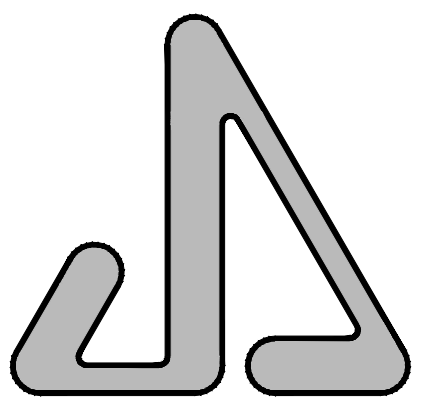


# EXTERIOR FACADE IMPROVEMENTS & BUILDING ADDITION FOR: MONROE COUNTY COMMUNITY COLLEGE LIFE SCIENCE BUILDING

1555 S. RAISINVILLE ROAD, MONROE, MICHIGAN 48161



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## ABBREVIATIONS

AFF	ABOVE FINISH FLOOR	ELEG	ELECTRICAL	MISC	MISCELLANEOUS
ALUM	ALUMINUM	ELEV	ELEVATION	MTL	METAL
ARCH	ARCHITECT	EQ	EQUAL	NO.	NUMBER
BD	BOARD	EQUIP	EQUIPMENT	NOM	NOMINAL
BOTT	BOTTOM	EXIST	EXISTING	O.C.	ON CENTER
CJ	CONTROL JOINT	FIN	FINISH (ED)	REINF	REINFORCEMENT (ING) (ED)
CLS	CEILING	FT	FEET / FOOT	REQD	REQUIRED
CONC	CONCRETE	GA	GAGE	SHT	SHEET
CONT	CONTINUOUS	SALV	GALVANIZED	SIM	SIMILAR
DET	DETAIL	HORIZ	HORIZONTAL	SUSP	SUSPENDED
DIA	DIAMETER	HM	HOLLOW METAL	TEMP	TEMPERED
DIAG	DIAGONAL	INSUL	INSULATION (ING) (ED)	TYP	TYPICAL
DIM	DIMENSION	JT	JOINT	U.N.O.	UNLESS NOTED OTHERWISE
DN	DOWN	MAX	MAXIMUM	VERT	VERTICAL
DWG	DRAWING	MFR	MANUFACTURER	W	WITH
EA	EACH	MIN	MINIMUM	WVF	WELDED WIRE FABRIC

## MATERIALS LEGEND

	CONCRETE MASONRY UNIT (C.M.U.)		SEALANT
	BRICK VENEER		STEEL
	BACKER ROD (CLOSED CELL)		

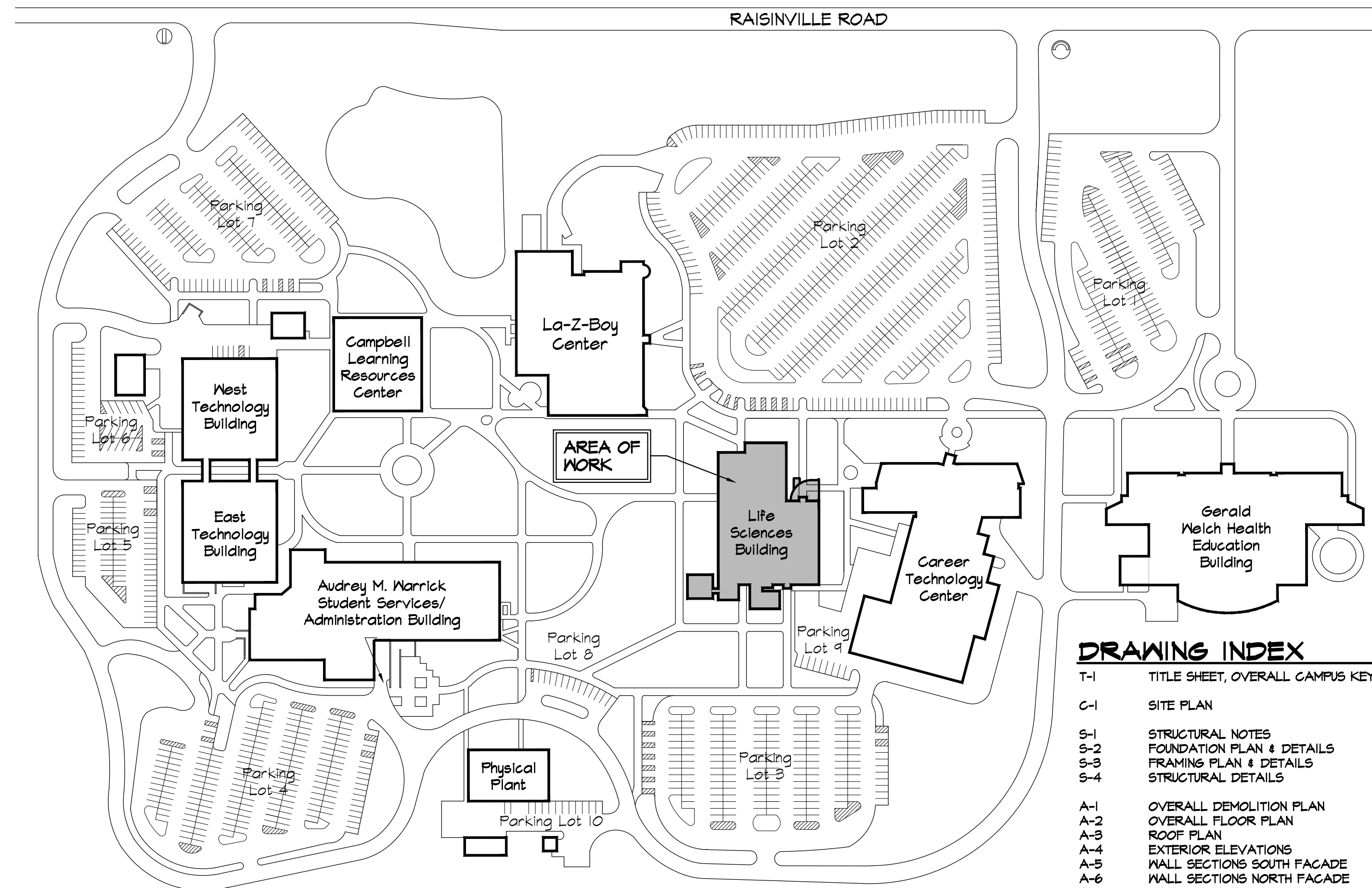
## DRAWING LEGEND

	DETAIL NUMBER		DIRECTION OF SECTION CUT
	SHEET DETAIL IS LOCATED		

## CODE INFORMATION

<b>CODES:</b>	MICHIGAN BUILDING CODE 2015 MICHIGAN MECHANICAL CODE 2015 MICHIGAN PLUMBING CODE 2015 MICHIGAN ELECTRICAL CODE 2015 INTERNATIONAL ENERGY CONSERVATION CODE 2004	<b>AUTOMATIC FIRE SPRINKLERS:</b>	BOTH THE EXISTING BUILDING AND THE NEW ADDITION ARE NOT FIRE-SPRINKLERED.
<b>USE GROUP:</b>	BUSINESS GROUP B (SECTION 304.1)	<b>OCCUPANT LOAD:</b>	EDUCATIONAL CLASSROOM AREA = 1 PERSON/20 SF NET (TABLE 1004.1.2) = 1/3 OF TOTAL GROSS SF = 54,430 SF x 1/3 x 0.8 NET/GROSS x 1 PERSON/20 = 726 PERSONS BUSINESS OFFICES = 100 GROSS = 2/3 OF TOTAL GROSS SF = 54,430 SF x 2/3 x 1 PERSON/100 SF GROSS = 363 PERSONS PROPOSED EDUCATIONAL = 726 OCCUPANTS PROPOSED BUSINESS/OFFICE = 363 OCCUPANTS PROPOSED TOTAL = 1,089 OCCUPANTS
<b>CONSTRUCTION TYPE:</b>	TYPE II-B (SECTION 602.2) CONSTRUCTED OF NONCOMBUSTIBLE BUILDING ELEMENTS PER TABLE 601 BOTH EXISTING BUILDING AND NEW ADDITION	<b>EGRESS WIDTH:</b>	0.2' PER OCCUPANT (1005.9.2) 1,089 OCCUPANTS x 0.2' = 218" EGRESS WIDTH PROVIDED FOUR DOUBLE DOORS 4 DOORS x 72" WIDTH/DOOR = 288"
<b>ALLOWABLE HEIGHT:</b>	OCCUPANCY GROUP B, TYPE II-B CONSTRUCTION NO AUTOMATIC SPRINKLER SYSTEM MAX. HEIGHT: 55 FEET ABOVE GRADE PLANE (TABLE 504.3) ACTUAL HEIGHT OF EXISTING BUILDING IS LESS THAN 55 FEET.	<b>NUMBER OF EXITS:</b>	OCCUPANT LOAD: GREATER THAN 1,000 OCCUPANTS (TABLE 1006.3.1) REQUIRED = (4) EXITS NUMBER OF EXITS PROVIDED = (4) EXITS
<b>ALLOWABLE NUMBER OF STORIES:</b>	OCCUPANCY GROUP B, TYPE II-B CONSTRUCTION NO AUTOMATIC SPRINKLER SYSTEM MAX. NUMBER OF STORIES ABOVE GRADE PLANE: 5 STORIES (TABLE 504.4) ACTUAL NUMBER OF STORIES: 2	<b>EXIT ACCESS:</b>	"EGRESS FROM A ROOM OR SPACE SHALL NOT PASS THROUGH ADJOINING OR INTERVENING ROOMS OR AREAS, EXCEPT WHERE SUCH ADJOINING ROOMS OR AREAS AND THE AREA SERVED ARE ACCESSORY TO ONE OR THE OTHER, ARE NOT A GROUP II OCCUPANCY AND PROVIDE A DISCRETE PATH OF EGRESS TRAVEL TO AN EXIT." (1016.2.2)
<b>ALLOWABLE BUILDING AREA:</b>	OCCUPANCY GROUP B, TYPE II-B CONSTRUCTION NO AUTOMATIC SPRINKLER SYSTEM MAX. BUILDING AREA: 23,000 SF PER STORY (TABLE 506.2)	<b>TRAVEL DISTANCE:</b>	OCCUPANCY GROUP B NO AUTOMATIC SPRINKLER SYSTEM MAX. TRAVEL DISTANCE = 200 FEET (TABLE 1017.2)
<b>ALLOWABLE BUILDING AREA INCREASE:</b>	1 = (F/P - 0.25) W/30 (SECTION 506.3.3) 2 = (196/196 - 0.25) 30/30 3 = 0.75 MAX. BUILDING AREA PER STORY = 23,000 SF x 1.75 MAX. BUILDING AREA PER STORY = 40,250 SF		
<b>BUILDING AREA (GROSS SF)</b>	<b>EXISTING BUILDING</b>	<b>NEW ADDITION</b>	<b>TOTAL FLOOR AREA (GROSS SF)</b>
BASEMENT	--	--	--
FIRST FLOOR	30,542 SF	2,451 SF*	32,993 SF
SECOND FLOOR	21,497 SF	--	21,497 SF
TOTAL	51,971 SF	2,451 SF	54,430 SF
		*1,961 SF USABLE	

**NOTE**  
THE CODE DATA LISTED IS FOR REFERENCE ONLY AND NOT INTENDED TO BE ALL INCLUSIVE. THE CONTRACTOR AND ALL SUB- CONTRACTORS SHALL BE RESPONSIBLE FOR MEETING ALL ASPECTS OF THE MICHIGAN BUILDING CODE 2015 (MBC 2015) AND ALL APPLICABLE REFERENCED CODES AND/OR STANDARDS.



**OVERALL CAMPUS PLAN**  
NO SCALE

## PROJECT DESCRIPTION

PROJECT TO CONSIST OF DEMOLITION OF EXISTING STONE FACADE PANELS AND PARTIAL DEMOLITION OF EXISTING BRICK PIERS. REPAIR AND RECONSTRUCTION OF BRICK PIERS AND INSTALLATION OF LIGHT WEIGHT METAL SUN SCREEN FACADE, BLENDING THIS PROJECT WITH THE ARCHITECTURAL STYLES AROUND THE CAMPUS. ADDITIONALLY, CONSTRUCTION OF A SINGLE STORY SLAB ON GRADE 2,451 SQUARE FOOT STUDENT COLLABORATION AREA BUILDING ADDITION TO THE NORTHWEST SIDE OF THE STRUCTURE. STUDENT COLLABORATION AREA IS TO INCLUDE PRIVATE AND COLLABORATIVE STUDY AREAS, FLEXIBLE STUDY/SEATING AREAS AND A NEW ACCESSIBLE BUILDING ENTRANCE.

## ALTERNATES

**ALTERNATE #1** - LiveRoof "STANDARD" GREEN ROOF SYSTEM, APPROX. 2,150 SF ROOF AREA. MODULE SIZE: 1x2x3-1/4" UNIT. GREEN ROOF SYSTEM TO BE BY LiveRoof, USING STANDARD MODULE SYSTEM, USING LOCAL SUCCELENTS. PLANT SELECTION TO BE COORDINATED WITH OWNER. THIS SYSTEM DOES NOT REQUIRE IRRIGATION.

**ALTERNATE #2** - ACCENT LIGHT FOR EXTERIOR METAL PANEL. STATE THE AMOUNT IN THE BID FORM TO BE ADDED TO THE BASE BID TO PROVIDE THE ACCENT LIGHTING FOR THE EXTERIOR METAL PANELS. THE SCOPE IS INCLUSIVE OF THE LUMINAIRES, POWER SUPPLIES, WIRING, RACEWAY, PANELS, AND LABOR FOR A COMPLETE OPERABLE SYSTEM AS DESCRIBED AND SHOWN ON THE DRAWINGS.

**ALTERNATE #3** - EXISTING BUILDING REPAIRS - CONTROL JOINTS & MECHANICAL PIT REPAIR. SEE SHEETS A-18 - A-23 FOR SCOPE OF WORK.

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TITLE SHEET, OVERALL CAMPUS KEY PLAN AND GENERAL INFORMATION

06.12.17 CONSTRUCTION  
06.05.17 BUREAU OF FIRE SERVICES  
05.18.17 ADDENDUM #2  
05.01.17 PERMIT  
05.01.17 BIDS  
04.25.17 OWNER REVIEW

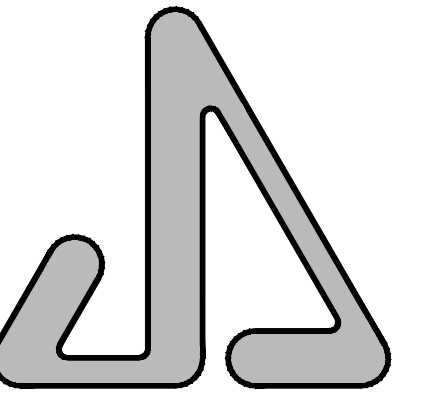
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SITE PLAN

06.12.17 CONSTRUCTION  
06.05.17 BUREAU OF FIRE SERVICES  
05.30.17 ADDENDUM #3  
05.25.17 ADDENDUM #4  
05.01.17 PERMIT  
05.01.17 BIDS  
04.25.17 OWNER REVIEW

DATE: ISSUED FOR:

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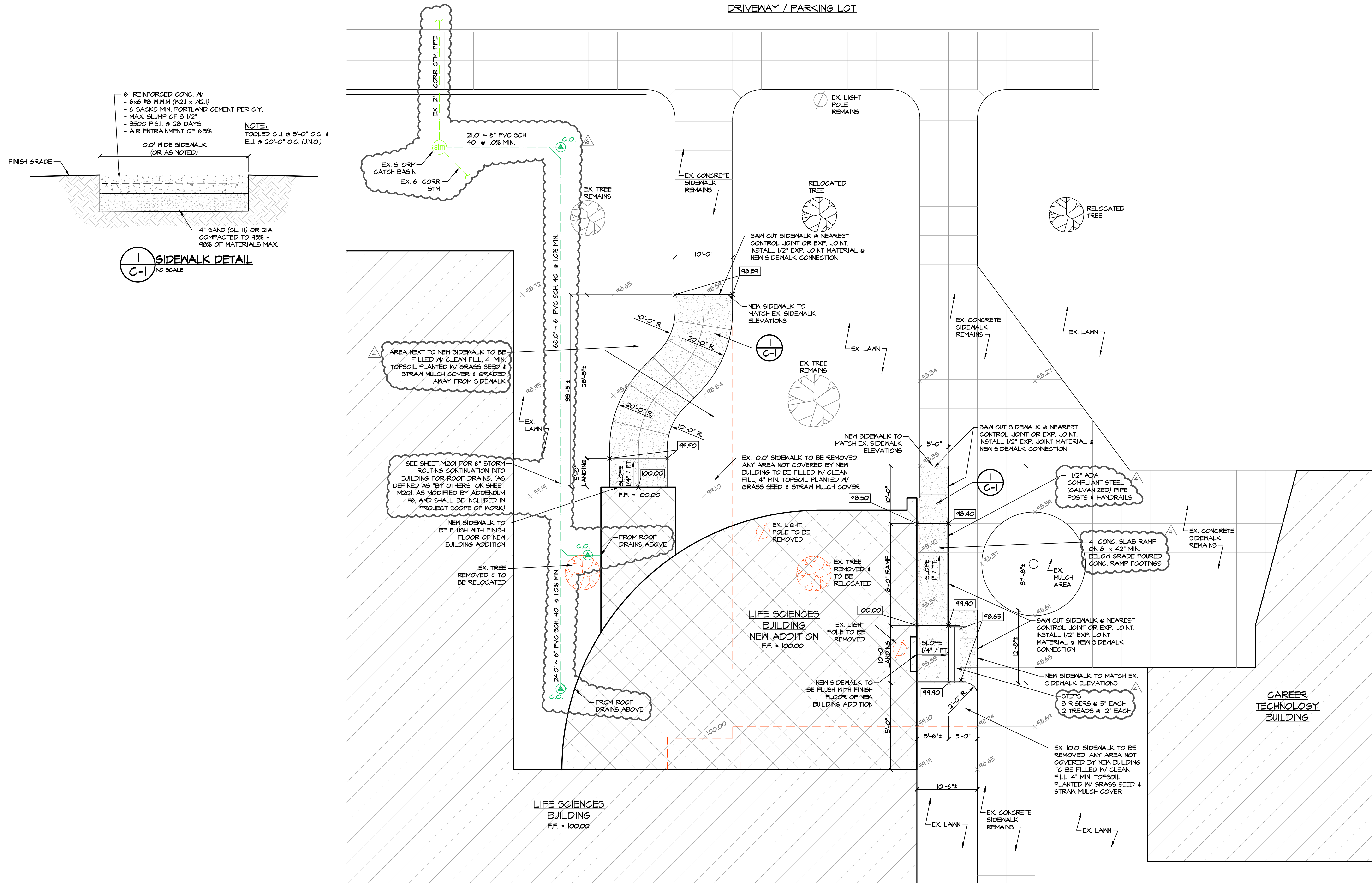
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PLAN NORTH  
SCALE: 1/8" = 1'-0"

**NOTES**

DETAILS, DIMENSIONS, AND ELEVATIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING BUILDING AND WALLS HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURES AND FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURES AND THE PROPOSED WORK BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. BASE CONTRACT BID PRICES UPON RECOGNITION OF THE ABOVE UNCERTAINTIES AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURES.

PRIOR TO START OF CONSTRUCTION, THE CONTRACTOR SHALL UNCOVER AND VISUALLY FIELD VERIFY THE EXISTING CONSTRUCTION AND SHALL FIELD VERIFY ALL PLAN DETAILS, DIMENSIONS, ELEVATIONS, AND CONDITIONS AND REPORT ANY DISCREPANCIES TO THE OWNER.

IF A PLAN DISCREPANCY IS DISCOVERED BY THE CONTRACTOR DURING CONSTRUCTION, THEN THE CONTRACTOR SHALL REPORT THE DISCREPANCY TO THE OWNER PRIOR TO PROCEEDING WITH THE WORK.

ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH THE MICHIGAN BUILDING CODE 2011 EDITION.

IN CASES WHERE THERE IS A CONFLICT BETWEEN THE PLANS, SPECIFICATIONS, STANDARD DRAWINGS, THE MORE RESTRICTIVE SHALL TAKE PRECEDENT, AS DETERMINED BY THE OWNER.

THE LOCATION OF ALL UTILITIES ARE NOT SHOWN ON THESE PLANS. THE CONTRACTOR SHALL VERIFY THE ACTUAL UTILITY LOCATIONS AND THE LOCATION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

**FOUNDATIONS**

FOUNDATIONS BEARING BELOW GRADE HAVE BEEN DESIGNED FOR A MAXIMUM SERVICE LOAD OF 2500 PSF AT THE SERVICE LIMIT STATE.

A QUALIFIED GEOTECHNICAL CONSULTANT, PRIOR TO THE PLACEMENT OF REINFORCING STEEL AND CONCRETE, SHOULD EVALUATE FOUNDATION EXCAVATIONS TO VERIFY THAT AN ADEQUATE BEARING MATERIAL IS PRESENT AND THAT ALL DEBRIS, MUD, AND LOOSE, FROZEN OR WATER-SOFTENED SOILS ARE REMOVED.

IF THE GEOTECHNICAL ENGINEER DETERMINES THAT THE PROPOSED FOUNDATION MATERIAL IS UNSUITABLE, THEN THE MATERIAL SHALL BE REMOVED AND REPLACED BY ENGINEERED FILL MATERIAL TO THE LIMITS SPECIFIED BY THE GEOTECHNICAL ENGINEER. ALL FOOTINGS SHOULD BEAR ON NATURAL UNDISTURBED VERY STIFF OR BETTER COHESIVE SOILS OR ENGINEERED FILL.

FOUNDATIONS SHALL BE CONSTRUCTED AS SOON AS IS PRACTICAL AFTER FOUNDATION EXCAVATION ACTIVITIES. IF THE FOUNDATION EXCAVATIONS WILL BE LEFT OPEN FOR AN EXTENDED PERIOD OF TIME, A THIN MAT OF LEAN CONCRETE SHALL BE PLACED OVER THE BOTTOM TO MINIMIZE DAMAGE TO THE BEARING SURFACE FROM WEATHER OR CONSTRUCTION ACTIVITIES. WATER SHALL NOT BE ALLOWED TO POND IN ANY EXCAVATION. FOUNDATION CONCRETE SHALL NOT BE PLACED ON FROZEN OR FLOODED SUBGRADE.

FREE DRAINING GRANULAR MATERIAL SHALL BE MDOT 94R OR AN APPROVED EQUAL.

FABRIC GEOTEXTILE SEPARATOR SHALL BE MIRAFI 180N NON WOVEN POLYPROPYLENE GEOTEXTILE OR AN APPROVED EQUIVALENT.

**STRUCTURAL STEEL**

STRUCTURAL STEEL HOLLOW STRUCTURAL SHAPES SHALL BE ASTM A500 GRADE B MATERIAL WITH A MINIMUM YIELD STRENGTH OF 46 KSI.

STRUCTURAL PLATE SHALL BE ASTM A36 MATERIAL.

ALL STRUCTURAL STEEL SHALL BE HOT DIP GALVANIZED AFTER FABRICATION. JOIST AND BRIDGINS SHALL BE PAINTED PER THE SPECIFICATIONS.

THREADED ANCHOR RODS AND HARDWARE SHALL BE STAINLESS STEEL.

ALL FASTENERS FOR STRUCTURAL STEEL SHALL BE 7/8 INCH DIAMETER ASTM A325 TYPE 1 INSTALLED IN 15/16 INCH DIAMETER STANDARD HOLES. THE BOLT THREADS SHALL BE EXCLUDED FROM THE SHEAR PLANE.

WASHERS FOR HIGH STRENGTH BOLTS SHALL CONFORM TO ASTM A563 GRADE B.

NUTS FOR HIGH STRENGTH BOLTS SHALL CONFORM TO ASTM F436 TYPE 1.

LOAD INDICATING WASHERS FOR HIGH STRENGTH BOLTS SHALL BE DT16 AND SHALL CONFORM TO ASTM F434 TYPE 325.

ALL WELDING SHALL CONFORM TO THE AWS D11.

**CAST-IN-PLACE CONCRETE**

CAST-IN-PLACE CONCRETE FOR FOUNDATIONS SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 4000 PSI.

CAST IN PLACE CONCRETE FOR ROOF AND FLOORS SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI.

CONCRETE SHALL HAVE AN AIR ENTRAINING ADMIXTURE CONFORMING TO ASTM C260 AND THE AMOUNT OF ENTRAINED AIR SHALL BE 5% +/- 1%.

CONCRETE ADMIXTURES CONTAINING CALCIUM CHLORIDE ARE NOT PERMITTED.

CONCRETE SHALL CONTAIN A WATER REDUCING ADMIXTURE CONFORMING TO ASTM C494 TYPE A, F, OR G.

CONCRETE REINFORCING CARBON STEEL BARS SHALL BE ASTM A615 GRADE 60 AND SHALL BE EPOXY COATED.

STRUCTURAL WELDED WIRE REINFORCEMENT SHALL BE ASTM A105 GRADE 10 AND SHALL BE EPOXY COATED.

ALL CONCRETE ADHESIVE ANCHORS AND HARDWARE SHALL BE STAINLESS STEEL. CONCRETE ANCHORS SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

REINFORCING STEEL DOMELING INTO CONCRETE SHALL BE HILTI HIT-RE 500-V3 EPOXY ADHESIVE ANCHORING SYSTEM.

BONDBREAKER MATERIAL SHALL BE 30 POUND FELT PAPER OR AS SPECIFIED BY THE OWNER.

ALL STEEL AND STEEL WELDMENTS EMBEDDED INTO CONCRETE SHALL BE ASTM A 36 MATERIAL AND SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.

LAP FOR #4 REINFORCING STEEL SHALL BE 24 INCHES.

LAP FOR #5 REINFORCING STEEL SHALL BE 30 INCHES.

LAP FOR #6 REINFORCING STEEL SHALL BE 36 INCHES.

MECHANICAL BAR SPLICES MAY BE USED IN LIEU OF LAP SPLICES OR WHERE REINFORCING IS SHOWN THROUGH CONSTRUCTION JOINTS. THE MECHANICAL BAR SPLICE SHALL PROVIDE A FULL TENSION SPLICE WITH A CAPACITY OF 125 PERCENT OF THE REINFORCING BAR YIELD STRENGTH. ALL SPLICES SHALL BE VISUALLY INSPECTED BY A QUALIFIED INSPECTOR TO VERIFY THAT THE SPLICE HAS BEEN MADE PROPERLY.

ALL CONCRETE REINFORCING STEEL SHALL HAVE A CLEAR COVER OF 2.0 INCHES UNLESS NOTED OTHERWISE.

REINFORCING STEEL IS TO BE BLOCKED TO PROPER LOCATION USING CHAIRS AND SPACERS. FOR EPOXY COATED REINFORCING STEEL, THE CHAIRS AND SPACERS SHALL HAVE AN EPOXY COATED FINISH. REINFORCEMENT SHALL BE TIED SECURELY WITH EPOXY COATED TIE WIRE TO PREVENT DISPLACEMENT. TACK WELDING OF REINFORCING IS PROHIBITED.

ALL CONCRETE SURFACES SHALL BE CAST IN FORMS. SURFACES SHALL BE FORMED IN A MANNER WHICH WILL PRODUCE A SMOOTH AND UNIFORM APPEARANCE WITHOUT RUBBING OR PLASTERING. SURFACES SHALL BE SMOOTH AND FREE FROM FLOAT AND TROWEL MARKS. ALL EXPOSED CONCRETE EDGES SHALL HAVE A ¼ INCH CHAMFER.

CONCRETE WALL TOP SURFACE SHALL BE GIVEN A LIGHT BROOM FINISH.

ALL EXTERIOR CONCRETE EDGES AT TOP OF FOOTING PEDESTAL WALLS SHALL BE BEVELED WITH A 0.75 INCH CHAMFER.

CAST IN PLACE CONCRETE FOR ROOF AND FLOORS SHALL BE WET CURED USING BURLAP FOR A MINIMUM OF 7 CONTINUOUS DAYS.

**MASONRY**

MASONRY CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE MORE STRINGENT PROVISIONS OF THE 2011 MICHIGAN BUILDING CODE AND THE REQUIREMENTS OF SPECIFICATION FOR MASONRY STRUCTURES (TMS 602-II/ACI 530.I-II/ASCE 6-II) AS PUBLISHED BY THE MASONRY SOCIETY, LONGMONT, COLORADO, EXCEPT AS MODIFIED BY THE REQUIREMENTS OF THESE CONTRACT DOCUMENTS.

EMPLOY HOT OR COLD WEATHER CONSTRUCTION PRACTICES AS DEFINED IN TMS 602/ACI 530.I/ASCE 6 WHEN AMBIENT AIR TEMPERATURE EXCEEDS 100° F OR IS BELOW 40° F. NO WORK SHALL BE DONE SUBJECT TO FREEZING TEMPERATURES OR ON FROZEN SUBSTRATE.

CONCRETE MASONRY UNITS SHALL BE 12 INCH NOMINAL WIDTH AND SHALL CONFORM TO ASTM C90.

THE MASONRY ASSEMBLY SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (FM) OF 2000 PSI. MASONRY ASSEMBLY COMPRESSIVE STRENGTH SHALL BE DEEMED TO COMPLY THROUGH THE USE OF MASONRY UNITS WITH A NET AREA COMPRESSIVE STRENGTH OF 2800 PSI OR THROUGH MASONRY PRISM TESTING WITH PRIOR APPROVAL.

MORTAR SHALL BE TYPE S MASONRY CEMENT AND SHALL BE OF MATERIALS AND PROPORTIONED IN COMPLIANCE WITH THE PROPORTION SPECIFICATIONS OF ASTM C 270.

SAND FOR MORTAR SHALL CONFORM TO ASTM C144 AND SHALL BE MEASURED IN LOOSE, DAMP CONDITION.

GROUT SHALL CONFORM TO THE PROPORTION REQUIREMENTS OF ASTM C476.

PROVIDE MATERIAL SUBMITTALS AND/OR TEST REPORTS SHOWING COMPLIANCE WITH REFERENCED STANDARDS.

ALL MASONRY WORK SHALL BE LAID IN RUNNING BOND UNLESS NOTED OTHERWISE.

GROUT PLACEMENT AND CONSOLIDATION SHALL CONFORM TO SECTION 3.5 IN TMS 602/ACI 530.I/ASCE 6.

ALL GROUT SHALL BE PLACED OR SUPERVISED BY MASONRY CERTIFIED IN GROUT PLACEMENT BY THE INTERNATIONAL MASONRY INSTITUTE, THE MASONRY INSTITUTE OF MICHIGAN OR AN APPROVED ALTERNATE.

ALL WORK SHALL BE LAID TRUE TO A LINE, PLUMB AND LEVEL IN KEEPING WITH THE TOLERANCES GIVEN IN SPECIFICATIONS FOR MASONRY STRUCTURES (TMS 602-08/ACI 530.I-08/ASCE 6-08).

