 1/8"	8'-0"	1 3/4"	Pair	D2	ALUM.	PRE-FINISHED	CW01	ALUM.	PRE-FINISHED	7"		TBD	10	
100D	6'-4 1/8"	8'-0"	1 3/4"	Pair	D2	ALUM.	PRE-FINISHED	CW02	ALUM.	PRE-FINISHED	7"		TBD	11	
100E	6'-4"	8'-0"	1 3/4"	Pair	D2	ALUM.	PRE-FINISHED	CW02	ALUM.	PRE-FINISHED	7"		TBD	11	
100F	6'-4 1/8"	8'-0"	1 3/4"	Pair	D2	ALUM.	PRE-FINISHED	CW02	ALUM.	PRE-FINISHED	7"		TBD	12	
101	3'-0"	7'-2"	1 3/4"	S	D4	S.C.WOOD	PRE-FINISHED	F1	H.METAL	PAINT	5-3/4"	60 MIN.	17, 18	13	
102	3'-0"	7'-2"	1 3/4"	S	D4	S.C.WOOD	PRE-FINISHED	F1	H.METAL	PAINT	5-3/4"	60 MIN.	17, 18	13	
102A	8'-0"	7'-10"	1 3/4"	Pair	D1	H.METAL	PAINT	F2	H.METAL	PAINT	5-3/4"	90 MIN.	34, 35	21	
102B	8'-0"	7'-10"	1 3/4"	Pair	D2	S.C.WOOD	PRE-FINISHED	F2	H.METAL	PAINT	5-3/4"	20 MIN.	39, 40	21	
104	3'-0"	7'-2"	1 3/4"	S	D1	S.C.WOOD	PRE-FINISHED	F1	H.METAL	PAINT	5-3/4"		19, 20	06	
105	3'-0"	7'-2"	1 3/4"	S	D3	S.C.WOOD	PRE-FINISHED	F3	H.METAL	PAINT	5-3/4"		23, 24	01	
106A	3'-0"	7'-2"	1 3/4"	S	D1	S.C.WOOD	PRE-FINISHED	F1	H.METAL	PAINT	5-3/4"		23, 24	14	
106B	3'-0"	7'-2"	1 3/4"	S	D1	S.C.WOOD	PRE-FINISHED	F1	H.METAL	PAINT	5-3/4"		23, 24	14	
107	3'-0"	7'-2"	1 3/4"	S	D4	S.C.WOOD	PRE-FINISHED	F1	H.METAL	PAINT	5-3/4"	60 MIN.	17, 18	15	
108	3'-0"	7'-2"	1 3/4"	S	D3	S.C.WOOD	PRE-FINISHED	F3	H.METAL	PAINT	5-3/4"		23, 24	01	
109	3'-0"	7'-2"	1 3/4"	S	D3	S.C.WOOD	PRE-FINISHED	F3	H.METAL	PAINT	5-3/4"		23, 24	01	
110A	3'-0"	7'-2"	1 3/4"	S	D1	S.C.WOOD	PRE-FINISHED	F1	H.METAL	PAINT	5-3/4"		23, 24	14	
110B	3'-0"	7'-2"	1 3/4"	S	D1	S.C.WOOD	PRE-FINISHED	F1	H.METAL	PAINT	5-3/4"		23, 24	14	
111	3'-0"	7'-2"	1 3/4"	S	D3	S.C.WOOD	PRE-FINISHED	F6	H.METAL	PAINT	5-3/4"		23, 24	01	
112A	3'-2"	7'-2"	1 3/4"	S	D2	ALUM.	PRE-FINISHED	SF05	ALUM.	PRE-FINISHED	4-1/2"		4, 5, 6	16	
112B	3'-2"	7'-1 5/8"	1 3/4"	S	D2	ALUM.	PRE-FINISHED	SF06	ALUM.	PRE-FINISHED	4-1/2"		23, 24	17	
112C	3'-0"	7'-2"	1 3/4"	S	D4	S.C.WOOD	PRE-FINISHED	F1	H.METAL	PAINT	5-3/4"	60 MIN.	17, 18	15	
113A	3'-2 3/8"	7'-2"	1 3/4"	S	D1	H.METAL	PAINT	F1	H.METAL	PAINT	5-3/4"		31, 32	18	
113B	3'-0"	7'-2"	1 3/4"	S	D1	H.METAL	PAINT	F1	H.METAL	PAINT	5-3/4"		23, 24	06	
114A	7'-2"	7'-2"	1 3/4"	Pair	D1	H.METAL	PAINT	F2	H.METAL	PAINT	5-3/4"		23, 24	19	
114B	7'-2"	7'-2"	1 3/4"	Pair	D1	H.METAL	PAINT	F2	H.METAL	PAINT	5-3/4"		23, 24	19	
115	3'-0"	7'-2"	1 3/4"	S	D2	S.C.WOOD	PRE-FINISHED	F7	H.METAL	PAINT	5-3/4"		23, 24	01	
116	6'-0"	7'-2"	1 3/4"	Pair	D1	H.METAL	PAINT	F2	H.METAL	PAINT	5-3/4"		23, 24	05	
200A	3'-0"	7'-2"	1 3/4"	S	D4	S.C.WOOD	PRE-FINISHED	F1	H.METAL	PAINT	5-3/4"	60 MIN.	21, 22	07	
200B	3'-0"	7'-2"	1 3/4"	S	D4	S.C.WOOD	PRE-FINISHED	F1	H.METAL	PAINT	5-3/4"	60 MIN.	21, 22	07	
200C	3'-8"	7'-2"	1 3/4"	S	D1	H.METAL	PAINT	F1	H.METAL	PAINT	5-3/4"	60 MIN.	31, 32, 33	20	
E104	3'-0"	7'-2"	1 3/4"	S	D3	S.C.WOOD	PRE-FINISHED	F1	H.METAL	PAINT	5-3/4"		23, 24	01	
E105	3'-0"	7'-2"	1 3/4"	S	D1	S.C.WOOD	PRE-FINISHED	F1	H.METAL	PAINT	5-3/4"		23, 24	14	ALTERNATE

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Package 3A - Masonry  
& Grade Beam Package  
Revisions:

NEW ADDITION TO:  
**KETTERING SEVENTH-DAY ADVENTIST CHURCH**

3939 Stonebridge Rd., Kettering, Ohio

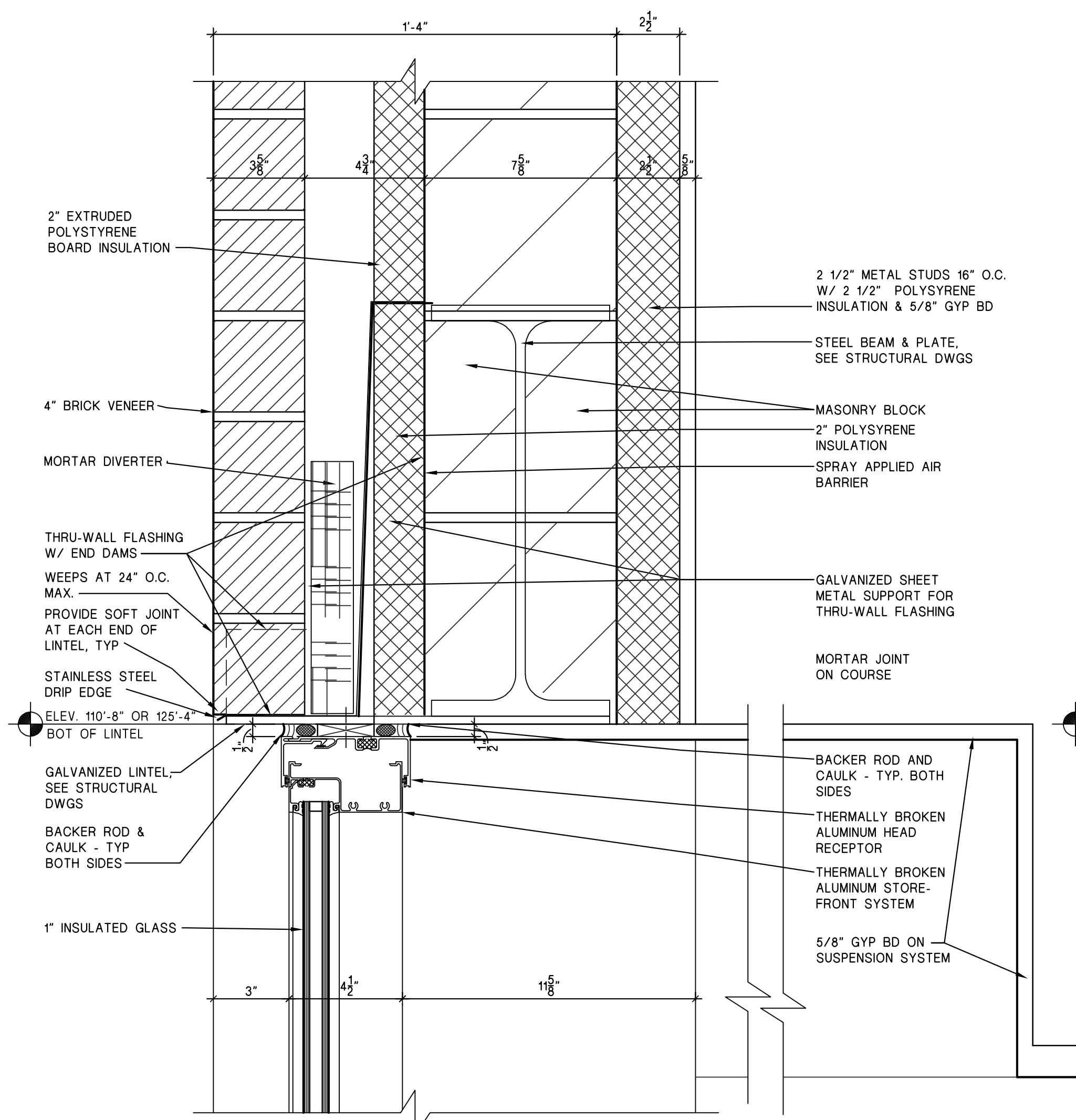
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61716

DOOR SCH. & TYPES

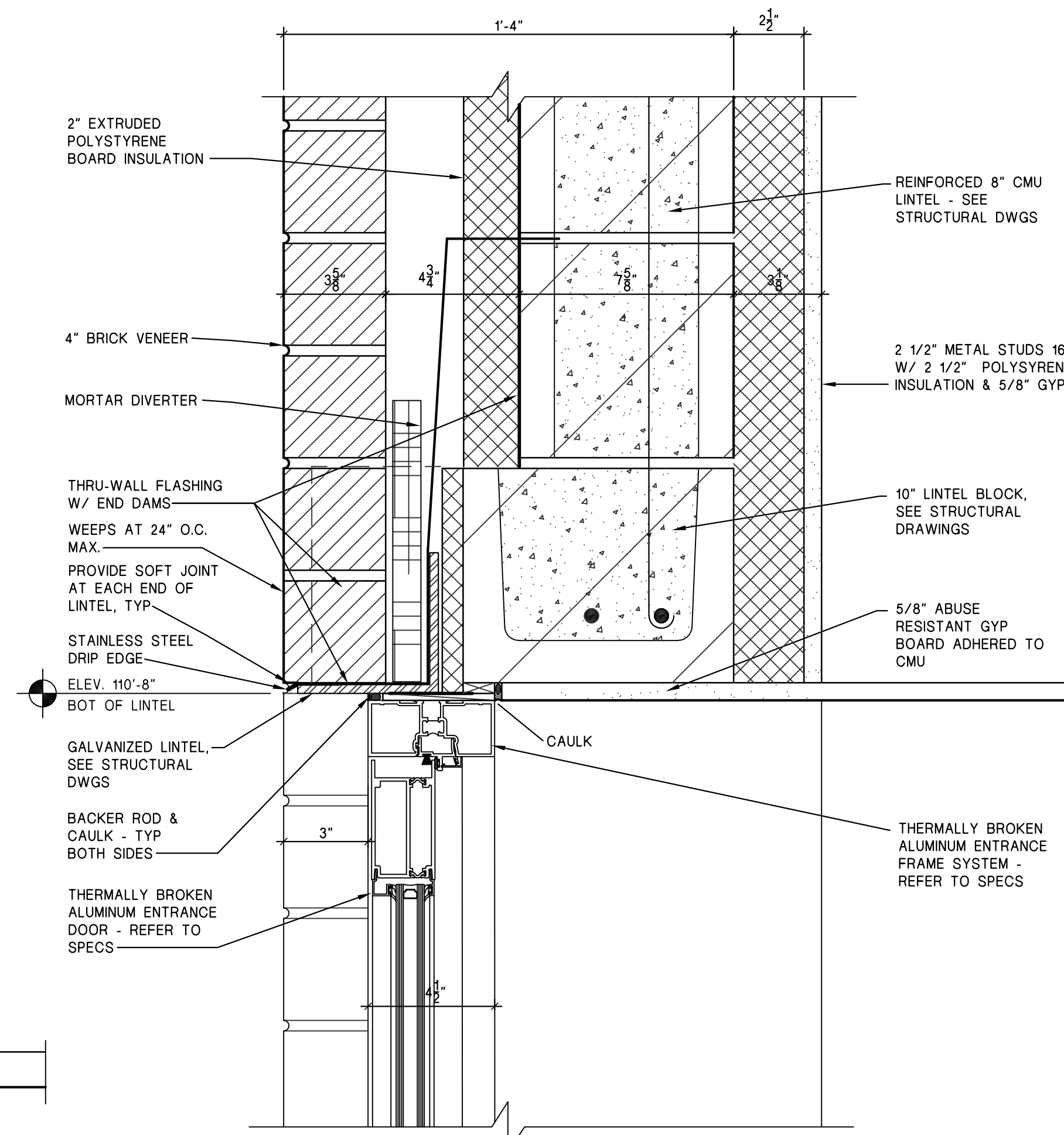
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**A 6.2**

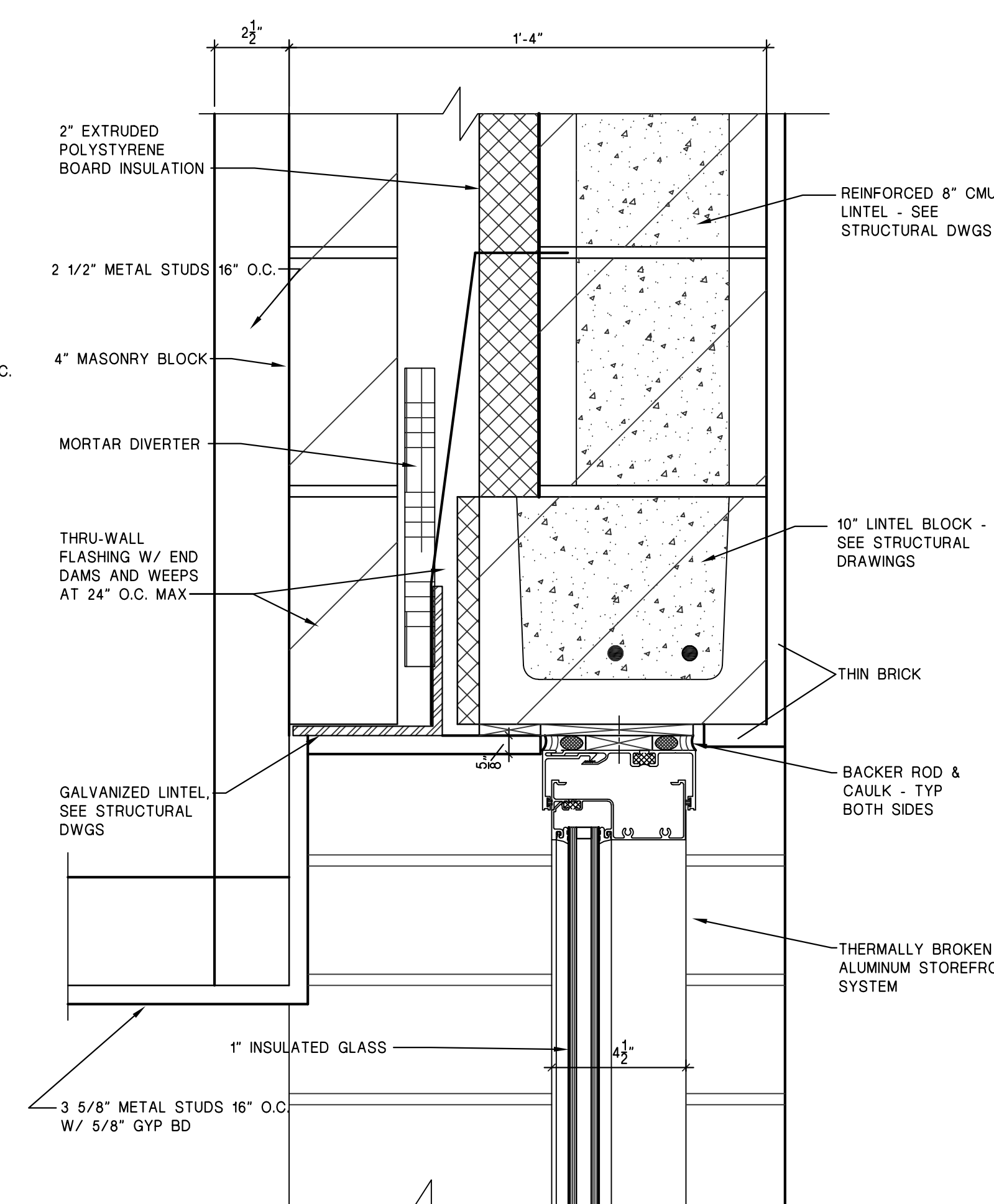




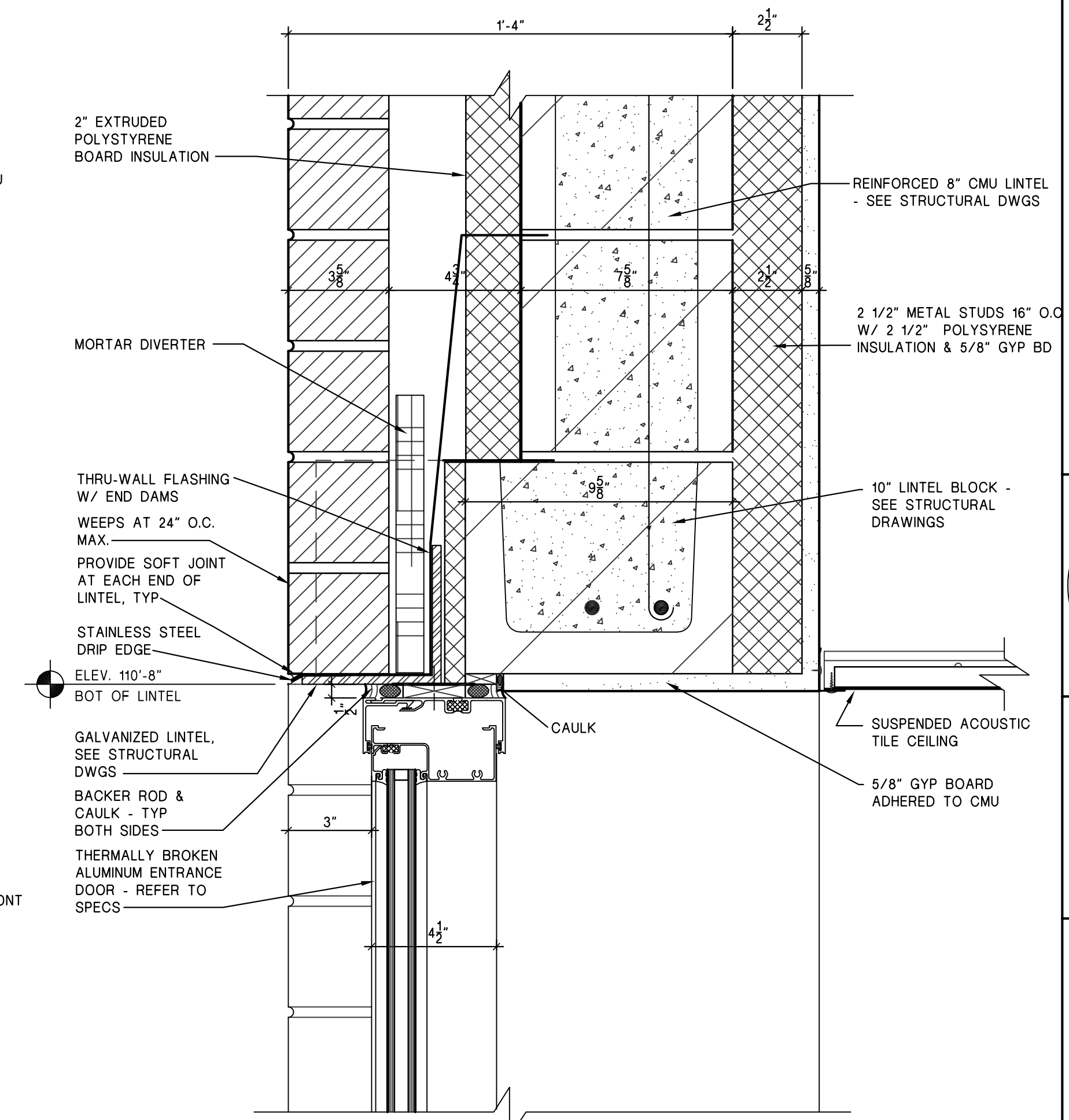
**1 HEAD EXT WINDOW**  
SCALE: 3" = 1'-0"



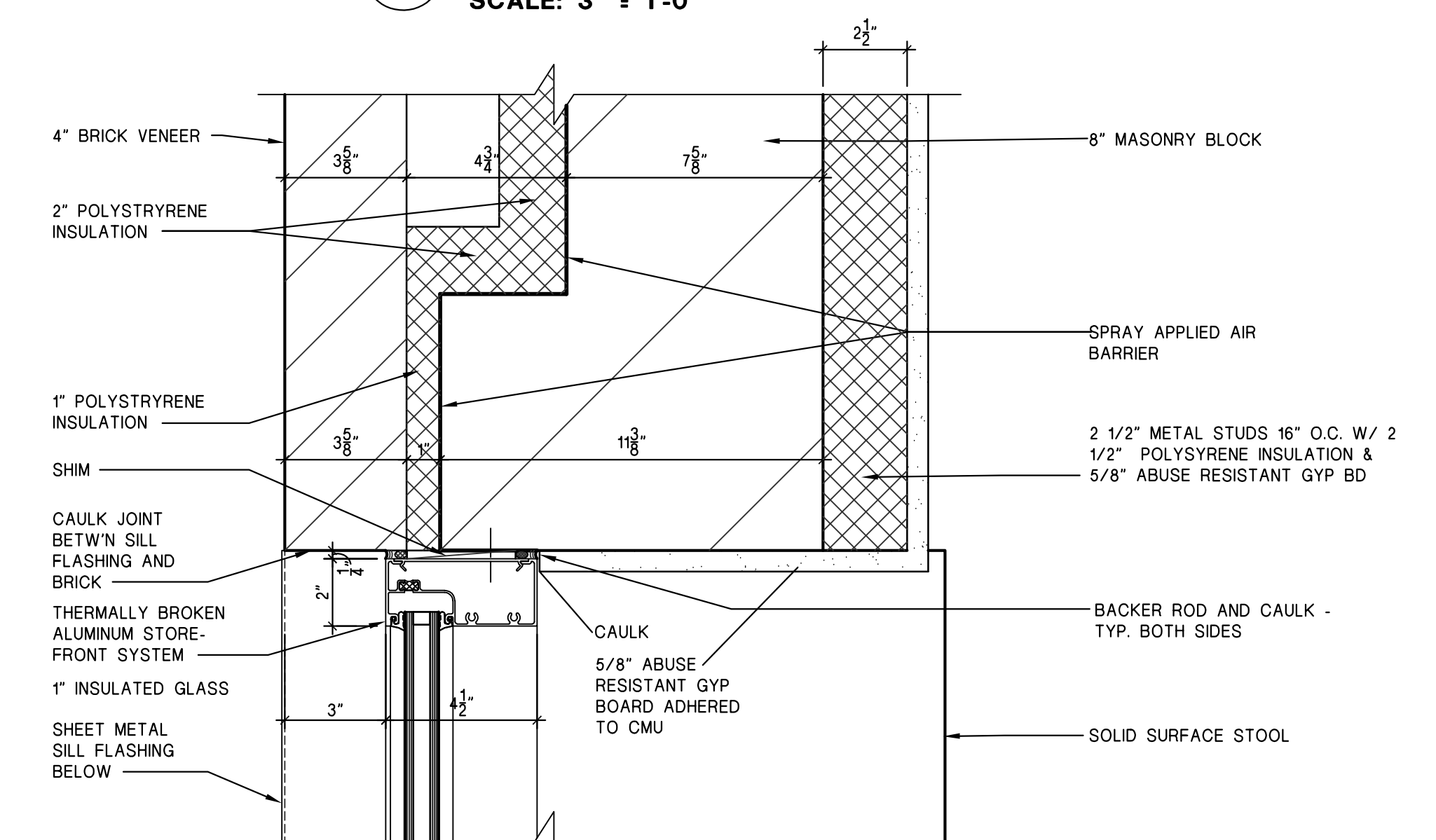
**4 HEAD SF 112A**  
SCALE: 3" = 1'-0"



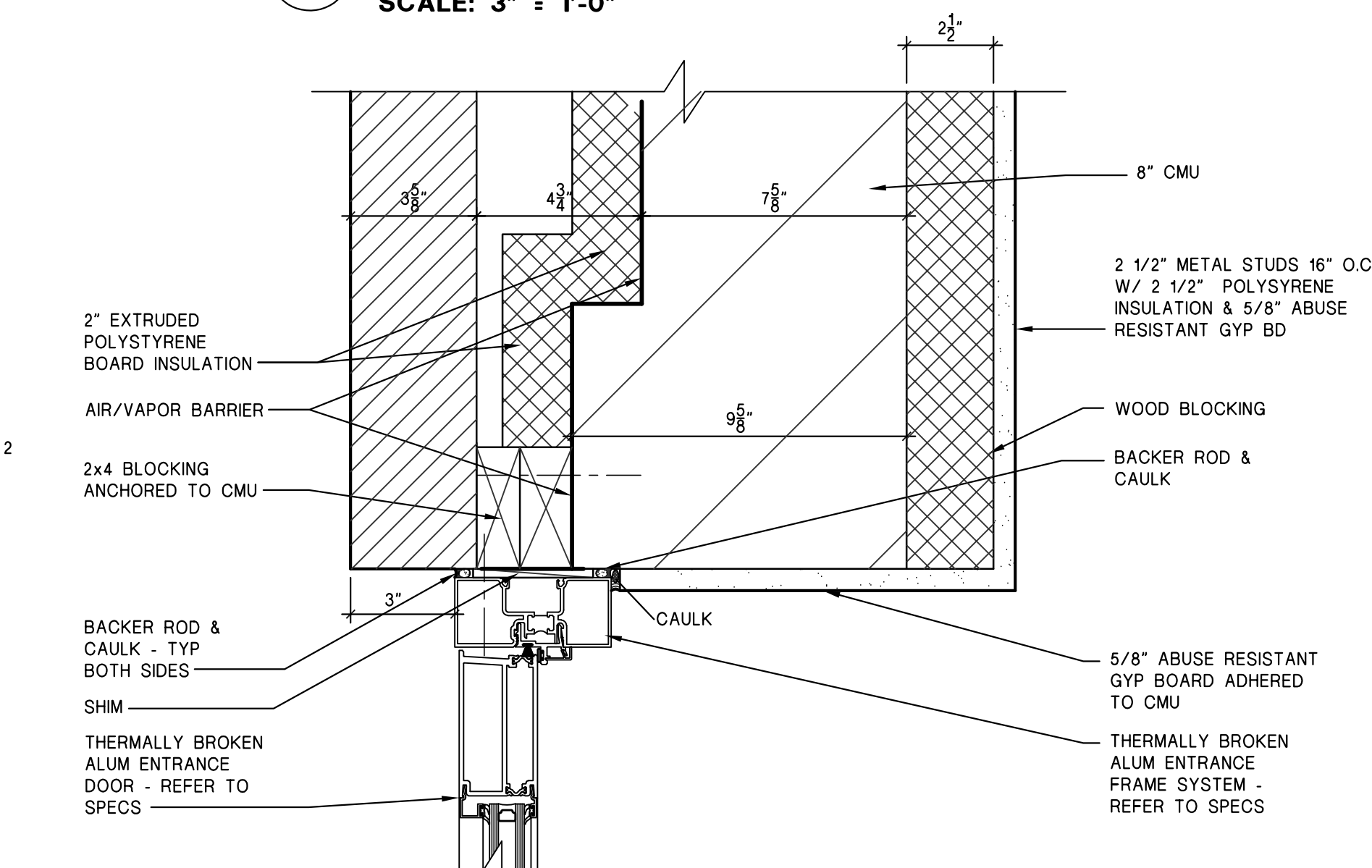
**7 HEAD SF 09**  
SCALE: 3" = 1'-0"



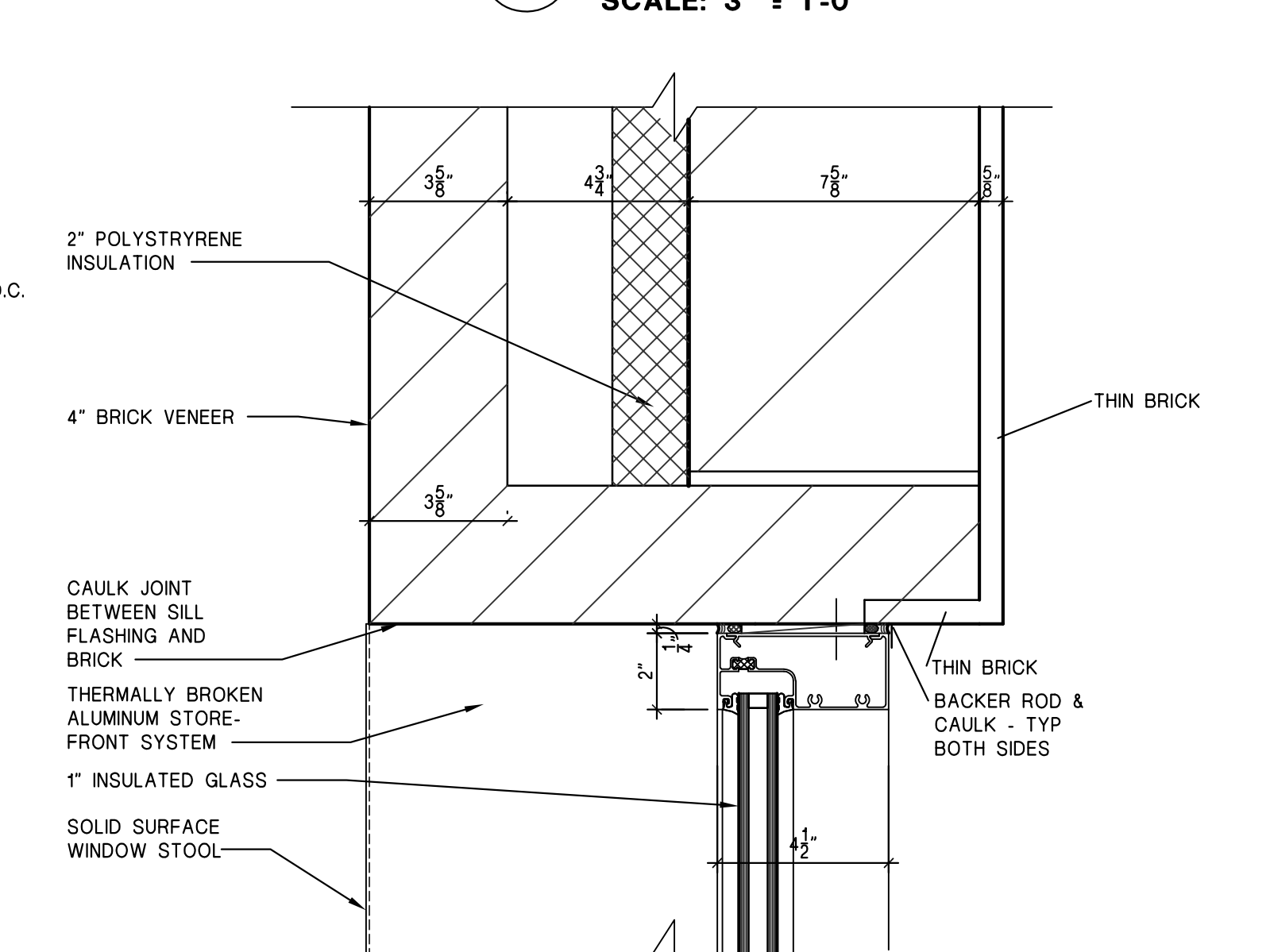
**10 HEAD WINDOWS SF01, SF02 & SF07**  
SCALE: 3" = 1'-0"



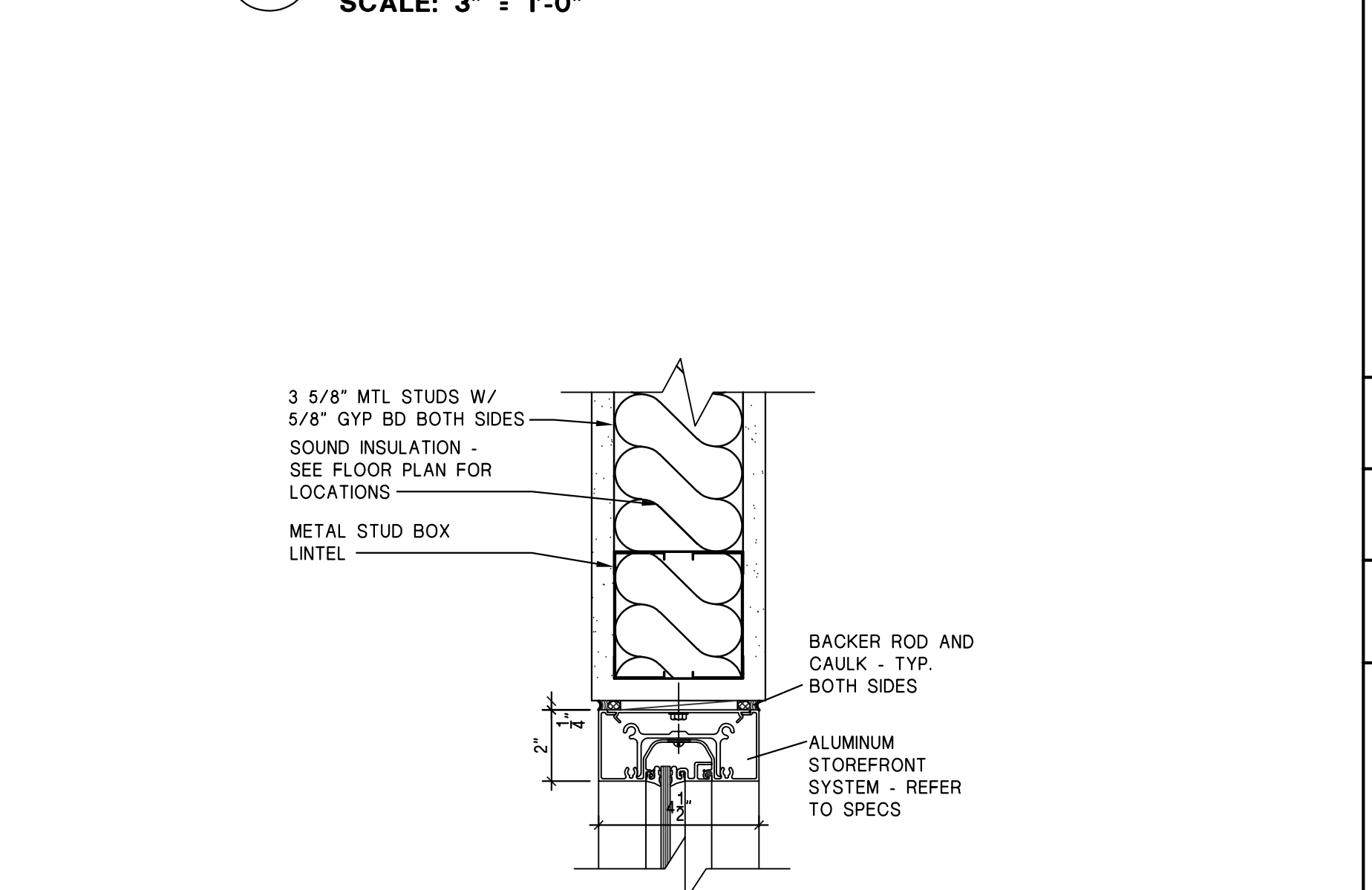
**2 JAMB EXT WINDOW**  
SCALE: 3" = 1'-0"



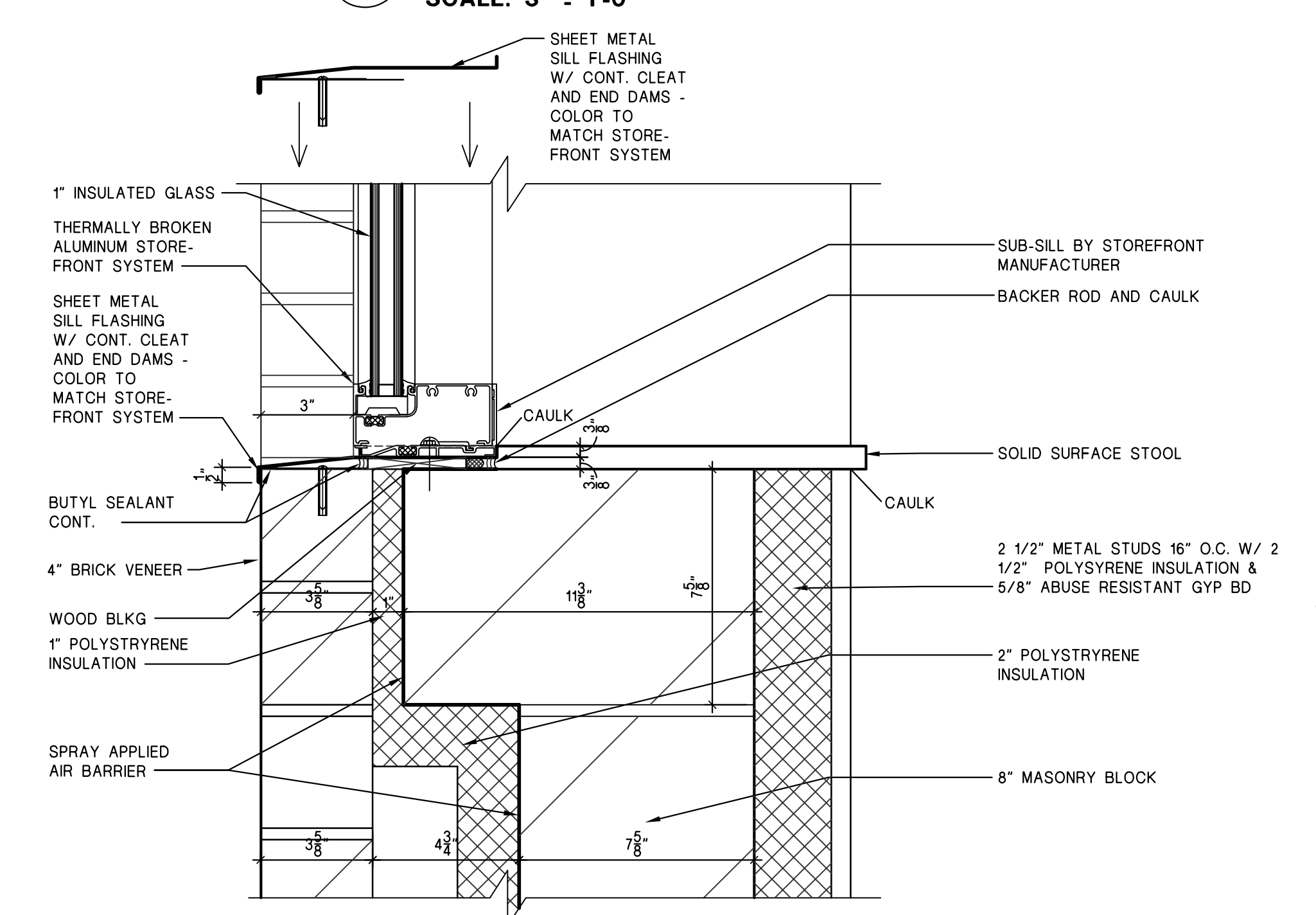
**5 JAMB SF 112A**  
SCALE: 3" = 1'-0"



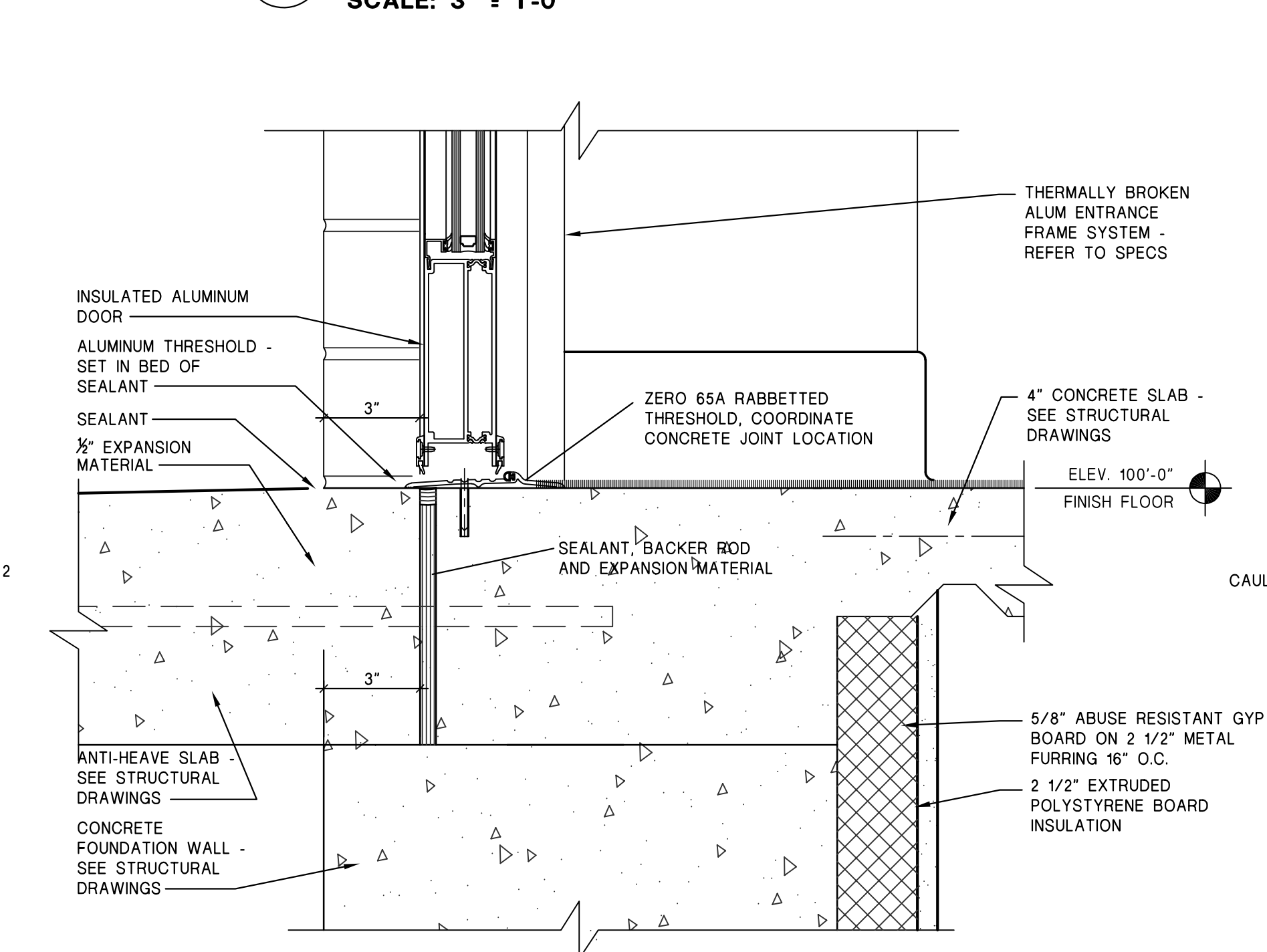
**8 JAMB SF 09**  
SCALE: 3" = 1'-0"



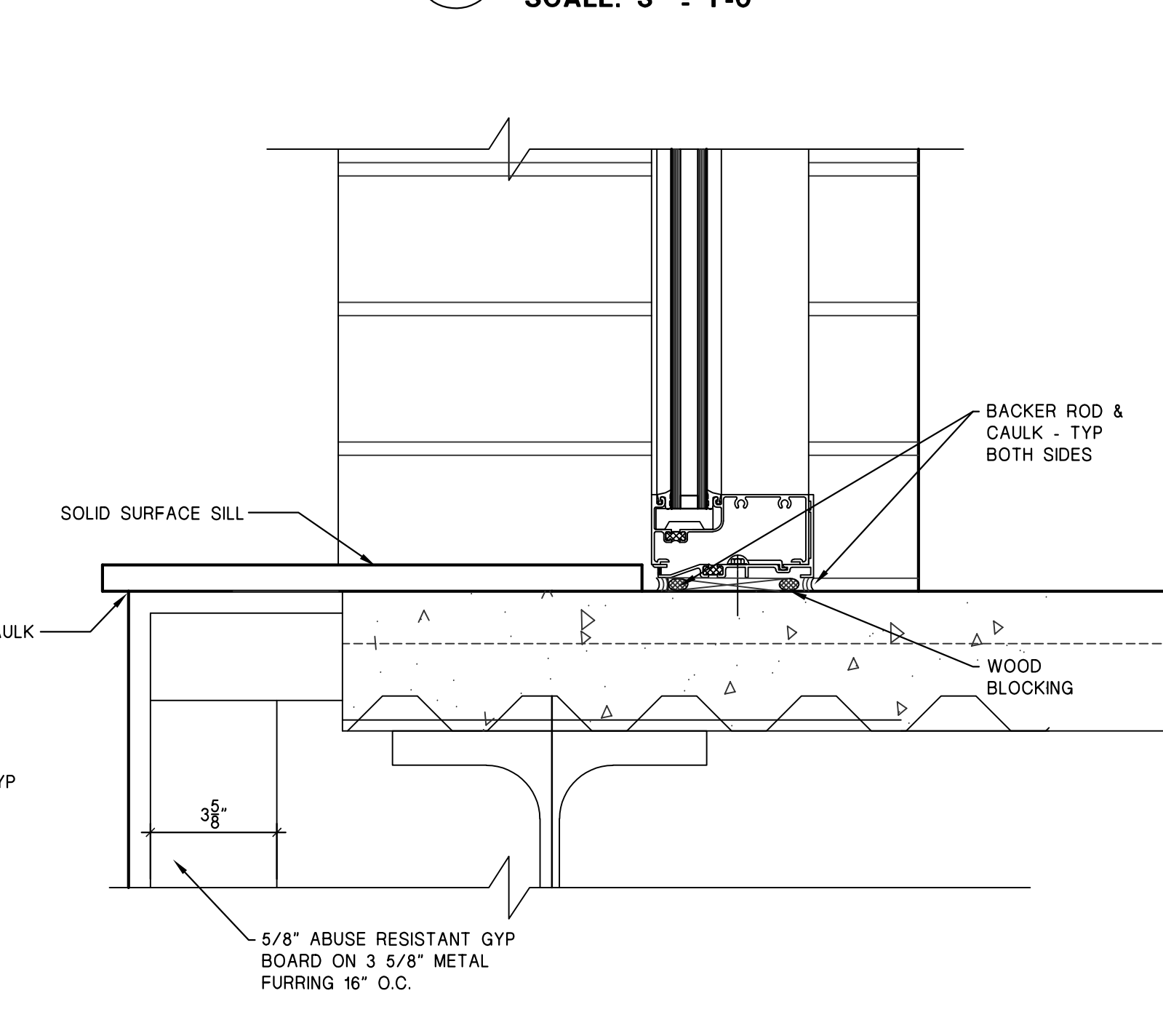
**11 HEAD (DOOR 112B)**  
SCALE: 3" = 1'-0"



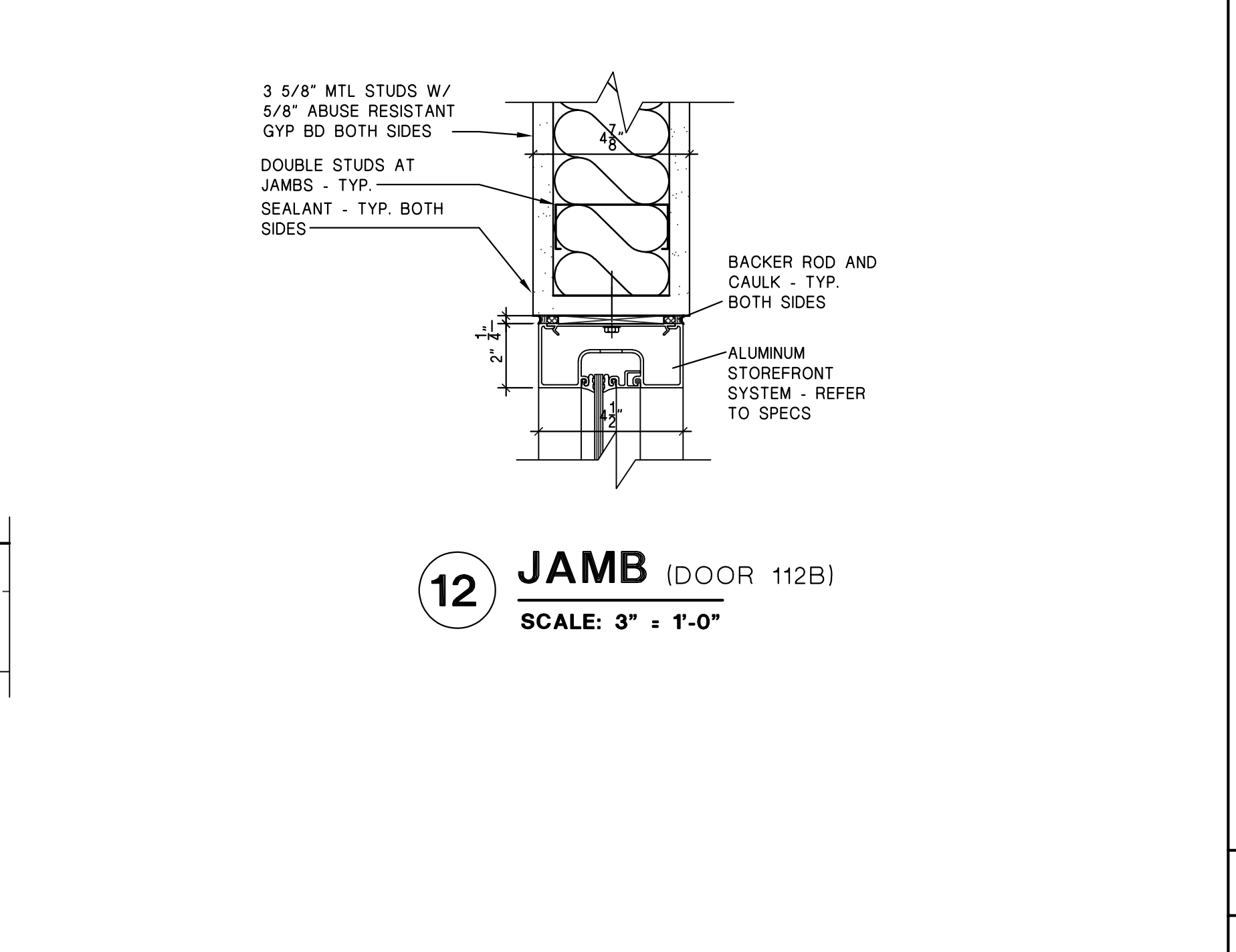
**3 SILL EXT WINDOW**  
SCALE: 3" = 1'-0"



**6 SILL SF 112A**  
SCALE: 3" = 1'-0"

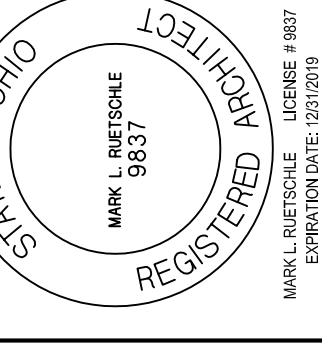


**9 SILL SF 09**  
SCALE: 3" = 1'-0"



**12 JAMB (DOOR 112B)**  
SCALE: 3" = 1'-0"

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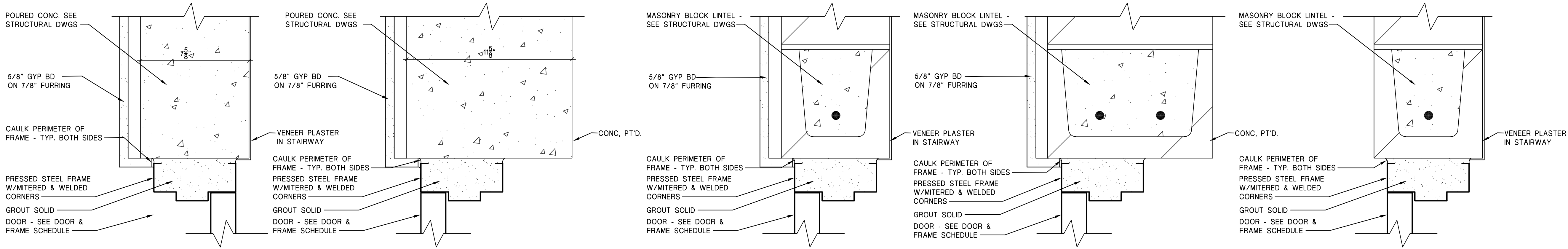
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61716

Door  
Details

Sheet No.

**A6.3**





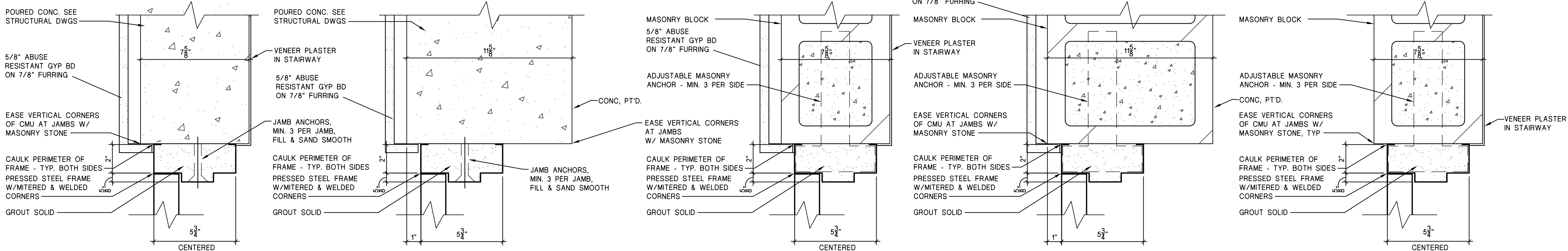
**13 HEAD** DOOR 010 & 011  
DOOR 07 & 012 SIM  
SCALE: 3" = 1'-0"

**15 HEAD** DOOR 009  
SCALE: 3" = 1'-0"

**17 HEAD** DOOR 101 & 102  
DOOR 107 & 112C SIM  
SCALE: 3" = 1'-0"

**19 HEAD** DOOR 104  
SCALE: 3" = 1'-0"

**21 HEAD** DOOR 200 A  
SCALE: 3" = 1'-0"



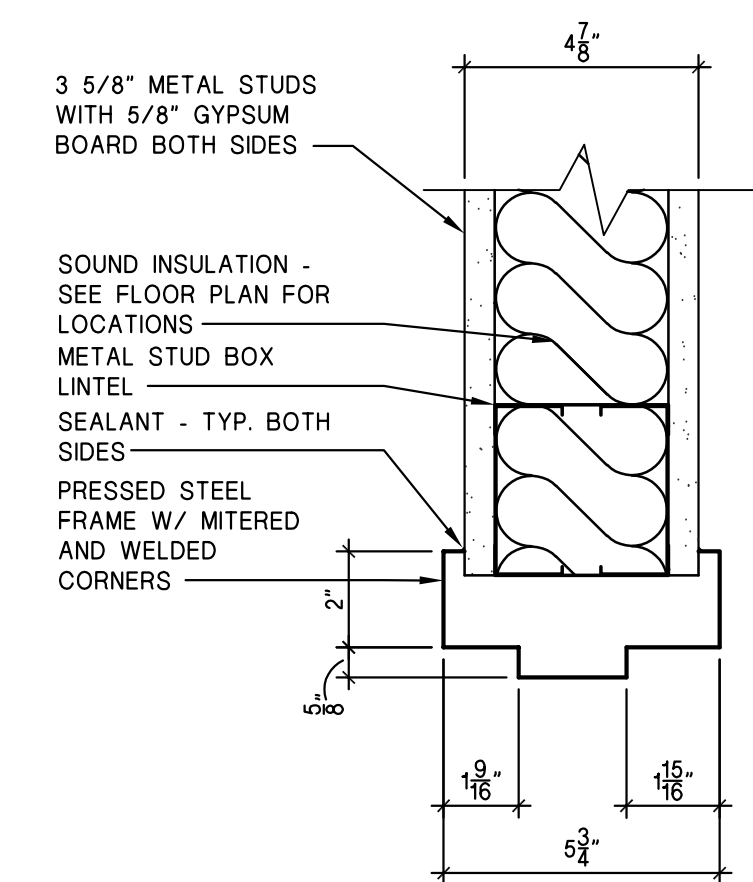
**14 JAMB**  
SCALE: 3" = 1'-0"  
DOOR 010 & 011  
DOOR 07 & 012 SIM

**16 JAMB** DOOR 009  
SCALE: 3" = 1'-0"

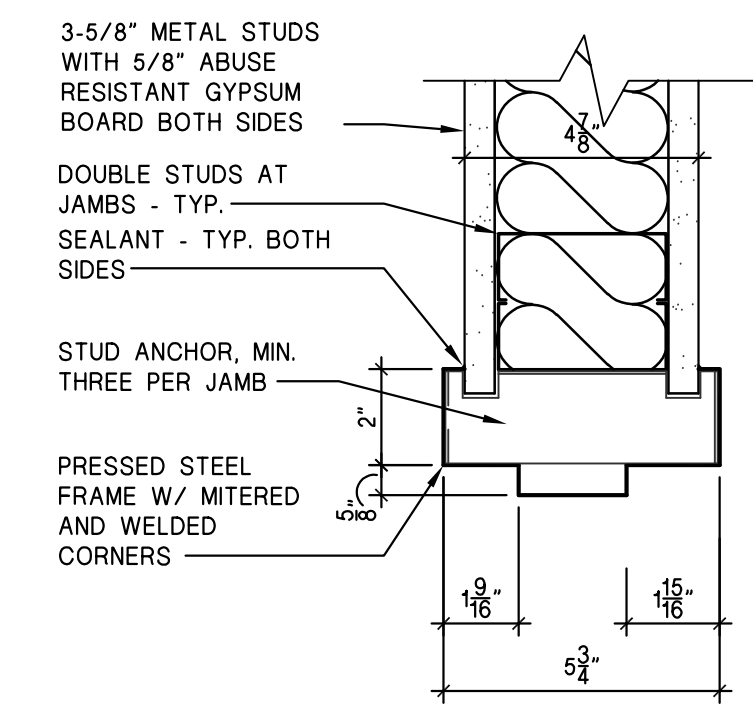
**18 JAMB**  
SCALE: 3" = 1'-0"  
DOOR 101 & 102  
DOOR 107 & 112C SIM

**20 JAMB** DOOR 104  
SCALE: 3" = 1'-0"

**22 JAMB** DOOR 107 & 112C SIM  
SCALE: 3" = 1'-0"

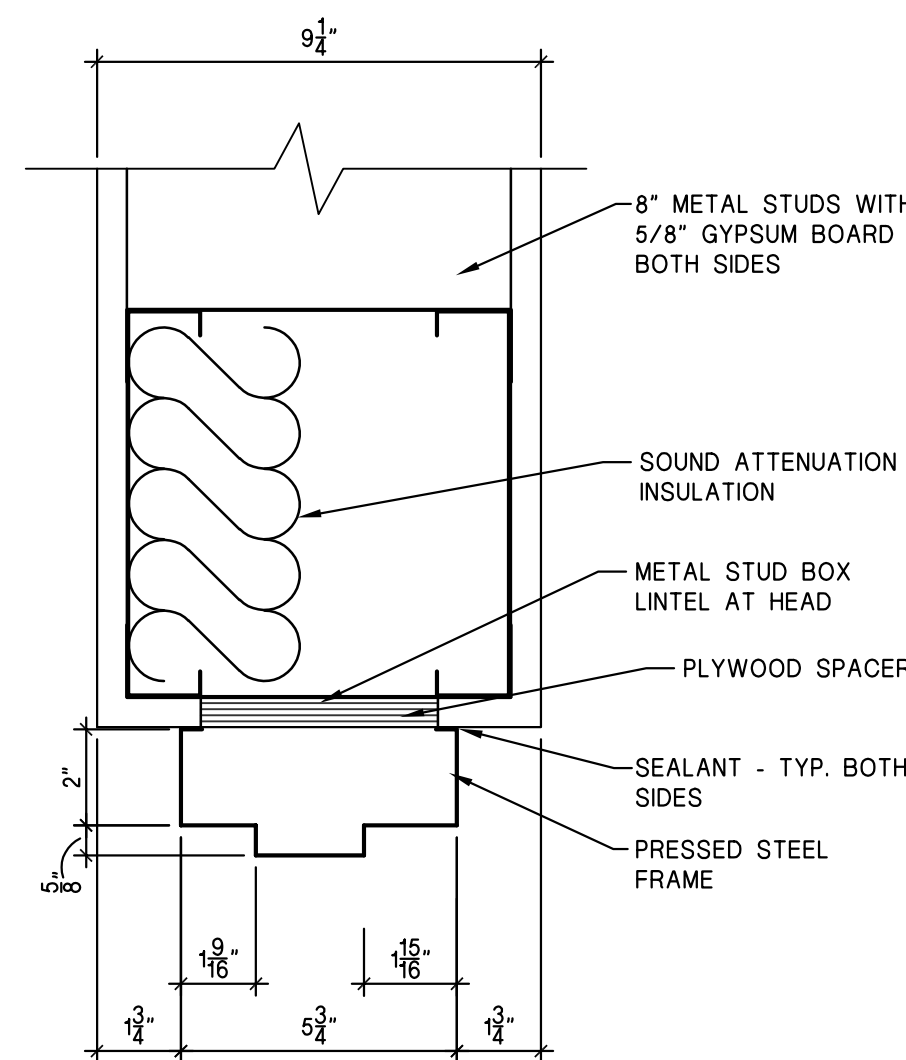


**23 HEAD** DOOR 001, 003, 004, 006,  
105, 106A, 106B, 109,  
110A, 110 B, 111, 113B, 114A,  
114B, 115, 116, E104  
SCALE: 3" = 1'-0"

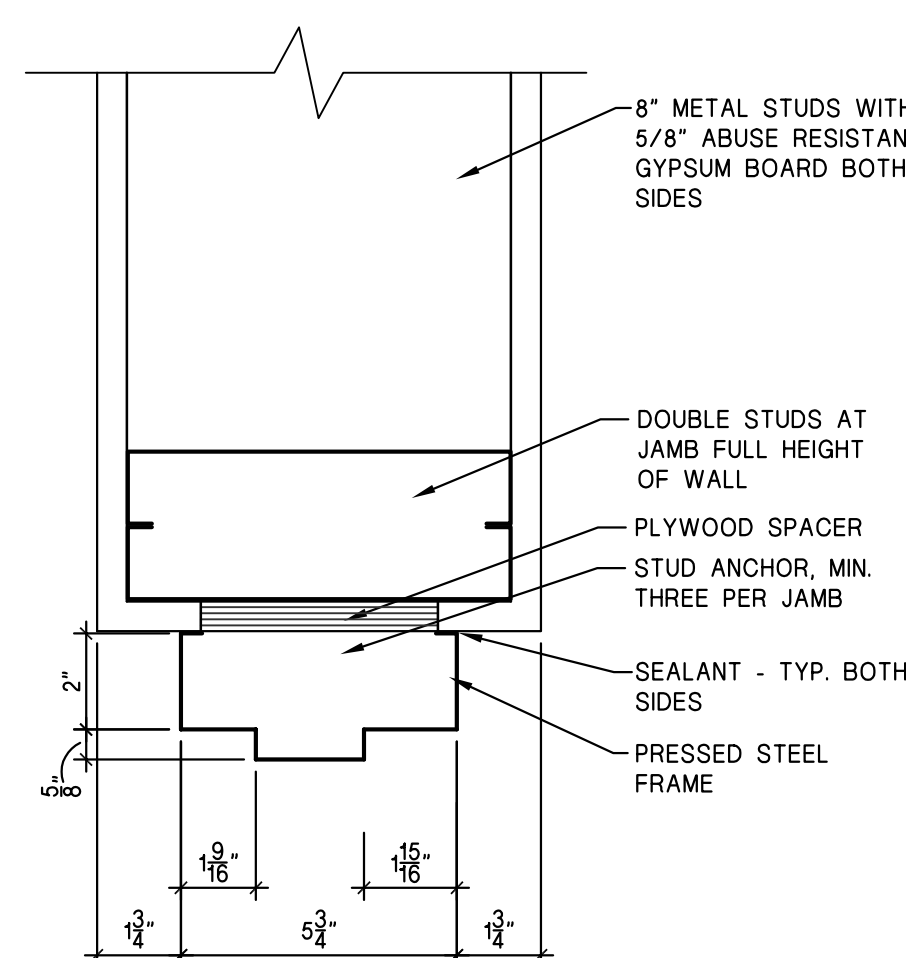


**24 JAMB**  
SCALE: 3" = 1'-0"

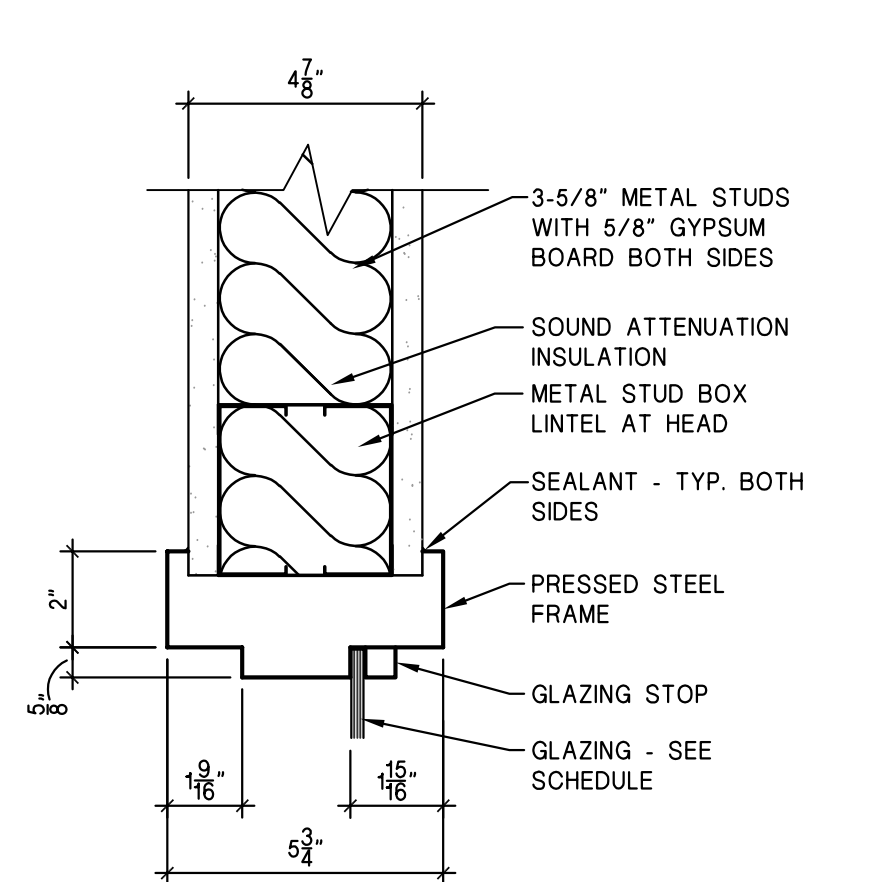
DOOR 001, 003, 004, 006,  
105, 106A, 106B, 109,  
110A, 110 B, 111, 113B, 114A,  
114B, 115, 116, E104



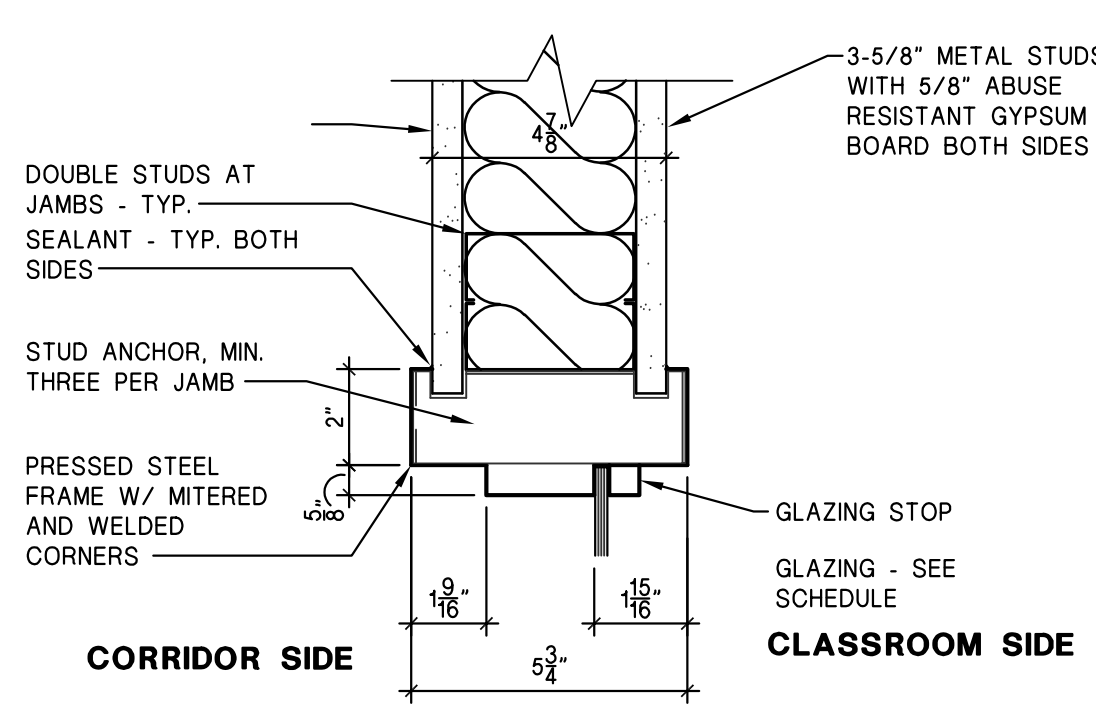
**25 HEAD** DOOR 002 & 005  
SCALE: 3" = 1'-0"



**26 JAMB** DOOR 002 & 005  
SCALE: 3" = 1'-0"



**27 HEAD** WINDOW F4  
SCALE: 3" = 1'-0"  
JAMB SIMILAR



**28 JAMB** WINDOW F4  
SCALE: 3" = 1'-0"

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3939 Stonebridge Rd., Kettering, Ohio

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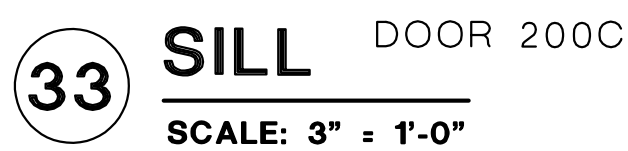
61716

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Details

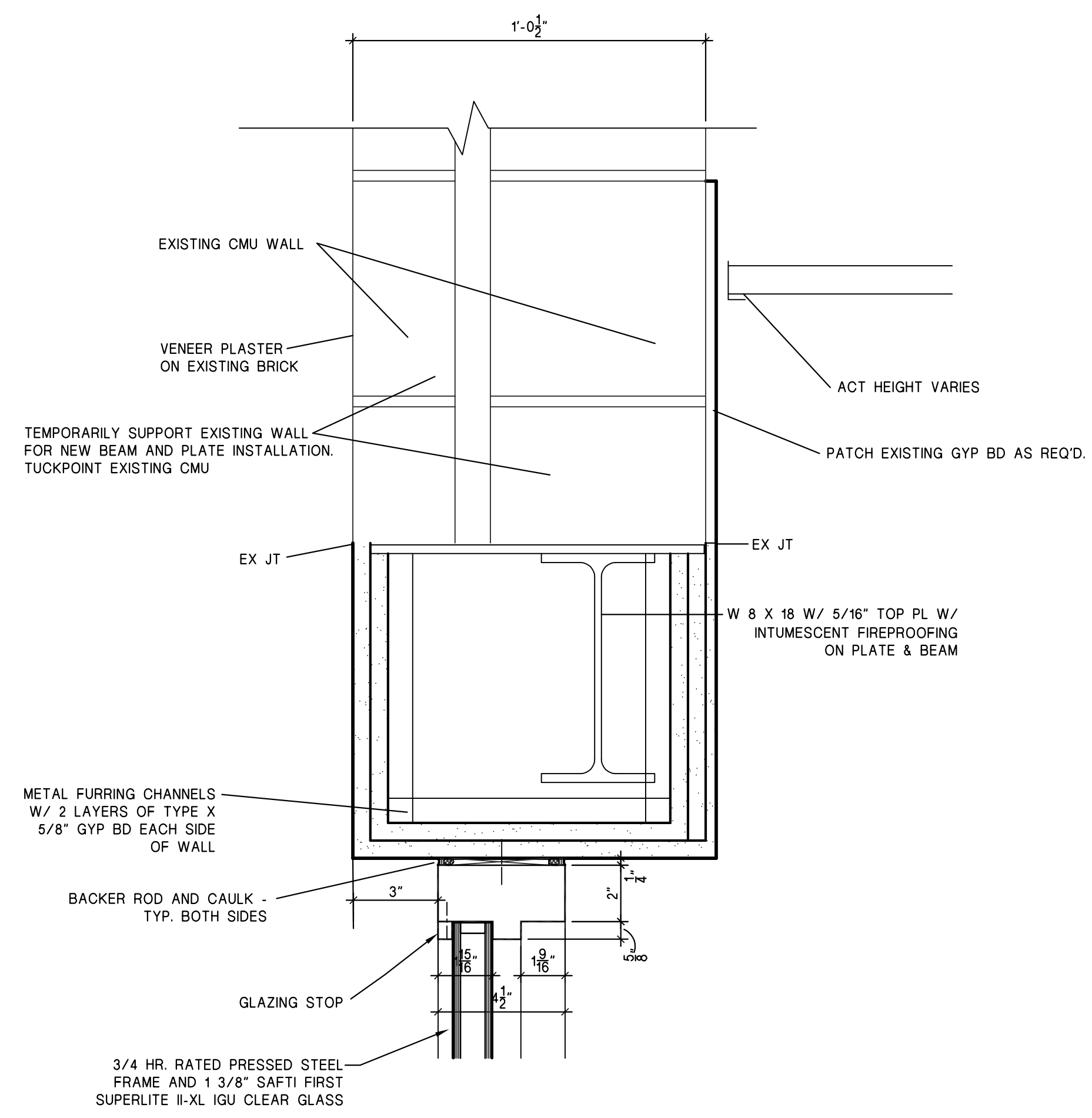
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A6.4