MASONRY JOINTS SHALL BE FULLY FILLED FOR SOLID UNITS AND FACE SHELL BEDDED WITH HEAD JOINT DEPTH EQUAL TO THE FACE SHELL OR GREATER FOR HOLLOW UNITS UNLESS NOTED OTHERWISE.

ALL HORIZONTAL STEEL REINFORCEMENT SHALL BE CONTINUOUS AROUND CORNERS TO PROVIDE LAP LENGTHS IN ACCORDANCE WITH SPECIFICATIONS FOR MASONRY STRUCTURES (TMS 602-08/ACI 530.I-08/ASCE 6-08).

HORIZONTAL CMU LADDER REINFORCING SHALL CONFORM TO ASTM A851 AND SHALL BE #21 MINIMUM WIRE SIZE. PROVIDE LADDER TYPE JOINT REINFORCEMENT WITH (1) DEFORMED SIDE ROD IN EACH FACE UNLESS NOTED OTHERWISE. INSTALL JOINT REINFORCEMENT AT 16 INCHES ON CENTER VERTICALLY.

DISCONTINUE ALL HORIZONTAL REINFORCEMENT AT CONTROL JOINTS EXCEPT AT DIAPHRAGM LEVELS UNLESS NOTED OTHERWISE.

CONTINUE ALL VERTICAL STEEL REINFORCEMENT FROM FOOTING TO BOND BEAM AT TOP OF PARAPET. WHERE TERMINATION OCCURS IN BOND BEAMS ENGAGE BOND BEAM STEEL WITH A STANDARD 90 OR 180 DEGREE HOOK.

MASONRY CONSTRUCTION CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS SHALL BE VERIFIED IN ACCORDANCE WITH IBC LEVEL 1 QUALITY ASSURANCE BY AN ICC CERTIFIED STRUCTURAL MASONRY SPECIAL INSPECTOR.

**MASONRY REINFORCEMENT**

CONCRETE REINFORCING CARBON STEEL BARS SHALL BE ASTM A615 GRADE 60.

TIE WIRE SHALL CONFORM TO ASTM A82.

WELDED WIRE FABRIC SHALL CONFORM TO ASTM A105.

HORIZONTAL JOINT REINFORCEMENT SHALL CONFORM WITH ASTM A82 AND BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A105.

DETAILINGS, BENDING AND PLACING OF STEEL REINFORCEMENT SHALL BE IN ACCORDANCE WITH THE PROVISIONS OF SPECIFICATIONS FOR MASONRY STRUCTURES (TMS 602-08/ACI 530.I-08/ASCE 6-08) OR ACI 318 AS APPLICABLE.

ALL STEEL REINFORCEMENT SHALL BE PLACED AND SUPPORTED AS NECESSARY TO MAINTAIN PROPER POSITION IN ACCORDANCE WITH SPECIFICATIONS FOR MASONRY STRUCTURES (TMS 602-08/ACI 530.I-08/ASCE 6-08) OR ACI 318.

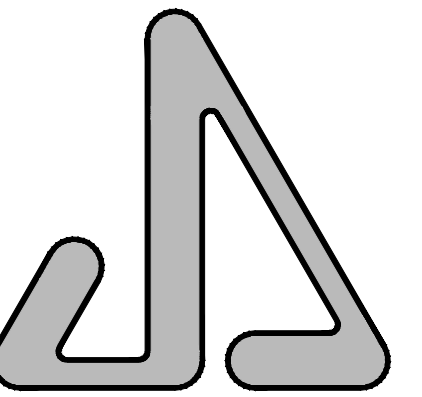
ALL STEEL REINFORCEMENT MARKED OR SHOWN AS CONTINUOUS MAY BE SPLICED WITH A LAP SPLICE CONFORMING TO SPECIFICATIONS FOR MASONRY STRUCTURES (TMS 602-08/ACI 530.I-08/ASCE 6-08) OR ACI 318.

WELDED WIRE FABRIC AND JOINT REINFORCEMENT SHALL BE LAPPED A MINIMUM OF TWO FULL MODULES OR 32 INCHES WHICHEVER IS GREATER.

ALL HORIZONTAL BARS IN SHALL BE CONTINUOUS AND BENT AT ALL CORNERS AND INTERSECTIONS.

MASONRY REINFORCEMENT COVER:

- A. MASONRY FACE EXPOSED TO EARTH OR WEATHER, #6 BAR OR LARGER: 2 IN.
- B. MASONRY FACE EXPOSED TO EARTH OR WEATHER, #5 BAR OR SMALLER: 1 ½ IN.
- C. MASONRY NOT EXPOSED TO EARTH OR WEATHER: 1 ½ IN.
- D. MASONRY JOINT REINFORCEMENT EXPOSED TO EARTH OR WEATHER: 5/8 IN.
- E. MASONRY JOINT REINFORCEMENT NOT EXPOSED TO EARTH OR WEATHER: ½ IN.



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IMPROVEMENTS & BUILDING  
ADDITION FOR:

MONROE COUNTY  
COMMUNITY COLLEGE

LIFE SCIENCE  
BUILDING

1555 S. RAISINVILLE ROAD  
MONROE, MICHIGAN 48161

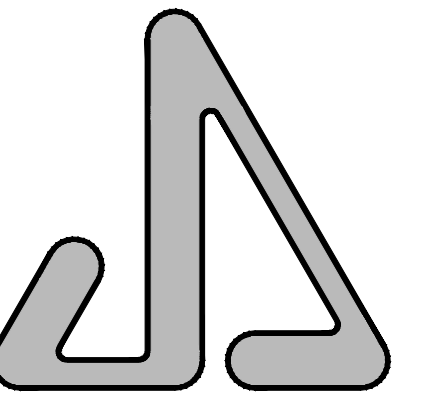
PROPERTY OWNER CONTACT:  
MR. JACK BURNS  
1555 S. RAISINVILLE ROAD  
MONROE, MICHIGAN 48161  
TELEPHONE: (734) 384-4249

**STRUCTURAL  
NOTES**

06.12.17	CONSTRUCTION
06.05.17	BUREAU OF FIRE SERVICES
05.18.17	ADDENDUM #2
05.01.17	PERMIT
05.01.17	BIDS
04.25.17	OWNER REVIEW
DATE:	ISSUED FOR:
DRAWN	WWH
REVIEW'D	JSJ

201545

**S-1**



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 EMAIL: jim@jacobsrch.com



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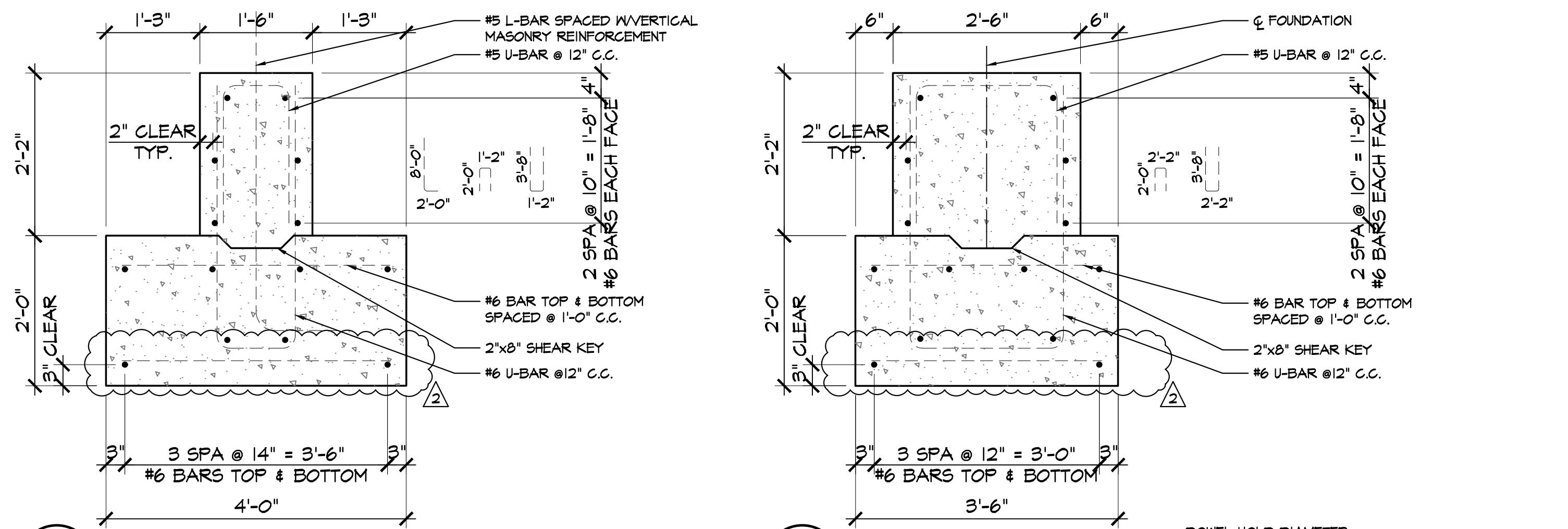
FOUNDATION PLAN  
 &  
 DETAILS

06.12.17	CONSTRUCTION
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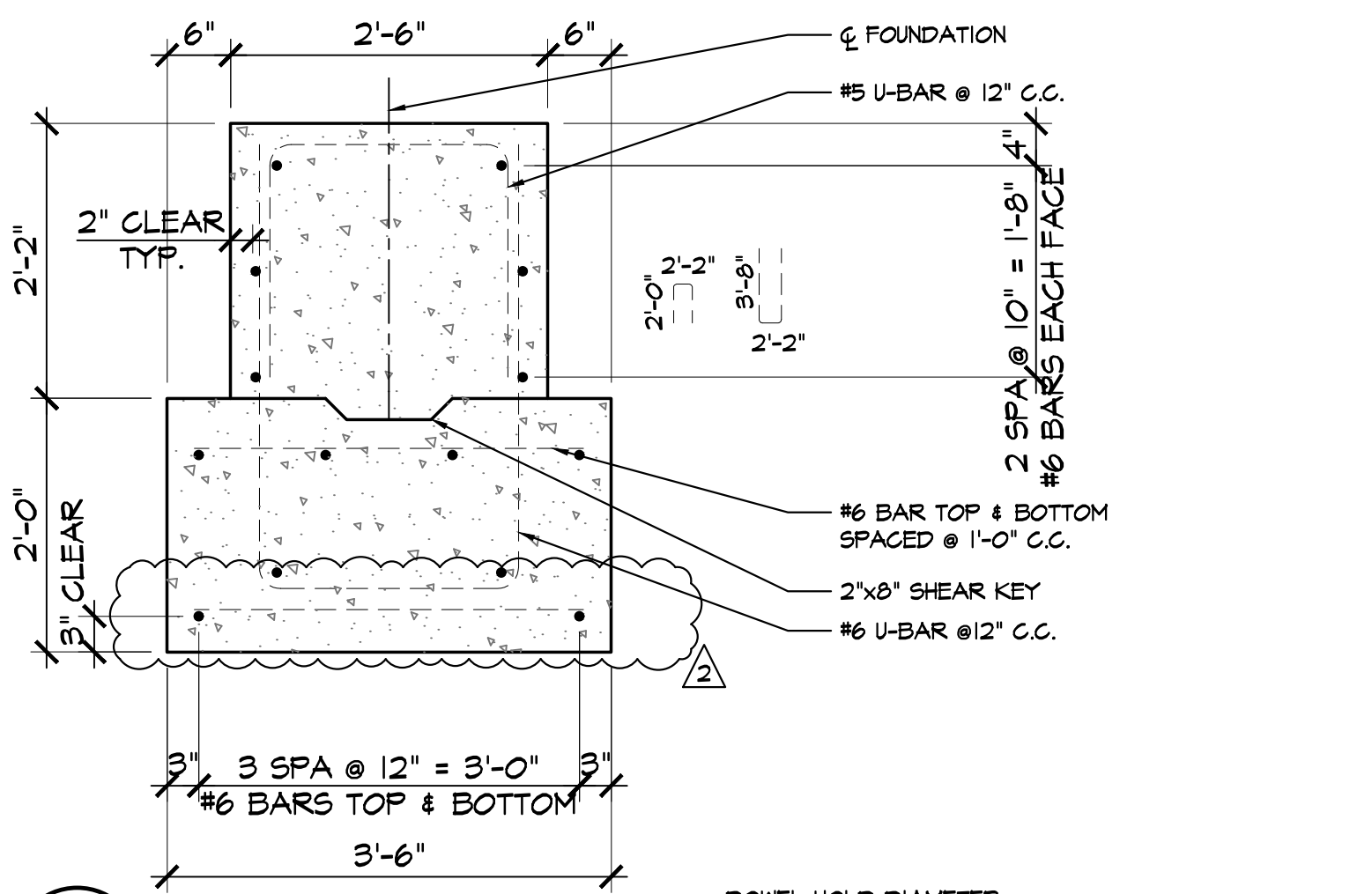
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**S-2**

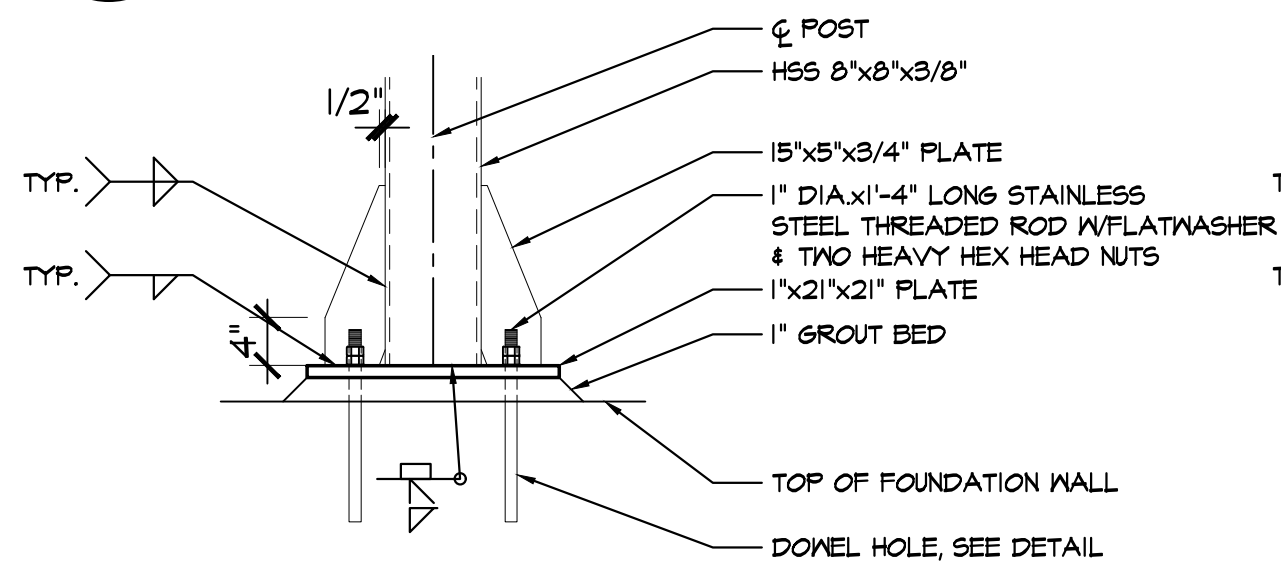
2 OF 4



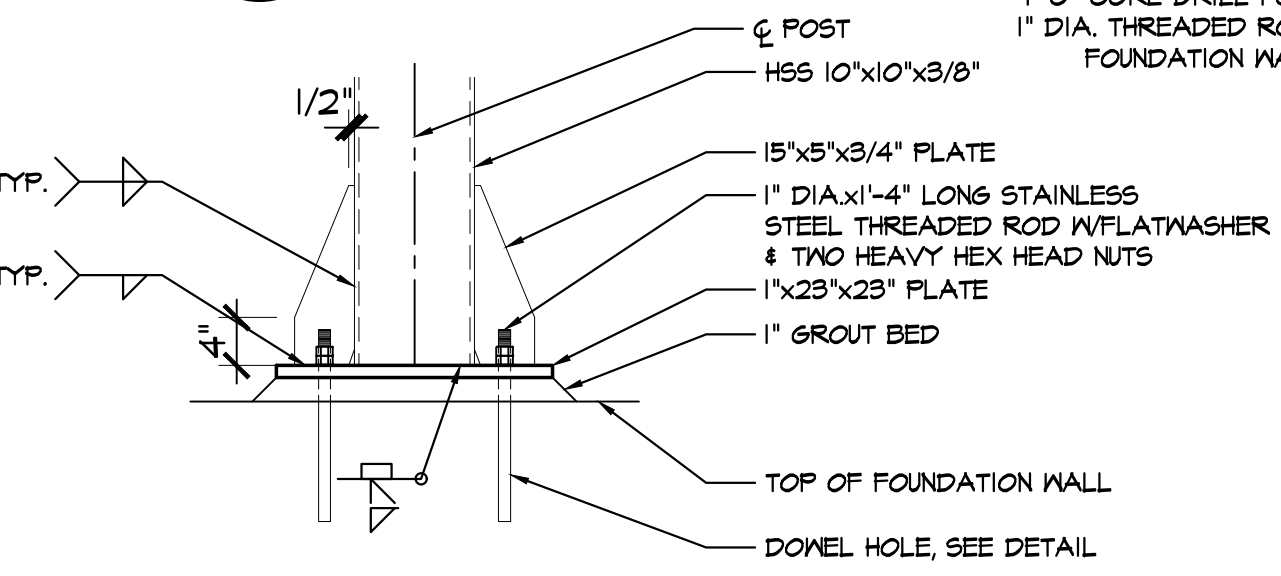
**2 FOUNDATION SECTION**  
 SCALE: 3/4" = 1'-0"



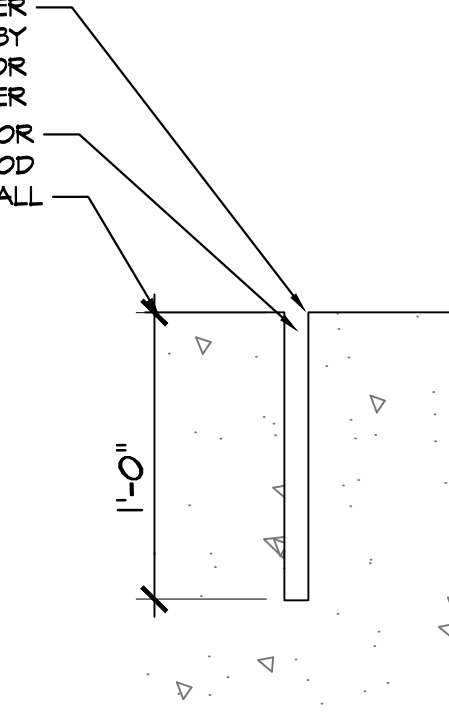
**3 FOUNDATION SECTION**  
 SCALE: 3/4" = 1'-0"



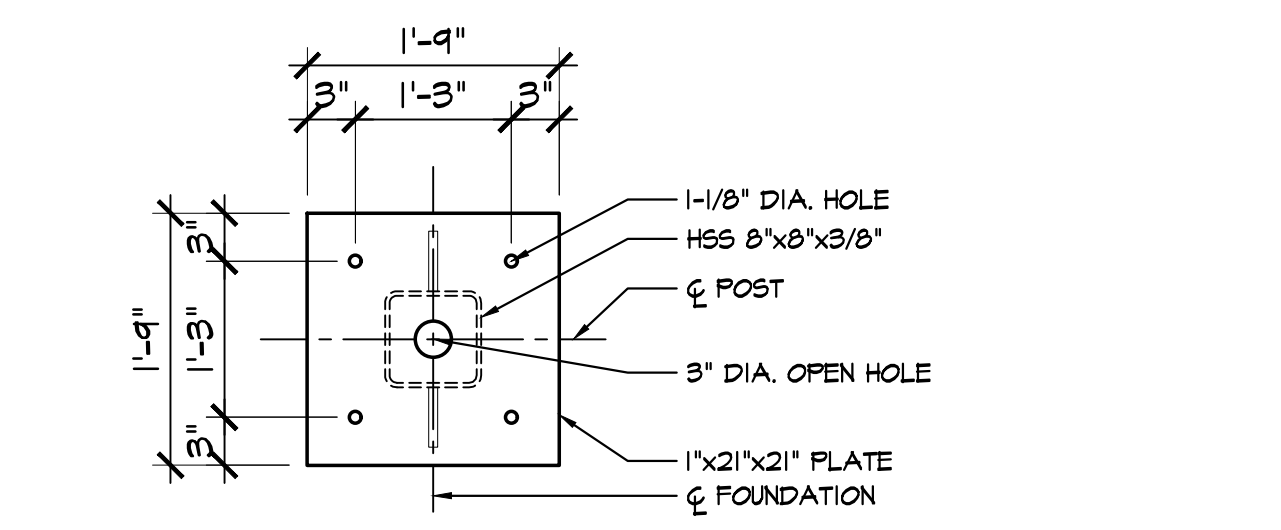
**ENTRANCE POST BASE PLATE**  
 SCALE: 3/4" = 1'-0"



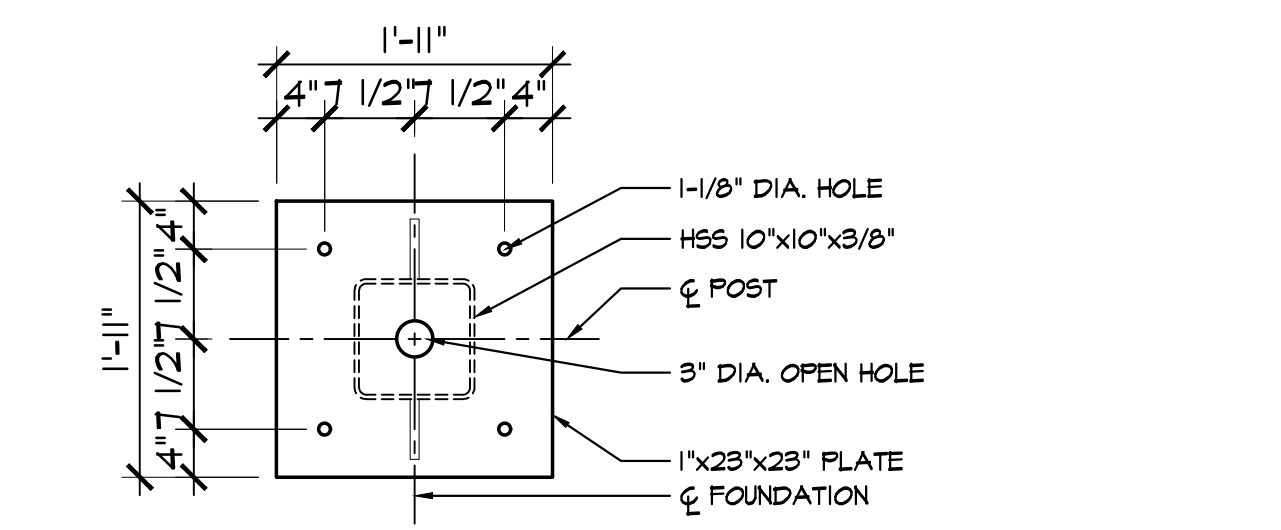
**POST BASE PLATE**  
 SCALE: 3/4" = 1'-0"



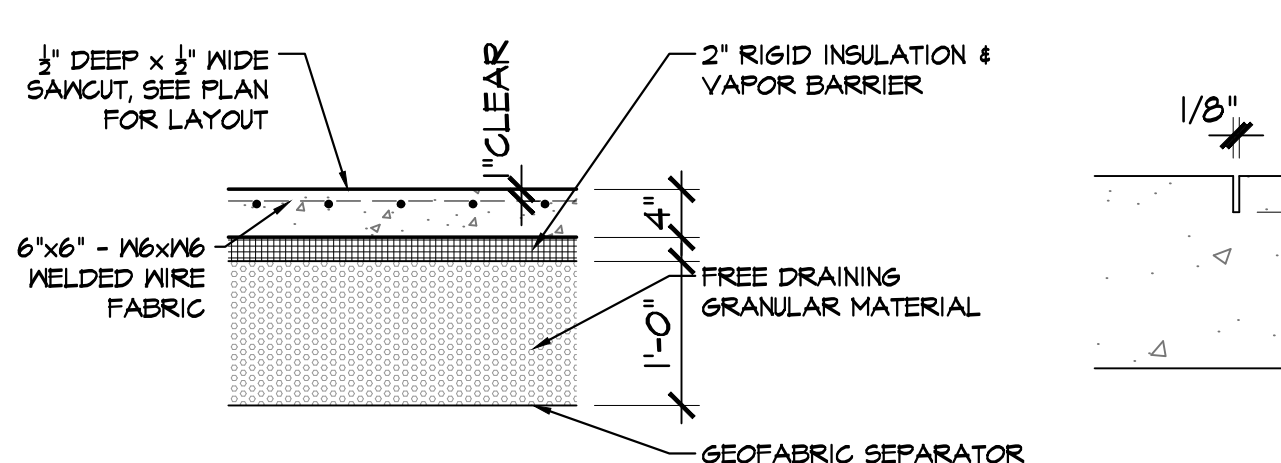
**DOVEL HOLE DETAIL**  
 SCALE: 1-1/2" = 1'-0"



**ENTRANCE POST BASE PLATE PLAN**  
 SCALE: 3/4" = 1'-0"



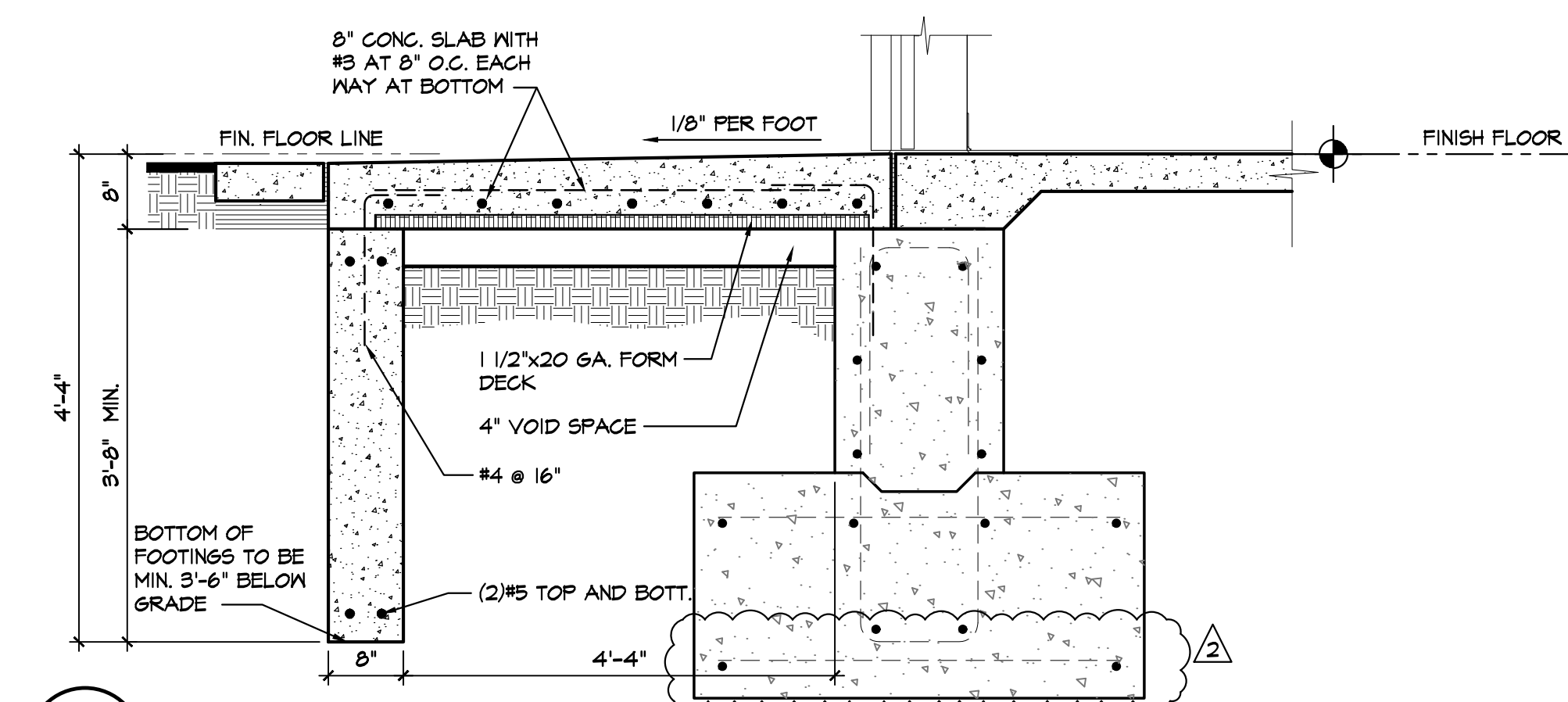
**POST BASE PLATE PLAN**  
 SCALE: 3/4" = 1'-0"



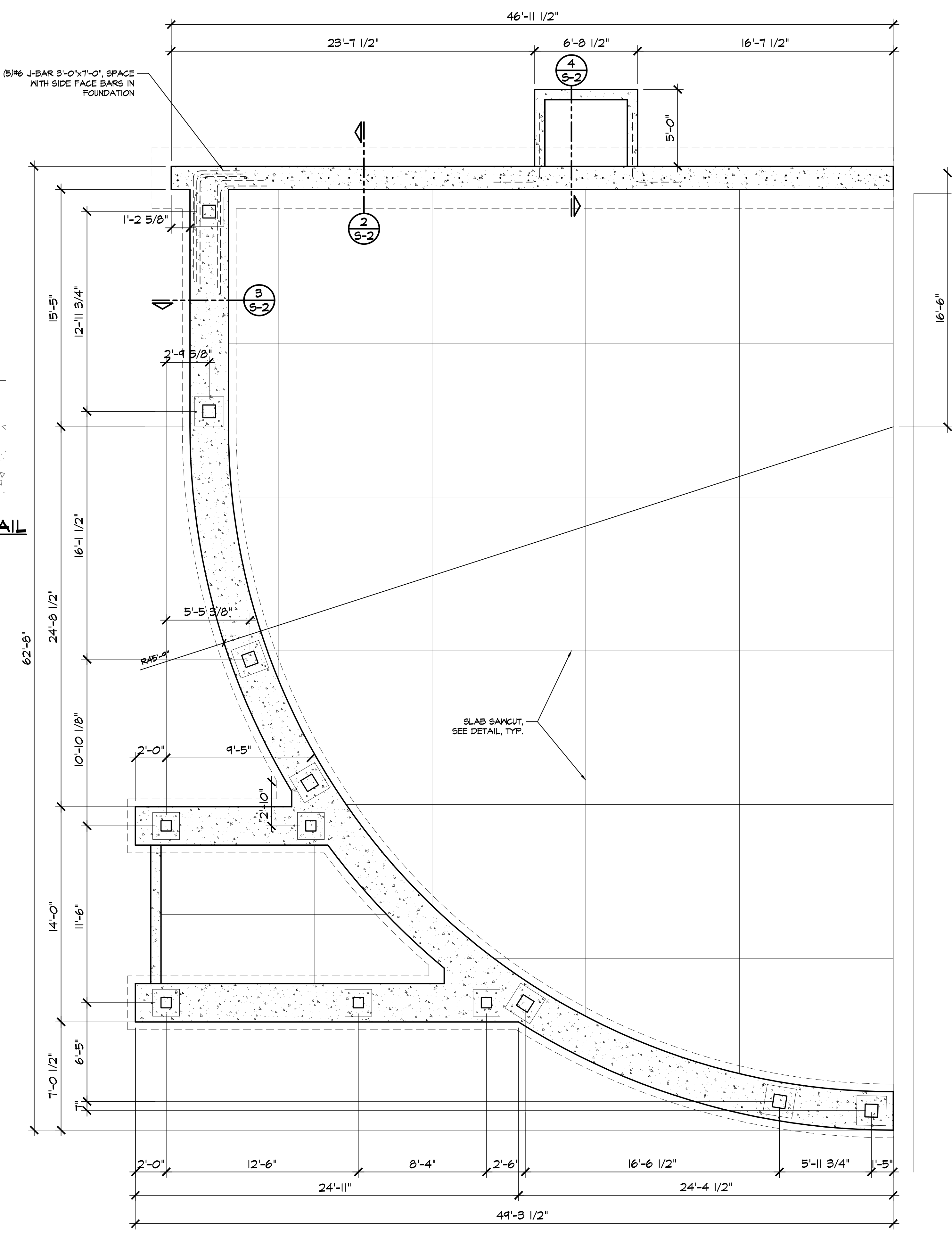
**FLOOR SECTION**  
 SCALE: 3/4" = 1'-0"