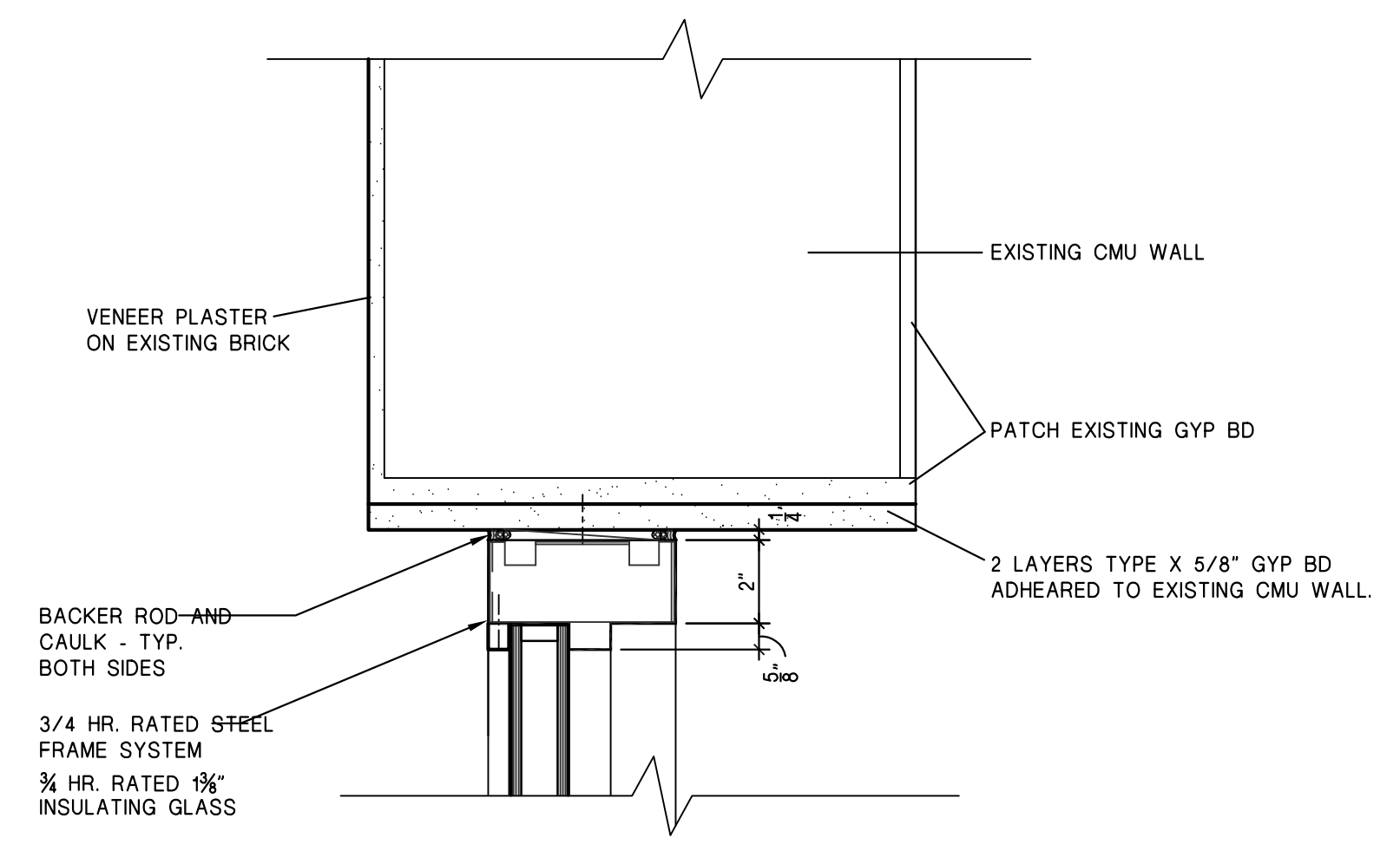




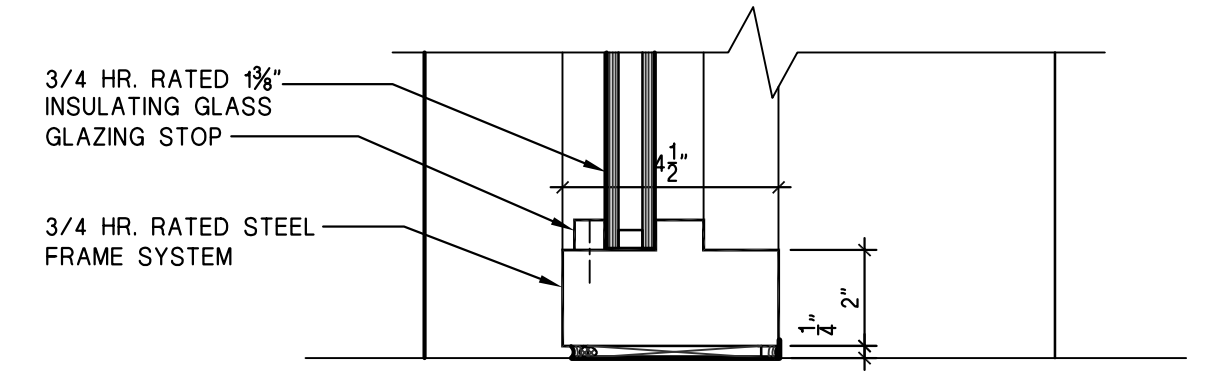




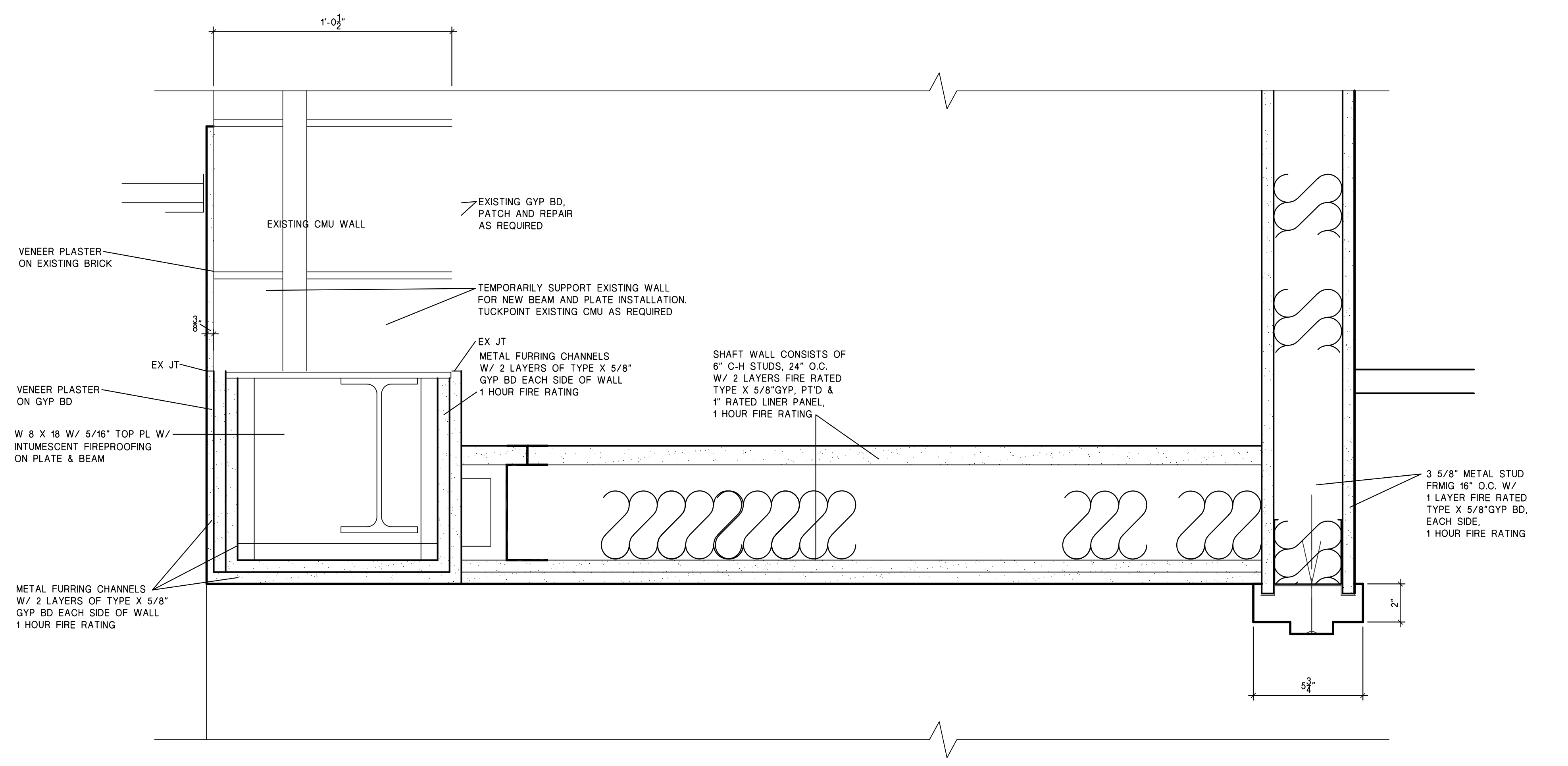
**36 HEAD WINDOW HM8**  
SCALE: 3" = 1'-0"



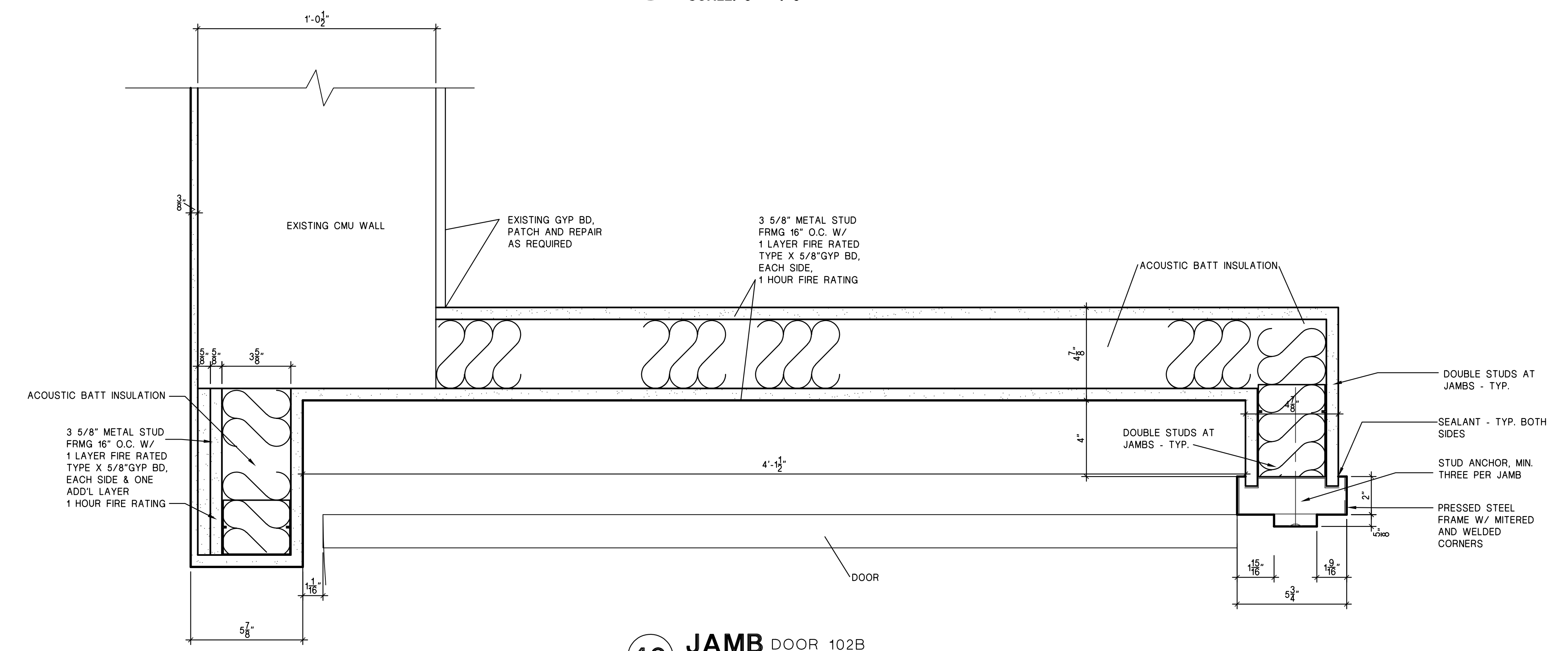
**37 JAMB WINDOW HM8**  
SCALE: 3" = 1'-0"



**38 SILL WINDOW HM8**  
SCALE: 3" = 1'-0"

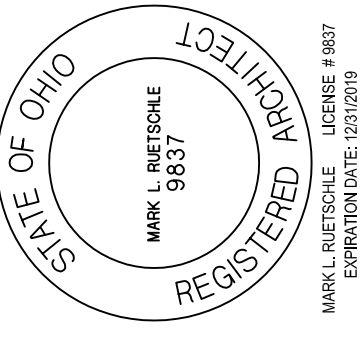
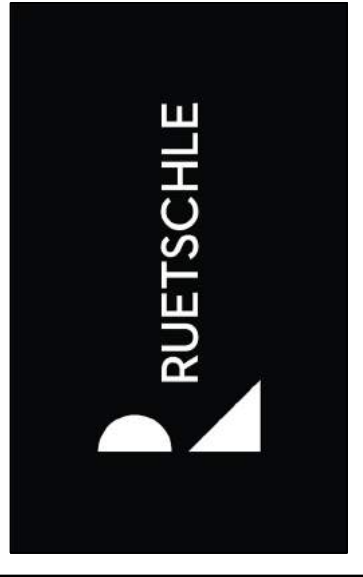


**39 HEAD DOOR 102B**  
SCALE: 3" = 1'-0"



**40 JAMB DOOR 102B**  
SCALE: 3" = 1'-0"

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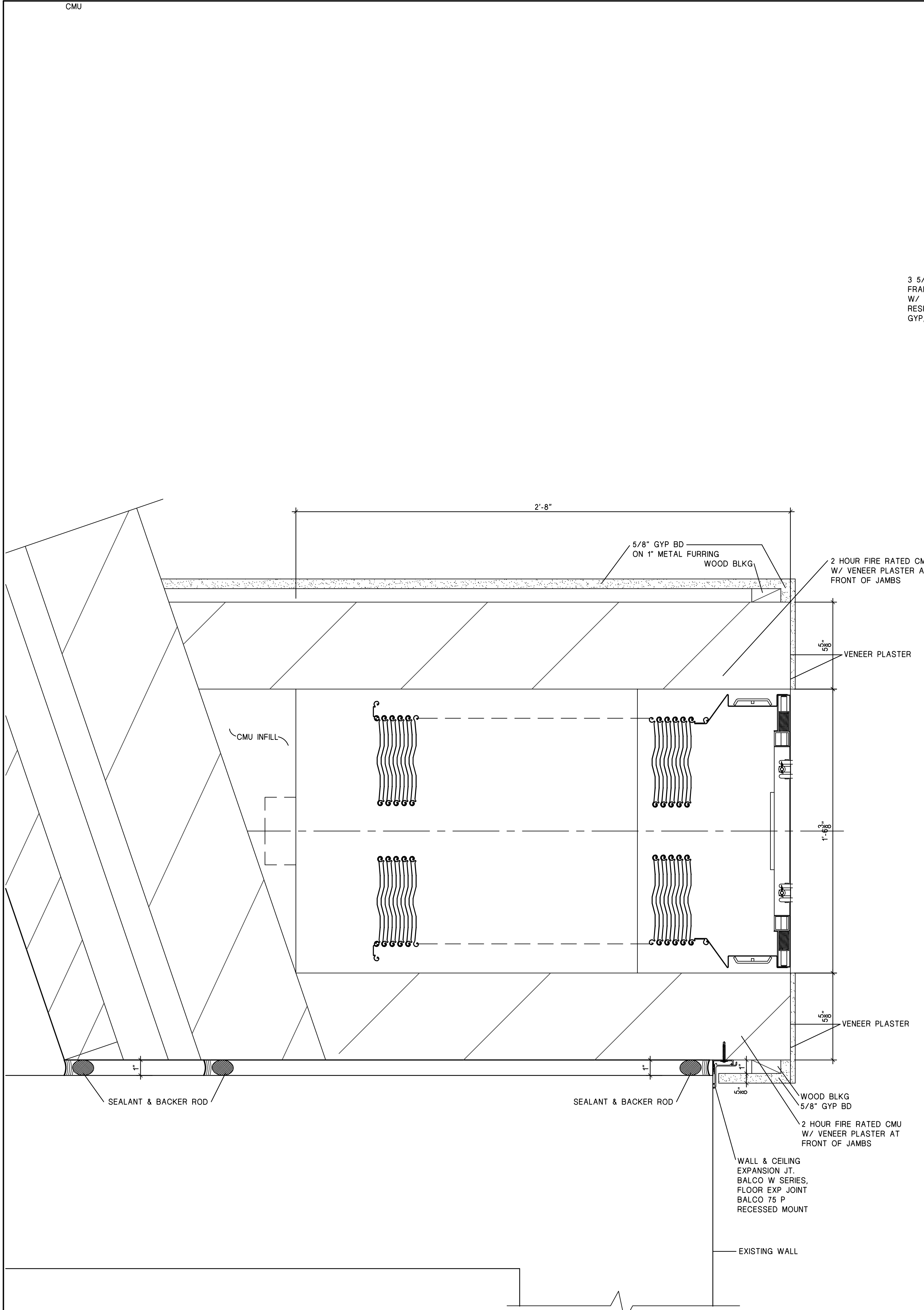
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Door  
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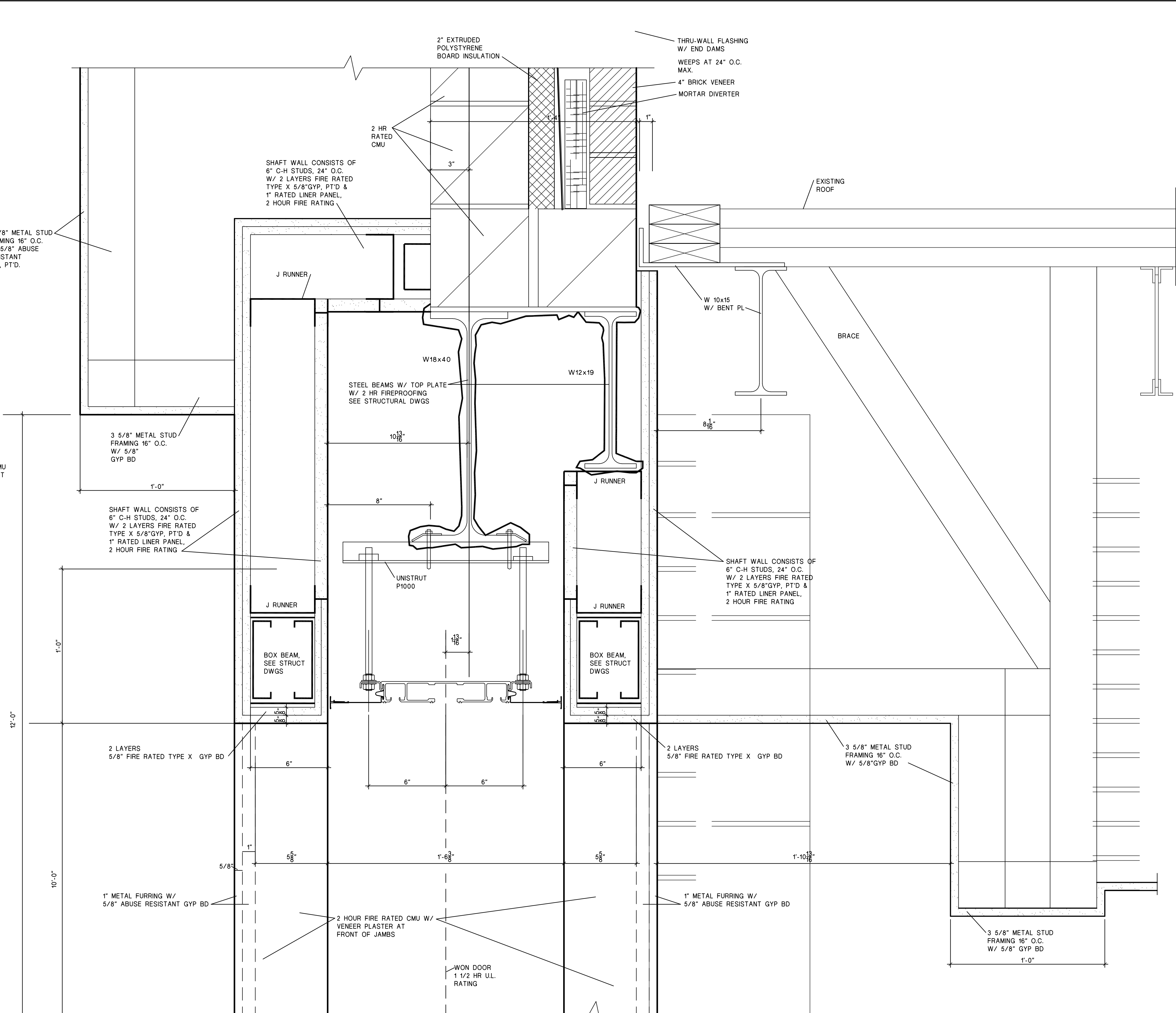
Sheet No.

**A6.6**





**41** JAMB WONDOOR  
SCALE: 3" = 1'-0"



**42** HEAD WONDOOR  
SCALE: 3" = 1'-0"

## WONDOOR HEAD & JAMB DETAILS

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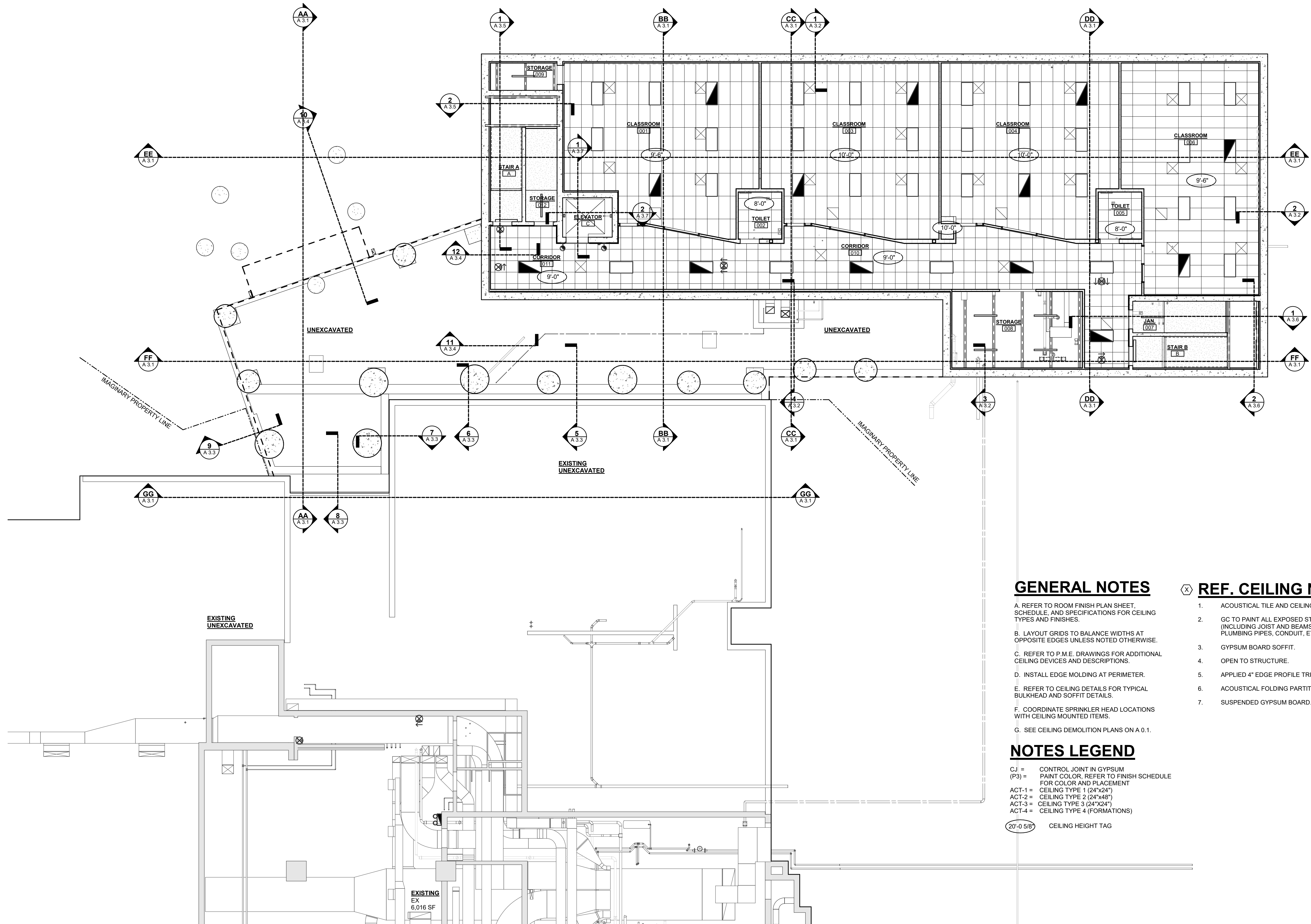
Door

Details

Sheet No.

**A6.7**





**GENERAL NOTES**

- A. REFER TO ROOM FINISH PLAN SHEET, SCHEDULE, AND SPECIFICATIONS FOR CEILING TYPES AND FINISHES.
- B. LAYOUT GRIDS TO BALANCE WIDTHS AT OPPOSITE EDGES UNLESS NOTED OTHERWISE.
- C. REFER TO P.M.E. DRAWINGS FOR ADDITIONAL CEILING DEVICES AND DESCRIPTIONS.
- D. INSTALL EDGE MOLDING AT PERIMETER.
- E. REFER TO CEILING DETAILS FOR TYPICAL BULKHEAD AND SOFFIT DETAILS.
- F. COORDINATE SPRINKLER HEAD LOCATIONS WITH CEILING MOUNTED ITEMS.
- G. SEE CEILING DEMOLITION PLANS ON A 0.1.

**NOTES LEGEND**

- CJ = CONTROL JOINT IN GYPSUM
- (P3) = PAINT COLOR, REFER TO FINISH SCHEDULE FOR COLOR AND PLACEMENT
- ACT-1 = CEILING TYPE 1 (24"x24")
- ACT-2 = CEILING TYPE 2 (24"x48")
- ACT-3 = CEILING TYPE 3 (24"x24")
- ACT-4 = CEILING TYPE 4 (FORMATIONS)

(20'-0 5/8") CEILING HEIGHT TAG

**REF. CEILING NOTES**

- 1. ACOUSTICAL TILE AND CEILING GRID.
- 2. GC TO PAINT ALL EXPOSED STRUCTURE (INCLUDING JOIST AND BEAMS), DUCTWORK, PLUMBING PIPES, CONDUIT, ETC.
- 3. GYPSUM BOARD SOFFIT.
- 4. OPEN TO STRUCTURE.
- 5. APPLIED 4" EDGE PROFILE TRIM.
- 6. ACOUSTICAL FOLDING PARTITION TRACK.
- 7. SUSPENDED GYPSUM BOARD.

**1 REFLECTED CEILING PLAN - LOWER LEVEL**  
SCALE: 1/8" = 1'-0"

NEW ADDITION TO:  
**KETTERING SEVENTH-DAY ADVENTIST CHURCH**

Comm. No.  
61716  
REF. CEILING PLAN -  
LOWER LEVEL  
Sheet No.

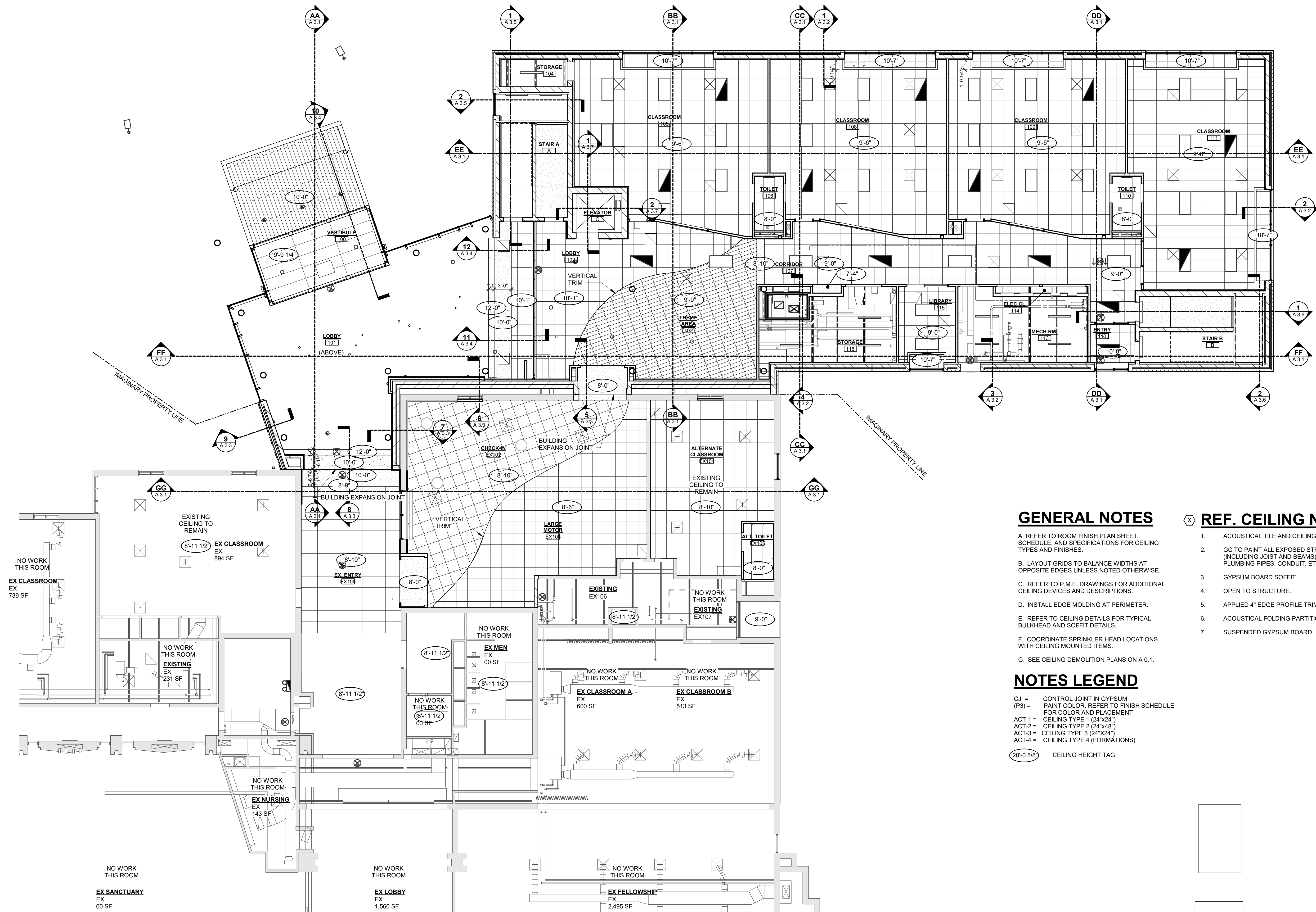
**A 7.0**

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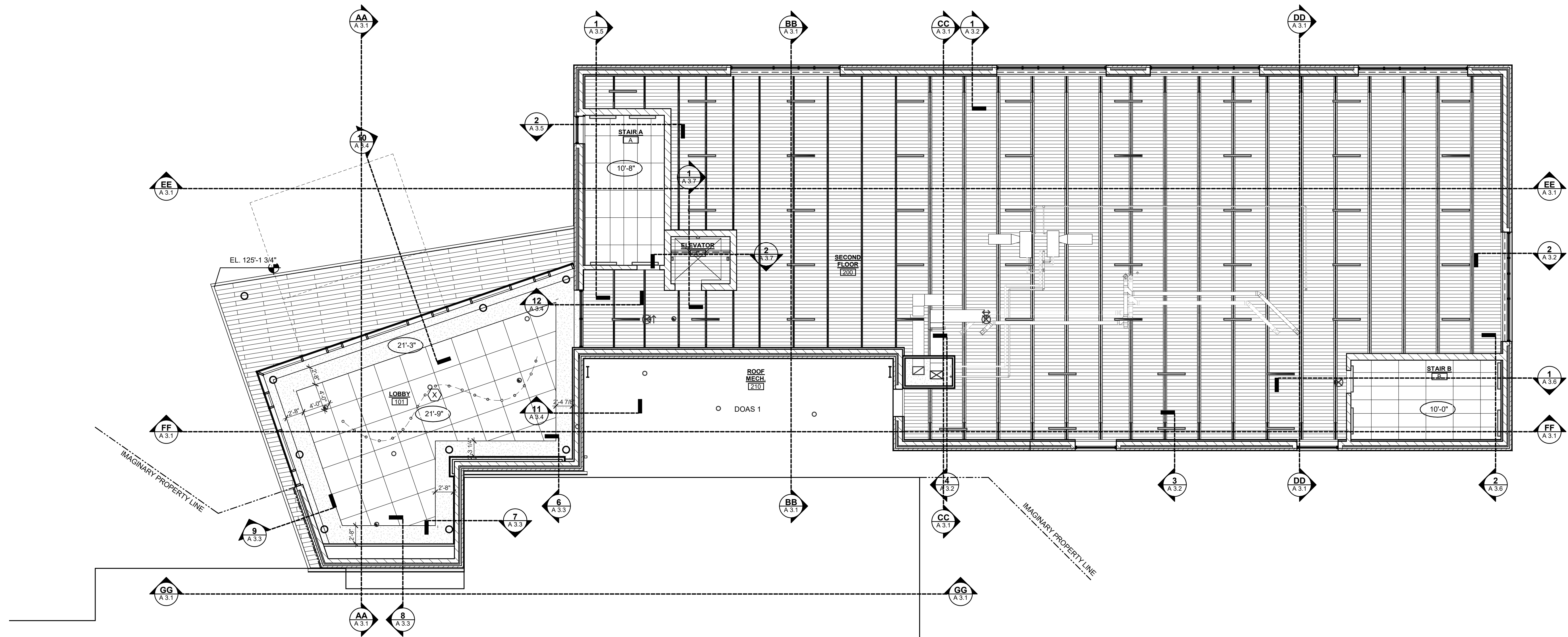
RUETSCHLE

STATE OF OHIO  
REGISTERED ARCHITECT  
BRIAN A. RUETSCHLE  
9837  
EXPIRATION DATE: 12/31/2019









### GENERAL NOTES

- A. REFER TO ROOM FINISH PLAN SHEET, SCHEDULE, AND SPECIFICATIONS FOR CEILING TYPES AND FINISHES.
- B. LAYOUT GRIDS TO BALANCE WIDTHS AT OPPOSITE EDGES UNLESS NOTED OTHERWISE.
- C. REFER TO P.M.E. DRAWINGS FOR ADDITIONAL CEILING DEVICES AND DESCRIPTIONS.
- D. INSTALL EDGE MOLDING AT PERIMETER.
- E. REFER TO CEILING DETAILS FOR TYPICAL BULKHEAD AND SOFFIT DETAILS.
- F. COORDINATE SPRINKLER HEAD LOCATIONS WITH CEILING MOUNTED ITEMS.
- G. SEE CEILING DEMOLITION PLANS ON A 0.1.

### NOTES LEGEND

- CJ = CONTROL JOINT IN GYPSUM  
(P3) = PAINT COLOR, REFER TO FINISH SCHEDULE FOR COLOR AND PLACEMENT
- ACT-1 = CEILING TYPE 1 (24"x24")  
ACT-2 = CEILING TYPE 2 (24"x48")  
ACT-3 = CEILING TYPE 3 (24"x24")  
ACT-4 = CEILING TYPE 4 (FORMATIONS)
- 20'-0 5/8" CEILING HEIGHT TAG

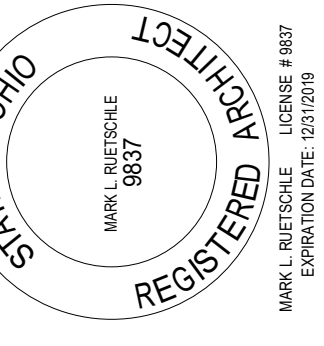
### REF. CEILING NOTES

1. ACOUSTICAL TILE AND CEILING GRID.
2. GC TO PAINT ALL EXPOSED STRUCTURE (INCLUDING JOIST AND BEAMS), DUCTWORK, PLUMBING PIPES, CONDUIT, ETC.
3. GYPSUM BOARD SOFFIT.
4. OPEN TO STRUCTURE.
5. APPLIED 4" EDGE PROFILE TRIM.
6. ACOUSTICAL FOLDING PARTITION TRACK.
7. SUSPENDED GYPSUM BOARD.



1 REFLECTED CEILING PLAN - SECOND FLOOR  
SCALE: 1/8" = 1'-0"

222 LINWOOD STREET  
DAYTON, OHIO 45405  
TEL: 937-461-5390  
FAX: 937-461-5829  
RUETSCHLE.COM



Issued:  
May 20, 2019  
Package 3A - Masonry  
& Grade Beam Package  
Revisions:

NEW ADDITION TO:  
**KETTERING SEVENTH-DAY ADVENTIST CHURCH**  
3839 Stonebridge Rd., Kettering, Ohio

Comm. No.  
61716

REF. CEILING PLAN -  
SECOND FLOOR

Sheet No.

**A 7.2**



SPECIAL INSPECTION NOTES				
1- The OWNER shall employ one or more special inspectors to provide inspections during construction on the types of work itemized below. 2- Only the required STRUCTURAL Special Inspections have been listed on this sheet. Please refer to architectural drawings and/or specifications for required non-structural Special Inspections, if applicable. (i.e. Fire Resistant Materials and Coatings, EFS, Smoke Control Systems) 3- Fabricator approval (CBC 1704.2.5.1): Special Inspections required by CBC Section 1704 are not required where the work is done on the premises of a fabricator registered and approved to perform such work without special inspection. Approval shall be based upon review of the fabricator's written procedural and quality control manuals and periodic auditing of fabrication practices by an approved special inspection agency. At completion of fabrication, the approved fabricator shall submit a certificate of compliance to the building official stating that the work was performed in accordance with the approved construction documents. 4- The special inspector shall be a qualified person who shall demonstrate competence, be the satisfaction of the building official, for inspection of the particular type of construction or operation requiring special inspection. 5- Upon request, Chief + Mayor can provide a list of local agencies providing these inspection services. 6- Numbered and lowercase subitemized inspections indicate referenced CBC requirements. 7- Some numbered or lettered special inspection items may not be listed. These items are not required on this project. 8- Additional information regarding inspections and tests may be found in the project specifications, on the drawings, and in the building code and referenced standards. The contractor and special inspector shall review all documents to determine the special inspections and testing necessary for this project. 9- The Special Inspectors table and other control documents indicate the special inspections anticipated at the time the documents were approved by the Building Official. Changes in scope, materials, or unanticipated existing conditions may require additional inspections. 10- Special inspection and site observation personnel are not responsible for job site safety or means and methods of construction unless noted specifically in the contract.				

REQUIRED STRUCTURAL SPECIAL INSPECTIONS					Additional CBC Requirements	Remarks	Exceptions
Bolts - CBC Table 1705.6	Continuous	Periodic	Referenced Standard				
A. Geotechnical Investigations					1803	Geotechnical investigation that include items of Special Inspection and Testing as noted in CBC Section 1803	1 Where Section 1803 does not require reporting of materials and procedures for fill placement, the special inspector shall verify that the in-place dry density of the compacted fill is not less than 90 percent of the maximum dry density at optimum moisture content determined in accordance with ASTM D1557.
1. Verify materials below shallow foundations are adequate to achieve the design bearing capacity.	—	X				Confirm bearing conforms to geotechnical report.	
2. Verify excavations are extended to proper depth and have reached proper material.	—	X					
3. Perform classification and testing of compacted fill materials.		—	X		1803.5.1	Confirm structural fill materials meet specifications outlined in geotechnical report.	2. A geotechnical investigation is not required where satisfactory data from adjacent areas is available that demonstrates an investigation is not necessary for any of the conditions in Sections 1803.5.1 through 1803.5.6 and Section 1803.5.10.
4. Verify use of proper materials, densities and fill thicknesses during placement and completion of compacted fill.	X	—				Confirm structural fill materials meet specifications outlined in geotechnical report.	
5. Prior to placement of compacted fill, observe subgrade and verify that site has been prepared properly.	—	X				Confirm that site requirements are met according to the geotechnical report, prior to placing structural fill.	
					Additional CBC Requirements	Remarks	Exceptions
Driven Deep Foundation Elements - CBC Table 1705.7	Continuous	Periodic	Referenced Standard				
1. Verify elements materials, sizes and lengths comply with the requirements.	X	—					
4. Verify placement locations and plumbness, confirm type and size of hammer, record number of blows per foot of penetration, determine required penetrations to achieve design capacity, record tip and local elevations and document any damage to foundation element.	X	—					
6. Provide identified and controlled elements, perform additional inspections in accordance with 1705.3.	—	—					
					Additional CBC Requirements	Remarks	Exceptions
Rammed Aggregate Piers (RAP)	Continuous	Periodic	Referenced Standard				
A. Verify RAP materials, sizes, and lengths comply with requirements.	X	—				SPECIAL INSPECTIONS APPLY TO HOLE SIZE AND DEPTH, VERIFICATION OF AGGREGATE MATERIAL, NUMBER AND LISTS OF AGGREGATE, INSTALLATION RAMMER ENERGY, AND TOP OF PIER ELEVATION	
B. Verify capacities of test RAP and conduct additional tests as required.	X	—				Confirm actual capacity meet or exceeds anticipated capacity.	
C. Observe installation and maintain complete and accurate records for each RAP.	X	—				Visual observation of the installation of each RAP.	
D. Verify quantity of RAP and spacing.	X	—				Confirm RAPs are installed according to the RAP installation drawings.	
					Additional CBC Requirements	Remarks	Exceptions
Concrete Construction, Cast-in-Place - CBC Table 1705.3	Continuous	Periodic	Referenced Standard				
A. Fabricator Inspections	—	X			1704.2.5	SPECIAL INSPECTIONS APPLY TO VERIFICATION OF DETAILED FABRICATION AND QUALITY CONTROL, PROCEDURES INCLUDING REVIEW FOR COMPLETENESS AND ADEQUACY RELATIVE TO THE CODE REQUIREMENTS	Special inspections and tests shall not be required for:           1. Isolated spread concrete footings of buildings three stories or less above grade plane that are fully supported on earth or rock.
1. Inspect reinforcement, including prestressing tendons, and verify placements.	—	X	ACI 318 Ch. 20, 25.2.5, 25.6.3, 25.6.1-25.6.3.		1908.4	Confirm size and spacing of bars. Tolerances and reinforcing placement per ACI 7.5, spacing limits for reinforcing ACI 7.6	2. Continuous concrete footings supporting walls of buildings three stories or less above grade plane that are fully supported on earth or rock where:           2.1. The footings support walls of light-frame construction.           2.2. The footings are designed in accordance with Table 1803.7.           2.3 The structural design of the footing is based on a specified compressive strength, f'c, not more than 2,500 pounds per square inch (psi) (17.2 MPa), regardless of the compressive strength specified in the approved construction documents or used in the footing construction.
3. Inspect anchors cast in concrete.	—	X	ACI 318: 17.8.2				
4. Inspect anchors post-installed in hardened concrete members.	X	—	ACI 318: 17.8.2.4			All bolts visually inspected. Post-installed anchors shall be qualified for use in cracked concrete and shall have passed the Simulated Seismic Tests in accordance with ACI 308.2. Special inspections apply to anchor product name, type, and dimensions, hole dimensions, compliance with drill bit requirements, cleanliness of the hole and anchor, adhesive application date, anchor/adhesive installation, anchor embedment, and tightening torque.	
a. Adhesive anchors installed horizontally or upwardly inclined orientations to resist sustained tension loads.	—	X	ACI 318: 17.8.2.4				
b. Mechanical anchors and adhesive anchors not defined in 4.a.	—	X	ACI 318: 17.8.2				
5. Verify use of required design mix.	—	X	ACI 318 Ch. 19, 25.4.3, 25.4.4		1904.1, 1904.2, 1908.2, 1908.3	Tests and submittals per specifications.	
6. Prior to concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of concrete.	X	—	ASTM C173, ASTM C31, ACI 318: 25.4, 25.12		1908.1	Tests per specifications	
7. Inspection of concrete and shotcrete placement for proper application techniques.	X	—	ACI 318: 25.5		1908.4, 1908.7, 1908.8	Confirm placement conforms to ACI 301	
9. Verify maintenance of specified curing temperature and techniques.	—	X	ACI 318: 25.5.3-25.5.5		1908.9	Confirm products conform to approved shop drawings, confirm curing performed per specifications	1. Concrete patios, driveways and sidewalks, on grade.
12. Inspect formwork for shape, location, and dimensions of the concrete member being formed.	—	X	ACI 318: 25.11.1-25.1		—	Confirm dimensions per contract drawings	
					Additional CBC Requirements	Remarks	Exceptions
LEVEL 2 Masonry Construction - CBC Table	Continuous	Periodic	Referenced Standard				
1. Compliance with required inspection provisions of the construction documents and the approved submittals.	—	X	TMS 602/ACI 530.1/ASCE 6: Art.1.5			Special inspections and tests shall not be required for:	
2. Verification of f'c and f'm prior to construction and for every 5,000 square feet during construction.	—	X	TMS 602/ACI 530.1/ASCE 6: Art.1.4B			1. Empirically designed masonry, glass unit masonry or masonry veneer designed in accordance with Section 2109, 2110, Chapter 24, respectively, where they are part of a structure classified as Risk Category I, II, or III.	
3. Verification of proportions of materials in premixed or preblended mortar and grout as delivered to the site.	—	X	TMS 602/ACI 530.1/ASCE 6: Art. 1.5B			2. Masonry foundation walls constructed in accordance with Table 1807.1-6.3(1), 1807.1-6.3(2), 1807.1-6.3(3), or 1807.1-6.3(4).	
5. The following shall be verified to ensure compliance:							
a. Proportion of site-mixed mortar, grout and prestressing grout for bonded tendons.	—	X	TMS 602/ACI 530.1/ASCE 6: Art. 2.1, 2.6A, 2.6B, 2.6C, 2.4D, 1.1h			Visual inspection of preparation to confirm proportions	
b. Grade, type, size and size of reinforcement and anchor bolts, and prestressing tendons and anchorages.	—	X	TMS 602/ACI 530.1/ASCE 6: Art. 2.4, 3.4				
c. Placement of masonry units and construction of mortar joints.	—	X	TMS 602/ACI 530.1/ASCE 6: Art. 3.8, 3.9			Visual inspection to confirm placement of CMU.	
d. Placement of reinforcement, connectors and prestressing tendons and anchorages.	—	X	TMS 602/ACI 530.1/ASCE 6: Art. 6.1, 6.2.1, 6.2.6, 6.2.7			Confirm size, spacing, and location of reinforcing, connections, and anchorages INCLUDING mechanical splice connectors	
e. Grout space prior to grout.	—	X	TMS 602/ACI 530.1/ASCE 6: Art. 3.20, 3.25			Visual inspection to confirm space and details for.	
f. Size and location of structural elements.	—	X	TMS 602/ACI 530.1/ASCE 6: Art. 3.3F			Confirm size and location per construction documents	
h. Type, size and location of anchors, including other details of anchorage of masonry to structural members, frames or other construction.	X	—	TMS 602/ACI 530/ASCE 6: Sec.1.2.1(a), 6.1.4.3, 6.2.1				
1. Welding of reinforcement.	—	—	TMS 602/ACI 530/ASCE 6: Sec. 8.1.7.2, 9.3.3.4(a), 11.3.3.4(b)				
j. Preparation, construction and protection of masonry during cold weather (temperature below 40°F) or hot weather (temperature above 90°F).	—	X	TMS 602/ACI 530.1/ASCE 6: Art. 1.8C, 1.8D		2104.3, 2104.4	Visually confirm according to ACI 530.1 Article 1.8C and 1.8D	
k. Application and measurement of prestressing force.	X	—	TMS 602/ACI 530.1/ASCE 6: Art. 3.6B				
6. Preparation of any required grout specimens and/or prisms that be observed.	X	—	TMS 602/ACI 530.1/ASCE 6: Art. 1.4		2105.2.2, 2105.3	Visually observe specimen preparations that are used for testing.	
8. Cleanest hole provided at base when high lift grouting is performed.	—	X					
					Additional CBC Requirements	Remarks	Exceptions
Structural Steel - CBC Table NO LONGER EXISTS	Continuous	Periodic	Referenced Standard				
A. Fabrication of Structural Elements	—	X	AISC 360, Sec. A3.4, and applicable ASTM material standards specified in the construction documents.		1704.2	Special inspection of the steel fabrication process shall not be required where the fabricator does not perform any welding, thermal cutting, or heating operation of any kind as part of the fabrication process. In such cases, the fabricator shall be required to submit a detailed procedure for material control that demonstrates the fabricator's ability to maintain suitable records and procedures such that, at any time during the fabrication process, the material inspection and grade for the main stress-carrying elements are capable of being determined. Mill test reports shall be identifiable to the main stress-carrying elements when required by the approved construction documents.	
B. Material verification of anchor bolts and threaded rods.	—	X	AISC 360, Sec. A3.3, and applicable ASTM material standards specified in the construction documents.			Confirm manufacturer's certification and test reports.	
a. Identification markings to conform to ASTM standards specified in the approved construction documents.	—	X	AISC 360, Sec. A3.3, and applicable ASTM material standards specified in the construction documents.			Confirm bolt designations match construction documents.	
b. Manufacturer's certificate of compliance required.	—	X	RCSC 2.1			Confirm manufacturer's certification and test reports.	
2. Inspection of high-strength bolting.	—	X	AISC 360, Sec. M2.5, RCSC Specification for Structural Joints Using ASTM A325 or A490 Bolts, Section 9		1704.3.3	All connections inspected and verified snug	
a. Snug-tight joints	—	X					
b. Material verification of structural steel and cold-formed steel deck:							
a. For structural steel, identification markings to conform to AISC 360.	—	X	AISC 360, Sec. M5.5		2203.1	Confirm markings match AISC standard specified.	
b. For cold-formed steel, identification markings to conform to ASTM standards specified in the approved construction documents.	—	X	RCSC 2.1			Confirm markings match ASTM standard specified.	
c. Manufacturer's certified test reports.	—	X				Confirm material certification in certified mill test reports.	
c. Material verification of weld filler materials:							
a. Identification markings to conform to AWS specification in the approved construction documents.	—	X	AISC 360, Sec. A3.5.5 and applicable AWS A5 documents		1704.3.1	Confirm weld designations match construction documents.	
b. Manufacturer's certificate of compliance required.	—	X	—			Confirm manufacturer's certified test reports.	
c. Verify use of proper welding procedure specifications	—	X	—			Obtain copy of qualification certificate	
D. Verify welder qualifications	—	X	—			SPECIAL INSPECTIONS APPLY TO DECKING TYPE, DEPTH, GAGE, AND FASTENING	
E. Installation of composite slab decking	—	X	ICC Evaluation Report, ASCE 9 Chapter 3		1704.15.3	SPECIAL INSPECTIONS APPLY TO DECKING TYPE, DEPTH AND GAGE, POWER ACTUATED FASTENERS, SCREWS, PROPRIETARY SIDE BEAM ATTACHMENTS, BUTT JOINTS AND SHEAR CONNECTORS	
F. Installation of Roof Decking	—	X	ICC Evaluation Report		1704.15.3	All welds visually inspected per AWS D1.9.3	
J. Welding size and rating systems	—	X	AWS D11.1, Section 6				
5. Inspection of welding:							
a. Structural steel and cold-formed steel deck:							
1) Complete and partial joint penetration groove welds.	X	—	AWS D11.1, Section 6		1704.3.1	All welds visually inspected per AWS D11.6.9	
2) Multiple fillet welds.	X	—	AWS D11.1		1704.3.1	All welds visually inspected per AWS D11.6.9	
3) Single case fillet welds > 9/16"	X	—	AWS D11.1		1704.3.1	All welds visually inspected per AWS D11.6.9	
4) Plug and slot welds.	X	—	AWS D11.1		1704.3.1	All welds visually inspected per AWS D11.6.9	
5) Single case fillet welds < 9/16"	X	—	AWS D11.1		1704.3.1	All welds visually inspected per AWS D11.6.9	
b) Floor and roof deck welds.	—	X	AWS D11.3, Section 7			All welds visually inspected per AWS D11.3.1.1	
6. Inspection of steel frame joint details for compliance:							
a. Details including bracing and stiffeners.	—	X	—		1704.3.2		
b. Member locations	—	X	—		1704.3.2		
c. Application of joint details at each connection (MAGNETIC PARTICLE (MT) AND ULTRASONIC (UT) TESTING OF WELDS	—	X	MT - AWS D1.16.14.4.UT - AWS D1.19.1.6 & 1.4.3		1704.3.1.1		
					Additional CBC Requirements	Remarks	Exceptions
Cold Formed (Light Gauge) Steel Framing	Continuous	Periodic	Referenced Standard				
D. Verify use of proper welding procedure specifications	—	X	AWS D11.3, Section 7			Obtain copy of welding procedure specifications	
E. Verify welder qualifications	—	X	AWS D11.3, Section 7			Obtain copy of qualification cards	
F. Welded framing connections	—	X	AWS D11.3, Section 7			All welds visually inspected per AWS D13.7.1	
G. Fastening of shear wall elements (areas of strapping).	X					Confirm proper method and quantity for welded connections. Confirm welds match construction documents. Verify anchors, fasteners, and structural members conform to construction documents.	
J. Light gauge structural steel stud framing, including piers/nailers.	X					Visual inspection during construction to confirm fasteners/welds per construction documents.	
					Additional CBC Requirements	Remarks	Exceptions
Open-Web Steel Joists and Joist Girders - CBC Table 1705.2.3	Continuous	Periodic	Referenced Standard				
1. Installation of open-web steel joists and girders.							
a. End connections- welding or bolted.	—	X	SJI specifications listed in Section 2207.1.				
b. Bridging- horizontal or diagonal.	—	X	SJI specifications listed in Section 2207.1.				
1. Standard bridging.	—	X					
2. Bridging that differs from the SJI specifications listed in Section 2207.1.	—	X					

## STRUCTURAL NOTES - DESIGN CRITERIA

WIND LOAD:	BASIC WIND SPEED (3 SECOND GUST) = 115 MPH
RISK CATEGORY =	II
WIND EXPOSURE =	B
INTERNAL PRESSURE COEFFICIENT =	+/- 0.18
COMPONENT AND CLADDING TO BE USED FOR ALL ITEMS NOT SPECIFICALLY DESIGNED BY ENGINEER OF RECORD (0.07W, SERIE) =	
ROOFS =	+20 PSF / -45 PSF
WALLS =	+20 PSF / -24 PSF
EARTHQUAKE LOAD:	
SEISMIC IMPORTANCE FACTOR, Ie =	1.0
MAPPED SPECTRAL ACCELERATION	SS = 0.150g
SITE CLASS =	D
DESIGN SPECTRAL ACCELERATION	Sds = 0.160g
SEISMIC DESIGN CATEGORY =	B
BASIC SEISMIC-FORCE-RESISTING SYSTEM (RESPONSE MODIFICATION FACTOR)	[Reference: ASCE 7-10 Table 12.2-1]
AS INTERMEDIATE REINFORCED MASONRY SHEAR WALLS (R = 3.5)	
H STEEL SYSTEMS NOT SPECIFICALLY DETAILED FOR SEISMIC (R = 3.0)	
SEISMIC RESPONSE COEFFICIENT, Cs =	0.046
ANALYSIS PROCEDURE USED = EQUIVALENT LATERAL FORCE PROCEDURE	
DESIGN BASE SHEAR (1.0E) =	72 KIPS

DESIGN UNIFORM LOADS:	
DEAD LOAD - REFER TO DEAD LOAD TABULATION TABLES	
ROOF LIVE LOAD - 20 PSF (MINIMUM PER CBC SECTION 1607.11.2)	
UNIFORM FLOOR LIVE LOAD (CONCENTRATED LOAD)	
1. REFER TO CBC 1607.4 FOR CONCENTRATED LOAD APPLICATION AREA	
2. MINIMUM CONCENTRATED LOAD NOTED IN BRACKETS BELOW [ ]	
3. ADD 15 PSF FOR PARTITIONS AS NOTED BELOW (+15 PSF)	
4. LIVE LOAD REDUCTION - <b>NOT USED</b> FOR COLUMNS AND FOOTINGS PER 1607.9	
5. IMPACT LOADS - PER CBC 1607.8 AND 1607.13	

SCHOOLS		
MINIMUM FLOOR LIVE LOAD, U.N.O.	80 PSF	
OFFICE	50 PSF (+15 PSF)	[2000 LBS]
CORRIDORS, FIRST FLOOR	100 PSF	[1000 LBS]
CORRIDORS, ABOVE FIRST FLOOR	80 PSF	[1000 LBS]
CLASSROOMS	40 PSF (+15 PSF)	[1000 LBS]
STORAGE, LIGHT	125 PSF	
STORAGE, HEAVY	250 PSF	
STAIRS AND EXTWAYS	100 PSF	[300 LBS]
MECHANICAL	150 PSF	
ELECTRICAL SWITCHGEAR	300 PSF	
KITCHEN, COMMERCIAL	150 PSF	
ELEVATOR ROOM (SEE 1607.9)	150 PSF	[300 LBS]
RESTROOMS	80 PSF (+15 PSF)	
LOBBIES	100 PSF	[2000 LBS]

SPECIAL LOADS:	SEE PLAN FOR SPECIAL LOADING CONDITIONS
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## GENERAL STRUCTURAL NOTES

GENERAL (ALL TRADES)	
1. IN ACCORDANCE WITH SECTION 1704 OF THE OHIO BUILDING CODE, SPECIAL INSPECTIONS WILL BE REQUIRED FOR THIS PROJECT. SPECIAL INSPECTIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE "SPECIAL INSPECTION REQUIREMENTS" SCHEDULE. ALL FABRICATORS SHALL SATISFY THE FABRICATOR APPROVAL PROVISIONS IN SECTION 1704.2.5.1 WHICH REQUIRES THE FABRICATOR TO MAINTAIN AN AGREEMENT A BOARD RECOGNIZED INDUSTRY TRADE ASSOCIATION CERTIFICATION PROGRAM OR A BOARD RECOGNIZED FABRICATOR INSPECTION AGENCY PER 4101.7-6.01 OF OHIO ADMINISTRATIVE CODE.	
2. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND REPORT ANY CONDITIONS SUBSTANTIALLY DIFFERENT THAN THOSE SHOWN TO THE ENGINEER. STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE DRAWINGS AND SPECIFICATIONS OF ALL OTHER DISCIPLINES. THE CONTRACTOR SHALL VERIFY THE REQUIREMENTS OF OTHER TRADES AS TO SLEEVES, CHANGES, HANGERS, INSERTS, ANCHORS, HOLES, AND OTHER ITEMS TO BE PLACED OR SET IN THE STRUCTURAL WORK.	
4. THE STRUCTURAL DRAWINGS HEREIN REPRESENT THE FINISHED STRUCTURE. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY GUYING AND BRACING REQUIRED TO ERRECT AND HOLD THE STRUCTURE IN ALIGNMENT UNTIL THE STRUCTURAL WORK AND CONNECTIONS HAVE BEEN COMPLETED. THE INVESTIGATION, DESIGN, SAFETY, ADEQUACY AND INSPECTION OF ERECTION BRACING, SHORING, TEMPORARY SUPPORTS, ETC., IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.	
5. SHELL + MEYER ASSOCIATES, INC. SHALL NOT BE RESPONSIBLE FOR THE METHODS, TECHNIQUES, AND SEQUENCES OF PROCEDURES TO PERFORM THE WORK.	
POST INSTALLED ANCHORS	
1. INSTALL ALL ANCHORS PER THE MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS (MPI).	
2. WHERE NOT INDICATED ON THE DRAWINGS, POST-INSTALLED ANCHORS SHALL CONSIST OF THE FOLLOWING ANCHORS AS PROVIDED BY HILTI, INC.	
3. <b>CONCRETE SUBSTRATE</b> - U.N.O. USE 3/4" DIAM. HILTI HAS THREADED RODS OR HIT-Z ANCHOR RODS WITH HIT-HY 200 SAFE SET SYSTEM, ICC ESR-1387. MINIMUM EMBEDMENT OF 6".	
4. <b>REINFORCING INTO CONCRETE</b> - U.N.O. USE HILTI HIT-RE 500 V3 EPOXY, ICC ESR-314. MINIMUM EMBEDMENT INTO CONCRETE 44x BAR DIAMETER U.N.O.	
5. <b>ROUTED CONCRETE MASONRY</b> - (INSTALLED IN WALL FACE) MIN. 8" GROUT AROUND ALL ANCHORS - U.N.O. USE 3/4" DIAM. HILTI KWIK BOLT 3 ANCHORS, ICC-ES ESR-1385. MINIMUM EMBEDMENT IN TYPICAL MASONRY SHALL BE 10".	
6. <b>ROUTED CONCRETE MASONRY</b> - (INSTALLED VERTICALLY IN TOP COURSE OF WALL) - U.N.O. USE 3/4" DIAM. HILTI KWIK HUS EZ SCREW ANCHORS, ICC-ES ESR-305. MINIMUM EMBEDMENT 6-1/4".	
7. <b>UNROUTED CONCRETE MASONRY</b> - USE THE HILTI HIT-HY 70 ADHESIVE SYSTEM ICC-ES ESR-2682. U.N.O. STEEL ANCHORS SHALL BE 1/2" DIAM. HILTI HAS-Z THREADED RODS WITH MINIMUM EMBEDMENT 8".	
8. <b>APPROPRIATELY SIZED MESH SLEEVES PER ANCHOR.</b>	

**DIVISION 3 - FOUNDATIONS AND CONCRETE**

1. ALLOWABLE NET SOIL BEARING CAPACITY = **6,000 PSF 13'-6" BELOW GRADE & 2,000 PSF 3'-6" BELOW GRADE;** SEE **SOILS REPORT DATED 9/28/2018 BY BOWSER MORNER REPORT NO. 18077-0918-197**

2. ALL EXCAVATIONS SHALL BE INSPECTED BY A GEOTECHNICAL ENGINEER PRIOR TO PLACING CONCRETE.

3. CONCRETE WORK SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE LATEST "AMERICAN CONCRETE INSTITUTE" INCLUDING THE REQUIREMENTS OF ACI 301. "SPECIFICATION FOR STRUCTURAL CONCRETE MIXES SHALL BE DESIGNED PER ACI 301.

4. USING PORTLAND CEMENT CONFORMING TO ASTM C150 OR C595, AGGREGATE CONFORMING TO ASTM C33, AND ADMIXTURES CONFORMING TO ASTM C494, C1017, C618, C689 AND C260. CONCRETE SHALL BE READY-MIXED IN TYPICAL BATCHES SOLIDLY WITH GROUT. GROUT SHALL CONFORM TO ASTM C476 AND SHALL OBTAIN A MINIMUM 28 DAY NET COMPRESSIVE STRENGTH OF 2800 P.S.I. UNDER NO CIRCUMSTANCES SHALL MASONRY MORTAR BE USED IN LIEU OF GROUT.

4. HOT WEATHER CONCRETING SHALL BE IN ACCORDANCE WITH ACI 305. COLD WEATHER CONCRETING SHALL BE IN ACCORDANCE WITH ACI 308.

5. CONCRETE SHALL ATTAIN THE FOLLOWING ULTIMATE 28 DAY COMPRESSIVE STRENGTH:

- 3,000 P.S.I. FOR FOOTINGS AND DRILLED PILES
- 3,500 P.S.I. FOR SLABS ON GRADE
- 4,000 P.S.I. FOR INT. SLABS ON GRADE, WALLS, WALL PILES.
- 4,500 P.S.I. FOR EXT. SLABS ON GRADE; SLUMP SHALL BE 4" ±

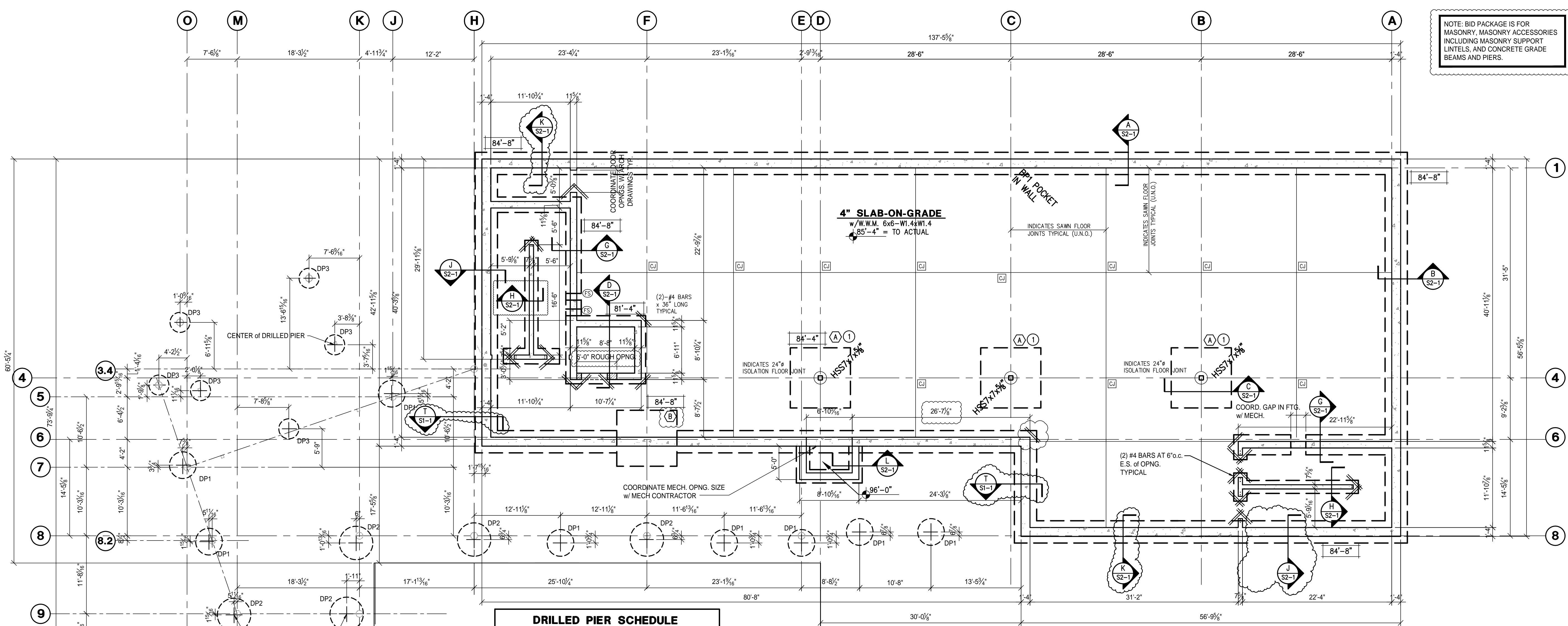
6. ALL CONCRETE TO BE PERMANENTLY EXPOSED TO WEATHER SHALL BE AIR ENTRAINED (4.07-7.07% AIR) WITH AN AIR-ENTRAINING ADJUNCT CONFORMING TO ASTM A696, GRADE 60.

7. TOP OF FOOTING ELEVATIONS SHALL BE AS SHOWN ON THE FOUNDATION PLAN. THESE ELEVATIONS ARE A MAXIMUM AND SHALL BE LOWERED AS REQUIRED TO OBTAIN THE DESIGN BENCH MARK. SEE CONFORMING TO THE DESIGNER'S ELEVATIONS. SPECIFIC REFER TO SCHEDULES AND DETAILS FOR MINIMUM FOOTING THICKNESSES.

8. ALLOWANCE - CONTRACTOR SHALL PROVIDE 1,000 LBS OF ADDITIONAL REINFORCING BAR FOR EACH JOINT AND SHALL PROVIDE 1,000 LBS OF ADDITIONAL REINFORCING BAR FOR EACH DIRECT PLACEMENT OF REINFORCING STEEL.



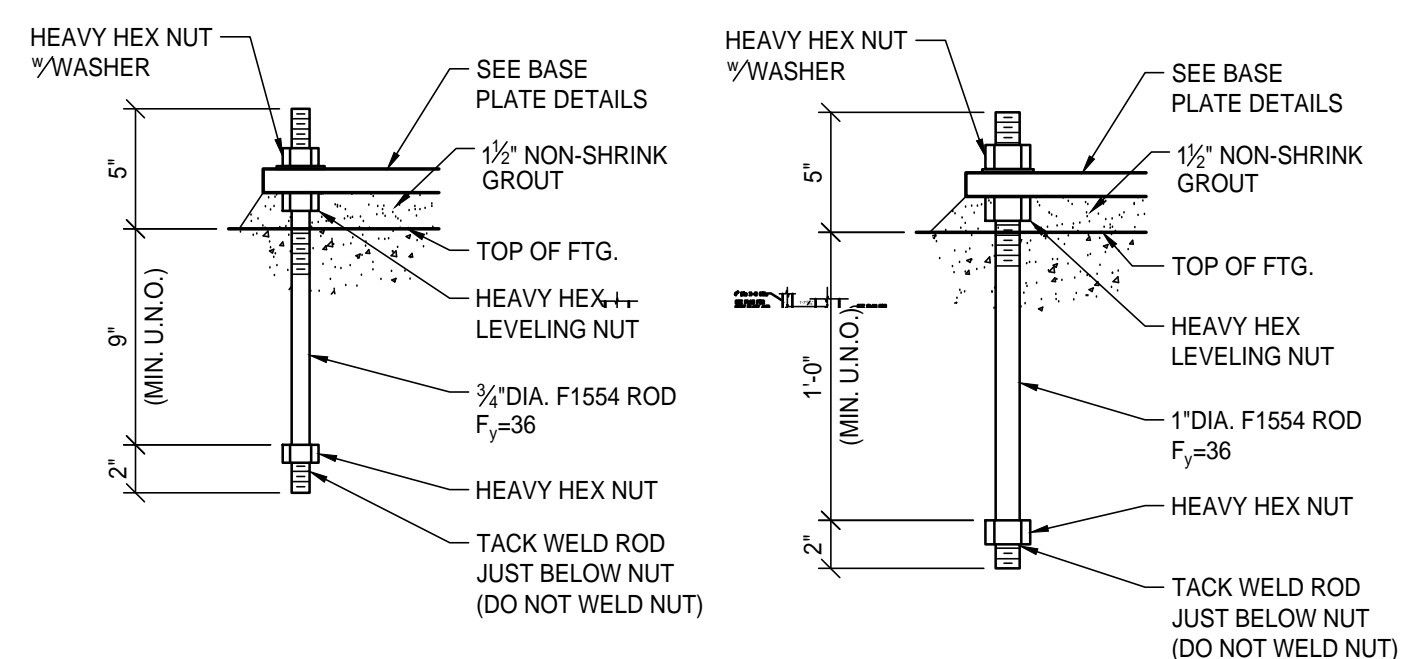
NOTE: BID PACKAGE IS FOR  
MASONRY, MASONRY ACCESSORIES  
INCLUDING MASONRY SUPPORT  
UNITS, AND CONCRETE GRADE  
BEAMS AND PIERS.



DRILLED PIER SCHEDULE			
MARK	SIZE	REINF.	REMARKS
DP1	4'-0" Dia.	(9)-#6 VERT.	
DP2	5'-0" Dia.	(13)-#6 VERT.	
DP3	3'-0" Dia.	(5)-#6 VERT.	

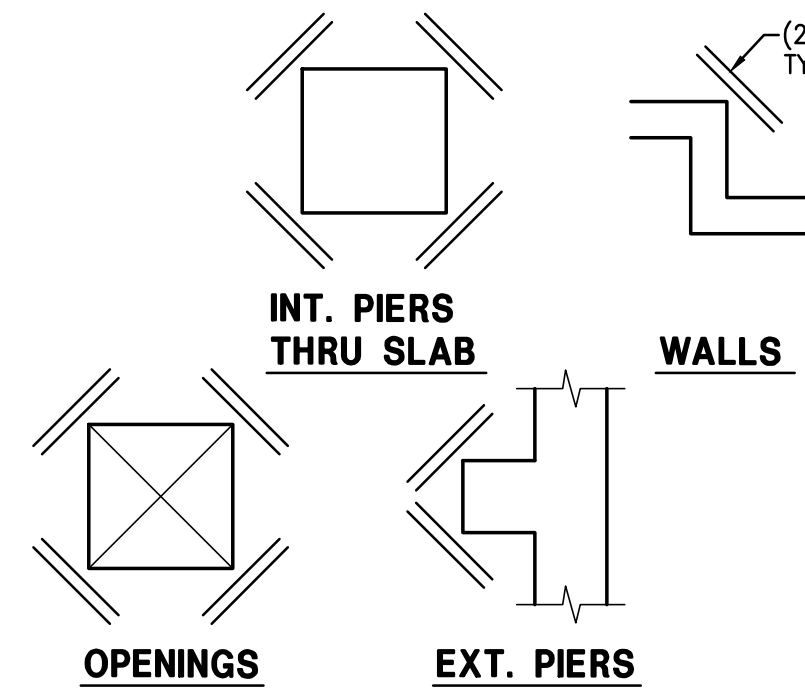
FOOTING SCHEDULE			
MARK	SIZE	REINF.	REMARKS
(A)	7'-0" SQ. x 24"	(9)-#6 E.W.	
(B)	7'-0" x 6'-0" x 24"	(9)-#6 E.W.	

FOUNDATION PLAN  
SCALE: 1/8" = 1'-0"

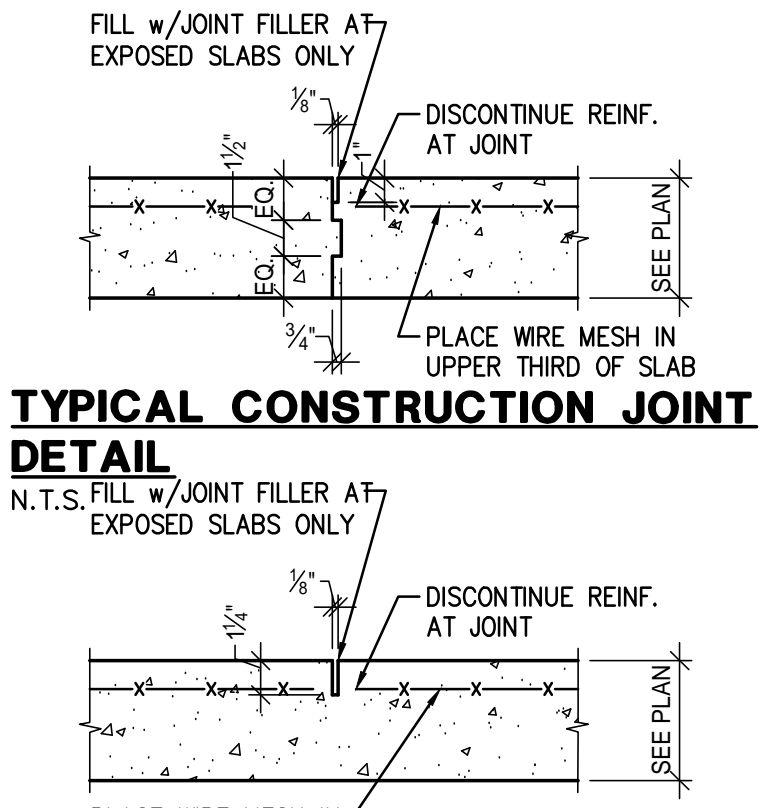


ANCHOR ROD DETAIL  
1/2" = 1'-0"

NOTE:  
SHIMS MAY BE USED IN LIEU OF  
LEVELING NUT TYP.



SLAB REINFORCING DETAILS  
AT REENTRANT CORNERS  
N.T.S.



TYPICAL CONSTRUCTION JOINT  
DETAIL  
N.T.S.

TYPICAL SAWN CONTROL  
JOINT DETAIL  
N.T.S.

FOUNDATION LEGEND	
0000'-00"	INDICATES BOTTOM OF FOOTING ELEVATION
(A)	INDICATES FOOTING TYPE SEE FOOTING SCHEDULE
(I)	INDICATES BASE PLATE TYPE SEE BASE PLATE DETAILS
(A)	INDICATES CONCRETE PIER TYPE SEE CONC. PIER DETAILS
(FS)	INDICATES STEP IN BOTTOM OF FOOTING
(CJ)	INDICATES CONSTRUCTION JOINT IN FLOOR SLAB-ON-GRADE, REMAINDER SAW CUT
0000'-00"	INDICATES TOP OF SLAB FINISH ELEVATION
---	INDICATES NON-LOAD BEARING MASONRY WALLS WITH THICKENED SLABS
---	INDICATES LOAD BRG. MASONRY WALLS
---	INDICATES LOAD BRG. CONCRETE WALLS

CASE	LOCATION	BAR SIZE	COVER (in.)
A	Concrete cast against and permanently exposed to earth	ALL SIZES	3"
B	Concrete exposed to earth or weather	#5 & Smaller	1 1/2"
		#6 thru #18	2"
C	Concrete NOT exposed to weather or in contact with earth		
	Walls, Slabs (0, 1 or 1.5 hr)	#11 & Smaller	3/4"

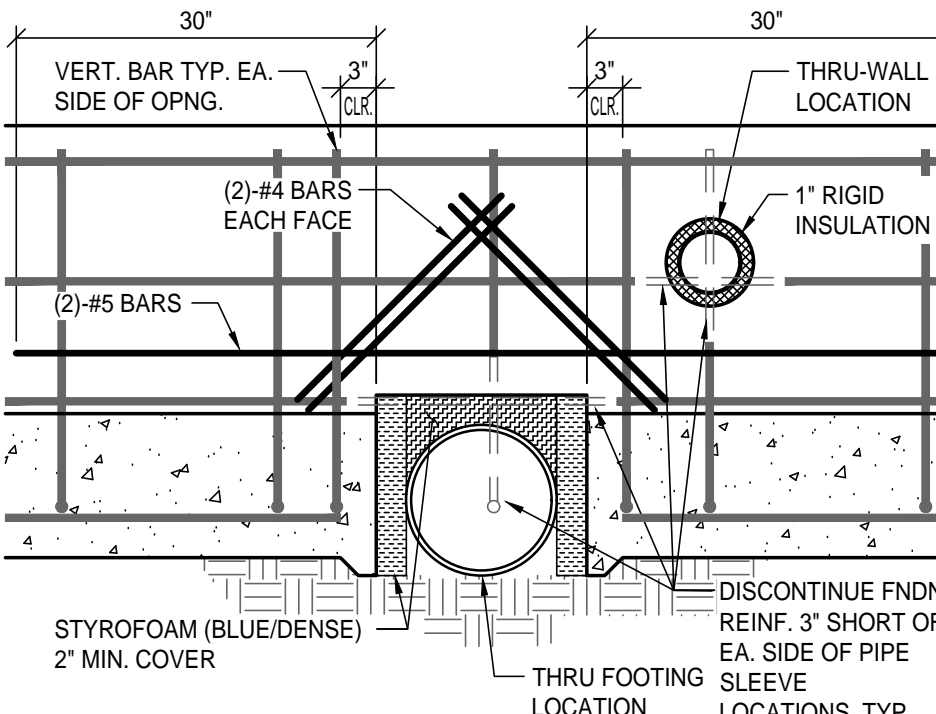
1 - All foundations cast against earth without using formwork shall use CASE 'A' for reinforcement clearances.

CONCRETE REINFORCING COVER  
SCALE: NTS

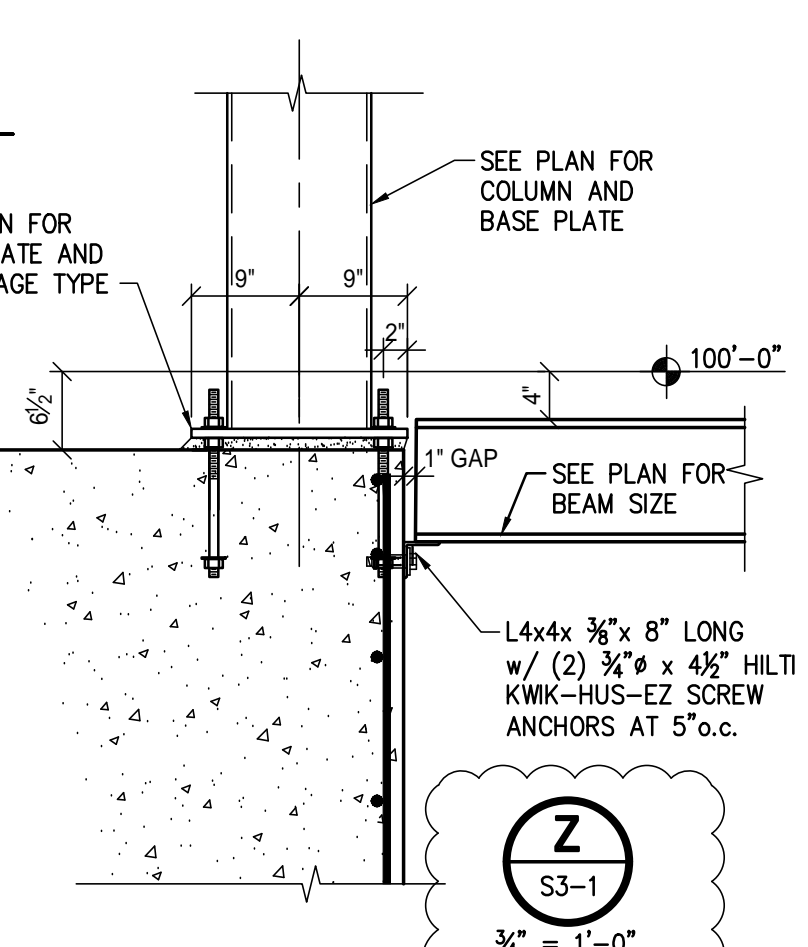
MINIMUM LAP SPICE SCHEDULE				
BAR SIZE	LAP LENGTH <sup>1</sup>			
	3000 psi, 3500 psi	4000 psi, 4500 psi		
#3	28"	22"	24"	19"
#4	37"	29"	32"	25"
#5	47"	36"	40"	31"
#6	56"	43"	48"	37"
#7	81"	63"	70"	54"
#8	93"	72"	80"	62"
#9	105"	81"	91"	70"
#10	118"	91"	102"	79"
#11	131"	101"	113"	87"
#14 THRU #18	MECH. SPICE REQUIRED	MECH. SPICE REQUIRED	MECH. SPICE REQUIRED	MECH. SPICE REQUIRED

1 - Increase Lap Length by 33% for Epoxy Coated Reinforcing or Lightweight Concrete

CONCRETE REINFORCEMENT SPLICES  
SCALE: NTS



TYPICAL PIPE SLEEVE AT FOUNDATION  
SCALE: NTS



TYPICAL CORNER BAR DETAIL  
SCALE: NTS

EXTERIOR SLAB DOWEL  
SCALE: 3/4" = 1'-0"

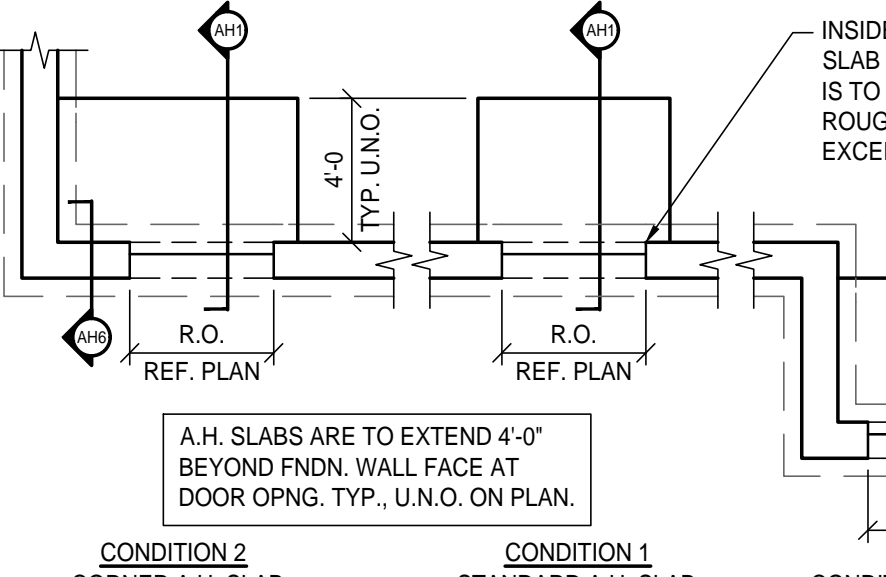
TYPICAL ANTI-HEAVE BLOCK  
SCALE: 3/4" = 1'-0"

DETAIL NOTES:  
1. ANTI-HEAVE SLABS TO BE USED AT ALL PRIMARY ENTRANCES AND EMERGENCY EXITS  
2. ALL ANTI-HEAVE FOUNDATION WALLS TO BE PLACED MONOLITHIC WITH FOUNDATION WALLS, INCLUDING CORNER BARS  
2.1. ALTERNATIVE: PLACE ANTI-HEAVE SEPARATELY. DRILL & EPOXY ALL HORIZONTAL ANTI-HEAVE FOUNDATION REINFORCING

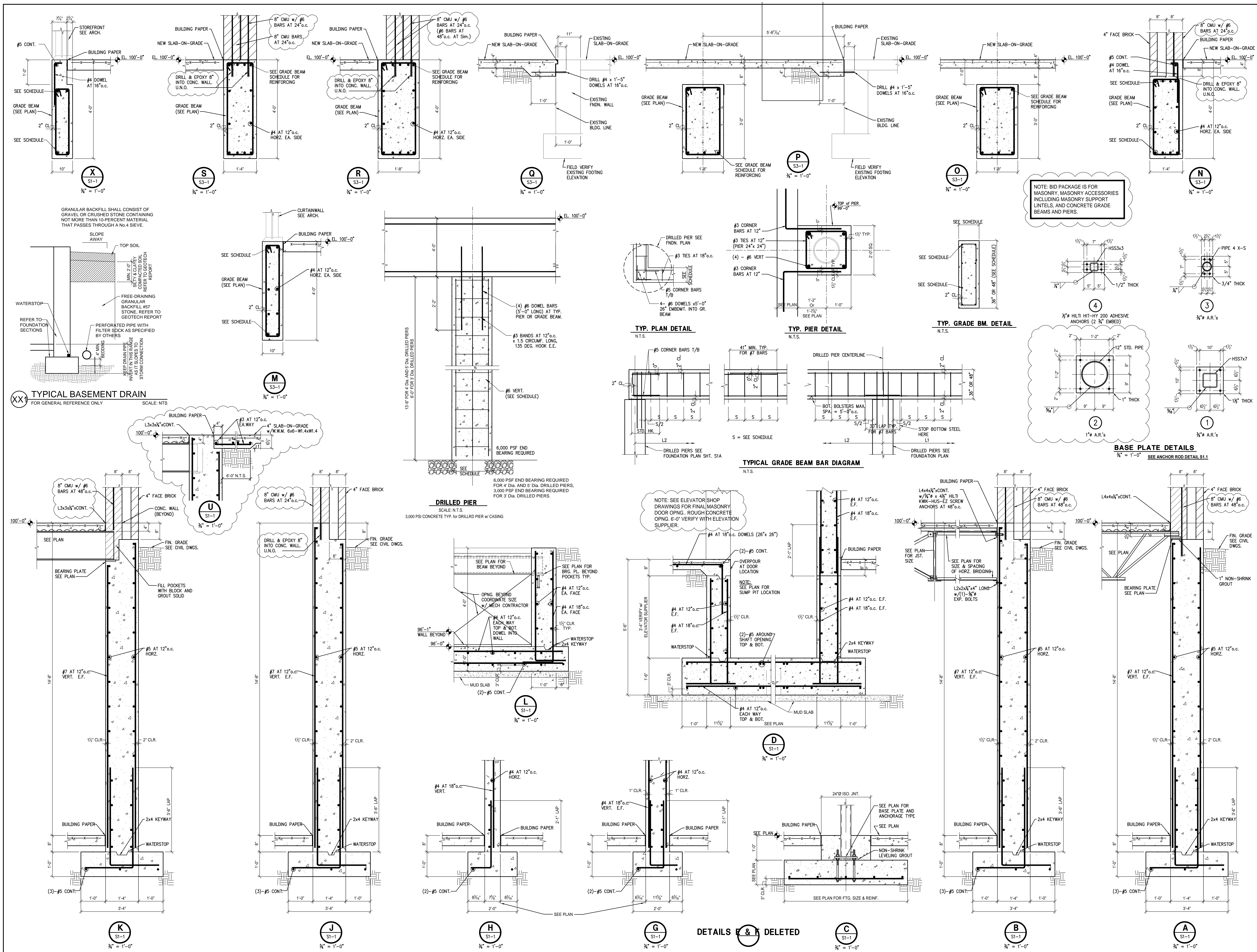
KEYED NOTES:  
1. CONSTRUCTION JOINTS AT 50'-0" o.c. MAXIMUM. HOLD AT LEAST 4'-0" FROM CORNERS AND INTERSECTING WALLS.  
2. FORMED CONTROL JOINT AT INSIDE FACE SPACED AT MAXIMUM 15'-0" WALL HT. CUT 50% OF HORZ. STEEL AT JOINT.  
3. 3/8" SMOOTH DOWELS x 1'-0" LONG AT 12" o.c. GREASE AND WRAP. DRILL AND EPOXY 6" INTO EXISTING  
4. COORDINATE MATCHING FORMED CONTROL JOINTS ON EXTERIOR FACE WITH ARCH.

TYPICAL FOUNDATION WALL JOINTING  
SCALE: NTS

TYPICAL ANTI-HEAVE SLAB TYPES  
SCALE: NTS







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REGISTERED PROFESSIONAL ENGINEER  
STATE OF OHIO

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Masonry & Grade Beam  
Bid Package 3A  
5-20-2019

NEW ADDITION TO  
KETTERING SEVENTH-DAY ADVENTIST CHURCH  
3939 Stonebridge Rd. Kettering, Ohio

Comm No.  
61716

Foundation Details

Sheet No.  
**S2-1**

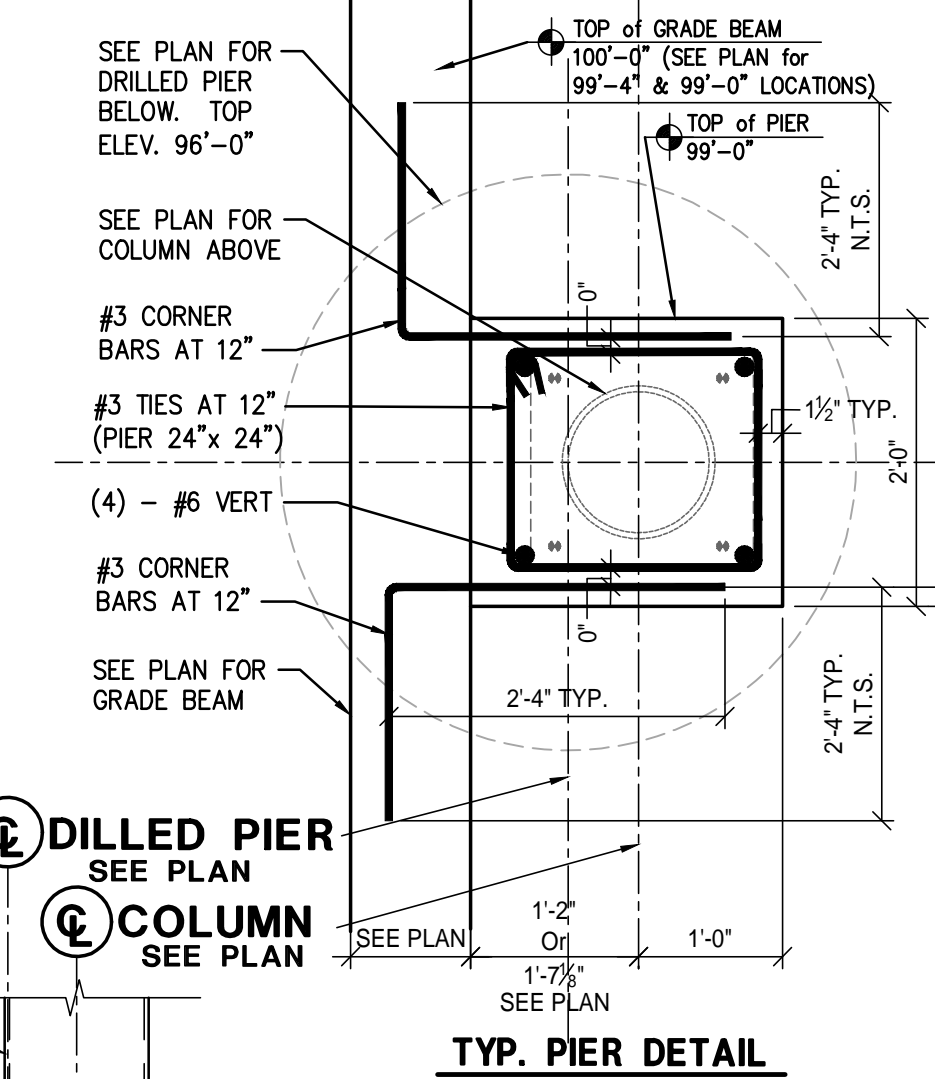


BEARING PLATE SCHEDULE				
MARK	SIZE t x N x B	STUD DIA.	STUD LENGTH	STUD QUANTITY
BP1	1/2" x 5" x 10"	1/2"	8"	2
BP2	3/4" x 6" x 12"	1/2"	8"	2
BP3	3/4" x 12" x 8"	1/2"	8"	2
BP4	1/2" x 5" x 12"	1/2"	6"	2
BP5				

GRADE BEAM SCHEDULE				
MARK	SIZE	BOTT. STEEL	TOP STEEL	STIRRUPS
GB-1	20" x 48"	(5) #7 HK. EA. END	(5) #7 CONT. HK. EA. END	#4 AT 16"
GB-2	16" x 40"	(4) #7 HK. EA. END	(4) #7 CONT. HK. EA. END	#4 AT 16"
GB-3	28 3/8" x 48"	(4) #7 HK. EA. END	(4) #7 CONT. HK. EA. END	#4 AT 16"
GB-4	21" x 48"	(5) #7 HK. EA. END	(5) #7 CONT. HK. EA. END	#4 AT 16"
GB-5	10" x 48"	(2) #7 HK. EA. END	(2) #7 CONT. HK. EA. END	#4 AT 16"
GB-6	20" x 36"	(3) #7 HK. EA. END	(3) #7 CONT. HK. EA. END	#4 AT 16"
GB-7	10" x 36"	(2) #7 HK. EA. END	(2) #7 CONT. HK. EA. END	#4 AT 16"
GB-8	16" x 48"	(4) #7 HK. EA. END	(4) #7 CONT. HK. EA. END	#4 AT 16"

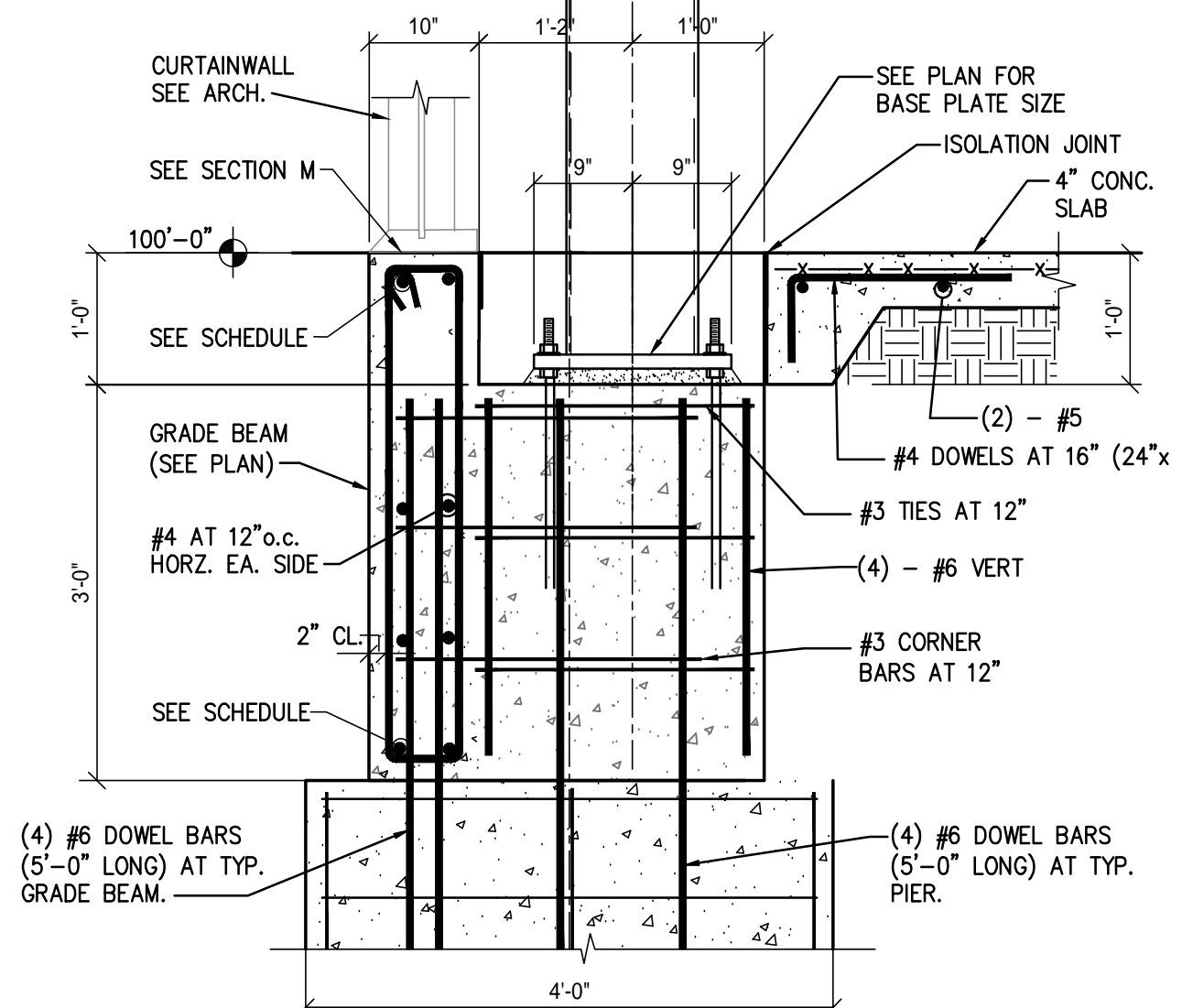
ORIENTATION 'A'-  
PERP. TO WALL

ORIENTATION 'B'-  
PARALLEL TO WALL



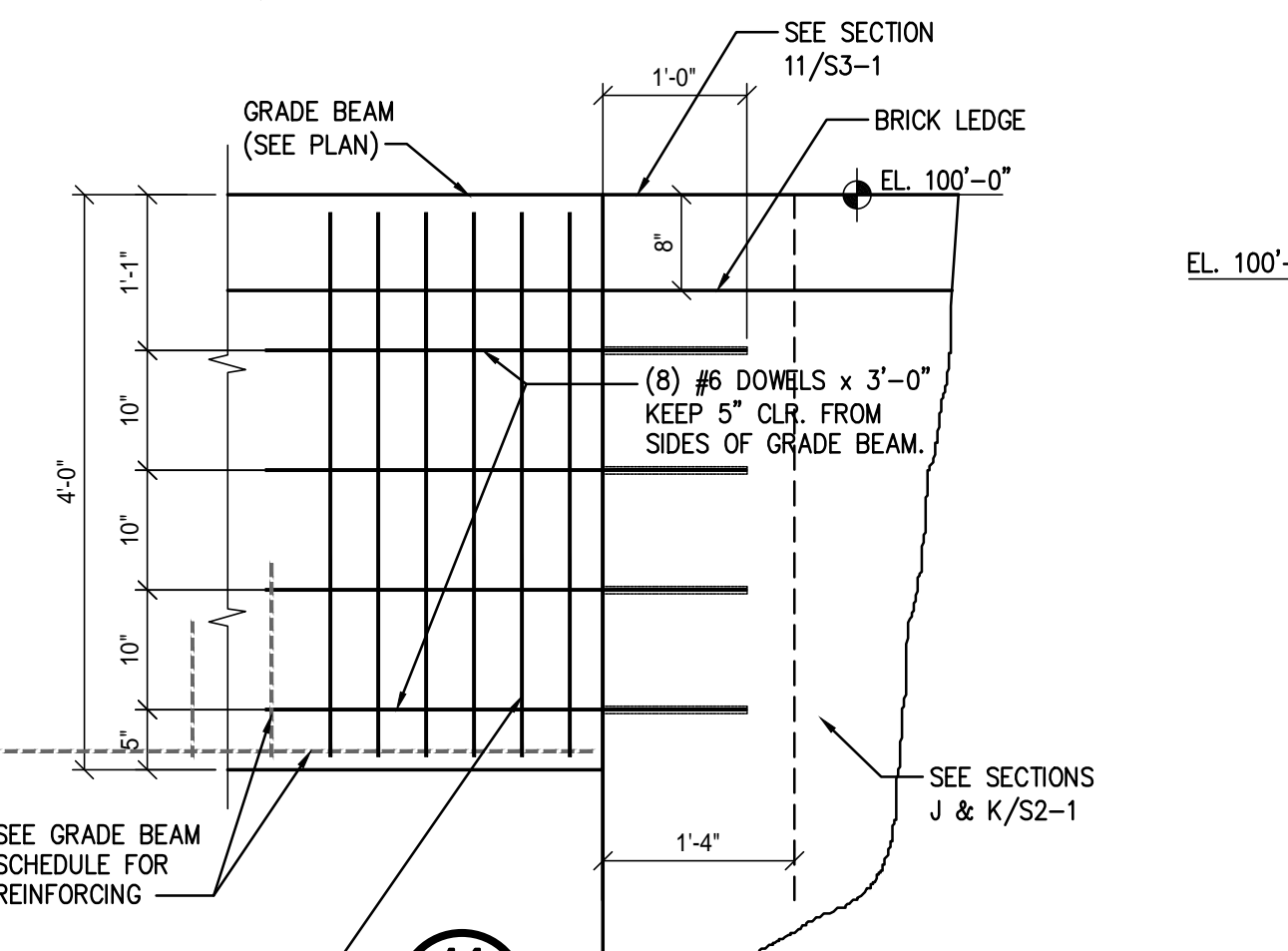
DRILLED PIER  
SEE PLAN  
C COLUMN  
SEE PLAN

TYP. PIER DETAIL



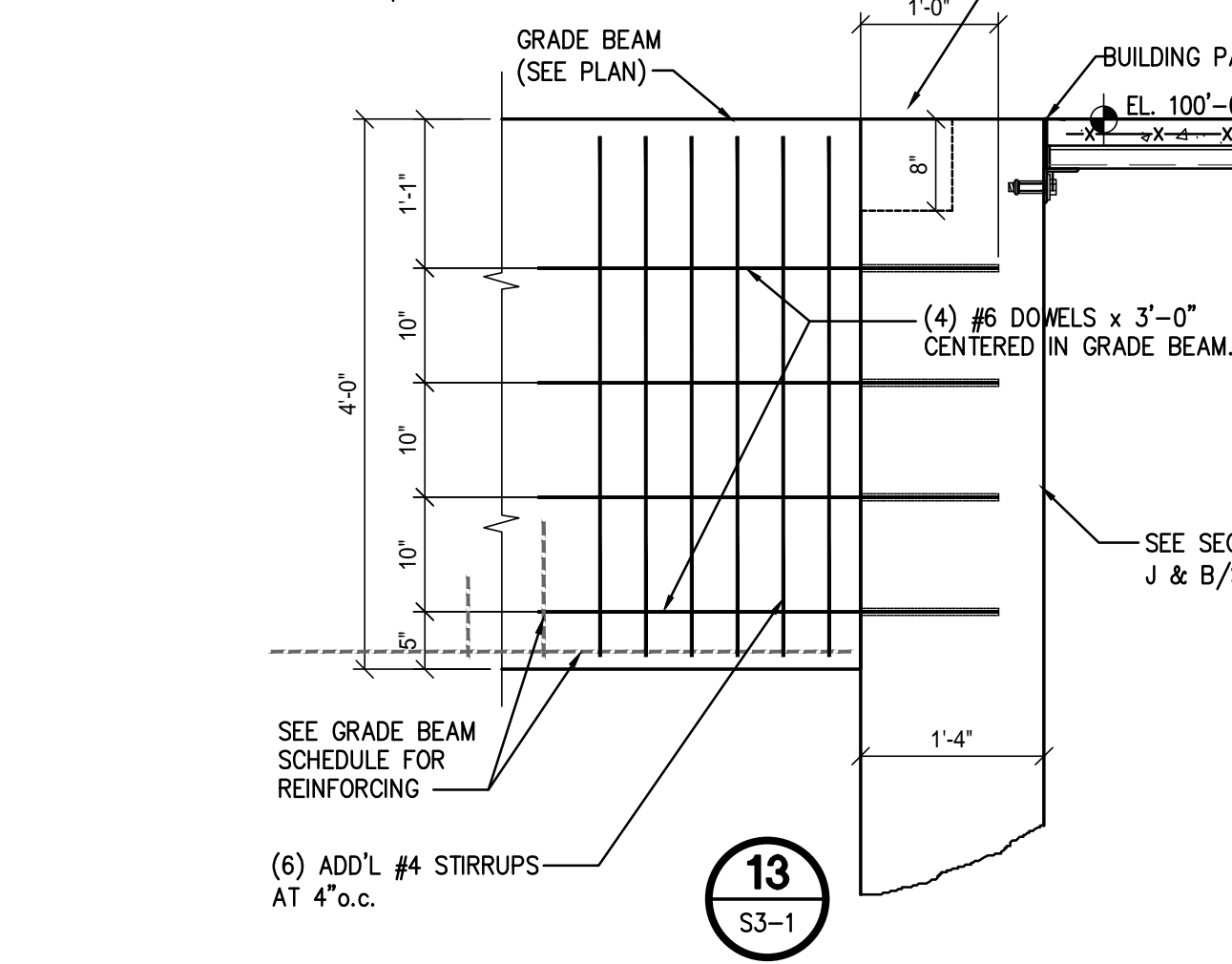
16 TYP. PIER/DRILLED PIER DETAIL

3/4" = 1'-0"



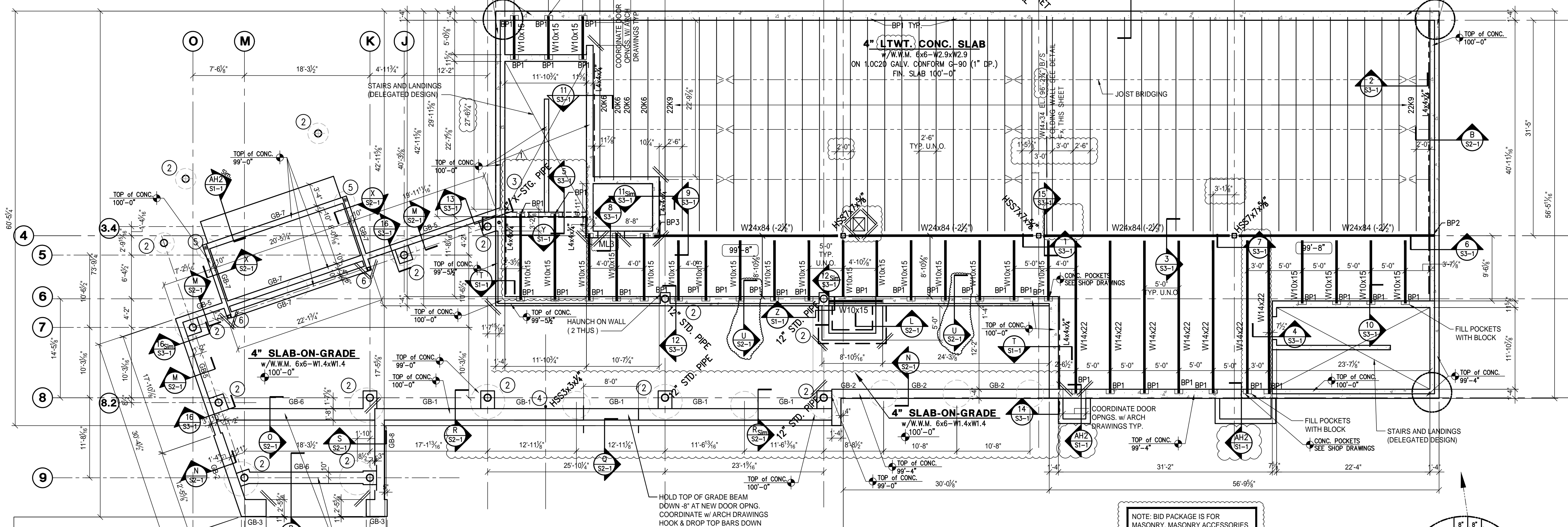
14

3/4" = 1'-0"

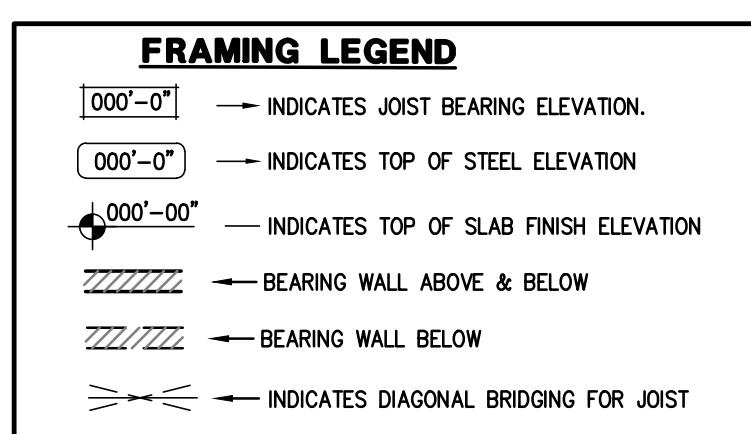


13

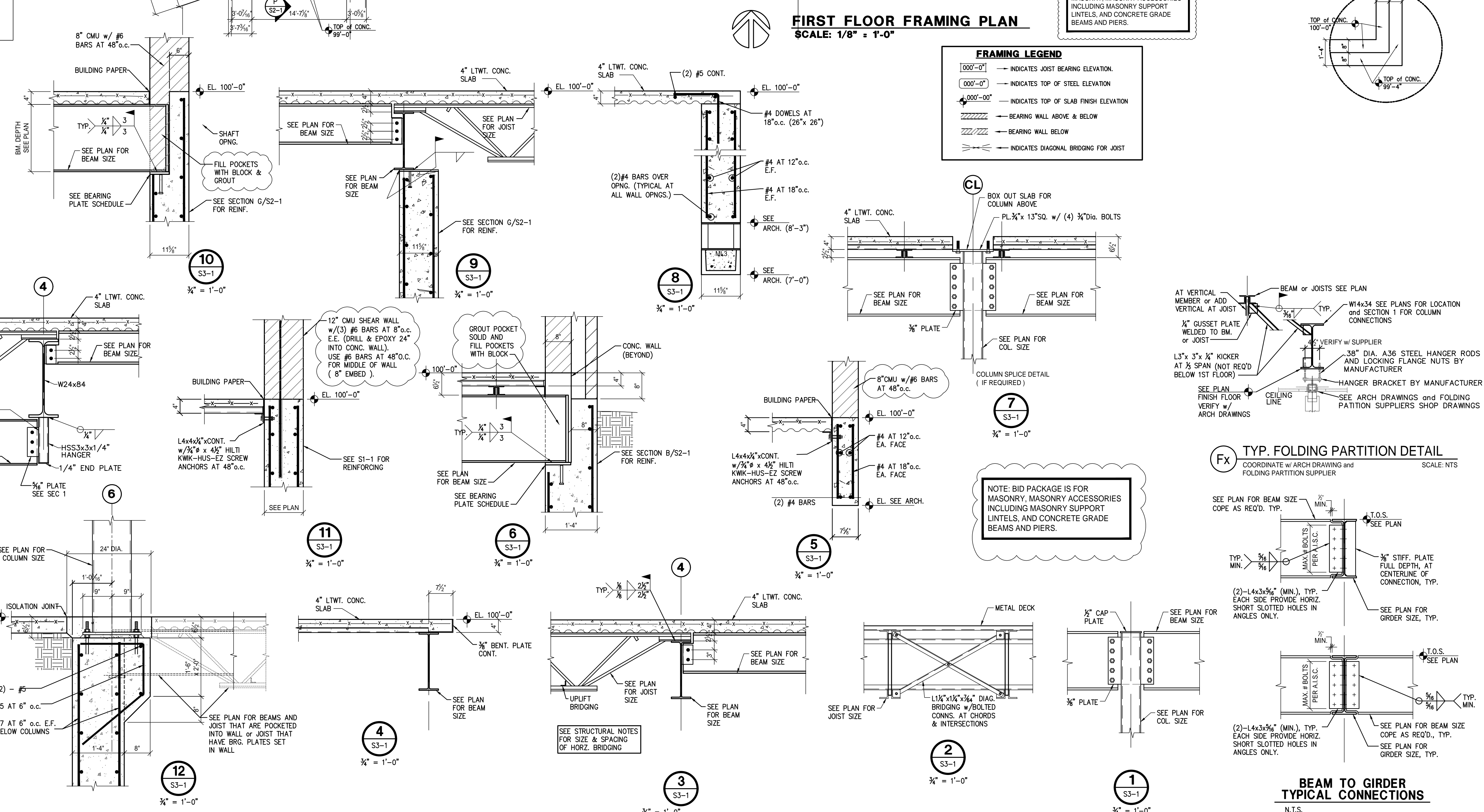
3/4" = 1'-0"



FIRST FLOOR FRAMING PLAN  
SCALE: 1/8" = 1'-0"



NOTE: BID PACKAGE IS FOR  
MASONRY, MASONRY ACCESSORIES  
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LINTELS, AND CONCRETE GRADE  
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BEAM TO GIRDER  
TYPICAL CONNECTIONS

NOTE: CONNECTION DESIGN BY STEEL FABRICATOR

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NEW ADDITION TO  
KETTERING SEVENTH-DAY ADVENTIST CHURCH  
3339 Stonebridge Rd. Kettering, Ohio

Issued  
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Masonry & Grade Beam  
Bid Package 3A  
5-20-2019

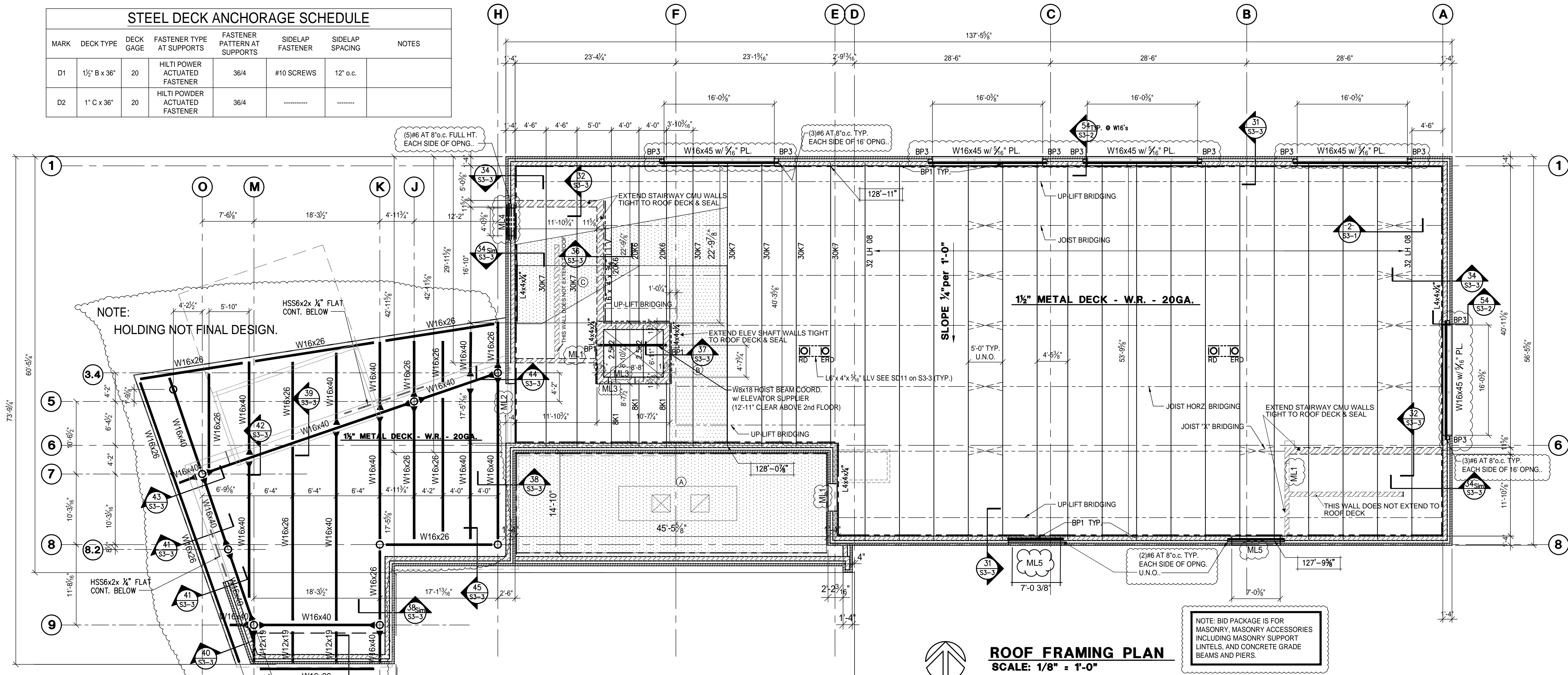
Comm No.  
61716  
First Floor Framing Plan  
and Typical Details  
Sheet No.  
**S3-1**







STEEL DECK ANCHORAGE SCHEDULE					
MARK	DECK TYPE	FASTENER TYPE	FASTENER PATTERN AT SUPPORTS	SIDELAP FASTENER	SIDELAP SPACING
D1	1 1/2" B x 36"	20	HILTI POWER ACTUATED FASTENER	36/4	#10 SCREWS
D2	1" C x 36"	20	HILTI POWDER ACTUATED FASTENER	36/4	.....



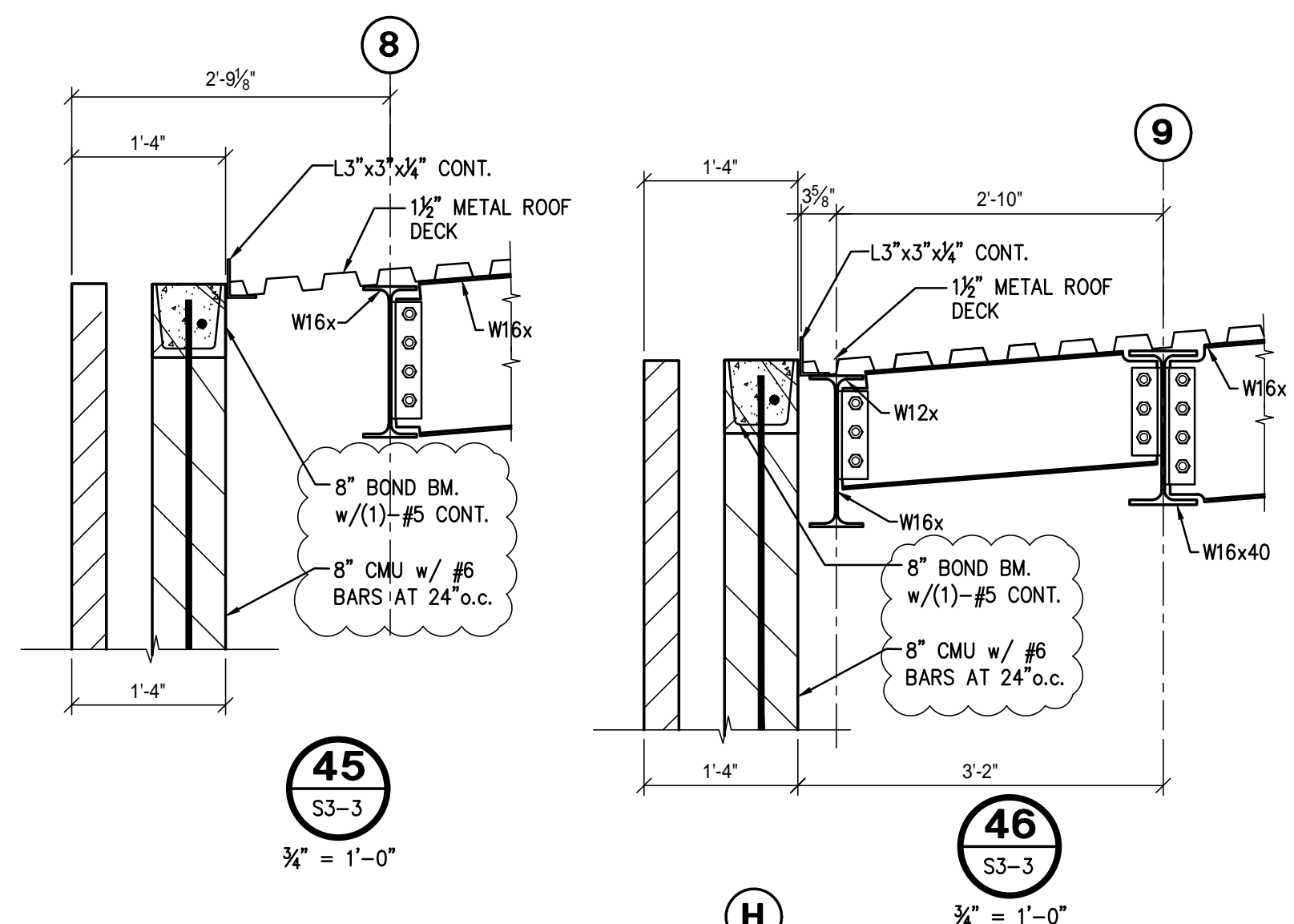
**ROOF FRAMING PLAN**  
SCALE: 1/8" = 1'-0"

MARK	S (PSF)	W (FEET)
A	72	12'-6"
B	42	5'-3"
C	67	11'-2"
D		
E		

ON PLAN - INDICATES DRIFTING AREA. SEE TABLE FOR MINIMUM DRIFT WIDTH (W).

ADDITIONAL SNOW LOAD CASE: NO DRIFT, BASE SNOW + 5 PSF RAIN-ON-SNOW

**SNOW DRIFTS**  
SEE ROOF FRAMING PLAN FOR LOCATIONS  
SCALE: NTS



**TYP. MOMENT CONNECTIONS**  
(UNLESS NOTED OTHERWISE)

**FRAMING LEGEND**

- 000'-0" - INDICATES JOIST BEARING ELEVATION at BOTTOM OF BEARING PLATE ROOF LEVEL
- 000'-0" - INDICATES TOP OF STEEL ELEVATION
- 000'-00" - INDICATES TOP OF SLAB FINISH ELEVATION
- BEARING WALL ABOVE & BELOW
- BEARING WALL BELOW
- INDICATES DIAGONAL BRIDGING FOR JOIST
- INDICATES BRIDGING FOR JOIST, HORIZ. or UP-LIFT per SUPPLIERS RECOMMENDATIONS.

NOTE: BID PACKAGE IS FOR MASONRY, MASONRY ACCESSORIES INCLUDING MASONRY SUPPORT LINTELS, AND CONCRETE GRADE BEAMS AND PIERS.

**TYPICAL BENT PLATE POUR STOP**  
SIMILAR FOR ANGLES  
SCALE: NTS

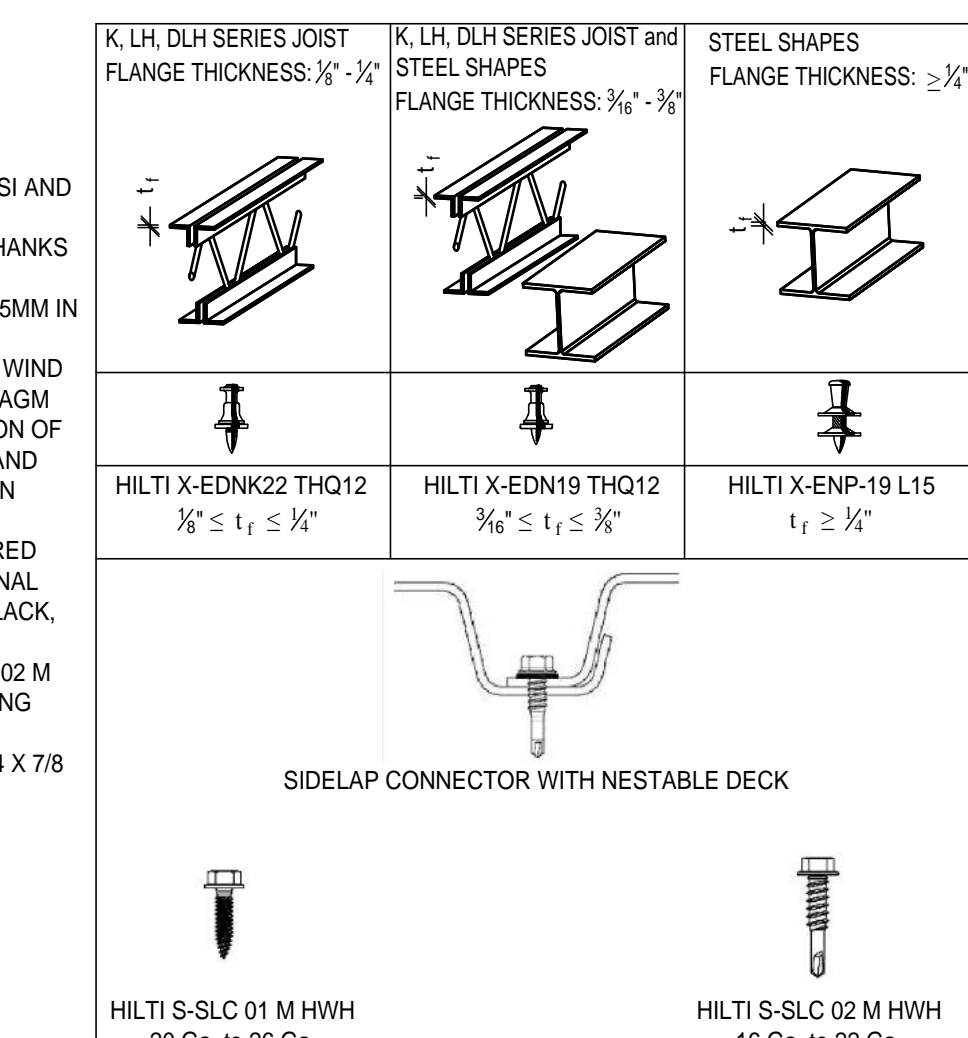
**JOIST REINFORCING DETAIL**  
FOR CONCENTRATED OR HANGER LOADS  
SCALE: NTS

**STEEL DECK SUPPORT AT OPENINGS**  
ROOF DECK BETWEEN JOISTS OR BEAMS  
SCALE: NTS

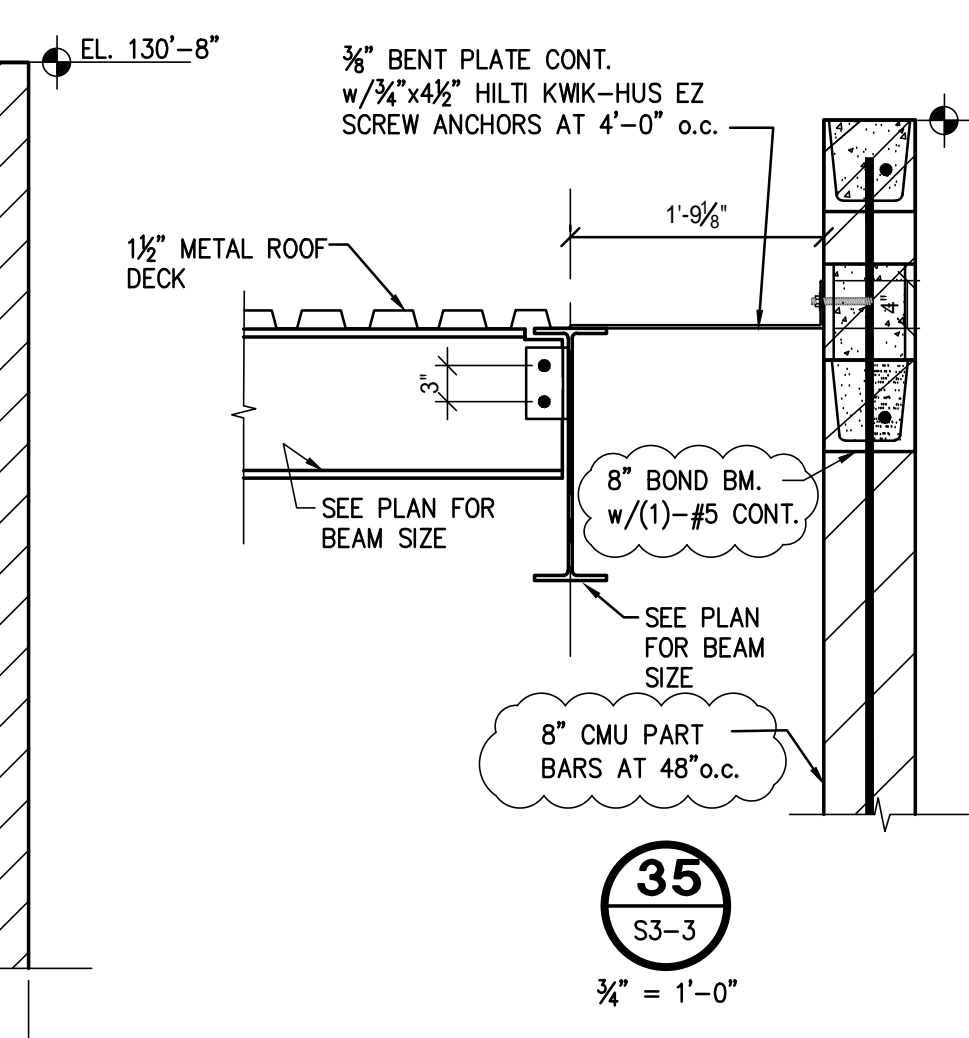
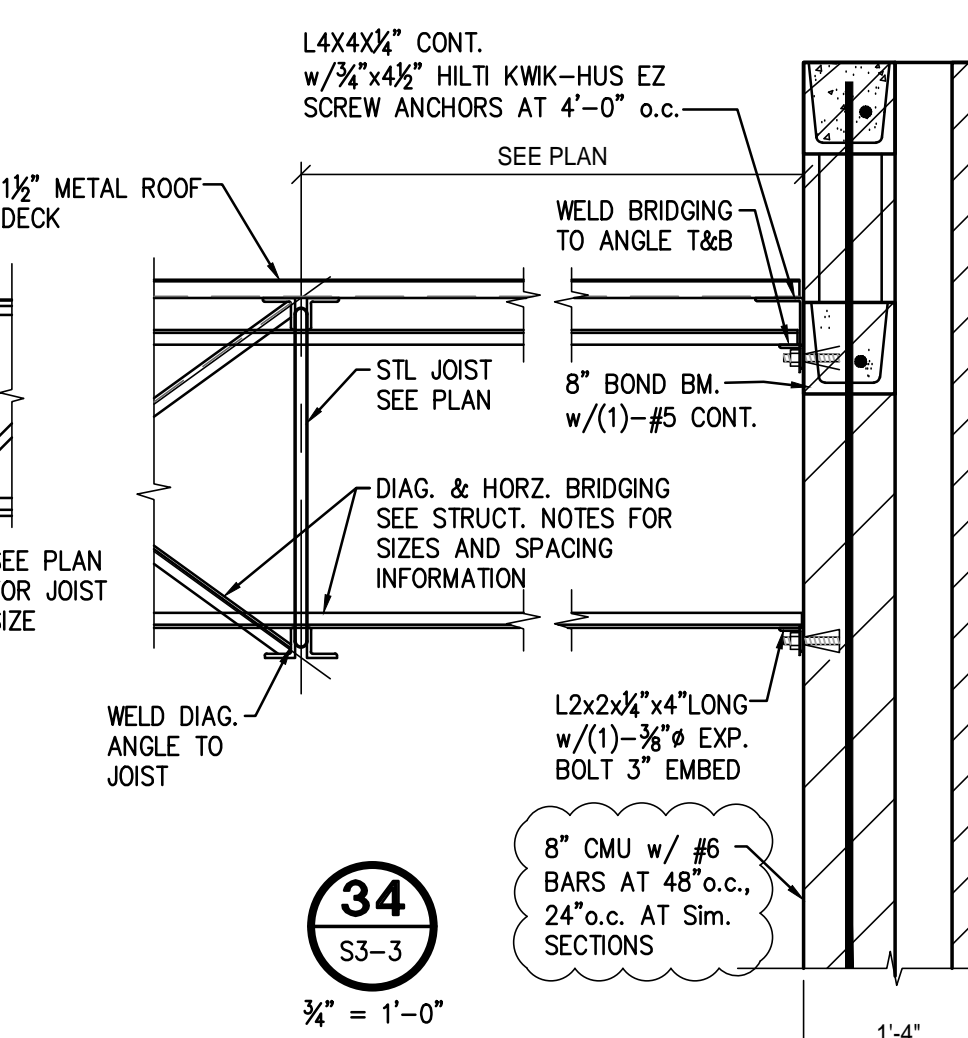
- MECHANICAL FASTENERS NOTES (DECK TO 'K' AND 'LH' JOISTS & STEEL SHAPES):**
- INSTALL POWDER-ACTUATED FASTENERS ACCORDING TO THE MFR'S RECOMMENDATIONS.
  - POWDER-ACTUATED FASTENERS SHALL BE MANUFACTURED FROM AISI 1070 MODIFIED STEEL, AUTEMPERED TO A ROCKWELL C HARDNESS OF 52-58. FASTENERS SHALL HAVE MINIMUM TENSILE AND SHEAR STRENGTHS OF 285 KSI AND 182 KSI RESPECTIVELY.
  - POWDER-ACTUATED FASTENERS SHALL HAVE BALLISTIC POINTS, KNURLED SHANKS AND MINIMUM 12mm DIAMETER STEEL WASHERS.
  - POWDER-ACTUATED FASTENERS SHALL BE ZINC PLATED TO A THICKNESS OF 55MM IN ACCORDANCE WITH ASTM B633, SC. 1, TYPE III.
  - POWDER-ACTUATED FASTENERS SHALL BE LISTED FOR FIRE RESISTANCE, WIND AND UPLIFT, AND RECOGNIZED BY ICC-ES FOR DIAPHRAGM SHEAR STRENGTH AND STIFFNESS IN ACCORDANCE WITH THE LATEST VERSION OF ICC-ES AC408.
  - POWDER-ACTUATED FASTENERS SHALL BE FM LISTED FOR WIND UPLIFT AND RECOGNIZED BY ICC-ES FOR DIAPHRAGM SHEAR STRENGTH AND STIFFNESS IN ACCORDANCE WITH THE LATEST VERSION OF ICC-ES AC408.
  - POWDER-ACTUATED FASTENERS ON EXPOSED ROOF DECKS SHALL BE COVERED WITH STAINLESS STEEL SEALING CAPS CONFORMING TO SAE 316 WITH INTERNAL AND EXTERNAL DIAMETERS OF 7 AND 22 mm RESPECTIVELY AND INTEGRAL BLACK CLOSED-CELL NEOPRENE WASHERS WITH 0.200 g/cm<sup>3</sup> DENSITY.
  - APPROVED SIDELAP CONNECTORS SHALL BE HILTI S-SLC 01 M HWH OR S-SLC 02 M HWH SIDELAP CONNECTORS OR APPROVED EQUAL AT LOCATIONS AND SPACING SHOWN ON DRAWINGS.
  - SIDELAP CONNECTORS ON EXPOSED ROOF DECKS SHALL BE HILTI S-SLC 01 M HWH OR S-SLC 02 M HWH SIDELAP CONNECTORS WITH INTEGRAL BLACK CLOSED-CELL NEOPRENE SEALING WASHERS.
  - CONNECTORS OF EQUAL DESIGN CAPACITY FROM SIMPSON STRONG TIE OR POWERS FASTENERS MAY BE SUBMITTED TO THE ENGINEER OF RECORD FOR APPROVAL.

**DIAGONAL JOIST BRIDGING**  
WELDED  
SCALE: NTS

**DECK FASTENING SYSTEMS**  
TYPE 1.58 WIDE RIB  
SCALE: NTS



**ROOF DRAIN SUPPORT**  
SCALE: NTS



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5-20-2019

NEW ADDITION TO  
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3939 Stonebridge Rd. Kettering, Ohio

Comm No.  
61716  
Roof Framing Plan  
and Typical Details

Sheet No.

**S3-3**







VALVES AND FITTINGS

DOUBLE LINE	SINGLE LINE	
		CHECK VALVE
BALL VALVE		
BUTTERFLY VALVE		SHUTOFF VALVE (REFER TO SPECIFICATIONS FOR REQUIRED TYPE BASED ON APPLICATIONS)
GATE VALVE		
		COMBINATION SHUTOFF AND BALANCING VALVE (REFER TO SPECIFICATIONS FOR REQUIRED TYPE BASED ON APPLICATIONS)
		CONCENTRIC PIPE REDUCER
		ECCENTRIC PIPE REDUCER
		PRESSURE GAUGE
		TEMPERATURE GAUGE OR THERMOMETER
		UNION
		CLEANOUT
		STRAINER
		STRAINER WITH A BLOW DOWN VALVE AND HOSE CONNECTION
		DRAIN VALVE WITH HOSE END CONNECTION
		AUTOMATIC FLOW CONTROLLER WITH PIT PLUG IN AND OUT
		EXPANSION JOINT
		PRESSURE REGULATING VALVE
		SAFETY RELIEF VALVE, PIPE DISCHARGE AIR GAPPED TO FLOOR DRAIN UNLESS NOTED OTHERWISE.
		PRESSURE AND TEMPERATURE SAFETY RELIEF VALVE, PIPE DISCHARGE AIR GAPPED TO FLOOR DRAIN UNLESS NOTED OTHERWISE.
		PRESSURE AND TEMPERATURE TEST PLUG
		TRAP PRIMER
		VACUUM GAUGE WITH STOP
		CLEANOUT TO GRADE OR FINISHED FLOOR
		END CAP
		MIXING FAUCET
		PLUG
		HOSE BIB
		WALL HYDRANT
		PLUG VALVE
		SHUTOFF VALVE AND BOX
		SHUTOFF VALVE ON RISER
		SOLENOID VALVE
		WATER METER

PLUMBING AND FIRE SUPPRESSION PIPING DESIGNATIONS

-----	DOMESTIC COLD WATER
-----	DOMESTIC HOT WATER
-----	DOMESTIC HOT WATER RETURN
-----	EXISTING PIPE TO REMAIN
-----	EXISTING PIPE TO BE REMOVED
-----140-----	HOT WATER PIPE (140 DEGS. F.)
-----180-----	HOT WATER PIPE (180 DEGS. F.)
-----140R-----	HOT WATER RETURN PIPE (140 DEGS. F.)
-----180R-----	HOT WATER RETURN PIPE (180 DEGS. F.)
-----AR-----	ARGON PIPE
-----AV-----	ACID VENT PIPE
-----AW-----	ACID WASTE PIPE
-----CA-----	COMPRESSED AIR PIPE
-----CD2-----	MEDICAL CARBON DIOXIDE PIPE
-----CWS-----	COMBINATION FIRE SUPPRESSION AND DOMESTIC WATER SERVICE
-----DF-----	DIESEL FUEL PIPE
-----DS-----	SPRINKLER PIPE (DRY)
-----F-----	FIRE SUPPRESSION (STANDPIPE / SPRINKLER MAIN)
-----FS-----	FIRE SERVICE
-----FOF-----	FUEL OIL FLOW LINE
-----FOG-----	FUEL OIL GAUGE LINE
-----FOR-----	FUEL OIL RETURN LINE
-----FOS-----	FUEL OIL SUPPLY LINE
-----G-----	NATURAL GAS PIPE
-----GD-----	GARAGE DRAINAGE PIPE
-----GS-----	GAS SERVICE
-----H2-----	HYDROGEN PIPE
-----HE-----	HELIUM PIPE
-----IA-----	MEDICAL INSTRUMENT AIR PIPE
-----IV-----	INDIRECT VENT PIPE
-----IW-----	INDIRECT WASTE PIPE
-----K-----	KITCHEN WASTE PIPE
-----LA-----	LABORATORY COMPRESSED AIR PIPE
-----LV-----	LABORATORY VACUUM PIPE
-----LV-----	LABORATORY VENT PIPE
-----LW-----	LABORATORY WASTE PIPE
-----MA-----	MEDICAL COMPRESSED AIR PIPE
-----MV-----	MEDICAL SURGICAL VACUUM PIPE
-----N2-----	MEDICAL NITROGEN PIPE
-----NG-----	GASOLINE PIPE (NON-LEAD)
-----NO-----	MEDICAL NITROUS OXIDE PIPE
-----NPW-----	NON-POTABLE
-----O2-----	MEDICAL OXYGEN PIPE
-----OD-----	(OVERFLOW) SECONDARY STORM DRAINAGE PIPE
-----P-----	PROPANE GAS PIPE
-----PD-----	PUMP DISCHARGE PIPE
-----PS-----	PRE-ACTION / DELUGE SPRINKLER PIPE
-----PW-----	PURE WATER PIPE
-----S-----	SPRINKLER PIPE (WET)
-----SAN-----	SANITARY DRAINAGE PIPE
-----SCW-----	SOFT COLD WATER
-----SD-----	SPRINKLER DRAIN PIPE
-----STM-----	STORM DRAINAGE PIPE
-----T-----	FUEL TANK VENT PIPE
-----TP-----	TRAP PRIMER DISCHARGE PIPE
-----TW-----	TEMPERED WATER PIPE
-----V-----	SANITARY SEWER VENT
-----WAGD-----	WASTE ANESTHESIA GAS DISPOSAL PIPE
-----WS-----	WATER SERVICE

GENERAL FLOOR PLAN NOTES

	10'-0"	APPROXIMATE DIMENSION ABOVE FINISHED FLOOR TO CENTERLINE OF PIPE, UNLESS NOTED OTHERWISE
	10'-0"	ELEV. 8' - 0"
	TOE: 3' - 0"	APPROXIMATE DIMENSION ABOVE FINISHED FLOOR TO TOP OR BOTTOM OF EQUIPMENT, UNLESS NOTED OTHERWISE
	BOE: 0' - 6"	
	2	RISER OR STACK NUMBER
	8 P2	DETAIL: 8 = DETAIL DESIGNATION P2 = SHEET WHERE DETAIL IS LOCATED
	1 P2	SECTION: 1 = SECTION DESIGNATION P2 = SHEET WHERE DETAIL IS LOCATED
	OH	FIRE SUPPRESSION HAZARD CLASSIFICATION AND HAZARD CLASSIFICATION GROUP
	P1 OR P1	EQUIPMENT REFERENCE, LETTER DESIGNATION VARIES, REFER TO SCHEDULES.
	A1	EQUIPMENT, DEVICE, OR PLUMBING FIXTURE MARK, LETTER DESIGNATIONS REFER TO SCHEDULES.
		CONNECT TO EXISTING
	3	PLAN NOTE, APPLIES ONLY TO THE SHEET WHICH IT IS SHOWN UNLESS NOTED OTHERWISE.
	3	DETAIL NOTE, APPLIES ONLY TO THE ASSOCIATED DETAIL.
	1	"UP TO" SYMBOL, ITEM ON FLOOR ABOVE

FIRE SUPPRESSION SYMBOLS

DOUBLE LINE	SINGLE LINE	
		CONCEALED PENDENT SPRINKLER
		FIRE DEPARTMENT VALVE
		FIRE HYDRANT
		FLOW SWITCH
		GATE VALVE OSSY
		INSTITUTIONAL PENDENT SPRINKLER
		PENDENT SPRINKLER
		POST INDICATOR VALVE
		RECESSED PENDENT SPRINKLER
		SIDE WALL SPRINKLER
		SUPERVISED VALVE
		UPRIGHT SPRINKLER

PIPING SYMBOLS

DOUBLE LINE	SINGLE LINE	
		BOTTOM CONNECTION (45°)
		BOTTOM CONNECTION (90°)
		BRANCH TEE CONNECTION, NOTE: BULLHEAD TEES ARE NOT PERMITTED)
		DIRECTION OF PITCH
		DROP
		ELBOW DOWN
		ELBOW UP
		EXISTING PIPE TO BE REMOVED
		EXISTING PIPE TO REMAIN
		FLOW DIRECTION DESIGNATION
		PIPE RISER
		PUMP
		RISE
		TOP CONNECTION (45°)
		TOP CONNECTION (90°)

ABBREVIATIONS

AAP	- AREA ALARM PANEL (MEDICAL GAS)	FOF	- FUEL OIL FLOW	P	- PROPANE GAS
AC	- AIR COMPRESSOR OR AIR CONDITIONER	FOG	- FUEL OIL GAUGE	PC	- PLUMBING CONTRACTOR (DIVISION 22)
ACC	- ACCESS	FOR	- FUEL OIL RETURN	PD	- OR PUMPED CONDENSATE RETURN
ACCU	- AIR COOLED CONDENSING UNIT	FOS	- FUEL OIL SUPPLY	PD	- PUMP DISCHARGE OR PARAFET DRAIN
AD	- ACCESS DOOR OR AREA DRAIN	FOT	- FLAT ON TOP	PI	- POST INDICATOR VALVE
ADJ	- ADJUSTABLE	FR	- FEET PER MINUTE	PLG	- PLUMBING
ADJ	- ABOVE FINISHED FLOOR	FR	- FIRE RISER	PS	- PRE-ACTION/DELUGE SPRINKLER
AFF	- ABOVE FINISHED GRADE	FS	- FLOOR SINK OR FIRE SERVICE	PRESS	- PRESSURE
AFD	- ALTERNATE	FSC	- FIRE SUPPRESSION CONTRACTOR (DIVISION 21)	PRV	- PRESSURE REGULATING VALVE
AP	- ACCESS PANEL	FT	- FEET	PS	- POUNDS PER SQUARE FOOT
APR	- APPROXIMATE	FTG	- FOOTING	PSV	- PRESSURE SUSTAINING VALVE
AR	- AIR RECEIVER OR ARGON	G	- GAS OR NATURAL GAS	PSG	- POUNDS PER SQUARE INCH GAUGE
AR	- ARCHITECT OR ARCHITECTURAL	GA	- GAUGE	PW	- PURE WATER
ASSEMBLY	- ASSEMBLY	GAL	- GALLON	RA	- RETURN AIR
AV	- ACID VENT	GALV	- GALVANIZED	RAD	- RADIUS
AW	- ACID WASTE	GC	- GENERAL TRADES CONTRACTOR	RCP	- REINFORCED CONCRETE PIPE
BDF	- BACK DRAFT DAMPER	GPM	- GALLONS PER MINUTE	RD	- ROOF DRAIN
BDG	- BUILDING	GS	- GAS SERVICE	REC	- RECESSED
BDR	- BOTTOM OF BEAM	GW	- GREASE WASTE	RECQ	- REQUIRED
BOD	- BOTTOM OF DUCT	H2	- HYDROGEN	RI	- ROUGH IN
BOE	- BOTTOM OF EQUIPMENT	HB	- HOSE BIBB	RL	- REFRIGERANT LIQUID
BOF	- BOTTOM OF FOOTING	HC	- HVAC CONTRACTOR (DIVISION 23)	ROR	- REVERSE OSMOSIS WATER SUPPLY
BOG	- BOTTOM OF GRILLE	HD	- HUB DRAIN	RS	- REVERSE OSMOSIS WATER RETURN
BOF	- BOTTOM OF PIPE	HE	- HEATER	RPM	- REVOLUTIONS PER MINUTE
BOT	- BOTTOM	HG	- REFRIGERANT HOT GAS	RS	- REFRIGERANT SUCTION
BTU	- BRITISH THERMAL UNIT	HP	- HORSEPOWER OR HIGH POINT	RV	- RELIEF VALVE
BTU	- BRITISH THERMAL UNIT PER HOUR	HPC	- HIGH PRESSURE CONDENSATE RETURN	S	- SPRINKLER (WET)
BTWN	- BETWEEN	HPS	- HIGH PRESSURE STEAM SUPPLY	SA	- SHOCK ARRESTOR OR SUPPLY AIR
CB	- COMPRESSED AIR	HPW	- HIGH PURITY WATER	SAN	- SANITARY OR SANITARY DRAIN
CB	- CATCH BASIN	HPW	- HIGH PURITY WATER RETURN	SCH	- SCHEDULE
CB	- COUNTER BALANCED BACKDRAFT DAMPER	HR	- HOSE REEL	SCW	- SOFT COLD WATER
CFI	- CONTRACTOR FURNISHED CONTRACTOR	HT	- HEAT TRACE	SD	- SPRINKLER DRAIN OR SUBSOIL DRAIN
CFM	- CUBIC FEET PER MINUTE	HTR	- HEATER	SH	- SHOWER
CHS	- CHILLED WATER SUPPLY	HVAC	- HEATING, VENTILATING, AND AIR CONDITIONING	SHT	- SHEET
CHR	- CAST IRON	HW	- HOT WATER	SK	- SINK
CI	- CLINICAL SINK	HWR	- HEATING HOT WATER RETURN	SPFC	- SPECIFICATIONS
CK	- CLINICAL SINK	HWS	- HEATING HOT WATER SUPPLY	SO	- SQUARE
CLG	- CEILING	IA	- MEDICAL INSTRUMENT AIR	SR	- SUPPLY RISER
CMU	- CONCRETE MASONRY UNIT	ID	- INSIDE DIAMETER	SS	- STAINLESS STEEL
CO	- CLEAN OUT	INDV	- INVERT ELEVATION	STD	- STANDARD
CO2	- MEDICAL CARBON DIOXIDE	IN	- INCHES	STM	- STORM OR STORM DRAINAGE
CON	- CONNECT OR CONNECTION	IV	- INDIRECT VENT	STRUC	- STRUCTURAL OR STRUCTURE
CONTR	- CONTRACTOR	IW	- INDIRECT WASTE	SUC	- SITE UTILITY CONTRACTOR
CORR	- CLINICAL SINK OR COLD SOFT WATER	JS	- JANITOR SINK	T	- TRENCH DRAIN
CS	- CENTER	K	- KITCHEN WASTE	TD	- TEMPERATURE
CTR	- COPPER	KEC	- KITCHEN EQUIPMENT CONTRACTOR	TOB	- TOP OF BEAM
CW	- COLD WATER	L	- LENGTH	TOD	- TOP OF DUCT
CWS	- COMBINATION WATER SERVICE	LA	- LABORATORY COMPRESSED AIR	TOE	- TOP OF EQUIPMENT
CWR	- CONDENSER WATER RETURN	LAV	- LAVATORY	TOF	- TOP OF FOOTING
		LBS	- POUNDS	TOJ	- TOP OF JOIST
		LCW	- LABORATORY COLD WATER	TOP	- TOP OF PIPE
		LEC	- LABORATORY EQUIPMENT CONTRACTOR	TOS	- TOP OF SLAB OR TOP OF STEEL
		LHW	- LABORATORY HOT WATER	TP	- TRAP FILLER
		LHWR	- LABORATORY HOT WATER RETURN	TP	- TRAP PRIMER OR TRAP PRIMER DISCHARGE
		LPC	- LOW PRESSURE CONDENSATE RETURN	TW	- TEMPERED WATER
		LPS	- LOW PRESSURE STEAM SUPPLY	TYP	- TYPICAL
		LW	- LABORATORY VACUUM OR LABORATORY VENT	UR	- URINAL
		DIA	- DIAMETER	UNO	- UNLESS NOTED OTHERWISE
		MA	- MEDICAL COMPRESSED AIR	V	- VENT OR SANITARY SEWER VENT
		MAP	- MASTER ALARM PANEL (MEDICAL GAS)	VAC	- VACUUM
		MAX	- MAXIMUM	VC	- VACUUM CLEANING
		MB	- MOP BASIN	VCV	- VACUUM CLEANING VALVE
		MC	- MECHANICAL CONTRACTOR (DIVISION 23)	VE	- VACUUM EXHAUST
		MEZZ	- MEZZANINE	VEL	- VELOCITY
		MFR	- MANUFACTURER	VB	- VALVE IN BOX
		MH	- MANHOLE	VOL	- VOLUME
		MIN	- MINIMUM OR MINUTE	VP	- VACUUM PUMP
		MISC	- MISCELLANEOUS	VS	- VENT STACK
		MTD	- MOUNTED	VTR	- VENT THROUGH ROOF
		MTG	- MOUNTING	VR	- VENT RISER
		MPC	- MEDIUM PRESSURE CONDENSATE RETURN	W	- WITH
		MPS	- MEDIUM PRESSURE STEAM SUPPLY	WO	- WITHOUT
		MU	- WATER MAKE-UP	W	- WASTE
		MV	- MEDICAL SURGICAL VACUUM	WAGD	- WASTE ANESTHESIA GAS DISPOSAL
		N2	- MEDICAL NITROGEN	WC	- WATER CLOSET
		N/C	- NORMALLY CLOSED	WCO	- WALL CLEANOUT
		NG	- GASOLINE (NON-LEAD)	WH	- WALL HYDRANT OR WATER HEATER
		NIC	- NOT IN CONTRACT	WIN	- WALL INDICATOR VALVE
		NO	- NORMALLY OPEN	WS	- WATER SERVICE
		NOM	- MEDICAL NITROUS OXIDE	YCO	- YARD CLEANOUT
		NPW	- NON-POTABLE WATER	ZVC	- ZONE VALVE CABINET
		NPT	- NATIONAL PIPE THREAD		
		NTS	- NOT TO SCALE		
		O2	- MEDICAL OXYGEN		
		OA	- OUTDOOR AIR		
		OD	- OUTSIDE DIAMETER OR OVERFLOW DRAIN		
		OFCI	- OWNER FURNISHED CONTRACTOR		
		FLR	- FLOOR		
		FOFI	- OWNER FURNISHED OWNER INSTALLED		

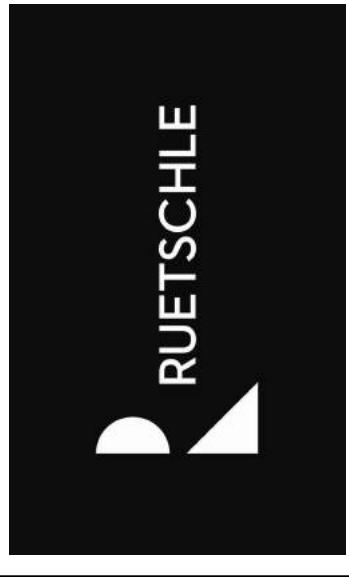
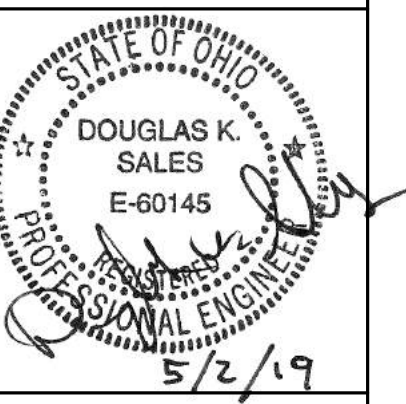
**NOTE: ALL SYMBOLS AND ABBREVIATIONS ARE SUBJECT TO MODIFICATIONS ON OTHER DRAWINGS.**

**ALL SYMBOLS OR ABBREVIATIONS MIGHT NOT NECESSARILY BE USED ON THIS PROJECT.**

PLUMBING GENERAL NOTES

- A ALL SUPPLY, STORM DRAINAGE AND VENT PIPING IS ABOVE THE CEILING (AT THE UNDERSIDE OF STRUCTURE IN EXPOSED STRUCTURE AREAS), UNLESS OTHERWISE NOTED. ALL SANITARY, STORM DRAINAGE PIPING IS IN GRADE BELOW THE FLOOR, UNLESS OTHERWISE NOTED.
- B REFER TO SCHEDULES, DETAILS AND DIAGRAMS FOR PIPING, PIPE SIZES AND PIPELINE DEVICES NOT INDICATED ON THE FLOOR PLAN.
- C ABOVE CEILING UTILITY SPACE IS LIMITED. COORDINATION WITH ALL TRADES IS CRITICAL PRIOR TO INSTALLATION ON ANY WORK.
- D AUTOMATIC AND/OR MANUAL AIR VENTS SHALL BE LOCATED WHERE INDICATED ON THE PLANS AND AT ALL HIGH POINTS OF THE UPPER MOST LEVEL OF DOMESTIC COLD, DOMESTIC HOT, AND DOMESTIC HOT RETURN SYSTEMS. DISCHARGE SHALL BE TO CLOSEST WASTE RECEPTOR ON FLOOR LEVEL SHOWN ON DRAWINGS.
- E LOCATIONS AND SIZES OF EXISTING PIPING HAVE BEEN DETERMINED FROM A REVIEW OF EXISTING DRAWINGS AND/OR SITE INSPECTION, WHERE POSSIBLE. FIELD VERIFICATION OF EXACT LOCATIONS, ELEVATIONS, INVERTS, SIZES, DIRECTION OF FLOW, ETC. SHALL BE REQUIRED PRIOR TO BEGINNING NEW WORK.
- F ALL PIPING SHALL BE REMOVED BACK TO ACTIVE MAINS AND CAPPED, OR REMOVED BACK TO POINTS OF CONNECTION IN NEW WORK. INACCESSIBLE PIPING, WHERE SO NOTED, TO BE ABANDONED SHALL BE DISCONNECTED FROM ACTIVE SYSTEMS AND CAPPED OR PLUGGED IN CONCEALED LOCATIONS.
- G NEW CONNECTIONS TO EXISTING PIPING SHALL BE WITH THE SAME SIZE AS THE EXISTING PIPING, UNLESS OTHERWISE NOTED.
- H ALL REMOVED MATERIAL AND EQUIPMENT, SO DESIGNATED BY THE OWNER, SHALL BE TURNED OVER AND PLACED WHERE DIRECTED. ALL MATERIAL AND EQUIPMENT, WHICH THE OWNER DOES NOT WISH TO RETAIN, SHALL BECOME THE PROPERTY OF THE CONTRACTOR RESPONSIBLE FOR THE REMOVAL.
- FIRE SUPPRESSION DESIGN NOTES
- A ALL PIPING IS ABOVE THE CEILING (AT THE UNDERSIDE OF STRUCTURE IN EXPOSED STRUCTURAL AREAS) UNLESS OTHERWISE INDICATED.
- B REFER TO ARCHITECTURAL DRAWINGS FOR REFLECTED CEILING PLANS AND GENERAL TRADES CONSTRUCTION INFORMATION. COORDINATE SPRINKLER LOCATIONS WITH CEILING DEVICES (LIGHTING, GRILLES, ETC.) OBTAIN ARCHITECTS APPROVAL OF SPRINKLER LAYOUT PRIOR TO INSTALLATION. FINAL FINISHED APPEARANCE OF WORK MUST BE APPROVED BY THE ARCHITECT.
- C CONTRACTOR SHALL MAKE REQUIRED FLOW TESTS, LAY OUT SYSTEMS, OBTAIN APPROVALS FROM THE AUTHORITY HAVING JURISDICTION AND THE OWNER'S INSURER PRIOR TO BEGINNING ANY FABRICATION OR INSTALLATION WORK.
- D FIRE SUPPRESSION SPRINKLER SYSTEMS, REFER TO DRAWING AND SPECIFICATIONS FOR COMPLETE SCOPE OF WORK.
- 1 FIRE SUPPRESSION CONTRACTOR SHALL DESIGN AND INSTALL AUTOMATIC SPRINKLER SYSTEMS FOR THE NEW ADDITION ONLY.
- E BASIS FOR DESIGN OF FIRE SUPPRESSION SYSTEM(S) TO BE:
- 1 LIGHT HAZARD 1500 SQUARE FEET, 0.10 GPM/SQ. FT., 225 SQUARE FEET MAXIMUM PER SPRINKLER.
- 2 ORDINARY HAZARD, (GROUP 1) 1500 SQUARE FEET, 0.15 GPM/SQ. FT., 130 SQUARE FEET MAXIMUM PER SPRINKLER.
- 3 ORDINARY HAZARD (GROUP 2) 1500 SQUARE FEET, 0.20 GPM/SQ. FT., 130 SQUARE FEET MAXIMUM PER SPRINKLER.
- AREA OF OPERATION REDUCTIONS AND INCREASES SHALL BE CALCULATED PER NFPA STANDARDS. VERIFY DENSITIES WITH GOVERNING AUTHORITIES AND OWNER'S INSURER BEFORE PROCEEDING WITH DESIGN OF SYSTEM(S). IF GOVERNING AUTHORITIES OR OWNER'S INSURER REQUIREMENTS ARE MORE STRINGENT THOSE REQUIREMENTS SHALL PREVAIL. ALL AREAS ARE TO BE LIGHT HAZARD CLASSIFICATION, UNLESS OTHERWISE INDICATED ON THE PLANS OR REQUIRED BY THE GOVERNING AUTHORITY.
- F PROVIDE THE FOLLOWING SPRINKLER TYPES, UNLESS OTHERWISE NOTED ON THE DRAWINGS. PENDENT TYPE SPRINKLERS SHALL BE LOCATED IN THE CENTER OF SQUARE PADS AND AT THE CENTER OR AT QUARTERPOINTS OF THE LONG AXIS OF RECTANGULAR PADS.
- 1 SPRINKLERS IN EXPOSED AREAS SHALL BE QUICK RESPONSE BRASS UPRIGHT TYPE.
- 2 SPRINKLERS IN AREAS WITH CEILINGS SHALL BE RECESSED TWO-PIECE ADJUSTABLE PENDENT QUICK RESPONSE TYPE WITH CHROME PLATED FINISH.
- G ALL PIPING SHOWN (WITH SIZES) SHALL BE INSTALLED AS SIZED UNLESS HYDRAULIC CALCULATIONS INDICATED A LARGER SIZE IS NECESSARY. FOR PIPING NOT SHOWN OR SIZED ON THE DRAWINGS, PIPE SIZING SHALL BE BASED ON FIRE SUPPRESSION CONTRACTORS HYDRAULIC CALCULATIONS.
- H EXERCISE SPECIAL CARE TO COORDINATE PIPING AND EQUIPMENT LOCATIONS WITH ALL OTHER TRADES.