**SAWCUT DETAIL**  
 SCALE: 3" = 1'-0"

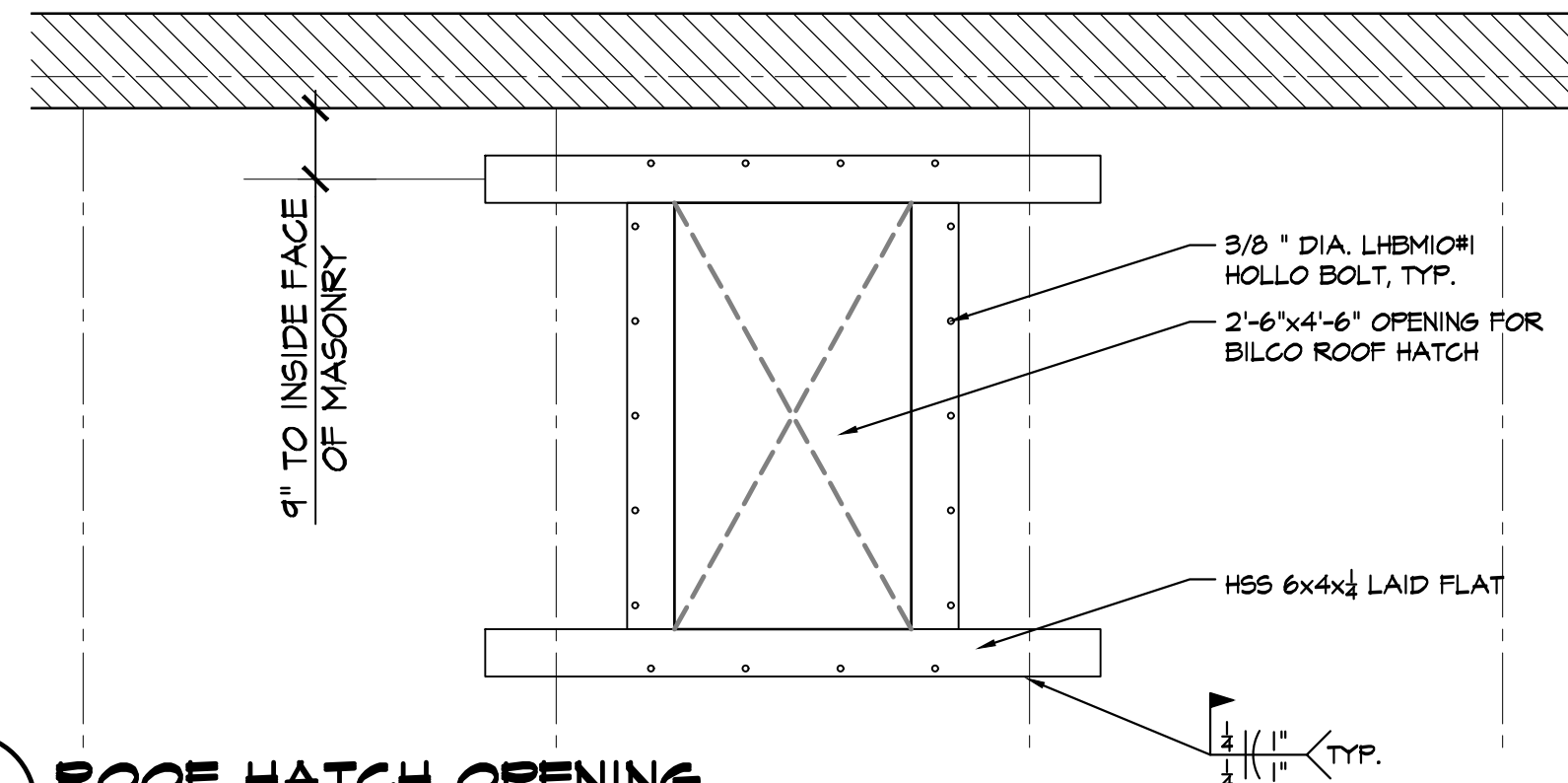
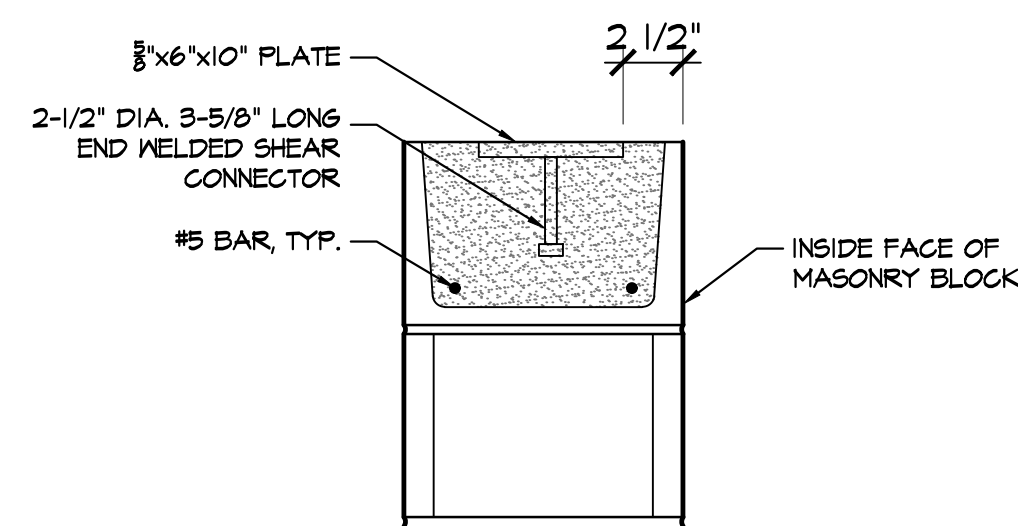
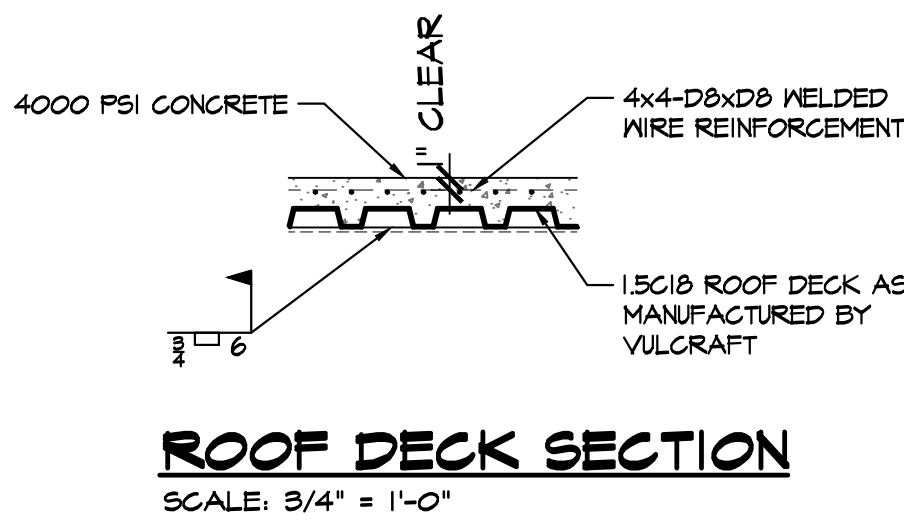


**4 FROST ENTRY SLAB SECTION, TYP.**  
 SCALE: 3/4" = 1'-0"



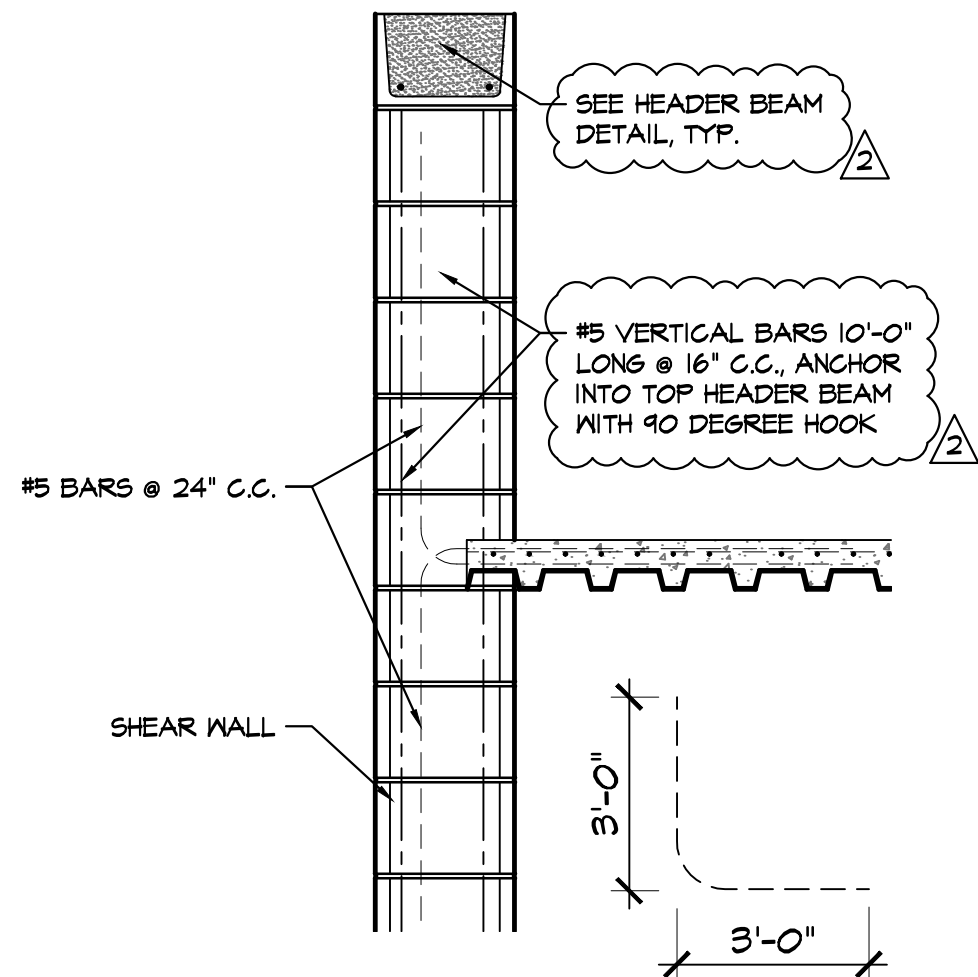
**1 FOUNDATION PLAN**  
 SCALE: 1/4" = 1'-0"



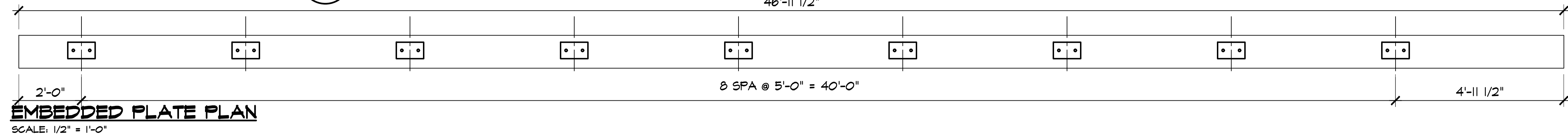


**HEADER BEAM DETAIL**  
SCALE: 1-1/2" = 1'-0"

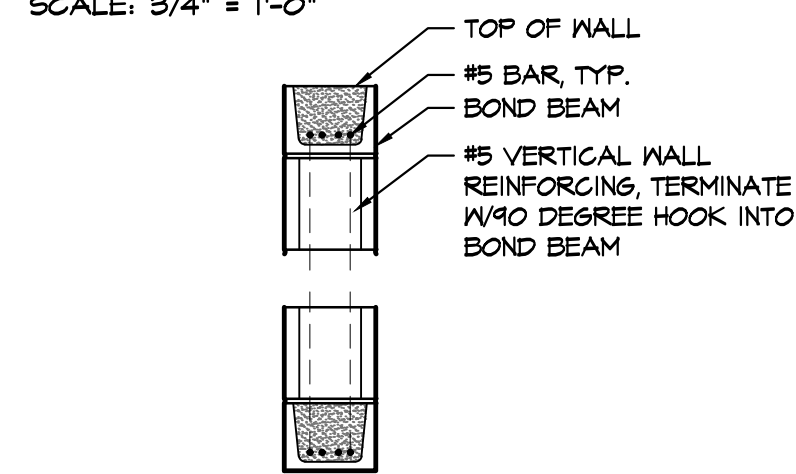
**ROOF HATCH OPENING**  
SCALE: 1/2" = 1'-0"



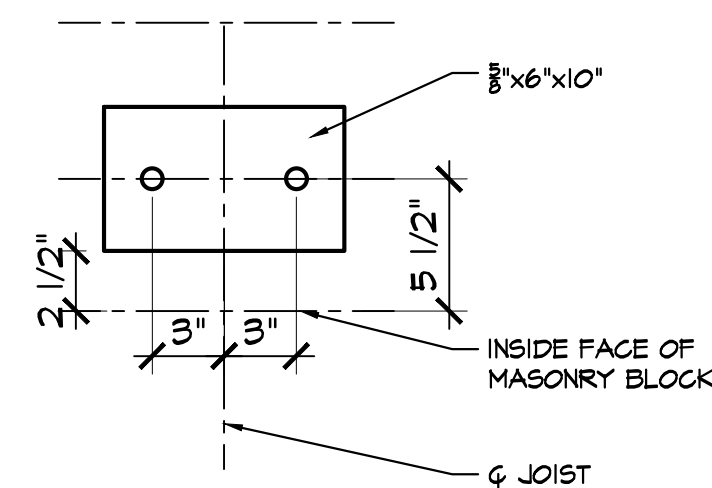
**ROOF/SHEAR WALL CONNECTION**  
SCALE: 3/4" = 1'-0"



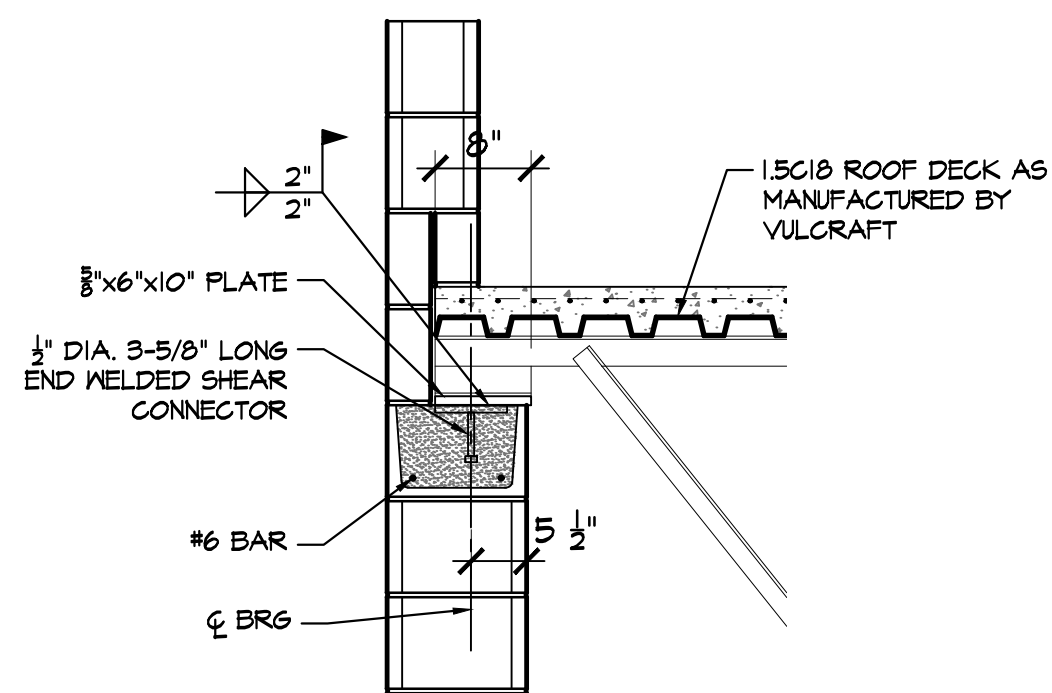
**EMBEDDED PLATE PLAN**  
SCALE: 1/2" = 1'-0"



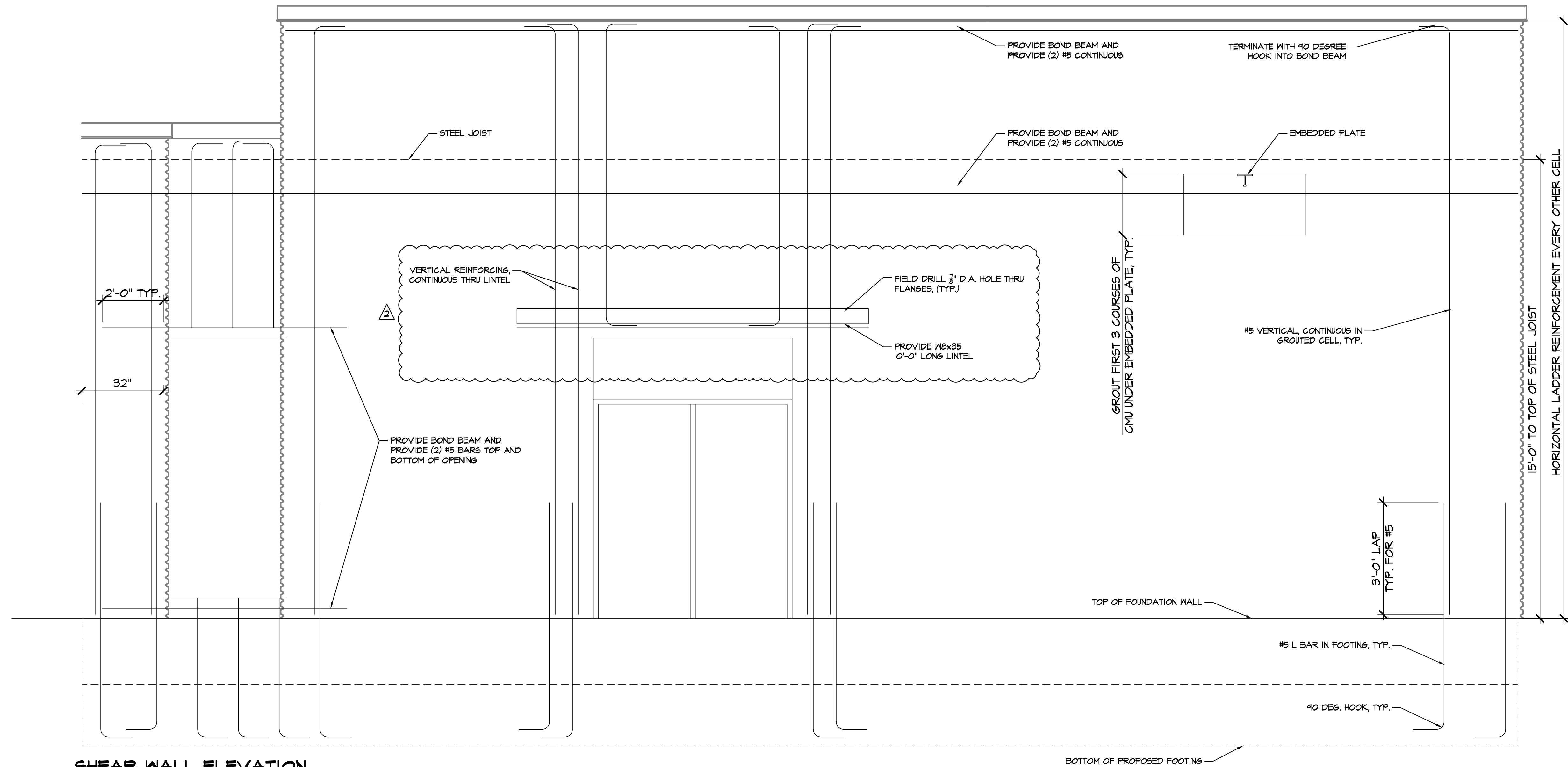
**LINTEL/TOP OF WALL DETAIL**  
SCALE: 3/4" = 1'-0"



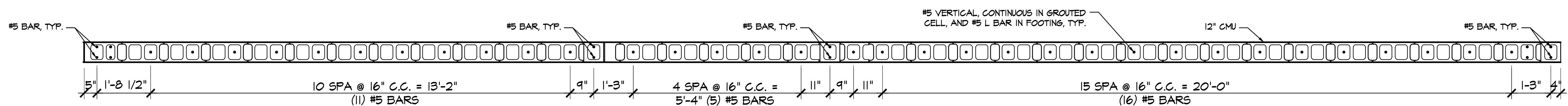
**EMBEDDED PLATE DETAIL**  
SCALE: 1-1/2" = 1'-0"



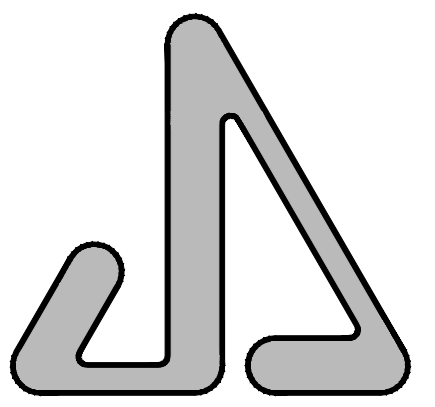
**HEADER BEAM DETAIL**  
SCALE: 3/4" = 1'-0"



**SHEAR WALL ELEVATION**  
SCALE: 1/2" = 1'-0"



**SHEAR WALL PLAN**  
SCALE: 1/2" = 1'-0"



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STRUCTURAL  
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**S-4**

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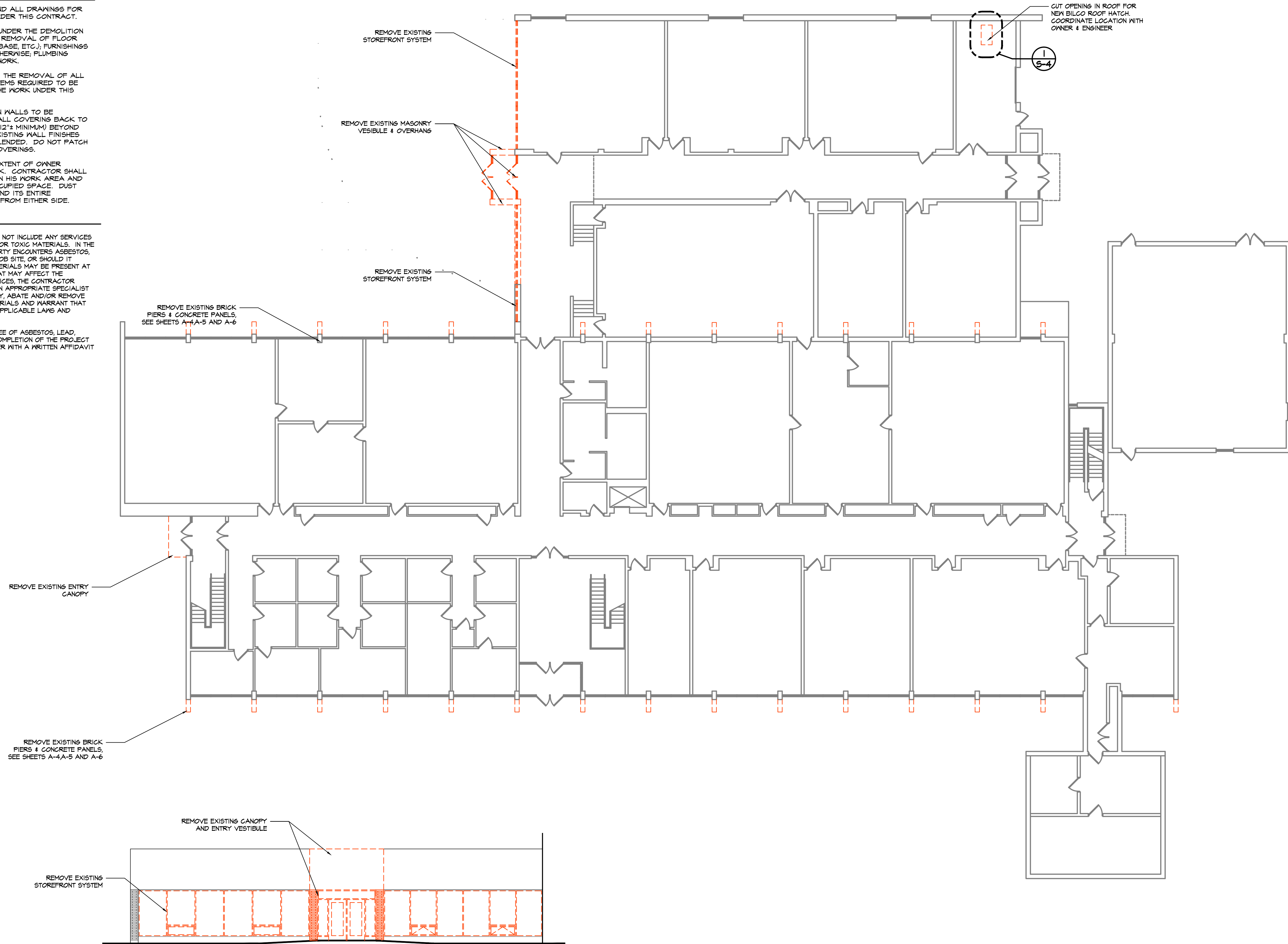
**DEMOLITION NOTES**

1. REFER TO THE SPECIFICATIONS AND ALL DRAWINGS FOR THE SCOPE OF WORK INTENDED UNDER THIS CONTRACT.
2. THE FOLLOWING IS NOT INCLUDED UNDER THE DEMOLITION WORK: UNLESS NOTED OTHERWISE, REMOVAL OF FLOOR COVERINGS (CARPET, VINYL TILE, BASE, ETC.); FURNISHINGS AND EQUIPMENT UNLESS NOTED OTHERWISE; PLUMBING WORK; HVAC WORK; ELECTRICAL WORK.
3. DEMOLITION WORK SHALL INCLUDE THE REMOVAL OF ALL MISCELLANEOUS, SALVAGEABLE ITEMS REQUIRED TO BE REMOVED AND INCIDENTAL TO THE WORK UNDER THIS CONTRACT.
4. WHERE WALL COVERINGS EXISTS ON WALLS TO BE PARTIALLY REMOVED, REMOVE WALL COVERING BACK TO A JOINT OR VERTICAL SIGHTLINE (12" MINIMUM) BEYOND THE LOCATION WHERE NEW AND EXISTING WALL FINISHES ARE JOINED, PATCHED, AND/OR BLENDED. DO NOT PATCH OR SAND OVER EXISTING WALL COVERINGS.
5. REFER TO GENERAL NOTES FOR EXTENT OF OWNER OPERATION THROUGHOUT THE WORK. CONTRACTOR SHALL INSTALL A DUST BARRIER BETWEEN HIS WORK AREA AND OPERATING AREAS OF OWNER-OCCUPIED SPACE. DUST BARRIER SHALL BE SEALED AROUND ITS ENTIRE PERIMETER AGAINST AIR DRAFTS FROM EITHER SIDE.

**HAZARDOUS MATERIAL NOTE**

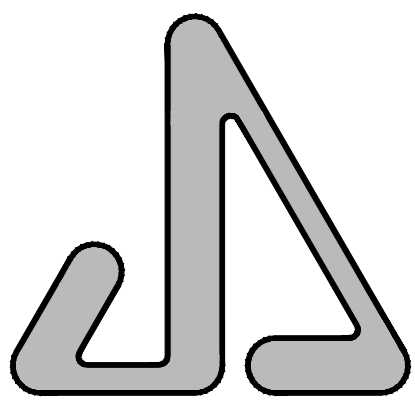
THE ARCHITECT'S SCOPE OF SERVICES DOES NOT INCLUDE ANY SERVICES RELATED TO ASBESTOS, LEAD, HAZARDOUS, OR TOXIC MATERIALS. IN THE EVENT THE CONTRACTOR OR ANY OTHER PARTY ENCOUNTERS ASBESTOS, HAZARDOUS, OR TOXIC MATERIALS AT THE JOB SITE, OR SHOULD IT BECOME KNOWN IN ANY SUCH WAY THAT MATERIALS MAY BE PRESENT AT THE JOB SITE OR ANY ADJACENT AREAS THAT MAY AFFECT THE PERFORMANCE OF THE CONTRACTOR'S SERVICES, THE CONTRACTOR SHALL NOTIFY THE OWNER WHO SHALL RETAIN APPROPRIATE SPECIALIST CONSULTANTS OR CONTRACTORS TO IDENTIFY, ABATE AND/OR REMOVE THE ASBESTOS, HAZARDOUS, OR TOXIC MATERIALS AND WARRANT THAT THE JOB SITE IS IN FULL COMPLIANCE WITH APPLICABLE LAWS AND REGULATIONS.

ALL NEW MATERIAL PROVIDED SHALL BE FREE OF ASBESTOS, LEAD, HAZARDOUS, OR TOXIC MATERIALS. UPON COMPLETION OF THE PROJECT THE CONTRACTOR SHALL PROVIDE THE OWNER WITH A WRITTEN AFFIDAVIT AS PROOF OF COMPLIANCE.



**2** DEMOLITION ELEVATION  
A-1 SCALE: 1/8" = 1'-0"

**1** DEMOLITION PLAN  
A-1 SCALE: 3/32" = 1'-0"



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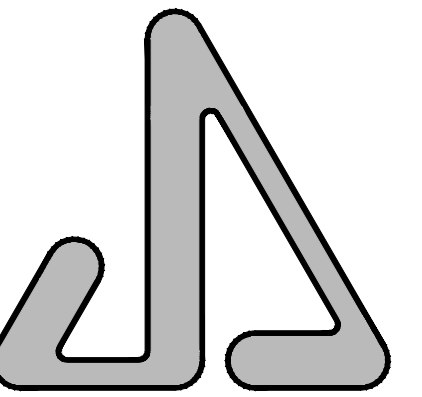
**OVERALL  
DEMOLITION PLAN**

06.12.17	CONSTRUCTION
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**A-1**

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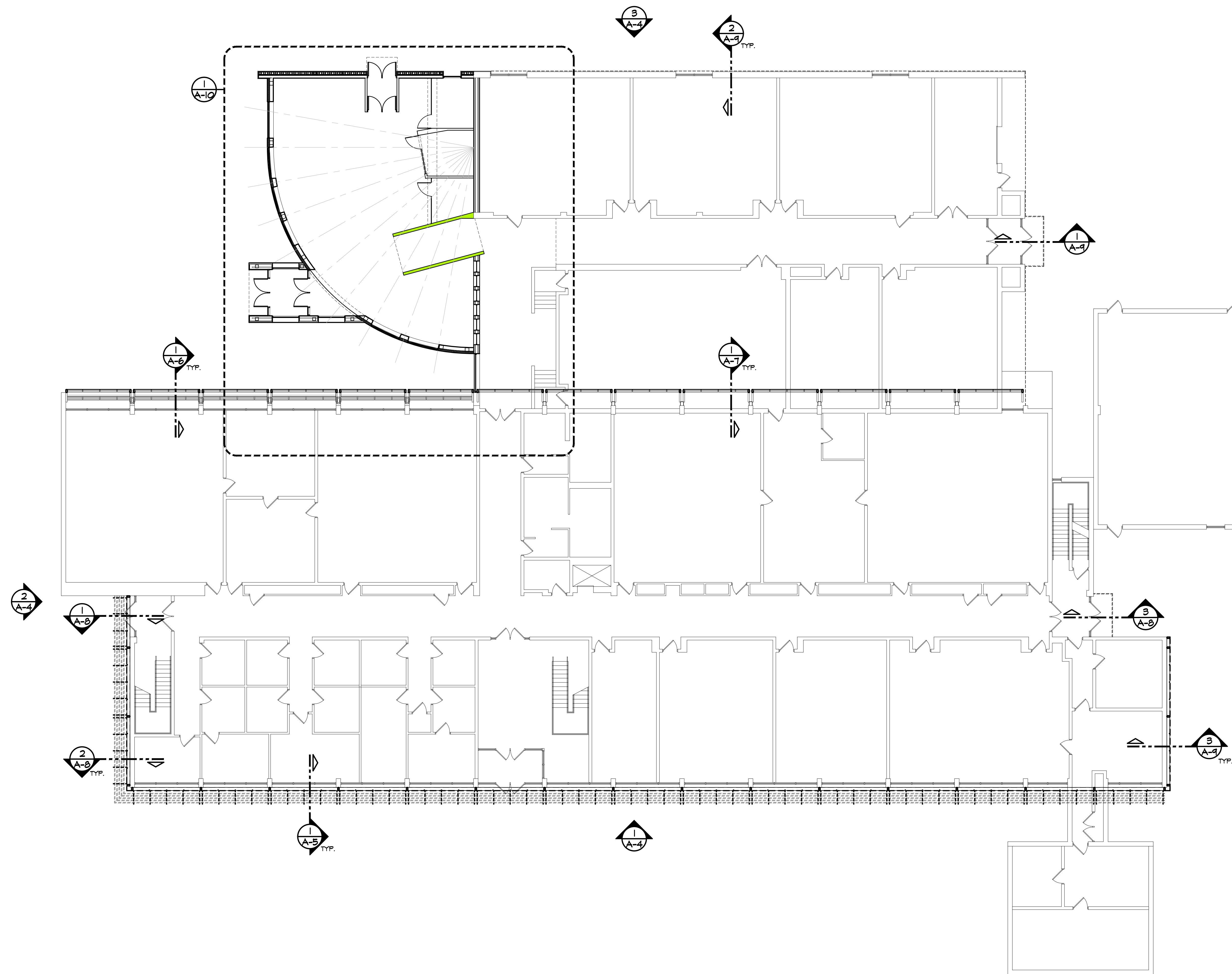
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### OVERALL FLOOR PLAN



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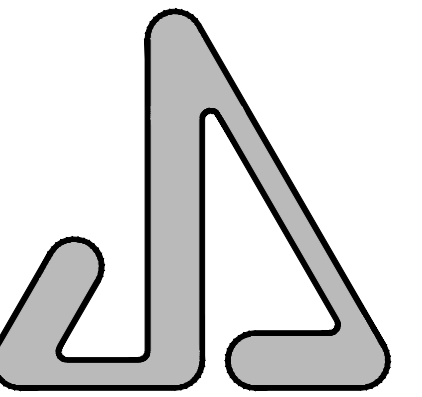
# A-2

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PLAN NORTH  
**1 A-2** OVERALL FLOOR PLAN  
SCALE: 3/32" = 1'-0"





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### ROOF PLAN

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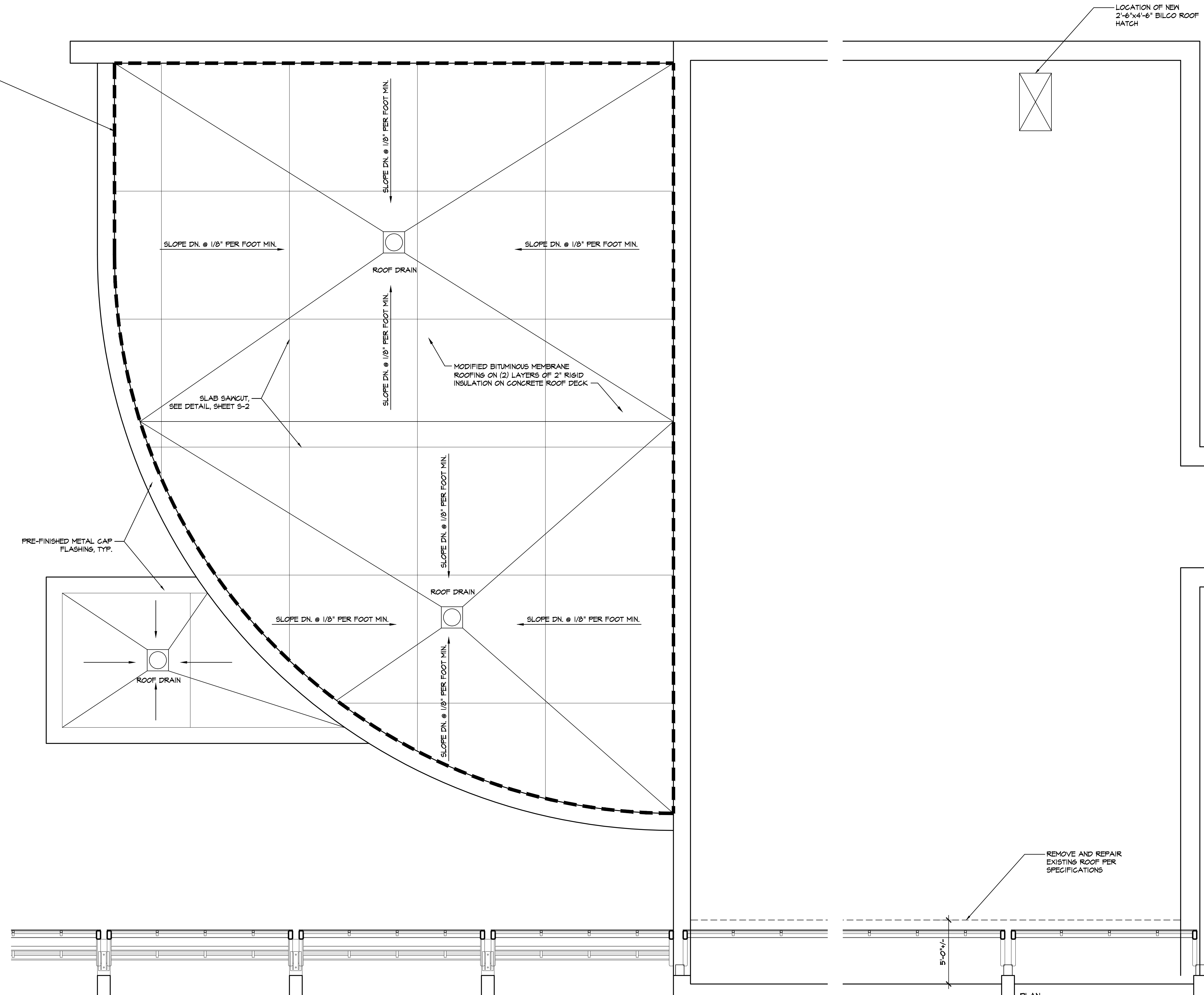
201545

# A-3

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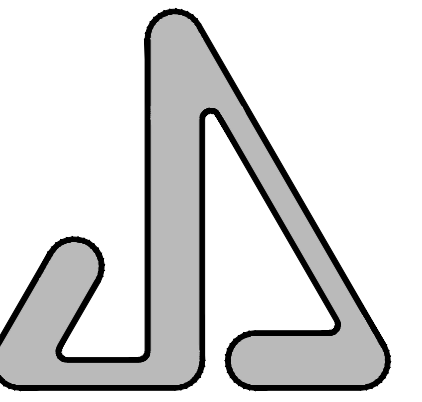
ALTERNATE #1  
LIVEROOF "STANDARD" GREEN ROOF SYSTEM  
APPROX. 2,150 SF ROOF AREA  
MODULE SIZE: 1'x2'x3'-1/4" UNIT



PLAN NORTH  
**A-3**  
**PARTIAL ROOF PLAN**  
SCALE: 1/4" = 1'-0"

REMOVE AND REPAIR  
EXISTING ROOF PER  
SPECIFICATIONS

5'-0 1/2"



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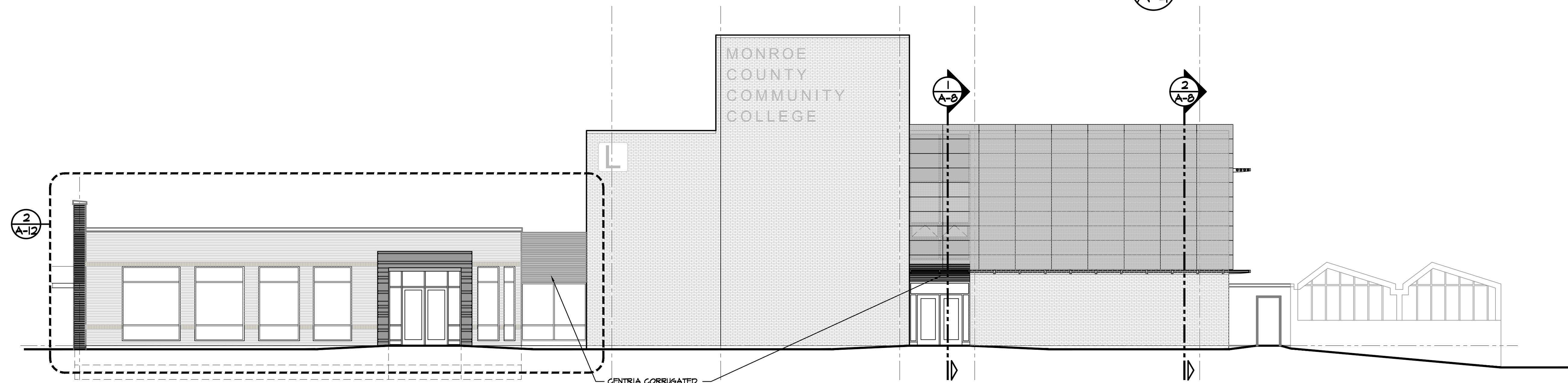
25 WASHINGTON STREET  
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PRE-MANUFACTURED SUNSHADES  
MAPES SUPER SHADE OR  
APPROVED EQUAL

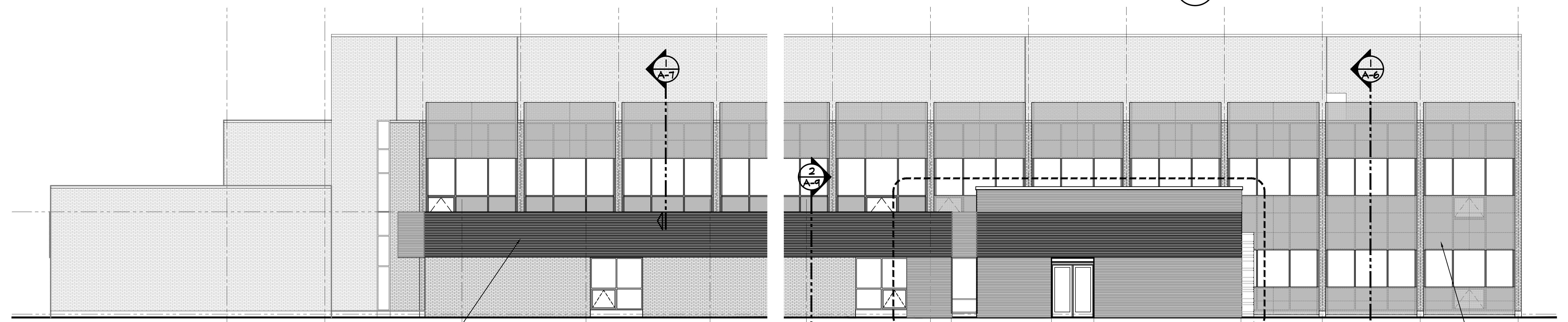
CENTRIA PERFORATED  
METAL FAÇADE SYSTEM,  
SEE SHEET A-5

**1**  
**A-4** EXTERIOR ELEVATION (SOUTH)  
SCALE: 1/8" = 1'-0"



CENTRIA CORRUGATED  
METAL PANEL, COLOR 'B'

**2**  
**A-4** EXTERIOR ELEVATION (WEST)  
SCALE: 1/8" = 1'-0"



CENTRIA CORRUGATED  
METAL PANEL, COLOR 'B'

CENTRIA PERFORATED  
METAL FAÇADE SYSTEM,  
SEE SHEET A-6

**3**  
**A-4** EXTERIOR ELEVATION (NORTH)  
SCALE: 1/8" = 1'-0"

EXTERIOR FAÇADE  
IMPROVEMENTS & BUILDING  
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EXTERIOR  
ELEVATIONS

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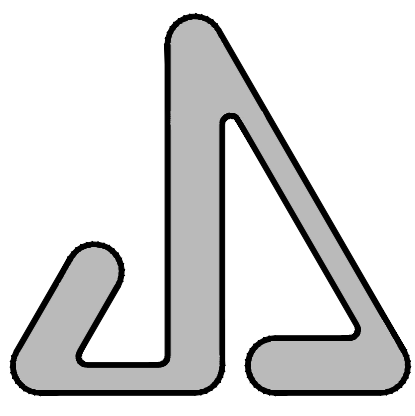
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**A-4**

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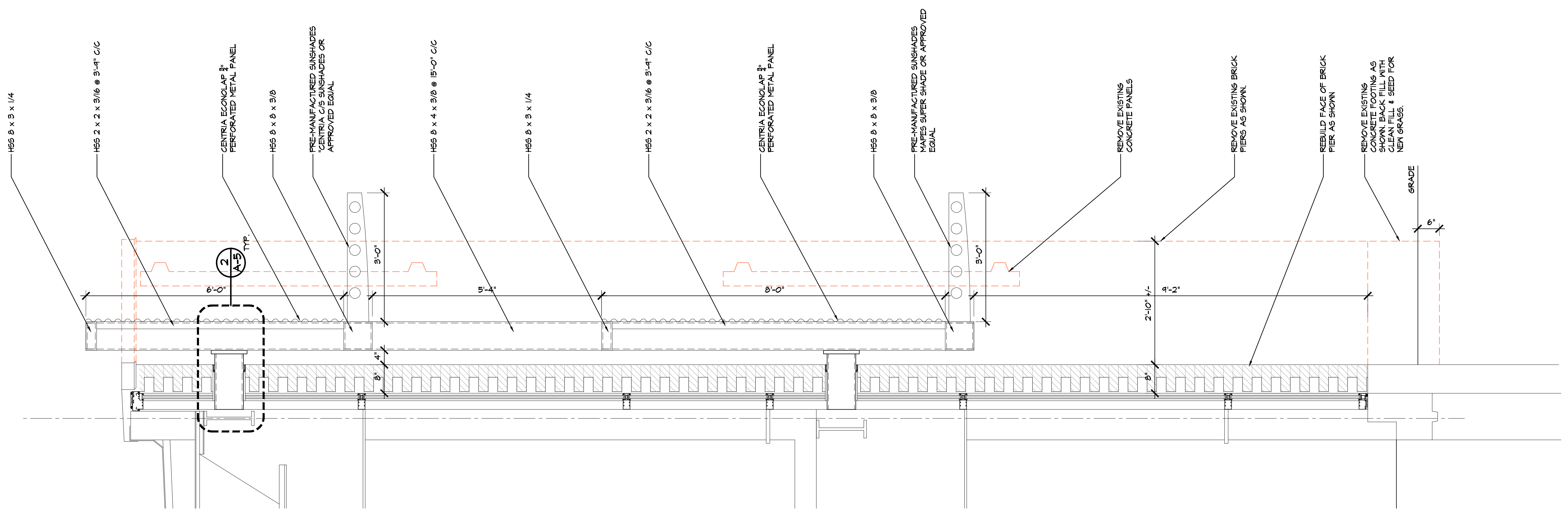
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WALL SECTIONS  
 SOUTH FACADE

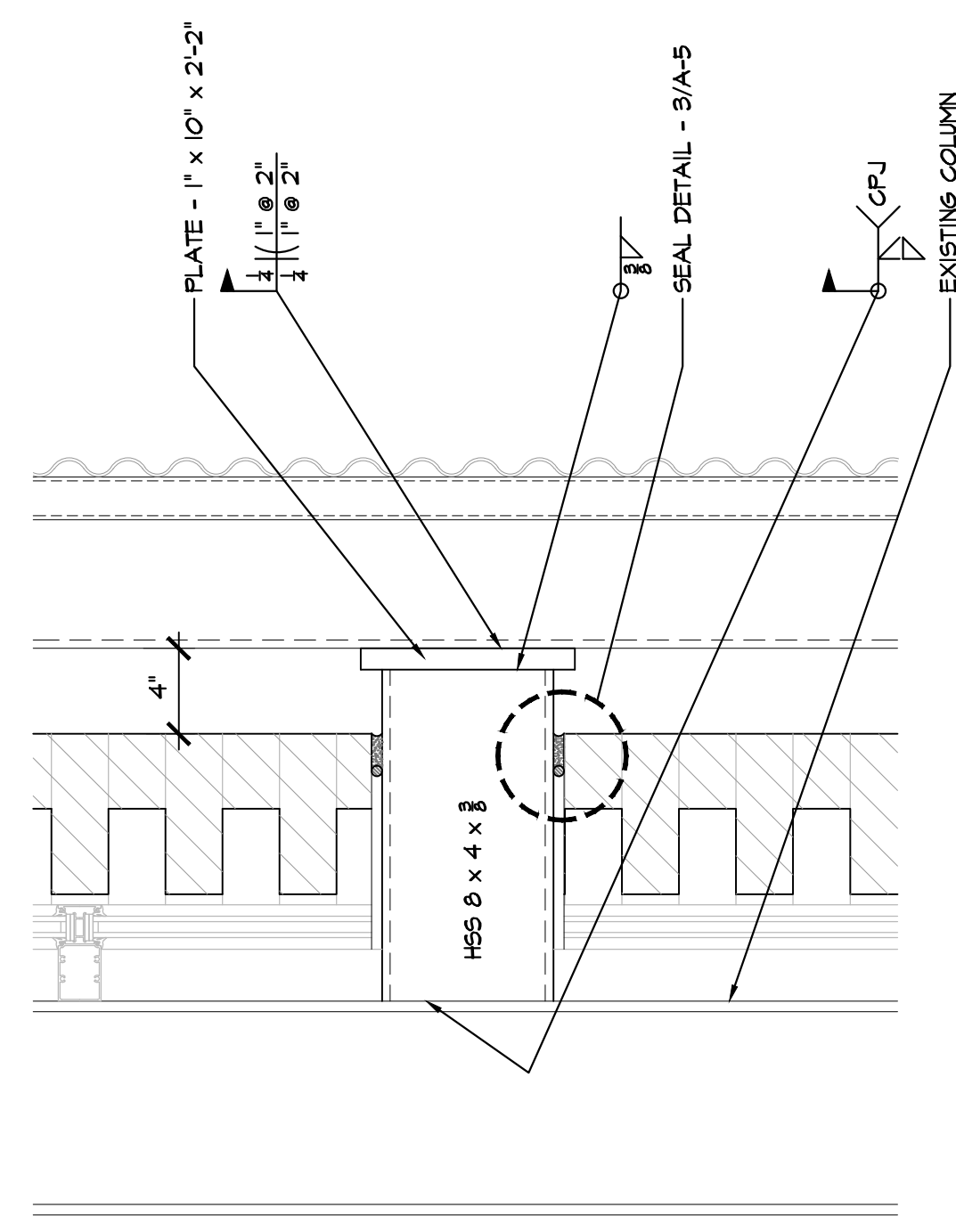
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**A-5**

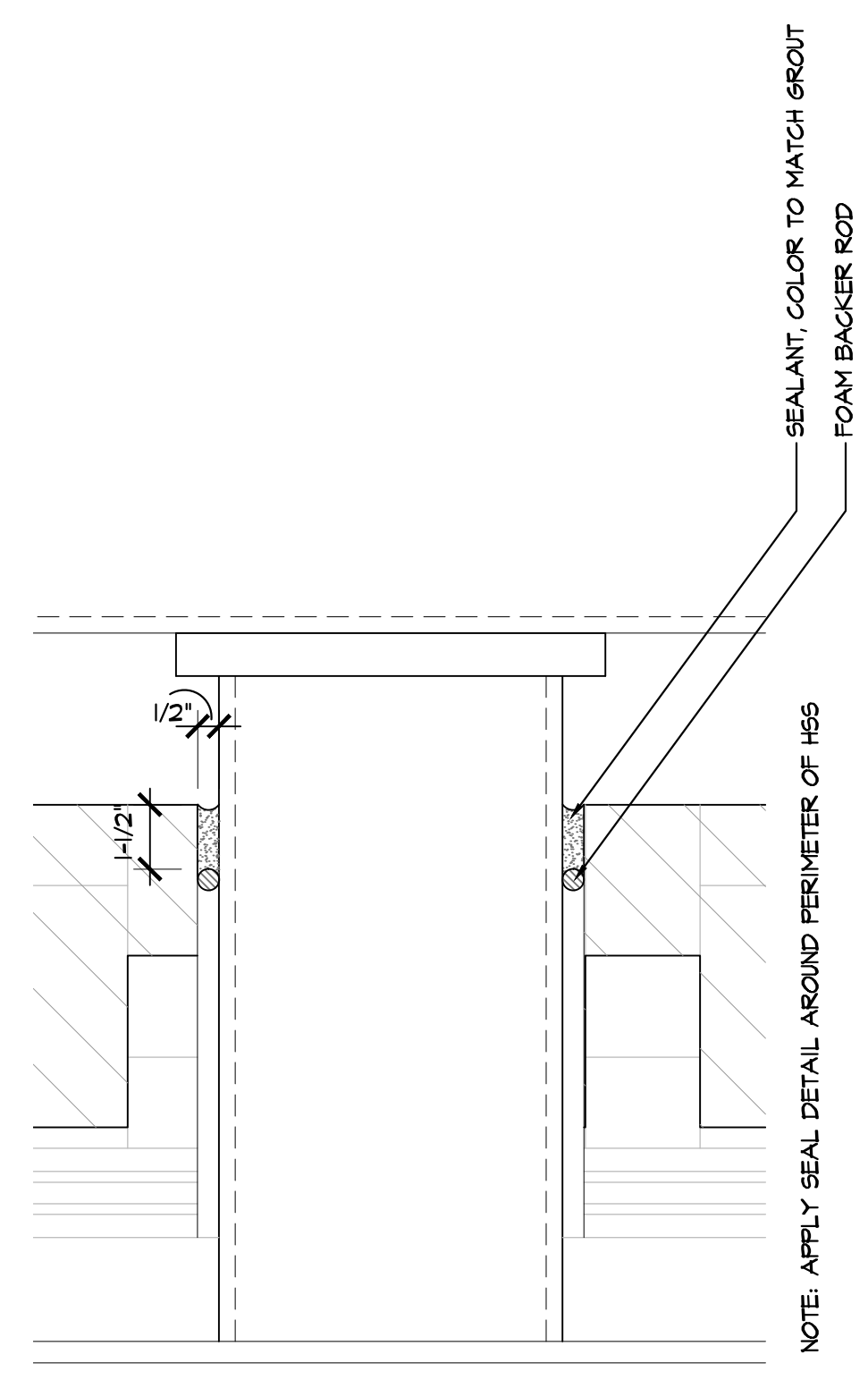
**1 TYP. WINDOW WALL SECTION (SOUTH)**  
 SCALE: 3/4" = 1'-0"



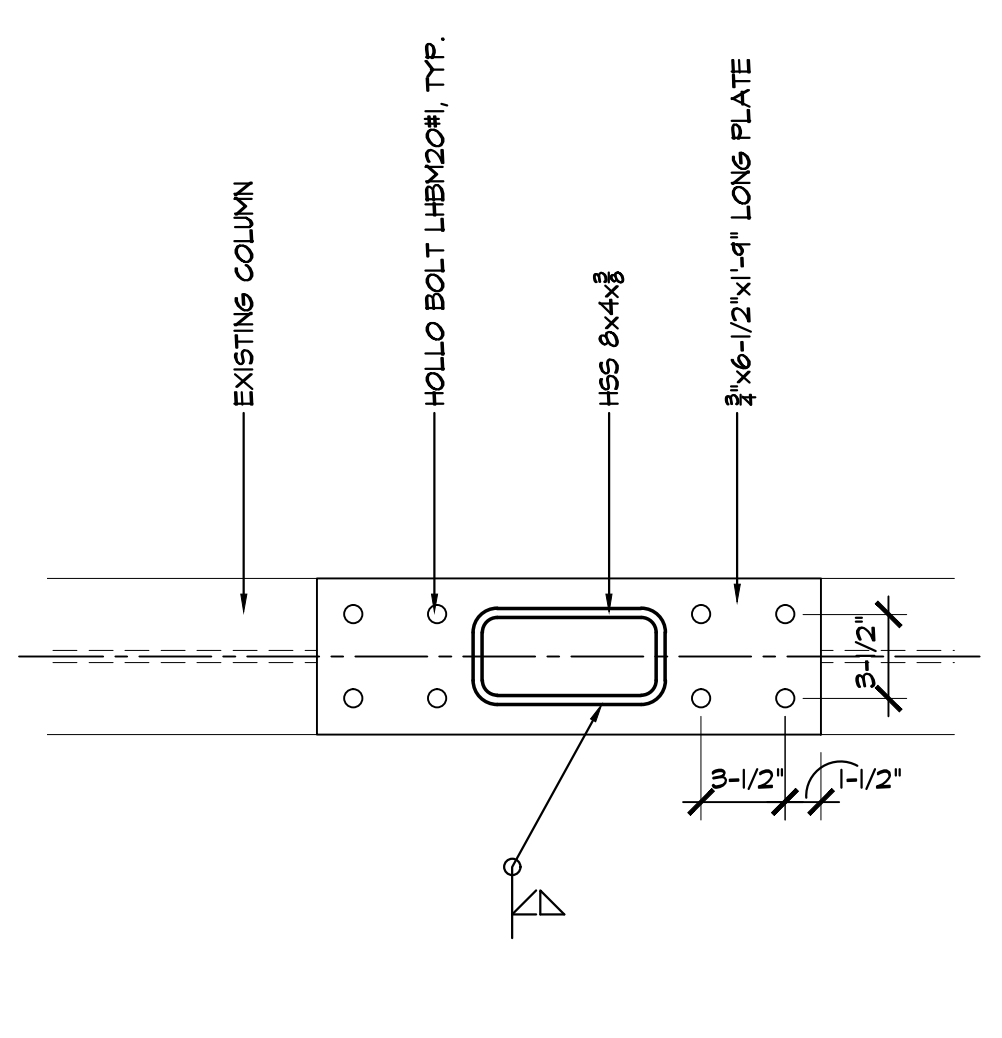
**2 TYP. CONNECTION DETAIL**  
 SCALE: 1 1/2" = 1'-0"