PLUMBING SHEET LIST	
Sheet Number	Sheet Name
P001	PLUMBING LEGEND NOTES
P002	PLUMBING SCHEDULES AND DETAILS
P101	EXISTING CHURCH BASEMENT FLOOR PLAN - DEMO AND NEW WORK
P102	NEW BLDG BASEMENT FLOOR PLAN - NEW WORK
P103	EXISTING CHURCH FIRST FLOOR PLAN - DEMO/NEW WORK
P104	NEW BLDG FIRST FLOOR PLAN - NEW WORK
P105	NEW BLDG SECOND FLOOR PLAN - NEW WORK
P200	SANITARY DIAGRAMS
P201	WATER DIAGRAMS





PLUMBING FIXTURES																																			
CATALOG NUMBERS INDICATED ARE THOSE OF THE FIRST NAMED MANUFACTURER IN EACH CATEGORY LISTED BELOW - ADDITIONAL MANUFACTURERS ARE LISTED IN PARENTHESIS																																			
A. AMERICAN STANDARD (KOHLER, CRANE, ZURN)					E. AMERICAN STANDARD (CHICAGO, T/S BRASS, ZURN)					J. ELKAY (JUST WITH LUG AND SCREW)					N. IN-SINK ERATOR (OR APPROVED EQUAL)																				
B. SLOAN "ROYAL" (DELANEY, ZURN AV.)					F. FIAT (MUSTEE, WILLIAMS)					K. ELKAY (HALSEY TAYLOR, HAWS, OASIS)																									
C. OLSONITE (BENEKE, CHURCH, BEMIS)					G. McGUIRE (EBC, DEARBORN BRASS)					L. CHICAGO (T/S BRASS)																									
D. SMITH (WADE, ZURN, JOSAM, WATTS)					H. FIAT (STERN WILLIAMS, CREATIVE IND.)					M. SWANSTONE OR APPROVED EQUAL																									
SCHEDULE ABBREVIATIONS:					GENERAL NOTE:																														
ADA HANDICAP ACCESSIBLE FS FLOOR SET FT FLUSH TANK FV FLUSH VALVE GN GOOSENECK HS HAND SHOWER					SB SINGLE BOWL SST STAINLESS STEEL VB VACUUM BREAKER VR VACUUM RESISTANT WB WRIST BLADE WH WALL HUNG					1. SUPPLY PIPE SIZES IN THIS SCHEDULE ARE FIXTURE OR SUPPLY STOP CONNECTION SIZES. DOMESTIC COLD AND HOT WATER SUPPLY PIPE SIZES SERVING FIXTURES SHALL BE, AT A MINIMUM, THE SIZE LISTED UNLESS NOTED OTHERWISE OR LABELLED ON THE FLOOR PLANS. DOMESTIC COLD WATER SUPPLY PIPE SIZES SERVING FLUSH VALVES SHALL BE, AT A MINIMUM ONE PIPE SIZE LARGER THAN THE INDICATED CONNECTION SIZE, OR SIZED AS SHOWN ON THE FLOOR PLANS. PIPING AT THE FLUSH VALVE CONNECTION OF A SIZE EQUAL TO THE CONNECTION SIZE SHALL BE LIMITED TO A MAXIMUM 2 FEET IN DEVELOPED LENGTH AND INCLUDE A MAXIMUM OF ONE 90 DEGREE ELBOW FITTING. FULL SIZE MANIFOLDS, WHERE INDICATED ON THE FLOOR PLANS, SHALL BE PROVIDED FULL SIZE FOR THE LENGTH OF THE PIPING CHASE AND TERMINATED WITH A FULL SIZE CAP.																									
NOTES:					4. PROVIDE ASSE 1070 POINT OF USE MIXING VALVE UNDER LAV/SINK.					8. VERIFY MOUNTING HEIGHT (CHILD ADA) WITH ARCHITECTURAL PLANS.																									
1. WATER CLOSET SEAT TO BE WHITE.					2. COORDINATE MOUNTING OF ACCESSORIES WITH CM.					5. PROVIDE CHROME PLATED BRASS NIPPLES TO WALL.					7. FLUSH HANDLE TO BE ON WIDE SIDE OF ROOM.																				
3. PROVIDE FIAT MODEL 832-CC, MSG2424, E77AA.					6. FINISH SELECTION BY ARCHITECT.																														
MARK	DESCRIPTION	MOUNTING HEIGHT	FLOW	CONTROL	SUPPLY	WASTE & VENT	FIXTURE	SUPPLY TRIM	SUPPLY / STOP	WASTE TRIM	TRAP / FIX. DR.	MISC.	SEE NOTE																						
			GPM	OFF	MANUAL	ELECTRIC	BATTERY	COLD WATER	TEMPERED	NAT. GAS	3" FIX. OUTLET	TRAP	3" FIX. DRAIN	3" WASTE MIN.	VENT MIN.	INDIRECT	AIR GAP	AIR BREAK	MFL	CAT. NO.	A	3483.100	MFL	CAT. NO.	UNIT	G	BV2166	A	UNIT	G	155A	G	PW2125NCO		4,5
B1	LAVATORY/WALL HUNG/ADA	34" RIM	2.2	•				0.5"	0.5"		1.25"	1.5"	1.5"	1.5"	1.5"					A	0356.015	E	6114.111.002	G	BV2165	G	155A	G	PW2125NCO					4,5	
D1	MOP BASIN/FLOOR SET/24X24	-						0.5"	0.5"		3"	4"	4"	4"	2"					F	MSB2424	F	830-AA	F	UNIT	F	UNIT	-	ROUGH	F	SEE NOTES		2,3		
F1	SINK/COUNTER MTD./1-COMP	-	2.2	•				0.5"	0.5"		1.5"	1.5"	1.5"	1.5"	1.5"					M	KSSB-3232	L	2300-ABCP	G	BV2165	J	LK35	G	PW2125NCO					4,5	
G1	WATER COOLER/BARRIER FREE/8" LEVEL/SST/ADA	30" BUBBLER						0.375"			1.5"	1.5"	1.5"	1.5"	1.5"				K	EZSTL8LC	K	UNIT	G	BV2165	K	UNIT	G	8912DF					5,6,8		

DRAINS

GENERAL NOTE:  
1. ALL DRAINS ARE MANUFACTURED BY J.R. SMITH UNLESS NOTED OTHERWISE.

NOTES:

MARK	CATALOG NOS.	TYPE		BODY		OUTLET		SIZE		STRAINER / GRATE						TOP FINISH				ADDITIONAL FEATURES								SEE NOTE									
		FLOOR	ROOF AREAWAY	CAST IRON	BRASS	ACID RESIST.	STAINLESS STEEL	PLASTIC	SIZE	BOTTOM	SIDE	DIAMETER / WIDTH	LENGTH	ADJUSTABLE	FLAT	DOME	RECESSED	FUNNEL	HINGED	STAINLESS STEEL	NICKLE BRONZE	CAST IRON	ACID RESIST.	STAINLESS STEEL	PLASTIC	DUCTILE IRON	ANCHOR FLANGE		FLASHING CLAMP	IDB DRAINAGE	SED BUCKET	AUX STRAINER	BEARING PAN	UDCK CLAMP	2" STANDPIPE	TRAP PRIMER COIL	WATER DAM
FD1	2005BHP	•						3"	•	•	•	•	•	•	•						•																
FD2	2110	•			•			3"	•	•	•	•	•	•	•							•															
FD3	2630-F-C	•			•			4"	•	•	•	•	•	•	•							•															
OD1	1045		•		•			4"	•	•	•	•	15"				•																	•	•	•	•
OD2	1045		•		•			6"	•	•	•	•	15"				•																	•	•	•	•
RD1	1010		•		•			4"	•	•	•	•	15"				•																	•	•	•	•
RD2	1010		•		•			6"	•	•	•	•	15"				•																	•	•	•	•
RD3	1025		•		•			3"	•	•	•	•	15"				•																	•	•	•	•

## EQUIPMENT DATA

**DWH1** DOMESTIC WATER HEATER, ELECTRIC INPUT: 3000/3000 W NON SIMULTANEOUS, 200V, STORAGE CAPACITY: 30 GALLONS SET DISCHARGE TEMPERATURE TO 120°F BASIS OF DESIGN: AO SMITH DEL 30-3KW

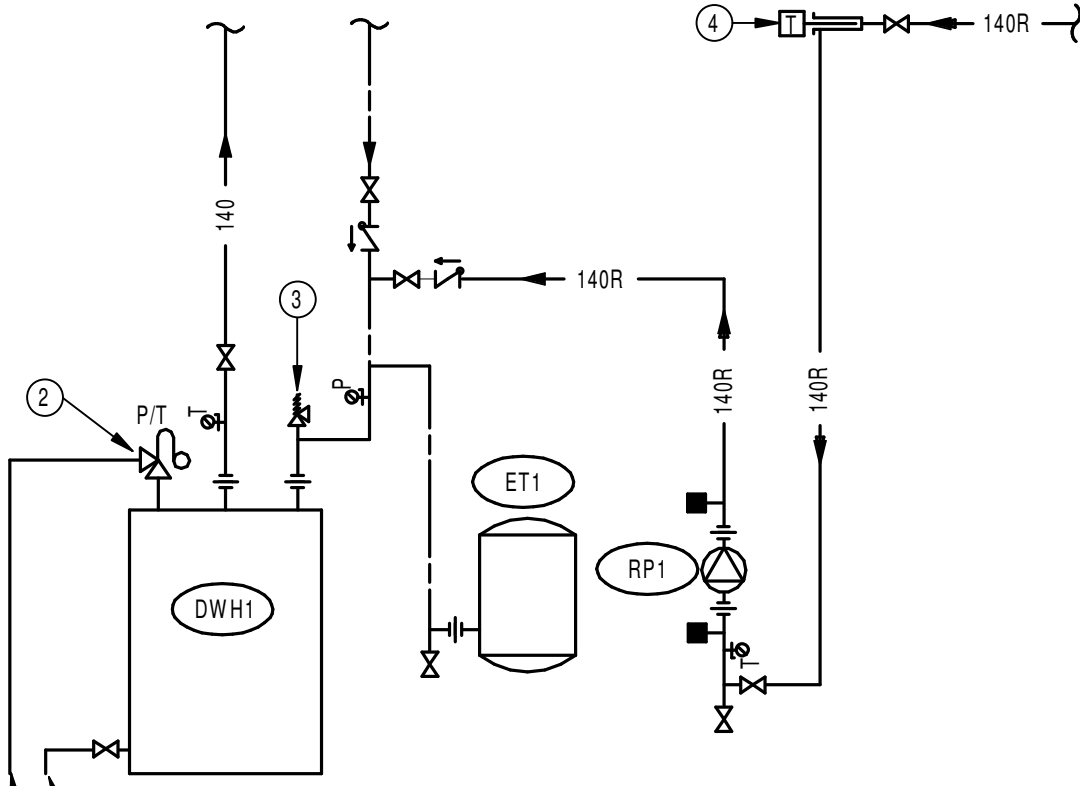
**ET1** THERMAL EXPANSION TANK, NON-ASME RATED, PIPE MOUNT, DIAPHRAGM TYPE DESIGN BASIS: AMTROL ST-5

**RP1** HOT WATER RETURN RECIRCULATING PUMP, CAPACITY: 3 GPM @ 5 FT. HD. MOTOR: 39WATTS @ 115 V - 1 PH BASIS OF DESIGN: BELL AND GOSSET #NBF-8 ON/OFF SWITCH OPERATED.

**ESP1** ELEVATOR SUMP PUMP CAPACITY: 50 GPM @ 22 FT HEAD ZOELLER SERIES # 140 (NONAUTOMATIC) SINGLE VARIABLE LEVEL CONTROL SWITCH FOR HIGH LEVEL ALARM ELECTRICAL: - 1 HP 120V - 1 PH

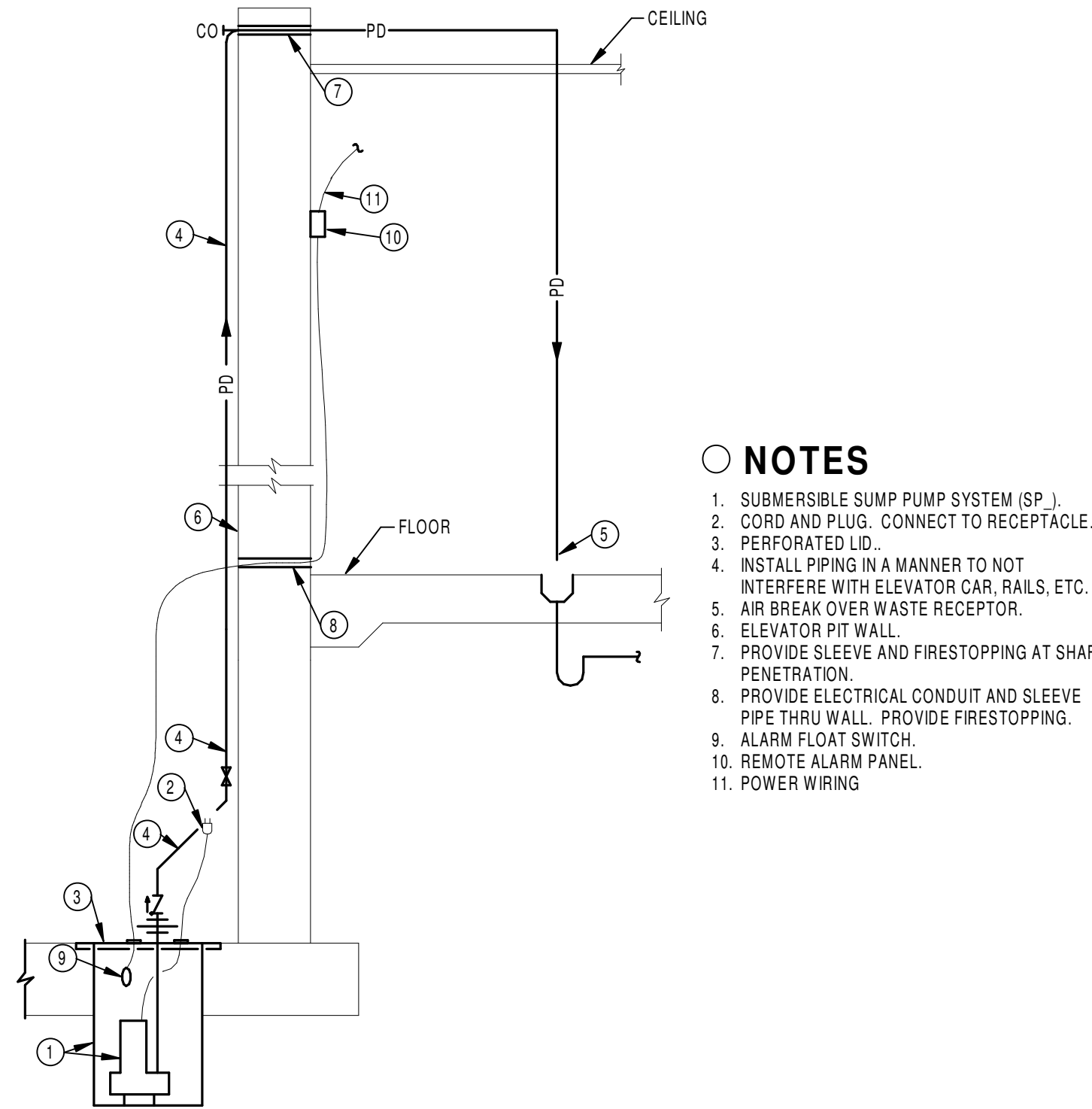
**SP1** FOOTING TILE SUMP PUMP CAPACITY: 50 GPM @ 20 FT HEAD ZOELLER SERIES # 145 (NONAUTOMATIC) MULTIPLE VARIABLE LEVEL CONTROL SWITCHES FOR ON-OFF/HIGH LEVEL ALARM ELECTRICAL: - 1 HP 120V - 1 PH

**SEL** SEWAGE EJECTOR CAPACITY: 21 GPM @ 22 FT HEAD ZOELLER SERIES # 282 (NONAUTOMATIC) MULTIPLE VARIABLE LEVEL CONTROL SWITCHES FOR ON-OFF/HIGH LEVEL ALARM ELECTRICAL: - 0.5 HP 120V - 1 PH



## NOTES

- AIR GAP OVER FLOOR DRAIN
- COMBINATION TEMPERATURE-PRESSURE RELIEF VALVE.
- VACUUM RELIEF VALVE.
- RECIRCULATION PUMP CONTROL AQUASTAT.
- AIR GAP OVER FLOOR.



## NOTES

- SUBMERSIBLE SUMP PUMP SYSTEM (SP.).
- CORD AND PLUG. CONNECT TO RECEPTACLE.
- PERFORATED LID.
- INSTALL PIPING IN A MANNER TO NOT INTERFERE WITH ELEVATOR CAR, RAILS, ETC.
- AIR BREAK OVER WASTE RECEPTOR.
- ELEVATOR PIT WALL.
- PROVIDE SLEEVE AND FIRESTOPPING AT SHAFT PENETRATION.
- PROVIDE ELECTRICAL CONDUIT AND SLEEVE PIPE THRU WALL. PROVIDE FIRESTOPPING.
- ALARM FLOAT SWITCH.
- REMOTE ALARM PANEL.
- POWER WIRING

## 3 WATER HEATER

SCALE: 1/8" = 1'-0"

## 2 ELEVATOR SUMP

SCALE: 1/8" = 1'-0"

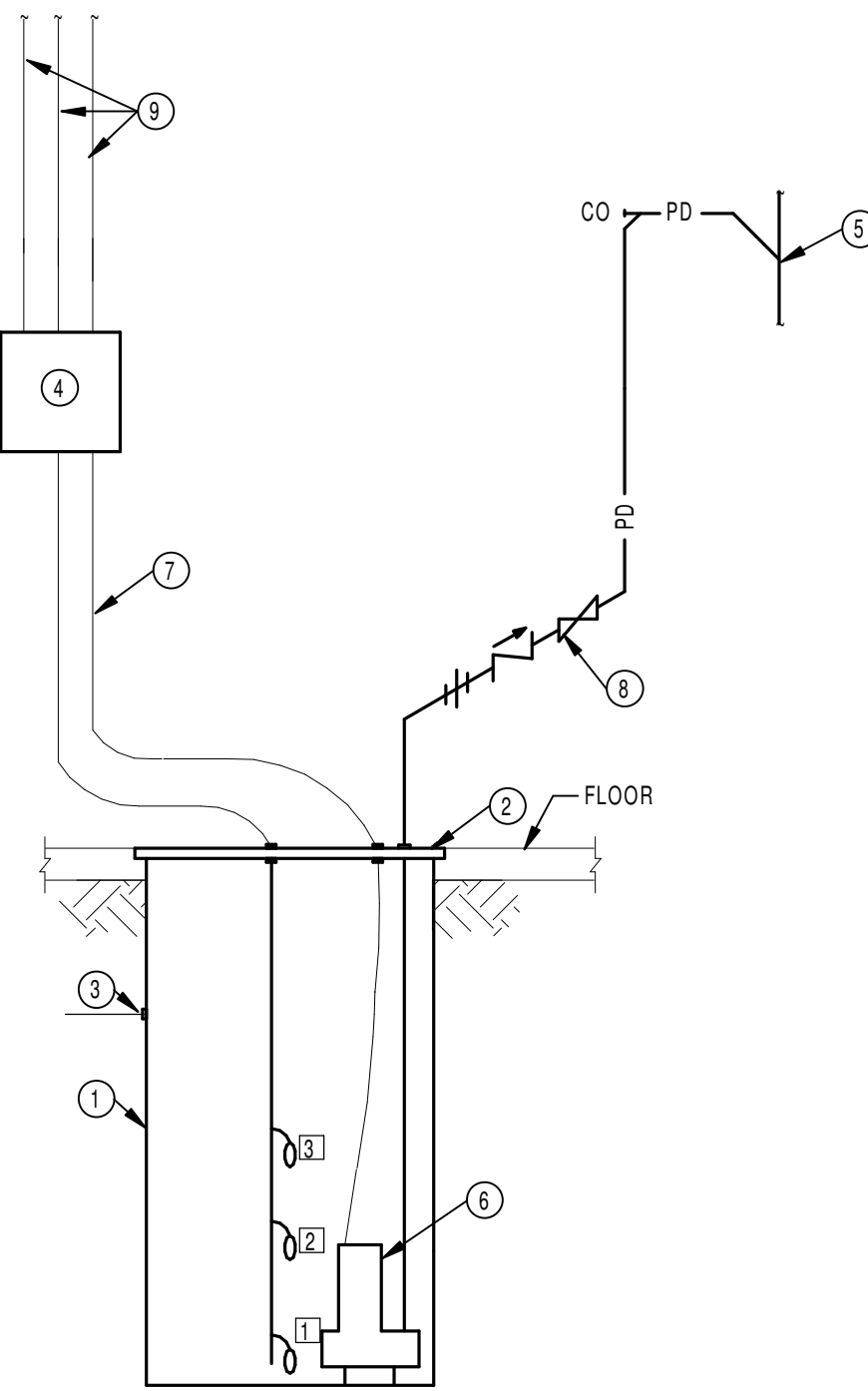
## NOTES

- BASIN - PROVIDED PREVIOUSLY
- BASIN LID
- INLET PIPE. SEE FLOOR PLAN FOR NUMBER AND INVERT(S).
- CONTROL PANEL. MOUNT 60" AFF TO TOP OF PANEL.
- CONNECT TO GRAVITY DRAINAGE PIPE.
- PUMP
- POWER WIRING IN CONDUIT TO CONTROL PANEL.
- INSTALL PIPE ACCESSORIES IN HORIZONTAL PORTION OF PIPING.

☐ CONTROL INVERTS

- PUMPS OFF
- LEAD PUMP ON
- HIGH LEVEL ALARM

18" IN BELOW INLET  
6" IN BELOW INLET AT INLET INVERT



## 4 SUMP PUMP

SCALE: 1/8" = 1'-0"

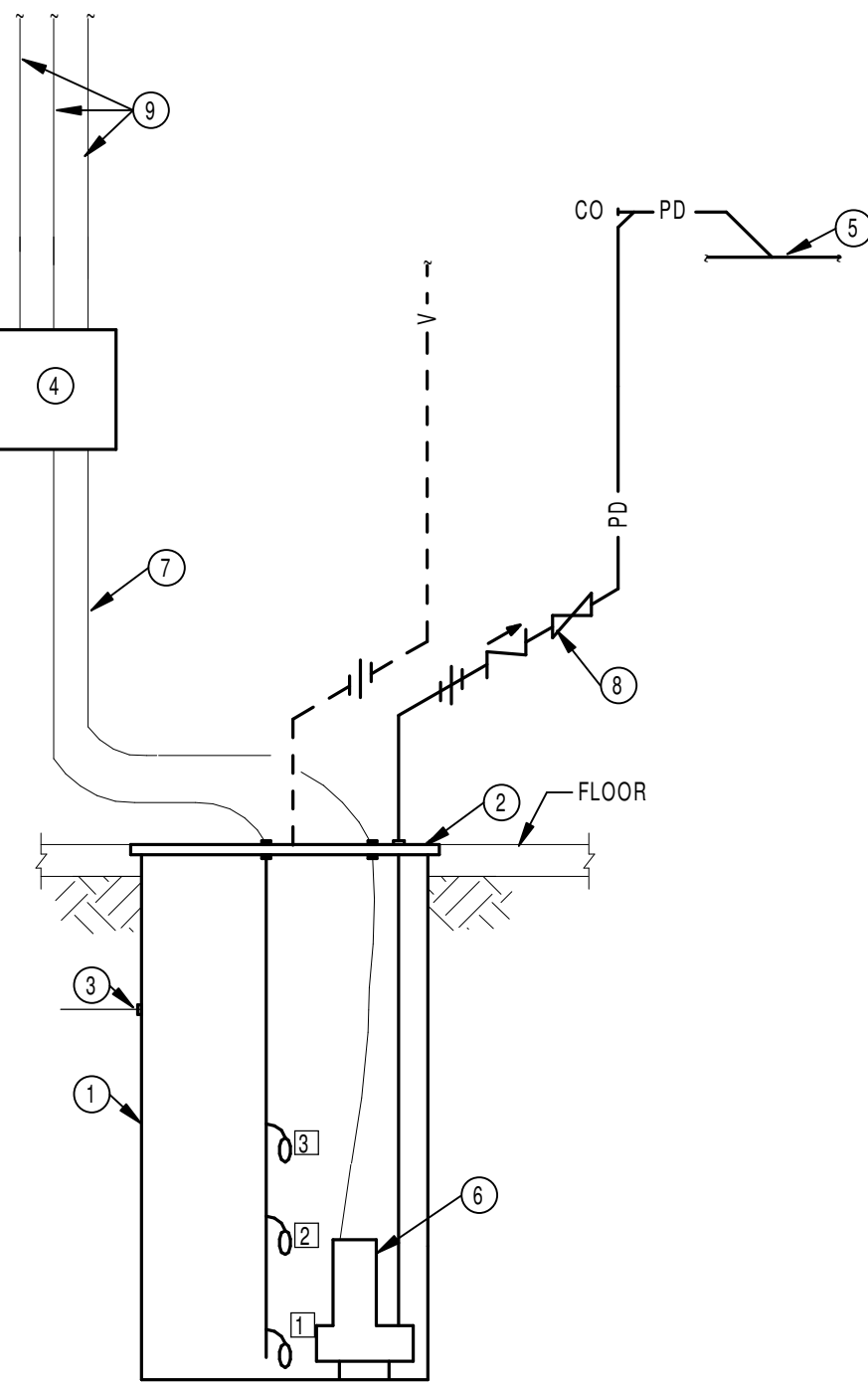
## NOTES

- BASIN - PROVIDED PREVIOUSLY
- BASIN LID
- INLET PIPE. SEE FLOOR PLAN FOR NUMBER AND INVERT(S).
- CONTROL PANEL. MOUNT 60" AFF TO TOP OF PANEL.
- CONNECT TO GRAVITY DRAINAGE PIPE.
- PUMP
- POWER WIRING IN CONDUIT TO CONTROL PANEL.
- INSTALL PIPE ACCESSORIES IN HORIZONTAL PORTION OF PIPING.

☐ CONTROL INVERTS

- PUMPS OFF
- LEAD PUMP ON
- HIGH LEVEL ALARM

13" IN BELOW INLET  
6" IN BELOW INLET AT INLET INVERT



## 5 SEWAGE EJECTOR

SCALE: 1/8" = 1'-0"

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NEW ADDITION TO  
**KETTERING SEVENTH-DAY ADVENTIST CHURCH**  
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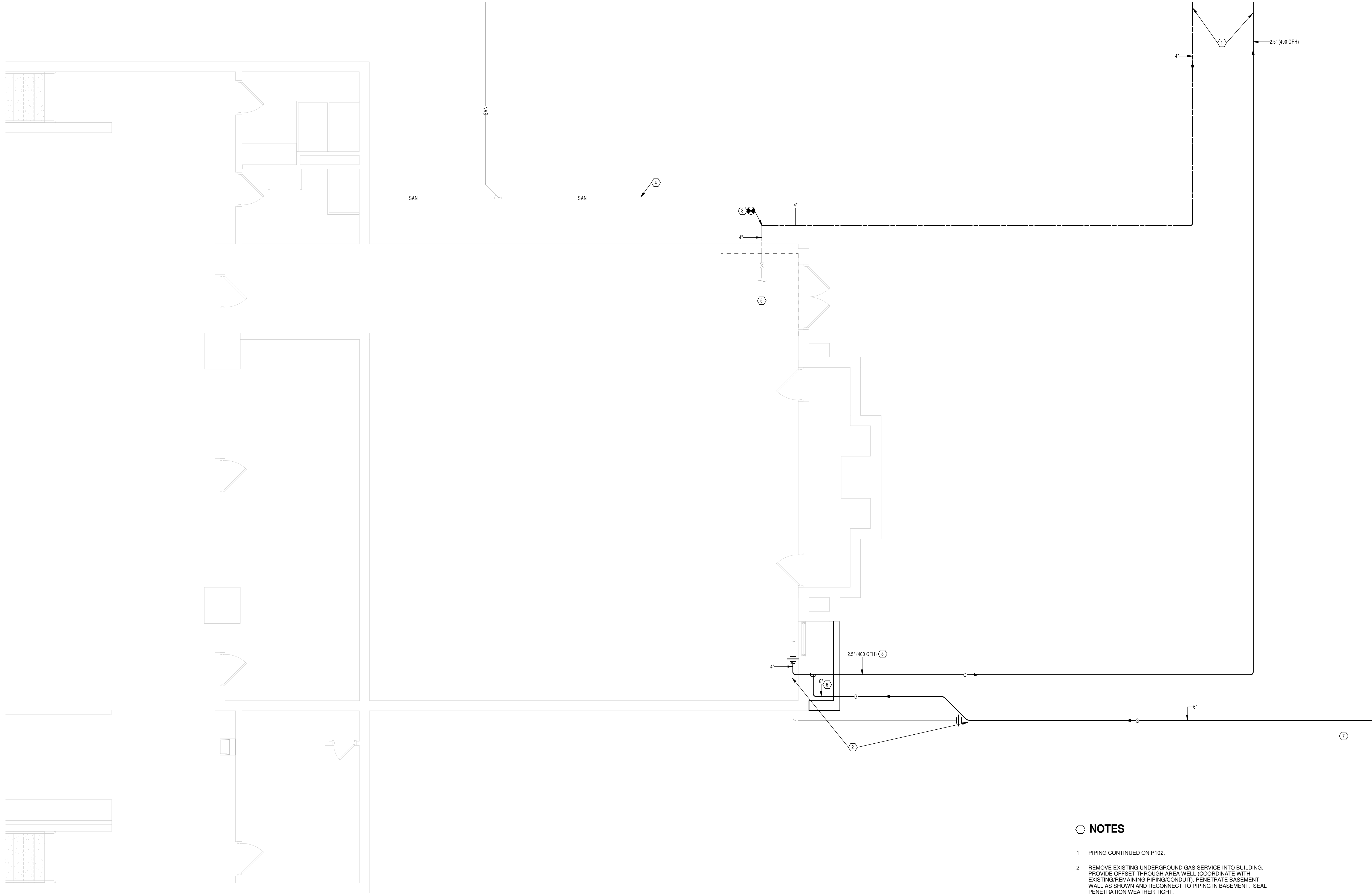
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PLUMBING  
SCHEDULES AND  
DETAILS

Sheet No.

**P002**



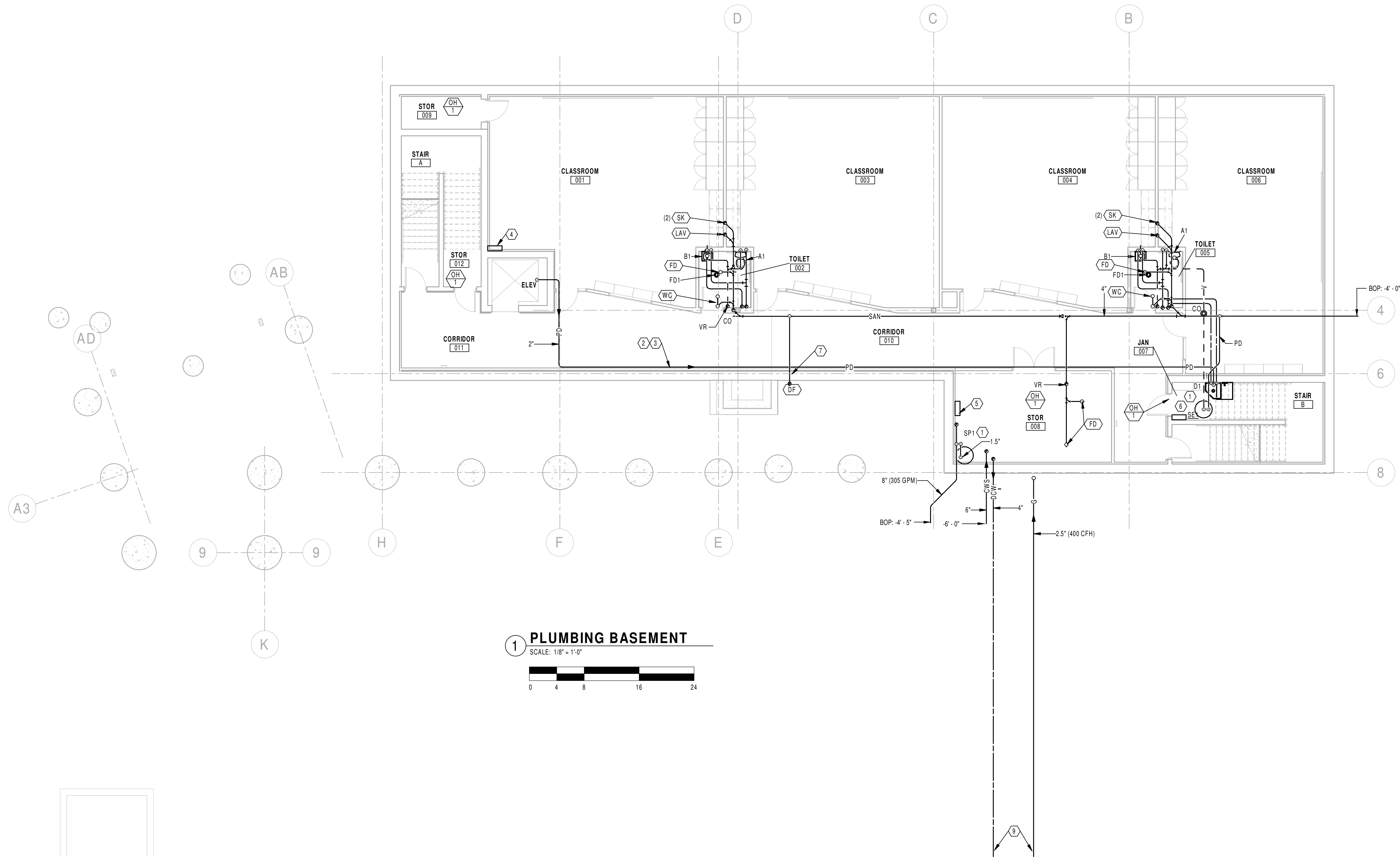


1 EXISTING CHURCH SITE WORK.  
SCALE: 1/4" = 1'-0"

NOTES

- 1 PIPING CONTINUED ON P102.
- 2 REMOVE EXISTING UNDERGROUND GAS SERVICE INTO BUILDING. PROVIDE OFFSET THROUGH AREA WELL. (COORDINATE WITH EXISTING/REMAINING PIPING/CONDUIT). PENETRATE BASEMENT WALL AS SHOWN AND RECONNECT TO PIPING IN BASEMENT. SEAL PENETRATION WEATHER TIGHT.
- 3 CONNECT DOW PIPE TO EXISTING IN THIS AREA.
- 4 EXISTING SANITARY PIPE TO REMAIN.
- 5 REMOVE AND REPLACE DOMESTIC WATER PIPING IN THIS AREA TO COORDINATE WITH REVISED HVAC DUCT ROUTING. REFER TO HVAC DRAWINGS.
- 6 EXISTING TOTAL CONNECTED LOAD IS 4,679.8 CFH. NEW TOTAL CONNECTED LOAD IS 3,299.8 CFH.
- 7 REMOVE EXISTING 4" GAS SERVICE TO BUILDING AND REPLACE WITH 6" PIPE FROM METER. METER/REGULATOR APPROXIMATELY 50 FEET FROM THIS POINT.
- 8 GAS PIPE TO PROVIDE NEW BUILDING ADDITION.



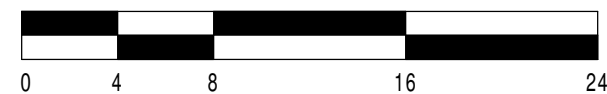


NOTES

- 1 BASIN PROVIDED IN EARLY SITE PACKAGE.
- 2 INSTALL PIPING WITH NO SLOPE.
- 3 INSTALL PIPING WITHIN TRUSS SPACE.
- 4 PROVIDE ELEVATOR SUMP PUMP ALARM PANEL IN THIS LOCATION.
- 5 PROVIDE SUMP PUMP ALARM PANEL IN THIS LOCATION.
- 6 PROVIDE SEWAGE EJECTOR ALARM PANEL IN THIS LOCATION.
- 7 SEAL PENETRATION PER SPECIFICATIONS.
- 9 PIPING CONTINUED ON P101.

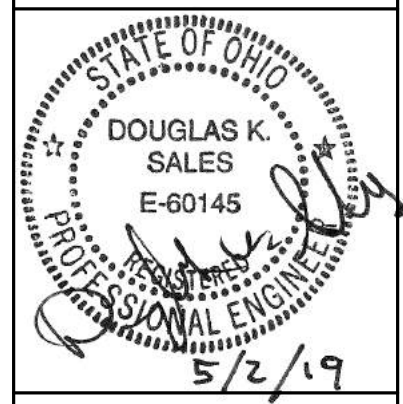
1 PLUMBING BASEMENT

SCALE: 1/8" = 1'-0"



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NEW BLDG BASEMENT  
FLOOR PLAN - NEW  
WORK

Sheet No.

**P102**





NOTES

- 1 REMOVE EXISTING PVC FLUE EXHAUST AND REPLACE WITH DOUBLE WALLED MATERIAL PER SPECIFICATIONS. INSTALL IN SAME ROUTE PATH AS EXISTING.
- 2 SCOPE PART OF ADD ALTERNATE.
- 3 EXISTING SANITARY PIPE TO REMAIN.
- 4 EXISTING VENT PIPE TO REMAIN.

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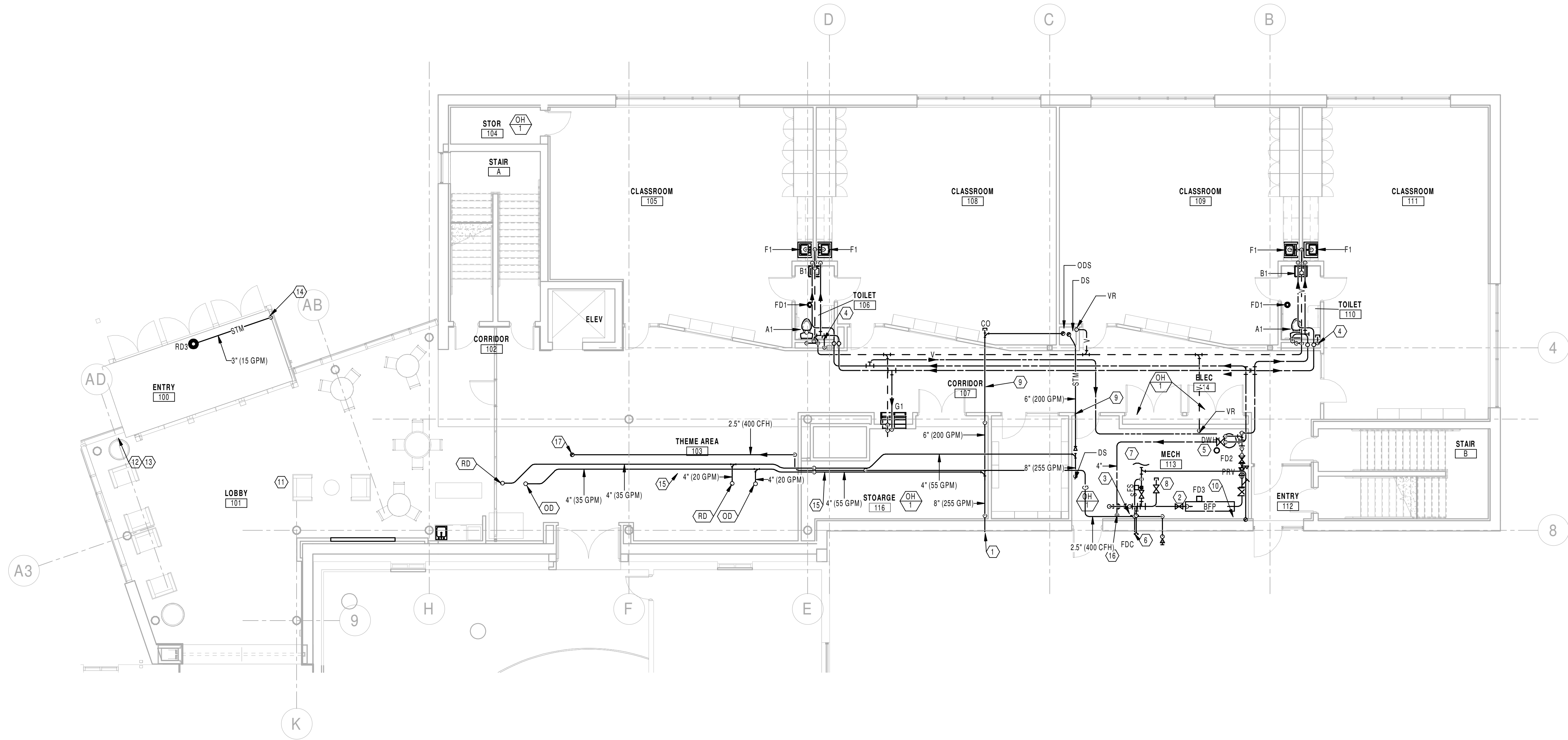
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EXISTING CHURCH  
FIRST FLOOR PLAN -  
DEMO/NEW WORK

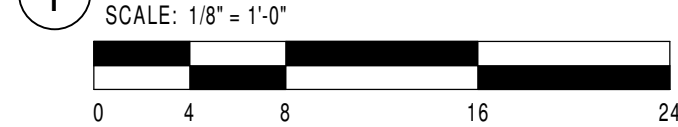
Sheet No.

**P103**





1 PLUMBING FIRST FLOOR - NEW BUILDING

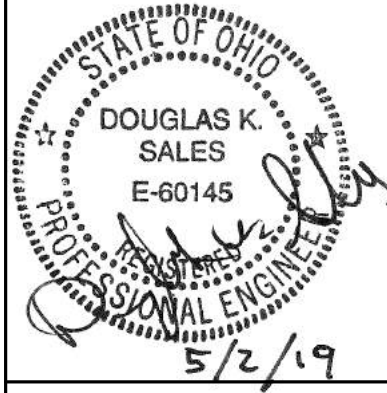


NOTES

- 1 PROVIDE JR SMITH 1775 AT 18" AFG.
- 2 PROVIDE DOMESTIC AND FIRE SUPPRESSION WATER SERVICE PER MONTGOMERY COUNTY STANDARDS.
- 3 PROVIDE CHECK VALVE WITH DRIP CONNECTION.
- 4 PROVIDE 3" SS ABOVE CEILING AND CAP. PROVIDE 0.5" DOW AND DHW RISER AND VALVE TO ABOVE CEILING. ADDITIONS FOR FUTURE TOILET ROOM.
- 5 PROVIDE WATER HEATER, EXPANSION TANK, AND RECIRC PUMP PER DETAIL.
- 6 PROVIDE SPRINKLER TEST DRAIN TO EXTERIOR AT THIS LOCATION. PROVIDE SPLASHBLOCK UNDER DOWNTURNED FITTING.
- 7 SPRINKLER MAIN FOR 1ST FLOOR SIZED PER HYDRAULIC CALCULATIONS.
- 8 PROVIDE 6" FS WITH VALVE AND CAP FOR FUTURE EXTENSION.
- 9 INSTALL PIPING AS HIGH AS POSSIBLE.
- 10 3" SR UP TO FLOOR ABOVE.
- 11 AREA OPEN TO ABOVE.
- 12 ROUTE SPRINKLER PIPING FOR VESTIBULE FROM LOBBY SPRINKLER MAINS IN THIS LOCATION. SPRINKLER PIPE FOR VESTIBULE SHALL PENETRATE VERTICAL CURTAINWALL FRAMES. COORDINATE WITH ARCHITECT FOR LOCATION.
- 13 PROVIDE INSPECTORS TEST AND DRAIN AT THIS LOCATION. ROUTE PIPING TO EXTERIOR AT 1'-6" AFFG AND PROVIDE CONCRETE SPLASHBLOCK.
- 14 CONNECT STORM DRAIN TO DOWNSPOUT. COORDINATE LOCATION IN FIELD.
- 15 COORDINATE PIPE INSTALLATION WITH ADJACENT DUCT WORK AND HVAC SCOPE.
- 16 NEW DOMESTIC WATER SERVICE BACKFEEDING EXISTING BUILDING FROM NEW ADDITION.
- 17 GAS PIPE UP TO HVAC EQUIPMENT ABOVE. COORDINATE LOCATION WITH CONNECTION ON EQUIPMENT.

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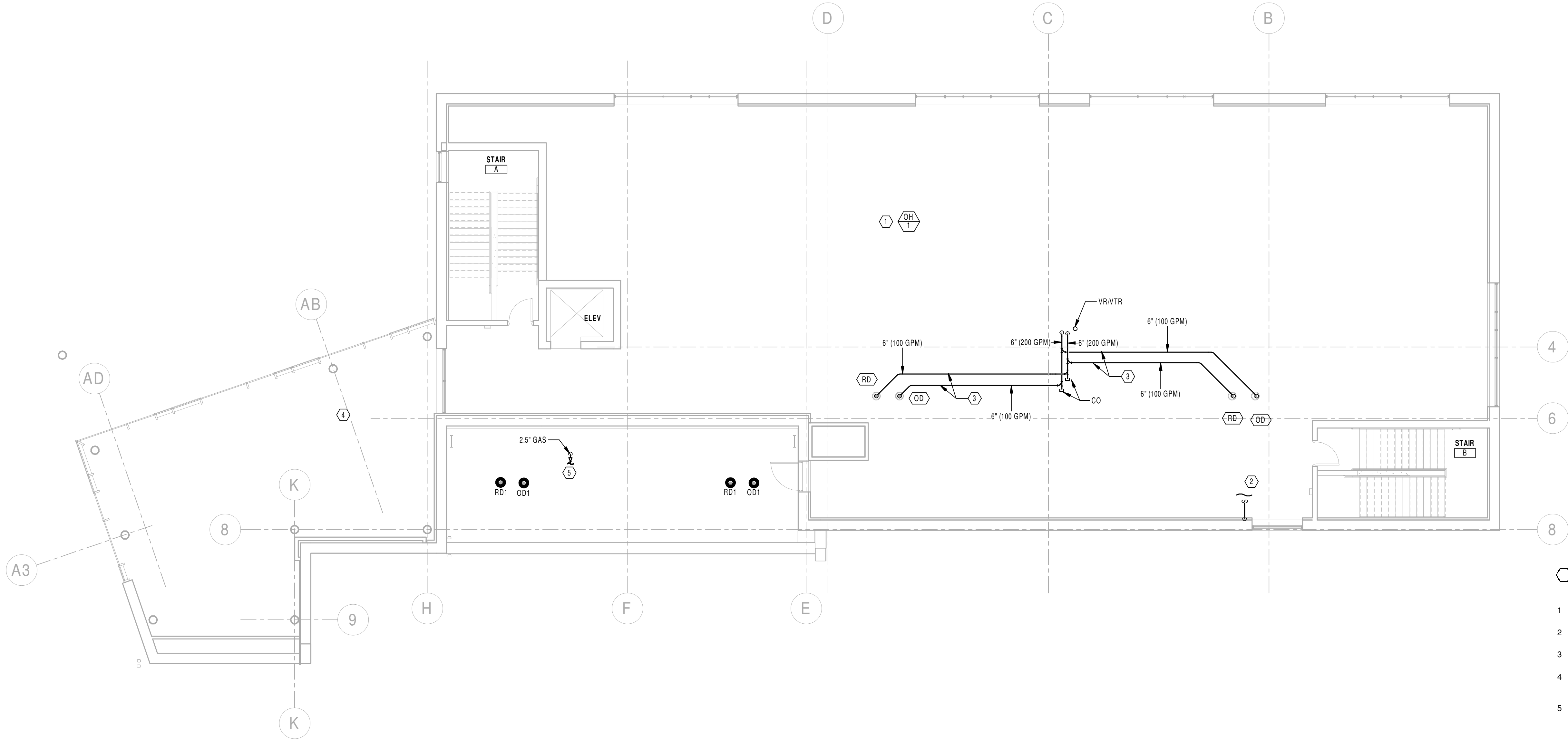
NEW BLDG FIRST  
FLOOR PLAN - NEW  
WORK

Sheet No.

**P104**



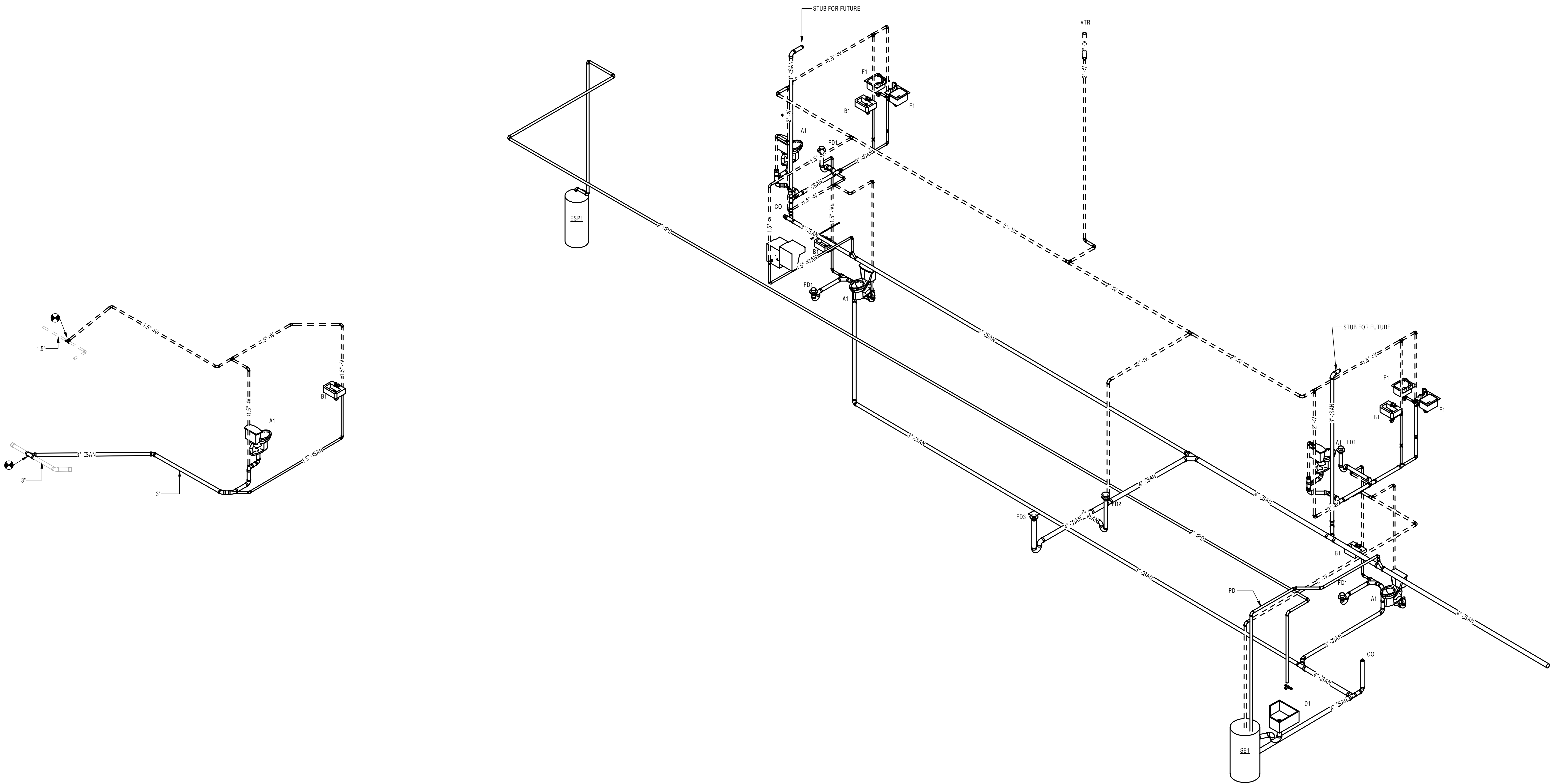
1 PLUMBING SECOND FLOOR  
SCALE: 1/8" = 1'-0"



NOTES

- 1 PROVIDE UPTURNED SPRINKLERS IN THIS AREA.
- 2 SPRINKLER MAIN FOR 2ND FLOOR.
- 3 INSTALL PIPING WITHIN TRUSS SPACE.
- 4 AREA OPEN TO BELOW. PROVIDE SPRINKLERS IN THIS AREA FROM THE 2ND FLOOR PIPING.
- 5 PROVIDE GAS CONNECTION TO HVAC EQUIPMENT PER DETAIL.





1 SWV  
SCALE: NONE

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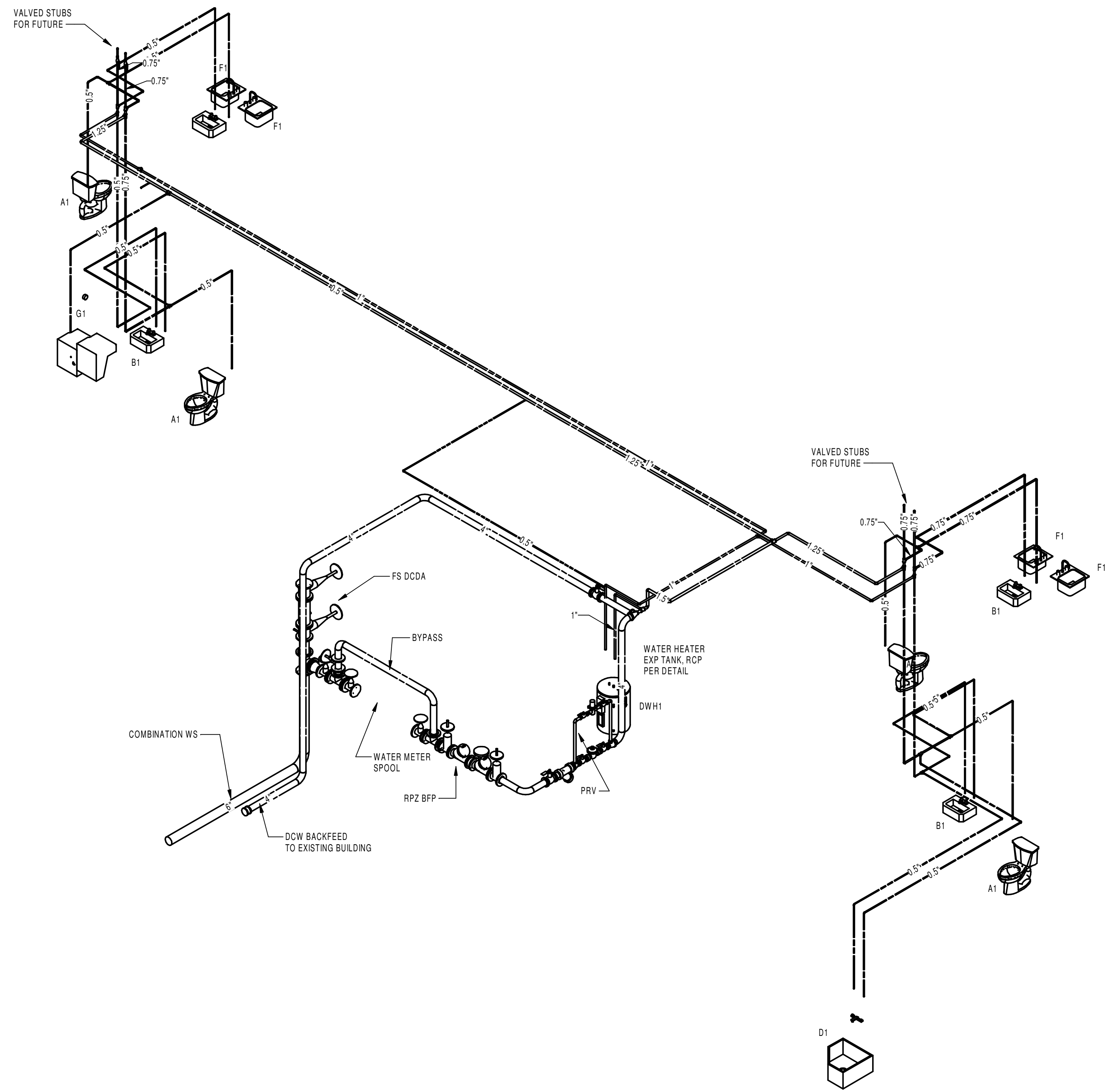
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SANITARY DIAGRAMS

Sheet No.

**P200**

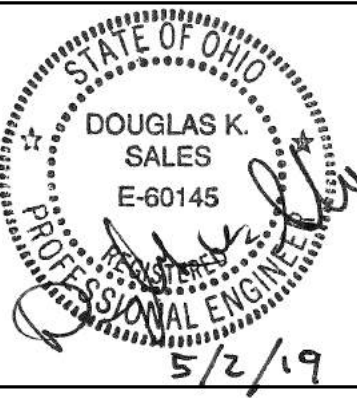




1 WATER DIAGRAM  
SCALE: NONE

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WATER DIAGRAMS

Sheet No.

**P201**



GENERAL NOTES (APPLY TO ALL HVAC SHEETS)

- A. COORDINATE THE LOCATION OF ALL DEVICES LOCATED IN THE CEILING WITH THE ARCHITECT'S REFLECTED CEILING PLAN AND OTHER TRADES DURING CONSTRUCTION. ALL CEILING AIR DEVICES SMALLER THAN THE GRID DIMENSIONS SHALL BE MOUNTED CENTERED WITHIN THE CEILING GRID TILE.
- B. ALL EQUIPMENT ABOVE THE CEILING REQUIRING MAINTENANCE ACCESS SHALL BE MOUNTED A MAXIMUM OF 18" ABOVE CEILING TO ALLOW FOR ACCESS.
- C. ANNUAL SPACE AROUND DUCTWORK, PIPING, CONDUIT, AND OTHER SIMILAR PENETRATIONS OR COMBINATIONS OF PENETRATIONS THROUGH FIRE RATED ASSEMBLIES SHALL BE FIRST STOPPED TO RETARD THE PASSAGE OF FIRE AND SMOKE. REFER TO SPECIFICATION SECTION 23 05 05 FIRESTOPPING.
- D. H.C. TO COORDINATE LOCATIONS OF ALL EQUIPMENT, DUCTWORK, PIPING, AND AIR DEVICES WITH STRUCTURAL MEMBERS AND THE WORK OF OTHER TRADES PRIOR TO FINAL INSTALLATION. OFFSET PIPING AND DUCTWORK AS REQUIRED TO MAINTAIN ALL MANUFACTURER'S RECOMMENDED CLEARANCES.
- E. COORDINATE ALL WALL AND ROOF OPENINGS WITH GENERAL TRADES CONTRACTOR.
- F. IN GENERAL, KEEP DUCT AND PIPING MAINS HIGH IN CEILING CAVITY, TIGHT TO STRUCTURE, WHERE POSSIBLE. ALL DUCTS AND PIPES SHALL BE RUN ABOVE CEILING UNLESS NOTED OTHERWISE. WHERE NO CEILINGS ARE INSTALLED HOLD AS HIGH AS POSSIBLE TO STRUCTURE UNLESS NOTED OTHERWISE.
- G. BRANCH DUCTS TO AIR DEVICES SHALL BE EQUAL TO DEVICE INLET SIZE UNLESS NOTED OTHERWISE.
- H. HVAC CONTRACTOR SHALL CLEAN AND PREPARE FOR PAINTING ALL HVAC PIPING, DUCTWORK, AND HVAC/TEMPERATURE CONTROL CONDUIT LOCATED IN FINISHED ROOMS WHICH DO NOT HAVE A CEILING. THESE ITEMS ARE EXPOSED DUE TO THE LACK OF A CEILING AND WILL BE PAINTED BY THE GENERAL CONTRACTOR.
- I. RUN-OUTS TO SUPPLY DIFFUSERS, RETURN GRILLES, AND EXHAUST GRILLES SHALL INCLUDE MANUAL DAMPERS PER DETAILS (NOT SHOWN ON PLANS FOR CLARITY). PROVIDE ADDITIONAL DAMPERS AS SHOWN ON FLOOR PLANS OR WHERE REQUIRED FOR SYSTEM BALANCING REGARDLESS OF BEING SHOWN OR NOT.
- J. ALL SQUARE CORNER DUCT FITTINGS SHALL BE EQUIPPED WITH TURNING VANES AS SPECIFIED IN 23 01 13.
- K. DUCT RUN-OUT SIZE TO CEILING DIFFUSERS TO BE SAME SIZE AS THE DIFFUSER NECK UNLESS OTHERWISE NOTED.
- L. BRANCH PIPING TO ALL HEATING COILS OR HEATING EQUIPMENT SHALL BE SIZED AS NOTED ON THE EQUIPMENT SCHEDULE.
- M. EXACT LOCATION OF ALL WALL MOUNTED ITEMS (STATS, SENSORS, SWITCHES, CONTROL PANELS) SHALL BE SUBMITTED FOR REVIEW AND APPROVED BY THE OWNER/ENGINEER. SUBMITTAL SHALL BE MADE IN A TIMELY FASHION SO REVIEW MAY BE CONDUCTED PRIOR TO INSTALLATION OF FINISHED WALL SURFACES.
- N. ALL RETURN GRILLES OPEN TO THE CEILING PLENUM SHALL HAVE A RETURN AIR SOUND BOOT PER DETAIL ON SHEET H005.
- O. MEP ABOVE-CEILING COORDINATION: ALL CONTRACTORS SHALL PARTICIPATE IN DEVELOPMENT OF COORDINATION DRAWINGS IN ACCORDANCE WITH THE SPECIFICATIONS. THE CONTRACT DRAWINGS SHOW THE INTENDED ARRANGEMENT FOR MEP SYSTEMS, BUT IT IS UNDERSTOOD ADJUSTMENTS MAY RESULT FROM THE COORDINATION PROCESS. WHEN THIS OCCURS, THE FOLLOWING SHALL SERVE AS THE GENERAL GUIDELINE FOR ARRANGEMENT OF THE VARIOUS MEP SYSTEMS AND EQUIPMENT: DUCT MANS AND ELECTRICAL FEEDER CONDUIT SHALL BE HIGH. HYDRONIC AND PLUMBING PIPING SHALL BE BELOW THESE ITEMS; CABLE TRAY AND HVAC EQUIPMENT SHALL BE NOT MORE THAN 18" ABOVE THE CEILING; SPRINKLER PIPING, BRANCH CIRCUITRY CONDUIT, AND BRANCH DUCTWORK SHALL BE PLACED WHERE NECESSARY FOR COORDINATION.
- P. HVAC CONTRACTOR SHALL COORDINATE CLOSELY WITH OTHER TRADES IN LOCATING THE INSTALLING ALL SYSTEMS ABOVE CORRIDORS. SPECIFICALLY, COORDINATE LAYOUT WITH E.C. TO ALLOW SUFFICIENT SPACE FOR CABLE TRAY SYSTEM.
- Q. WHERE SUPPLY DUCTWORK WILL REMAIN EXPOSED TO VIEW IN FINISHED SPACES, DO NOT APPLY EXTERNAL INSULATION. DUCTWORK SHALL BE INTERNALLY LINED. HVAC CONTRACTOR SHALL CLEAN AND PREPARE DUCT SURFACE FOR FINISH PAINTING BY THE GENERAL CONTRACTOR.

DUCTWORK SYMBOLS

RECTANGULAR	ROUND / OVAL	
		ROUND BRANCH DUCTWORK
		RECTANGULAR BRANCH DUCTWORK
		SQUARE TEE WITH TURNING VANES
		NOTE: ALL SQUARE ELBOWS IN RECTANGULAR AND ROUND / OVAL DUCTWORK SHALL BE PROVIDED WITH TURNING VANES. REFER TO SPECIFICATIONS FOR ADDITIONAL DETAILS.
		RADIUS'D TEE
		RADIUS'D BRANCH
		UNLESS NOTED OTHERWISE ON DRAWINGS, 15" MAX FOR DIVERGING, 30" MAX FOR CONVERGING TRANSITION
		EXISTING DUCTWORK TO REMAIN
		EXISTING DUCTWORK TO BE REMOVED
		RETURN AIR, RELIEF AIR, OR TRANSFER AIR DUCTWORK (UP AND DOWN) RADIUS'D OR SQUARE WITH TURNING VANES
		SUPPLY AIR OR OUTDOOR AIR DUCTWORK (UP AND DOWN) RADIUS'D OR SQUARE WITH TURNING VANES
		EXHAUST AIR DUCTWORK (UP AND DOWN) RADIUS'D OR SQUARE WITH TURNING VANES
		RECTANGULAR AND ROUND / OVAL DUCTWORK RISE / DROP WITH 90° RADIUS'D OR SQUARE ELBOWS AND TURNING VANES
		RADIUS ELBOW
		90° SQUARE ELBOW (WITH TURNING VANES) NOTE: ALL SQUARE ELBOWS IN RECTANGULAR AND ROUND DUCTWORK SHALL BE PROVIDED WITH TURNING VANES.
		SQUARE THROAT / RADIUS HEEL FITTINGS NOT ACCEPTABLE
		ACCESS DOOR OR PANEL
		DUCTWORK RISE IN DIRECTION OF AIR FLOW
		DUCTWORK DROP IN DIRECTION OF AIR FLOW
		FLEXIBLE DUCTWORK
		DUCTWORK WITH ACOUSTICAL LINER. LISTED DUCT SIZES ARE INSIDE CLEAR DIMENSIONS.
		FLEXIBLE CONNECTION
		DUCTWORK CONSTRUCTED OF SPECIAL MATERIAL AS NOTED
		DIRECTION OF PITCH
		RECTANGULAR DUCTWORK DIMENSIONS (W x H)
		ROUND DUCTWORK DIMENSIONS (DIA)
		OVAL DUCTWORK DIMENSIONS (W x H)

DUCTWORK DEVICE SYMBOLS

	A3 100 300	AIR DEVICE. A3 = DESIGNATION (REFER TO FLOOR PLANS AND AIR DEVICE SCHEDULE FOR VARIOUS DESIGNATIONS). 100 = NECK SIZE (IN INCHES). 300 = REQUIRED CFM. ALL AIR DEVICE DISCHARGE 4-WAY UNLESS NOTED WITH FLOW ARROWS. AIR DEVICE SHOWN IS 2-WAY SIDE THROW. METHOD OF IDENTIFICATION ALSO APPLIES TO OTHER CEILING MOUNTED AIR DEVICES.
	SG1 20x12 300 BOS: 8'-0"	WALL OR DUCTWORK MOUNTED AIR DEVICE. SG1 = DESIGNATION (REFER TO AIR DEVICE SCHEDULE). 20x12 = DUCT CONNECTION SIZE (IN INCHES). 300 = REQUIRED CFM. 8'-0" = MOUNTING HEIGHT FROM FLOOR TO BOTTOM OF GRILLE.
		MANUAL BALANCING VALVE DAMPER WITH LOCKING DEVICE
		BDD = BACK DRAFT DAMPER
		CBD = COUNTER-BALANCED BACK DRAFT DAMPER
	A-D	FIRE DAMPER A = TYPE (REFER TO FLOOR PLANS FOR VARIOUS TYPES) D OR S = DYNAMIC OR STATIC
	SD	SD = SMOKE DAMPER
	FS	FS = COMBINATION FIRE - SMOKE DAMPER
		MDD = MOTORIZED DAMPER
		AFMS = AIR FLOW MEASURING STATION
	SD	DUCT MOUNTED SMOKE DETECTOR. COORDINATE LOCATION.
	H	HUMIDITY SENSOR - DUCT MOUNTED
	SP	STATIC PRESSURE SENSOR - DUCT MOUNTED
	C	CARBON DIOXIDE SENSOR - DUCT MOUNTED
	T	TEMPERATURE SENSOR - DUCT MOUNTED

VALVES AND FITTINGS

DOUBLE LINE	SINGLE LINE	
		CHECK VALVE
		BALL VALVE
		BUTTERFLY VALVE
		GATE VALVE
		COMBINATION SHUTOFF AND BALANCING VALVE (REFER TO SPECIFICATIONS FOR REQUIRED TYPE BASED ON APPLICATIONS)
		CONCENTRIC PIPE REDUCER
		ECCENTRIC PIPE REDUCER
		PRESSURE GAUGE
		TEMPERATURE GAUGE OR THERMOMETER
		UNION
		CLEANOUT
		STRAINER
		STRAINER WITH A BLOW DOWN VALVE AND HOSE CONNECTION
		DRAIN VALVE WITH HOSE END CONNECTION
		AUTOMATIC FLOW CONTROLLER WITH PIT PLUG IN AND OUT
		EXPANSION JOINT
		MANUAL AIR VENT
		AUTOMATIC AIR VENT
		PRESSURE REDUCING VALVE
		2 PORT AUTOMATIC CONTROL VALVE
		3 PORT AUTOMATIC CONTROL VALVE
		AUTOMATIC PRESSURE INDEPENDENT CONTROL VALVE
		QUICK OPENING MANUAL VALVE
		SAFETY RELIEF VALVE. FOR HYDRONIC SYSTEMS PIPE DISCHARGE AIR GAPPED TO FLOOR DRAIN UNLESS NOTED OTHERWISE. FOR STEAM SYSTEMS PIPE DISCHARGE TO OUTDOORS.
		VACUUM BREAKER
		NEEDLE VALVE
		PRESSURE AND TEMPERATURE TEST PLUG
		VACUUM GAUGE WITH STOP
		END CAP
		GLOBE VALVE
		SHUTOFF VALVE AND BOX
		SHUTOFF VALVE ON RISER
		SOLENOID VALVE
		WATER METER
		FLOW METER
		BI-METALLIC STEAM TRAP AND DRIP ASSEMBLY
		THERMODYNAMIC STEAM TRAP AND DRIP ASSEMBLY
		INVERTED BUCKET STEAM TRAP AND DRIP ASSEMBLY
		FLOAT AND THERMOSTATIC STEAM TRAP AND DRIP ASSEMBLY
		THERMOSTATIC STEAM TRAP AND DRIP ASSEMBLY
		PRESSURE GAUGE WITH COCK AND SIPHON LOOP

MISC SYMBOLS

C	CARBON DIOXIDE SENSOR. WHEN WALL MOUNTED, MOUNTING HEIGHT 48" TO MEET ADA REQUIREMENTS. WHEN MOUNTED NEXT TO WALL SWITCH COORDINATE WITH ARCHITECT.
CO	CARBON MONOXIDE SENSOR. WHEN WALL MOUNTED, MOUNTING HEIGHT 48" TO MEET ADA REQUIREMENTS. WHEN MOUNTED NEXT TO WALL SWITCH COORDINATE WITH ARCHITECT.
DP	DIFFERENTIAL PRESSURE SENSOR. WHEN WALL MOUNTED, MOUNTING HEIGHT 48" TO MEET ADA REQUIREMENTS. WHEN MOUNTED NEXT TO WALL SWITCH COORDINATE WITH ARCHITECT.
H	HUMIDITY SENSOR. WHEN WALL MOUNTED, MOUNTING HEIGHT 48" TO MEET ADA REQUIREMENTS. WHEN MOUNTED NEXT TO WALL SWITCH COORDINATE WITH ARCHITECT.
S	TEMPERATURE SENSOR. WHEN WALL MOUNTED, MOUNTING HEIGHT 48" TO MEET ADA REQUIREMENTS. WHEN MOUNTED NEXT TO WALL SWITCH COORDINATE WITH ARCHITECT.
SP	TEMPERATURE SENSOR MOUNTED IN CEILING PLENUM.
SP	STATIC PRESSURE SENSOR.
T	SPACE TEMPERATURE SENSOR / THERMOSTAT. WHEN WALL MOUNTED, MOUNTING HEIGHT 48" TO MEET ADA REQUIREMENTS. WHEN MOUNTED NEXT TO WALL SWITCH COORDINATE WITH ARCHITECT.
TS	EMERGENCY SHUTOFF STATION. 48" MOUNTING HEIGHT UNLESS NOTED OTHERWISE.

GENERAL FLOOR PLAN NOTES

③	PLAN NOTE. APPLIES ONLY TO THE SHEET WHICH IT IS SHOWN UNLESS NOTED OTHERWISE.
⑤	DETAIL NOTE. APPLIES ONLY TO THE ASSOCIATED DETAIL.
A1	EQUIPMENT, DEVICE, OR PLUMBING FIXTURE MARK. LETTER DESIGNATIONS REFER TO SCHEDULES.
H1 OR H1	EQUIPMENT REFERENCE. LETTER DESIGNATION VARIES. REFER TO SCHEDULES.
②	RISER OR STACK NUMBER
B H2	DETAIL: B = DETAIL DESIGNATION H2 = SHEET WHERE DETAIL IS LOCATED
1 H2	SECTION: 1 = SECTION DESIGNATION H2 = SHEET WHERE DETAIL IS LOCATED
1 H2	"UP TO" SYMBOL (ITEM ON FLOOR ABOVE)
TOE: 3'-0" BOE: 0'-6"	APPROXIMATE DIMENSION ABOVE FINISHED FLOOR TO TOP OR BOTTOM OF EQUIPMENT, UNLESS NOTED OTHERWISE
TOE: 8'-0" BOE: 8'-0"	APPROXIMATE DIMENSION ABOVE FINISHED FLOOR TO CENTERLINE OF PIPE, UNLESS NOTED OTHERWISE
TOE: 8'-0" BOE: 7'-2"	APPROXIMATE DIMENSION ABOVE FINISHED FLOOR TO TOP OR BOTTOM OF DUCTWORK, UNLESS NOTED OTHERWISE
UD-X	DOOR UNDERCUT. X = HEIGHT OF UNDERCUT IN INCHES 0.75 INCH UNDERCUT. IF NO HEIGHT IS NOTED, COORDINATE WITH GC.
DL-1	DOOR LOUVER. 1 = SQUARE FEET OF LOUVER.
CONNECT TO EXISTING	CONNECT TO EXISTING

PIPING SYMBOLS

DOUBLE LINE	SINGLE LINE	
		BOTTOM CONNECTION (45°)
		BOTTOM CONNECTION (90°)
		BRANCH TEE CONNECTION (NOTE: BULLHEAD TEES ARE NOT PERMITTED)
		DIRECTION OF PITCH
		DROP
		ELBOW DOWN
		ELBOW UP
		EXISTING PIPE TO BE REMOVED
		EXISTING PIPE TO REMAIN
		FLOW DIRECTION DESIGNATION
		PIPE RISER
		PUMP
		RISE
		TOP CONNECTION (45°)
		TOP CONNECTION (90°)

HVAC PIPING DESIGNATIONS

CHS	CHILLED WATER SUPPLY PIPE
CHR	CHILLED WATER RETURN PIPE
CWS	CONDENSER WATER SUPPLY PIPE
CWR	CONDENSER WATER RETURN PIPE
D	DRAIN LINE. PITCH IN DIRECTION INDICATED
HWR	HEATING HOT WATER RETURN PIPE
HWS	HEATING HOT WATER SUPPLY PIPE
MU	WATER MAKE-UP PIPE
V	VENT PIPE
ET	EXPANSION TANK PIPE
HG	REFRIGERANT HOT GAS LINE
RL	REFRIGERANT LIQUID LINE
RS	REFRIGERANT SUCTION LINE

ABBREVIATIONS

AC	-AIR COMPRESSOR OR AIR CONDITIONER	ID	-INSIDE DIAMETER
ACCU	-AIR COOLED CONDENSING UNIT	INV	-INVERT ELEVATION
AD	-ACCESS DOOR OR AREA DRAIN	IN	-INCHES
ADJ	-ADJUSTABLE	KEC	-KITCHEN EQUIPMENT CONTRACTOR
AFF	-ABOVE FINISHED FLOOR	L	-LENGTH
AFG	-ABOVE FINISHED GRADE	LAT	-LEAVING AIR TEMPERATURE
AFMS	-AIR FLOW MEASURING STATION	LAV	-LAVATORY
ALT	-ALTERNATE	LBS	-POUNDS
AP	-ACCESS PANEL	LPC	-LOW PRESSURE CONDENSATE RETURN
APPROX	-APPROXIMATE	LPS	-LOW PRESSURE STEAM SUPPLY
ARCH	-ARCHITECT OR ARCHITECTURAL	LWT	-LEAVING WATER TEMPERATURE
ASST	-ASSEMBLY	MAX	-MAXIMUM
ATC	-AUTOMATIC TEMPERATURE CONTROL	MD	-MOTORIZED DAMPER
BDD	-BACK DRAFT DAMPER	MEZZ	-MEZZANINE
BFP	-BACKFLOW PREVENTER	MFR	-MANUFACTURER
BLDG	-BUILDING	MH	-MANHOLE
BOS	-BOTTOM OF BEAM	MIN	-MINIMUM OR MINUTE
BOD	-BOTTOM OF DUCT	MISC	-MISCELLANEOUS
BOE	-BOTTOM OF EQUIPMENT	MTD	-MOUNTED
BOP	-BOTTOM OF EQUIPMENT	MTG	-MOUNTING
BPF	-BOTTOM OF FOOTING	MPC	-MEDIUM PRESSURE CONDENSATE RETURN
BGG	-BOTTOM OF GRILLE	MPS	-MEDIUM PRESSURE STEAM SUPPLY
BOP	-BOTTOM OF PIPE	MU	-WATER MAKE-UP
BOT	-BOTTOM	N/C	-NORMALLY CLOSED
BTU	-BRITISH THERMAL UNIT	NC	-NOT IN CONTRACT
BTUH	-BRITISH THERMAL UNIT PER HOUR	N/O	-NORMALLY OPEN
CBD	-COUNTER BALANCED BACKDRAFT DAMPER	NOM	-NOMINAL
CFCI	-CONTRACTOR FURNISHED CONTRACTOR	NPT	-NATIONAL PIPE THREAD
CFM	-CUBIC FEET PER MINUTE	NTS	-NOT TO SCALE
CHS	-CHILLED WATER SUPPLY	OA	-OUTDOOR AIR
CHR	-CHILLED WATER RETURN	OBD	-OPPOSED BLADE DAMPER
CHGR	-CHILLED WATER GLYCOL SOLUTION RETURN	OD	-OUTSIDE DIAMETER
CHGS	-CHILLED WATER GLYCOL SOLUTION SUPPLY	OFCI	-OWNER FURNISHED CONTRACTOR
CIG	-CEILING	OFOI	-OWNER FURNISHED OWNER INSTALLED
CMU	-CONCRETE MASONRY UNIT	P	-PROPANE GAS
CO	-CLEAN OUT	PLBG	-PLUMBING CONTRACTOR (DIVISION 22)
CO2	-CARBON DIOXIDE	PRESS	-PRESSURE
CONN	-CONNECT OR CONNECTION	PRV	-PRESSURE REGULATING VALVE
CONTR	-CONTRACTOR	PSF	-POUNDS PER SQUARE FOOT
CTR	-CENTER	PSI	-POUNDS PER SQUARE INCH
CU	-COPPER	PSIG	-POUNDS PER SQUARE INCH GAUGE
CW	-COLD WATER	RA	-RETURN AIR
CWR	-CONDENSER WATER RETURN	RAD	-RADIUS
CWS	-CONDENSER WATER SUPPLY	RCP	-REFLECTED CEILING PLAN
D	-DRAIN LINE	RD	-ROOF DRAIN
DB	-DRY BULB	REC	-RECESSED
DDC	-DIRECT DIGITAL CONTROLS	REDD	-REQUIRED
DI	-DEIONIZED WATER	RI	-ROUGH IN
DIA	-DIAMETER	RL	-REFRIGERANT LIQUID
DM	-DIMENSION	ROS	-REVERSE OSMOSIS WATER SUPPLY
DN	-DOWN	ROR	-REVERSE OSMOSIS WATER RETURN
DWG	-DRAWING	RPM	-REVOLUTIONS PER MINUTE
EA	-EACH OR EXHAUST AIR	RS	-REFRIGERANT SUCTION
EAT	-ENTERING AIR TEMPERATURE	S	-SPRINKLER (WET)
EC	-ELECTRICAL CONTRACTOR (DIVISION 28)	SA	-SUPPLY AIR
EL	-EXPANSION JOINT	SAN	-SANITARY OR SANITARY DRAIN
ELEC	-ELECTRICAL	SCH	-SCHEDULE
ELEV	-ELEVATOR	SCW	-SOFT COLD WATER
EQUIP	-EQUIPMENT	SHT	-SHEET
ET	-EXPANSION TANK	SPEC	-SPECIFICATIONS
ETR	-EXISTING TO REMAIN	SO	-SQUARE
EOS	-EQUIPMENT SUPPLIER	SR	-SUPPLY RISER
EW	-ENTERING WATER TEMPERATURE	SRV	-SAFETY RELIEF VALVE
EXH	-EXHAUST	SS	-STAINLESS STEEL
EXP	-EXPANSION	STD	-STANDARD
EXT	-EXTERIOR	STM	-STORM OR STORM DRAINAGE
EX	-EXISTING	STRUC	-STRUCTURAL OR STRUCTURE
FD	-FLOOR DRAIN	SUC	-SITE UTILITY CONTRACTOR
FF	-FINISHED FLOOR ELEVATION	TEMP	-TEMPERATURE
FLOOR	-FLOOR	TOB	-TOP OF BEAM
FOB	-FLAT ON BOTTOM	TOE	-TOP OF DUCT
FOP	-FUEL OIL FLOW	TOE	-TOP OF EQUIPMENT
FOG	-FUEL OIL GAUGE	TOJ	-TOP OF JOIST
FOS	-FUEL OIL RETURN	TOP	-TOP OF PIPE
FOT	-FLAT ON TOP	TOS	-TOP OF SLAB OR TOP OF STEEL
FS	-FEET PER MINUTE	TYP	-TYPICAL
FSC	-FIRE SUPPRESSION CONTRACTOR (DIVISION 21)	UNO	-UNLESS NOTED OTHERWISE
FT	-FEET	V	-VENT
FTG	-FOOTING	VAC	-VACUUM
G	-GAS OR NATURAL GAS	VEL	-VELOCITY
GAL	-GAUGE	VIB	-VALVE IN BOX
GALV	-GALLON	VOL	-VOLUME
GC	-GALVANIZED	VTR	-VENT THROUGH ROOF
GPM	-GALLONS PER MINUTE	W	-WENT RISER
HB	-HOSE BIBB	WI	-WITH
HC	-HVAC CONTRACTOR (DIVISION 23)	W/O	-WITHOUT
HD	-HUB DRAIN	WB	-WET BULB
HG	-REFRIGERANT HOT GAS	WCO	-WALL CLEANOUT
HP	-HORSEPOWER		
HPC	-HIGH PRESSURE CONDENSATE RETURN		
HPS	-HIGH PRESSURE STEAM SUPPLY		
HR	-HOUR		
HTR	-HEAT TRACE		
HVAC	-HEATING, VENTILATING, AND AIR CONDITIONING		
HW	-HOT WATER		
HWS	-HEATING HOT WATER RETURN		
HWS	-HEATING HOT WATER SUPPLY		

NOTE: ALL SYMBOLS AND ABBREVIATIONS ARE SUBJECT TO MODIFICATIONS ON OTHER DRAWINGS.

ALL SYMBOLS OR ABBREVIATIONS MIGHT NOT NECESSARILY BE USED ON THIS PROJECT.

HVAC SHEET LIST	
Sheet Number	Sheet Name
H001	HVAC INDEX, LEGEND, AND GENERAL NOTES
H002	SCHEDULES
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H101	EXISTING CHURCH BASEMENT FLOOR PLAN - NEW WORK
H102	NEW BLDG BASEMENT FLOOR PLAN - NEW WORK
H103	EXISTING CHURCH FIRST FLOOR PLAN - NEW WORK
H104	NEW BLDG FIRST FLOOR PLAN - NEW WORK
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H107	FIRST FLOOR PLAN - DEMOLITION



Issued:  
May 20, 2019

Bid Package 4

Revisions:  
5/20/19 - MEP  
BULLETIN 1

NEW ADDITION TO  
KETTERING SEVENTH-DAY ADVENTIST  
CHURCH  
3939 Stonebridge Rd., Kettering, Ohio

Comm. No.  
31802

HVAC INDEX, LEGEND,  
AND GENERAL NOTES

Sheet No.

H001



## HVAC DESIGN DATA

**GENERAL NOTES:**

A. OUTDOOR DESIGN CONDITIONS:

B. DESIGN ALTITUDE: 850 FT.

92°F DB SUMMER

74°F WB SUMMER

1°F DB WINTER

**NOTES:**

1. LISTED RH IS MAXIMUM ANTICIPATED AT LISTED DB TEMPERATURE.

2. REFER TO ATC SEQUENCES FOR ACTUAL ROOM SETPOINTS.

3. "FLOATING" MEANS THERE IS NO ACTIVE CONTROL.

4. OUTDOOR AIR VENTILATION ONLY.

SPACE NAME / TYPE	INTERIOR DESIGN DATA				SEE NOTE
	SUMMER		WINTER		
	°F DB	% RH (NOTE 1)	°F DB	% RH	
OFFICES / CLASSROOMS	75	55	70	FLOATING	2,3
SANCTUARY	75	55	70	FLOATING	2,3
DATA CLOSETS	78	50	88	FLOATING	3
MECHANICAL ROOMS	NOTE 4	FLOATING	65	FLOATING	3
ALL OTHER SPACES	74	55	72	FLOATING	3

# AIR DISTRIBUTION DEVICES

GENERAL NOTES:

A. ALL LAY-IN AIR DEVICES SHALL FIT IN 24"x24" LAY-IN CLG SYSTEM. VERIFY GRID TYPE AND COORDINATE AIR DEVICE COMPATIBILITY.

B. FINISH KEY: "W.B.E." - WHITE BAKED ENAMEL; "E.C.L." - ETCHED CLEAR LAQUER OR ANODIZED; "C.C.B.A." - CUSTOM COLOR SELECTED BY ARCHITECT.

C. SUPPLY AIR DIFFUSERS SHALL BE 4-WAY BLOW, UNLESS INDICATED OTHERWISE ON DRAWINGS.

D. PROVIDE AUX. FRAMES FOR AIR DEVICES IN PLASTER, GYPSUM BOARD, TILE OR OTHER HARD SURFACES.

NOTES:

MARK	DESCRIPTION	MOUNTING TYPE		MATERIAL		FINISH		BASIS OF DESIGN				SEE NOTE		
		LAY-IN SURFACE	DUCT	SPINE	SWAY-IN	STEEL	ALUMINUM	STAINLESS STEEL	E.C.L.	C.C.B.A.	OPPOSED BLADE DAMPER		SO-TO-RD NECK ADAPTOR	MANUFACTURER
A1	STANDARD SO. CONE CEILING DIFFUSER RND. NECK	•				•	•	•					TITUS	OMNI
F1	LINEAR FLOWBAR - 3" SLOT, 2 SLOTS	•				•	•	•					TITUS	FL-30
G1	STEEL DOUBLE DEFLECTION SUPPLY GRILLE	•				•	•	•					TITUS	300RL
G2	STEEL DOUBLE DEFLECTION SUPPLY GRILLE	•				•	•	•					TITUS	300RL
J1	EGGCRATE RETURN GRILLE	•											TITUS	50F
K1	EGGCRATE EXHAUST REGISTER	•							•	•	•		TITUS	50F
L1	EXHAUST LOUVER	•											GREENHECK	ESD-403

DUCT CONSTRUCTION, SEALING, AND INSULATION										
GENERAL NOTES:										
A. REFER TO SPECIFICATIONS FOR DUCT CONSTRUCTION:					B. DUCT CONSTRUCTION AND SEALING SHALL BE PER LATEST S.M.A.C.N.A. STANDARDS.					
INSULATION: FIBERGLASS DUCTBOARD; ETC.										
NOTES:										
1. ROUND SHEET METAL RUN-OUTS TO AIR DEVICES DOWNSTREAM OF VAV BOXES SHALL BE EXTERNALLY INSULATED.										
2. RETURN DUCTWORK WITHIN 15' OF AIR HANDLING UNIT SHALL BE INTERNALLY LINED.										
3. INSULATE FROM 24" UPSTREAM OF BACKDRAFT / ISOLATION DAMPER TO PENETRATION OF WALL / ROOF.										
4. REFER TO DETAIL 5 ON SHEET H065.										
DUCT SYSTEM	S.M.A.C.N.A. CLASS.				INTERNALLY LINED	EXTERNAL INSULATION	DOUBLE WALL INSULATED	NOT INSULATED	SEE NOTE	
	S.P. CON- STRUCTION	SEAL CLASS	RECT	RND						
SUPPLY DUCTWORK FOR DOAS UNITS	+2"	A	16	8	-	•	-	-	-	
SUPPLY DUCTWORK FOR HYDRONIC HEAT PUMPS	+1"	A	16	8	•	-	-	-	1	
TRANSFER/RETURN AIR SOUND BOOT	-1"	A	16	-	•	-	-	-	4	
TOILET OR GENERAL EXHAUST DUCTWORK	-1"	A	16	8	-	NOTE 3	-	-	-	
RETURN DUCTWORK FOR DOAS UNITS	-2"	A	16	8	-	-	-	•	2	
RETURN DUCTWORK FOR HYDRONIC HEAT PUMPS	-1"	A	16	8	•	-	-	-	-	

EXPANSION TANKS

NOTES:

1. BASIS OF DESIGN: BELL AND GOSSETT MODEL D-80.

MARK				TYPE		CAPACITY			APPROX. DIMENSIONS		CONNECTION SIZES				
				• DIAPHRAGM / BLADDER	• CONVENTIONAL / VENTED	• VERTICAL	• HORIZONTAL		MIN. TOTAL VOLUME (GAL)	MIN. ACCEPT. VOL. (GAL)	AIR PRESSURE (PSIG)	DIAMETER		HEIGHT / LENGTH	INLET CONNECTION
ET-1	SYSTEM	CONDENSER	WATER	•	•	•	•	44.4	22.6	20	16"	58"	0.5"	0"	1
ET-2	HEATING HOT	WATER		•	•	•	•	44.4	22.6	20	16"	58"	0.5"	0"	1

### HYDRONIC PUMPS

GENERAL NOTES:  
A. WHEN APPLICABLE, REFER TO SPECIFICATIONS FOR VIBRATION ISOLATOR TYPES.

B. VFD'S SHALL BE CONSTRUCTED AND LABELED FOR REQUIRED SCOR (SHORT CIRCUIT CURRENT RATING). COORDINATE WITH DIVISION 26.

C. HVAC CONTRACTOR SHALL PROVIDE VFDs.

NOTES:

MARK	DESCRIPTION	SERVICE	PERFORMANCE			MOTOR					BASIS OF DESIGN					
			GPM	MIN. REQUIRED FT. HD.	HORSEPOWER (HP)	VOLTAGE / PHASE	RPM	ELECTRONICALLY COMMUTATED	MINIMUM PUMP EFFICIENCY (%)	PUMP SUCTION SIZE	PUMP DISCHARGE SIZE	VARIABLE FREQUENCY DRIVE	VIBRATION ISOLATOR TYPE	MANUFACTURER	MODEL	SEE NOTE
P-1	BASE MOUNTED END SUCTION	CONDENSER WATER LOOP	250.0	95	15	208-3	1750	-	68	3"	2"	•	BELL & GOSSETT	e-1510 2EB		
P-2	BASE MOUNTED END SUCTION	CONDENSER WATER LOOP	250.0	95	15	208-3	1750	-	68	3"	2"	•	BELL & GOSSETT	e-1510 2EB		
P-3	BASE MOUNTED END SUCTION	HEATING HOT WATER SECONDARY LOOP	150.0	65	5	208-3	1750	-	68	2.5"	2"	-	BELL & GOSSETT	e-1510 2BD		
P-4	BASE MOUNTED END SUCTION	HEATING HOT WATER SECONDARY LOOP	150.0	65	5	208-3	1750	-	68	2.5"	2"	-	BELL & GOSSETT	e-1510 2BD		

[illegible]

GENERAL NOTES:

A. LISTED GAS DELIVERY PRESSURE IS DELIVERY PRESSURE TO THE BOILER'S GAS TRAIN.

B. ELECTRIC SERVICE SHALL BE SINGLE POINT POWER CONNECTION. WHEN CONTROL POWER OFFERS FROM SERVICE POWER, PROVIDE FACTORY INSTALLED TRANSFORMER.

C. IT IS RECOGNIZED THAT SOME BOILER MANUFACTURERS REQUIRE AN INTEGRAL HX CIRCULATION PUMP IN ADDITION TO THE BOILER'S PRIMARY PUMP. THE SINGLE POINT POWER CONNECTION TO THE BOILER SHALL INCLUDE POWER FOR THE HX CIRCULATION PUMP. REFER TO PUMP SCHEDULE FOR ASSOCIATED PRIMARY PUMP.

NOTES:

1. BASIS OF DESIGN - RBI FUTERA FUSION XLF.

MARK	DESCRIPTION	ROOM NAME	LOCATION	TYPE	CAPACITY	CAPACITY	BURNER	ELECTRICAL SERVICE		CONNECTION SIZES		APPROX. DIMENSIONS		MISC.																										
								BLOWER																																
HWB-1	CONDENSING HHW	BASEMENT MECH ROOM	ROOM NUMBER	CONDENSING	NATURAL GAS	COMBINATION GAS/OIL	ELECTRIC	INPUT (MBH)	2,500	2,350	120	150	157	267.5	2,500	SEATED COMBUSTION	POWERED BURNER	1" GAS DELIVERY PRESSURE (IN W.C.)	BLOWER MOTOR (HP)	VOLTAGE - PHASE	INTEGRAL HX CIRC. PUMP (NOTE D)	VOLTAGE - PHASE	FULL LOAD AMPS (FLA)	MIN CIRCUIT AMPS (MCA)	MAX OVER CURRENT PROTECTION (MOCP)	MINIMUM SCGR (AMPS)	CONTROLS VOLTAGE - PHASE	WATER INLET	WATER OUTLET	GAS	FLUE VENT	COMBUSTION AIR	LENGTH	WIDTH	HEIGHT	APPROX. OPERATING WEIGHT (LBS)	CONCRETE PAD	SAFETY RELIEF VALVE SETTING (PSIG)	BOILER CONTROL AND SEQUENCING PANEL	SEE NOTE
			ENTERING WATER TEMPERATURE (°F)	120	150	157	267.5	2,500	SEATED COMBUSTION	POWERED BURNER	1" GAS DELIVERY PRESSURE (IN W.C.)	BLOWER MOTOR (HP)	VOLTAGE - PHASE	INTEGRAL HX CIRC. PUMP (NOTE D)	VOLTAGE - PHASE	FULL LOAD AMPS (FLA)	MIN CIRCUIT AMPS (MCA)	MAX OVER CURRENT PROTECTION (MOCP)	MINIMUM SCGR (AMPS)	CONTROLS VOLTAGE - PHASE	WATER INLET	WATER OUTLET	GAS	FLUE VENT	COMBUSTION AIR	LENGTH	WIDTH	HEIGHT	APPROX. OPERATING WEIGHT (LBS)	CONCRETE PAD	SAFETY RELIEF VALVE SETTING (PSIG)	BOILER CONTROL AND SEQUENCING PANEL	SEE NOTE							
			LEAVING WATER TEMPERATURE (°F)	120	150	157	267.5	2,500	SEATED COMBUSTION	POWERED BURNER	1" GAS DELIVERY PRESSURE (IN W.C.)	BLOWER MOTOR (HP)	VOLTAGE - PHASE	INTEGRAL HX CIRC. PUMP (NOTE D)	VOLTAGE - PHASE	FULL LOAD AMPS (FLA)	MIN CIRCUIT AMPS (MCA)	MAX OVER CURRENT PROTECTION (MOCP)	MINIMUM SCGR (AMPS)	CONTROLS VOLTAGE - PHASE	WATER INLET	WATER OUTLET	GAS	FLUE VENT	COMBUSTION AIR	LENGTH	WIDTH	HEIGHT	APPROX. OPERATING WEIGHT (LBS)	CONCRETE PAD	SAFETY RELIEF VALVE SETTING (PSIG)	BOILER CONTROL AND SEQUENCING PANEL	SEE NOTE							
			GPM	120	150	157	267.5	2,500	SEATED COMBUSTION	POWERED BURNER	1" GAS DELIVERY PRESSURE (IN W.C.)	BLOWER MOTOR (HP)	VOLTAGE - PHASE	INTEGRAL HX CIRC. PUMP (NOTE D)	VOLTAGE - PHASE	FULL LOAD AMPS (FLA)	MIN CIRCUIT AMPS (MCA)	MAX OVER CURRENT PROTECTION (MOCP)	MINIMUM SCGR (AMPS)	CONTROLS VOLTAGE - PHASE	WATER INLET	WATER OUTLET	GAS	FLUE VENT	COMBUSTION AIR	LENGTH	WIDTH	HEIGHT	APPROX. OPERATING WEIGHT (LBS)	CONCRETE PAD	SAFETY RELIEF VALVE SETTING (PSIG)	BOILER CONTROL AND SEQUENCING PANEL	SEE NOTE							
			MIN HEATING SURFACE AREA (SQ. FT.)	120	150	157	267.5	2,500	SEATED COMBUSTION	POWERED BURNER	1" GAS DELIVERY PRESSURE (IN W.C.)	BLOWER MOTOR (HP)	VOLTAGE - PHASE	INTEGRAL HX CIRC. PUMP (NOTE D)	VOLTAGE - PHASE	FULL LOAD AMPS (FLA)	MIN CIRCUIT AMPS (MCA)	MAX OVER CURRENT PROTECTION (MOCP)	MINIMUM SCGR (AMPS)	CONTROLS VOLTAGE - PHASE	WATER INLET	WATER OUTLET	GAS	FLUE VENT	COMBUSTION AIR	LENGTH	WIDTH	HEIGHT	APPROX. OPERATING WEIGHT (LBS)	CONCRETE PAD	SAFETY RELIEF VALVE SETTING (PSIG)	BOILER CONTROL AND SEQUENCING PANEL	SEE NOTE							
			CAPACITY (CFH)	120	150	157	267.5	2,500	SEATED COMBUSTION	POWERED BURNER	1" GAS DELIVERY PRESSURE (IN W.C.)	BLOWER MOTOR (HP)	VOLTAGE - PHASE	INTEGRAL HX CIRC. PUMP (NOTE D)	VOLTAGE - PHASE	FULL LOAD AMPS (FLA)	MIN CIRCUIT AMPS (MCA)	MAX OVER CURRENT PROTECTION (MOCP)	MINIMUM SCGR (AMPS)	CONTROLS VOLTAGE - PHASE	WATER INLET	WATER OUTLET	GAS	FLUE VENT	COMBUSTION AIR	LENGTH	WIDTH	HEIGHT	APPROX. OPERATING WEIGHT (LBS)	CONCRETE PAD	SAFETY RELIEF VALVE SETTING (PSIG)	BOILER CONTROL AND SEQUENCING PANEL	SEE NOTE							
			SEATED COMBUSTION	120	150	157	267.5	2,500	SEATED COMBUSTION	POWERED BURNER	1" GAS DELIVERY PRESSURE (IN W.C.)	BLOWER MOTOR (HP)	VOLTAGE - PHASE	INTEGRAL HX CIRC. PUMP (NOTE D)	VOLTAGE - PHASE	FULL LOAD AMPS (FLA)	MIN CIRCUIT AMPS (MCA)	MAX OVER CURRENT PROTECTION (MOCP)	MINIMUM SCGR (AMPS)	CONTROLS VOLTAGE - PHASE	WATER INLET	WATER OUTLET	GAS	FLUE VENT	COMBUSTION AIR	LENGTH	WIDTH	HEIGHT	APPROX. OPERATING WEIGHT (LBS)	CONCRETE PAD	SAFETY RELIEF VALVE SETTING (PSIG)	BOILER CONTROL AND SEQUENCING PANEL	SEE NOTE							
			POWERED BURNER	120	150	157	267.5	2,500	POWERED BURNER	1" GAS DELIVERY PRESSURE (IN W.C.)	BLOWER MOTOR (HP)	VOLTAGE - PHASE	INTEGRAL HX CIRC. PUMP (NOTE D)	VOLTAGE - PHASE	FULL LOAD AMPS (FLA)	MIN CIRCUIT AMPS (MCA)	MAX OVER CURRENT PROTECTION (MOCP)	MINIMUM SCGR (AMPS)	CONTROLS VOLTAGE - PHASE	WATER INLET	WATER OUTLET	GAS	FLUE VENT	COMBUSTION AIR	LENGTH	WIDTH	HEIGHT	APPROX. OPERATING WEIGHT (LBS)	CONCRETE PAD	SAFETY RELIEF VALVE SETTING (PSIG)	BOILER CONTROL AND SEQUENCING PANEL	SEE NOTE								
			1" GAS DELIVERY PRESSURE (IN W.C.)	120	150	157	267.5	2,500	1" GAS DELIVERY PRESSURE (IN W.C.)	BLOWER MOTOR (HP)	VOLTAGE - PHASE	INTEGRAL HX CIRC. PUMP (NOTE D)	VOLTAGE - PHASE	FULL LOAD AMPS (FLA)	MIN CIRCUIT AMPS (MCA)	MAX OVER CURRENT PROTECTION (MOCP)	MINIMUM SCGR (AMPS)	CONTROLS VOLTAGE - PHASE	WATER INLET	WATER OUTLET	GAS	FLUE VENT	COMBUSTION AIR	LENGTH	WIDTH	HEIGHT	APPROX. OPERATING WEIGHT (LBS)	CONCRETE PAD	SAFETY RELIEF VALVE SETTING (PSIG)	BOILER CONTROL AND SEQUENCING PANEL	SEE NOTE									
			BLOWER MOTOR (HP)	120	150	157	267.5	2,500	BLOWER MOTOR (HP)	VOLTAGE - PHASE	INTEGRAL HX CIRC. PUMP (NOTE D)	VOLTAGE - PHASE	FULL LOAD AMPS (FLA)	MIN CIRCUIT AMPS (MCA)	MAX OVER CURRENT PROTECTION (MOCP)	MINIMUM SCGR (AMPS)	CONTROLS VOLTAGE - PHASE	WATER INLET	WATER OUTLET	GAS	FLUE VENT	COMBUSTION AIR	LENGTH	WIDTH	HEIGHT	APPROX. OPERATING WEIGHT (LBS)	CONCRETE PAD	SAFETY RELIEF VALVE SETTING (PSIG)	BOILER CONTROL AND SEQUENCING PANEL	SEE NOTE										
			VOLTAGE - PHASE	120	150	157	267.5	2,500	VOLTAGE - PHASE	INTEGRAL HX CIRC. PUMP (NOTE D)	VOLTAGE - PHASE	FULL LOAD AMPS (FLA)	MIN CIRCUIT AMPS (MCA)	MAX OVER CURRENT PROTECTION (MOCP)	MINIMUM SCGR (AMPS)	CONTROLS VOLTAGE - PHASE	WATER INLET	WATER OUTLET	GAS	FLUE VENT	COMBUSTION AIR	LENGTH	WIDTH	HEIGHT	APPROX. OPERATING WEIGHT (LBS)	CONCRETE PAD	SAFETY RELIEF VALVE SETTING (PSIG)	BOILER CONTROL AND SEQUENCING PANEL	SEE NOTE											
			INTEGRAL HX CIRC. PUMP (NOTE D)	120	150	157	267.5	2,500	INTEGRAL HX CIRC. PUMP (NOTE D)	VOLTAGE - PHASE	FULL LOAD AMPS (FLA)	MIN CIRCUIT AMPS (MCA)	MAX OVER CURRENT PROTECTION (MOCP)	MINIMUM SCGR (AMPS)	CONTROLS VOLTAGE - PHASE	WATER INLET	WATER OUTLET	GAS	FLUE VENT	COMBUSTION AIR	LENGTH	WIDTH	HEIGHT	APPROX. OPERATING WEIGHT (LBS)	CONCRETE PAD	SAFETY RELIEF VALVE SETTING (PSIG)	BOILER CONTROL AND SEQUENCING PANEL	SEE NOTE												
			VOLTAGE - PHASE	120	150	157	267.5	2,500	VOLTAGE - PHASE	FULL LOAD AMPS (FLA)	MIN CIRCUIT AMPS (MCA)	MAX OVER CURRENT PROTECTION (MOCP)	MINIMUM SCGR (AMPS)	CONTROLS VOLTAGE - PHASE	WATER INLET	WATER OUTLET	GAS	FLUE VENT	COMBUSTION AIR	LENGTH	WIDTH	HEIGHT	APPROX. OPERATING WEIGHT (LBS)	CONCRETE PAD	SAFETY RELIEF VALVE SETTING (PSIG)	BOILER CONTROL AND SEQUENCING PANEL	SEE NOTE													
			FULL LOAD AMPS (FLA)	120	150	157	267.5	2,500	FULL LOAD AMPS (FLA)	MIN CIRCUIT AMPS (MCA)	MAX OVER CURRENT PROTECTION (MOCP)	MINIMUM SCGR (AMPS)	CONTROLS VOLTAGE - PHASE	WATER INLET	WATER OUTLET	GAS	FLUE VENT	COMBUSTION AIR	LENGTH	WIDTH	HEIGHT	APPROX. OPERATING WEIGHT (LBS)	CONCRETE PAD	SAFETY RELIEF VALVE SETTING (PSIG)	BOILER CONTROL AND SEQUENCING PANEL	SEE NOTE														
			MIN CIRCUIT AMPS (MCA)	120	150	157	267.5	2,500	MIN CIRCUIT AMPS (MCA)	MAX OVER CURRENT PROTECTION (MOCP)	MINIMUM SCGR (AMPS)	CONTROLS VOLTAGE - PHASE	WATER INLET	WATER OUTLET	GAS	FLUE VENT	COMBUSTION AIR	LENGTH	WIDTH	HEIGHT	APPROX. OPERATING WEIGHT (LBS)	CONCRETE PAD	SAFETY RELIEF VALVE SETTING (PSIG)	BOILER CONTROL AND SEQUENCING PANEL	SEE NOTE															
MAX OVER CURRENT PROTECTION (MOCP)	120	150	157	267.5	2,500	MAX OVER CURRENT PROTECTION (MOCP)	MINIMUM SCGR (AMPS)	CONTROLS VOLTAGE - PHASE	WATER INLET	WATER OUTLET	GAS	FLUE VENT	COMBUSTION AIR	LENGTH	WIDTH	HEIGHT	APPROX. OPERATING WEIGHT (LBS)	CONCRETE PAD	SAFETY RELIEF VALVE SETTING (PSIG)	BOILER CONTROL AND SEQUENCING PANEL	SEE NOTE																			
MINIMUM SCGR (AMPS)	120	150	157	267.5	2,500	MINIMUM SCGR (AMPS)	CONTROLS VOLTAGE - PHASE	WATER INLET	WATER OUTLET	GAS	FLUE VENT	COMBUSTION AIR	LENGTH	WIDTH	HEIGHT	APPROX. OPERATING WEIGHT (LBS)	CONCRETE PAD	SAFETY RELIEF VALVE SETTING (PSIG)	BOILER CONTROL AND SEQUENCING PANEL	SEE NOTE																				
CONTROLS VOLTAGE - PHASE	120	150	157	267.5	2,500	CONTROLS VOLTAGE - PHASE	WATER INLET	WATER OUTLET	GAS	FLUE VENT	COMBUSTION AIR	LENGTH	WIDTH	HEIGHT	APPROX. OPERATING WEIGHT (LBS)	CONCRETE PAD	SAFETY RELIEF VALVE SETTING (PSIG)	BOILER CONTROL AND SEQUENCING PANEL	SEE NOTE																					
WATER INLET	120	150	157	267.5	2,500	WATER INLET	WATER OUTLET	GAS	FLUE VENT	COMBUSTION AIR	LENGTH	WIDTH	HEIGHT	APPROX. OPERATING WEIGHT (LBS)	CONCRETE PAD	SAFETY RELIEF VALVE SETTING (PSIG)	BOILER CONTROL AND SEQUENCING PANEL	SEE NOTE																						
WATER OUTLET	120	150	157	267.5	2,500	WATER OUTLET	GAS	FLUE VENT	COMBUSTION AIR	LENGTH	WIDTH	HEIGHT	APPROX. OPERATING WEIGHT (LBS)	CONCRETE PAD	SAFETY RELIEF VALVE SETTING (PSIG)	BOILER CONTROL AND SEQUENCING PANEL	SEE NOTE																							
GAS	120	150	157	267.5	2,500	GAS	FLUE VENT	COMBUSTION AIR	LENGTH	WIDTH	HEIGHT	APPROX. OPERATING WEIGHT (LBS)	CONCRETE PAD	SAFETY RELIEF VALVE SETTING (PSIG)	BOILER CONTROL AND SEQUENCING PANEL	SEE NOTE																								
FLUE VENT	120	150	157	267.5	2,500	FLUE VENT	COMBUSTION AIR	LENGTH	WIDTH	HEIGHT	APPROX. OPERATING WEIGHT (LBS)	CONCRETE PAD	SAFETY RELIEF VALVE SETTING (PSIG)	BOILER CONTROL AND SEQUENCING PANEL	SEE NOTE																									
COMBUSTION AIR	120	150	157	267.5	2,500	COMBUSTION AIR	LENGTH	WIDTH	HEIGHT	APPROX. OPERATING WEIGHT (LBS)	CONCRETE PAD	SAFETY RELIEF VALVE SETTING (PSIG)	BOILER CONTROL AND SEQUENCING PANEL	SEE NOTE																										
LENGTH	120	150	157	267.5	2,500	LENGTH	WIDTH	HEIGHT	APPROX. OPERATING WEIGHT (LBS)	CONCRETE PAD	SAFETY RELIEF VALVE SETTING (PSIG)	BOILER CONTROL AND SEQUENCING PANEL	SEE NOTE																											
WIDTH	120	150	157	267.5	2,500	WIDTH	HEIGHT	APPROX. OPERATING WEIGHT (LBS)	CONCRETE PAD	SAFETY RELIEF VALVE SETTING (PSIG)	BOILER CONTROL AND SEQUENCING PANEL	SEE NOTE																												
HEIGHT	120	150	157	267.5	2,500	HEIGHT	APPROX. OPERATING WEIGHT (LBS)	CONCRETE PAD	SAFETY RELIEF VALVE SETTING (PSIG)	BOILER CONTROL AND SEQUENCING PANEL	SEE NOTE																													
APPROX. OPERATING WEIGHT (LBS)	120	150	157	267.5	2,500	APPROX. OPERATING WEIGHT (LBS)	CONCRETE PAD	SAFETY RELIEF VALVE SETTING (PSIG)	BOILER CONTROL AND SEQUENCING PANEL	SEE NOTE																														
CONCRETE PAD	120	150	157	267.5	2,500	CONCRETE PAD	SAFETY RELIEF VALVE SETTING (PSIG)	BOILER CONTROL AND SEQUENCING PANEL	SEE NOTE																															
SAFETY RELIEF VALVE SETTING (PSIG)	120	150	157	267.5	2,500	SAFETY RELIEF VALVE SETTING (PSIG)	BOILER CONTROL AND SEQUENCING PANEL	SEE NOTE																																
BOILER CONTROL AND SEQUENCING PANEL	120	150	157	267.5	2,500	BOILER CONTROL AND SEQUENCING PANEL	SEE NOTE																																	
SEE NOTE	120	150	157	267.5	2,500	SEE NOTE																																		

SPLIT SYSTEM HEAT PUMP UNITS																																		
<div>GENERAL NOTES:</div> <div><div>A. UNLESS NOTED OTHERWISE, CAPACITIES SHALL BE BASED ON INTERIOR DESIGN CONDITIONS OF 80 DB /67 WB COOLING; 70 DB HEATING.</div><div>B. CONDENSING UNITS SHALL INCLUDE LOW AMBIENT CONTROLS AND ACCESSORIES, OPERATIONAL TO 5°F.</div><div>C. CONDENSING UNIT COOLING CAPACITY SHALL BE BASED ON 95°F AMBIENT CONDITIONS.</div><div>D. REFRIGERANT PIPING - SIZES LISTED ARE APPROX. CIRCUITING, SIZING, NUMBER OF PIPES AND CIRCUITS, ARRANGEMENT, ETC. SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.</div><div>E. ELECTRIC SERVICES FOR OUTDOOR UNIT AND INDOOR UNIT - SINGLE POINT POWER SERVICE CONNECTIONS TO EACH UNIT. UNLESS NOTED OTHERWISE, ADEQUACY OF LISTED CIRCUIT SIZES MUST BE VERIFIED BY H.C. AND UNIT SUPPLIER. COST FOR INCREASE OR CHANGE OF ELECTRIC SERVICE FOR EQUIPMENT SELECTED SHALL BE BORNE BY H.C.</div></div> <div>NOTES:</div> <div><div>1. POWER FOR INDOOR UNIT IS TO BE FED THRU THE OUTDOOR UNIT POWER SUPPLY.</div><div>2. PROVIDE WIND BAFFLE FOR OUTDOOR CONDENSING UNIT.</div><div>3. TOTAL HEATING CAPACITY OF 18 MBH AT 17° F.</div></div>																																		
INDOOR UNIT																			OUTDOOR CONDENSING UNIT - AIR COOLED										REFRIGERANT CONN. SIZE					
		FAN		DX COOLING		FILTERS		ELECTRICAL SERVICE				APPROX. DIMENSIONS			BASIS OF DESIGN				ELECTRICAL SERVICE				BASIS OF DESIGN											
MARK	DESCRIPTION	CFM	EXTERNAL STATIC PRESSURE (IN. W.C.)	MOTOR (HP)	TOTAL CAPACITY (MBH)	ENTERING AIR TEMPERATURE DRIVE (°F)	LEAVING AIR TEMPERATURE DB (°F)	MEV RATING	MIN. SQ. FT.	SERVED THRU OUTDOOR UNIT (NOTE 1)	VOLTAGE - PHASE	FULL LOAD AMPS (FLA)	MIN CIRCUIT AMPS (MCA)	MAX OVER CURRENT PROTECTION (MOCP)	MINIMUM SCGR (AMPS)	LENGTH	WIDTH	HEIGHT	MANUFACTURER	MODEL	MARK	DESCRIPTION	NOMINAL TONS (SIZED TO MATCH COIL)	• VARIABLE SPEED COMPRESSORS	VOLTAGE - PHASE	FULL LOAD AMPS (FLA)	MIN CIRCUIT AMPS (MCA)	MAX OVER CURRENT PROTECTION (MOCP)	MINIMUM SCGR (AMPS)	MANUFACTURER	MODEL	LIQUID LINE	SUCTION LINE	HOT GAS BYPASS
AC-1	HORIZONTAL SUSPENDED	740	0.6"	0.16	24	75	55	8	12	• 208-1	2.1	2.63	-	-	10,000	28"	44"	10"	MITSUBISHI	PEAD-A24AA4	CJ-U-1	AIR COOLED	3	•	208-1	18	30	10,000	MITSUBISHI	PUZ-HA24NH44	3/8"	5/8"	-	SEE NOTE



5/2/19

Issued:  
May 20, 2019

**Bid Package 4**

Revisions:  
5/20/19 - MEP  
BULLETIN 1

NEW ADDITION TO  
**KETTERING SEVENTH-DAY ADVENTIST  
CHURCH**  
3939 Stonebridge Rd. Kettering, Ohio

Comm. No.

## SCHEDULES

Sheet No.

H002



HYDRONIC HEAT PUMP UNITS																																
GENERAL NOTES:				C. LISTED FT. HD. W.P.D. INCLUDES UNIT & HOSE ASSEMBLY, INCLUDING VALVES & FLOW REGULATOR AT LISTED GPM.				D. ELECTRIC SERVICE - SINGLE POINT POWER SERVICE CONNECTION TO UNIT. ADEQUACY OF LISTED CIRCUIT SIZE MUST BE VERIFIED BY H.C. AND UNIT SUPPLIER. COST FOR INCREASE OR CHANGE OF ELEC. SERVICE FOR EQUIPMENT SELECTED SHALL BE BORNE BY H.C.				E. WHEN APPLICABLE, REFER TO SPECIFICATIONS FOR VIBRATION ISOLATOR TYPES.																				
A. HEATING CAPACITY BASED ON 70°F ENT. AIR & 65°F BNT. WATER 40% PROP. GLYCOL.																																
B. COOLING CAPACITY BASED ON 85°F ENT. WATER (40% PROP. GLYCOL) & 80°F DB/67°F WB ENT. AIR TEMP.																																
NOTES:																																
1. REFER TO SPECS FOR MINIMUM EER.																																
2. REFER TO SPECS FOR MINIMUM COP.																																
MARK	DESCRIPTION	ROOM NAME	ROOM NUMBER	LOCATION	TYPE	FAN	EXTERNAL STATIC PRESSURE	MOTOR HP	COOLING (NOTE 1)			HEATING (NOTE 2)			FILTERS	ELECTRICAL SERVICE				MISCELLANEOUS				BASIS OF DESIGN		SEE NOTE						
									TOTAL CAPACITY (MBH)	SENSIBLE CAPACITY (MBH)	LEAVING AIR TEMPERATURE DBWB (°F)	TOTAL CAPACITY (MBH)	SENSIBLE CAPACITY (MBH)	LEAVING AIR TEMPERATURE DB (°F)		FULL LOAD AMPS (FLA)	MIN CIRCUIT AMPS (MCA)	MAX OVER CURRENT PROTECTION (MOP)	MINIMUM SCOT (AMPS)	NON-FUSED DISCONNECT	HOT GAS REHEAT	WATER-SIDE ECONOMIZER COIL	AIR-SIDE ECONOMIZER	INTEGRAL LOOP PUMP	AUX. ELEC. HEAT	DHW DESUPERHEATER	VIBRATION ISOLATOR TYPE	MANUFACTURER	MODEL			
HP-1-01	HORIZONTAL SUSPENDED	LIBRARY	115	•	•	290	0.35	0.1	7.9	5.9	60.5/57.8	99.0	9.2	101.8	54.5	1.5	0.75"	1"	8	208-1	3.9	4.7	15	•	•	•	•	•	•	DAIKIN	WGSH	
HP-1-02	HORIZONTAL SUSPENDED	CLASSROOM	105	•	•	800	0.35	0.5	22.0	16.4	60.6/58.0	94.6	26.4	102.5	57.8	6.2	1.25"	1"	8	208-3	10.1	11.9	15	•	•	•	•	•	•	DAIKIN	WCOH	
HP-1-03	HORIZONTAL SUSPENDED	LOBBY	101	•	•	2,000	0.35	1.0	56.3	39.7	61.3/57.8	94.9	65.8	102.4	57.7	15.2	25	1.5"	1"	8	208-3	25.0	28.9	40	•	•	•	•	•	•	DAIKIN	WCOH
HP-1-04	HORIZONTAL SUSPENDED	LOBBY	101	•	•	2,000	0.35	1.0	56.3	39.7	61.3/57.8	94.9	65.8	102.4	57.7	15.2	25	1.5"	1"	8	208-3	25.0	28.9	40	•	•	•	•	•	•	DAIKIN	WCOH
HP-1-05	HORIZONTAL SUSPENDED	STORAGE	116	•	•	1,000	0.35	0.5	29.0	20.5	60.6/57.5	95.1	33.5	103.0	57.6	7.6	8	1.25"	1"	8	208-3	13.9	16.1	25	•	•	•	•	•	•	DAIKIN	WCOH
HP-1-06	HORIZONTAL SUSPENDED	CLASSROOM	111	•	•	1,000	0.35	0.5	29.0	20.5	60.6/57.5	95.1	33.5	103.0</																		

ELECTRIC HEATING UNITS																							
GENERAL NOTES: A. HEATING CAPACITY BASED ON 70°F ENT. AIR. B. ELECTRICAL SERVICE TO 3-PHASE UNITS SHALL BE 3-WIRE UNLESS NOTED OTHERWISE. C. 3-PHASE COIL LOADS SHALL BE DIVIDED EVENLY ACROSS EACH PHASE.  NOTES: 1. MOUNTING HEIGHT TO BOTTOM OF UNIT, UNLESS NOTED OTHERWISE ON FLOOR PLANS.  2. BASIS OF DESIGN: QMARK MODEL CU935. 3. BASIS OF DESIGN: QMARK MODEL CU945.  4. FRONT INLET / FRONT OUTLET. 5. BOTTOM INLET / FRONT OUTLET. 6. BOTTOM INLET / TOP OUTLET - DUCT CONNECTION.																							
MARK	DESCRIPTION	MOUNTING	CFM	FAN		HEATING		ELECTRICAL SERVICE				APPROX. CABINET DIMENSIONS			THERMOSTAT								
				HP (HP / WATTS)	CAPACITY (MBH)	KW (MIN)	KW (MAX)	# STAGES	VOLTAGE - PHASE	FULL LOAD AMPS (FLA)	MIN CIRCUIT AMPS (MCA)	MAX OVER CURRENT PROTECTION (MOCP)	MINIMUM SCFF (AMPS)	INTEGRAL DISCONNECT	WIDTH	DEPTH	HEIGHT	RECESS	MOUNTING HEIGHT (AFF. NOTE 1)	VIBRATION ISOLATOR TYPE	UNIT MOUNTED	WALL MOUNTED	SEE NOTE
EUH-1	ELECTRIC UNIT HEATER	CEILING MOUNTED	250	1/8 HP	17.0	3.3	5	2	208-3	15	-	-	-	•	35"	27"	10"	6"	9-8"	INTERNAL	•	•	1.2, 5
EUH-2	ELECTRIC UNIT HEATER	WALL MOUNTED	500	1/8 HP	41.0	8	12	2	208-3	34	-	-	-	•	45"	27"	10"	6"	0-0"	INTERNAL	•	•	1.3, 4
EUH-3	ELECTRIC UNIT HEATER	WALL MOUNTED	500	1/8 HP	41.0	8	12	2	208-3	34	-	-	-	•	45"	27"	10"	6"	0-0"	INTERNAL	•	•	1.3, 4
EUH-4	ELECTRIC UNIT HEATER	WALL MOUNTED	250	1/8 HP	17.0	3.3	5	2	208-3	15	-	-	-	•	35"	10"	27"	0"	0-0"	INTERNAL	•	•	1.2, 4
EUH-5	ELECTRIC UNIT HEATER	HORIZONTAL CONCEALED	250	1/8 HP	6.8	1.3	2	2	208-3	6	-	-	-	•	35"	27"	10"	0"	11-3"	INTERNAL	•	•	1.2, 4

FANS																
GENERAL NOTES:																
A. ALL FANS SHALL BE A M.C.A. 211 AND 311 PERFORMANCE CERTIFIED AND SHALL BEAR THE A.M.C.A. LABEL.				E. ROOF & WALL OPENINGS ARE APPROX. VERIFY SIZE & COORDINATE.				G. WHEN APPLICABLE, REFER TO SPECIFICATIONS FOR VIBRATION ISOLATOR TYPES.								
B. SONES VALUES BASED ON A M.C.A. 301 MEASURED AT 5 FT.				F. COORDINATE STEEL FRAMING AROUND ROOF OPENING WHERE REQUIRED FOR DECK SUPPORT, AND WALL LINTELS FOR WALL OPENINGS.				H. VFD'S SHALL BE CONSTRUCTED AND LABELED FOR REQUIRED SCOR (SHORT CIRCUIT CURRENT RATING). COORDINATE WITH DIVISION 28.								
C. MOTOR HORSEPOWERS LISTED SHALL BE CONSIDERED MINIMUM.																
NOTES:																
1. PROVIDE INTEGRAL DISCONNECT.																
2. PROVIDE MASON INDUSTRIES SERIES HD VIBRATION ISOLATOR.																
MARK	DESCRIPTION	SERVICE	FAN CFM	STATIC PRESSURE (IN W.C.)	APPROX. WHEEL DIAMETER	MAXIMUM SONES	MOTOR					APPROX. WEIGHT (LBS.)	VIBRATION ISOLATOR TYPE	BASIS OF DESIGN		SEE NOTE
EF-1	CENTRIFUGAL, INLINE - DIRECT DRIVE	RESTROOM EXHAUST	325	0.75"	10"	8	1/8	120-1	· ELECTRONICALLY COMMUTATED	· VARIABLE FREQUENCY DRIVE	· APPROX. ROOF/WALL OPENING	110	NOTE 2)	MANUFACTURER LOREN COOK	MODEL SQN-D	1

GENERAL NOTES:																																	
A. COOLING CAPACITIES BASED ON 95°F AMBIENT AIR TEMPERATURE.					C. ELECTRIC SERVICE - SINGLE POINT POWER SERVICE CONNECTION TO UNIT. ADEQUACY OF LISTED CIRCUIT SIZE MUST BE VERIFIED BY H.C. AND UNIT SUPPLIER. COST FOR INCREASE OR CHANGE OF ELECTRIC SERVICE FOR EQUIPMENT SELECTED SHALL BE BORNE BY H.C. THIS SHALL INCLUDE LUG SIZE AND QUANTITY REQUIREMENTS.					D. UNIT CONFIGURATIONS (SUPPLY FAN POSITION RELATIVE TO COOLING COIL). "HDT" - HORIZONTAL DRAIN THRU "VDT" - VERTICAL DRAIN THRU; "HBT" - HORIZONTAL BLOW THRU; "VBT" - VERTICAL BLOW THRU. REFER TO DRAWINGS FOR LAYOUT.					E. HEATING L.A.T. IS BASED ON FULL UNIT CFM AT LISTED E.A.T. AND MBH OUTPUT.																		
NOTES:																																	
1. INVERTER SCROLL COMPRESSOR																																	
UNIT NUMBER		NOMINAL TONS		UNIT CONFIGURATION		AREA SERVED		SUPPLY FAN				RETURN FAN				COOLING SECTION				HEATING SECTION		SUPPLY AIR FILTERS		RETURN AIR FILTERS		OUTSIDE AIR FILTERS		MISCELLANEOUS		ELECTRICAL SERVICE		BASIS OF DESIGN	
UNIT NUMBER		NOMINAL TONS		UNIT CONFIGURATION		AREA SERVED		SUPPLY FAN				RETURN FAN				COOLING SECTION				HEATING SECTION		SUPPLY AIR FILTERS		RETURN AIR FILTERS		OUTSIDE AIR FILTERS		MISCELLANEOUS		ELECTRICAL SERVICE		BASIS OF DESIGN	
UNIT NUMBER		NOMINAL TONS		UNIT CONFIGURATION		AREA SERVED		SUPPLY FAN				RETURN FAN				COOLING SECTION				HEATING SECTION		SUPPLY AIR FILTERS		RETURN AIR FILTERS		OUTSIDE AIR FILTERS		MISCELLANEOUS		ELECTRICAL SERVICE		BASIS OF DESIGN	
UNIT NUMBER		NOMINAL TONS		UNIT CONFIGURATION		AREA SERVED		SUPPLY FAN				RETURN FAN				COOLING SECTION				HEATING SECTION		SUPPLY AIR FILTERS		RETURN AIR FILTERS		OUTSIDE AIR FILTERS		MISCELLANEOUS		ELECTRICAL SERVICE		BASIS OF DESIGN	
UNIT NUMBER		NOMINAL TONS		UNIT CONFIGURATION		AREA SERVED		SUPPLY FAN				RETURN FAN				COOLING SECTION				HEATING SECTION		SUPPLY AIR FILTERS		RETURN AIR FILTERS		OUTSIDE AIR FILTERS		MISCELLANEOUS		ELECTRICAL SERVICE		BASIS OF DESIGN	
UNIT NUMBER		NOMINAL TONS		UNIT CONFIGURATION		AREA SERVED		SUPPLY FAN				RETURN FAN				COOLING SECTION				HEATING SECTION		SUPPLY AIR FILTERS		RETURN AIR FILTERS		OUTSIDE AIR FILTERS		MISCELLANEOUS		ELECTRICAL SERVICE		BASIS OF DESIGN	
UNIT NUMBER		NOMINAL TONS		UNIT CONFIGURATION		AREA SERVED		SUPPLY FAN				RETURN FAN				COOLING SECTION				HEATING SECTION		SUPPLY AIR FILTERS		RETURN AIR FILTERS		OUTSIDE AIR FILTERS		MISCELLANEOUS		ELECTRICAL SERVICE		BASIS OF DESIGN	
UNIT NUMBER		NOMINAL TONS		UNIT CONFIGURATION		AREA SERVED		SUPPLY FAN				RETURN FAN				COOLING SECTION				HEATING SECTION		SUPPLY AIR FILTERS		RETURN AIR FILTERS		OUTSIDE AIR FILTERS		MISCELLANEOUS		ELECTRICAL SERVICE		BASIS OF DESIGN	
UNIT NUMBER		NOMINAL TONS		UNIT CONFIGURATION		AREA SERVED		SUPPLY FAN				RETURN FAN				COOLING SECTION				HEATING SECTION		SUPPLY AIR FILTERS		RETURN AIR FILTERS		OUTSIDE AIR FILTERS		MISCELLANEOUS		ELECTRICAL SERVICE		BASIS OF DESIGN	
UNIT NUMBER		NOMINAL TONS		UNIT CONFIGURATION		AREA SERVED		SUPPLY FAN				RETURN FAN				COOLING SECTION				HEATING SECTION		SUPPLY AIR FILTERS		RETURN AIR FILTERS		OUTSIDE AIR FILTERS		MISCELLANEOUS		ELECTRICAL SERVICE		BASIS OF DESIGN	
UNIT NUMBER		NOMINAL TONS		UNIT CONFIGURATION		AREA SERVED		SUPPLY FAN				RETURN FAN				COOLING SECTION				HEATING SECTION		SUPPLY AIR FILTERS		RETURN AIR FILTERS		OUTSIDE AIR FILTERS		MISCELLANEOUS		ELECTRICAL SERVICE		BASIS OF DESIGN	
UNIT NUMBER		NOMINAL TONS		UNIT CONFIGURATION		AREA SERVED		SUPPLY FAN				RETURN FAN				COOLING SECTION				HEATING SECTION		SUPPLY AIR FILTERS		RETURN AIR FILTERS		OUTSIDE AIR FILTERS		MISCELLANEOUS		ELECTRICAL SERVICE		BASIS OF DESIGN	
UNIT NUMBER		NOMINAL TONS		UNIT CONFIGURATION		AREA SERVED		SUPPLY FAN				RETURN FAN				COOLING SECTION				HEATING SECTION		SUPPLY AIR FILTERS		RETURN AIR FILTERS		OUTSIDE AIR FILTERS		MISCELLANEOUS		ELECTRICAL SERVICE		BASIS OF DESIGN	
UNIT NUMBER		NOMINAL TONS		UNIT CONFIGURATION		AREA SERVED		SUPPLY FAN				RETURN FAN				COOLING SECTION				HEATING SECTION		SUPPLY AIR FILTERS		RETURN AIR FILTERS		OUTSIDE AIR FILTERS		MISCELLANEOUS		ELECTRICAL SERVICE		BASIS OF DESIGN	
UNIT NUMBER		NOMINAL TONS		UNIT CONFIGURATION		AREA SERVED		SUPPLY FAN				RETURN FAN				COOLING SECTION				HEATING SECTION		SUPPLY AIR FILTERS		RETURN AIR FILTERS		OUTSIDE AIR FILTERS		MISCELLANEOUS		ELECTRICAL SERVICE		BASIS OF DESIGN	
UNIT NUMBER		NOMINAL TONS		UNIT CONFIGURATION		AREA SERVED		SUPPLY FAN				RETURN FAN				COOLING SECTION				HEATING SECTION		SUPPLY AIR FILTERS		RETURN AIR FILTERS		OUTSIDE AIR FILTERS		MISCELLANEOUS		ELECTRICAL SERVICE		BASIS OF DESIGN	
UNIT NUMBER		NOMINAL TONS		UNIT CONFIGURATION		AREA SERVED		SUPPLY FAN				RETURN FAN				COOLING SECTION				HEATING SECTION		SUPPLY AIR FILTERS		RETURN AIR FILTERS		OUTSIDE AIR FILTERS		MISCELLANEOUS		ELECTRICAL SERVICE		BASIS OF DESIGN	
UNIT NUMBER		NOMINAL TONS		UNIT CONFIGURATION		AREA SERVED		SUPPLY FAN				RETURN FAN				COOLING SECTION				HEATING SECTION		SUPPLY AIR FILTERS		RETURN AIR FILTERS		OUTSIDE AIR FILTERS		MISCELLANEOUS		ELECTRICAL SERVICE		BASIS OF DESIGN	
UNIT NUMBER		NOMINAL TONS		UNIT CONFIGURATION		AREA SERVED		SUPPLY FAN				RETURN FAN				COOLING SECTION				HEATING SECTION		SUPPLY AIR FILTERS		RETURN AIR FILTERS		OUTSIDE AIR FILTERS		MISCELLANEOUS		ELECTRICAL SERVICE		BASIS OF DESIGN	
UNIT NUMBER		NOMINAL TONS		UNIT CONFIGURATION		AREA SERVED		SUPPLY FAN				RETURN FAN				COOLING SECTION				HEATING SECTION		SUPPLY AIR FILTERS		RETURN AIR FILTERS		OUTSIDE AIR FILTERS		MISCELLANEOUS		ELECTRICAL SERVICE		BASIS OF DESIGN	

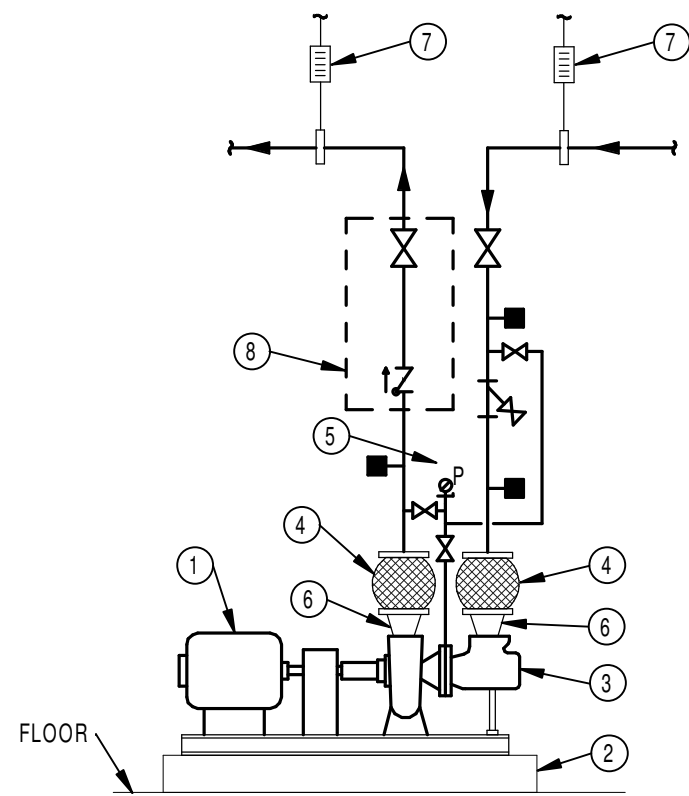
ENERGY RECOVERY SECTIONS															
GENERAL NOTES:															
A. EQUIPMENT SHALL BE CONSTRUCTED AND LABELED FOR REQUIRED SCOR (SHORT CIRCUIT CURRENT RATING). COORDINATE WITH DIVISION 26.						B. ENERGY RECOVERY SECTION IS INTEGRAL WITH ASSOCIATED DOAS UNIT.									
NOTES: 1.															
ASSOCIATED EQUIPMENT MARK	OUTSIDE AIR				EXHAUST AIR				ENERGY RECOVERY DEVICE				PRE-HEAT COIL		
	CFM	SUMMER ENTERING AIR TEMP DBWB (°F)	WINTER ENTERING AIR TEMP DBWB (°F)	CFM	SUMMER ENTERING AIR TEMP DBWB (°F)	WINTER ENTERING AIR TEMP DBWB (°F)	SUMMER LEAVING AIR TEMP DBWB (°F)	WINTER LEAVING AIR TEMP DBWB (°F)	TYPE			ELECTRIC			
									• SENSIBLE ENTHALPY WHEEL	• PLATE HEAT PIPE	MIN. EFFICIENCY (SUMMER / WINTER)	• MAX. STATIC PRESSURE DROP (O.A. / EXH. AIR)	CAPACITY (KW)	VOLTAGE / PHASE	• SEE NOTE
DOAS-1	5,500	81.0 / 74.0	0.0 / -1.6	5,000	75.0 / 62.4	72.0 / 55.6	80.7 / 67.2	46.8 / 39.9	•	•	68.8 / 71.0	•	14.8	208-3	•

ELECTRIC FIN TUBE CONVECTORS																		
<b>GENERAL NOTES:</b> A. HEATING CAPACITY BASED ON 70°F ENT. AIR. B. ELECTRICAL SERVICE TO 3-PHASE UNITS SHALL BE 3-WIRE UNLESS NOTED OTHERWISE. C. 3-PHASE COIL LOADS SHALL BE DIVIDED EVENLY ACROSS EACH PHASE. D. ENCLOSURES SHALL INCLUDE ALL ACCESSORIES TO PROVIDE A FINISHED APPEARANCE, SUCH AS END CAPS, FILLERS, ETC. E. VERIFY/COORDINATE CABINET DIMENSIONS, MOUNTING & RECESS REQUIREMENTS PRIOR TO ORDERING. F. RECESSED UNITS SHALL HAVE FOUR(4) SIDE OVERLAP UNLESS NOTED OTHERWISE. G. COORDINATE LINTELS IN MASONRY WALLS FOR FULL & SEMI-RECESSED UNIT WALL OPENINGS.																		
<b>NOTES:</b> 1. CABINETS EXTENDING WALL-TO-WALL SHALL BE FIELD MEASURED PRIOR TO ORDERING. 2. MOUNTING HEIGHT TO BOTTOM OF UNIT UNLESS NOTED OTHERWISE ON FLOOR PLANS.																		
MARK	DESCRIPTION	MOUNTING	HEATING				ELECTRICAL SERVICE				APPROX. CABINET DIMENSIONS				THERMOSTAT			
			CAPACITY (MMB/h)	KW (MIN)	KW (MAX)	VOLTAGE - PHASE	FULL LOAD AMPS (FLA)	MIN CIRCUIT AMPS (MCA)	MAX OVER CURRENT PROTECTION (MOCP)	INTEGRAL DISCONNECT	LENGTH (NOTE 1)	DEPTH	HEIGHT	RECESS	MOUNTING HEIGHT (AFF. NOTE 2)	UNIT MOUNTED	WALL MOUNTED	SEE NOTE
EFT-1	FINNED TUBE CONVECTOR	FLOOR	12.8	1.5	3.75	208-3	10.4	13.2	20	•	60"	6.15"	7.5"	0"	0'-3"	•	-	
EFT-2A	FINNED TUBE CONVECTOR	FLOOR	23.0	2.7	6.75	208-3	18.8	23.4	30	•	108"	6.15"	7.5"	0"	0'-3"	•	-	
EFT-2B	FINNED TUBE CONVECTOR	FLOOR	23.0	2.7	6.75	208-3	18.8	23.4	30	•	108"	6.15"	7.5"	0"	0'-3"	•	-	
EFT-3A	FINNED TUBE CONVECTOR	FLOOR	23.0	2.7	6.75	208-3	18.8	23.4	30	•	108"	6.15"	7.5"	0"	0'-3"	•	-	
EFT-3B	FINNED TUBE CONVECTOR	FLOOR	23.0	2.7	6.75	208-3	18.8	23.4	30	•	108"	6.15"	7.5"	0"	0'-3"	•	-	

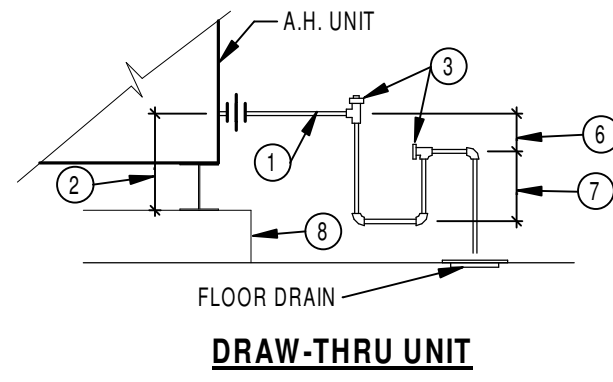
AIR / DIRT SEPARATORS												
GENERAL NOTES: A. WHEN AUTO BLOW-DOWN VALVE IS REQUIRED, INCLUDE BALANCING VALVE AND PIPE DISCHARGE TO FLOOR DRAIN, AND COORDINATE SEQUENCING WITH CHEMICAL TREATMENT.												
NOTES:												
MARK	SYSTEM	TYPE				CAPACITY		APPROXIMATE DIMENSIONS		SEISMIC RESTRAINTS	SEE NOTE	
		INLINE	SUPPORT FROM FLOOR	SUPPORT FROM STRUCTURE	WITH STRAINER	WITHOUT STRAINER	GPM	MAX. WATER PRESS. DROP (FT. HD.)	MINIMUM INLET SIZE			DIA/METER
		-	-	-	-	-	-	-	-	-	AUTO BLOW DOWN VALVE	
		-	-	-	-	-	-	-	-	-	HIGH CAPACITY AUTO AIR VENT	
		-	-	-	-	-	-	-	-	-	REQUIRED	
		-	-	-	-	-	-	-	-	-	IMPORTANCE FACTOR	

H003

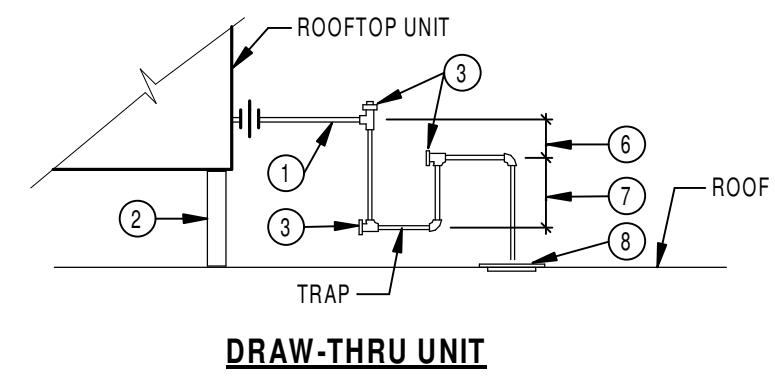




- **NOTES**
1. BASE MOUNTED END SUCTION CENTRIFUGAL PUMP WITH FLANGED PIPE CONNECTIONS.
  2. 4" CONCRETE HOUSEKEEPING PAD.
  3. SUCTION DIFFUSER WITH INTEGRAL FINE MESH START-UP STRAINER AND ADJUSTABLE SUPPORT. REMOVE MESH AFTER PIPING IS CLEANED.
  4. SPHERICAL FLEXIBLE PIPE CONNECTOR.
  5. PRESSURE GAUGE WITH INTERCONNECTING PIPING AND VALVES.
  6. PIPE REDUCER WHEN PIPE SIZE DIFFERS FROM PUMP CONNECTION SIZE.
  7. SPRING HANGER. 3 SPRING HANGERS REQUIRED WITHIN 50 LF OF PUMP.
  8. SHUT-OFF AND CHECK VALVES MAY BE COMBINED INTO A SINGLE TRIPLE DUTY VALVE (OPTIONAL).



- **NOTES**
1. DRAIN PIPE, SAME SIZE AS UNIT DRAIN PAN CONNECTION.
  2. VERIFY REQUIRED HEIGHT FOR DRAIN PIPE AND TRAP INSTALLATION. PROVIDE ADDITIONAL BEAMS OR BACK-TO-BACK CHANNELS UNDER UNIT, IF REQUIRED, TO ATTAIN REQUIRED HEIGHT.
  3. TEE WITH CLEANOUT PLUG.
  4. 1" CENTERLINE-TO-CENTERLINE DIMENSION.
  5. CENTERLINE-TO-CENTERLINE DIMENSION NOT LESS THAN SUPPLY FAN T.S.P. (INCH W.G.) + 1/2 INCH.
  6. CENTERLINE-TO-CENTERLINE DIMENSION NOT LESS THAN SUPPLY FAN T.S.P. (INCH W.G.) + 1 INCH.
  7. CENTERLINE-TO-CENTERLINE DIMENSION SHALL BE 50% OF DIMENSION FOUND IN (6) ABOVE.
  8. CONCRETE HOUSEKEEPING PAD.

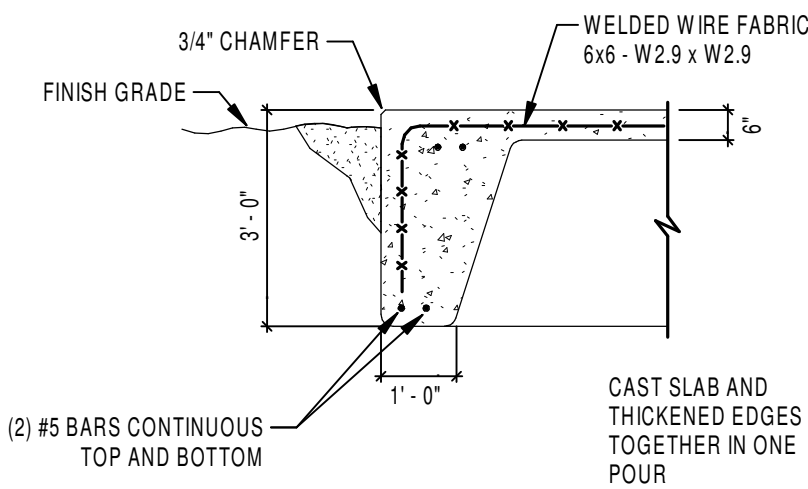


- **NOTES**
1. DRAIN PIPE SAME SIZE AS UNIT DRAIN PAN CONNECTION.
  2. UNIT ROOF CURB. VERIFY REQUIRED HEIGHT FOR DRAIN PIPE AND TRAP INSTALLATION. PROVIDE CURB OF ADEQUATE HEIGHT TO ATTAIN REQUIRED DIMENSION.
  3. TEE WITH CLEANOUT PLUG.
  4. 1" CENTERLINE-TO-CENTERLINE DIMENSION.
  5. CENTERLINE-TO-CENTERLINE DIMENSION NOT LESS THAN SUPPLY FAN T.S.P. (INCH W.G.) + 1/2 INCH.
  6. CENTERLINE-TO-CENTERLINE DIMENSION NOT LESS THAN SUPPLY FAN T.S.P. (IN W.G.) + 1 INCH.
  7. CENTERLINE-TO-CENTERLINE DIMENSION SHALL BE 50% OF DIMENSION FOUND IN (6) ABOVE.
  8. SPLASH BLOCK.