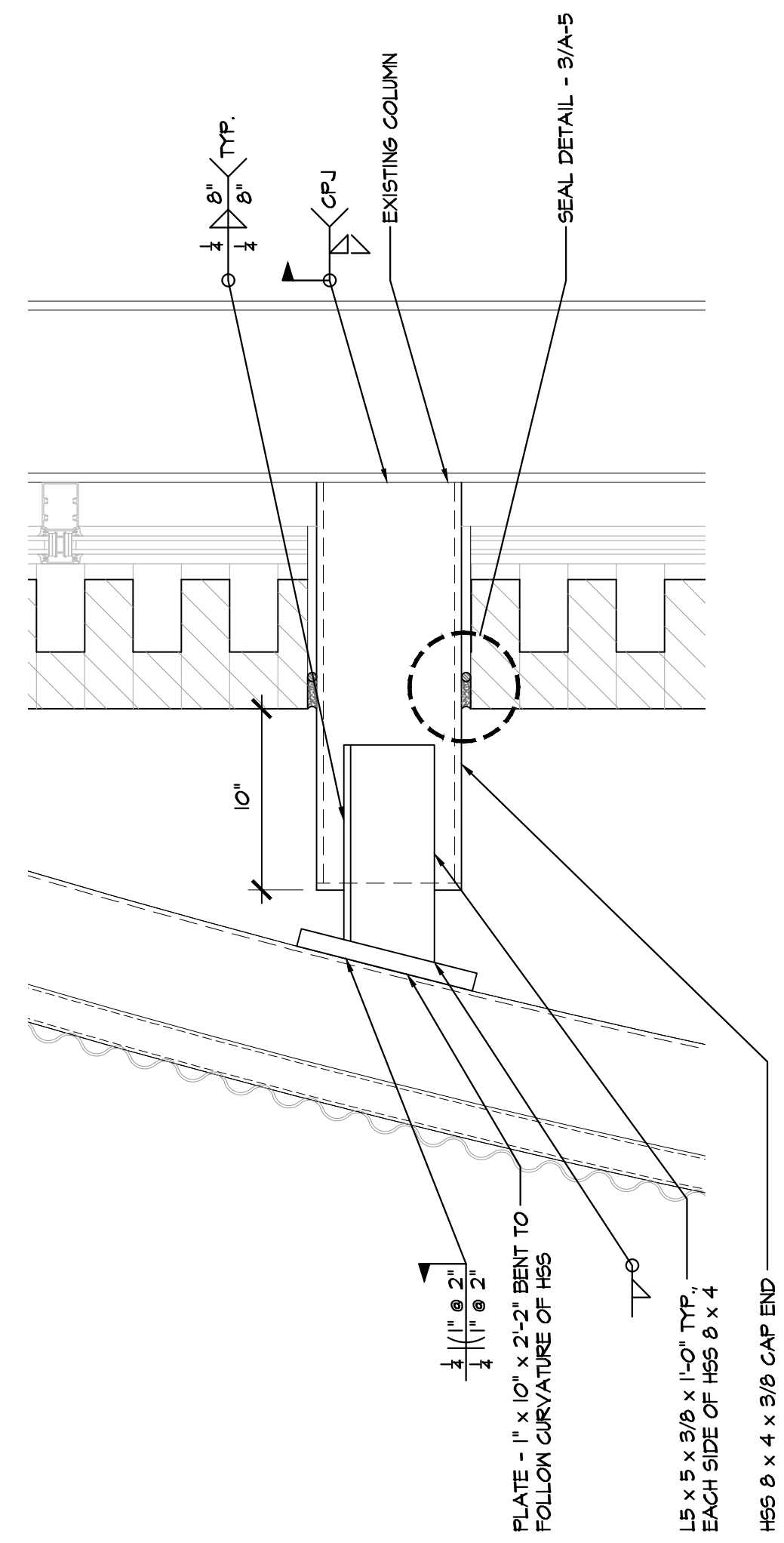


**3 TYP. SEAL DETAIL**  
 SCALE: 3" = 1'-0"

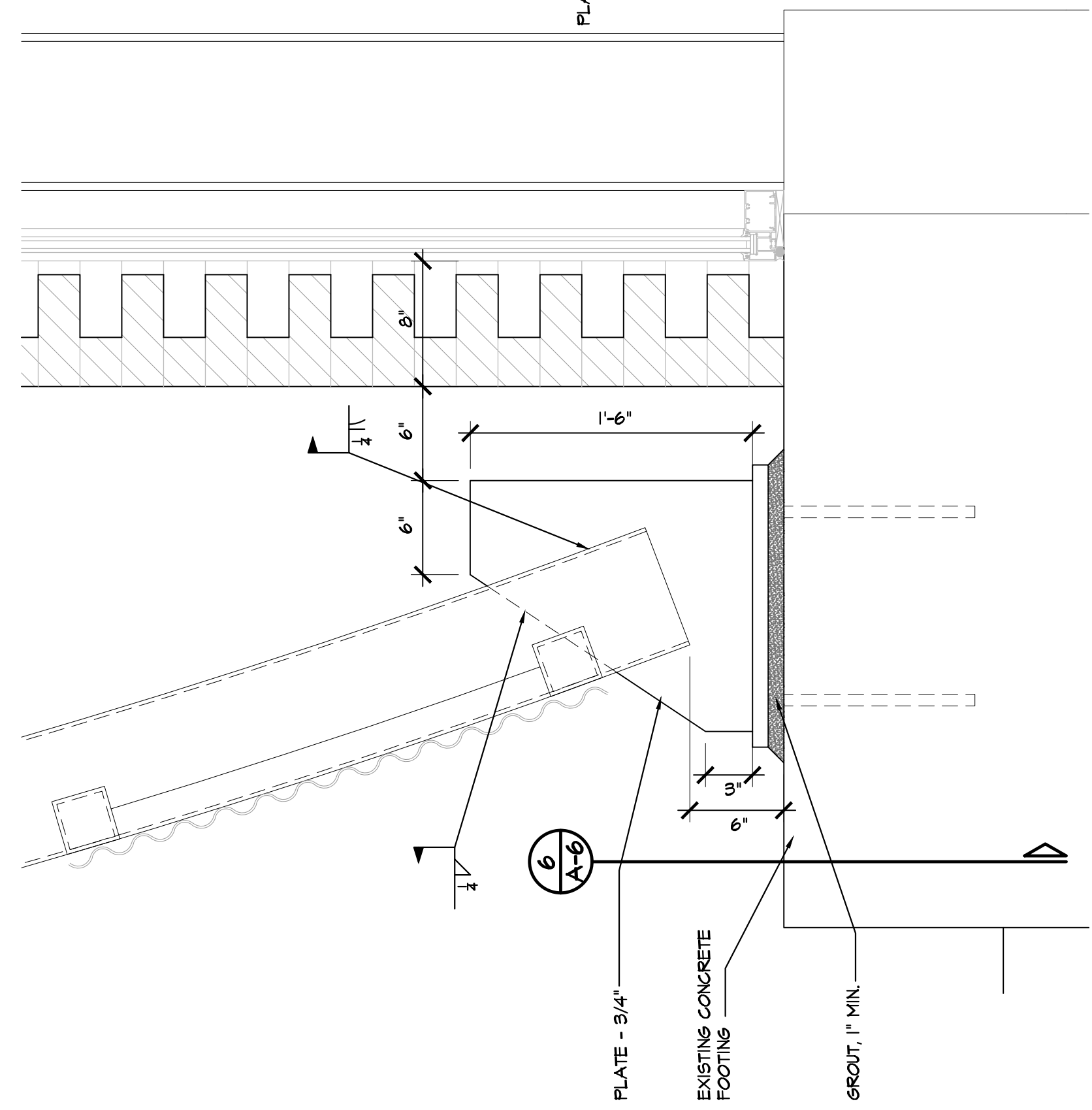


**4 ALT. CONNECTION DETAIL**  
 SCALE: 1 1/2" = 1'-0"

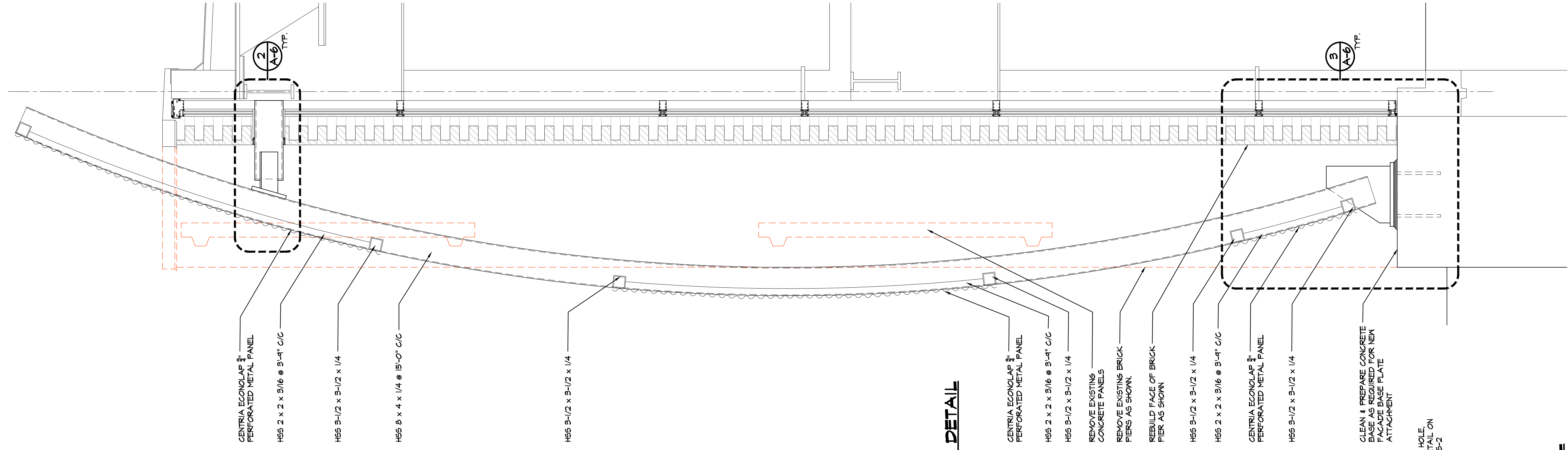




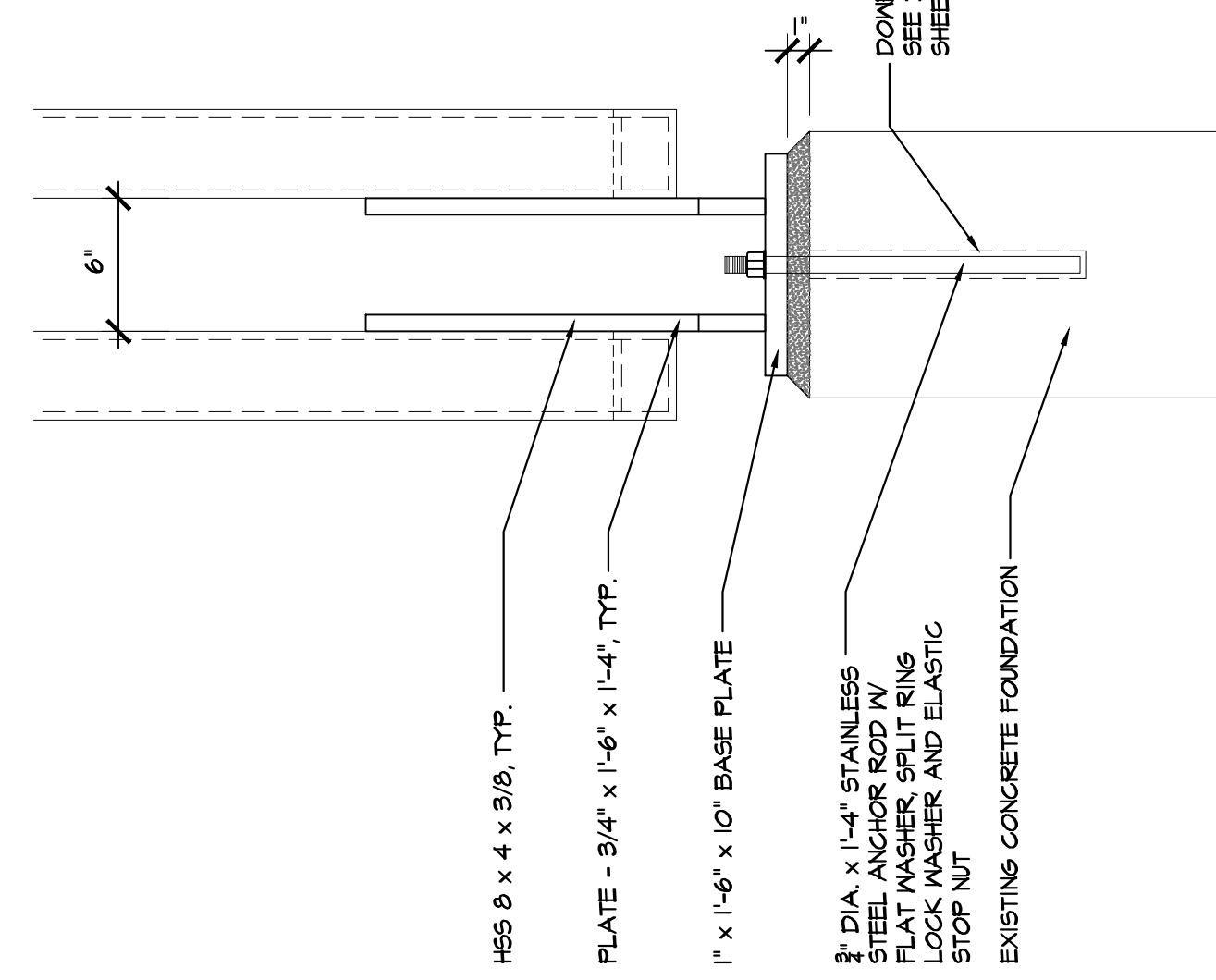
**2 TYP. CONNECTION DETAIL**  
SCALE: 1/2" = 1'-0"



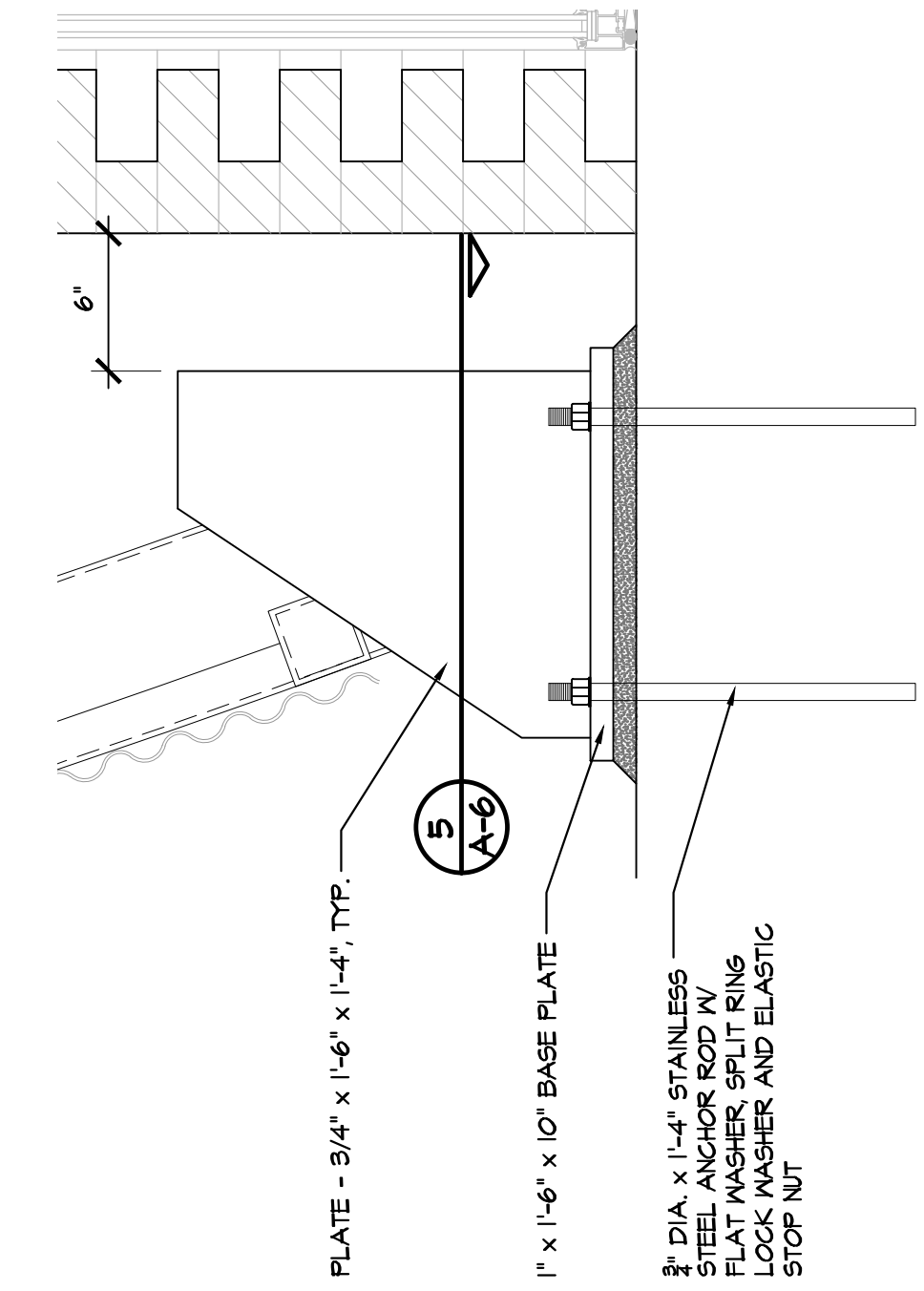
**3 TYP. BASE DETAIL**  
SCALE: 1/2" = 1'-0"



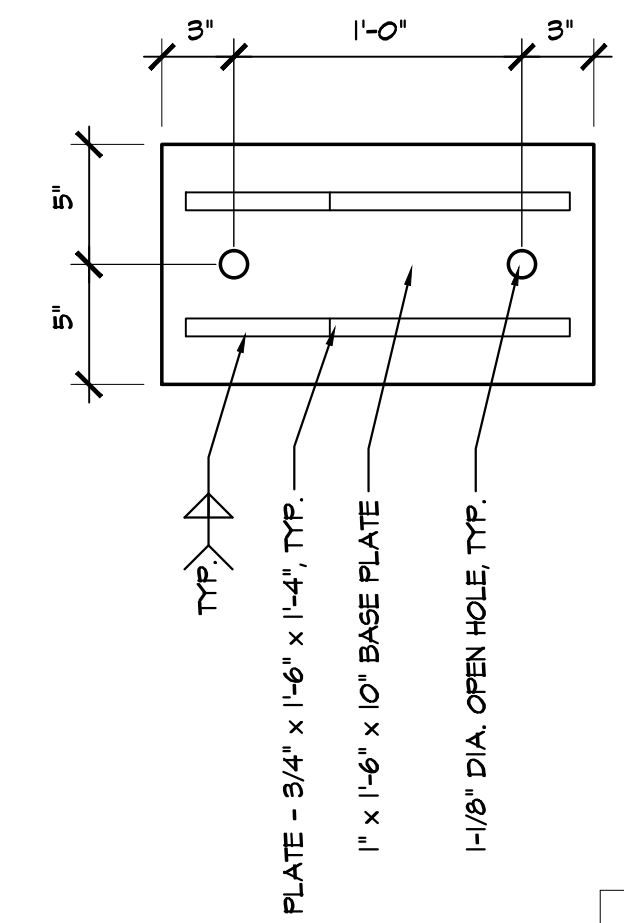
**1 TYP. WINDOW WALL SECTION (NORTH)**  
SCALE: 3/4" = 1'-0"



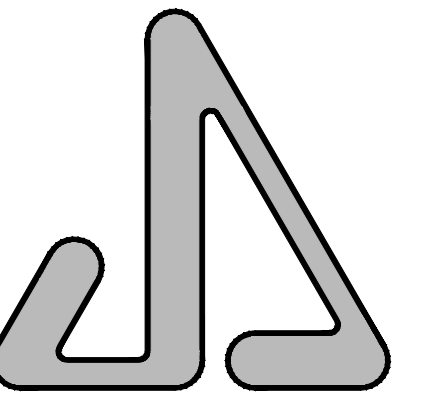
**4 TYP. BASE DETAIL**  
SCALE: 1/2" = 1'-0"



**5 TYP. BASE DETAIL**  
SCALE: 1/2" = 1'-0"



**6 TYP. BASE DETAIL**  
SCALE: 1/2" = 1'-0"



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WALL SECTIONS  
 NORTH FACADE

06.12.17 CONSTRUCTION  
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 05.01.17 PERMIT  
 05.01.17 BIDS  
 04.25.17 OWNER REVIEW

DATE: ISSUED FOR:

DRAWN: WWH

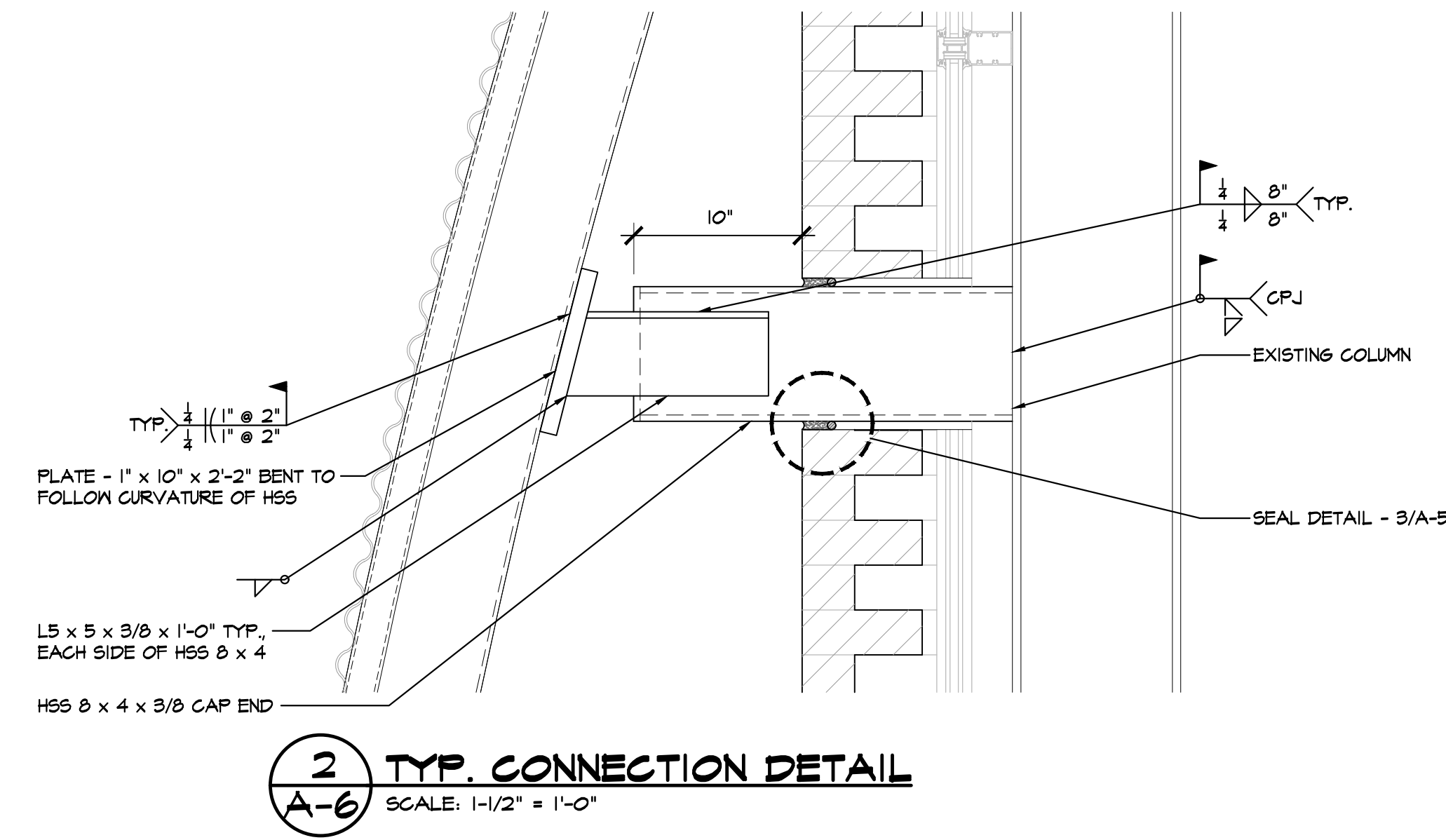
REVIEW'D: JSJ

201545

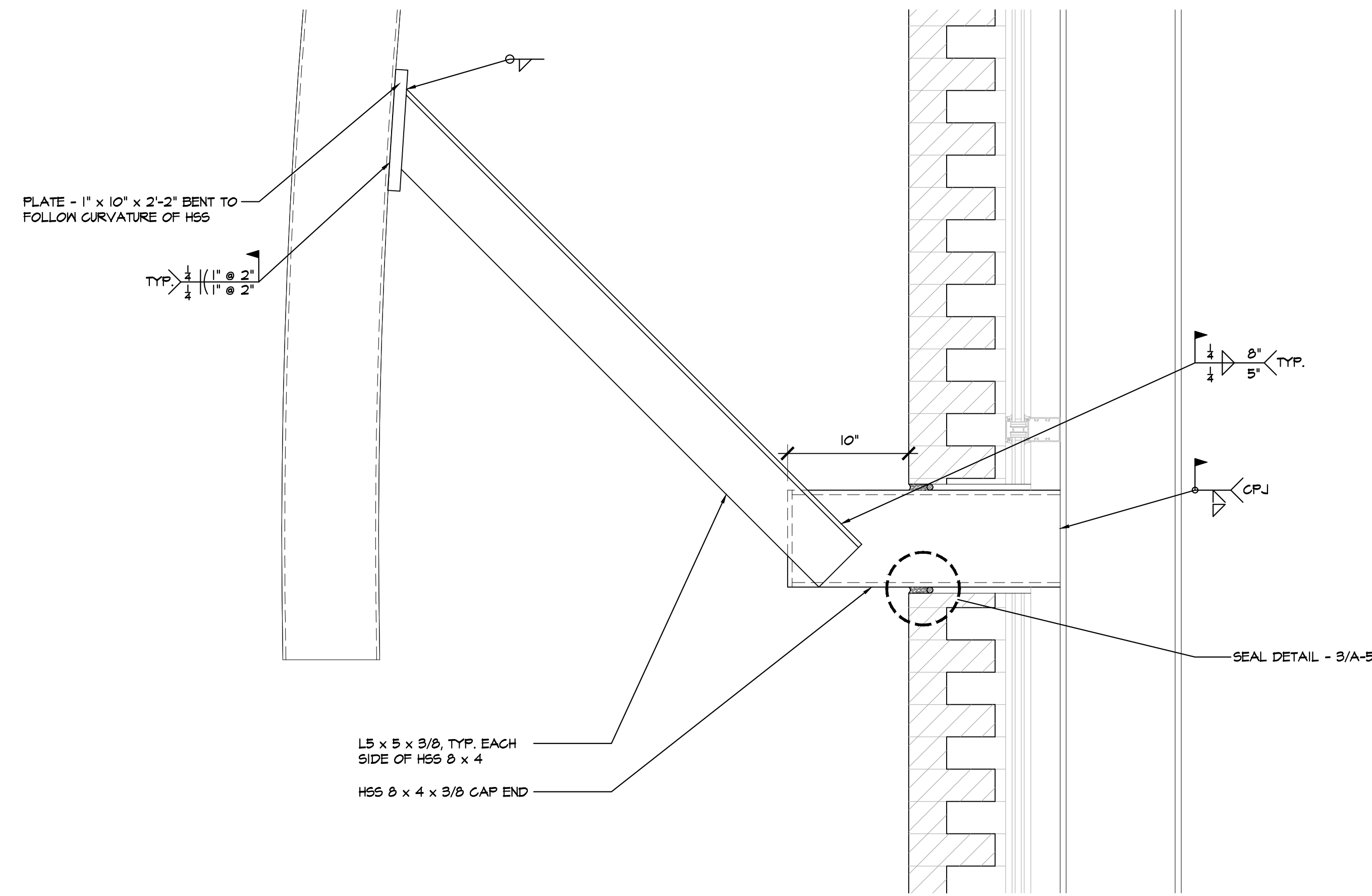
A-7

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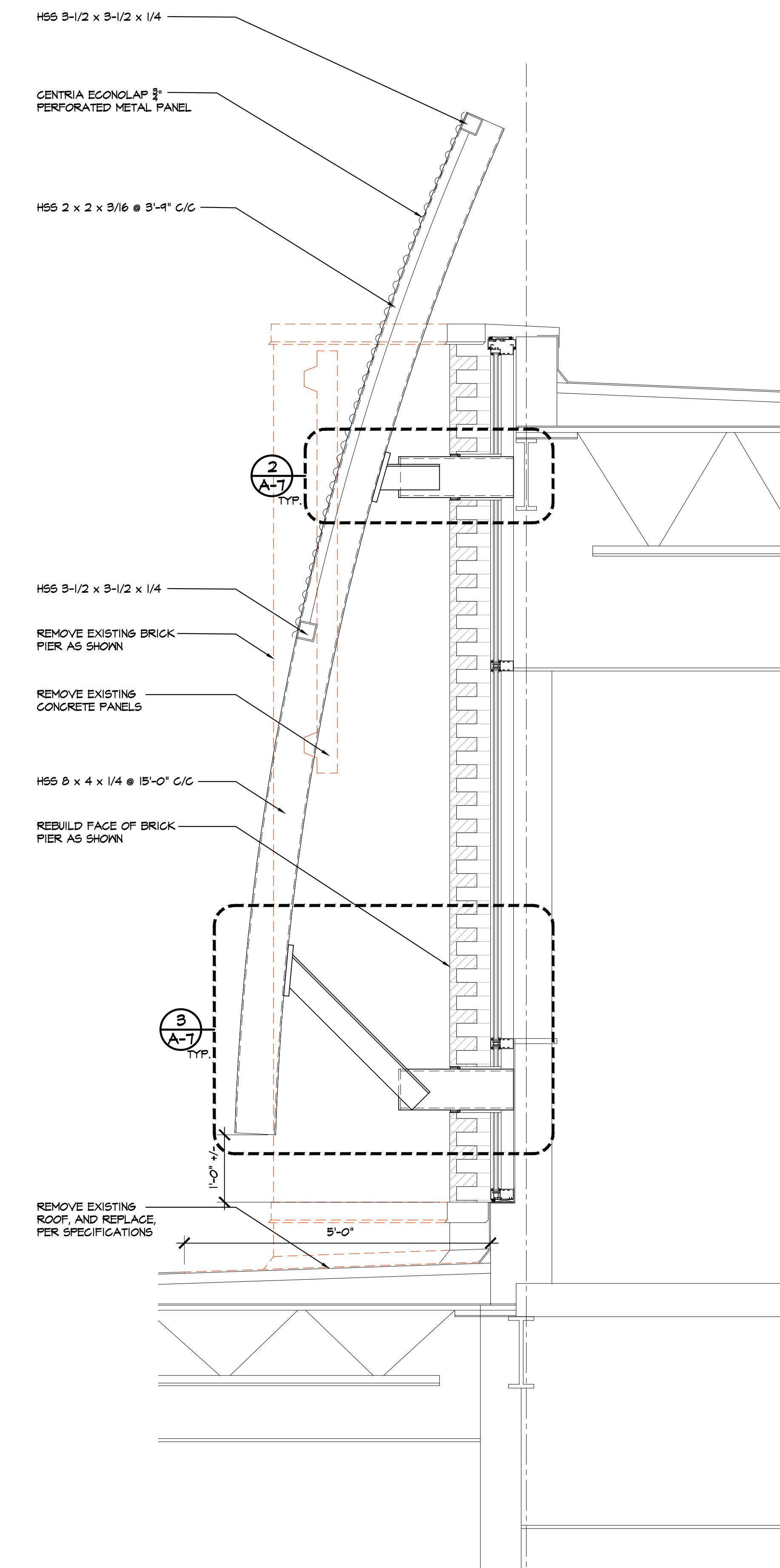
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**2 TYP. CONNECTION DETAIL**  
 SCALE: 1-1/2" = 1'-0"