1 **BASE MOUNTED PUMP - END SUCTION**

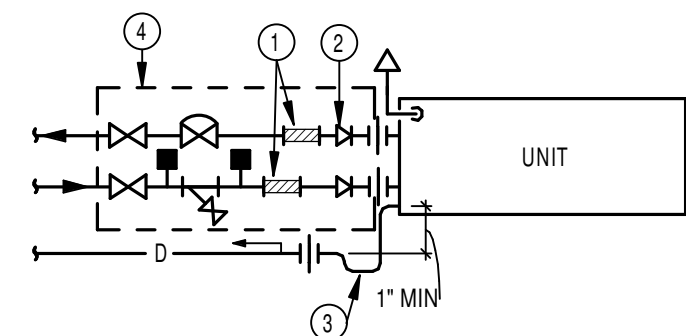
2 **AIR HANDLING UNIT DRAIN PIPING-FLOOR MOUNTED**

3 **ROOFTOP UNIT DRAIN PIPING**



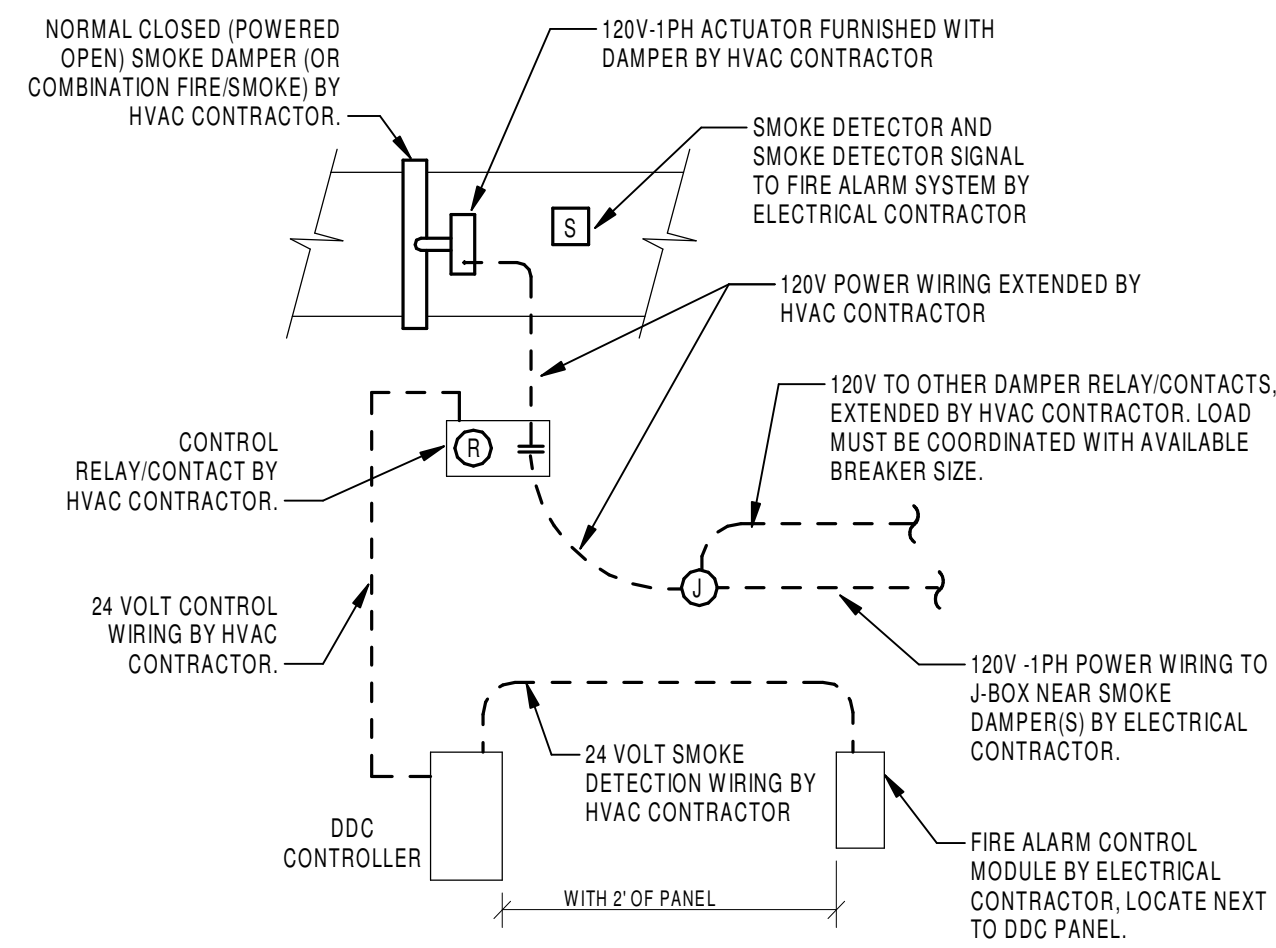
**TYP. ALL FOUR SIDES**

4 **COOLING TOWER PAD DETAIL**



- **NOTES**
1. MINIMUM 18\"/>
  2. REDUCER AS REQUIRED WHEN RUN-OUT PIPE SIZE IS LARGER THAN UNIT CONNECTION SIZE.
  3. 0.75\"/>
  4. FACTORY ASSEMBLED PIPING PACKAGE (OPTIONAL).

5 **HYDRONIC HEAT PUMP UNIT PIPING**

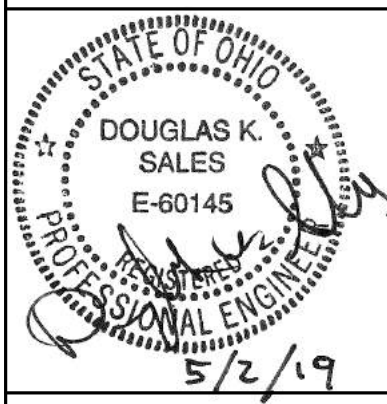


NOTE:  
WHEN PERMITTED OR SPECIFIED IN THE ATC SEQUENCES, A COMMON CONTROL SIGNAL MAY CONTROL MULTIPLE RELAYCONTACTS TO CLOSE MULTIPLE SMOKE DAMPERS AT ONCE.

6 **TYPICAL SMOKE DAMPER WIRING**

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5/20/19 - MEP  
BULLETIN 1

NEW ADDITION TO  
**KETTERING SEVENTH-DAY ADVENTIST  
CHURCH**  
3839 Stonebridge Rd., Kettering, Ohio

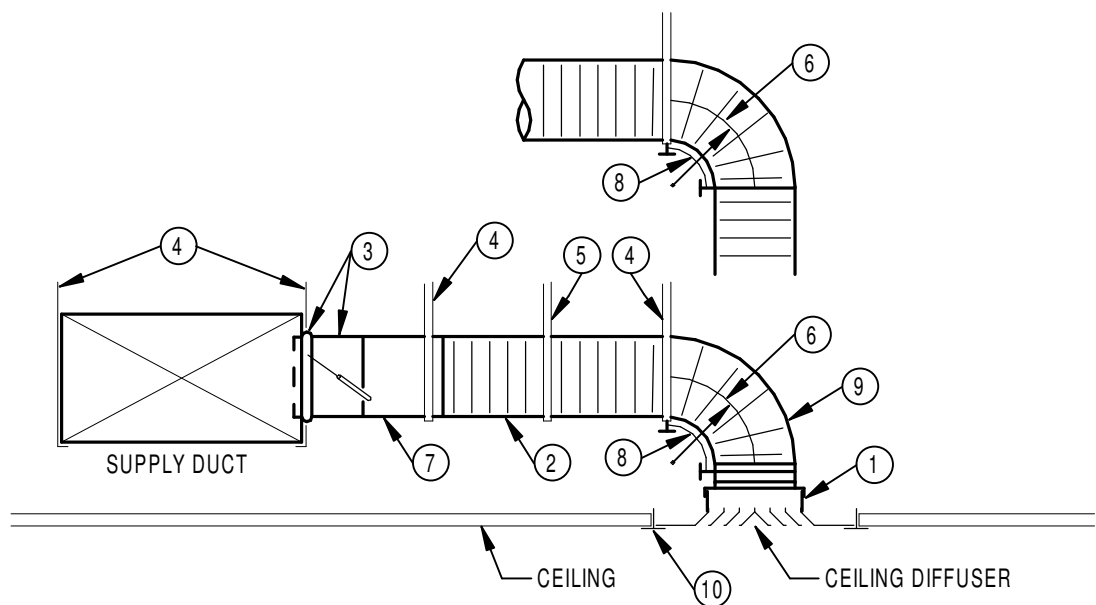
Comm. No.  
31802

DETAILS

Sheet No.

**H004**

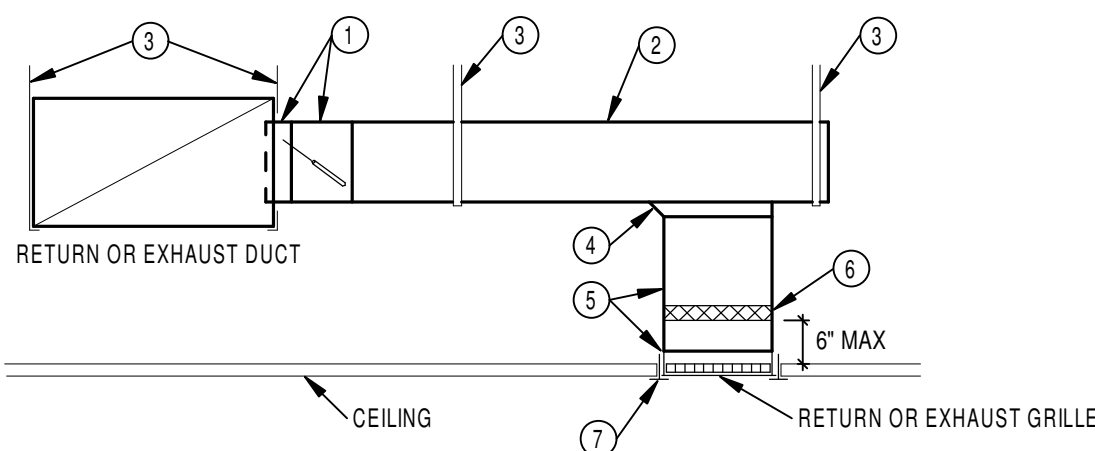




## NOTES

- SQUARE-TO-ROUND ADAPTER IF DIFFUSER NECK IS SQUARE. CONNECT ADAPTOR TO DIFFUSER. SEAL TO AIR DEVICE. SEAL CLASS A. INSULATE ADAPTOR AND EXPOSED BACKSIDE SURFACES OF AIR DEVICE.
- INSULATED FLEXIBLE DUCT SAME DIAMETER AS BRANCH DUCT (C) 7 FT. MAXIMUM TOTAL LENGTH PER AIR DEVICE. STRETCH FLEXIBLE DUCT TO AT LEAST 90% OF FULLY EXTENDED LENGTH.
- SPIN-IN BRANCH TAP FITTING, STRAIGHT SIDE WITH MANUAL DAMPER. DAMPER SHAFT IN HORIZONTAL. INTEGRAL INSULATION GUARD SLEEVE REQUIRED FOR TAP FITTING TO MAIN DUCT WITH INTERNAL INSULATION, AND EXTENDED DAMPER SHAFT AND HANDLE WITH STAND-OFF TO ACCOMMODATE EXTERNAL INSULATION.
- DUCT STRAP HANGER. ATTACH TO STRUCTURE.
- STRAP HANGER REQUIRED IF LENGTH OF FLEXIBLE DUCT IS LONGER THAN 4 FT.
- MINIMUM CENTERLINE RADIUS EQUAL TO DUCT DIAMETER.
- ROUND SHEET METAL BRANCH DUCT, SAME SIZE AS DIFFUSER INLET UNLESS NOTED OTHERWISE.
- FLEXIBLE DUCT ELBOW SUPPORT, INSTALLED WITH NYLON BANDING PER MANUFACTURER'S INSTRUCTIONS.
- A RADIUS SHEET METAL ELBOW MAY BE USED IN LIEU OF A FLEXIBLE ELBOW SUPPORT WHEN CONNECTED DIRECTLY TO AIR DEVICE.
- CEILING T-BAR SUPPORT (FOR LAY-IN APPLICATIONS). COORDINATE AND VERIFY T-BAR TYPE FOR COMPATIBILITY WITH DIFFUSER.

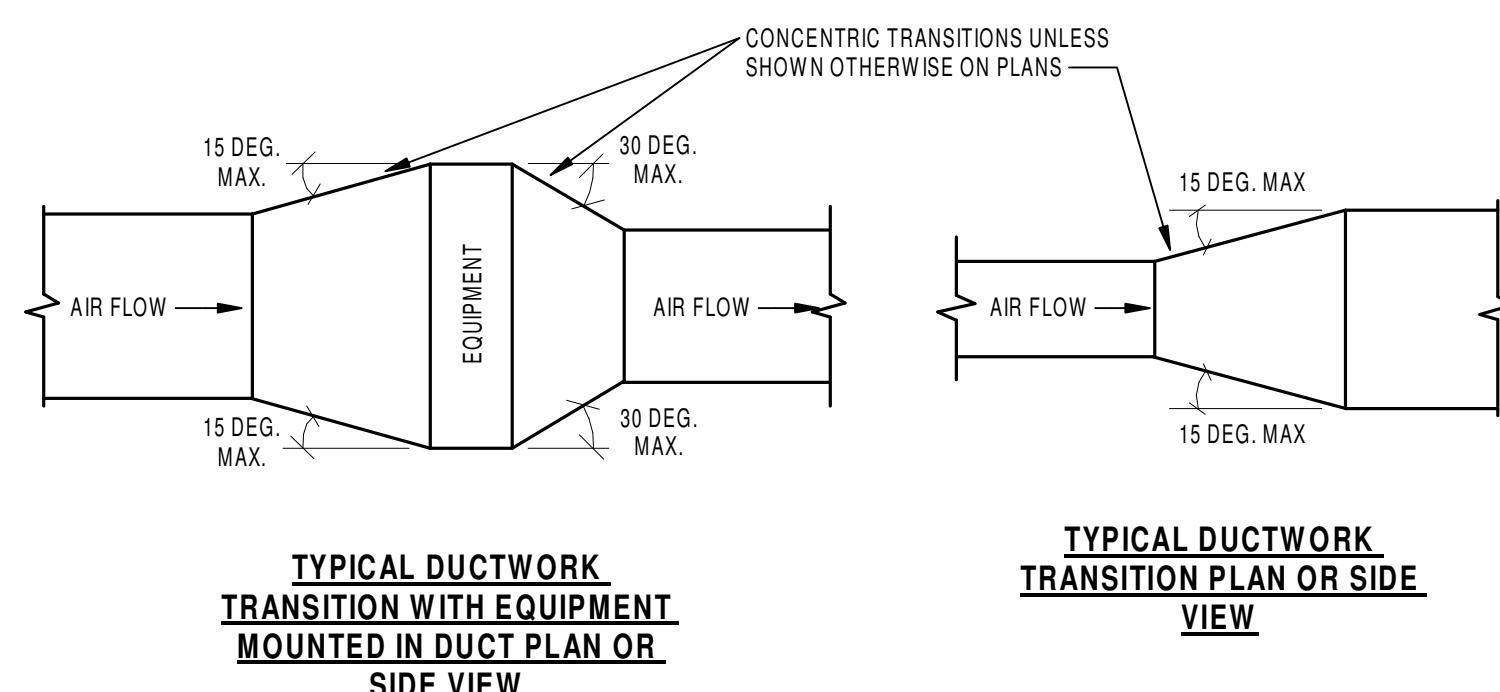
## 1 CEILING DIFFUSER DUCT CONNECTION



## NOTES

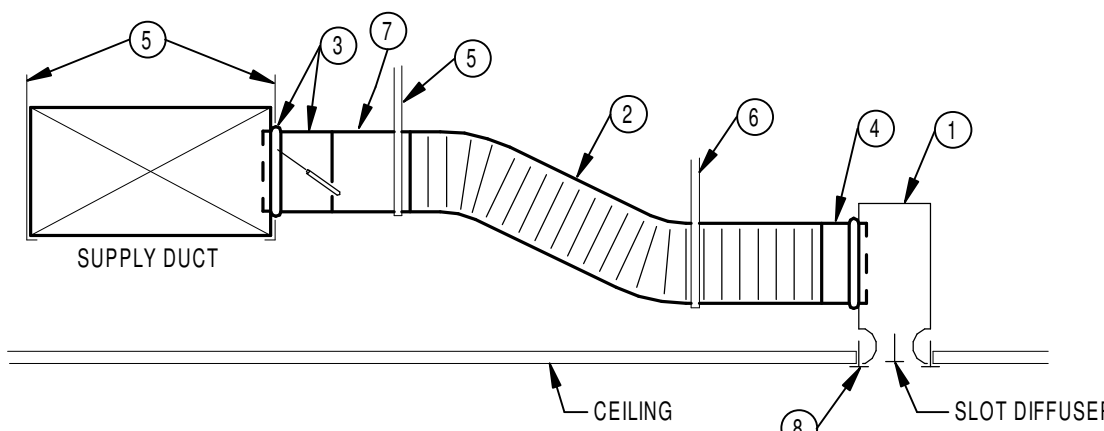
- 45 DEGREE STATIC BOOT AND MANUAL DAMPER. INTEGRAL INSULATION GUARD SLEEVE REQUIRED WHEN MAIN DUCT HAS INTERNAL INSULATION. EXTENDED DAMPER SHAFT AND HANDLE WITH STAND-OFF REQUIRED FOR EXTERNALLY INSULATED DUCTWORK.
- SHEET METAL DUCT, SIZE AS NOTED ON PLANS.
- DUCT STRAP HANGER.
- STATIC BOOT SIMILAR TO (C) EXCEPT NO DAMPER.
- SHEET METAL DUCT, FULL SIZE OF GRILLE NECK SIZE. CONNECT AND SEAL DUCT TO GRILLE. SEAL CLASS A.
- FLEXIBLE DUCT CONNECTOR.
- CEILING T-BAR SUPPORT (FOR LAY-IN APPLICATIONS). COORDINATE AND VERIFY T-BAR TYPE FOR COMPATIBILITY WITH GRILLE.

## 4 RETURN/EXHAUST GRILLE DUCT CONNECTION



NOTE: UNLESS OTHERWISE INDICATED ON PLANS, MAXIMUM ANGLES SHOWN SHALL APPLY.

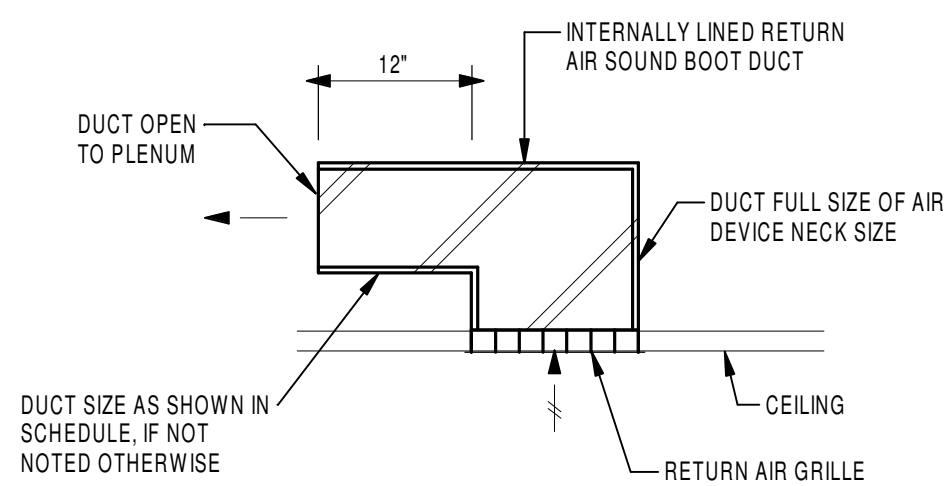
## 8 DUCTWORK TRANSITIONS



## NOTES

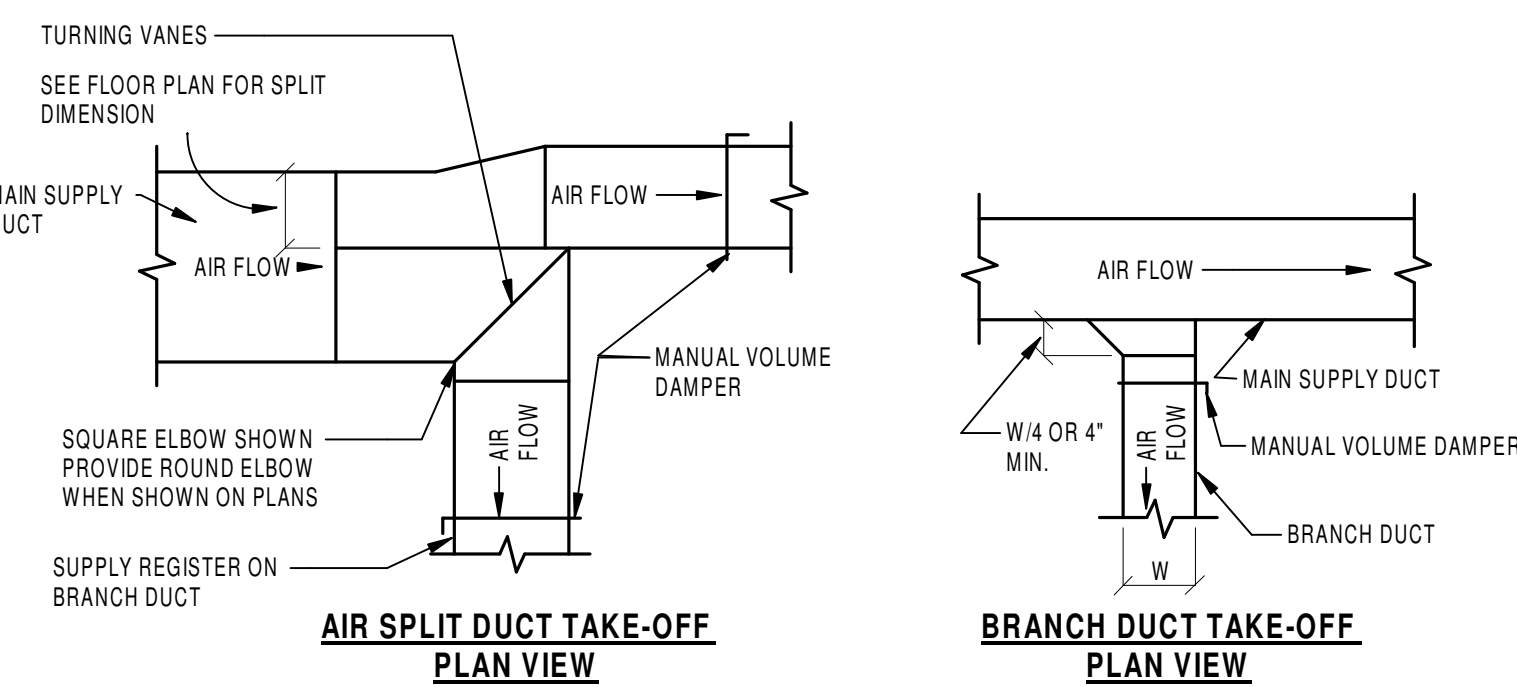
- SLOT DIFFUSER ASSEMBLY AND PLENUM WITH SAME INTERNAL OR EXTERNAL INSULATION AS MAIN SUPPLY DUCT. CONNECT PLENUM TO DIFFUSER. SEAL PLENUM TO DIFFUSER. SEAL CLASS A. INSULATE BACKSIDE SURFACES OF DIFFUSER.
- INSULATED FLEXIBLE DUCT SAME DIAMETER AS BRANCH DUCT (C) 7 FT. MAXIMUM TOTAL LENGTH PER AIR DEVICE. STRETCH FLEXIBLE DUCT TO AT LEAST 90% OF FULLY EXTENDED LENGTH.
- SPIN-IN BRANCH TAP FITTING, STRAIGHT SIDE WITH MANUAL DAMPER. DAMPER SHAFT IN HORIZONTAL. INTEGRAL INSULATION GUARD SLEEVE REQUIRED FOR TAP FITTING TO MAIN DUCT WITH INTERNAL INSULATION, AND EXTENDED DAMPER SHAFT AND HANDLE WITH STAND-OFF TO ACCOMMODATE EXTERNAL INSULATION.
- SPIN-IN TAP FITTING SIMILAR TO (C) EXCEPT NO DAMPER.
- DUCT STRAP HANGER. ATTACH TO STRUCTURE.
- STRAP HANGER REQUIRED IF LENGTH OF FLEXIBLE DUCT IS LONGER THAN 4 FT.
- ROUND SHEET METAL BRANCH DUCT, SAME SIZE AS DIFFUSER INLET UNLESS NOTED OTHERWISE.
- CEILING T-BAR SUPPORT (FOR LAY-IN APPLICATIONS). COORDINATE AND VERIFY T-BAR TYPE FOR COMPATIBILITY WITH DIFFUSER.

## 2 SLOT DIFFUSER DUCT CONNECTION



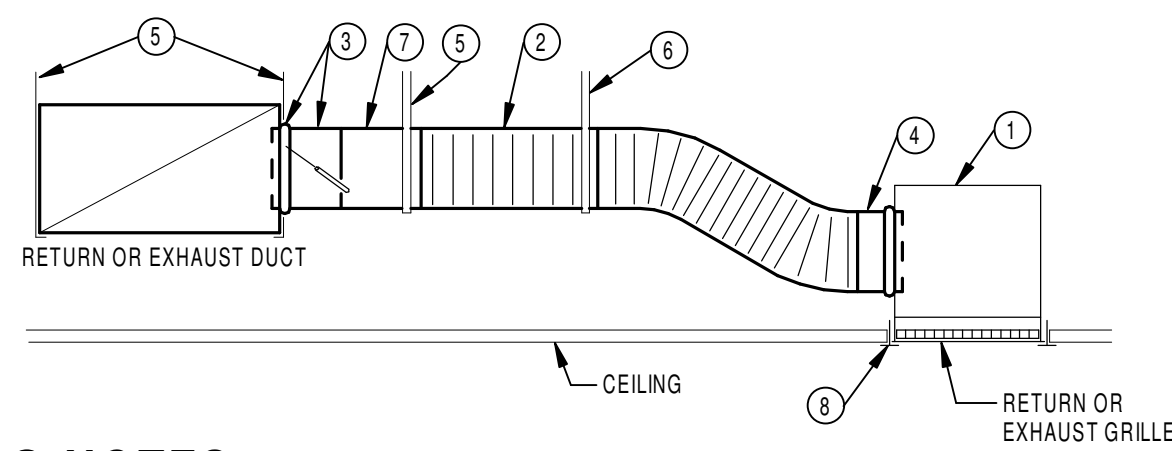
AIR DEVICE SIZE	DUCT SIZE
12x12	12x10
24x12	12x12
24x24	24x12

## 5 RETURN AIR SOUND BOOT



THE BRANCH DUCT TAKE-OFF MAY BE USED FOR UP TO 15% OF THE MAIN DUCT CFM, AND UP TO 40% WHEN THE MAIN DUCT VELOCITY IS 1000 FPM OR LESS. THE AIR SPLIT DUCT TAKE-OFF SHALL BE USED IN ALL OTHER CASES.

## 9 SUPPLY DUCTWORK TAKE-OFFS



BRANCH CFM	RD. DUCT SIZE
0 TO 80 CFM	6"D
81 TO 120 CFM	7"D
121 TO 200 CFM	8"D
201 TO 400 CFM	10"D
401 TO 700 CFM	12"D
701 TO 1000 CFM	14"D

## NOTES

- SHEET METAL PLENUM. FULL SIZE OF GRILLE NECK. MINIMUM 4" TALLER THAN DUCT RUNOUT SIZE, WITH SAME INTERNAL OR EXTERNAL INSULATION AS RETURN OR EXHAUST DUCT. CONNECT TO GRILLE. SEAL PLENUM AND CONNECTION TO GRILLE. SEAL CLASS A.
- FLEXIBLE DUCT, SAME DIAMETER AS BRANCH DUCT (C) 7 FT. MAXIMUM TOTAL LENGTH PER AIR DEVICE. STRETCH FLEXIBLE DUCT TO AT LEAST 90% OF FULLY EXTENDED LENGTH.
- SPIN-IN BRANCH TAP FITTING, STRAIGHT SIDE WITH MANUAL DAMPER. DAMPER SHAFT IN HORIZONTAL. INTEGRAL INSULATION GUARD SLEEVE REQUIRED FOR TAP FITTING TO MAIN DUCT WITH INTERNAL INSULATION. EXTENDED DAMPER SHAFT AND HANDLE WITH STAND-OFF REQUIRED FOR EXTERNALLY INSULATED DUCTWORK.
- SPIN-IN TAP FITTING SIMILAR TO (C) EXCEPT NO DAMPER.
- DUCT STRAP HANGER. ATTACH TO STRUCTURE.
- STRAP HANGER REQUIRED IF LENGTH OF FLEXIBLE DUCT IS LONGER THAN 4 FT.
- ROUND SHEET METAL BRANCH DUCT, SIZE AS INDICATED IN ADJACENT SCHEDULE UNLESS NOTED OTHERWISE ON PLANS.
- CEILING T-BAR SUPPORT (FOR LAY-IN APPLICATIONS). COORDINATE AND VERIFY T-BAR TYPE FOR COMPATIBILITY WITH GRILLE.

## 3 RETURN/EXHAUST GRILLE DUCT CONNECTION

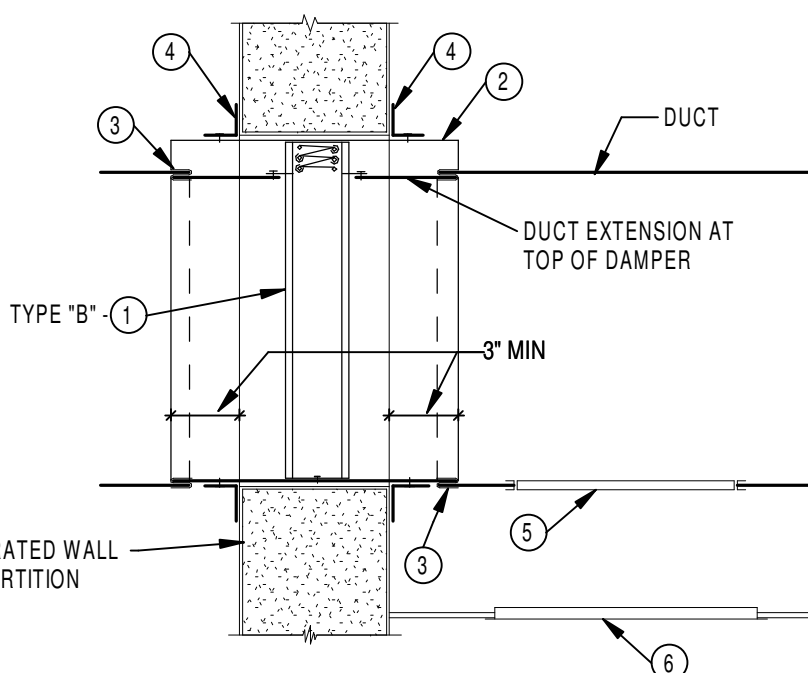
## GENERAL NOTES

- FIRE DAMPERS SHALL BE UL LABELED.
- INSTALLATION OF FIRE DAMPERS AND ACCESSORIES SHALL CONFORM TO NFPA 80A, SMACNA AND MANUFACTURER'S INSTRUCTIONS.
- DETAILS SHOW INSTALLATION OF FIRE DAMPER IN WALL. DAMPER INSTALLATION IN FLOOR SIMILAR. COORDINATE REQUIRED ACCESS LOCATIONS.
- INSULATE RETAINING ANGLES FOR SYSTEMS REQUIRED TO BE INSULATED.

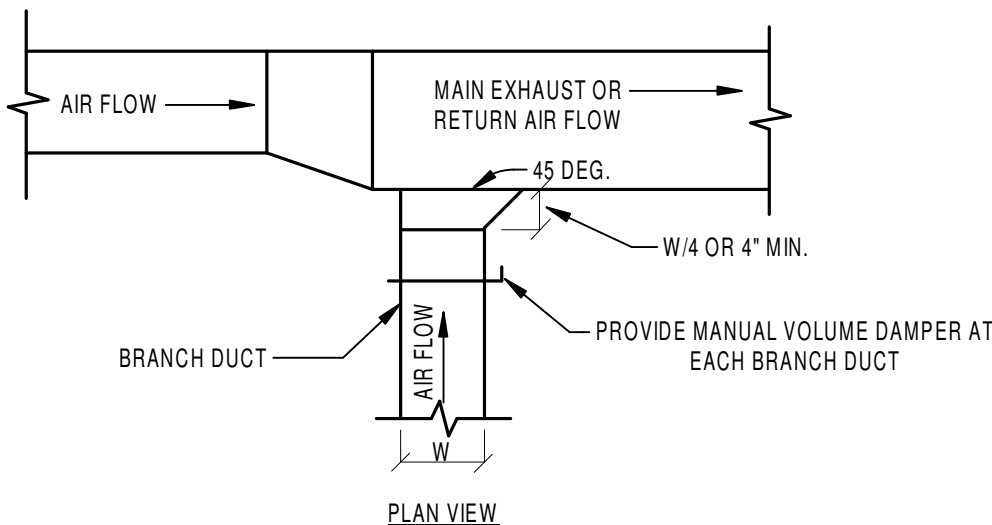
## NOTES

- FIRE DAMPER, FOLDED BLADE CURTAIN TYPE, EXCEPT AS NOTED. VERTICAL MOUNT, GRAVITY DROP; HORIZONTAL MOUNT, SPRING LOADED TO CLOSE. REFER TO SPECS FOR VELOCITY LIMITATIONS OF EACH TYPE. REFER TO DRAWINGS FOR STATIC OR DYNAMIC REQUIREMENTS.
  - TYPE "A" - BLADES STORED OUT OF AIR STREAM. RECTANGULAR, ROUND OR OVAL DUCT CONNECTION.
  - TYPE "B" - BLADES STORED OUT OF AIR STREAM. RECTANGULAR, ROUND OR OVAL DUCT CONNECTION.
  - TYPE "C" - HIGH VELOCITY TYPE, BLADES STORED OUT OF AIR STREAM. RECTANGULAR, ROUND OR OVAL DUCT CONNECTION.
  - TYPE "D" - HIGH VELOCITY CENTER PIVOTED MULTIBLADE. RECTANGULAR, ROUND OR OVAL DUCT CONNECTION.
  - TYPE "H" - HORIZONTAL CEILING RADIATION TYPE.
  - TYPE "AA", "BB", "CC", "DD" - SAME AS "A", "B", "C", "D", EXCEPT RATED FOR 3 HRS.
- SHEET METAL WALL SLEEVE, SAME MATERIAL AS DUCT (EXCEPT GALVANIZED SHEET METAL FOR FRIBERGLASS DUCT); SHEET METAL GAUGE PER SMACNA. USE EXTENDED HEAVY GAUGE SLEEVES WHEN INSTALLED CONDITION REQUIRES.
- DUCT/SLEEVE CONNECTION, BREAKAWAY TYPE SHOWN. CONNECTION MAY BE RIGID TYPE IF ALLOWED BY CODE AUTHORITY.
- RETAINING ANGLE ALL FOUR SIDES. GAUGE PER SMACNA. 1" MINIMUM OVERLAP OF WALL OPENING. LONGER LEG MAY BE REQUIRED TO ATTAIN REQUIRED OVERLAP. BOLT, SCREW OR TACK WELD TO WALL SLEEVE. SPACING OF FASTENERS PER SMACNA.
- DUCT ACCESS PANEL OR DOOR. REFER TO SPECIFICATIONS.
- CEILING ACCESS PANEL IF CEILING IS NOT ACCESSIBLE.
- HIGH VELOCITY DUCT COUPLING.
- 10 GAUGE WALL SLEEVE WITH 0.5" WIDE LEG (ALL FOUR SIDES) ON END OPPOSITE DUCT CONNECTION TO OVERLAP WALL OPENING.
- 14 GAUGE RETAINER STRIP FASTENED TO UNDERSIDE OF FLOOR SLAB, ALL FOUR SIDES.

## 6 FIRE DAMPER NOTES



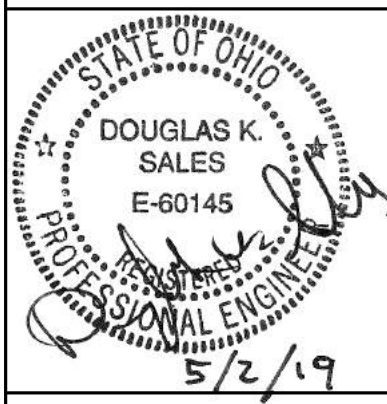
## 7 FIRE DAMPER TYPE "B"



## 10 EXHAUST OR RETURN BRANCH DUCTWORK

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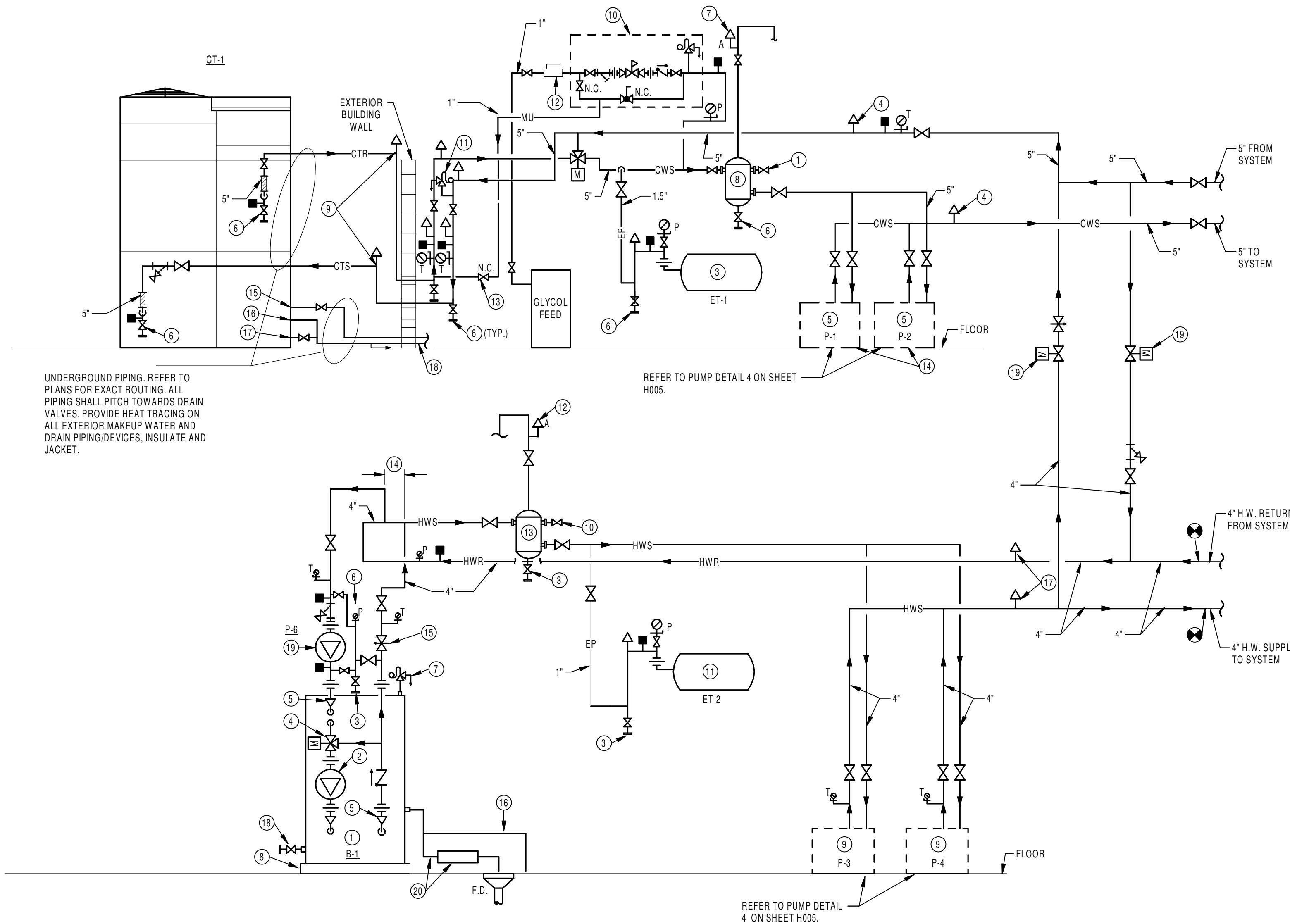
NEW ADDITION TO  
**KETTERING SEVENTH-DAY ADVENTIST  
CHURCH**  
3939 Stonebridge Rd., Kettering, Ohio

Comm. No.  
31802

DETAILS

Sheet No.  
**H005**

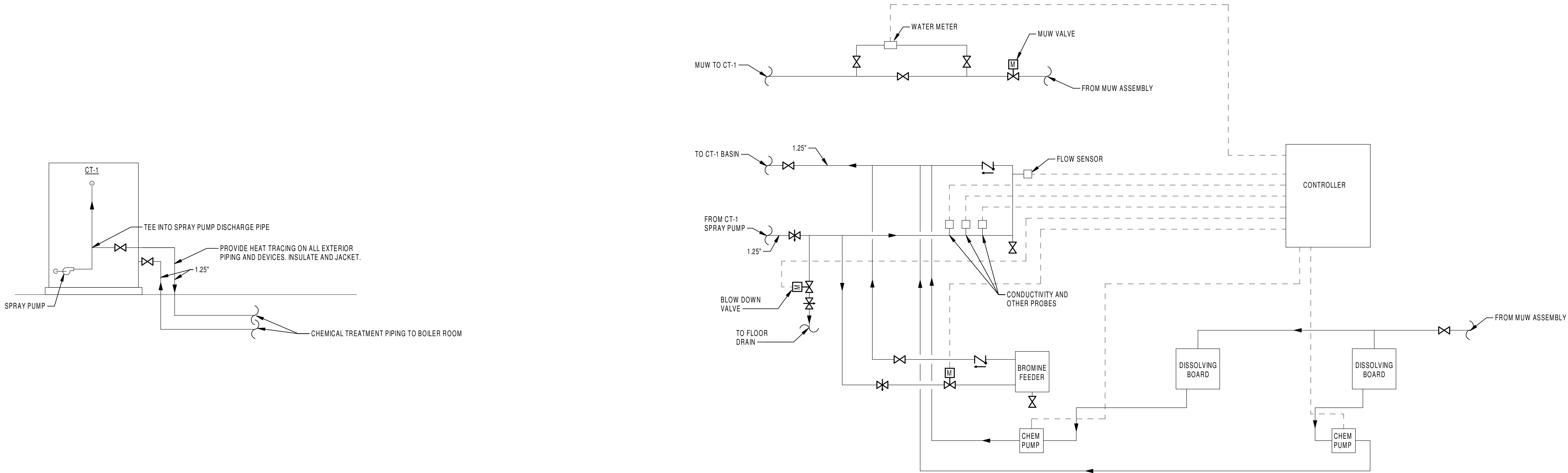




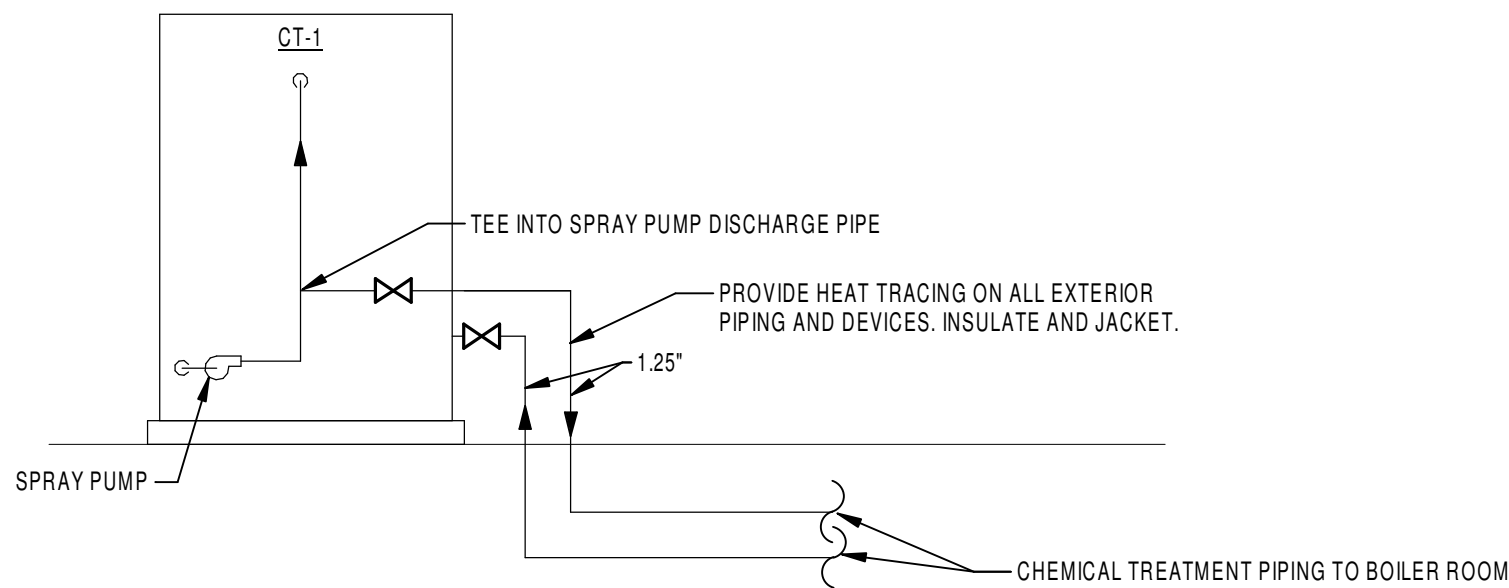
- NOTES
1. MANUAL FILL AIR VENT (BALL VALVE), NORMALLY CLOSED.
  2. MAKE-UP WATER CONNECTION SHALL BE MINIMUM 36" FROM INLET TO SEPARATOR.
  3. DIAPHRAGM/BLADDER STYLE EXPANSION TANK.
  4. MANUAL AIR VENT AT HIGH POINTS OF SYSTEM (LOCATIONS SHOWN ARE ARBITRARY, ADJUST LOCATIONS PER ACTUAL INSTALLATION).
  5. CONDENSER WATER PUMP. REFER TO EQUIPMENT SCHEDULE.
  6. 75" DRAIN VALVE WITH HOSE THREAD FITTING.
  7. LARGE CAPACITY AUTOMATIC AIR VENT. PIPE DISCHARGE TO FLOOR DRAIN.
  8. SEPARATOR. REFER TO EQUIPMENT DATA.
  9. MANUAL AIR VENTS IF PIPING RISES ABOVE WALL PENETRATIONS.
  10. AUTOMATIC MAKE-UP ASSEMBLY. REFER TO EQUIPMENT DATA.
  11. SAFETY RELIEF VALVE SET AT 125 PSIG. PIPE DISCHARGE TO FLOOR DRAIN.
  12. WATER METER WITH REMOTE 'GALLON' READOUT MOUNTED ON WALL.
  13. MANUAL FILL VALVE.
  14. 4" CONCRETE HOUSEKEEPING PAD.
  15. MAKE-UP WATER CONNECTION.
  16. OVERFLOW CONNECTION.
  17. DRAIN CONNECTION.
  18. ROUTE DRAIN PIPING TO FLOOR DRAIN IN BASEMENT MECH ROOM.
  19. 2-WAY SHUTOFF VALVE.

- NOTES
1. BOILER. REFER TO EQUIPMENT DATA.
  2. PRIMARY HX CIRCULATING PUMP.
  3. 75" DRAIN VALVE WITH HOSE THREAD FITTING.
  4. BYPASS CONTROL AS REQUIRED BY BOILER MANUFACTURER.
  5. REDUCER IF BOILER CONNECTION SIZE DIFFERS FROM PIPE SIZE.
  6. PRESSURE GAUGE WITH INTERCONNECTING PIPING AND VALVES.
  7. ONE OR MORE SAFETY RELIEF VALVES. PIPE DISCHARGE(S) TO FLOOR DRAIN.
  8. 4" CONCRETE HOUSEKEEPING PAD.
  9. SECONDARY HOT WATER PUMP. REFER TO EQUIPMENT SCHEDULE.
  10. MANUAL FILL AIR VENT (BALL VALVE), NORMALLY CLOSED.
  11. DIAPHRAGM/BLADDER STYLE EXPANSION TANK.
  12. LARGE CAPACITY AUTOMATIC AIR VENT. PIPE DISCHARGE TO FLOOR DRAIN.
  13. SEPARATOR. REFER TO EQUIPMENT DATA.
  14. SIX PIPE DIAMETERS BUT MAXIMUM 12" (BUT PER BOILER MANUFACTURER'S INSTALLATION INSTRUCTIONS).
  15. LINE SIZE MANUAL BALANCING VALVE. LEAVE WIDE OPEN UNLESS REQUIRED TO BALANCE PRIMARY PUMP. VALVE MAY BE DELETED IF PRIMARY SOLER PUMP IS PROVIDED WITH AN ELECTRONICALLY COMMUTATED MOTOR WITH MANUAL SPEED ADJUSTMENT.
  16. OVERFLOW DRAIN LINE TO SPILL ONTO FLOOR NEXT TO FLOOR DRAIN.
  17. MANUAL AIR VENT AT HIGH POINTS OF PIPING (LOCATIONS SHOWN ARE ARBITRARY, ADJUST LOCATIONS PER ACTUAL INSTALLATION).
  18. FULL SIZE DRAIN VALVE.
  19. PRIMARY BOILER PUMP. PUMP MAY BE DELETED IF HX PUMP 2 HAS CAPACITY AND CAPABILITY TO CIRCULATE WATER THRU THE BOILER LOOP AND PRIMARY PIPING LOOP.
  20. STAINLESS STEEL SECONDARY HX CONDENSATE DRAIN. PIPE TO FLOOR DRAIN THRU A NEUTRALIZING BASIN. DISCHARGE TO DRAIN PER PLUMBING CODE.

1 PIPING SCHEMATIC



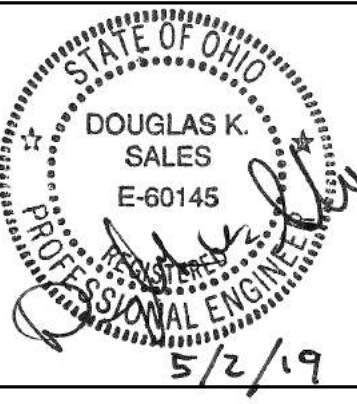
2 CHEMICAL TREATMENT SCHEMATIC



SCHEMATIC DIAGRAM IS CONCEPTUAL IN NATURE AND INTENDED TO SHOW GENERAL REQUIREMENTS FOR TOWER TREATMENT. SPECIFIC DETAILS, REQUIREMENTS, WIRING AND FUNCTIONALITY IS RESPONSIBILITY OF CHEMICAL TREATMENT PROVIDER.

ALL CHEMICAL TREATMENT PIPING IN MECHANICAL ROOM AND UNDERGROUND TO TOWERS SHALL BE SCHEDULE 80 PVC.

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BULLETIN 1

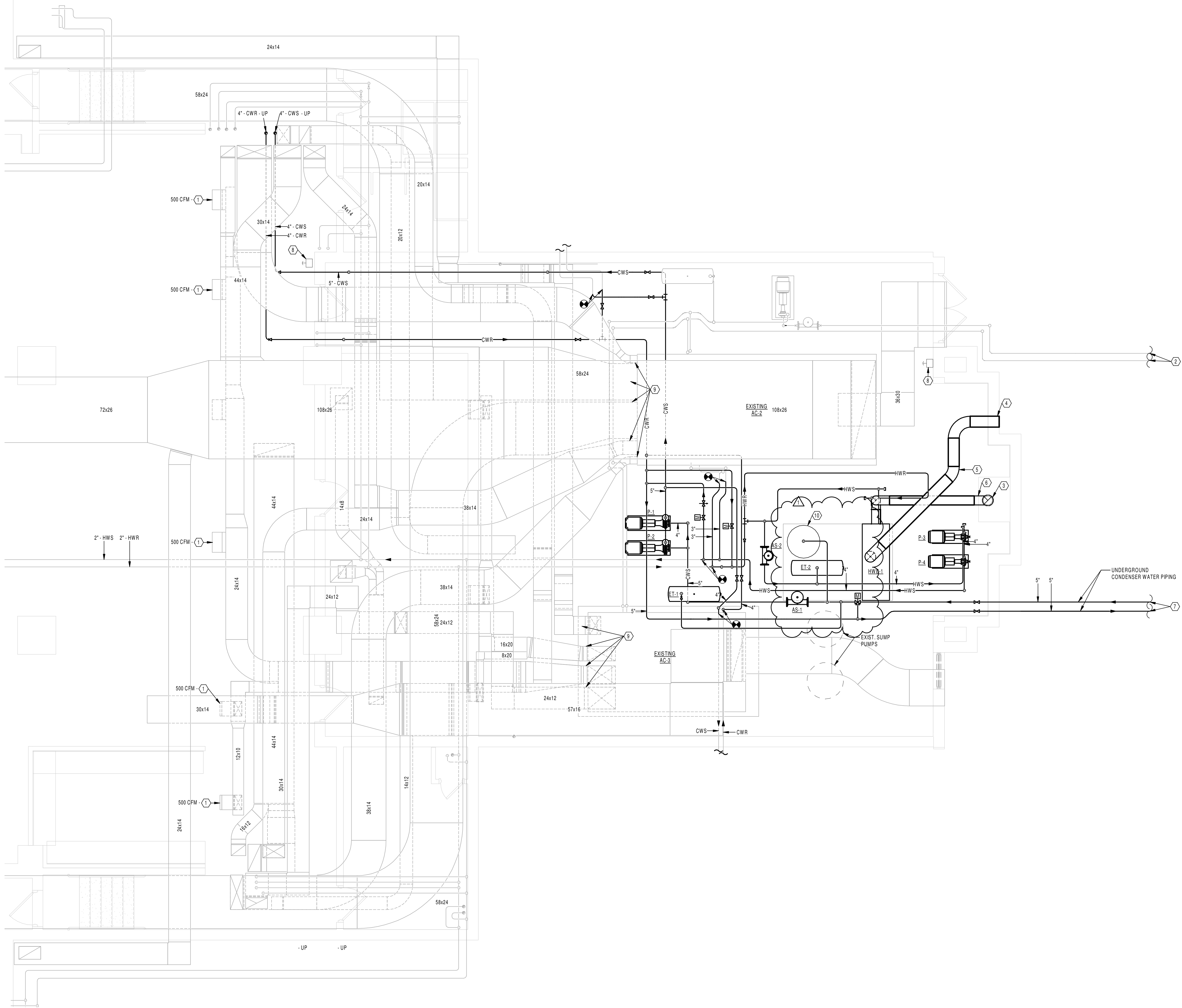
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SCHEMATIC DETAILS

Sheet No.  
**H006**

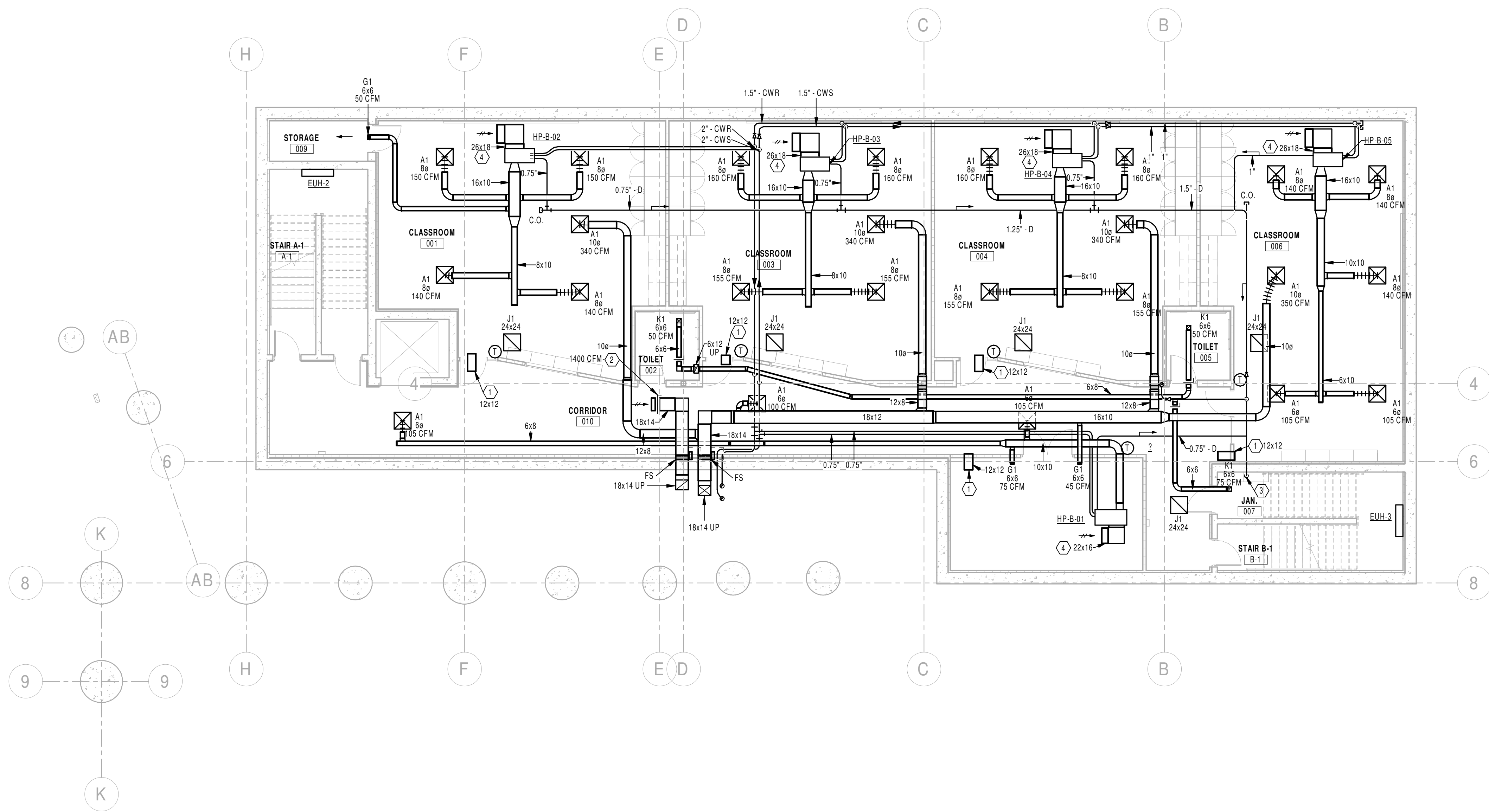




- NOTES**
1. BALANCE TO CFM NOTED ON DRAWINGS.
  2. EXISTING CHS & CHR CONTINUE UNDERGROUND TO SERVE EXISTING CHILLER.
  3. ROUTE BOILER FLUE UP EXISTING CHIMNEY OPENING AND OUT THROUGH THE ROOF AND PROVIDE FLUE TERMINATION KIT. SIZE AND INSTALL FLUE PER MANUFACTURER'S RECOMMENDATIONS.
  4. PROVIDE COMBUSTION AIR INTAKE WALL CAP. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
  5. SIZE AND INSTALL COMBUSTION AIR DUCTWORK PER MANUFACTURER'S RECOMMENDATIONS.
  6. SIZE AND INSTALL BOILER FLUE PER MANUFACTURER'S RECOMMENDATIONS.
  7. PIPING CONTINUES UNDERGROUND TO COOLING TOWER. REFER TO SHEET H103 FOR CONTINUATION.
  8. PROVIDE BOILER EMERGENCY SHUTDOWN. REFER TO SPECIFICATION SECTION 23 52 20.
  9. PROVIDE NEW ACTUATORS FOR MULTIZONE DAMPERS. SEPARATE ZONE THERMOSTATS.
  10. PROVIDE 55 GALLON GLYCOL FEEDER TANK SYSTEM EQUAL TO AXIOM GLYCOL FEED UNIT SF100.

**1 ENLARGED BASEMENT MECHANICAL ROOM**  
SCALE: 1/4" = 1'-0"





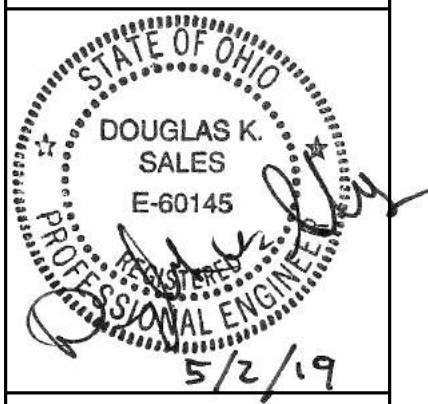
1 HVAC BASEMENT  
SCALE: 1/8" = 1'-0"

NOTES

1. RETURN AIR TRANSFER DUCT, SIZE AS NOTED ON DRAWINGS.
2. BALANCE TO CFM NOTED ON DRAWINGS.
3. DRAIN PIPE DOWN TO MOP SINK IN JANITORS CLOSET. TERMINATE WITH 1" AIR GAP.
4. CONNECT RETURN DUCT TO FULL SIZE UNIT CONNECTION.

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Revisions:  
5/20/19 - MEP  
BULLETIN 1

NEW ADDITION TO  
**KETTERING SEVENTH-DAY ADVENTIST  
CHURCH**  
3939 Stonebridge Rd., Kettering, Ohio

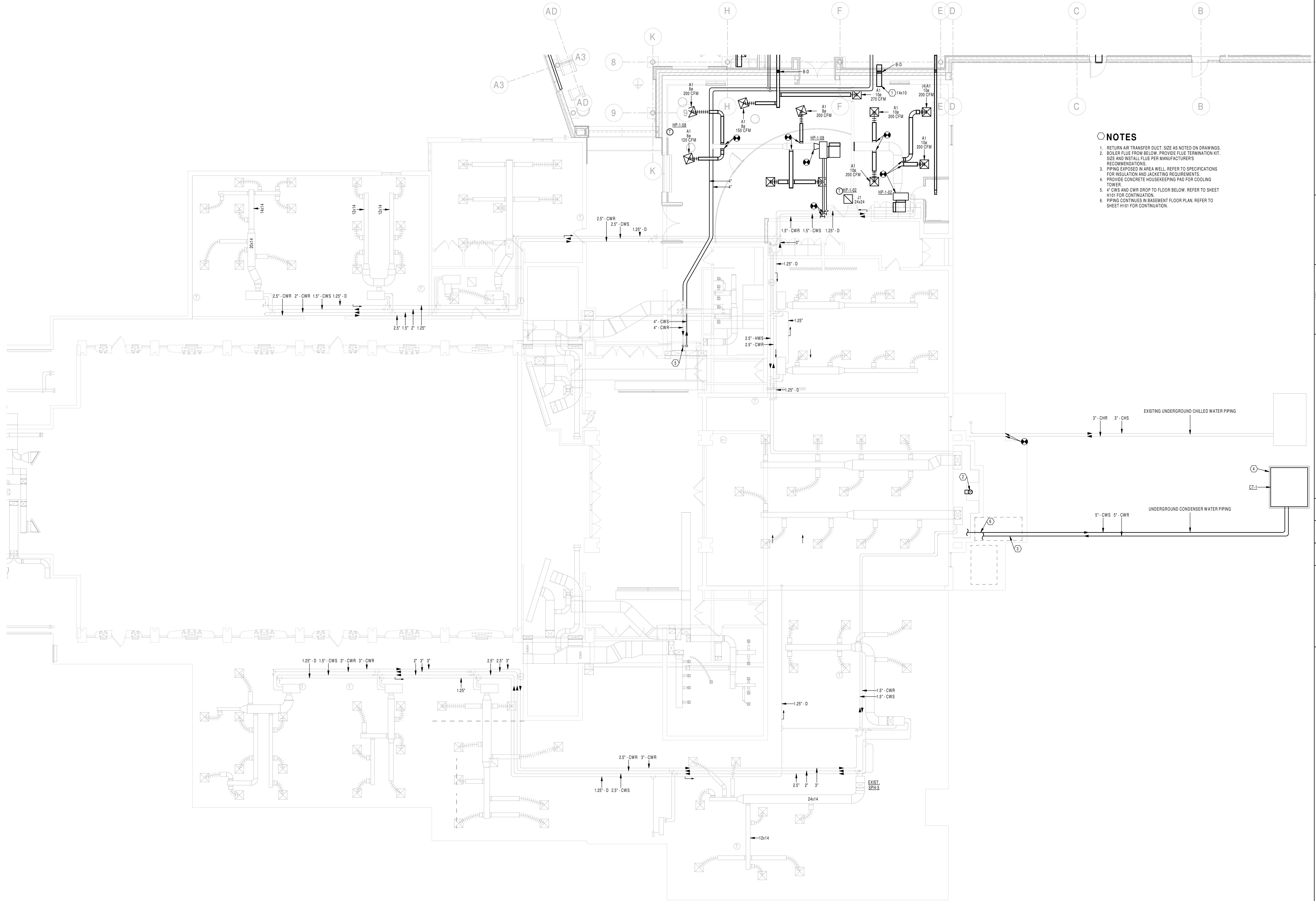
Comm. No.  
31802

NEW BLDG BASEMENT  
FLOOR PLAN - NEW  
WORK

Sheet No.

**H102**





- NOTES**
1. RETURN AIR TRANSFER DUCT. SIZE AS NOTED ON DRAWINGS.
  2. BOILER FLUE FROM BELOW. PROVIDE FLUE TERMINATION KIT. SIZE AND INSTALL FLUE PER MANUFACTURERS RECOMMENDATIONS.
  3. PIPING EXPOSED IN AREA WELL. REFER TO SPECIFICATIONS FOR INSULATION AND JACKETING REQUIREMENTS.
  4. PROVIDE CONCRETE HOUSEKEEPING PAD FOR COOLING TOWER.
  5. 4" CWS AND CWR DROP TO FLOOR BELOW. REFER TO SHEET H101 FOR CONTINUATION.
  6. PIPING CONTINUES IN BASEMENT FLOOR PLAN. REFER TO SHEET H101 FOR CONTINUATION.

**1 HVAC FIRST FLOOR**  
SCALE: 1/8" = 1'-0"

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NEW ADDITION TO  
**KETTERING SEVENTH-DAY ADVENTIST CHURCH**  
3939 Stonebridge Rd., Kettering, Ohio

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31802

EXISTING CHURCH  
FIRST FLOOR PLAN -  
NEW WORK

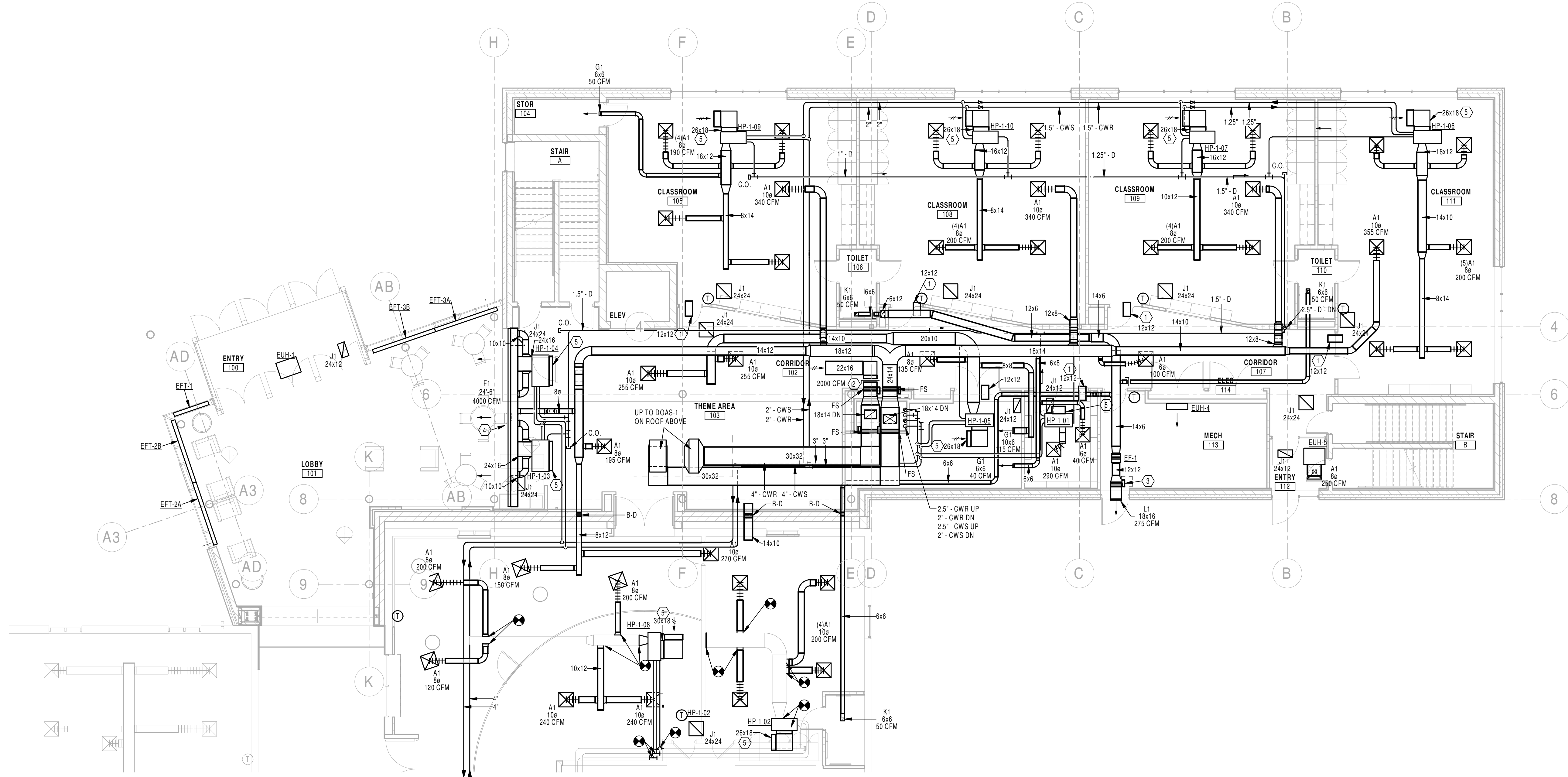
Sheet No.

**H103**



1 HVAC FIRST FLOOR

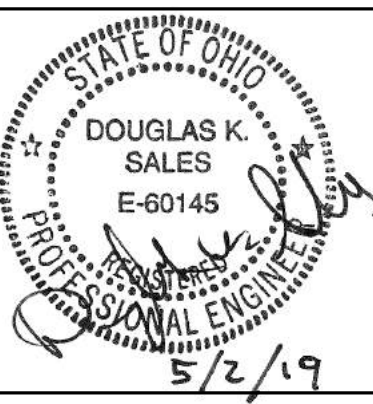
SCALE: 1/8" = 1'-0"



NOTES

1. RETURN AIR TRANSFER DUCT, SIZE AS NOTED ON DRAWINGS.
2. BALANCE TO CFM NOTED ON DRAWINGS.
3. PROVIDE MOTORIZED THERMALLY BROKEN BACKDRAFT DAMPER.
4. PROVIDE EXTRA TALL INTERNALLY LINED PLENUM FOR LINEAR FLOW BAR.
5. CONNECT RETURN DUCT TO FULL SIZE OF UNIT CONNECTION.

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BULLETIN 1

NEW ADDITION TO  
**KETTERING SEVENTH-DAY ADVENTIST  
CHURCH**  
3839 Stonebridge Rd., Kettering, Ohio

Comm. No.  
31802

NEW BLDG FIRST  
FLOOR PLAN - NEW  
WORK

Sheet No.

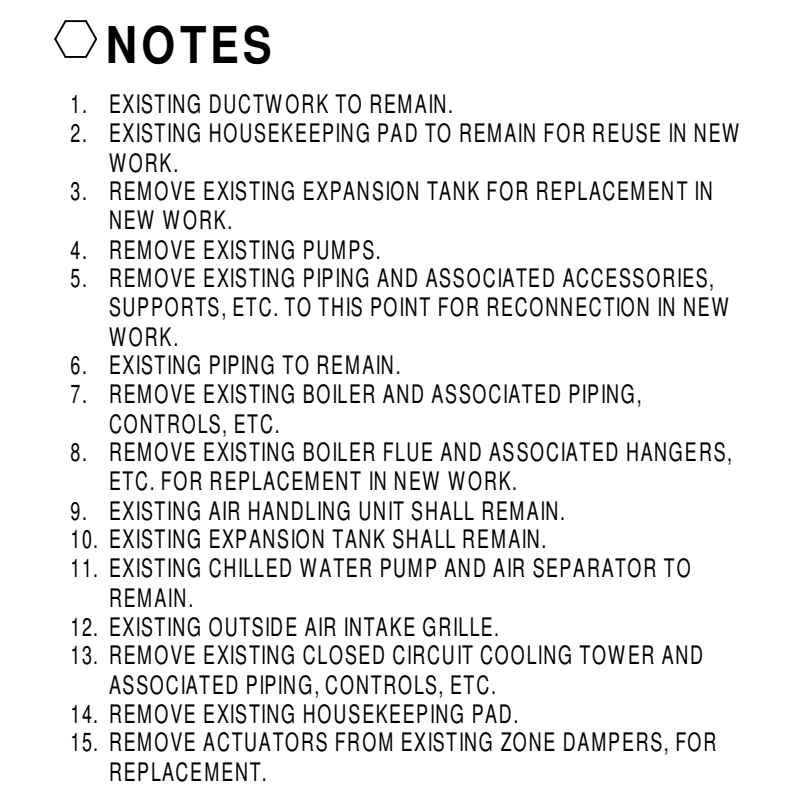
**H104**





- H105





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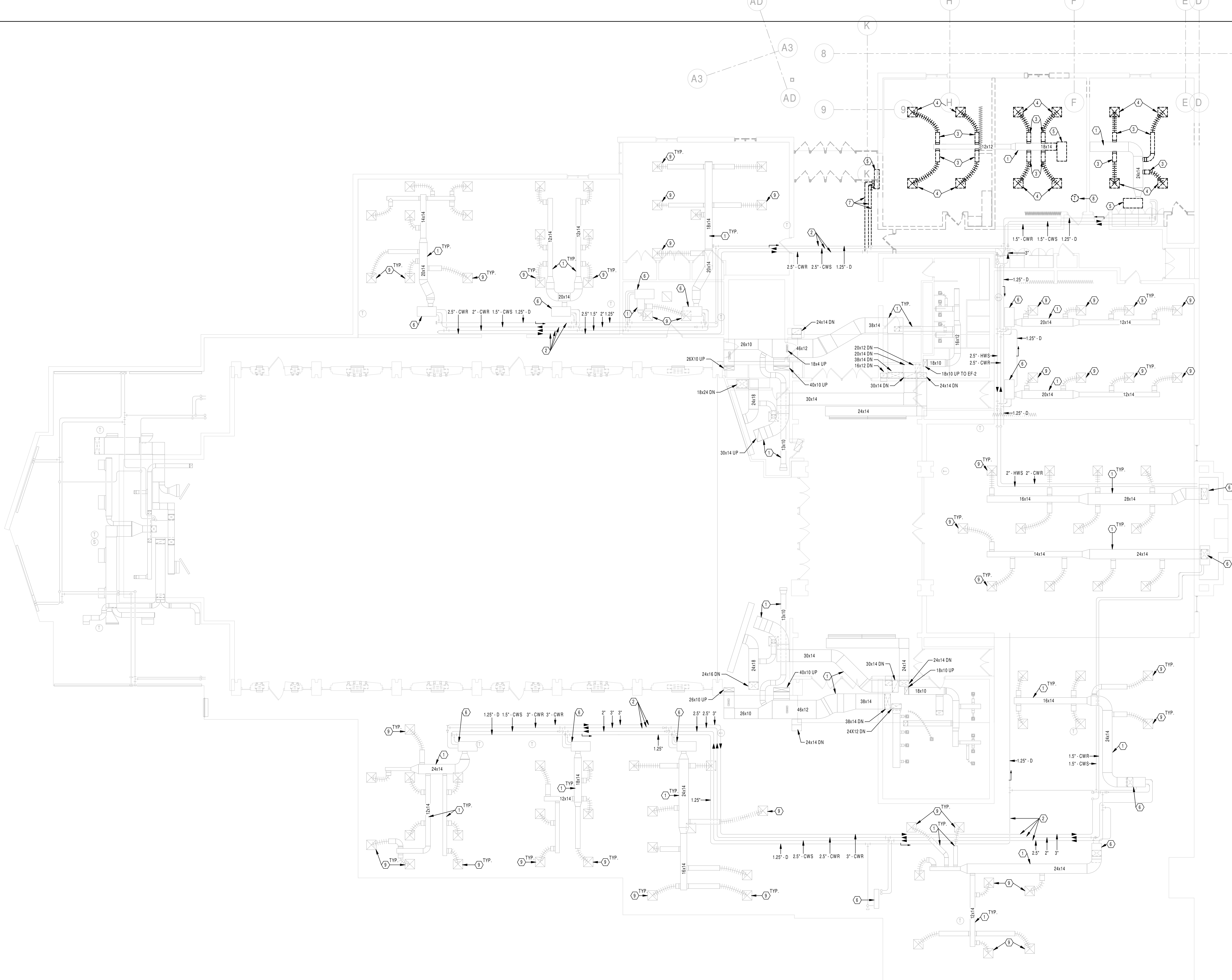
ASEMENT FLOOR  
LAN - DEMOLITION

Sheet No.  
**H106**



**1 ENLARGED BASEMENT FLOOR PLAN - DEMOLITION**  
SCALE: 1/4" = 1'-0"



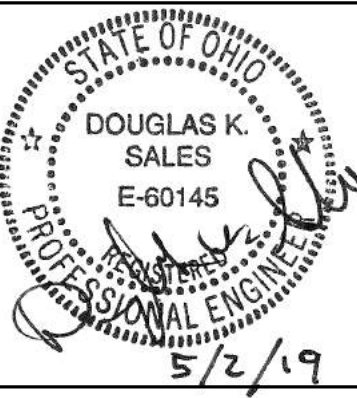


NOTES

1. EXISTING DUCTWORK TO REMAIN.
2. EXISTING PIPING TO REMAIN.
3. REMOVE EXISTING DUCTWORK AND ASSOCIATED DAMPERS, SUPPORTS, ETC.
4. REMOVE AND CLEAN EXISTING AIR DEVICE FOR REINSTALLATION IN NEW WORK.
5. CAREFULLY REMOVE EXISTING HEAT PUMP AND ASSOCIATED PIPING, CONTROLS, ETC. TURN OVER TO OWNER.
6. EXISTING HEAT PUMP TO REMAIN.
7. REMOVE EXISTING PIPING AND ASSOCIATED HANGERS, VALVES, ETC.
8. REMOVE EXISTING THERMOSTAT.
9. EXISTING AIR DEVICE TO REMAIN.

1 FIRST FLOOR PLAN - DEMOLITION  
SCALE: 1/8" = 1'-0"

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BULLETIN 1

NEW ADDITION TO  
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CHURCH**  
3939 Stonebridge Rd., Kettering, Ohio

Comm. No.  
31802

FIRST FLOOR PLAN -  
DEMOLITION

Sheet No.

**H107**



ELECTRICAL SHEET LIST		
Sheet Number		Sheet Name
E001	ELECTRICAL LEGEND	
E002	LIGHT FIXTURE SCHEDULE AND GENERAL NOTES	
E003	EXISTING SINGLE-LINE DIAGRAM	
E004	NEW SINGLE-LINE DIAGRAM	
E005	PANEL SCHEDULES	
E006	GENERAL NOTES & DETAILS	
E007	MOTOR STARTER SCHEDULE	
E100	LIGHTING NEW BASEMENT	
E101	LIGHTING NEW FIRST FLOOR	
E102	LIGHTING NEW SECOND FLOOR	
E200	POWER NEW BASEMENT	
E201	POWER EXISTING CHURCH BASEMENT FLOOR PLAN	
E202	POWER NEW FIRST FLOOR	
E203	POWER EXISTING CHURCH FIRST FLOOR PLAN - NEW WORK	
E204	POWER NEW SECOND FLOOR	
E205	POWER EXISTING CHURCH SECOND FLOOR PLAN	
E300	SERVICE SITE PLAN	
Total Count: 17		

SECURITY SYMBOLS WITH ELECTRICAL REQUIREMENTS

BR	WALL MOUNTED BIOMETRIC READER (46" MH UNLESS NOTED OTHERWISE); 2-GANG BOX WITH 0.75" CONDUIT TO COMMON SMS JUNCTION BOX ABOVE ACCESSIBLE CEILING PER DIV 28. READER AND CABLING PER DIV 28. REFER TO SECURITY ROUGH-IN DETAILS.
CC	CCTV SYSTEM WALL MOUNTED CAMERA (REFER TO CAMERA SCHEDULE FOR MOUNTING HEIGHT AND CAMERA SPECIFICATIONS). SUBSCRIPT "X" INDICATES ENTRY IN CAMERA SCHEDULE. 1-GANG BOX WITH 0.75" CONDUIT TO ABOVE ACCESSIBLE CEILING PER DIV 28. CAMERA AND CABLING PER DIV 28.
CM	WALL MOUNTED MONITOR OUTLET FOR CCTV SYSTEM (84" MH UNLESS NOTED OTHERWISE); 1-GANG BOX WITH 1" CONDUIT TO ABOVE CORRIDOR CEILING PER DIV 28. JACK, FACEPLATE AND CABLING PER DIV 28.
CR	WALL MOUNTED PROXIMITY CARD READER (46" MH UNLESS NOTED OTHERWISE); 1-GANG BOX WITH CONDUIT TO COMMON SMS JUNCTION BOX ABOVE ACCESSIBLE CEILING PER DIV 28. CARD READER AND CABLING PER DIV 28. REFER TO SECURITY ROUGH-IN DETAILS.
CR-EL	ELEVATOR CAB MOUNTED CARD READER. READER TO BE INSTALLED IN ELEVATOR CAB AS COORDINATED WITH ELEVATOR CONTRACTOR. WIRING FROM CAB THRU TRAVELING CABLE TO ELEVATOR CONTROLLER IN ELEVATOR MACHINE ROOM AND INTERFACE WITH ELEVATOR CONTROLLER AND SMS PER DIV 28. COORDINATE WITH ELEVATOR CONTRACTOR. REFER TO SECURITY ROUGH-IN DETAILS.
CR-LOC	LOCAL IP BASED 2-DOOR ACCESS CONTROL PANEL SERVING LOCAL CARD READER/SECURITY CONTROLLED DOORS. LOCATE ABOVE ADJACENT ACCESSIBLE CEILING. PROVIDE DATA DROP IN 0.75" CONDUIT TO LOCAL DATA CLOSET. EXTEND 1" CONDUIT WITH DOOR SECURITY WIRING TO LOCAL SECURITY SYSTEM JUNCTION BOX. REFER TO SECURITY ROUGH-IN DETAILS.
DM	DOOR POSITION SWITCH WITH WIRING PER DIV 28. CONDUIT PATHWAYS FROM DOOR FRAME TO COMMON SMS JUNCTION BOX ABOVE ACCESSIBLE CEILING PER DIV 28. PROVIDE ONE CONTACT FOR EACH LEAF IN MULTI-DOOR OPENINGS. REFER TO SECURITY ROUGH-IN DETAILS.
EDC	ELECTRONIC DOOR CONTROL. SUBSCRIPT "X" INDICATES SPECIFIC DOOR. REFER TO ELECTRONIC DOOR CONTROL SCHEDULE FOR REQUIREMENTS.
EL	ELECTRONIC DOOR LOCK AND INSTALLATION BY OTHERS. LOW VOLTAGE WIRING PER DIV 28. CONDUIT PATHWAYS FROM DOOR FRAME TO COMMON SMS JUNCTION BOX ABOVE ACCESSIBLE CEILING PER DIV 28. REFER TO SECURITY ROUGH-IN DETAILS.
EM	ELECTRONIC MAG LOCK AND INSTALLATION BY OTHERS. LOW VOLTAGE WIRING PER DIV 28. CONDUIT PATHWAYS FROM DOOR FRAME TO COMMON SMS JUNCTION BOX ABOVE ACCESSIBLE CEILING PER DIV 28. REFER TO SECURITY ROUGH-IN DETAILS.
ES	ELECTRONIC STRIKE AND INSTALLATION BY OTHERS. LOW VOLTAGE WIRING PER DIV 28. CONDUIT PATHWAYS FROM DOOR FRAME TO COMMON SMS JUNCTION BOX ABOVE ACCESSIBLE CEILING PER DIV 28. REFER TO SECURITY ROUGH-IN DETAILS.
HA	WALL/PEDESTAL MOUNT HANDICAP DOOR ACTUATOR BUTTON, FURNISHED BY OTHERS. BOX AS REQUIRED BY SYSTEM MANUFACTURER WITH INSTALLATION AND CONDUIT TO COMMON SMS JUNCTION BOX ABOVE ACCESSIBLE CEILING PER DIV 28. ALL LOW VOLTAGE WIRING AND INTERFACE WITH SMS AND DOOR MOTOR PER DIV 28. REFER TO SECURITY ROUGH-IN DETAILS.
HD	HANDICAP DOOR OPERATOR MOTOR ASSEMBLY BY OTHERS. 120V POWER CONNECTION AND CONDUIT FROM DOOR FRAME TO COMMON SMS JUNCTION BOX ABOVE ACCESSIBLE CEILING PER DIV 28. LOW VOLTAGE WIRING AND INTERFACE WITH SMS AND DOOR ACTUATOR BUTTONS PER DIV 28. REFER TO SECURITY ROUGH-IN DETAILS.
HO-FA	WALL/FLOOR MOUNTED ELECTROMAGNETIC DOOR HOLD OPEN WITH POWER SUPPLY INSTALLED BY OTHERS. 120V POWER AND CONNECTION, BOX AS REQUIRED BY MANUFACTURER AND CONDUIT TO COMMON SMS JUNCTION BOX ABOVE ACCESSIBLE CEILING PER DIV 28. LOW VOLTAGE WIRING FROM POWER SUPPLY TO HOLD OPEN AND INTERFACE WITH SMS PER DIV 28. SUBSCRIPT "FA" INDICATES DEVICES POWERED FROM FIRE ALARM SYSTEM AND INTERFACE FROM SMS TO FIRE ALARM SYSTEM REQUIRED FOR DOOR RELEASE PER DIV 28. REFER TO SECURITY ROUGH-IN DETAILS.
IC	WALL MOUNTED INTERCOM DOOR STATION (46" MH UNLESS NOTED OTHERWISE); 1-GANG BOX WITH 0.75" CONDUIT TO ABOVE ACCESSIBLE CEILING PER DIV 28. INTERCOM AND CABLING PER DIV 28.
IB	SECURITY SYSTEM JUNCTION BOX TO BE LOCATED ABOVE ACCESSIBLE CEILING (MIN 6"X6"X4"). ROUTE LOCAL DOOR SECURITY WIRING CONDUITS RACEWAYS TO JUNCTION BOX. EXTEND 1" CONDUIT WITH DOOR SECURITY WIRING TO LOCAL 2-DOOR CONTROL PANEL/REMOTE DOOR CONTROL PANEL AS INDICATED ON DRAWINGS. REFER TO SECURITY ROUGH-IN DETAILS.
X	WALL MOUNTED SECURITY KEYPAD ENTRY STATION (46" MH UNLESS NOTED OTHERWISE); 1-GANG BOX WITH 0.75" CONDUIT TO COMMON SMS JUNCTION BOX ABOVE ACCESSIBLE CEILING PER DIV 28. KEYPAD AND CABLING PER DIV 28.
KC	WALL MOUNTED COMBINATION KEYPAD/CARD READER (46" MH UNLESS NOTED OTHERWISE); 2-GANG BOX WITH 0.75" CONDUIT TO COMMON SMS JUNCTION BOX ABOVE ACCESSIBLE CEILING PER DIV 28. DEVICE AND CABLING PER DIV 28.
LB	ELECTRONIC LATCH BOLT MONITORING. HARDWARE AND INSTALLATION BY OTHERS. LOW VOLTAGE WIRING PER DIV 28. CONDUIT PATHWAYS FROM DOOR FRAME TO COMMON SECURITY JUNCTION BOX ABOVE CEILING PER DIV 28. REFER TO SECURITY ROUGH-IN DETAILS.
MD	CEILING MOUNTED MOTION DETECTOR. 1-GANG BOX MOUNTED IN CEILING PER DIV 28. DETECTOR AND CABLING PER DIV 28.
MO	WALL MOUNTED MOTION DETECTOR (80" MH UNLESS NOTED OTHERWISE); 1-GANG BOX WITH 0.75" CONDUIT TO ABOVE ACCESSIBLE CEILING PER DIV 28. MOTION DETECTOR, WALL MOUNT HARDWARE, AND CABLING PER DIV 28.
MC	CEILING MOUNTED SECURITY SYSTEM AUDIO MICROPHONE. 1-GANG BOX MOUNTED IN CEILING PER DIV 28. MICROPHONE AND CABLING PER DIV 28.
PB-W	WALL MOUNTED PUSH BUTTON FOR LOCAL ELECTRONIC DOOR RELEASE (46" MH UNLESS NOTED OTHERWISE); 1-GANG BOX WITH 1.5" CONDUIT TO ABOVE ACCESSIBLE CEILING PER DIV 28. BUTTON AND CABLING PER DIV 28.
FL	SITE POLE FOR MOUNTING SECURITY CAMERAS (REFER TO SPECIFICATIONS FOR SIZE/TYPE). PROVIDE POLE WITH CONCRETE BASE AS INDICATED ON PLANS. EXTEND AND CONNECT TO SITE CONDUIT SYSTEM AS INDICATED ON PLANS. PROVIDE NEMA 3R JUNCTION BOX AT BASE OF POLE FOR CAMERA EQUIPMENT (120V POWER SUPPLY, FIBER CONVERTERS, ETC.). REFER TO SECURITY ROUGH-IN DETAILS.
PT-W	WALL MOUNTED PANIC/DURESS BUTTON (46" MH UNLESS NOTED OTHERWISE); 1-GANG BOX WITH 0.75" CONDUIT TO ABOVE ACCESSIBLE CEILING PER DIV 28. BUTTON AND CABLING PER DIV 28.
PS-X	LOCAL LOW VOLTAGE POWER SUPPLY FOR EXTERIOR CAMERA. SUBSCRIPT "X" INDICATES ASSOCIATED CAMERA. 120V POWER INTO LOCAL JUNCTION BOX ABOVE CEILING AND CONNECTION TO POWER SUPPLY PER DIV 28. POWER SUPPLY MOUNTED ABOVE CEILING AND LOW VOLTAGE WIRING TO LOCAL CAMERA PER DIV 28.
EX	REQUEST TO EXIT SWITCH IN DOOR HARDWARE BY OTHERS. LOW VOLTAGE WIRING PER DIV 28. CONDUIT PATHWAYS FROM DOOR FRAME TO COMMON SMS JUNCTION BOX ABOVE ACCESSIBLE CEILING PER DIV 28. REFER TO SECURITY ROUGH-IN DETAILS.
X	WALL MOUNTED SECURITY SYSTEM WIRING OUTLET MOUNTED BELOW COUNTER TOP. 2-GANG BOX WITH 2.5" CONDUITS TO COMMON SMS JUNCTION BOX ABOVE ACCESSIBLE CEILING PER DIV 28. GROMMETED FACEPLATE AND SECURITY SYSTEM CABLING PER DIV 28.

ELECTRICAL SYMBOLS

	DASH SYMBOL INDICATES PARTICULAR OUTLET OR DEVICE TO BE REMOVED AND CIRCUITRY MADE CONTINUOUS WHERE REQUIRED.
	EXISTING OUTLET OR DEVICE TO REMAIN. MAINTAIN EXISTING CIRCUITING.
	ELECTRICAL CONNECTION.
	20A-125V DUPLEX RECEPTACLE, NEMA 5-20R (18" MH UNLESS NOTED OTHERWISE). WHEN (O) SHOWN, RECEPTACLE TO HAVE "CONTROLLED" MARKINGS.
	20A-125V SINGLE RECEPTACLE, NEMA 5-20R (18" MH UNLESS NOTED OTHERWISE).
	SPECIAL PURPOSE RECEPTACLE. REFER TO NOTE ON PLAN.
	20A-125V DOUBLE DUPLEX RECEPTACLE, NEMA 5-20R, (18" MH UNLESS NOTED OTHERWISE) TWO GANG ASSEMBLY.
	20A-125V DUPLEX RECEPTACLE, NEMA 5-20R WITH BOTTOM OUTLET CONTROLLED BY WALL SWITCH. (18" MH UNLESS NOTED OTHERWISE).
	20A-125V DUPLEX RECEPTACLE, NEMA 5-20R (46" MH UNLESS NOTED OTHERWISE).
	20A-125V WEATHERPROOF DUPLEX RECEPTACLE, NEMA 5-20R (HORIZONTAL 18" MH UNLESS NOTED OTHERWISE) WITH TAYMAC MM420G EXTRA DUTY GRAY COVER, VERTICAL MOUNT.
	20A-125V WEATHERPROOF DUPLEX RECEPTACLE, NEMA 5-20R WITH GROUND FAULT CIRCUIT INTERRUPTER (18" MH UNLESS NOTED OTHERWISE).
	20A-125V DUPLEX RECEPTACLE, NEMA 5-20R, ON EMERGENCY POWER (18" MH UNLESS NOTED OTHERWISE).
	20A-125V POWERLOCK GROUNDING TYPE RECEPTACLE, HOSPITAL USE (86" MH UNLESS NOTED OTHERWISE).
	20A-125V DUPLEX RECEPTACLE, NEMA 5-20R, IN HUBBELL BA-2527 FLOOR BOX WITH SA-2525 COVERPLATE AND SC-3091 MOUNTING. PROVIDE CARPET FLANGE WHERE REQUIRED.
	FLOOR BOX. # INDICATES TYPE. REFER TO FLOOR BOX (F) SCHEDULE. IF NO #, PROVIDE HUBBELL BA-2527 FLUSH FLOOR BOX WITH ROUND SA-3925 COVERPLATE AND ONE 20A-125V DUPLEX RECEPTACLE. PROVIDE CARPET FLANGE WHERE REQD.
	FIRE RATED POKE-THRU, # INDICATES TYPE, REFER TO POKE-THRU (PT) SCHEDULE. IF NO #, PROVIDE HUBBELL 6 INCH RECESSED ACCESS POKE-THRU WITH TWO 20A-125V DUPLEX RECEPTACLES. PROVIDE CARPET FLANGE WHERE REQD.
	20-125V DUPLEX RECEPTACLE, NEMA 5-20R, WITH ISOLATED GROUND (18" MH UNLESS NOTED OTHERWISE).
	20A-125/250V-1PH-4W SINGLE RECEPTACLE, NEMA 14-30R (18" MH UNLESS NOTED OTHERWISE).
	20A-125/250V-1PH-4W SINGLE RECEPTACLE, NEMA 14-30R (18" MH UNLESS NOTED OTHERWISE).
	50A-125/250V-1PH-4W SINGLE RECEPTACLE, NEMA 14-50R (18" MH UNLESS NOTED OTHERWISE).
	20A-250V-3PH-4W SINGLE RECEPTACLE, NEMA 15-20R (18" MH UNLESS NOTED OTHERWISE).
	30A-250V-3PH-4W SINGLE RECEPTACLE, NEMA 15-30R (18" MH UNLESS NOTED OTHERWISE).
	50A-250V-3PH-4W SINGLE RECEPTACLE, NEMA 15-50R (18" MH UNLESS NOTED OTHERWISE).
	JUNCTION BOX.
	MULTI-OUTLET RECEPTACLES ASSEMBLY, NEMA 5-15R (SINGLE OUTLETS ON 18" CENTERS) (46" MH UNLESS NOTED OTHERWISE).
	WIEMOLD RACEWAY, AS NOTED ON PLANS.
	CLOCK HANGER OUTLET, SINGLE NEMA 5-15R RECESSED IN COVER PLATE (84" MH UNLESS NOTED OTHERWISE).
	SINGLE POLE SWITCH (46" MH UNLESS NOTED OTHERWISE).
	TWO POLE WALL SWITCH (46" MH UNLESS NOTED OTHERWISE).
	MULTI-WAY WALL SWITCH, # INDICATES NUMBER OF WAYS (46" MH UNLESS NOTED OTHERWISE).
	SWITCH WITH NEON PILOT LIGHT. ONE-GANG ASSEMBLY (46" MH UNLESS NOTED OTHERWISE).
	KEY OPERATED WALL SWITCH (46" MH UNLESS NOTED OTHERWISE).
	LOW-VOLTAGE MOMENTARY WALL SWITCH (46" MH UNLESS NOTED OTHERWISE).
	LIGHTING DIMMER SWITCH (46" MH UNLESS NOTED OTHERWISE) 1000 WATTS UNLESS OTHERWISE INDICATED.
	SWITCH WITH RECEPTACLE (46" MH UNLESS NOTED OTHERWISE) STANDARD TWO-GANG ASSEMBLY OF SWITCH AND RECEPTACLE.
	FLUSH FRACTIONAL HORSEPOWER MOTOR STARTER WITH NEON PILOT LIGHT. ONE-GANG ASSEMBLY (46" MH UNLESS NOTED OTHERWISE).
	HP RATED WALL SWITCH (46" MH UNLESS NOTED OTHERWISE).
	ELECTRICAL PANEL OR SWITCHBOARD PER DRAWINGS.
	PULL BOX.
	DISCONNECT SWITCH.
	MOTOR STARTER.
	COMBINATION MOTOR STARTER AND DISCONNECT SWITCH.
	ELECTRIC MOTOR.
	UNIT HEATER.
	FAN COIL.
	AIR CONDITIONER.
	CONDENSING UNIT.
	UNIT VENTILATOR.
	CORD REEL.
	POWER POLE.
	LINE VOLTAGE THERMOSTAT.
	DUCT HEATER.
	ELECTRIC BASEBOARD HEATER.
	INTERCOM SYSTEM DESK MOUNTED MASTER CONTROL STATION. SUBSCRIPT "W" INDICATES WALL MOUNT (46" MH UNLESS NOTED OTHERWISE).
	INTERCOM STAFF STATION (46" MH UNLESS NOTED OTHERWISE).
	INTERCOM HORN TYPE SPEAKER (84" MH UNLESS NOTED OTHERWISE).
	INTERCOM SPEAKER FLUSH MOUNT IN CEILING.
	PUSHBUTTON (46" MH UNLESS NOTED OTHERWISE) EDWARDS 852 (120 VOLT).
	BUZZER (80" MH UNLESS NOTED OTHERWISE) EDWARDS 340-A (120 VOLT).
	4" DIAMETER (80" MH UNLESS NOTED OTHERWISE) EDWARDS "ADAPTABLE" (120 VOLT).
	ELAPSED TIME INDICATOR CLOCK (80" MH UNLESS NOTED OTHERWISE) WITH RESET SWITCH (46" MH UNLESS NOTED OTHERWISE).
	PHOTOELECTRIC SENSOR.
	LIGHTING CONTACTOR.
	CEILING MOUNTED OCCUPANCY SENSOR.
	WALL MOUNTED OCCUPANCY SENSOR.
	CEILING MOUNTED DAYLIGHT SENSOR.
	OCCUPANCY SENSOR POWER PACK.

FIRE ALARM SYMBOLS

	FIRE ALARM CONTROL PANEL.
	REMOTE ANNUNCIATOR PANEL.
	NOTIFICATION APPLIANCE CIRCUIT EXTENDER PANEL.
	AIR SAMPLING SMOKE DETECTOR BASE UNIT.
	FIRE ALARM SPEAKER & SIGNAL LIGHT (80" AFF). # WHEN SHOWN INDICATES CANDELA RATING OF STROBE. WHEN # IS NOT SHOWN, THE STROBE SHALL BE RATED 15 CANDELA IN CORRIDORS AND 30 CANDELA FOR ALL OTHER LOCATIONS.
	FIRE ALARM BELL'S SIGNAL LIGHT (80" AFF). # WHEN SHOWN INDICATES CANDELA RATING OF STROBE. WHEN # IS NOT SHOWN, THE STROBE SHALL BE RATED 15 CANDELA IN CORRIDORS AND 30 CANDELA FOR ALL OTHER LOCATIONS.
	FIRE ALARM HORN & SIGNAL LIGHT (80" AFF). # WHEN SHOWN INDICATES CANDELA RATING OF STROBE. WHEN # IS NOT SHOWN, THE STROBE SHALL BE RATED 15 CANDELA IN CORRIDORS AND 30 CANDELA FOR ALL OTHER LOCATIONS.
	FIRE ALARM BELL (80" AFF UNLESS NOTED OTHERWISE). SUBSCRIPT "W" INDICATES EXTERIOR WEATHERPROOF UNIT.
	FIRE ALARM SIGNAL LIGHT (80" AFF). # WHEN SHOWN INDICATES CANDELA RATING OF STROBE. WHEN # IS NOT SHOWN, THE STROBE SHALL BE RATED 15 CANDELA IN CORRIDORS AND 30 CANDELA FOR ALL OTHER LOCATIONS.
	CEILING MOUNTED FIRE ALARM SPEAKER & SIGNAL LIGHT. # WHEN SHOWN INDICATES CANDELA RATING OF STROBE. WHEN # IS NOT SHOWN, THE STROBE SHALL BE RATED 15 CANDELA IN CORRIDORS AND 30 CANDELA FOR ALL OTHER LOCATIONS.
	CEILING MOUNTED FIRE ALARM SIGNAL LIGHT. # WHEN SHOWN INDICATES CANDELA RATING OF STROBE. WHEN # IS NOT SHOWN, THE STROBE SHALL BE RATED 15 CANDELA IN CORRIDORS AND 30 CANDELA FOR ALL OTHER LOCATIONS.
	CEILING MOUNTED FIRE ALARM SPEAKER (80" AFF). SUBSCRIPT "R" INDICATES RECESSED MOUNTING.
	FIRE ALARM MANUAL STATION (46" MH UNLESS NOTED OTHERWISE). SUBSCRIPT "K" INDICATES KEY OPERATED.
	CEILING MOUNTED SMOKE DETECTOR.
	CEILING MOUNTED HEAT DETECTOR.
	DUCT MOUNTED SMOKE DETECTOR. SUBSCRIPT "S" INDICATES SUPPLY. SUBSCRIPT "R" INDICATES RETURN.
	DUCT MOUNTED HEAT DETECTOR. SUBSCRIPT "S" INDICATES SUPPLY. SUBSCRIPT "R" INDICATES RETURN.
	BEAM DETECTOR. SUBSCRIPT "T" INDICATES TRANSMITTER FUNCTION. SUBSCRIPT "R" INDICATES RECEIVER FUNCTION.
	ELECTRIC RELEASE DOOR CLOSER.
	ELECTRO-MAGNETIC DOOR HOLDER.
	WATER FLOW SWITCH.
	VALVE SUPERVISORY SWITCH.
	CEILING MOUNTED REMOTE TEST STATION AND ALARM INDICATOR LIGHT FOR DUCT DETECTOR. SUBSCRIPT "W" INDICATES WALL MOUNTED.
	SMOKE DAMPER.
	FIRE FIGHTER'S TELEPHONE (80" MH UNLESS NOTED OTHERWISE).
	PRESSURE SWITCH.
	ADDRESSABLE MODULE. SUBSCRIPT "I" INDICATES INPUT. SUBSCRIPT "C" INDICATES CONTROL.
	POST INDICATOR VALVE.
	KNOX BOX (46" MH UNLESS NOTED OTHERWISE). SUBSCRIPT "S" INDICATES SUPERVISED UNIT.
	AIR SAMPLING SMOKE DETECTOR SAMPLING PORT.

ABBREVIATIONS

AAP	- AREA ALARM PANEL - MEDICAL GAS	HC	- HVAC CONTRACTOR (DIVISION 23)
ACC	- ACCESS	HP	- HORSE POWER OR HIGH POINT
ADJ	- ADJUSTABLE	HVAC	- HEATING, VENTILATING, AND AIR CONDITIONING
AF	- ARC FAULT CIRCUIT INTERRUPTER	ID	- INSIDE DIAMETER
AFCI	- ARC FAULT CIRCUIT INTERRUPTER	IN	- INCHES
AFI	- ABOVE FINISHED FLOOR TO BOTTOM OF ITEM	KEC	- KITCHEN EQUIPMENT CONTRACTOR
AFG	- ABOVE FINISHED GRADE TO BOTTOM OF ITEM	KEC	- KITCHEN EQUIPMENT CONTRACTOR
ALT	- ALTERNATE	L	- LENGTH
AP	- ACCESS PANEL	LBS	- POUNDS
APPROX	- APPROXIMATE	MAP	- MASTER ALARM PANEL (MEDICAL GAS)
ARCH	- ARCHITECT OR ARCHITECTURAL	MAX	- MAXIMUM
ASST	- ASSEMBLY	MEZZ	- MEZZANINE
ATS	- AUTOMATIC TRANSFER SWITCH	MFR	- MANUFACTURER
BDG	- BUILDING	MH	- MANHOLE OR MOUNTING HEIGHT TO CENTER LINE OF ITEM
BOE	- BOTTOM OF EQUIPMENT	MIN	- MINIMUM OR MINUTE
BOT	- BOTTOM	MISC	- MISCELLANEOUS
BTWN	- BETWEEN	MTD	- MOUNTED
CFCI	- CONTRACTOR FURNISHED CONTRACTOR INSTALLED	NTG	- MOUNTING
CKT	- CIRCUIT	NG	- NOT IN CONTRACT
CLG	- CEILING	NOM	- NOMINAL
CMU	- CONCRETE MASONRY UNIT	NTS	- NOT TO SCALE
CONN	- CONNECT OR CONNECTION	OCFI	- OWNER FURNISHED CONTRACTOR INSTALLED
CONTR	- CONTRACTOR	OFOI	- OWNER FURNISHED OWNER INSTALLED
CORR	- CORRIDOR	PC	- PLUMBING CONTRACTOR (DIVISION 22)
CTR	- CENTER	PLBG	- PLUMBING
D	- DEPTH	RAD	- RADIUS
DET	- DETAIL	REC	- RECESSED
DIA	- DIAMETER	REQD	- REQUIRED
DIM	- DIMENSION	RI	- ROUGH-IN
DIV	- DIVISION	S	- SURFACE MOUNTED
DN	- DOWN	SC	- SECURITY CONTRACTOR
DWG	- DRAWING	SCH	- SCHEDULE
EA	- EACH	SHT	- SHEET
EC	- ELECTRICAL CONTRACTOR (DIVISION 26)	SMS	- SECURITY MANAGEMENT SYSTEM
EJ	- EXPANSION JOINT	SPEC	- SPECIFICATIONS
ELEC	- ELECTRICAL	SO	- SQUARE
ELEV	- ELEVATION OR ELEVATOR	SS	- STAINLESS STEEL
EM	- EMERGENCY	STD	- STANDARD
EQ	- EQUAL	STRUC	- STRUCTURAL OR STRUCTURE
EQS	- EQUIPMENT SUPPLIER	SUC	- SITE UTILITY CONTRACTOR
EQUIP	- EQUIPMENT	TC	- TECHNOLOGY CONTRACTOR
ETR	- EXISTING TO REMAIN	TEMP	- TEMPERATURE
EX	- EXISTING	TOE	- TOP OF EQUIPMENT
EXP	- EXPANSION	TYP	- TYPICAL
EXT	- EXTERIOR	UNO	- UNLESS NOTED OTHERWISE
FCE	- FIRE CONTROL EQUIPMENT	VFD	- VARIABLE FREQUENCY DRIVE
FF	- FINISHED FLOOR ELEVATION	VOL	- VOLUME
FLR	- FLOOR	W	- WITH
FT	- FEET	WO	- WITHOUT
FTG	- FOOTING	WP	- WEATHERPROOF
GC	- GENERAL CONTRACTOR	ZVC	- ZONE VALVE CABINET
GF	- GROUND FAULT CIRCUIT INTERRUPTER		
GFOI	- GROUND FAULT CIRCUIT INTERRUPTER OR GOVERNMENT FURNISHED CONTRACTOR INSTALLED		
GFFT	- GROUND FAULT FEED THRU		

GENERAL FLOOR PLAN NOTES

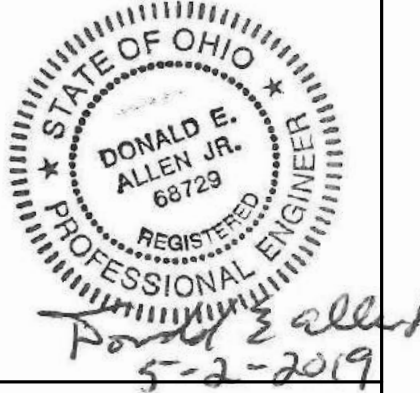
	DETAIL: B = DETAIL DESIGNATION E2 = SHEET WHERE DETAIL IS LOCATED
	SECTION: 1 = SECTION DESIGNATION E2 = SHEET WHERE SECTION IS LOCATED
	ELEVATION: 1 = ELEVATION DESIGNATION T2 = SHEET WHERE ELEVATION IS LOCATED
	PLAN NOTE. APPLIES ONLY TO THE SHEET WHICH IT IS SHOWN.
	DETAIL NOTE. APPLIES ONLY TO THE ASSOCIATED DETAIL.
	LADDER TRAY, 12" x 4" DEEP UNLESS NOTED OTHERWISE.
	CABLE TRAY, 12" x 4" DEEP UNLESS NOTED OTHERWISE.
	WIRE & CONDUIT IN WALL OR ABOVE CEILING.
	WIRE & CONDUIT IN OR BELOW SLAB OR GRADE.
	CONDUIT TO BE REMOVED.
	EXISTING WIRE & CONDUIT TO REMAIN.
	CONDUIT FOR DATA CIRCUITRY.
	WIRE & CONDUIT FOR EMERGENCY CIRCUITRY.
	WIRE & CONDUIT FOR FIRE ALARM CIRCUITRY.
	WIRE & CONDUIT FOR INTERCOM SYSTEM CIRCUITRY.
	WIRE & CONDUIT FOR NURSE CALL CIRCUITRY.
	WIRE & CONDUIT FOR NIGHT LIGHT CIRCUITRY.
	CONDUIT FOR PHONE CIRCUITRY.
	WIRE & CONDUIT FOR SOUND SYSTEM CIRCUITRY.
	WIRE & CONDUIT FOR SECURITY SYSTEM CIRCUITRY.
	WIRE & CONDUIT FOR TELEVISION SYSTEM CIRCUITRY.
	WIRE RUN IN SURFACE WIREWAY.
	CABLE MANAGEMENT SYSTEM PATHWAY.
	EACH ARROWHEAD REPRESENTS ONE COMPLETE CIRCUIT. "X" DENOTES PANEL NAME, NUMBER(S) DENOTES CIRCUIT(S).

NOTE: ALL SYMBOLS AND ABBREVIATIONS ARE SUBJECT TO MODIFICATIONS ON OTHER DRAWINGS.

ALL SYMBOLS OR ABBREVIATIONS MIGHT NOT NECESSARILY BE USED ON THIS PROJECT.

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BULLETIN 1

NEW ADDITION TO  
KETTERING SEVENTH-DAY ADVENTIST  
CHURCH  
3939 Stonebridge Rd., Kettering, Ohio

Comm. No.  
31802

ELECTRICAL LEGEND

Sheet No.

E001

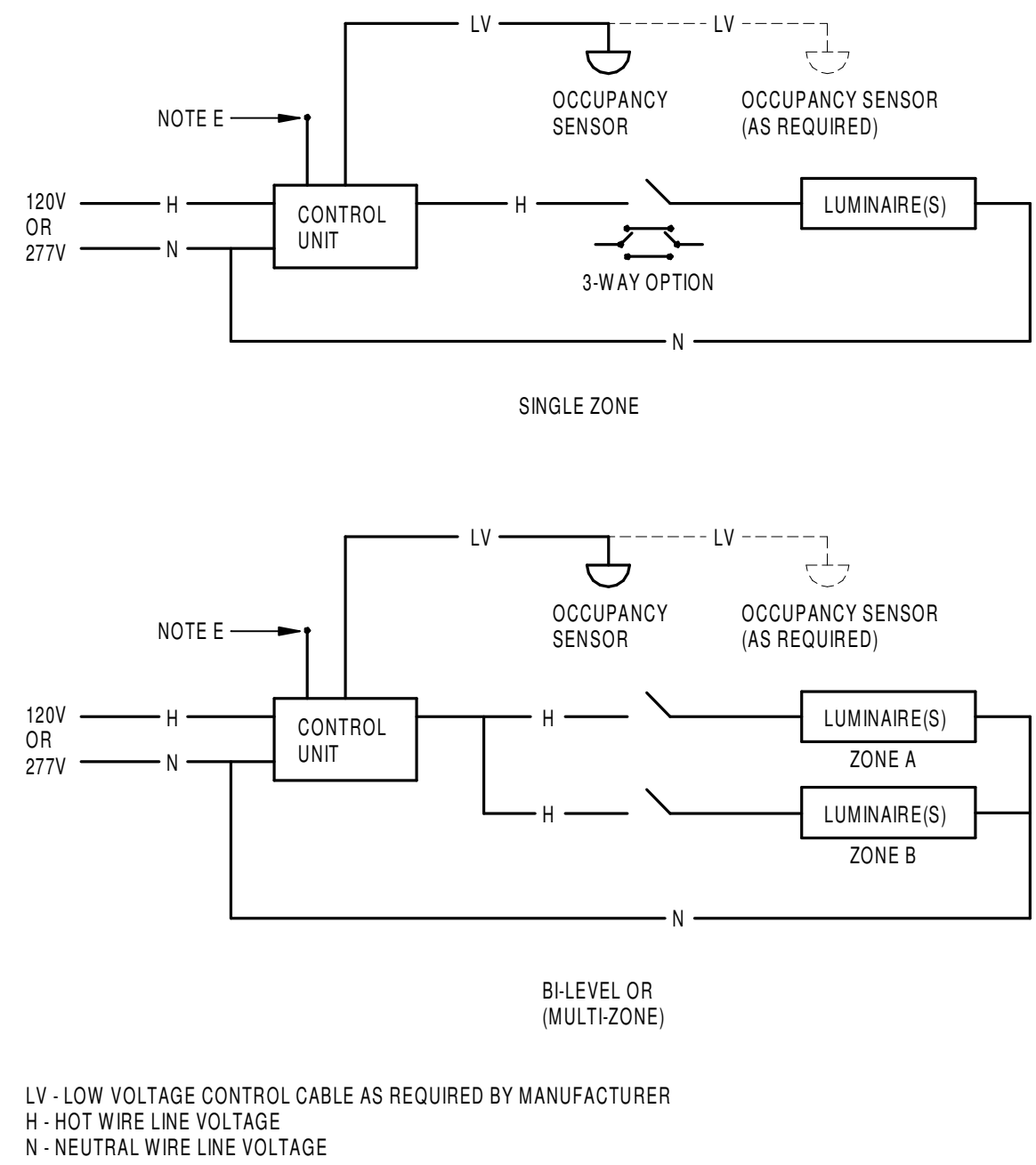




LUMINAIRES																						
MARK	QUANTITY	LED	WATTS / LAMP	VA / LINEAR FOOT	CATALOG NO.	DELIVERED LUMENS	COLOR	LOAD (VA)	FIXTURE VOLTAGE	MANUFACTURER	CATALOG NO.	DESCRIPTION	OTHER ACCEPTABLE MANUFACTURERS	DIFFUSING MEDIA	TRIM COLOR	MOUNTING	SIZE					SEE NOTE
A1	1	90			INTEGRAL	7000	3500K	90	120.00	ALW LIGHTING	RPD04P1-5-3500-010VS-BAL-UNV	5' VERTICAL PENDANT		OPAL ACRYLIC	WHITE BLACK • BRONZE	S-SURFACE R-RECESSED PM-POLE MTD WM-WALL MTD C-CHAIN MTD UC-UNDER-CAB CS-CELL SURFACE	3"	DIAMETER	WIDTH	LENGTH	DEPTH	2,3,4,5,6
B2	1	0			INTEGRAL	5694	4000K	39	120.00	COLUMBIA	LCA724-40MLG-E D1U		LITHONIA, DAYBRITE	LINEAR BASKET	•	R		2' - 0"	4' - 0"	4"		
B2E	1	0			INTEGRAL	5694	4000K	39	120.00	COLUMBIA	LCA724-40MLG-E D1U-ELL14		LITHONIA, DAYBRITE	LINEAR BASKET	•	R		2' - 0"	4' - 0"	4"		
C1	1	9			INTEGRAL	366	3000K	9		TECH LIGHTING	700WSLNG-X-LED 930	DECORATIVE WALL SCONCE					6"		4' - 0"	5.5"	7	
D1	1				INTEGRAL	4614	4000K	38	120.00	COLUMBIA	MPS4-40-ML-C-W-ED1-U		LITHONIA, DAYBRITE	ACRYLIC		C		0' - 3"				
D1E	1				INTEGRAL	4614	4000K	38	120.00	COLUMBIA	MPS4-40-ML-C-W-ED1-U-ELL14		LITHONIA, DAYBRITE	ACRYLIC		C		0' - 3"	4' - 0"			
F1	1	0			INTEGRAL	1110	4000K	21	120.00	LITHONIA	LDN6-40/15-L06-L SS-MVOLT		PERSCOLITE, COLUMBIA	CLEAR SEMI-SPECULAR REFLECTOR	•	R	6"					
F2	1	0			INTEGRAL	1110	4000K	21	120.00	LITHONIA	LDN6-40/15-L06-L SS-MVOLT-EL		PERSCOLITE, COLUMBIA	CLEAR SEMI-SPECULAR REFLECTOR	•	R	6"					
PL-1	1	34				2,817	3000K	34	120.00	VISIONAIRE LIGHTING	C-BOW-2 10' T3 32LC 350 3K UNV AB BK	10' POLE LIGHT W/T3 OPTICS			•	PM - 4" SQUARE POLE		0' - 4"	1' - 10"		2.5	
PL-2	1	199				28,705	4000K	199	120.00	VISIONAIRE LIGHTING	BLK-II-4-T3-128AR-5-4K-UNV-KM-BLK	25' POLE LIGHT W/T3 OPTICS			•	PM-POLE#RNTS SR 11 G 25' 128C 136 1238R BK		1' - 5"	3' - 1"		1,2,3,4	
RT		35			INTEGRAL	2803	4000K	35	120.00	INDY	MSS30-3LH-XX-30 LM-40K-120-G3-ZT WH	CLOSED 3 HEAD LED UNIT				CS		0' - 11"	2' - 3"		2.7	
S1	1				INTEGRAL	2255	4000K	19	120.00	LITHONIA	WL4-20L-EZ1-LP84 0		PHILLIPS, COLUMBIA		•	S		0' - 5"	3' - 10"			
EM X1	2							0	120.00	DUAL LITE LITHONIA	EV-2-I EDG-1-RMR-EL	EMERGENCY WALL PACK SINGLE SIDED EXIT SIGN W/INTEGRAL EGRESS LIGHTS	PHILIPS, DUAL-LITE	SINGLE STENCIL FACE-RED LETTER		•	CS/WM		0' - 5"	1' - 1"		
X2	2							0	120.00	LITHONIA	EDG-2-RMR-EL	DOUBLE SIDED EXIT SIGN W/INTEGRAL EGRESS LIGHTS	PHILIPS, DUAL-LITE	DOUBLE STENCIL FACE-RED LETTER		•	CS/WM		0' - 9"	1' - 1"		

○ LUMINAIRE SCHEDULE NOTES

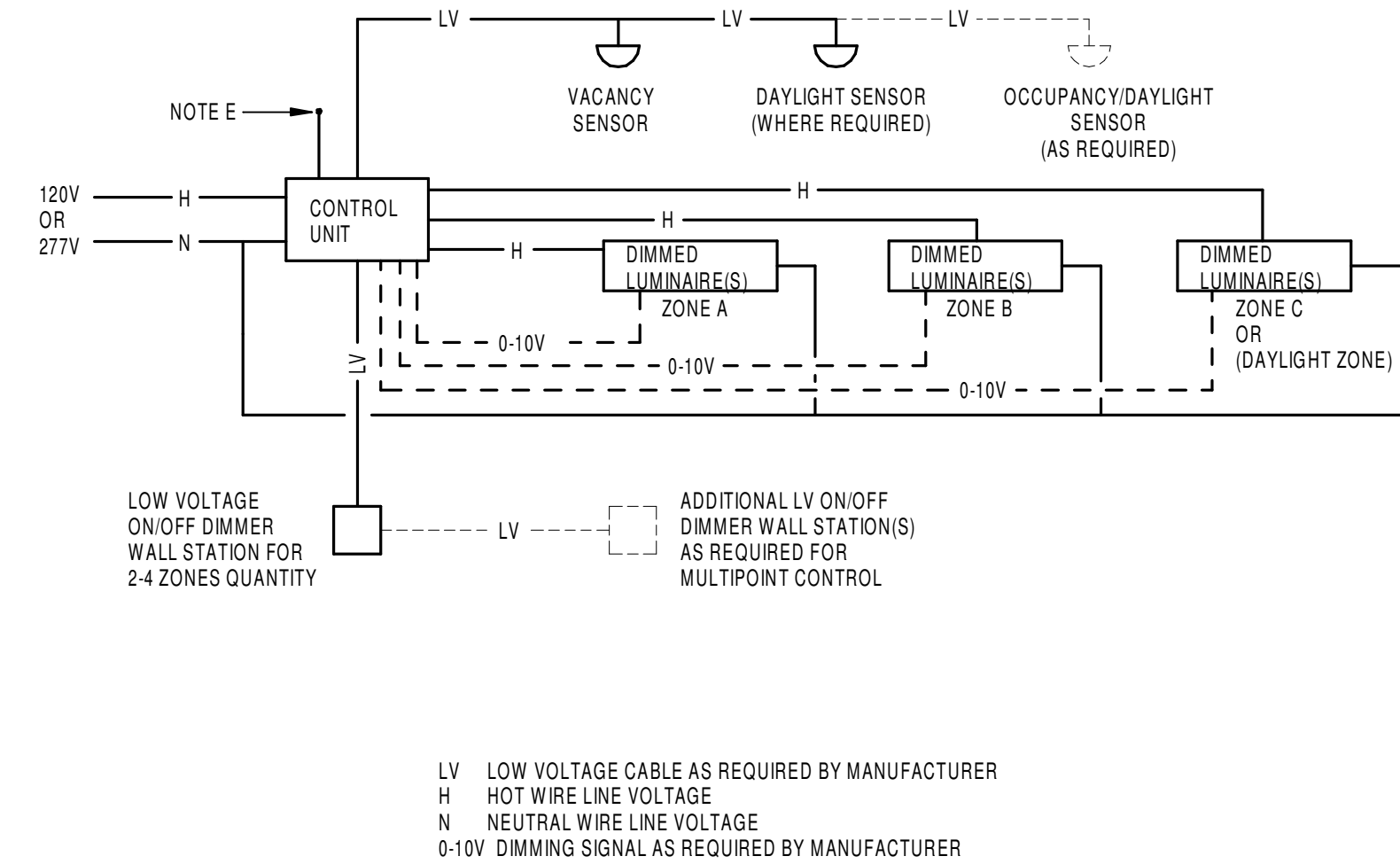
- POLE LIGHTS FOR REFERENCE ONLY. ALREADY INCLUDED IN SITE PACKAGE.
- COORDINATE MOUNTING LOCATION PRIOR TO ROUGH IN.
- PROVIDE FIXTURE WITH DIMMABLE UNIVERSAL VOLTAGE BALLAST/DRIVER.
- INSTALL LUMINAIRE AT MOUNTING HEIGHT AS INDICATED ON PLAN. VERIFY FINAL LOCATION WITH ARCHITECT AND HC PRIOR TO ROUGH-IN TO AVOID CONFLICT WITH EQUIPMENT.
- COORDINATE MOUNTING HARDWARE WITH CEILING TYPE ARCHITECTURAL DRAWINGS PRIOR TO ORDERING AND PROVIDE ACCORDINGLY.
- PROVIDE CEILING ADAPTERS FOR MOUNTING ON SLOPED AND FLAT CEILING SURFACES TO OBTAIN A NEAT AND FINISHED APPEARANCE. PROVIDE PROPER LENGTH SUPPORTS FOR ALL LUMINAIRES TO OBTAIN M.H. AS INDICATED ON SCHEDULES/PLANS. SCOPE INCLUDES ALL OUTLET BOXES M SUPPORT MEMBERS, CHAIN/CABLE SUPPORTS, FITTINGS AND ALL OTHER LABOR AND MATERIALS TO OBTAIN A COMPLETE INSTALLATION.
- COORDINATE FINISH WITH ARCHITECT PRIOR TO ORDERING AND PROVIDE ACCORDINGLY.



GENERAL NOTES

- OPERATION INTENT IS FOR OCCUPANCY SENSING ON/OFF WITH MANUAL OVERRIDE AND MULTIPLE ZONES OPERATION OF ALL LIGHTS. CONTROL UNIT SHALL PROVIDE AN ON/OFF FOR ALL ZONES. WALL STATION(S) TO PROVIDE ON/OFF AND SWITCHES. REFER TO PLANS FOR QUANTITY OF LIGHTING ZONES.
- CONTROL UNIT SHALL BE MOUNTED IN AN ENCLOSURE PER MANUFACTURER'S DIRECTION. MOUNT CONTROL UNIT ABOVE ACCESSIBLE CEILING AT ROOM ENTRY.
- CONTRACTOR SHALL COORDINATE WITH MANUFACTURER FOR EXACT QUANTITY OF OCCUPANCY SENSORS FOR COMPLETE ROOM COVERAGE AND PROVIDE ANY ADDITIONAL COMPONENTS FOR A COMPLETE AND OPERABLE SYSTEM. COORDINATE COMPONENT MOUNTING LOCATIONS FOR PROPER CLEARANCE AND ACCESSIBILITY PRIOR TO ROUGH-IN. COORDINATE PROGRAMMING OF ZONES AND WALL STATION CONFIGURATIONS, AS SHOWN ON DRAWINGS, WITH MANUFACTURER.
- DETAIL IS SCHEMATIC IN NATURE. REFER TO MANUFACTURER'S WIRING DIAGRAMS FOR EXACT WIRING INFORMATION.
- PROVIDE ISOLATED FORM C CONTACT OUTPUT INDICATING SPACE OCCUPIED FOR BAS CONTROL, WHERE NOTED.

1 OCCUPANCY SENSOR WITH OVERRIDE CONTROL



GENERAL NOTES

- OPERATION INTENT IS FOR LOW VOLTAGE DIMMING WITH MANUAL ON/OFF AND MULTIPLE ZONE AND AUTO-OFF OPERATION OF ALL LIGHTS (VACANCY SIGNAL). CONTROL UNIT SHALL PROVIDE AN ON/OFF FOR ALL ZONES. WALL STATION(S) TO PROVIDE ON/OFF AND DIMMER LEVEL SWITCHES. REFER TO PLANS FOR QUANTITY OF LIGHTING ZONES.
- CONTROL UNIT SHALL BE MOUNTED IN AN ENCLOSURE PER MANUFACTURER'S DIRECTION. MOUNT CONTROL UNIT ABOVE ACCESSIBLE CEILING AT ROOM ENTRY.
- CONTRACTOR SHALL COORDINATE WITH MANUFACTURER FOR EXACT QUANTITY OF OCCUPANCY SENSORS (FOR COMPLETE ROOM COVERAGE) AND PROVIDE ANY ADDITIONAL COMPONENTS FOR A COMPLETE AND OPERABLE SYSTEM. COORDINATE COMPONENT MOUNTING LOCATIONS FOR PROPER CLEARANCE AND ACCESSIBILITY PRIOR TO ROUGH-IN. COORDINATE PROGRAMMING OF ZONES AND WALL STATION CONFIGURATIONS, AS SHOWN ON DRAWINGS, WITH MANUFACTURER.
- DETAIL IS SCHEMATIC IN NATURE. REFER TO MANUFACTURER'S WIRING DIAGRAMS FOR EXACT WIRING INFORMATION.
- PROVIDE ISOLATED FORM C CONTACT OUTPUT INDICATING SPACE OCCUPIED FOR BAS CONTROL, WHERE NOTED.
- PROVIDE DAYLIGHT SENSOR AS REQUIRED TO CONTROL PERIMETER LIGHTING AS INDICATED. REFER TO FLOOR PLANS FOR DAYLIGHT ZONE.

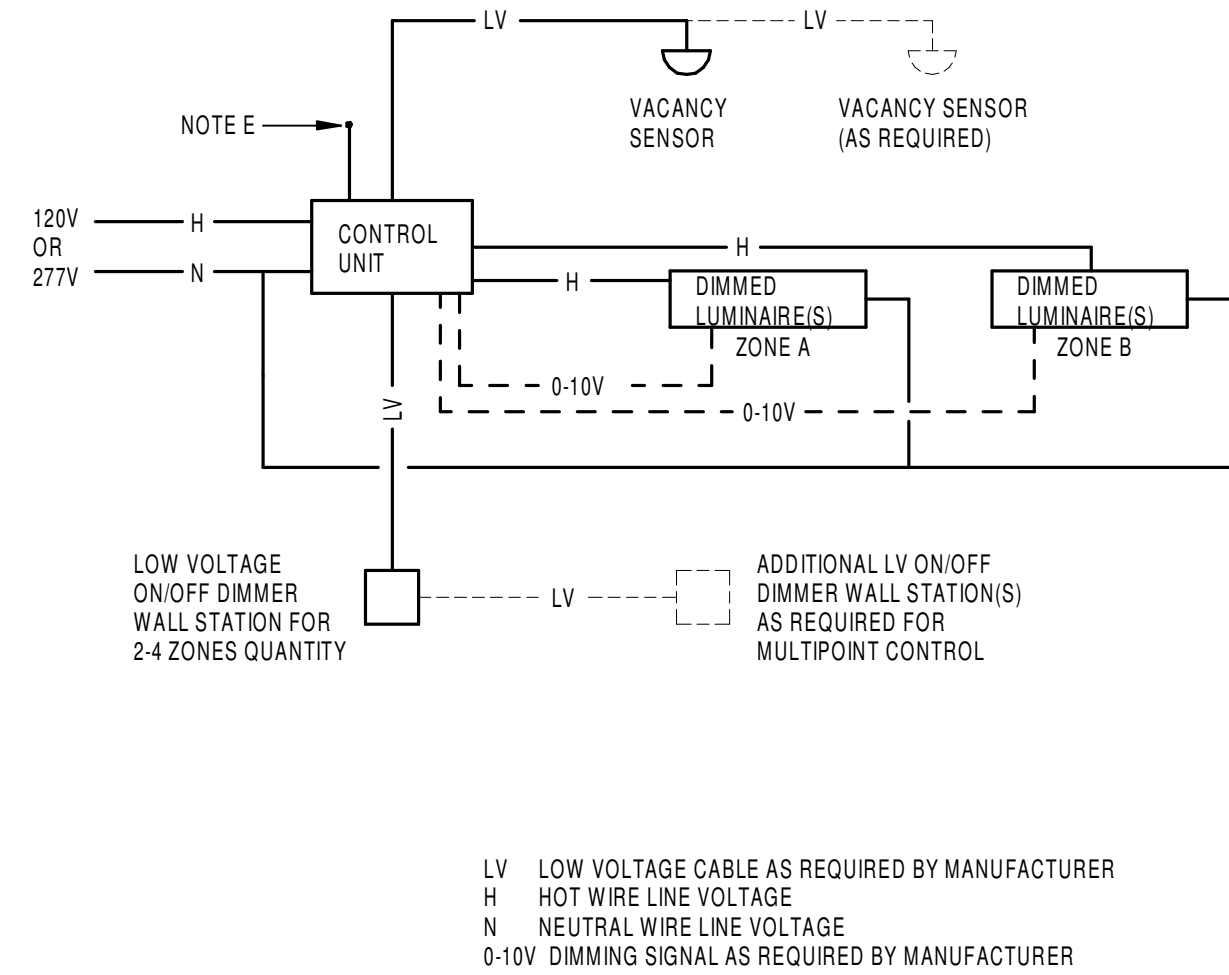
2 VACANCY SENSING MULTI-ZONE CONTROLLED DIMMING / DAYLIGHTING

NOTES:  
1. LINE VOLTAGE ON/OFF SWITCH.

LIGHTING CONTROL SEQUENCE OF OPERATIONS																								
CONTROL NUMBER	TYPICAL SPACE NAME	OCCUPANCY SENSOR		TIME CLOCK				WALL SWITCH			DAYLIGHT SENSOR		INTEGRATION POINTS				SEE NOTE	DETAIL NUMBER						
		VACANCY MODE (MANUAL ON)	OCCUPANCY MODE (AUTO ON)	SENSOR TIME OUT PERIOD (IN MINUTES)	HIGH / LOW OPERATION OCCUPIED: 100% / VACANT: 30%	SCHEDULED ON AT	SCHEDULED OFF AT	OCCUPIED TIME START	UNOCCUPIED TIME START	AFTER HOURS OVERRIDE SWITCH (2 HOURS)	ON / OFF ONLY	DIMMER SWITCH	KEY SWITCH	SCENE SWITCH	GRAPHICAL WALL STATION	INDOOR - ON / OFF ONLY			INDOOR - DIMMING	LIGHT LEVEL MAINTAINED AT (IN FOOTCANDLES @ 2'-6" A.F.)	EXTERIOR PHOTOCELL - ON / OFF	OCCUPANCY STATUS (BINARY INPUT - READ ONLY - OCCUPIED / UNOCCUPIED)	DIMMING OUTPUT LEVEL (ANALOG VALUE - READ / WRITE - 0-100%)	RELAY STATUS (BINARY VALUE - READ / WRITE - ON / OFF)
1	CLASSROOM	•	30								•													3
2	CORRIDOR	•	30									•												1
3	CLASSROOM W/ DAYLIGHTING	•	30									•					•	40						2
4	MECHANICAL ROOM										•												1	
5	RESTROOM	•	30									•												1
6	STORAGE		30																				1	
7	LOBBY	•	30									•												3
8	THEME AREA	•	30														•	40						3
9	SECOND FLOOR	•	30														•	40						2

GENERAL NOTE

- LIGHTING CONTROLS: IN ADDITION TO THE QUANTITY OF VISITS REQUIRED IN THE SPECIFICATIONS FOR INITIAL PROGRAMMING AND SET UP OF THE LIGHTING CONTROL SYSTEM, THE LIGHTING CONTROL MANUFACTURER AND/OR LIGHTING CONTROL REP SHALL PROVIDE TWO ADDITIONAL VISITS THROUGHOUT THE FIRST YEAR OF OCCUPANCY FOR ANY CONTROL, PROGRAMMING OR SCENE CHANGES TO THE LIGHTING CONTROL SYSTEM. DATA AND TIME OF VISITS WILL BE AS REQUIRED BY THE OWNER. INTENT IS TO ALLOW THE USER/OWNER TO MAKE ADJUSTMENTS TO THE CONTROL SYSTEM ONCE THE SPACE(S) HAVE BEEN IN USE. LIGHTING CONTROL SUPPLIER SHALL INCLUDE ANY TECHNICIANS TIME, LABOR, FEES, PROGRAMMING, ETC.... TO ACCOMMODATE CHANGES TO THE LIGHTING CONTROLS DURING THESE VISITS.
- THE INTENT IS FOR ALL SPACES TO UTILIZE WALL MOUNTED OCCUPANCY/VACANCY SENSORS ADJACENT TO DOORS AS INDICATED ON PLANS. IN AREAS/SPACES WHERE WALL SENSORS DO NOT PROVIDE ADEQUATE COVERAGE, CEILING SENSORS SHALL BE ACCEPTABLE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ADEQUATE COVERAGE FOR A COMPLETE AND OPERATIONAL SYSTEM BASED ON MANUFACTURER'S AWARDED THE CONTRACT.
- INITIAL LIGHTING SCENE PROGRAMMING SHALL BE DONE WITH THE OWNER OR OWNER'S REPRESENTATIVE PRESENT. CONTRACTOR SHALL SCHEDULE TIME IN ADVANCE FOR ALL PARTIES REQUIRED. THIS SHALL BE COVERED UNDER THE INITIAL PROGRAMMING PER THE SPECIFICATION.



GENERAL NOTES

- OPERATION INTENT IS FOR LOW VOLTAGE DIMMING WITH MANUAL ON/OFF AND MULTIPLE ZONE AND AUTO-OFF OPERATION OF ALL LIGHTS (VACANCY SIGNAL). CONTROL UNIT SHALL PROVIDE AN ON/OFF FOR ALL ZONES. WALL STATION(S) TO PROVIDE ON/OFF AND DIMMER LEVEL SWITCHES. REFER TO PLANS FOR QUANTITY OF LIGHTING ZONES.
- CONTROL UNIT SHALL BE MOUNTED IN AN ENCLOSURE PER MANUFACTURER'S DIRECTION. MOUNT CONTROL UNIT ABOVE ACCESSIBLE CEILING AT ROOM ENTRY.
- CONTRACTOR SHALL COORDINATE WITH MANUFACTURER FOR EXACT QUANTITY OF OCCUPANCY SENSORS (FOR COMPLETE ROOM COVERAGE) AND PROVIDE ANY ADDITIONAL COMPONENTS FOR A COMPLETE AND OPERABLE SYSTEM. COORDINATE COMPONENT MOUNTING LOCATIONS FOR PROPER CLEARANCE AND ACCESSIBILITY PRIOR TO ROUGH-IN. COORDINATE PROGRAMMING OF ZONES AND WALL STATION CONFIGURATIONS, AS SHOWN ON DRAWINGS, WITH MANUFACTURER.
- DETAIL IS SCHEMATIC IN NATURE. REFER TO MANUFACTURER'S WIRING DIAGRAMS FOR EXACT WIRING INFORMATION.
- PROVIDE ISOLATED FORM C CONTACT OUTPUT INDICATING SPACE OCCUPIED FOR BAS CONTROL, WHERE NOTED.

3 VACANCY SENSING CONTROLLED DIMMING



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BULLETIN 1

NEW ADDITION TO  
**KETTERING SEVENTH-DAY ADVENTIST CHURCH**  
3939 Stonebridge Rd., Kettering, Ohio

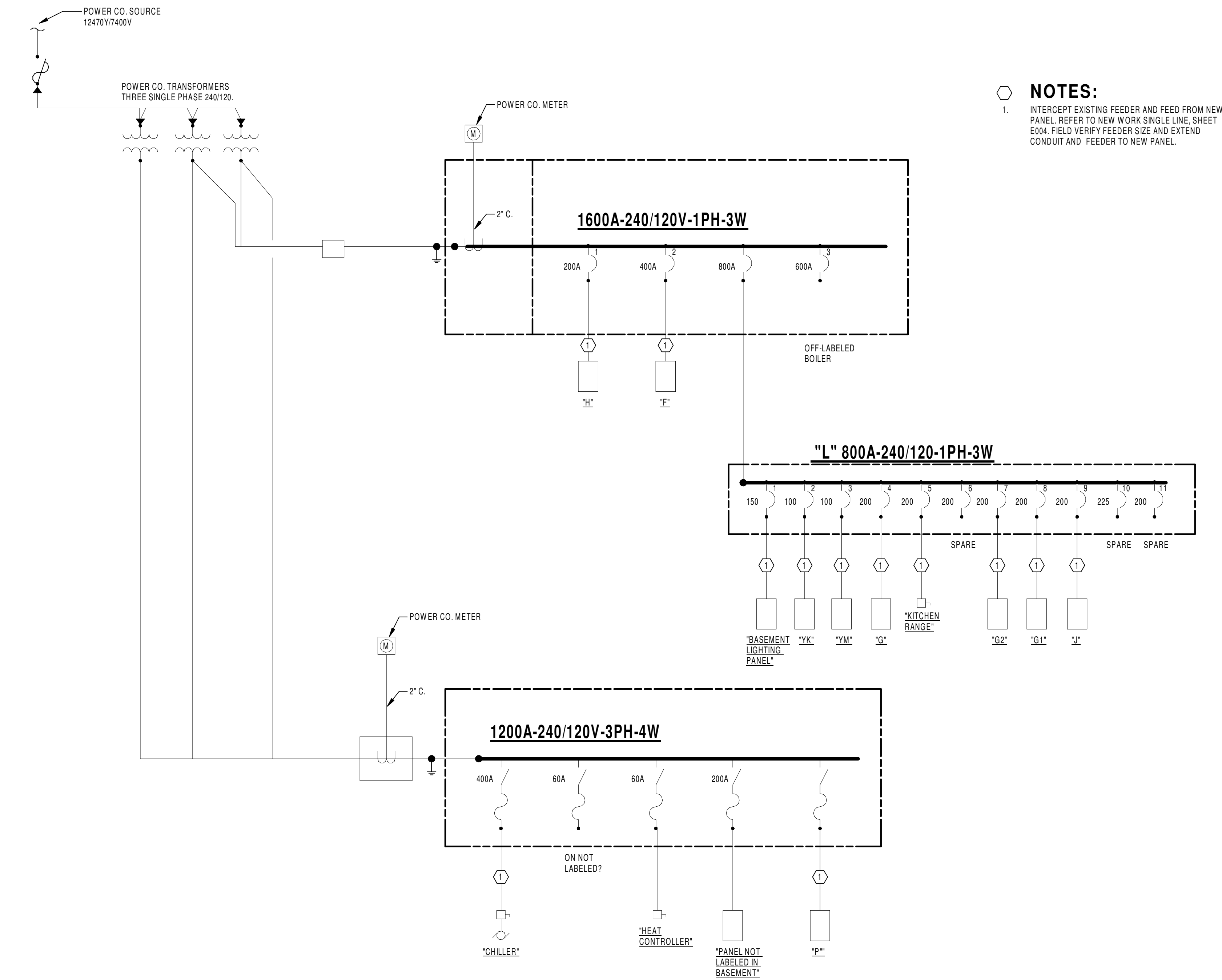
Comm. No.  
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LIGHT FIXTURE  
SCHEDULE AND  
GENERAL NOTES

Sheet No.

E002





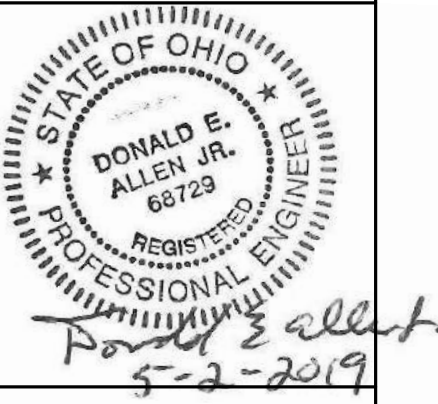
**NOTES:**

1. INTERCEPT EXISTING FEEDER AND FEED FROM NEW PANEL. REFER TO NEW WORK SINGLE LINE, SHEET 604A. FIELD VERIFY FEEDER SIZE AND EXTEND CONDUIT AND FEEDER TO NEW PANEL.

**1 EXISTING ELECTRICAL SINGLE-LINE**  
SCALE: NONE

ELECTRICAL SINGLE-LINE LEGEND	
	CONDUIT & WIRE
	CONDUIT & WIRE TO BE REMOVED
	EXISTING CONDUIT & WIRE TO REMAIN
	INTEGRATED EQUIPMENT ENCLOSURE
	SWITCHBOARD ENCLOSURE
	BUSSING
	AUTOMATIC TRANSFER SWITCH
	AUTOMATIC TRANSFER SWITCH - BYPASS
	BUS DUCT
	BUS LINK
	CIRCUIT BREAKER - MEDIUM VOLTAGE DRAWOUT
	DELTA SYMBOL
	DISCONNECT
	DRAWOUT CONNECTION
	ELECTRIC METER
	EQUIPMENT AMMETER
	EQUIPMENT CAPACITOR
	EQUIPMENT CONTACTOR
	EQUIPMENT CURRENT TRANSFORMER
	EQUIPMENT GROUND
	EQUIPMENT LIGHTNING ARRESTOR
	EQUIPMENT MULTIMETER
	EQUIPMENT POTENTIAL TRANSFORMER
	EQUIPMENT SWITCHBOARD METER
	EQUIPMENT VOLTMETER
	EQUIPMENT WYE SIDE OF TRANSFORMER WITH GROUND
	FUSED CUTOUT
	FUSED SWITCH - PRIMARY
	FUSED SWITCH - SECONDARY
	GENERATOR
	GROUND FAULT PROTECTOR
	KEYED INTERLOCK
	MOTOR
	MOTOR STARTER
	MOTOR STARTER AND DISCONNECT
	PANELBOARD - MAIN LUG ONLY
	PANELBOARD - DOUBLE SET OF LUGS
	PANELBOARD - MAIN BREAKER
	PANELBOARD BREAKER
	SHORT CIRCUIT FAULT LOCATION
	SINGLE POLE SWITCH
	SURGE PROTECTIVE DEVICE
	TAP SWITCH WITH GROUND POSITION
	TRANSFORMER
	UNINTERRUPTIBLE POWER SYSTEM
	VARIABLE FREQUENCY DRIVE
	VOLTAGE TERMINATION - PRIMARY
	VOLTAGE TERMINATION - SECONDARY

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BULLETIN 1

NEW ADDITION TO  
**KETTERING SEVENTH-DAY ADVENTIST CHURCH**  
3839 Stonebridge Rd., Kettering, Ohio

Comm. No.  
31802

EXISTING SINGLE-LINE  
DIAGRAM

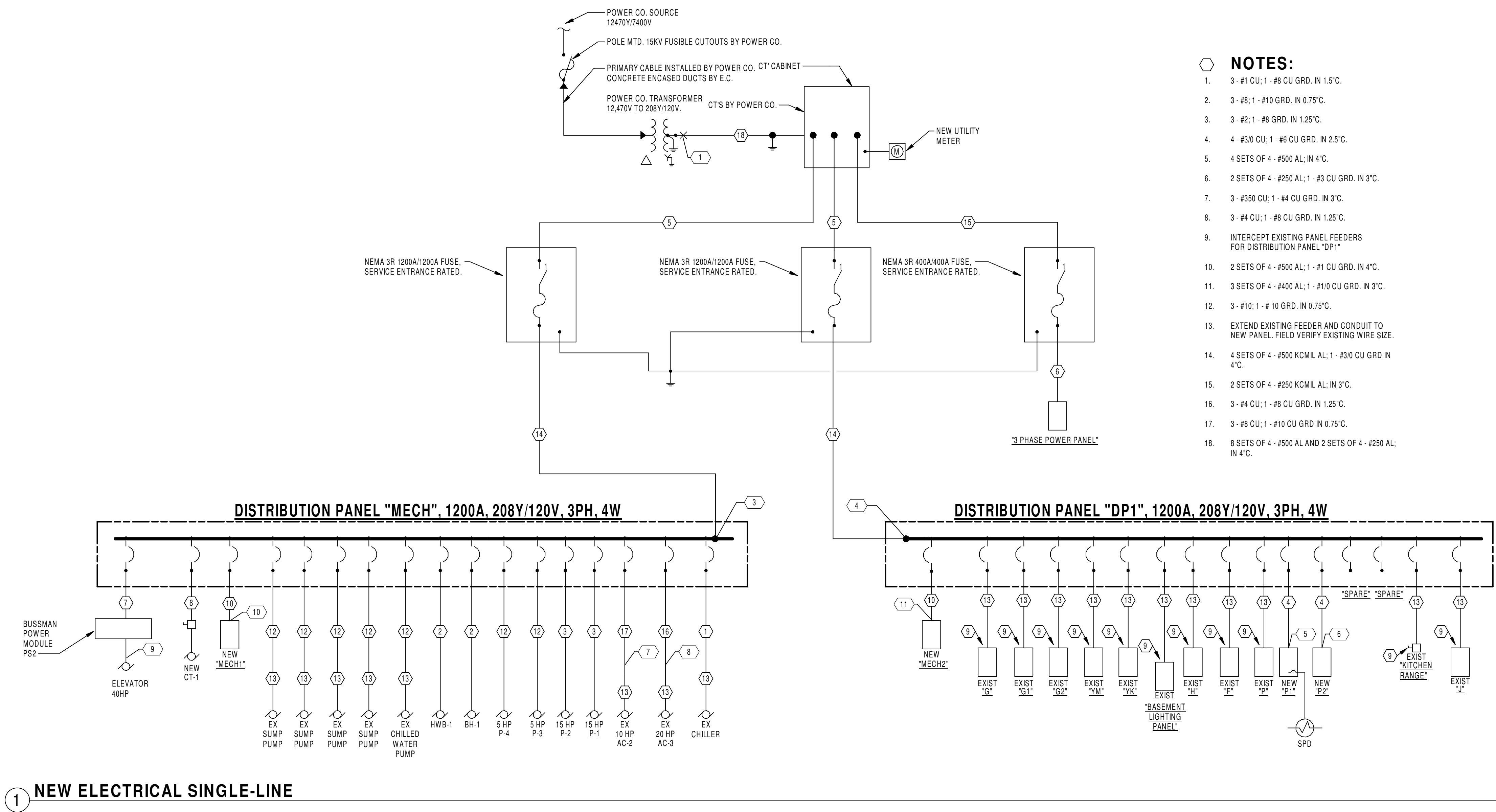
Sheet No.