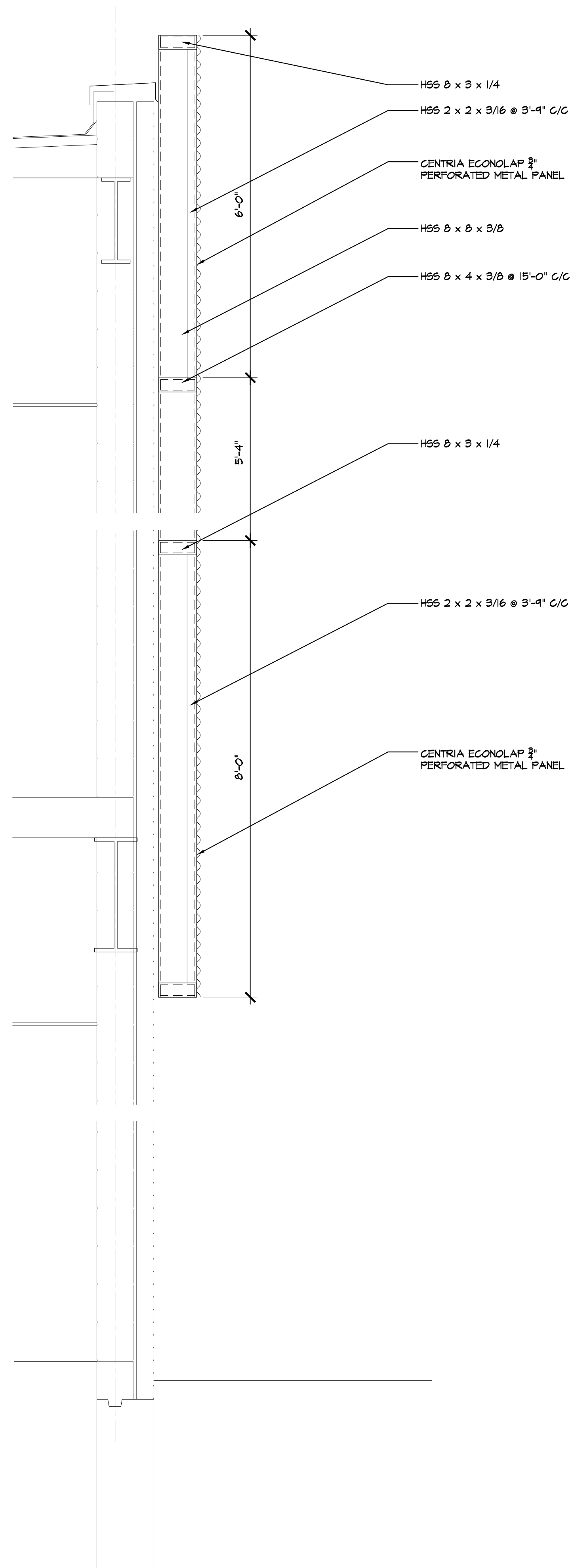


**3 TYP. CONNECTION DETAIL**  
 SCALE: 1-1/2" = 1'-0"

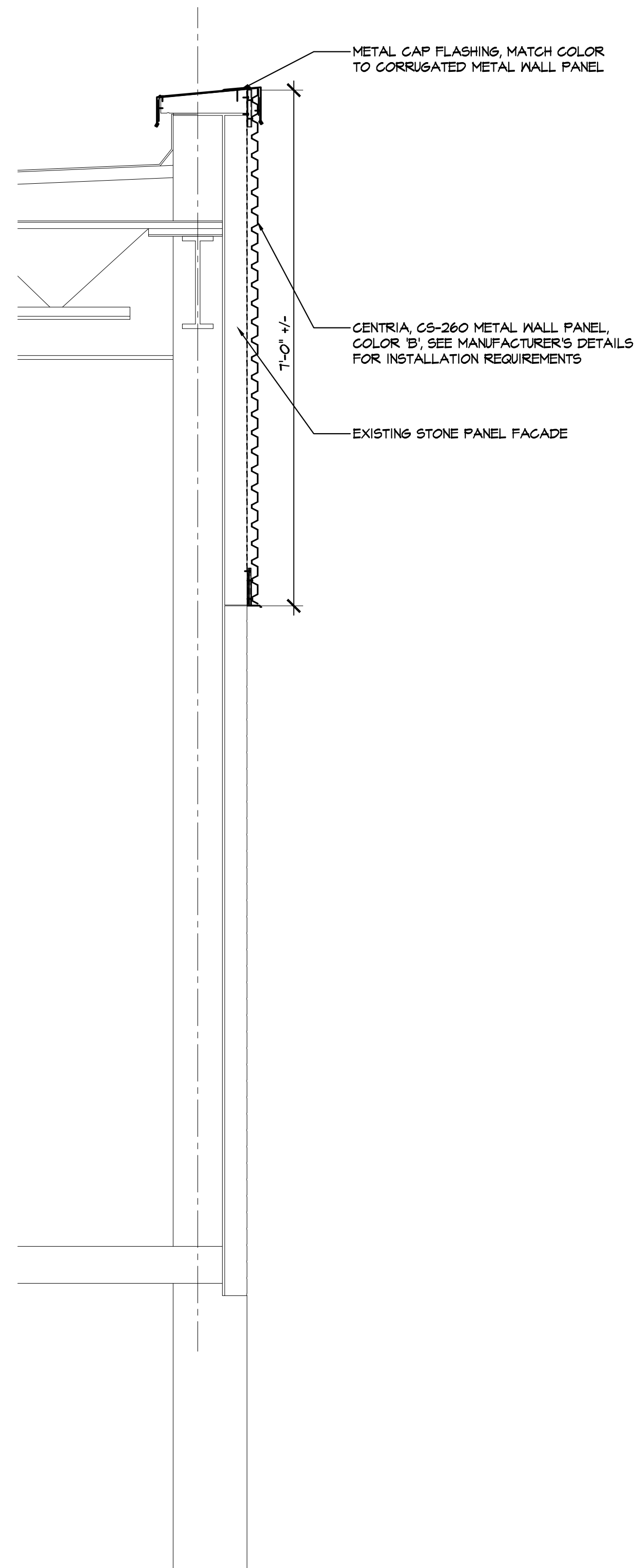


**1 TYP. WINDOW WALL SECTION (SOUTH)**  
 SCALE: 3/4" = 1'-0"

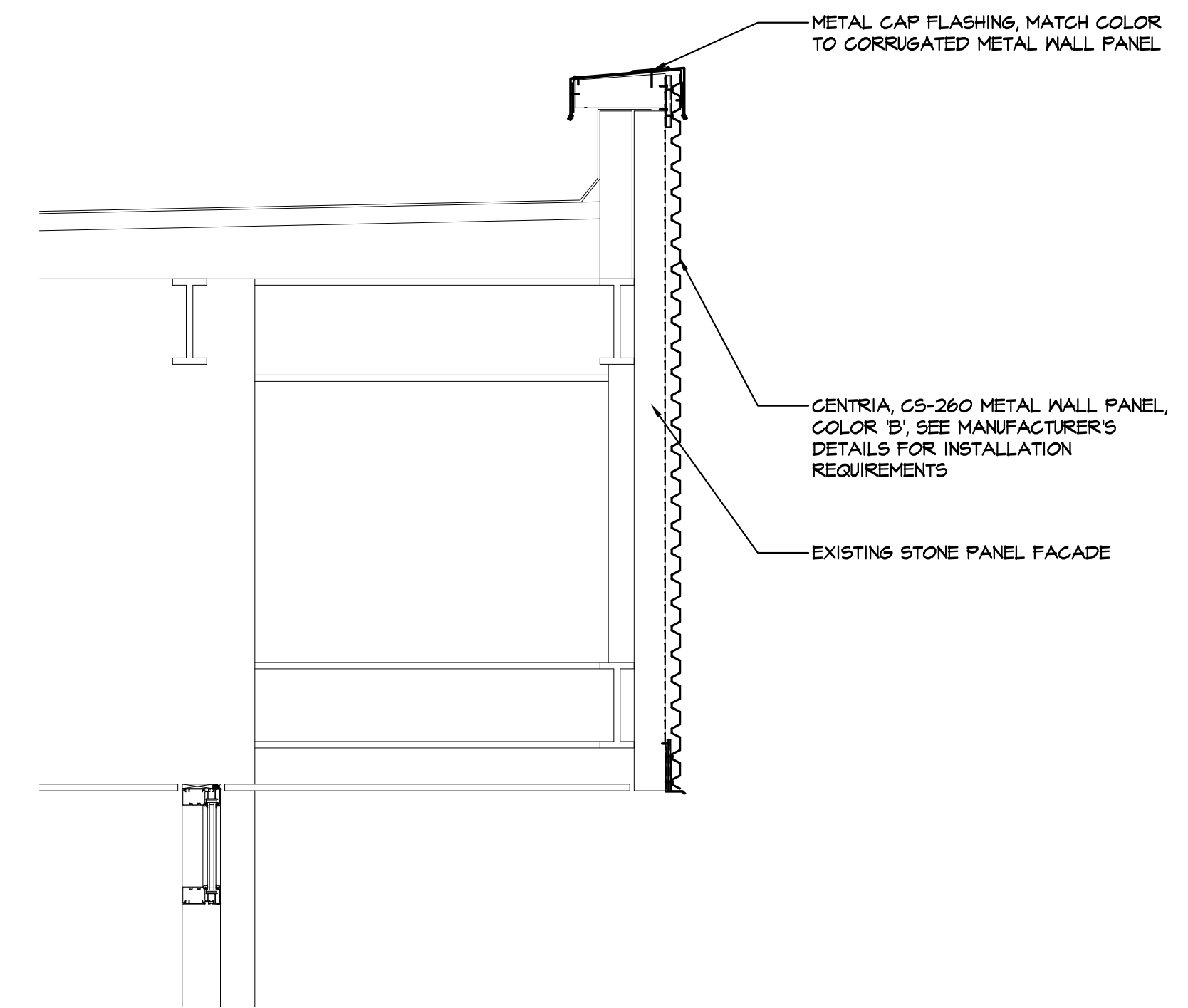




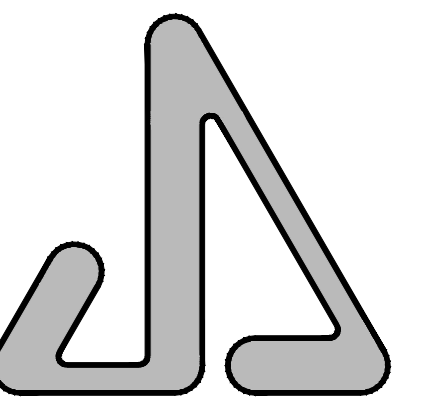
**3 TYP. LOW WALL SECTION**  
 SCALE: 3/4" = 1'-0"



**2 TYP. LOW WALL SECTION**  
 SCALE: 3/4" = 1'-0"



**SECTION @ ENTRY CANOPY**  
 SCALE: 3/4" = 1'-0"



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WALL SECTIONS  
 NORTH FACADE  
 & ENTRY CANOPY

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DATE: ISSUED FOR:

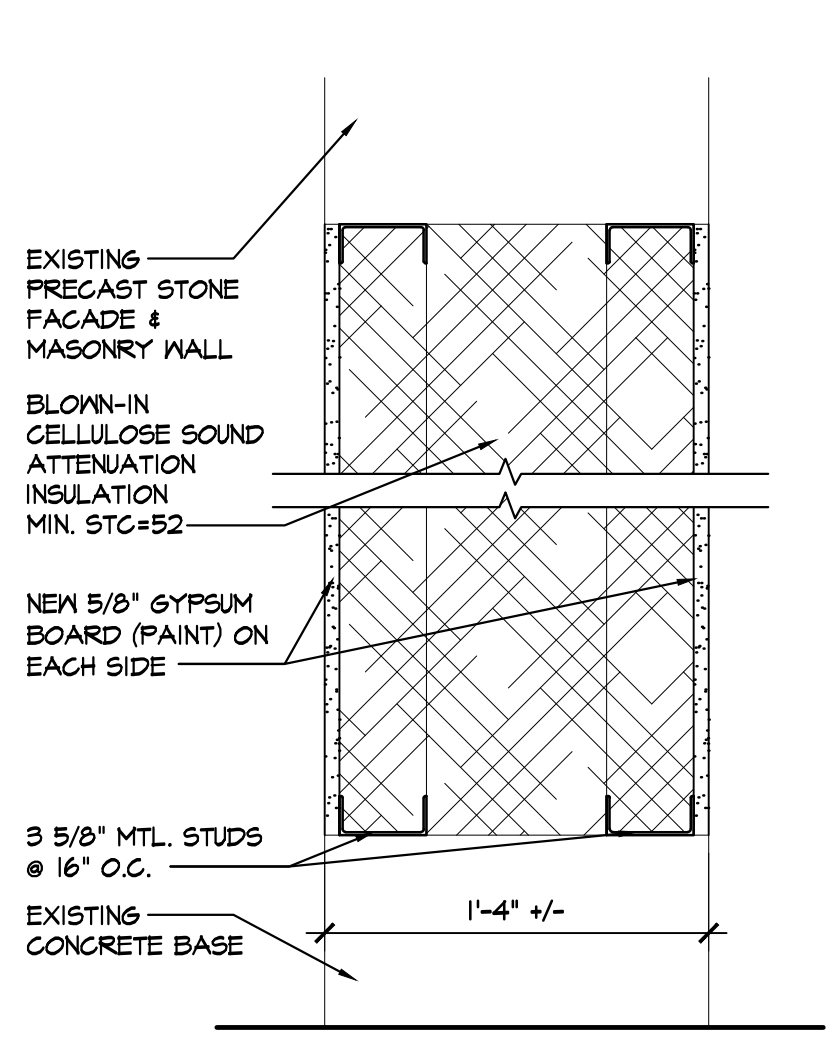
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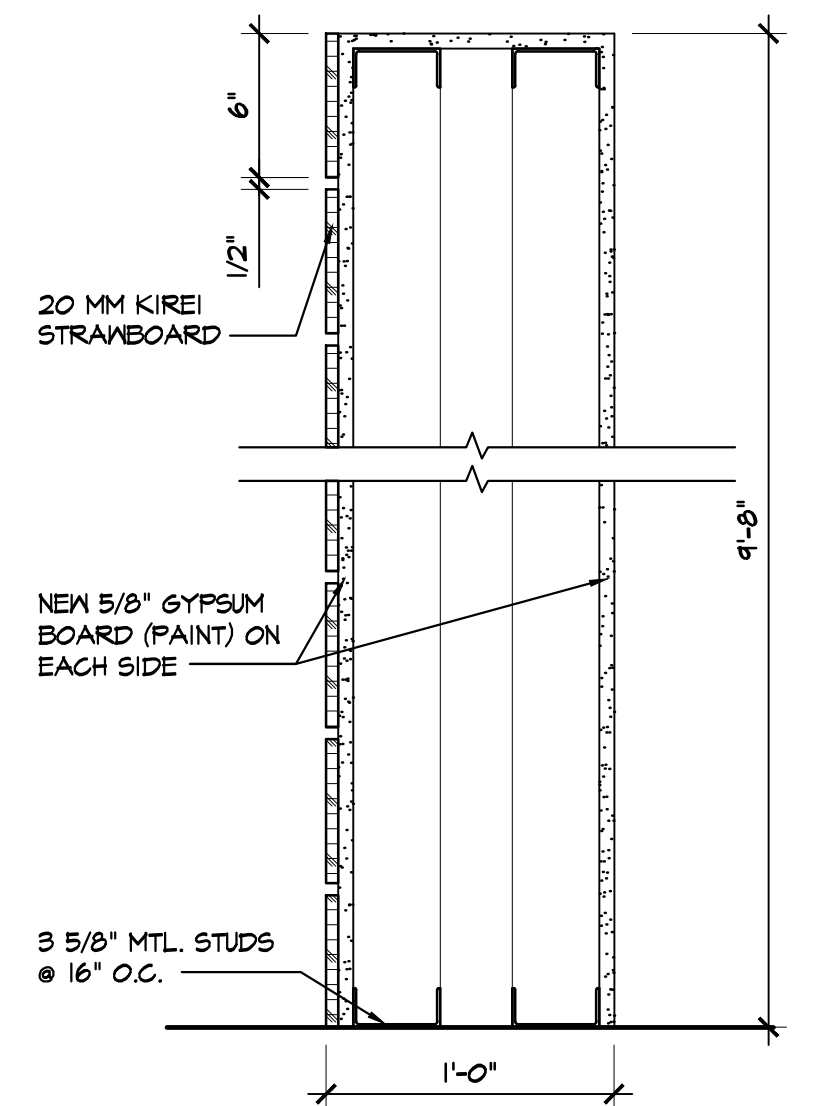
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**A-9**

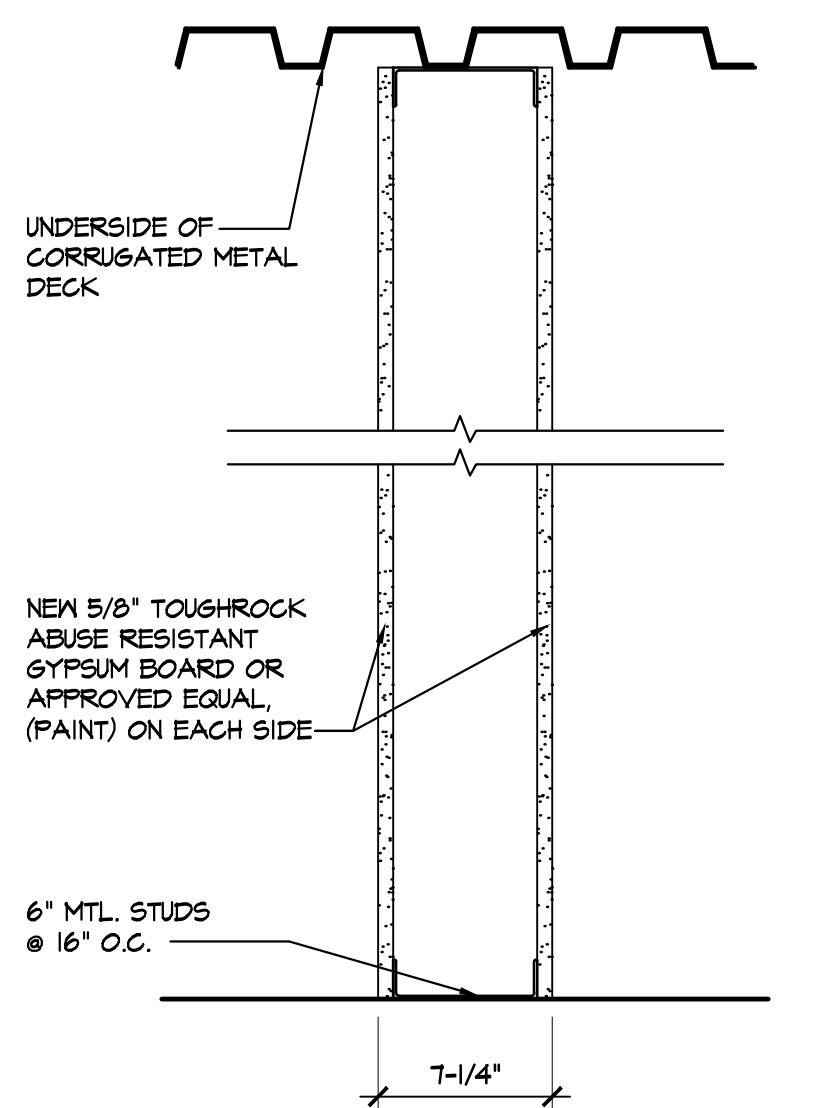
9 OF 23



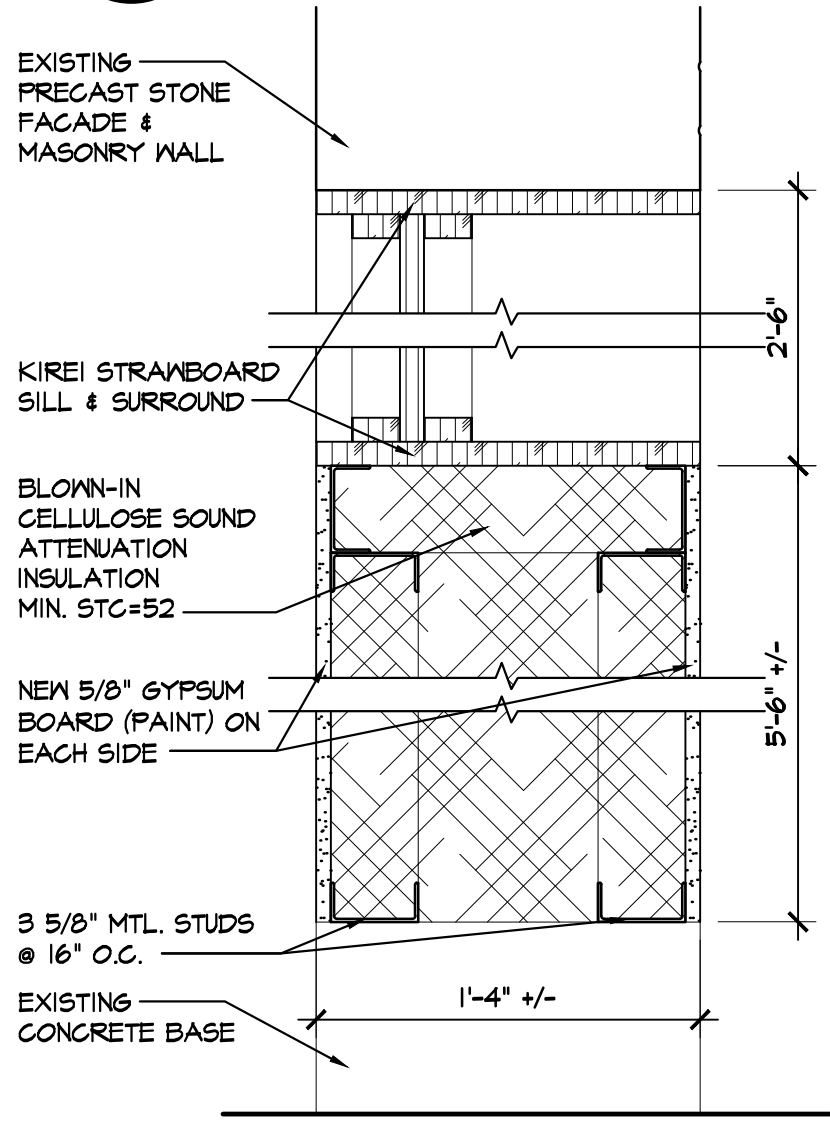
**2 PARTITION SECTION**  
A-10 SCALE: 1/2" = 1'-0"



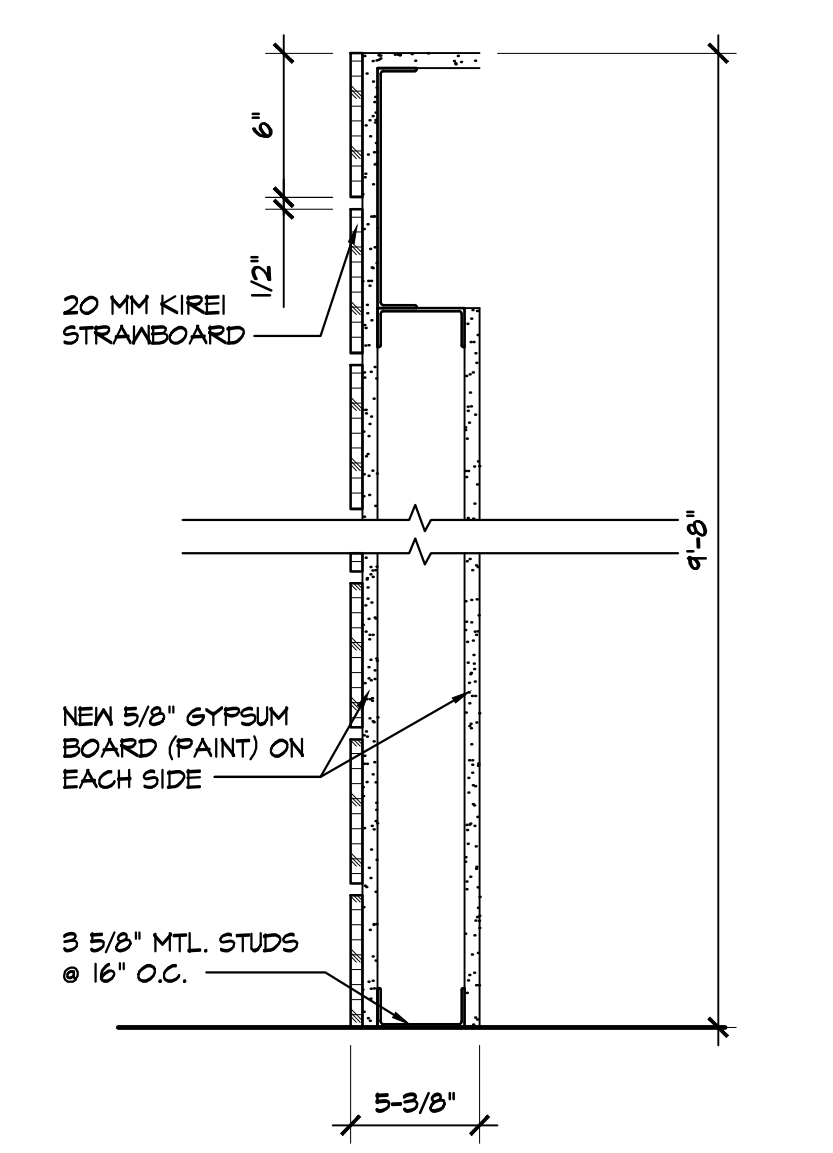
**3 PARTITION SECTION**  
A-10 SCALE: 1/2" = 1'-0"



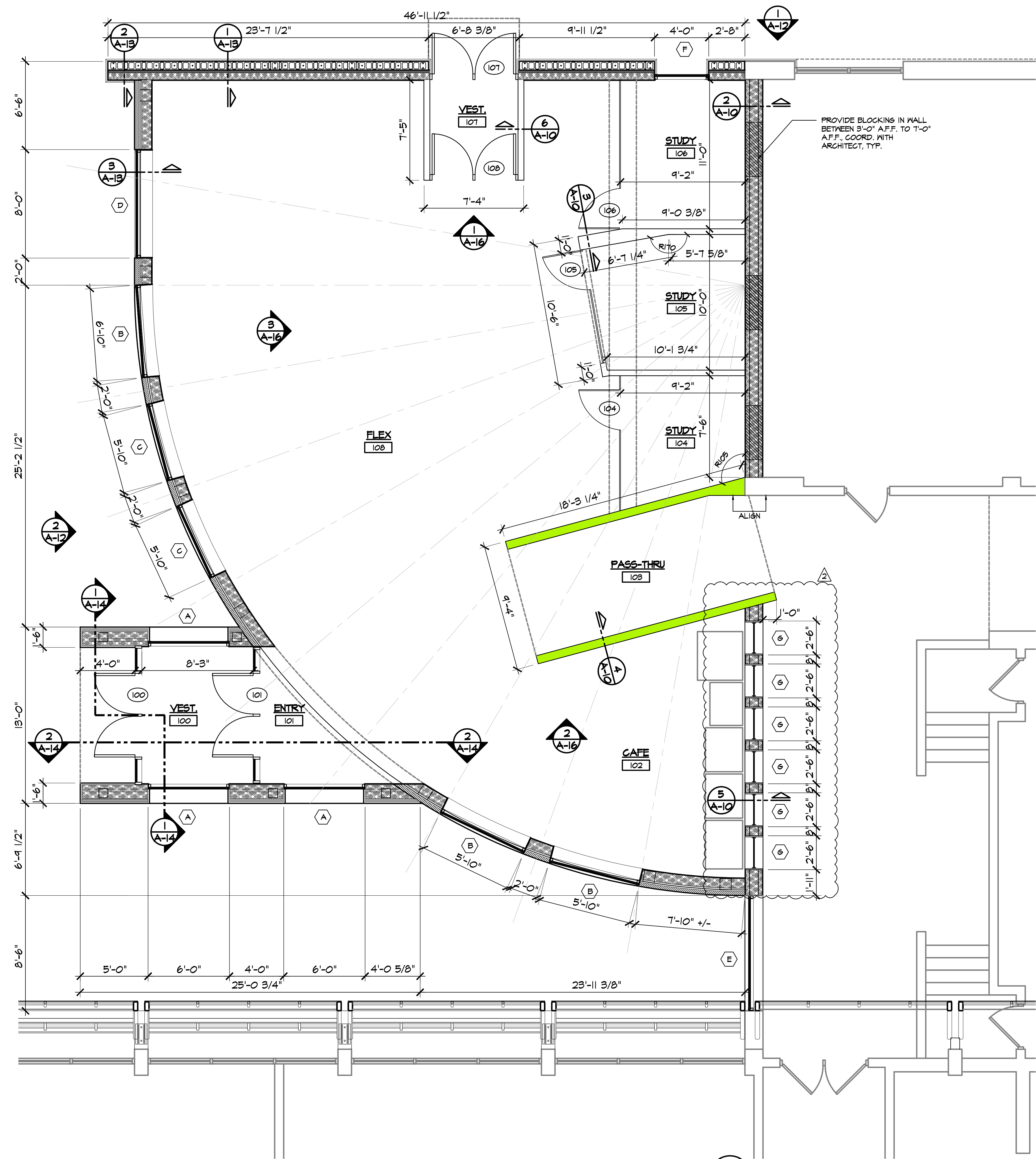
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A-10 SCALE: 1/2" = 1'-0"



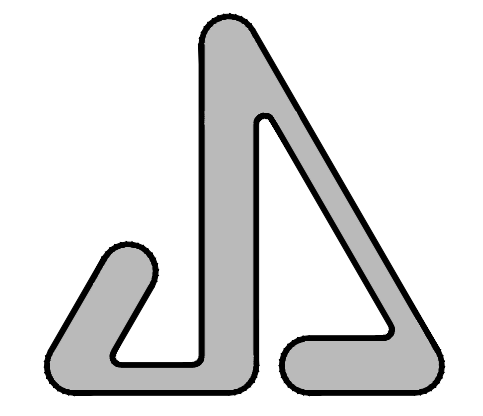
**5 PARTITION SECTION**  
A-10 SCALE: 1/2" = 1'-0"



**6 PARTITION SECTION**  
A-10 SCALE: 1/2" = 1'-0"



**1 ENLARGED FLOOR PLAN**  
A-10 SCALE: 1/4" = 1'-0"



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**ENLARGED  
FLOOR PLANS**

06.12.17	CONSTRUCTION
06.05.17	BUREAU OF FIRE SERVICES
05.18.17	ADDENDUM #2
05.01.17	PERMIT
05.01.17	BIDS
04.25.17	OWNER REVIEW
DATE:	ISSUED FOR:

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**A-10**

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### LIGHT FIXTURE SCHEDULE

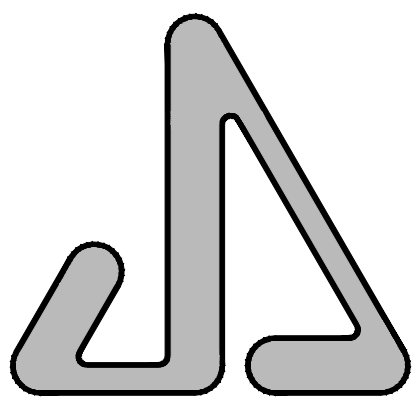
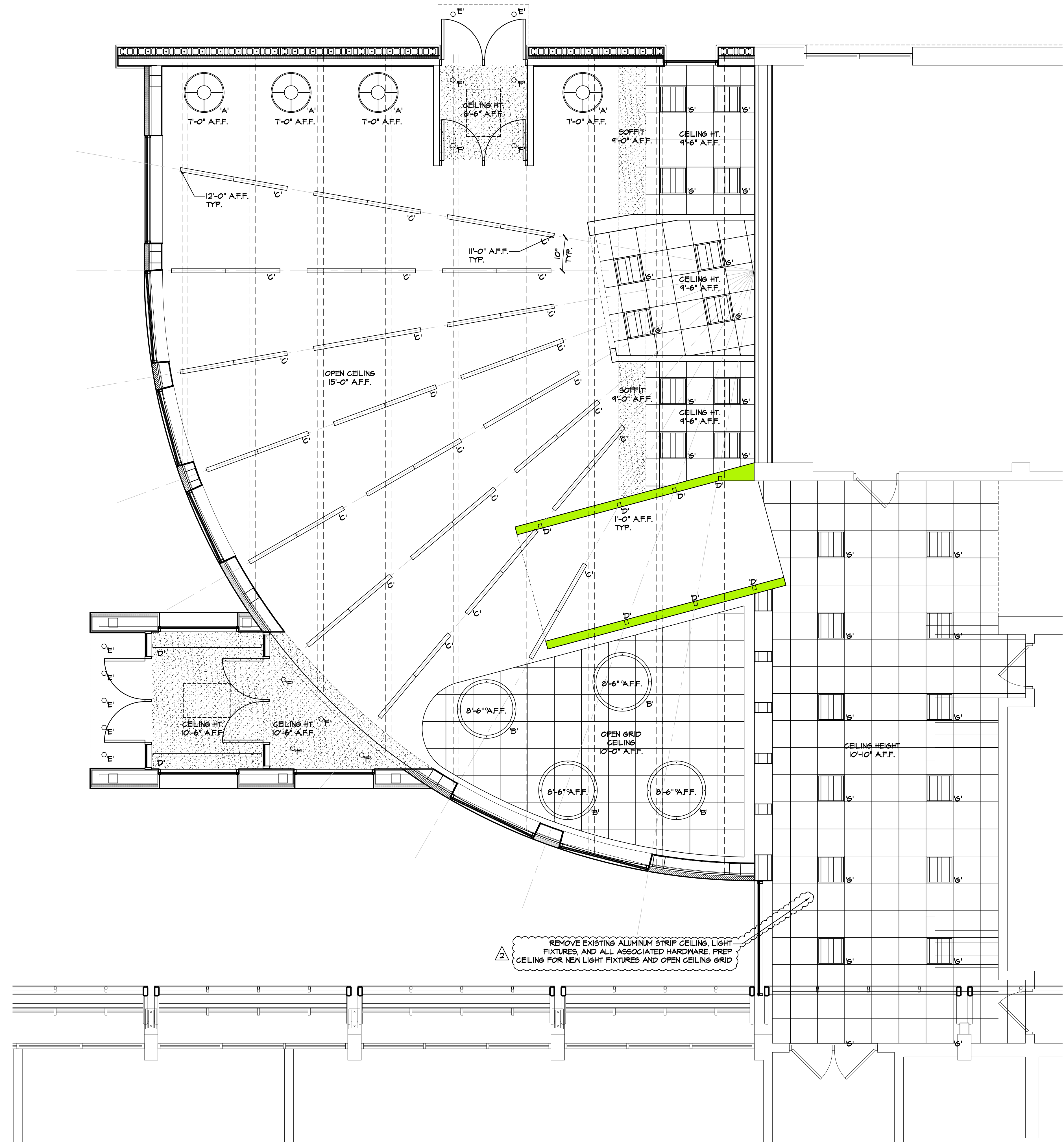
TYPE	SYMBOL	MANUFACTURER	CATALOG NUMBER	DESCRIPTION
'A'		SATTLER LIGHTING	711.69.51.00.27.Z76.B	SLIM DIRECT CIRCULAR ALUMINUM PENDANT LED
'B'		SATTLER LIGHTING	265.69.51.00.27.Z76.D	CIRCOLO INVERSE ALUMINUM PENDANT LED
'C'		SPI LIGHTING	LEGR-C-096-L30.5VC-40K-120-YY-CNS-048-AND4	LEGR LYON LINEAR SUSPENDED LED
'D'		PHILIPS	9451L60S30B1IE	TRUGROOVE STANDALONE PERFORMANCE LED
'E'		LITHONIA	LDN4 40/05 L04 AR L5 120 EZ10	EXTERIOR RECESSED CAN LED
'F'		LITHONIA	LDN4 40/05 L04 AR L5 120 EZ10	INTERIOR RECESSED CAN LED
'G'		LITHONIA	CTRF 20L EZ10 LP840	2'X2' LAY-IN LED

#### ACOUSTICAL PANELS

1. ACCEPTED MANUFACTURERS: USG, ARMSTRONGS, CELOTEX
2. ANTIMICROBIAL TREATMENT: PROVIDE ACOUSTICAL PANELS TREATED WITH MANUFACTURER'S STANDARD ANTIMICROBIAL SOLUTION CONSISTING OF A SYNERGISTIC BLEND OF SUBSTITUTED AMMONIUM SALTS OF ALKYLATED PHOSPHORIC ACIDS ADMIXED WITH FREE ALKYLATED PHOSPHORIC ACID THAT INHIBITS FUNGUS, MOLD, MILDEW, AND GRAM-POSITIVE AND GRAM-NEGATIVE BACTERIA.