**E003**



ELECTRICAL SINGLE-LINE LEGEND

—————	CONDUIT & WIRE
-----	CONDUIT & WIRE TO BE REMOVED
-----	EXISTING CONDUIT & WIRE TO REMAIN
-----	INTEGRATED EQUIPMENT ENCLOSURE
-----	SWITCHBOARD ENCLOSURE
-----	BUSSING
	AUTOMATIC TRANSFER SWITCH
	AUTOMATIC TRANSFER SWITCH - BYPASS
	BUS DUCT
	BUS LINK
	CIRCUIT BREAKER - MEDIUM VOLTAGE DRAWOUT
	DELTA SYMBOL
	DISCONNECT
	DRAWOUT CONNECTION
	ELECTRIC METER
	EQUIPMENT AMMETER
	EQUIPMENT CAPACITOR
	EQUIPMENT CONTACTOR
	EQUIPMENT CURRENT TRANSFORMER
	EQUIPMENT GROUND
	EQUIPMENT LIGHTNING ARRESTOR
	EQUIPMENT MULTIMETER
	EQUIPMENT POTENTIAL TRANSFORMER
	EQUIPMENT SWITCHBOARD METER
	EQUIPMENT VOLTMETER
	EQUIPMENT WYE SIDE OF TRANSFORMER WITH GROUND
	FUSED CUTOUT
	FUSED SWITCH - PRIMARY
	FUSED SWITCH - SECONDARY
	GENERATOR
	GROUND FAULT PROTECTOR
	KEYED INTERLOCK
	MOTOR
	MOTOR STARTER
	MOTOR STARTER AND DISCONNECT
	PANELBOARD - MAIN LUG ONLY
	PANELBOARD - DOUBLE SET OF LUGS
	PANELBOARD - MAIN BREAKER
	PANELBOARD BREAKER
	SHORT CIRCUIT FAULT LOCATION
	SINGLE POLE SWITCH
	SURGE PROTECTIVE DEVICE
	TAP SWITCH WITH GROUND POSITION
	TRANSFORMER
	UNINTERRUPTIBLE POWER SYSTEM
	VARIABLE FREQUENCY DRIVE
	VOLTAGE TERMINATION - PRIMARY
	VOLTAGE TERMINATION - SECONDARY



1 NEW ELECTRICAL SINGLE-LINE

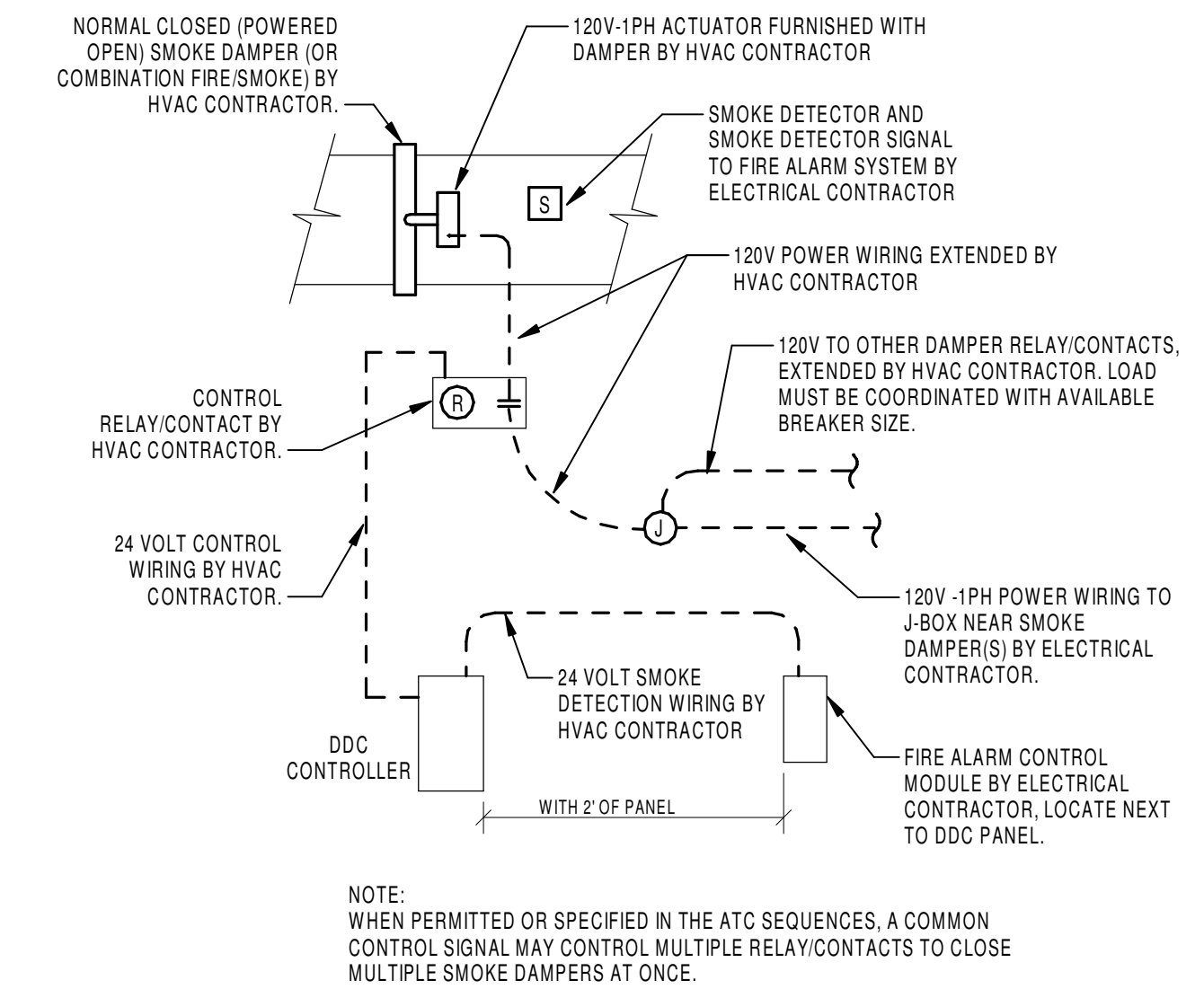
REF. POINT	DESCRIPTION	EQUIP. RATING	AVAILABLE SHORT CIRCUIT AMPS
1	UTILITY TRANSFORMER SECONDARY	45,500	37,580
3	MECH	35,000	20,023
4	DP1	35,000	18,847
5	P1	10,000	4,947
6	P2	10,000	4,947
7	AC-2	22,000	13,203
8	AC-3	22,000	13,155
9	ELEVATOR	14,000	3445
10	MECH1	10,000	3,063
11	MECH2	10,000	3,063





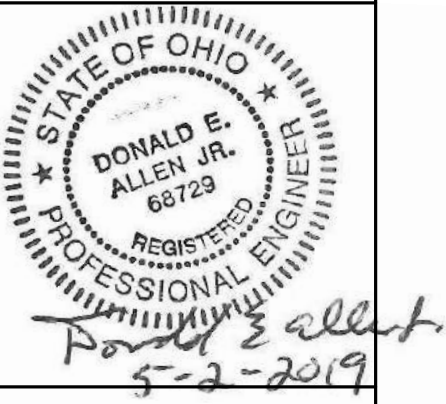
GENERAL NOTES

- A ALL CONDUCTORS SHALL BE COPPER IN CONDUIT. REFER TO SPECIFICATIONS FOR ALLOWED USE OF MC CABLE AND ALUMINUM FEEDERS.
- B ALL WORK WILL BE DONE IN ACCORDANCE WITH THE NEC FOR A COMPLETE AND OPERATIONAL INSTALLATION.
- C PROVIDE A SEPARATE NEUTRAL CONDUCTOR WITH EACH 20A, 120V, POWER CIRCUIT - GROUND TOTAL SYSTEM PER NEC 250.
- D ALL 20 AMP, 120 VOLT POWER CIRCUITS SHALL CONSIST OF #12 AWG CONDUCTORS UNLESS INDICATED OTHERWISE OR REQUIRED TO BE INCREASED BY VOLTAGE DROP.
- E ALL EMPTY CONDUITS SHALL BE INSTALLED WITH PULLWIRE PER SPECIFICATIONS.
- F ALL SURFACE PATCHING AND FINISHING SHALL BE BY THE ELECTRICAL CONTRACTOR OR TO POINT CONSISTENT WITH G.C. RESPONSIBILITIES.
- G ALL WIRING AND CONDUIT SHALL BE INSTALLED CONCEALED ABOVE ALL LAY-IN CEILING SYSTEMS. WHERE WIRING IS REQUIRED TO BE RUN EXPOSED ALONG WALLS AND CEILINGS, IT SHALL BE RUN IN NON-METALLIC SURFACE RACEWAY (PANDUIT ALO OR ALPHAVI) SERIES UNLESS INDICATED OTHERWISE - OR EQUAL! MOUNTED TIGHT TO EXISTING SURFACE MATCHING CONTOUR OF BUILDING LINES AND PAINTED TO MATCH SURFACES ON WHICH THEY ARE MOUNTED. COORDINATE ALL LOCATIONS AND ROUTES WITH ENGINEER PRIOR TO ROUGH-IN. REFER TO SPEC. SECTION 26 05 33.
- H UTILIZE EXISTING CONDUIT/RACEWAY SYSTEMS, INCLUDING BRANCH CIRCUITRY TO SERVE NEW WORK WHERE FEASIBLE AND INSTALLATION MEETS NEC REQUIREMENTS. REFER TO SPEC SECTION 26 05 04.
- I E.C. IS RESPONSIBLE FOR REMOVALS OF ALL LIGHTING, DEVICES, CONDUIT, BRANCH CIRCUITRY, PANELBOARDS, ETC., WHICH BECOME ANTIQUATED DUE TO NEW WORK. E.C. IS RESPONSIBLE FOR REMOVAL OF ALL BRANCH CIRCUITS AND FEEDERS SERVING SPECIFIC ITEMS OF MECH./MISC. EQUIPMENT TO BE REMOVED BY OTHERS; COORDINATE WITH OTHER TRADES. NOT ALL REMOVAL WORK OR DEVICES ARE NECESSARILY SHOWN ON DRAWINGS. REFER TO PLANS AND SPEC. SECTION 26 05 04.
- 1 ALL EXISTING ELECTRICAL WORK WHICH DO NOT INTERFERE WITH REMODELING SCOPE OF WORK SHALL BE MAINTAINED ACTIVE.
- 2 LABEL ALL CIRCUIT BREAKERS MADE SPARE DUE TO REMOVALS AS "SPARE" TO SERVE FUTURE CIRCUITS.
- J ALL EXISTING LIGHTING, DEVICES, BRANCH CIRCUITRY AND CONDUIT WHICH ARE TO BE MAINTAINED AND DO NOT INTERFERE WITH REMODELING SCOPE OF WORK SHALL MEET NEC. THIS CONTRACTOR SHALL PROVIDE ALL NEW WORK AS REQUIRED TO INSURE THAT ALL EXISTING WORK IS IN ACCORDANCE WITH ALL APPLICABLE CODES. SCOPE INCLUDES, BUT NOT LIMITED TO, NEW DEVICES AND COVERPLATES, SUPPORTS AND OTHER LABOR AND MATERIALS TO OBTAIN COMPLETE AND OPERATIONAL SYSTEMS. THIS REQUIREMENT IS NOT INTENDED TO APPLY TO AREAS OUTSIDE OF REMODELING/CONSTRUCTION LIMITS. BIDDERS ARE ADVISED TO INSPECT PROJECT SITE DURING THE BIDDING PERIOD; REFER TO SPEC SECTION 26 05 01.
- K ALL EXPOSED EXTERIOR CONDUIT ABOVE GRADE WILL BE RIGID GALVANIZED METALLIC WITH ALL STEEL FITTING. PAINTED TO MATCH SURFACES ON WHICH THEY ARE MOUNTED.
- L ALL EXTERIOR MOUNTED CONDUIT SHALL BE SEALED WATER AND MOISTURE TIGHT. ALL EXTERIOR MOUNTED DEVICES SHALL BE WEATHERPROOF NEMA 3R, UNLESS OTHERWISE NOTED.
- M PROVIDE NEW CONDUITS TO ALLOW FOR PROPER BENDING RADIUS OF ALL SYSTEMS CABLING AND WIRING INSTALLED UNDER THIS CONTRACT AS RECOMMENDED BY MANUFACTURERS OF EACH CABLE TYPE.
- 1 WHERE EXISTING CONDUITS ARE UTILIZED, EXTREME CARE MUST BE TAKEN TO PROTECT CABLES DURING INSTALLATION.
- 2 WHERE EXISTING ACCESSIBLE CONDUITS ARE UTILIZED, REPLACE EXISTING ELBOWS AND OTHER OFFSETS AS REQUIRED TO MEET BENDING RADIUS REQUIREMENTS.
- N E.C. IS REQUIRED TO SUPPORT ALL EXISTING WIRING AND CABLING, CONDUITS AND OTHER RACEWAYS LOCATED ABOVE ALL ACCESSIBLE CEILINGS TO MEET NEC ARTICLE 300. SCOPE INCLUDES ALL SUPPORT AND ASSOCIATED FITTINGS INDEPENDENT OF CEILING GRID/SYSTEM AS REQUIRED.
- O CONTRACTOR SHALL RESPECT THE OWNERS PROPERTY AND PROTECT FROM DUST AND DEBRIS THROUGHOUT THE COMPLETE PROJECT. PROVIDE DROP CLOTHS, VISQUEEN, ETC., TO ELIMINATE ANY AND ALL MESSES. WORK AREA(S) SHALL BE CLEANED UP PRIOR TO EACH WORK DAYS COMPLETION.
- P PROVIDE EACH ELECTRICAL BOX CONTAINING WALL SWITCHES ON ELECTRICAL AND/OR DATA OUTLETS WITH A CADDY #H-2-3 BOX SUPPORT.
- Q NOTE NOT USED.
- R VERIFY EXACT LOCATION OF ALL LIGHTING FIXTURES WITH REFLECTED CEILING PLAN AND/OR ARCHITECT PRIOR TO ROUGH-IN. COORDINATE LOCATIONS OF LIGHTING FIXTURES WITH MECHANICAL DUCTS AND SPRINKLER PIPES AND HEADS BEFORE ROUGH-IN TO PREVENT CONFLICTS.
- S STAGGER RECEPTACLES AND OTHER RECESSED OUTLETS WHEN LOCATED ON OPPOSITE SIDES OF PARTITION WALL TO ELIMINATE SOUND TRANSMISSION FROM ONE SPACE TO THE OTHER. CENTER DEVICES WHERE APPLICABLE IN EACH WALL SECTION.
- 1 WHERE DUPLEX AND ISOLATED GROUND DUPLEX RECEPTACLES ARE LOCATED NEXT TO EACH OTHER ON PLAN, THEY SHALL BE INSTALLED IN COMMON 2 GANG OUTLET BOX/COVERPLATE ASSEMBLY.
- 2 EXISTING OUTLETS LOCATED IN WALLS TO BE FURRED OUT SHALL BE EXTENDED TO NEW WALL SURFACE.
- 3 NEW OUTLETS INSTALLED IN FURRED OUT WALLS SHALL BE SHALLOW TYPE TO AVOID MASONRY WORK.
- T EXACT LOCATION OF ALL DEVICES SERVING EQUIPMENT TO BE VERIFIED AT SITE WITH OWNER'S REPRESENTATIVE PRIOR TO ROUGH-IN.
- U WORK DEEMED NOISY OR DISRUPTIVE, (AS DETERMINED BY THE DISCRETION OF THE OWNER) SHALL BE PERFORMED OUTSIDE OF NORMAL WORKING HOURS. E.C. SHALL COORDINATE SCHEDULE FOR THIS TYPE OF WORK (AND TIMING) WITH THE OWNER.
- V E.C. SHALL PROVIDE 1/2" DIA RED VINYL DOT ON THE TRIM OF ALL EMERGENCY LIGHT FIXTURES. DOT SHALL BE MOUNTED OFF TO THE SIDE, ON AN EDGE, ON A TRIM RING OR AS INCONSPICUOUS AS POSSIBLE BUT ABLE TO BE SEEN FROM BELOW. DOT SHALL NOT BE MOUNTED IN THE CENTER OF A REFLECTOR OR LENS.
- W ALL RECEPTACLE AND DATA OUTLETS TO BE MOUNTED AT 18" M.H. UNLESS OTHERWISE NOTED. DEVICES LOCATED AT DESK IN OFFICE SPACES SHALL BE MOUNTED AT 34" M.H. DATA OUTLETS LOCATED ADJACENT TO DUPLEX AND DOUBLE DUPLEX RECEPTACLES SHALL BE MOUNTED AT THE SAME M.H. WITH THE RESPECTIVE RECEPTACLE.
- X NOTE NOT USED.
- Y BRANCH CIRCUIT WIRE SIZING CHART TO BE UTILIZED AS GUIDELINE FOR VOLTAGE DROP COMPENSATION. INCREASE CONDUIT SIZING PER WIRE SIZE.
- A) 20A-120V CIRCUITS B) 20A-277V CIRCUITS
- 1) #12 WIRE - 60' LENGTH MAX. 1) #12 WIRE - 138' LENGTH MAX.
- 2) #10 WIRE - 94' LENGTH MAX. 2) #10 WIRE - 219' LENGTH MAX.
- 3) #8 WIRE - 137' LENGTH MAX. 3) #8 WIRE - 318' LENGTH MAX.
- 4) #6 WIRE - 218' LENGTH MAX. 4) #6 WIRE - 504' LENGTH MAX.
- Z NOTE NOT USED.
- AA NOT NOT USED.
- BB NOT NOT USED.
- CC NOT NOT USED.
- DD ALL EXISTING TO REMAIN RECESSED DEVICES LOCATED ON NEWLY FURRED OUT WALLS SHALL BE PROVIDED WITH EXTENSION BOXES AND BE MOUNTED FLUSH IN NEW WALL.
- EE E.C. SHALL COORDINATE EACH ROUGH-IN LOCATION FOR ALL CARD READERS AND HANDICAP DOOR ACTUATORS WITH THE ARCHITECT'S DRAWINGS AND OWNER PRIOR TO ROUGH-IN AND SHALL PROVIDE ACCORDINGLY. ANY DEVICE NOT COORDINATED AND REQUIRED TO BE MOVED OR ADDED AFTER ROUGH-IN, SHALL BE AT THE EXPENSE OF THE E.C. POWER SUPPLY FOR THESE DEVICES SHALL BE FROM AN EMERGENCY POWER SOURCE.
- FF EXISTING SURFACE MOUNT CONDUIT MOUNTED TO WALLS THAT ARE BEING REFINISHED SHALL BE REMOVED AND REINSTALLED TO ALLOW REFINISHING OF WALL. E.C. SHALL REFEEED DEVICES BEING FED BY THIS SURFACE MOUNT CONDUIT WITH CONDUIT THAT IS CONCEALED BEHIND WALLS AND CEILINGS. IN INSTANCES WHERE CONCEALED CONDUIT IS NOT POSSIBLE THEN SURFACE MOUNT IS ALLOWED PER NOTES AND SPECIFICATIONS.
- GG NOTE NOT USED.
- HH E.C. IS RESPONSIBLE TO PROVIDE CONCRETE PADS FOR ALL ELECTRIC EQUIPMENT ASSOCIATED WITH HIS WORK. NOT ALL CONCRETE PADS ARE NECESSARILY INDICATED OR SPECIFIED ON THE DRAWINGS AND SPECIFICATIONS. REFER TO SPEC SECTION 03300. COORDINATE EXACT SIZE, REINFORCING AND OTHER SPECIFIC REQUIREMENTS WITH THE APPROPRIATE E.G.S. AND PROVIDE ACCORDINGLY.
- II NOTE NOT USED.
- JJ DRAWINGS SHOW GENERAL LOCATIONS FOR VOICE/DATA/VIDEO AND AV OUTLETS AND EQUIPMENT. E.C. SHALL COORDINATE EXACT LOCATIONS IN FIELD WITH CASEWORK AND WITH OWNER (UDIT) PRIOR TO ROUGH-INS. CEILING PROJECTOR OUTLET LOCATIONS SHALL BE COORDINATED WITH UDIT TO ENSURE PROPER PLACEMENT OF PROJECTORS AND CLEARANCE FROM LIGHTING FIXTURES AND OCCUPANCY SENSORS.
- KK E.C. IS RESPONSIBLE TO COORDINATE CEILING TYPES WITH ARCHITECTURAL PLANS AND PROVIDE PROPER TRIM, FLANGE, OR MOUNTING KIT FOR ALL FIXTURE TYPES TO ACCOMMODATE MOUNTING IN THAT CEILING.
- LL NOT NOT USED.
- MM ALL POWER DEVICES/RECEPTACLES LOCATED ADJACENT TO "DIAMOND" DEVICES SHALL BE MOUNTED AT SAME MOUNTING HEIGHT AS DEVICE. VERIFY EXACT MOUNTING HEIGHT WITH LEGEND ITEM AND DETAILS ON SHEET E-002 PRIOR TO ROUGH-IN.
- NN NOT NOT USED.
- OO DRAWINGS INDICATE EQUIPMENT AND DEVICES BUT MINIMAL WIRING. E.C. IS RESPONSIBLE TO PROVIDE WIRING, BRANCH CIRCUITRY, CABLING ETC., TO EVERY ELECTRICAL DEVICE INDICATED ON THESE PLANS.
- PP FIRESTOPPING ASSEMBLIES SHALL BE PROVIDED AT PENETRATIONS OF CONDUITS, CABLES, CABLE TRAYS AND OTHER ELECTRICAL ITEMS THRU FIRE RATED FLOORS, FIRE RATED FLOOR, CEILING AND ROOF CEILING ASSEMBLIES, FIRE RATED WALLS AND PARTITIONS AND FIRE RATED SHAFT WALLS AND PARTITIONS. IN ADDITION, FIRESTOPPING ASSEMBLIES SHALL BE PROVIDED AT PENETRATIONS THRU UNRATED FLOORS. REFER TO SPECIFICATION SECTION 07 84 13 PENETRATION FIRESTOPPING FOR COMPLETE REQUIREMENTS.
- QQ E.C. SHALL PROVIDE BRIDLE RING PATHWAY AND SLEEVES AS REQUIRED FROM EACH AND EVERY INDIVIDUAL SPACE TO BELOW DATA CABINET LOCATION. PROVIDE MINIMUM 5 BRIDLE RINGS PER ROOM. UTILIZE 4" RING MINIMUM WITH SADDLE. GARVIN #BR-200-WH. VERIFY EXACT ROUTE/MOUNTING LOCATION OF RINGS WITH UDIT PRIOR TO ROUGH-IN AND PROVIDE ACCORDINGLY.
- RR MEP ABOVE-CEILING COORDINATION: ALL CONTRACTORS SHALL PARTICIPATE IN DEVELOPMENT OF COORDINATION DRAWINGS IN ACCORDANCE WITH THE SPECIFICATIONS. THE CONTRACT DRAWINGS SHOW THE INTENDED ARRANGEMENT FOR MEP SYSTEMS, BUT IT IS UNDERSTOOD ADJUSTMENTS MAY RESULT FROM THE COORDINATION PROCESS. WHEN THIS OCCURS, THE FOLLOWING SHALL SERVE AS THE GENERAL GUIDELINE FOR ARRANGEMENT OF THE VARIOUS MEP SYSTEMS AND EQUIPMENT: DUCT MANS AND ELECTRICAL FEEDER CONDUIT SHALL BE HIGH-HYDROVIC AND PLUMBING PIPING SHALL BE BELOW THESE ITEMS; CABLE TRAY AND AIR TERMINAL CONTROL DEVICES SHALL BE NOT MORE THAN 18" ABOVE THE CEILING. SPRINKLER PIPING, BRANCH CIRCUITRY CONDUIT, AND BRANCH DUCTWORK SHALL BE PLACED WHERE NECESSARY FOR COORDINATION.
- SS ALL RECEPTACLES LOCATED IN THE CHURCH CLASSROOMS SHALL BE TAMPER RESISTANT SAFETY RECEPTACLES HUBBELL BR20TR OR EQUAL.



1 TYPICAL SMOKE DAMPER WIRING ELECTRICAL

SCALE: NONE



Issued:  
May 20, 2019

Bid Package 4

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5/20/19 - MEP  
BULLETIN 1

NEW ADDITION TO  
KETTERING SEVENTH-DAY ADVENTIST  
CHURCH  
3839 Stonebridge Rd., Kettering, Ohio

Comm. No.  
31802

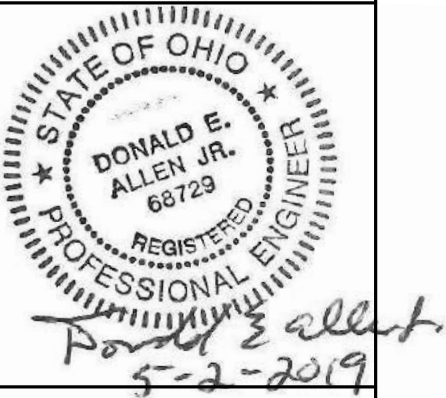
GENERAL NOTES &  
DETAILS

Sheet No.

E006

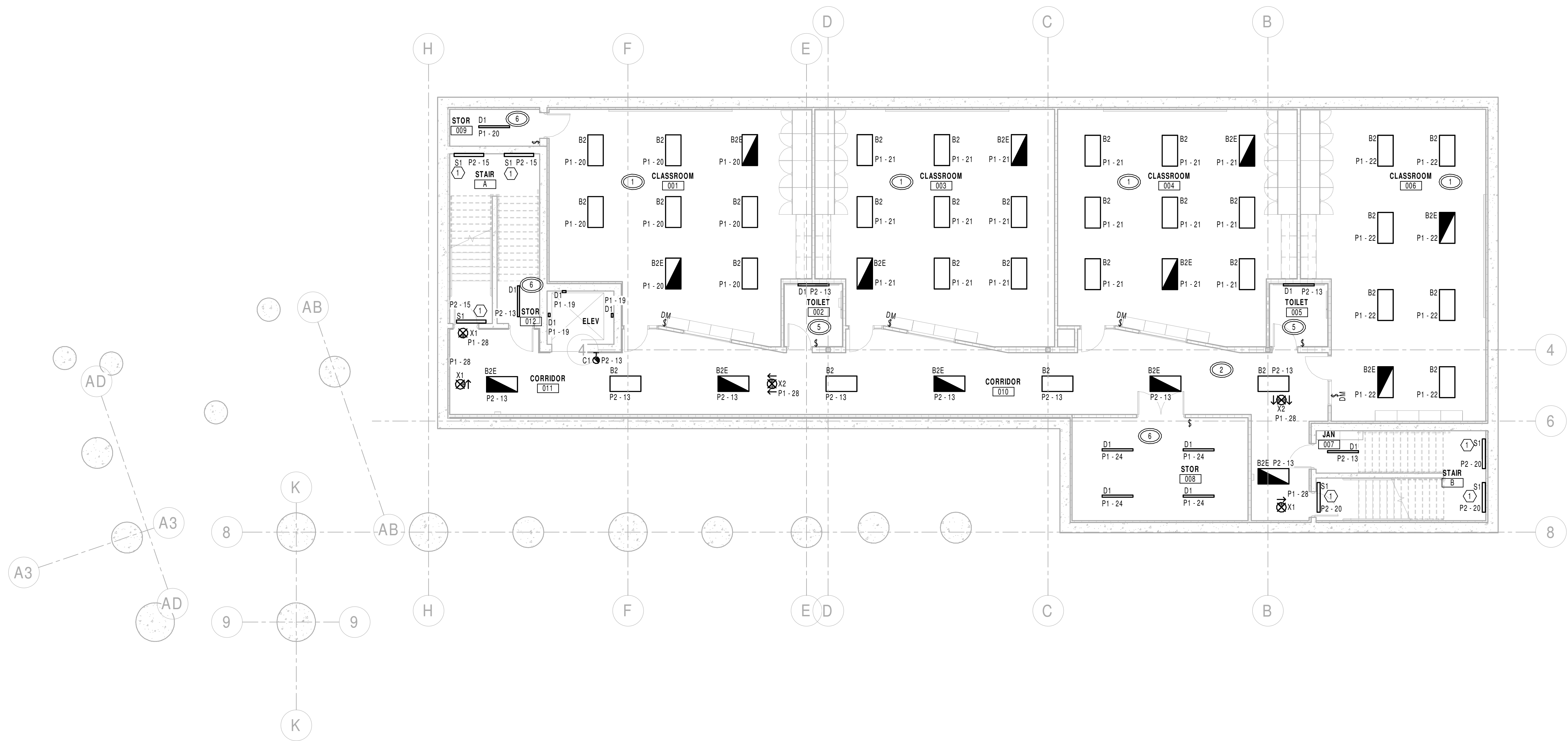
MOTORS, STARTERS, DISCONNECTS & CONTROLS																																		
MARK	NAME/PLATE	MOTOR					LOCATION					STARTER					DISCONNECT MEANS					CONTROL			FEEDER									
		HORSEPOWER (HP)	QAD (kVA)	120V 1PH	208V 3PH	240V 1PH	240V 3PH	277V 1PH	480V 1PH	480V 3PH	ROOM NUMBER	ROOM NAME	NEWA SIZE	TYPE	LOCATION	TYPE	LOCATION	TYPE	LOCATION	TYPE	LOCATION	FURNISHED BY	INTERLOCK WITH MOTOR NO. BY E.C.	MANUAL AT STARTER	INTEGRAL WITH EQUIPMENT	FURNISHED BY	SEE NOTE	NUMBER OF CONDUCTORS	WIRE SIZE	GROUND SIZE	CONDUIT SIZE	SEE NOTE		
											MANUAL		MAGNETIC	BUILT-IN MOTOR OIL	2-SPEED	VFD	SEE NOTE	NEAR MOTOR	MOTOR CONT CENTER	EQUIP CONT PANEL	ROOM NUMBER													
AC-1	INDOOR UNIT	16	0.42								200	ROOM NAME																						
AC-2	EX AIR CONDITIONER	20	16.64									SECOND FLOOR																						
AC-3	EX AIR CONDITIONER	10	9.29																															1
CH	EX CHILLER	0																																1
BH-1	BASIN HEATER	9																																
CT-1	CONDENSOR FAN	15	15.5																															
CT-2	CONDENSOR PUMP	5	5.75																															
CU-1	CONDENSING UNIT	5.82																																
EF-1	EXHAUST FAN	1/6	0.53								113	MECH.RM.																						
ELEVATOR	ELEVATOR	40	63.41																															
EUH-1	ELECTRIC UNIT HEATER	1/8	5.4								100	VESTIBULE																						
EUH-2	ELECTRIC UNIT HEATER	1/8	12.25								012	STORAGE																						
EUH-3	ELECTRIC UNIT HEATER	1/8	12.25								007	JAN.																						
EUH-4	ELECTRIC UNIT HEATER	1/8	5.4								113	MECH.RM.																						
EUH-5	ELECTRIC UNIT HEATER	1/8	2.16								112	ENTRY																						
HP-1-01	HEAT PUMP	0.33	0.98								115	LIBRARY																						
HP-1-02	HEAT PUMP	0.5	4.29								EX104	ALTERNATE CLASSROOM																						
HP-1-03	HEAT PUMP	1.0																																

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**E007**

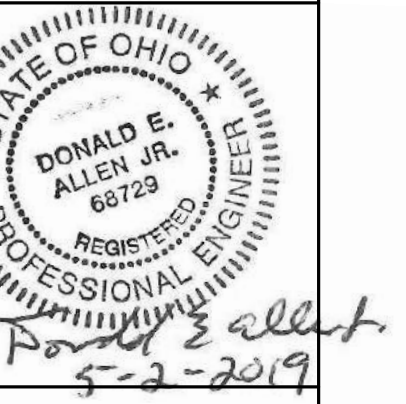
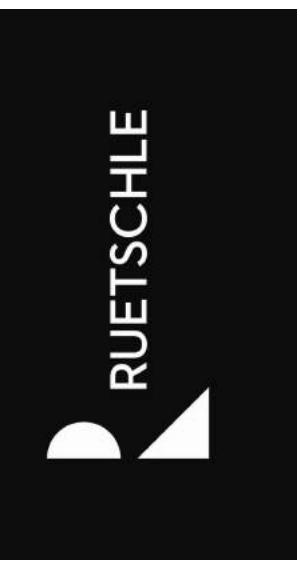




1 LIGHTING BASEMENT  
SCALE: 1/8" = 1'-0"

NOTES:  
1 STAIRWELL S1 LIGHT FIXTURE TO BE MOUNTED 76" A.F.F. OF LANDING.

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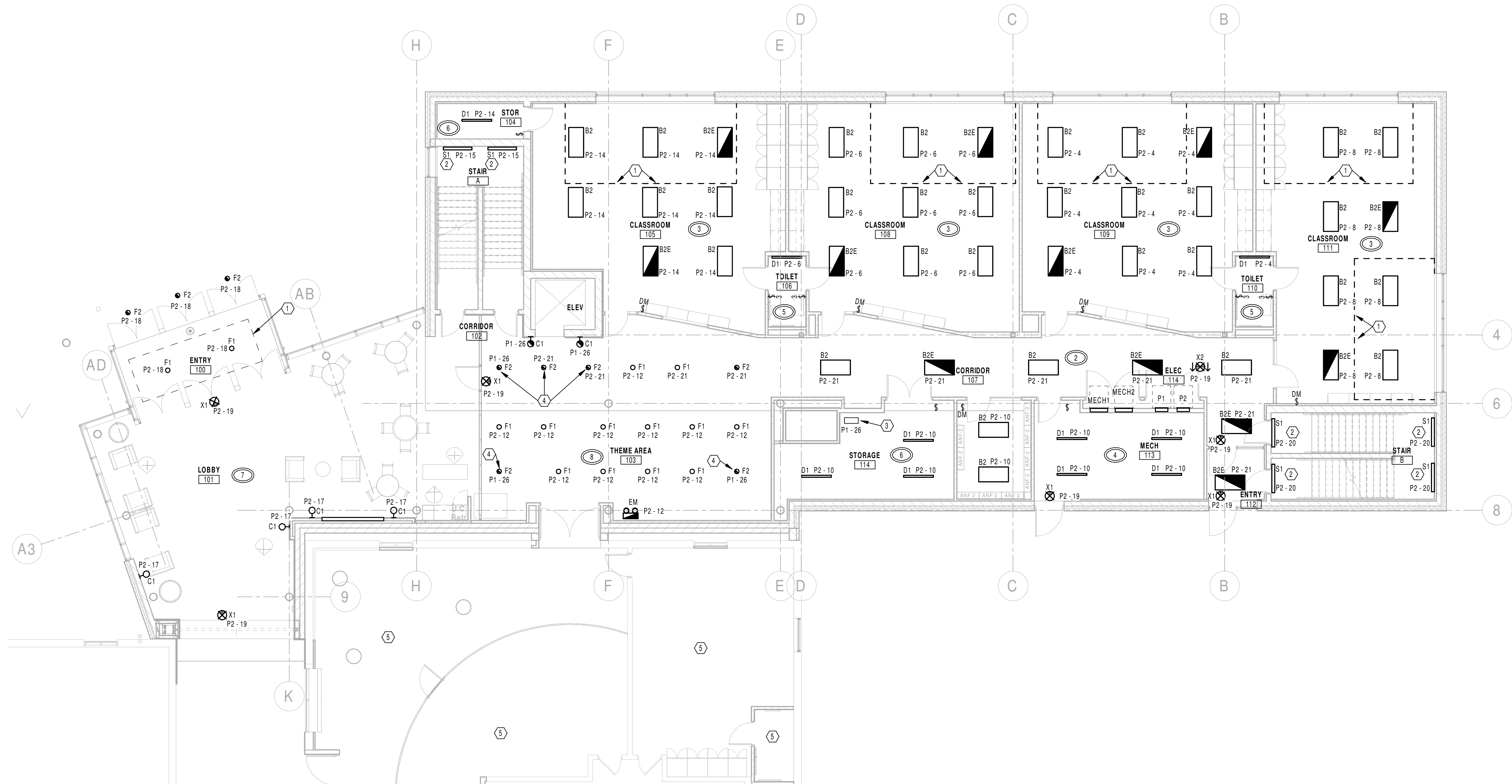
Revisions:  
5/20/19 - MEP  
BULLETIN 1

NEW ADDITION TO  
**KETTERING SEVENTH-DAY ADVENTIST  
CHURCH**  
3939 Stonebridge Rd., Kettering, Ohio

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LIGHTING NEW  
BASEMENT

Sheet No.  
**E100**

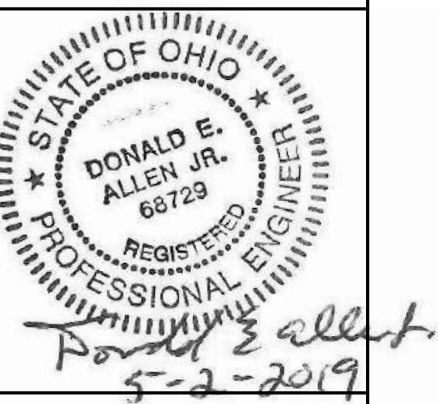


1 LIGHTING FIRST FLOOR  
SCALE: 1/8" = 1'-0"



- NOTES:**
- 1 AREA FOR DAYLIGHT HARVESTING.
  - 2 STAIRWELL S1 LIGHT FIXTURE TO BE MOUNTED AT 7'6" A.F.F. OF LANDING.
  - 3 MOUNT INVERTER TO WALL COORDINATE WITH OTHER TRADES PRIOR TO ROUGH IN. WIRE ALL LIGHTING CONTROLS DOWNSTREAM OF INVERTER.
  - 4 CIRCUIT LIGHT FIXTURES THROUGH LIGHTING INVERTER LOCATED IN STORAGE RM 114.
  - 5 REUSE EXISTING LIGHT FIXTURES IN THE SPACE.

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BULLETIN 1

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CHURCH**  
3939 Stonebridge Rd., Kettering, Ohio

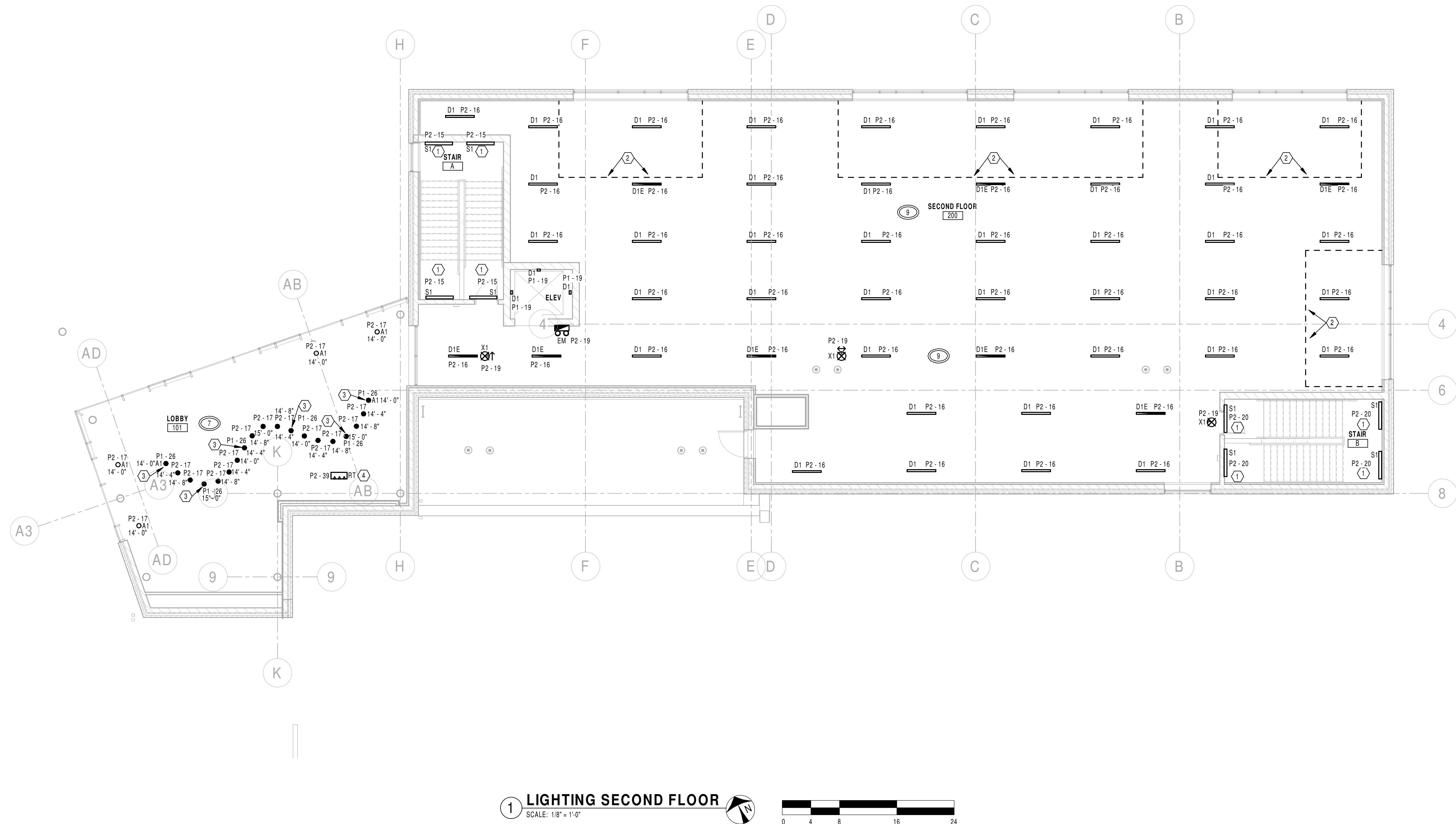
Comm. No.  
31802

LIGHTING NEW FIRST  
FLOOR

Sheet No.

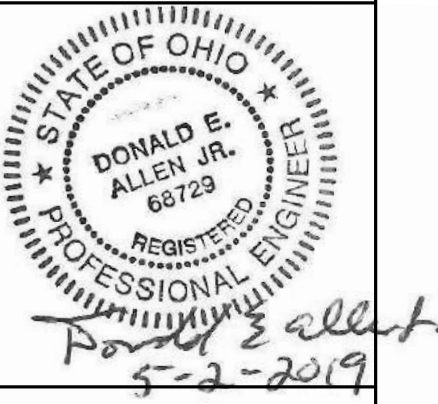
**E101**





- NOTES:
- 1 STAIRWELL S1 LIGHT FIXTURE TO BE MOUNTED 7'6" A.F.F. OF LANDING.
  - 2 AREA FOR DAYLIGHT HARVESTING.
  - 3 CIRCUIT LIGHT FIXTURES THROUGH LIGHTING INVERTER LOCATED IN STORAGE RM 114.
  - 4 LIGHT FIXTURE FOR ARTWORK ON STONE WALL.

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BULLETIN 1

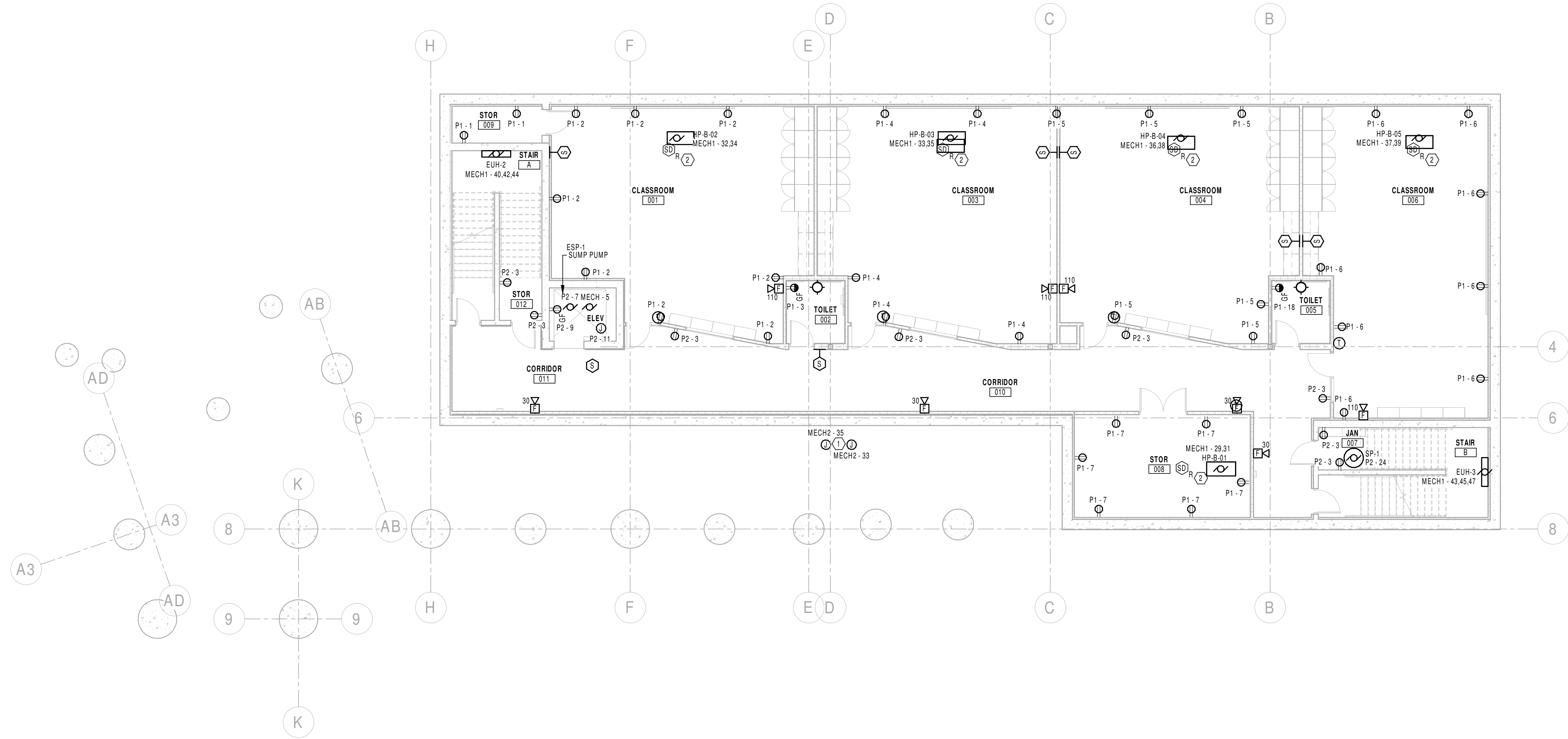
NEW ADDITION TO  
**KETTERING SEVENTH-DAY ADVENTIST  
CHURCH**  
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Comm. No.  
31802

LIGHTING NEW  
SECOND FLOOR

Sheet No.

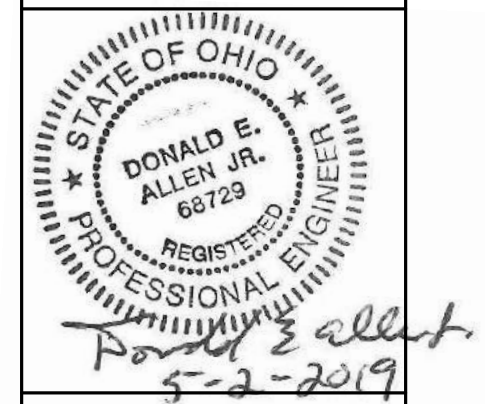
**E102**



- Plan Notes**
1. TWO (2) - 120V 20A CIRCUIT FOR FIRE/SMOKE DAMPERS.
  2. DUCT MOUNTED SMOKE DETECTORS FOR ALL HEAT PUMPS. (5 TOTAL) REFER TO DETAIL #1 ON SHEET #E006 FOR TYPICAL SMOKE DAMPER WIRING.

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BULLETIN 1

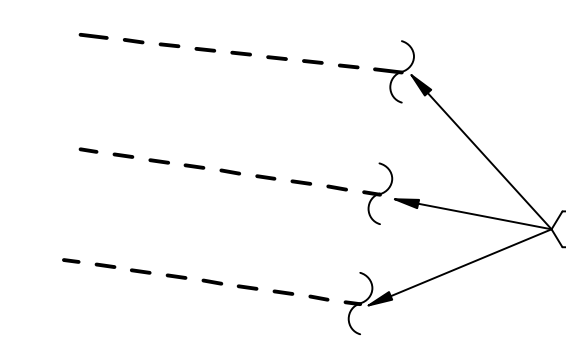
NEW ADDITION TO  
**KETTERING SEVENTH-DAY ADVENTIST  
CHURCH**  
3839 Stonebridge Rd., Kettering, Ohio

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31802

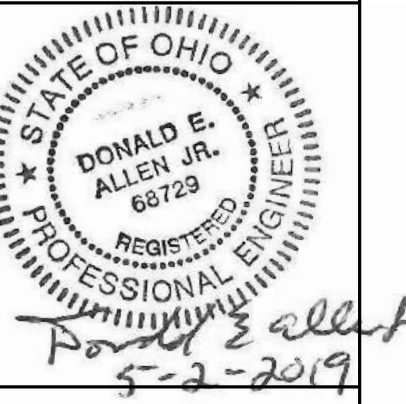
POWER NEW  
BASEMENT

Sheet No.  
**E200**





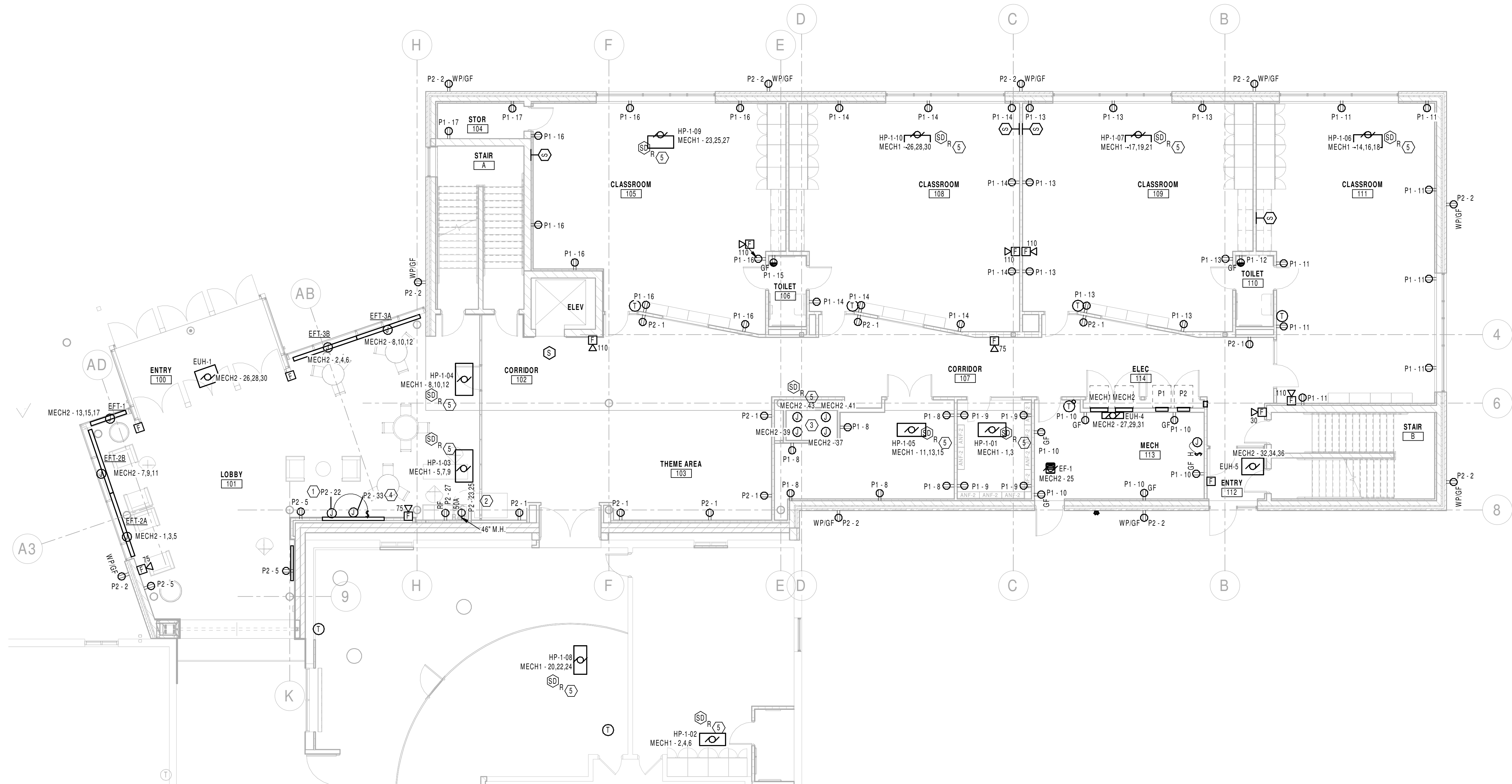
1. ALL OF THE BASEMENT MECHANICAL ROOM WILL BE REMODELED UNDER THIS CONTRACT. REFER TO ARCHITECTURAL DRAWINGS FOR AREAS. WHERE DEMO AND NEW WORK WILL OCCUR. E.G. SHALL REMOVE ELECTRICAL SYSTEM COMPONENTS AND OTHER EQUIPMENT ASSOCIATED WITH DIVISION 26 TO ACCOMMODATE ALL NEW CONSTRUCTION AND REMODELING IN THESE AREAS. ONLY THE DECREASED IN THE REMODELING OF THE EQUIPMENT TO REMAIN, AND DEVICES INDICATED AS EXISTING TO BE MAINTAINED ACTIVE (UNLESS INDICATED OTHERWISE). REFER TO GENERAL NOTES "J" AND "J", ON SHEET E006.
2. CIRCUIT EUT AND EMERGENCY LIGHT TO LOCAL LIGHTING CIRCUIT.
3. REFEED EXISTING AC-2 AND AC-3 FROM MECH PANEL.
4. EXISTING CHILLED WATER PUMP TO BE REFEED FROM MECH PANEL. I.E. TO VERIFY VOLTAGE AND PHASE BEFORE REFEEDING EXISTING PUMP.
5. EXISTING 1.5HP, 208V 3 PH PUMP PUMPS. REFEED FROM MECH PANEL.
6. VFD PROVIDED BY H.C. WIRED BY E.C. VFD TO BE ON INSTRUIT.
7. PROVIDE 2 DUPLEX RECEPTACLES FOR CHEMICAL TREATMENT PUMP. COORDINATE MOUNTING LOCATION WITH H.C. PRIOR TO RUN-IN.
8. FEEDERS FROM OUTDOOR SURFACE D SWITCHES.



Revisions:  
1/20/19 - MEP  
BULLETIN 1

E201





1 PWR & SYS FIRST FLOOR

SCALE: 1/8" = 1'-0"



GENERAL NOTES:

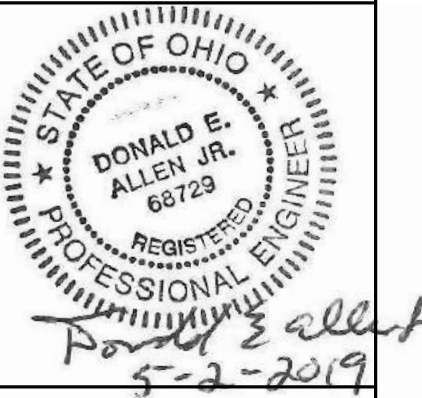
A. ALL RECEPTACLES LOCATED IN THE CHURCH CLASSROOMS SHALL BE TAMPER RESISTANT SAFETY RECEPTACLES HUBBELL BR201TR OR EQUAL.

Plan Notes

1. ELECTRICAL FIREPLACE USE 2 CONDUCTOR, NON-METALLIC SHEATH CABLE WITH GROUND WIRE FOR INCOMING POWER SUPPLY. NO PLUG CONNECTION. DIRECTLY HARDWIRE THE ELECTRIC FIREPLACE. (120V, 1 PHASE, 12.5 AMPS ASSUMED). COORDINATE FINAL LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN. E.G. TO PROVIDE FIREPLACE, FIREPLACE IS DIMPLEX IGNITEXL 100" LINEAR ELECTRIC FIREPLACE, MODEL WLP100.
2. COFFEE MACHINE ABOVE THE COUNTER, NEMA L6-40R PLUG AND RECEPTACLE FOR COFFEE MACHINE.
3. POWER - 120V 20A CIRCUIT FROM FIRE SMOKE DAMPERS.
4. 120V 20A CIRCUIT FOR ARTWORK.
5. DUCT MOUNTED SMOKE DETECTORS FOR ALL HEAT PUMPS. (10 TOTAL REFER TO DETAIL #1 ON SHEET #E006 FOR TYPICAL SMOKE DAMPER WIRING).

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BULLETIN 1

NEW ADDITION TO  
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CHURCH**  
3939 Stonebridge Rd., Kettering, Ohio

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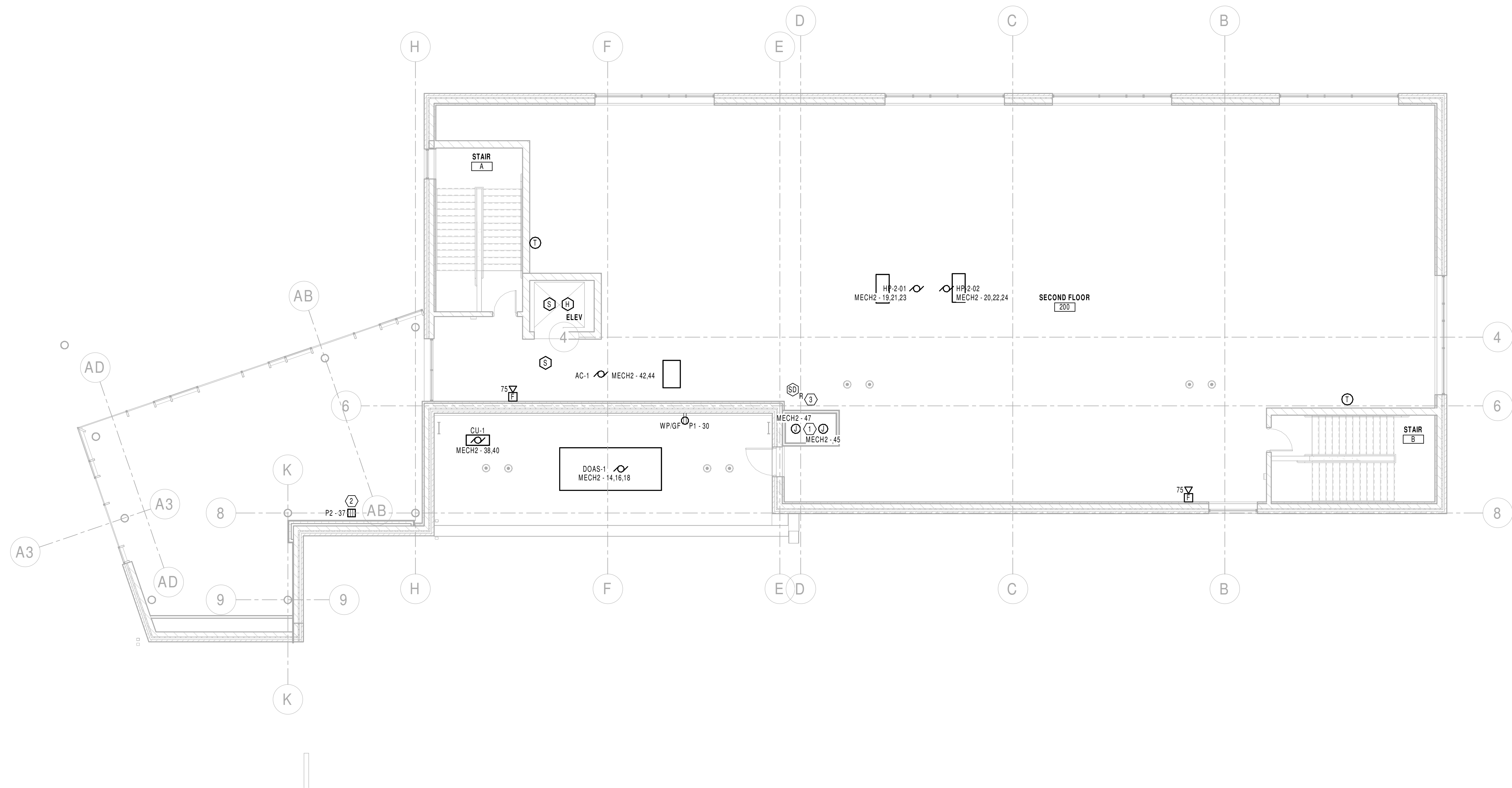
POWER NEW FIRST  
FLOOR

Sheet No.

**E202**

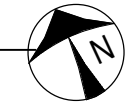






1 PWR & SYS SECOND FLOOR

SCALE: 1/8" = 1'-0"

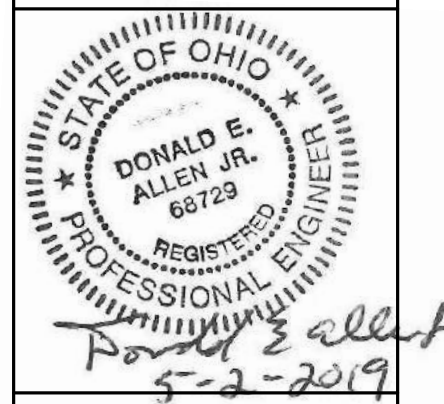


Plan Notes

1. TWO (2) - 120V 20A CIRCUIT FOR FIRE/SMOKE DAMPER.
2. DUPLEX RECEPTACLE FOR ARTWORK.
3. DUCT MOUNTED SMOKE DETECTORS FOR ALL HEAT PUMPS. (2 TOTAL) REFER TO DETAIL #1 ON SHEET #E006 FOR TYPICAL SMOKE DAMPER WIRING.

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May 20, 2019

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Revisions:  
5/20/19 - MEP  
BULLETIN 1

NEW ADDITION TO  
**KETTERING SEVENTH-DAY ADVENTIST  
CHURCH**  
3839 Stonebridge Rd., Kettering, Ohio

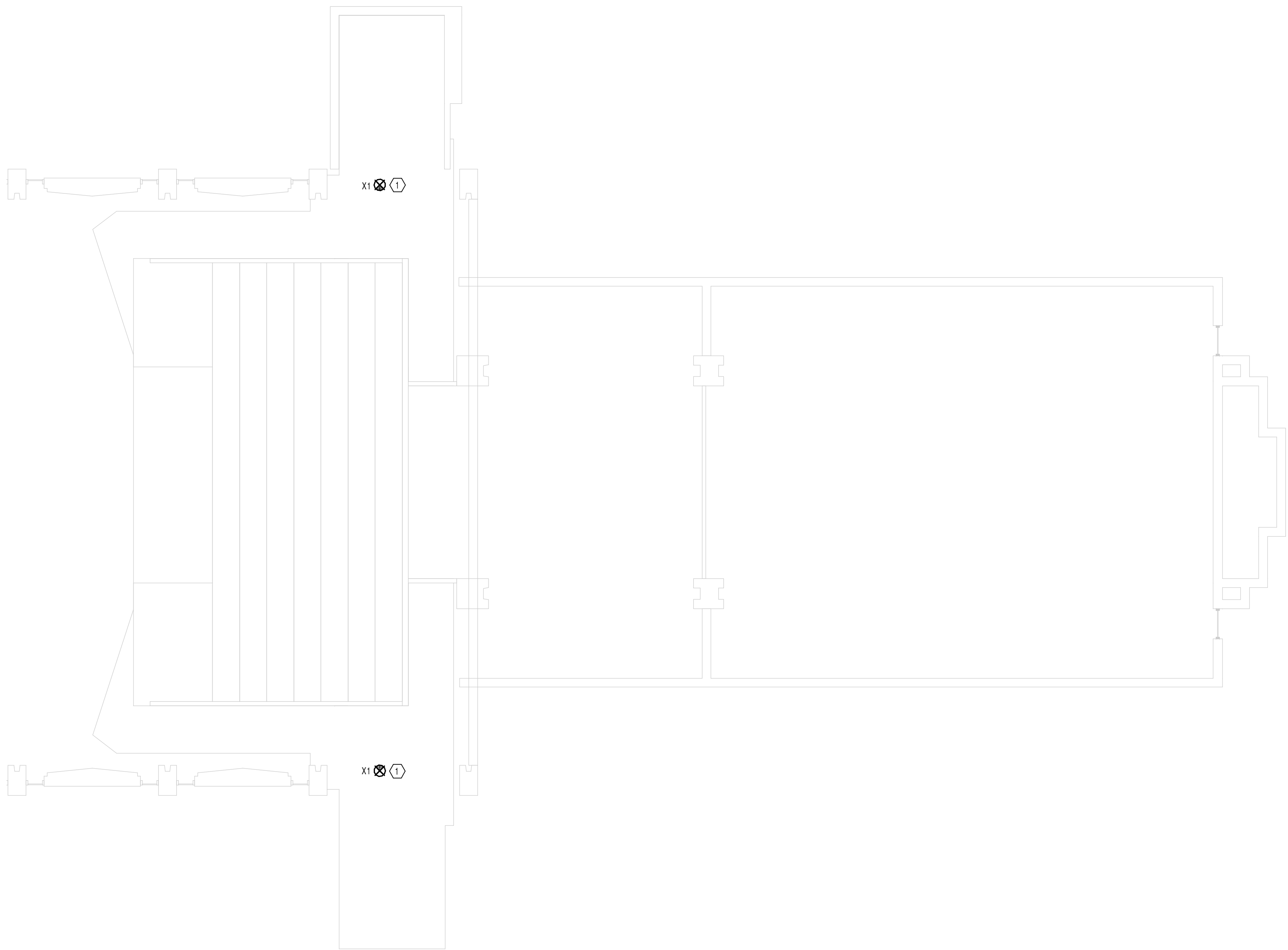
Comm. No.  
31802

POWER NEW SECOND  
FLOOR

Sheet No.

**E204**





1 POWER EXISTING CHURCH SECOND FLOOR PLAN

SCALE: 1/8" = 1'-0"



Plan Notes

- 1. CIRCUIT EXIT TO LOCAL LIGHTING CIRCUIT.

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BULLETIN 1

NEW ADDITION TO  
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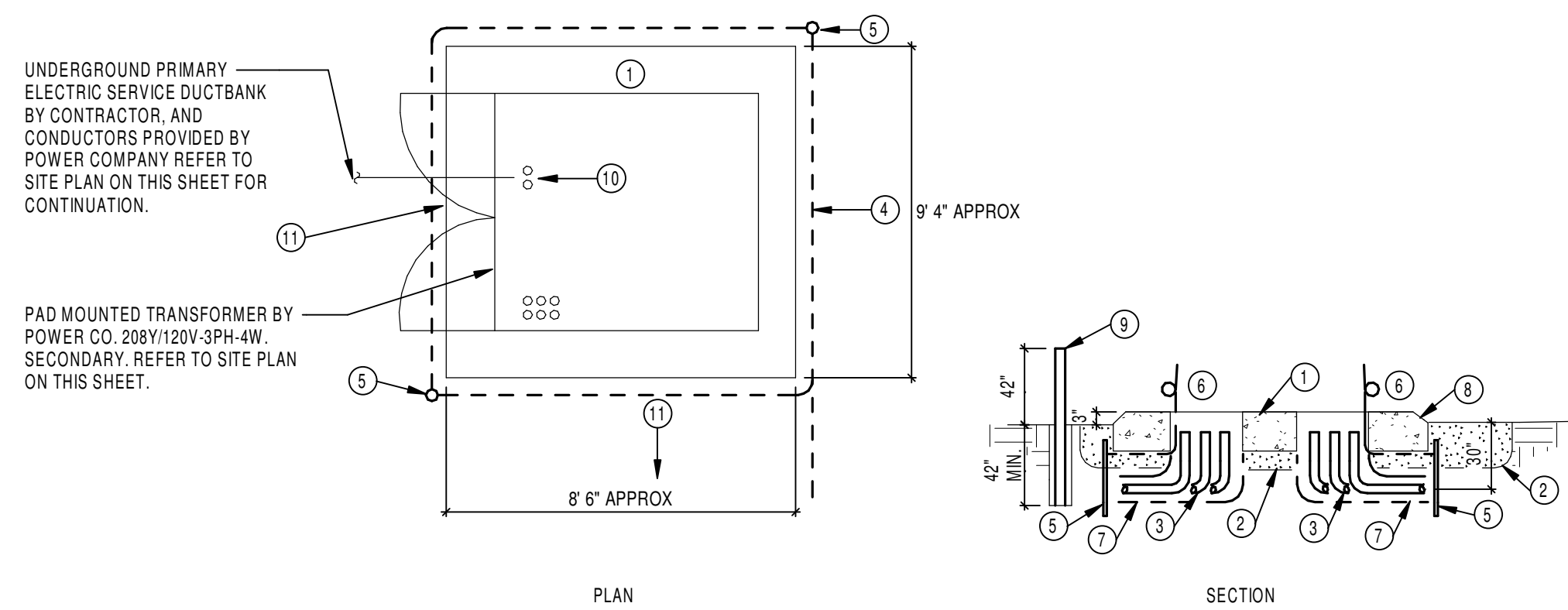
POWER EXISTING  
CHURCH SECOND  
FLOOR PLAN

Sheet No.

E205



PROJECT NO. 2018-07022-01











1. PROVIDE A CONCRETE BASE. REFER TO DETAIL 11E5003 FOR POLE BASE DETAIL. 2. EACH POLE BASE SHALL BE SIZED TO ACCOMMODATE EPA OF COMPLETE LUMINAIRE/POLE ASSEMBLY FOR WIND VELOCITY OF 90 MPH AND GUSTING WIND EQUIVALENT OF 117 MPH. EC SHALL TOUCH UP ALL PAINT ON SITE AFTER INSTALLATION.															LUMINAIRES		3. PROVIDE FIXTURE WITH DIMMABLE UNIVERSAL VOLTAGE BALLAST/DRIVER 4. PROVIDE FIXTURE COMPLETE WITH LENS, FUSING, COLD WEATHER BALLAST/DRIVER. 5. PROVIDE A CONCRETE BASE. REFER TO DETAIL 6E5003 FOR POLE BASE DETAIL.									
MARK	L.E.D.	WATTS / LAMP	VA / LINEAR FOOT	CATALOG NO.	DELIVERED LUMENS	COLOR	LOAD (VA)	FIXTURE VOLTAGE	MANUFACTURER	CATALOG NO.	DESCRIPTION	OTHER ACCEPTABLE MANUFACTURERS	DIFFUSING MEDIA	TRIM COLOR		MOUNTING		SIZE	DIAMETER	WIDTH	LENGTH	DEPTH	SEE NOTE			
PL-1	1	34			2,817	3000K	34	120.00	VISIONAIRE LIGHTING	C-BOW-2 10' T3 32 LC 353 3K UNV AB BK	10' POLE LIGHT W/T3 OPTICS			WHITE	BLACK	ALUMINUM	BRONZE	STANDARD	S-SURFACE R-RECESSED PM-POLE MTD WM-WALL MTD C-CHAIN MTD UC-UNDER CAB CS-CEIL SURFACE	CS-CEIL SURFACE	0' - 4"	1' - 10'	0'±2"	2.5		
PL-2	1	199			28,705	4000K	199	120.00	VISIONAIRE LIGHTING	BLX-II-4 T3-128AR- 5-4K UNV-KM-BLK	25' POLE LIGHT W/T3 OPTICS								PM-POLE#RNTS 5R 110 25 128C 136 T238R BK		1' - 5"	3' - 1"	0'±"	12.3±		

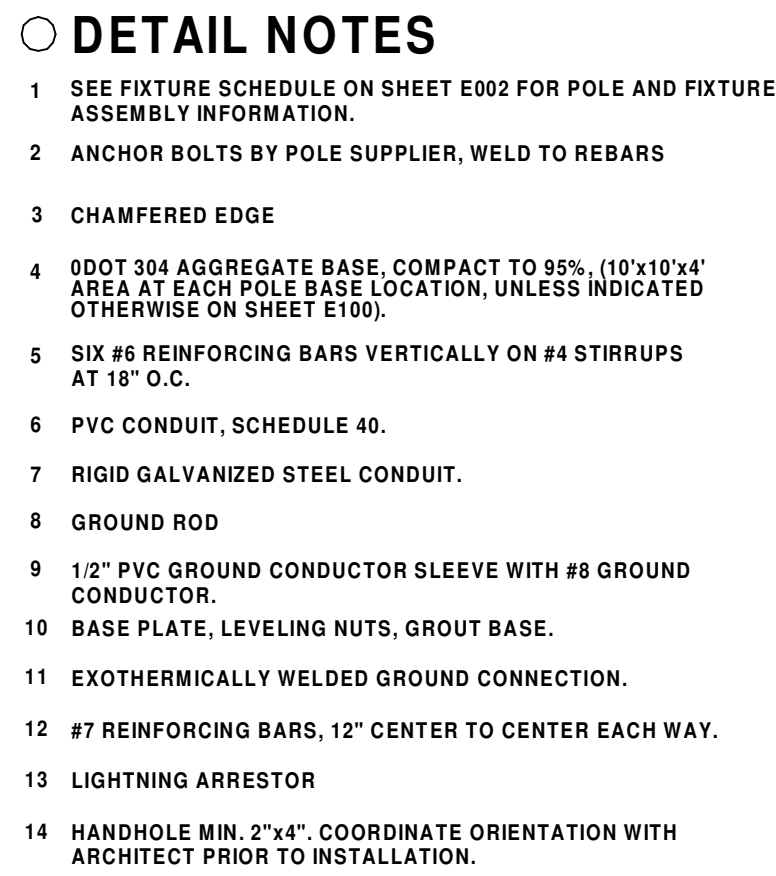
3. PROVIDE FIXTURE WITH DIMMABLE UNIVERSAL VOLTAGE BALLAST/DRIVER.
4. PROVIDE FIXTURE COMPLETE WITH LENS, FUSING, COLD WEATHER BALLAST/DRIVER.
5. PROVIDE A CONCRETE BASE. REFER TO DETAIL 6/ES003 FOR POLE BASE DETAIL.

TRIM COLOR					MOUNTING	SIZE				SEE NOTE
WHITE	BLACK	ALUMINUM	BRONZE	STANDARD	S-SURFACE R-RECESSED PM-POLE MTD WM-WALL MTD C-CHAIN MTD LC-UNDER CAB CS-CEIL SURFACE	DIAMETER	WIDTH	LENGTH	DEPTH	
	•				PM - 4" SQUARE POLE		0' - 4"	1' - 10"	0-2.5"	2.5
	•				PM-POLE#RNTS 5R 11G 2S 12BC TM T238R BK		1' - 5"	3' - 1"	0-5"	1,2,3,4

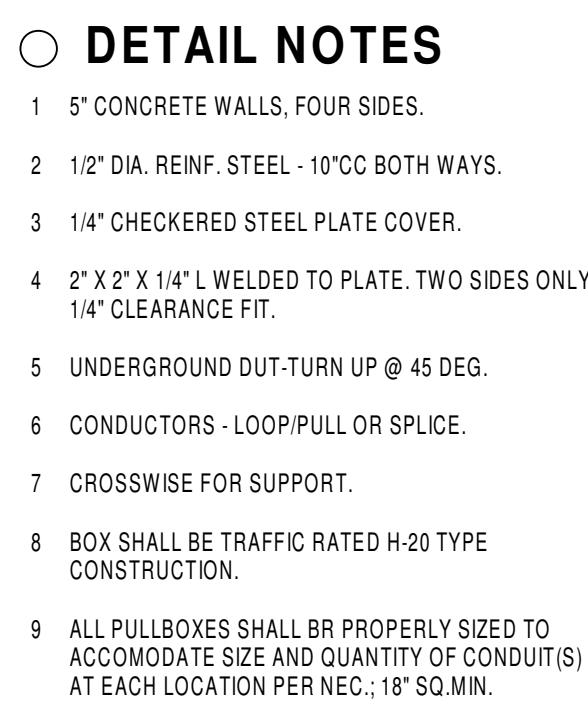
[illegible]

1. PROVIDE FLUSH IN-GRADE 11X 1/2 X 18L X 20 OPEN BOTTOM QUATZITE PULL BOX AT EACH LOCATION. PROVIDE 1.5" PVC SCHEDULE 40 CONDUIT. CONDUIT TO PULLBOX DETAIL 4 ON SHEET PERMS03. LID OF PULLBOX SHALL BE MARKED "ELECTRICAL".
2. DEMO EXISTING LIGHTING CIRCUITS, AND EXTERIOR LIGHTS.
3. PROVIDE 3-#8 CU. IN. 1.5'C AT 120 VOLT.
4. PROVIDE 6-#8 CU. IN. 1.5'C AT 120 VOLT.
5. SITE PACKAGE ENDS HERE. FEED TO PANEL P1 TO BE COMPLETED DURING BUILDING CONSTRUCTION PHASE.
6. ONE BUILDING PHOTO-CELL FOR ALL POLE LIGHTS.
7. ENCASE CONDUIT UNDER ROADWAY.





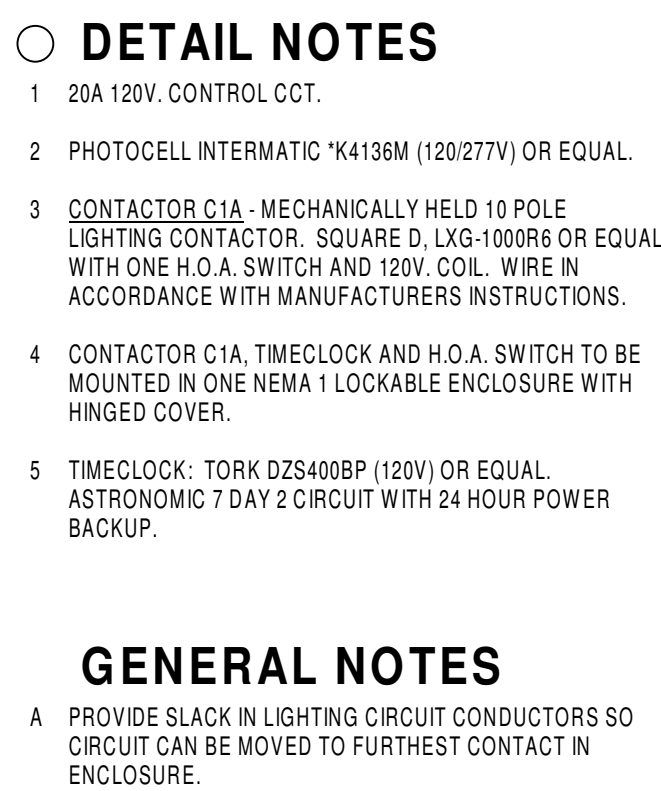
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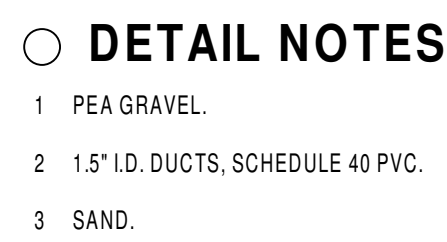
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NOTES:

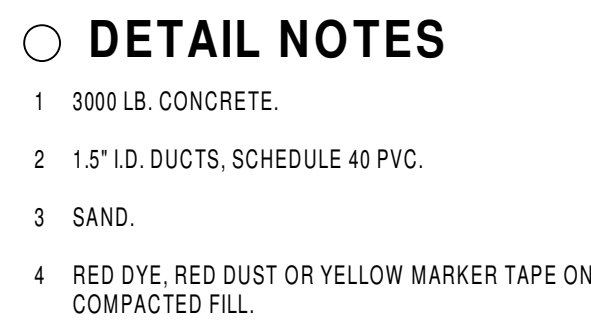
- 1 E.C. HAS OPTION TO PROVIDE ENCLOSURE AS MANUFACTURED BY QUAZITE IN LIEU OF DETAILED ENCLOSURE. TOTAL ASSEMBLY SHALL BE HEAVY DUTY TYPE ONE PIECE WALL CONSTRUCTION FOR VEHICULAR TRAVEL.
- 2 E.C. SHALL PROVIDE DIVIDER OR BARRIER INSIDE PULLBOX TO SEPARATE VOLTAGES OR PROVIDE TWO (2) SEPARATE ASSEMBLIES.



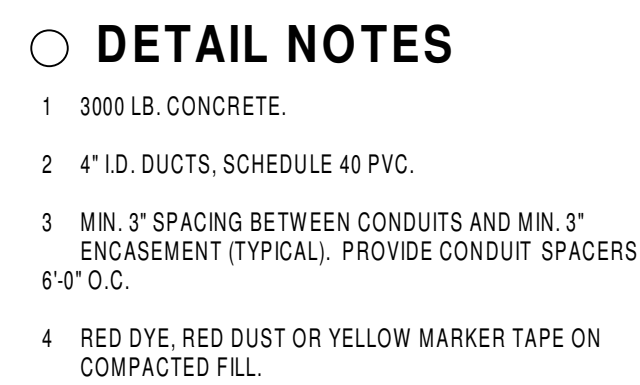
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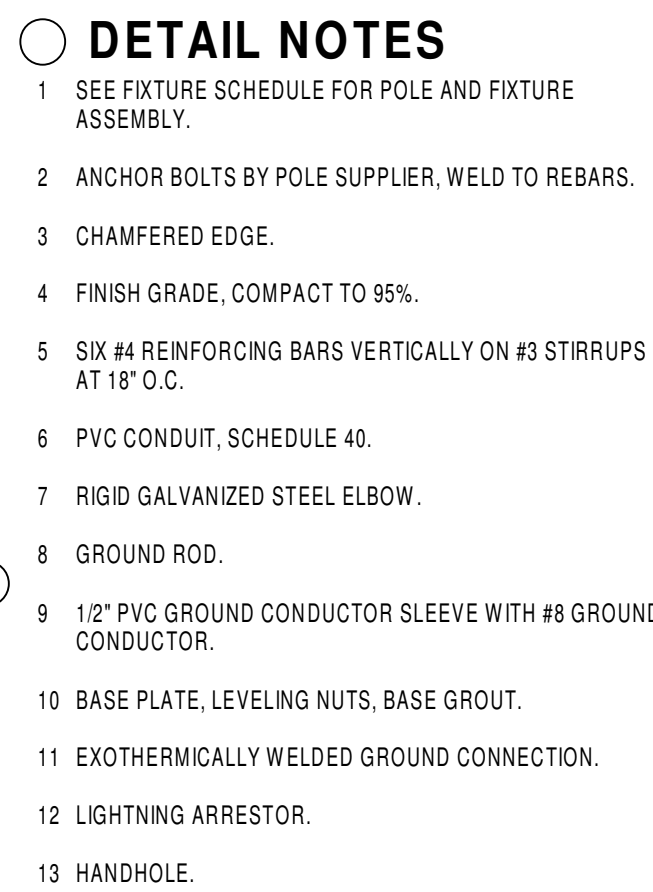
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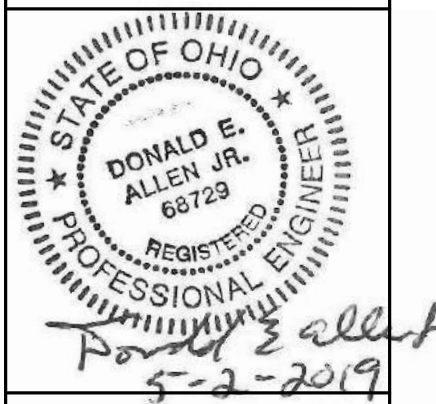
5



UN  
SCALE



SCAL



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BULLETIN 1

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## DETAILS

Sheet No.

**ES003**