#### METAL SUSPENSION SYSTEMS

1. ACCEPTED MANUFACTURERS: USG, ARMSTRONGS
2. WIRE HANGERS, BRACES, AND TIES: PROVIDE WIRES COMPLYING WITH THE FOLLOWING REQUIREMENTS:
  1. ZINC-COATED CARBON-STEEL WIRE: ASTM A 641/A 641M, CLASS 1 ZINC COATING, SOFT TEMPER.
  2. SIZE: SELECT WIRE DIAMETER SO ITS STRESS AT THREE TIMES HANGER DESIGN LOAD (ASTM C 635, TABLE 1, DIRECT HUNG) WILL BE LESS THAN YIELD OF WIRE, BUT PROVIDE LESS THAN 0.106-INCH-DIAMETER WIRE.
3. HANGER RODS: MILD STEEL, ZINC COATED.
4. FLAT HANGERS: MILD STEEL, ZINC COATED.
5. ANGLE HANGERS: ANGLES WITH LEGS NOT LESS THAN 7/8 INCH WIDE, FORMED WITH 0.04-INCH-THICK GALVANIZED STEEL SHEET COMPLYING WITH ASTM A 653/A 653M, 690 (Z275) COATING DESIGNATION, WITH BOLTED CONNECTIONS AND 5/16-INCH-DIAMETER BOLTS.
6. SHEET-METAL EDGE MOLDINGS AND TRIM: TYPE AND PROFILE INDICATED OR, IF NOT INDICATED, MANUFACTURER'S STANDARD MOLDINGS FOR EDGES AND PENETRATIONS THAT FIT ACOUSTICAL PANEL EDGE DETAILS AND SUSPENSION SYSTEMS INDICATED; FORMED FROM SHEET METAL OF SAME MATERIAL AND FINISH AS THAT USED FOR EXPOSED FLANGES OF SUSPENSION SYSTEM RUNNERS.
  1. BAKED-ENAMEL FINISH: AA-C12042R1X (CHEMICAL FINISH: CLEANED WITH INHIBITED CHEMICALS; CHEMICAL FINISH: ACID-CHROMATE-FLUORIDE-PHOSPHATE CONVERSION COATING; ORGANIC COATING: AS SPECIFIED BELOW). COMPLY WITH PAINT MANUFACTURER'S WRITTEN INSTRUCTIONS FOR APPLYING AND BAKING AND FOR MINIMUM DRY FILM THICKNESS.
    - A. ORGANIC COATING: MANUFACTURER'S STANDARD THERMOSETTING COATING SYSTEM WITH A MINIMUM DRY FILM THICKNESS OF 0.8 TO 1.2 MILS (0.02 TO 0.03 MM).
    - B. COLOR: AS SELECTED BY ARCHITECT FROM MANUFACTURER'S STANDARD COLORS. PROVIDE ARCHITECT WITH SAMPLES TO SELECT FINAL COLOR.



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### REFLECTED CEILING PLAN

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 05.18.17 ADDENDUM #2  
 05.01.17 PERMIT  
 05.01.17 BIDS  
 04.25.17 OWNER REVIEW

DATE: ISSUED FOR:

DRAWN WWH

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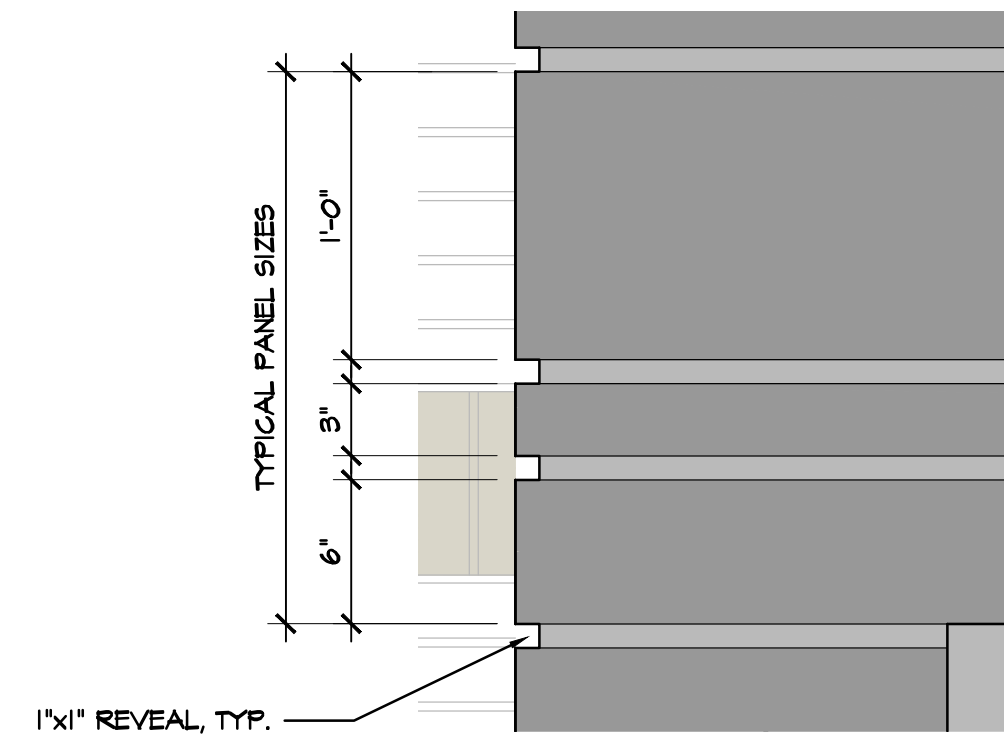
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# A-11

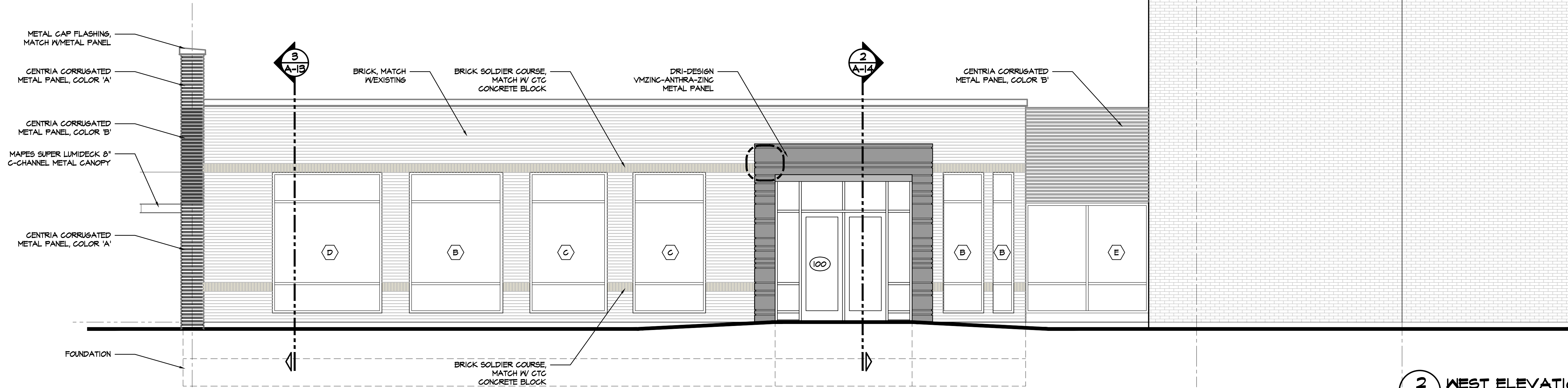
11 OF 23

REFLECTED CEILING PLAN  
 SCALE: 1/4" = 1'-0"

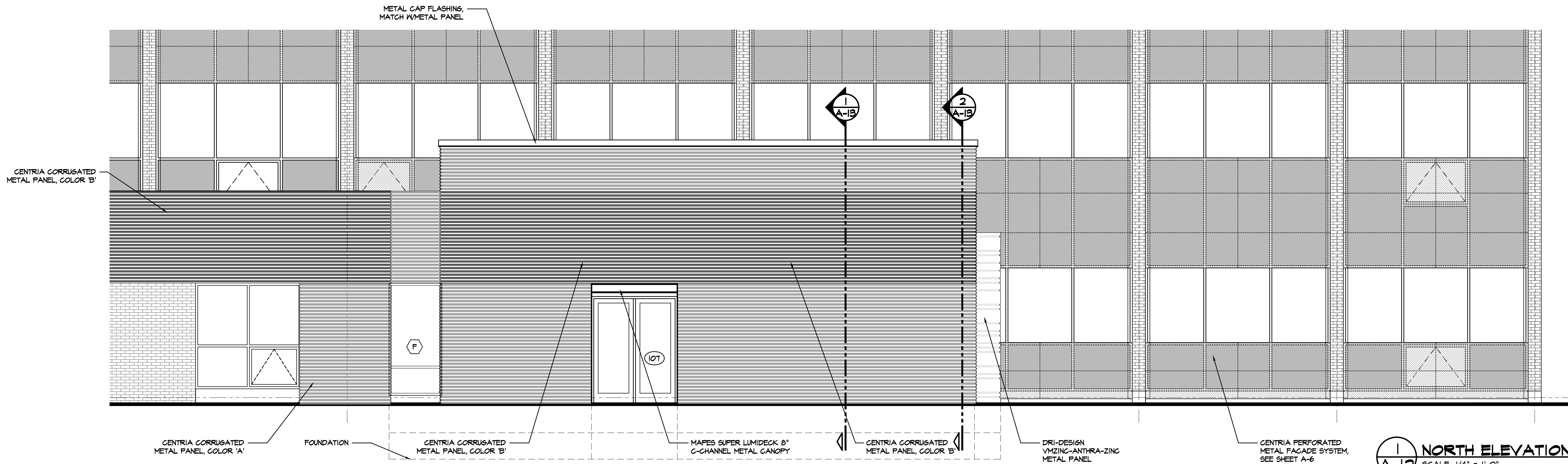
CENTRIA CONCEPT SUNDANCE MICA COLORS  
 COLOR 'A' - #4B59 CHAMPAGNE GOLD  
 COLOR 'B' - 4441 GRAY VELVET



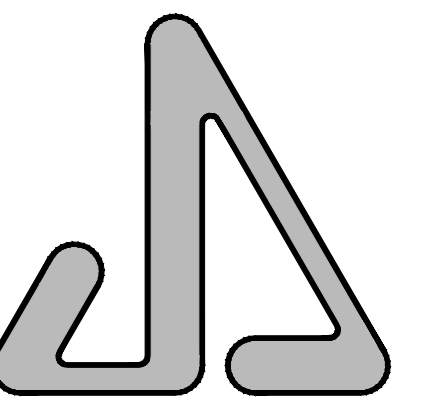
**FAÇADE DETAIL**  
 SCALE: 1 1/2" = 1'-0"



**2 WEST ELEVATION**  
 SCALE: 1/4" = 1'-0"



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



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EXTERIOR  
 ELEVATIONS

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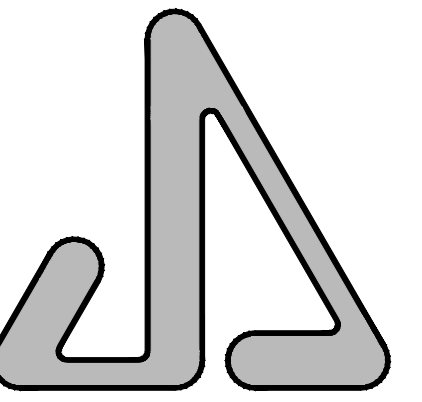
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EXTERIOR FACADE  
 IMPROVEMENTS & BUILDING  
 ADDITION FOR:

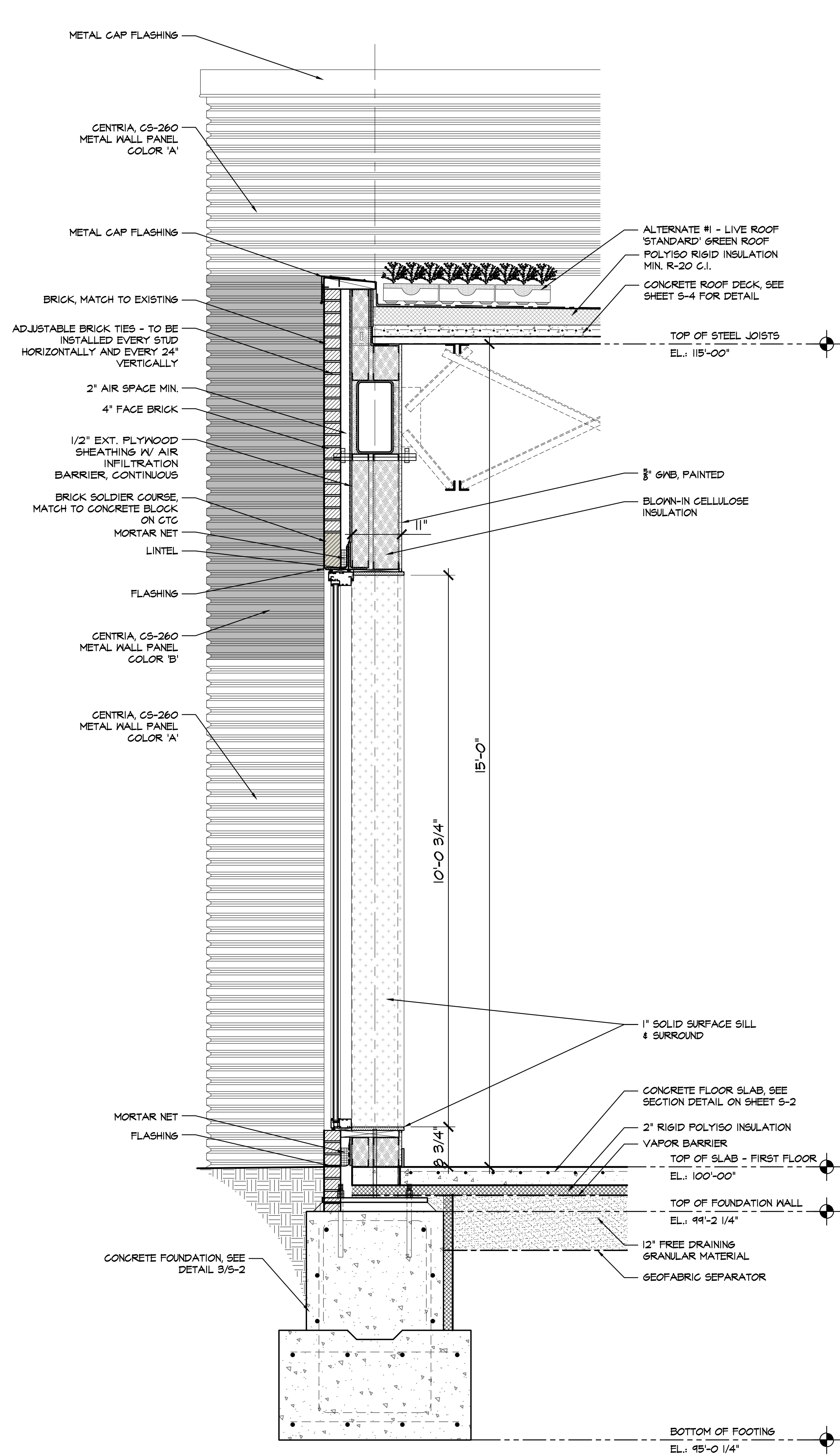
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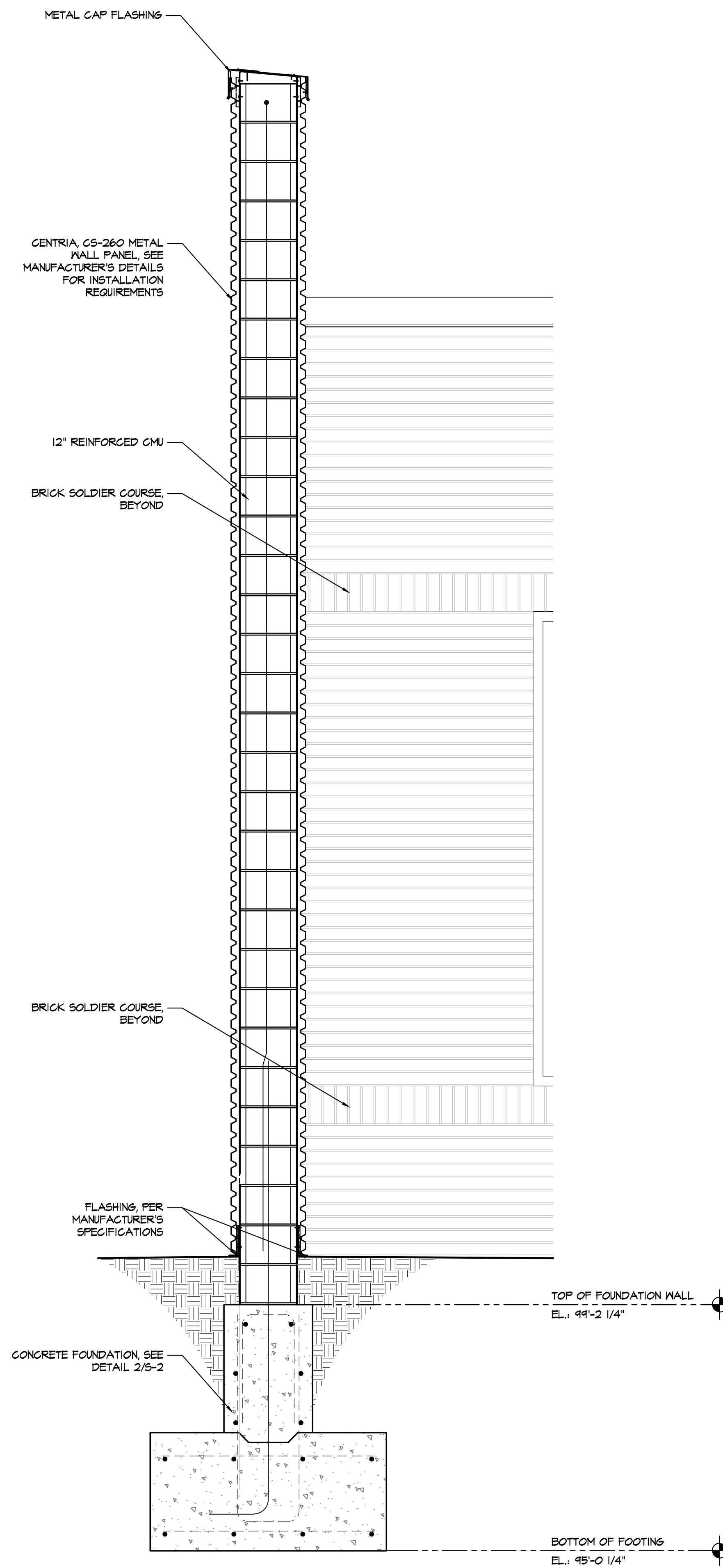
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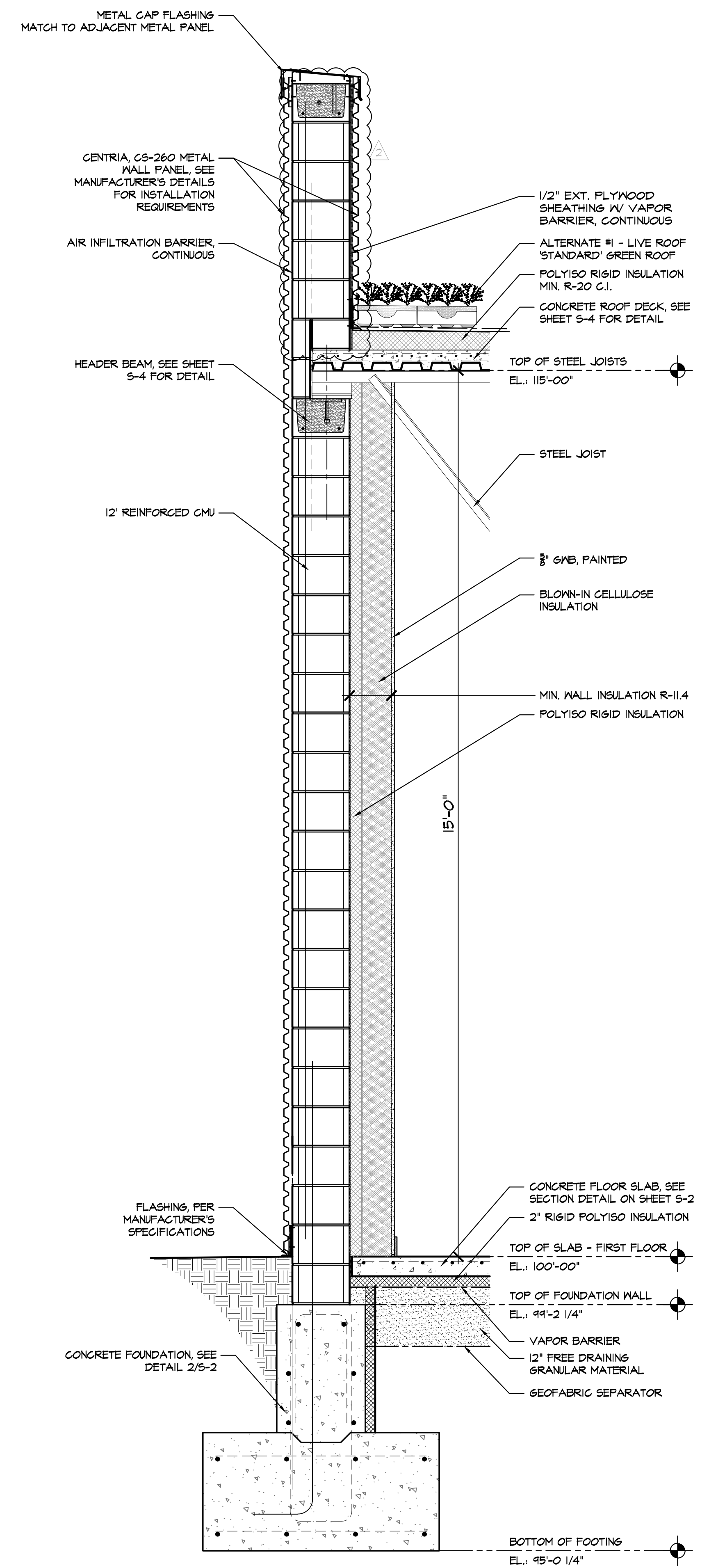
WALL SECTIONS



**3 WALL SECTION**  
 A-13 SCALE: 3/4" = 1'-0"



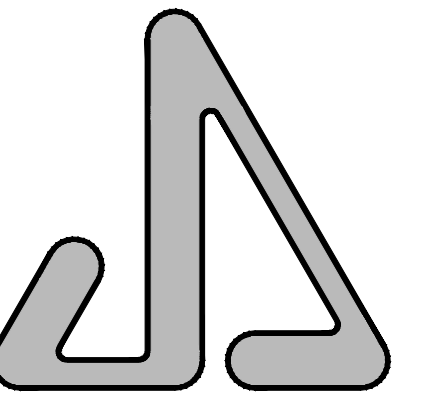
**2 WALL SECTION**  
 A-13 SCALE: 3/4" = 1'-0"



**1 WALL SECTION**  
 A-13 SCALE: 3/4" = 1'-0"

06.12.17	CONSTRUCTION
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**A-13**



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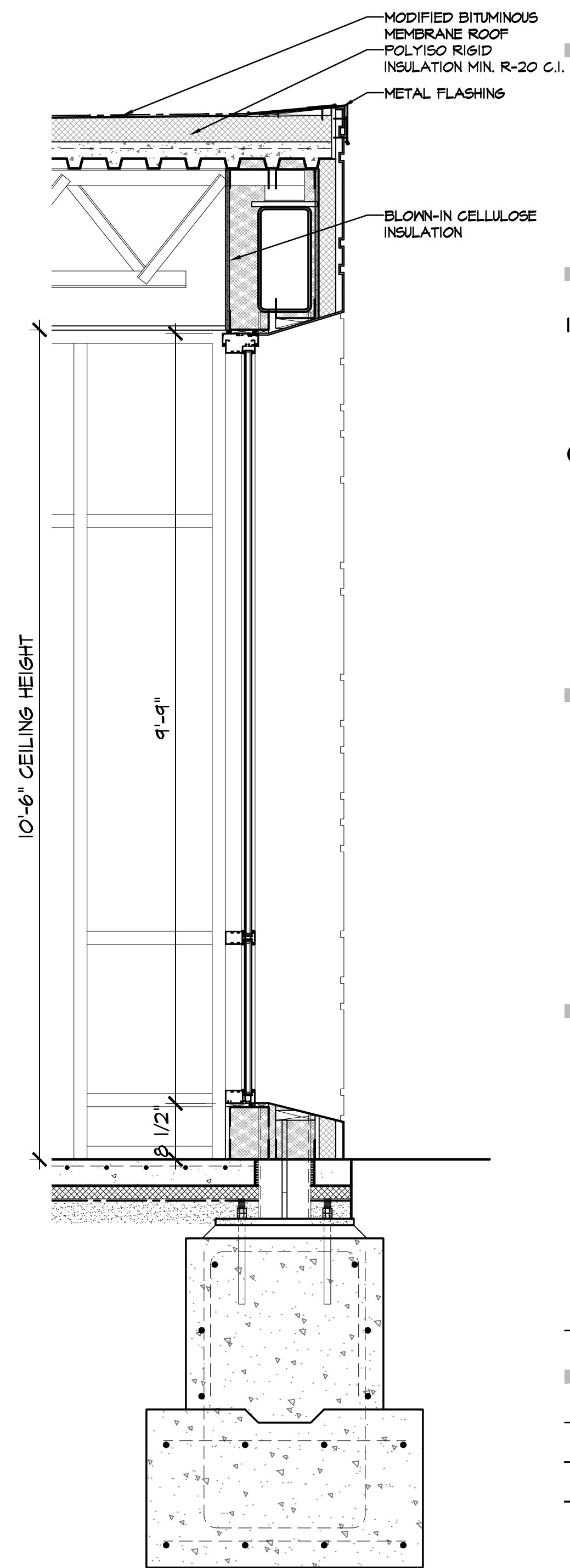
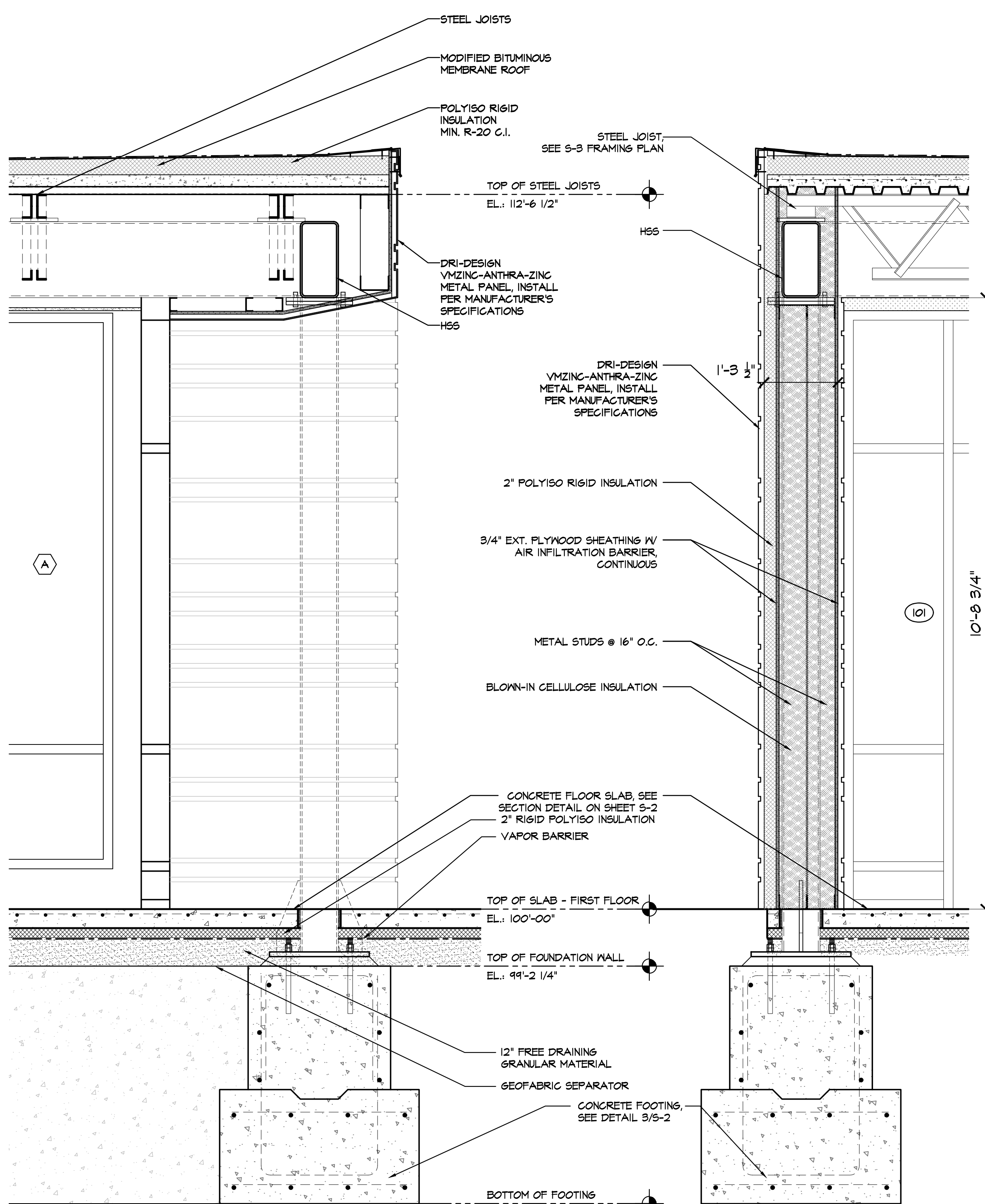
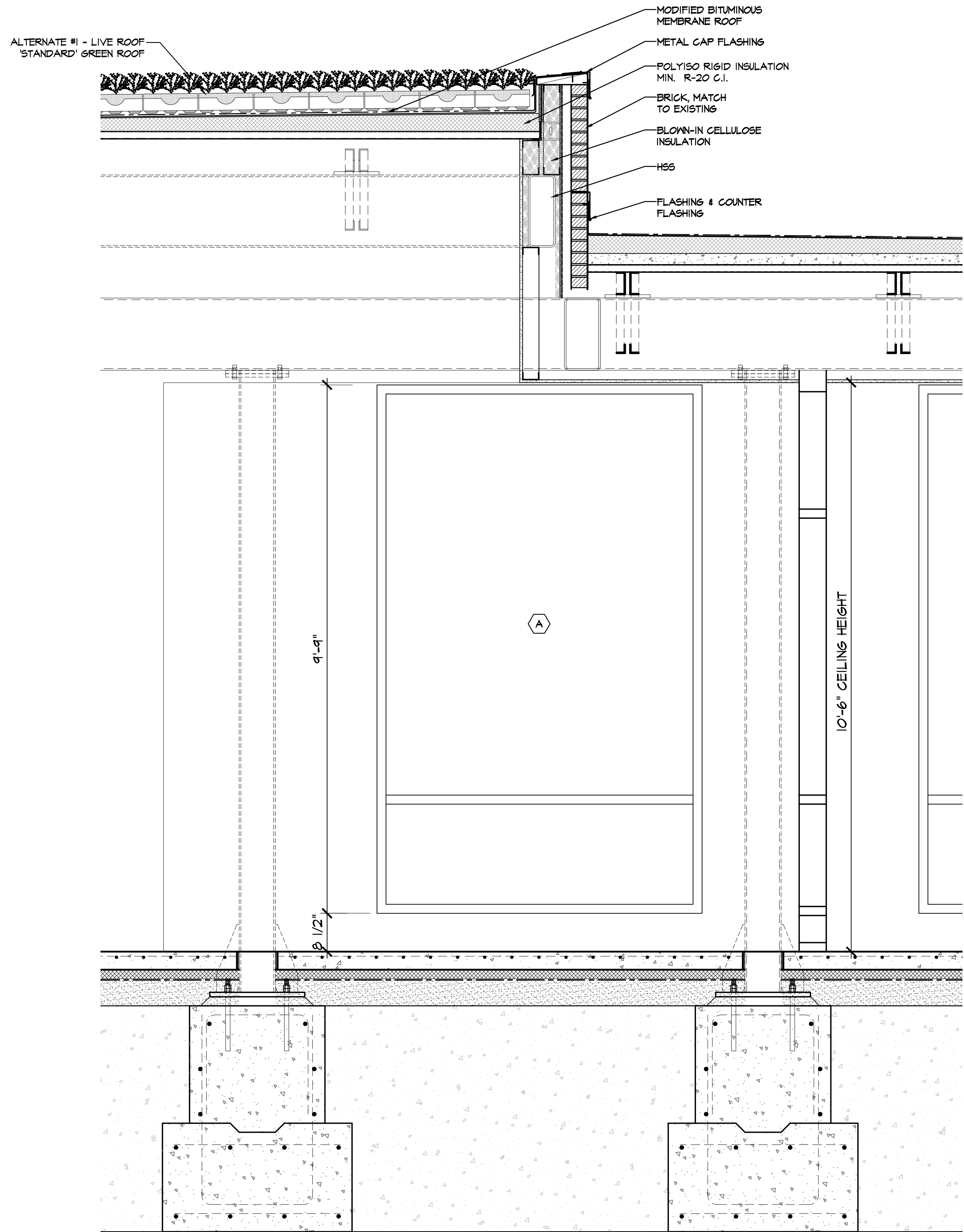
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VESTIBULE SECTIONS



**2** LONGITUDINAL SECTION  
 A-14 SCALE: 3/4" = 1'-0"

**1** CROSS SECTION  
 A-14 SCALE: 3/4" = 1'-0"

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**A-14**

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ROOM FINISH SCHEDULE															
NO.	ROOM NAME	FLOOR			FLR. BASE	WALLS			CEILING				FINISH		REMARKS
		FIELD CARPET 'A'	FIELD CARPET 'B'	WALK-OFF CARPET		4" VINYL	GYPSUM BOARD	ACOUSTICAL TILE	GYPSUM BOARD	OPEN GRID	OPEN CEILING	HEIGHT IN FEET AND INCHES (VERIFY HEIGHT)	WALLS	CEILING	
100	VESTIBULE										10'-6"	PT	PT	SHAW CONTRACT WELCOME II TILE 24X24 'B544 CHARCOAL'	
101	ENTRY										10'-6"	PT	PT	SHAW CONTRACT WELCOME II TILE 24X24 'B544 CHARCOAL'	
102	CAFE										10'-0"	PT	---	SHAW CONTRACT DIFFUSE 24X24 'B535 RIVER FRONT'	
103	PASS-THRU										15'-0"	PT	PT	SHAW CONTRACT DIFFUSE 24X24 'B535 FORMATIONS'	
104	STUDY										9'-6"	PT	ACT	SHAW CONTRACT DIFFUSE 24X24 'B535 RIVER FRONT'	
105	STUDY										9'-6"	PT	ACT	SHAW CONTRACT DIFFUSE 24X24 'B535 RIVER FRONT'	
106	STUDY										9'-6"	PT	ACT	SHAW CONTRACT DIFFUSE 24X24 'B535 RIVER FRONT'	
107	VESTIBULE										8'-6"	PT	PT	SHAW CONTRACT WELCOME II TILE 24X24 'B544 CHARCOAL'	
108	FLEX										15'-0"	PT	PT	SHAW CONTRACT DIFFUSE 24X24 'B535 RIVER FRONT'	
109	HALL										10'-10"	PT	PT		

- NOTES:
- PROVIDE TWO (2) COATS OF PAINT TO ALL FINISHED SURFACES.
  - COORDINATE PAINT COLORS WITH ARCHITECT.
  - EXPOSED STRUCTURAL MEMBERS, ROOF DECK TO BE PAINTED.
  - OPEN GRID SYSTEM COLOR FROM MANUFACTURER'S STANDARD COLORS, COORDINATE WITH ARCHITECT.

**INTERIOR FINISH CLASSIFICATIONS**

INTERIOR WALL AND CEILING FINISHES SHALL BE CLASSIFIED IN ACCORDANCE WITH ASTM E 84, AND SHALL BE GROUPED IN THE FOLLOWING CLASSES IN ACCORDANCE WITH THEIR FLAME SPREAD AND SMOKE-DEVELOPED INDEXES:

- CLASS A: FLAME SPREAD 0-25; SMOKE-DEVELOPED 0-450
- CLASS B: FLAME SPREAD 26-75; SMOKE-DEVELOPED 0-450
- CLASS C: FLAME SPREAD 76-200; SMOKE-DEVELOPED 0-450

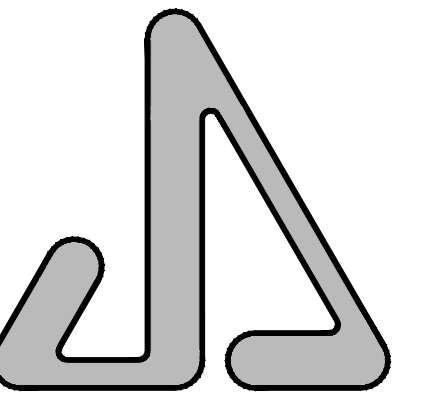
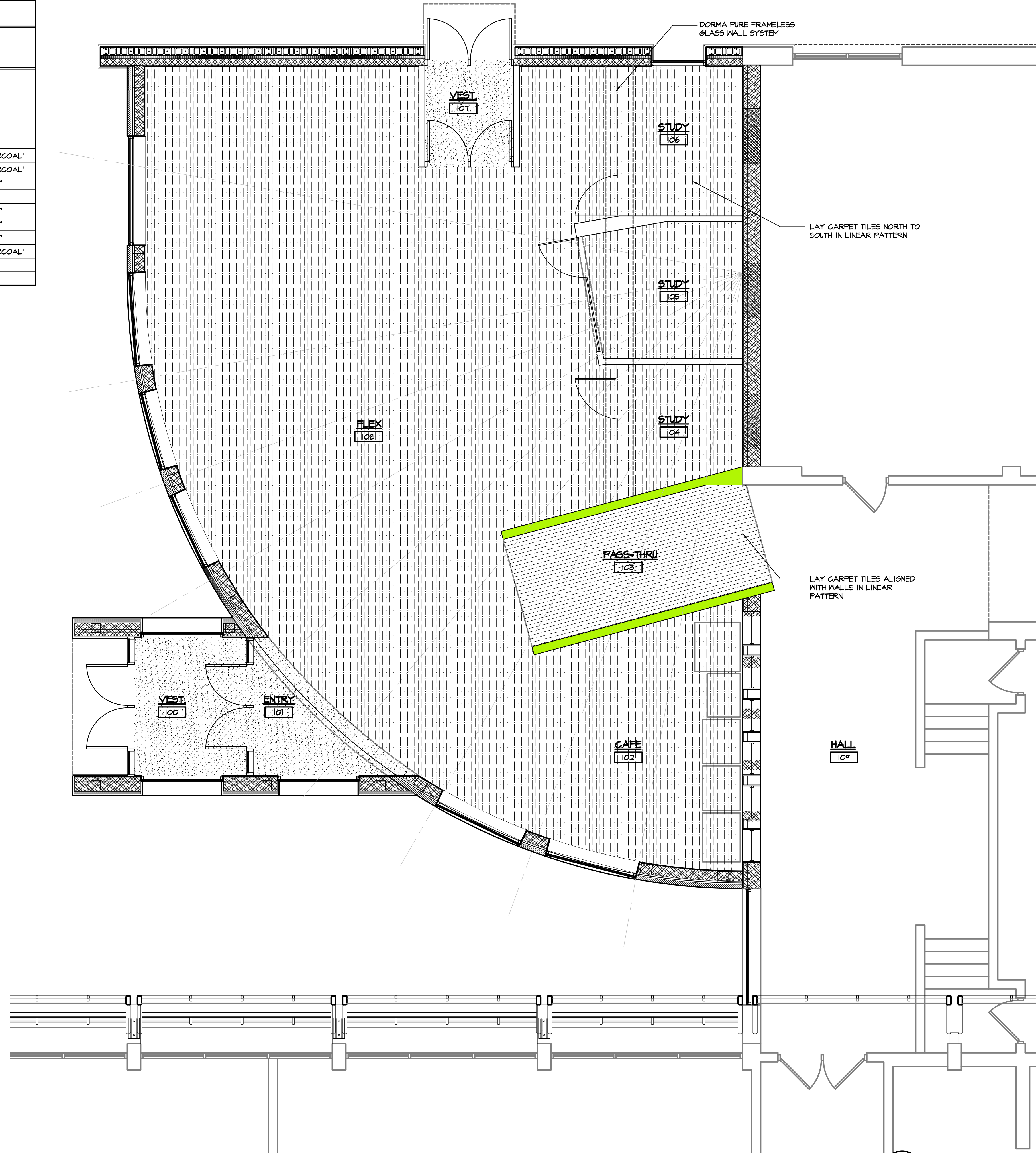
**USE GROUP B (BUSINESS) - SECTION 809, TABLE 809.5**

CLASS A FINISH: EXIT ENCLOSURES/PASSAGEWAYS (NONSPRINKLED)

CLASS B FINISH: EXIT ENCLOSURES/PASSAGEWAYS (SPRINKLED)  
CORRIDORS (NONSPRINKLED)

CLASS C FINISH: CORRIDORS (SPRINKLED)  
ROOMS/ENCLOSED SPACES (SPRINKLED)  
ROOMS/ENCLOSED SPACES (NONSPRINKLED)

INTERIOR FLOOR FINISH REQUIREMENTS: MINIMUM CRITICAL RADIANT FLUX NOT LESS THAN CLASS II, AND SHOULD COMPLY WITH THE DOC FF-1 'FILL TEST' (PSC 16 CFR, PART 1630).



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EXTERIOR FACADE  
IMPROVEMENTS & BUILDING  
ADDITION FOR:

MONROE COUNTY  
COMMUNITY COLLEGE

LIFE SCIENCE  
BUILDING

1555 S. RAISINVILLE ROAD  
MONROE, MICHIGAN 48161

PROPERTY OWNER CONTACT:  
MR. JACK BURNS  
1555 S. RAISINVILLE ROAD  
MONROE, MICHIGAN 48161  
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**FINISH PLAN**

06.12.17 CONSTRUCTION  
08.05.17 BUREAU OF FIRE SERVICES  
05.01.17 PERMIT  
05.01.17 BIDS  
04.25.17 OWNER REVIEW

DATE: ISSUED FOR:

DRAWN: WWH

REVIEW'D: JSJ

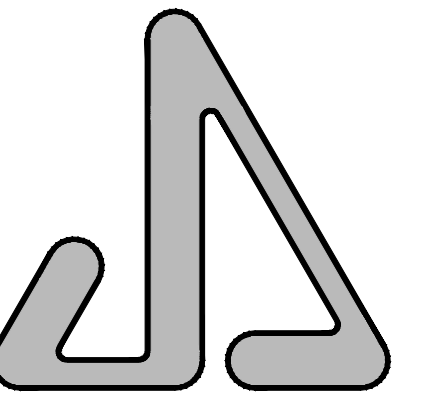
201545

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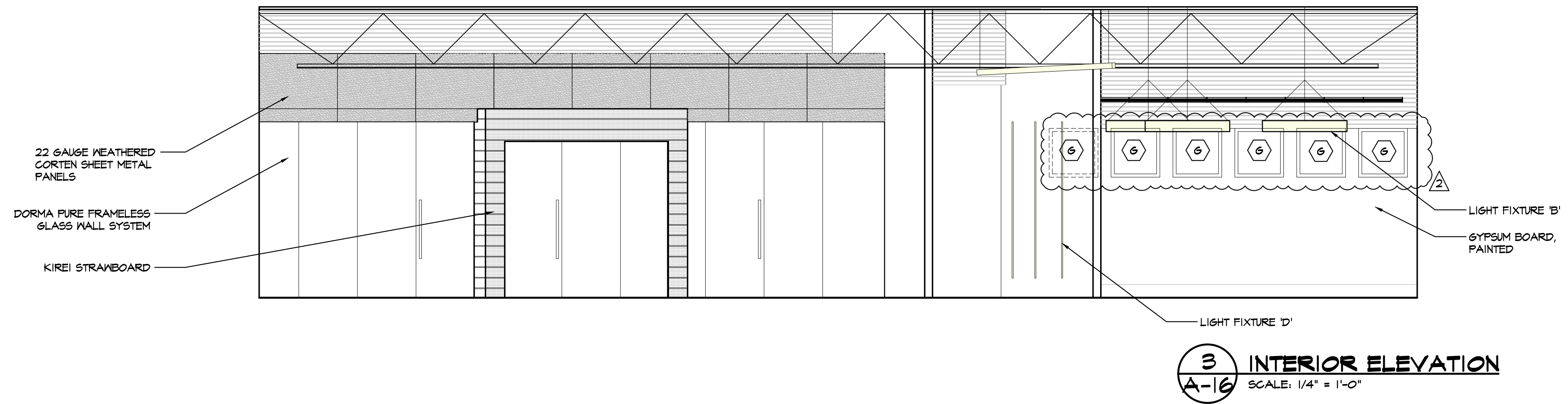
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**A-15** FINISH PLAN  
SCALE: 1/4" = 1'-0"

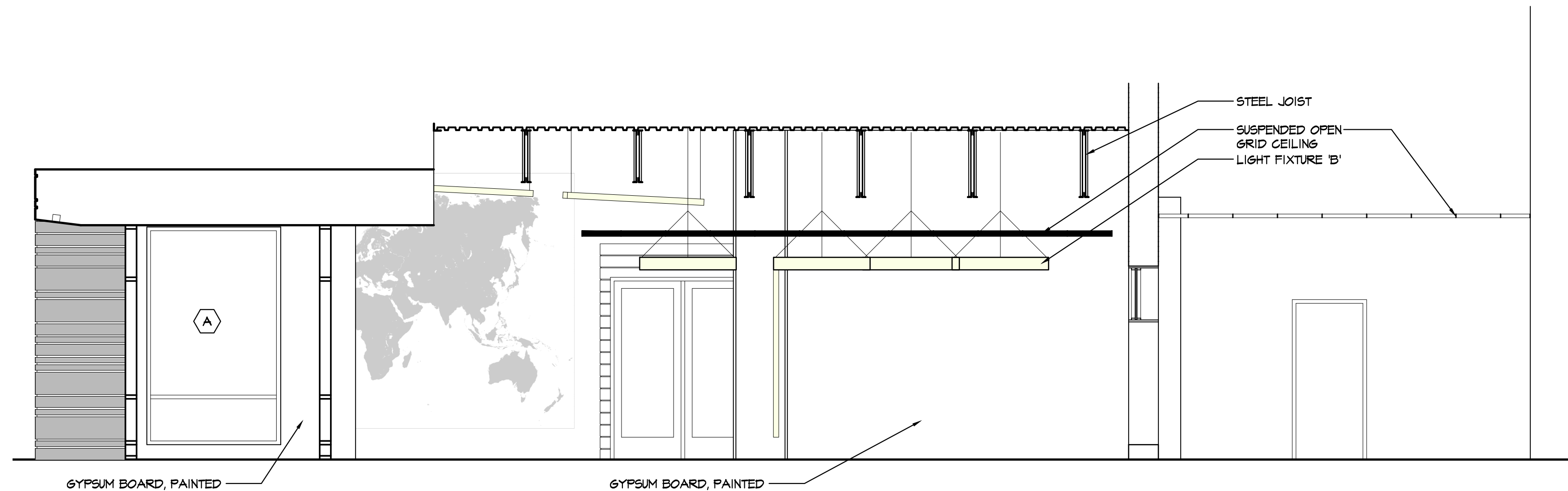


JAMES S. JACOBS ARCHITECTS, PLLC

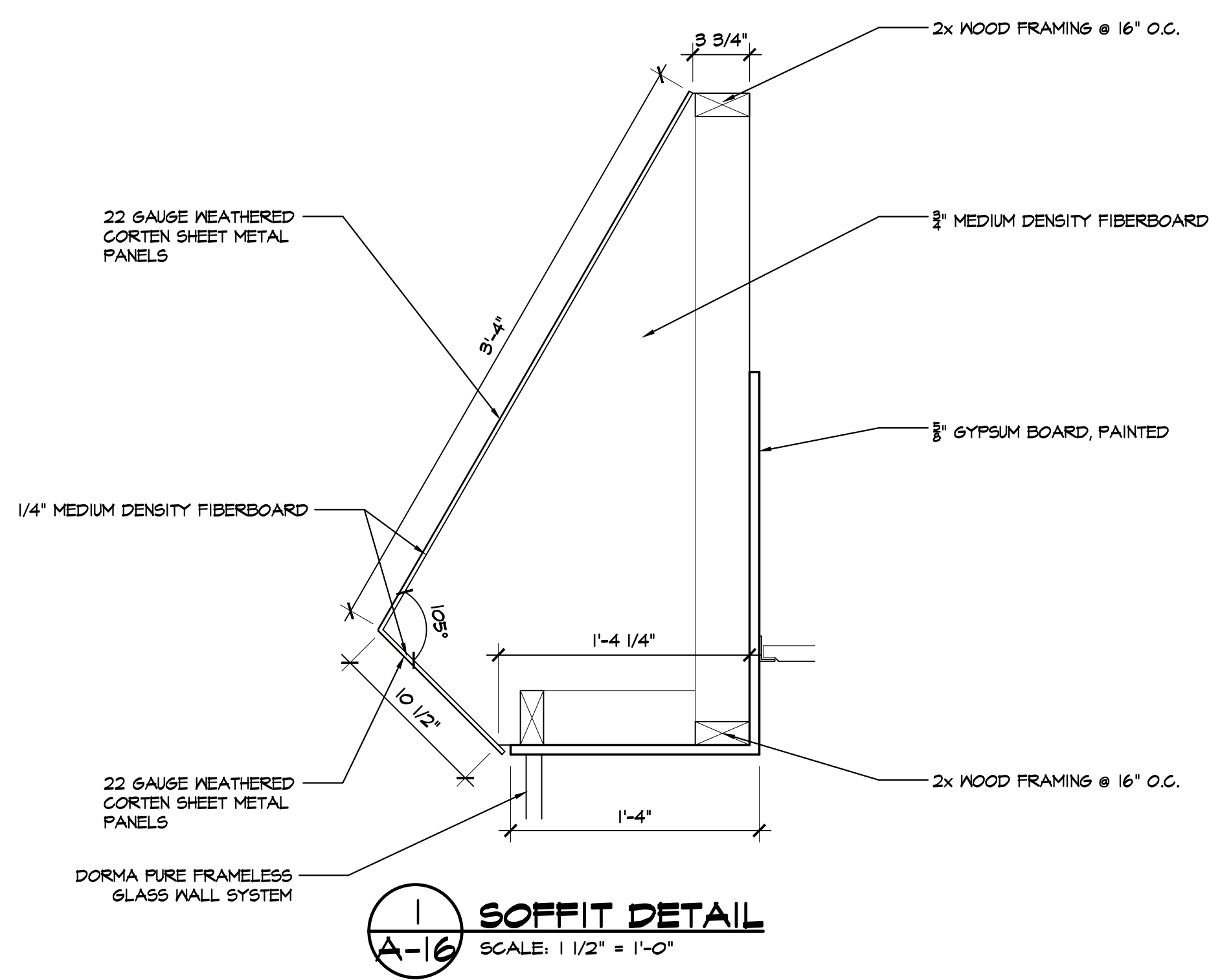
25 WASHINGTON STREET  
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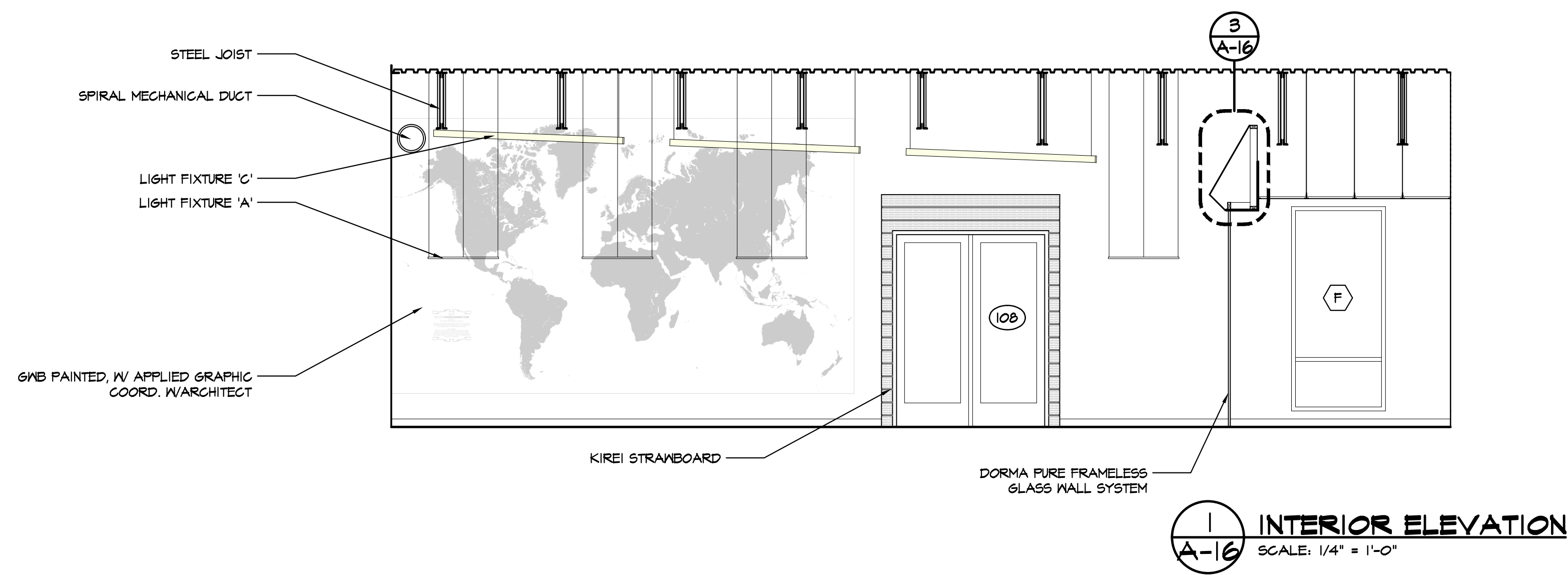
**3 INTERIOR ELEVATION**  
 SCALE: 1/4" = 1'-0"



**2 INTERIOR ELEVATION**  
 SCALE: 1/4" = 1'-0"



**1 SOFFIT DETAIL**  
 SCALE: 1/2" = 1'-0"



**1 INTERIOR ELEVATION**  
 SCALE: 1/4" = 1'-0"

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INTERIOR  
 ELEVATIONS

06.12.17 CONSTRUCTION  
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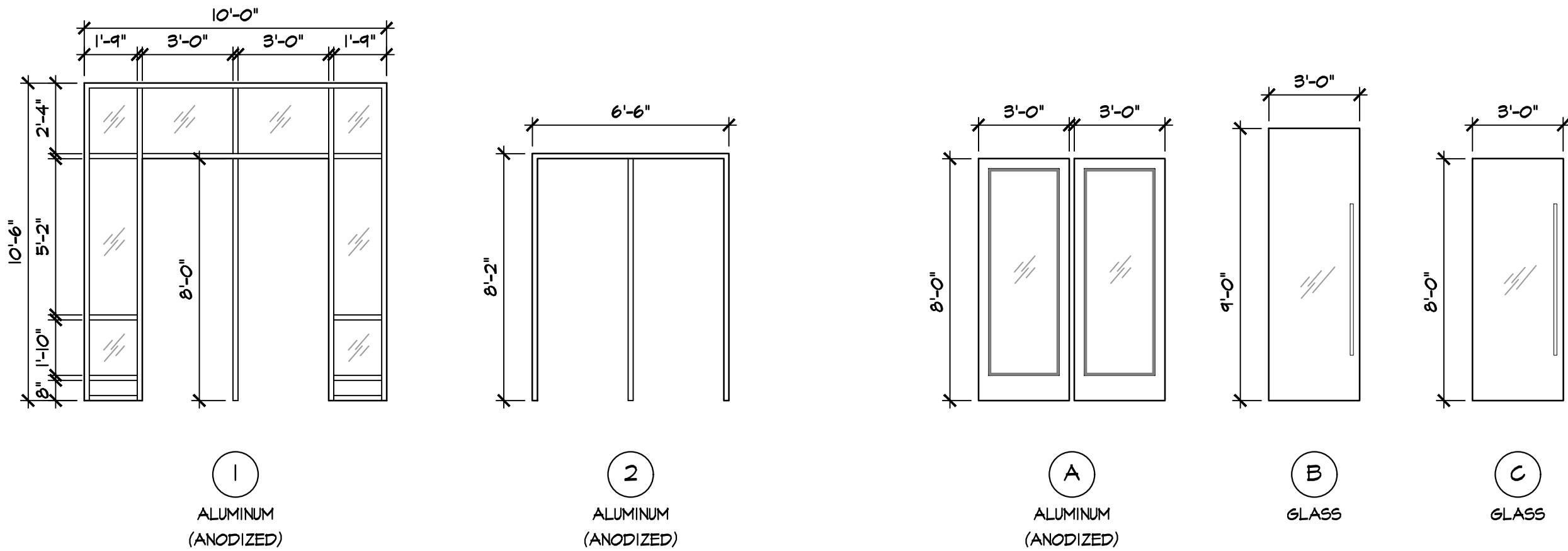
DOOR SCHEDULE													
NO.	DOOR SIZE	DOOR			FRAME			DETAILS			FIRE RATING	HARDWARE SET	REMARKS
		MATERIAL	FINISH	TYPE	MATERIAL	FINISH	TYPE	HEAD	JAMB	SILL			
100	(2)3'-0"x8'-0"x1 3/4"	ALUMINUM / GLASS	BLACK	A	ALUMINUM	BLACK	1	-	-	---	---	1	
101	(2)3'-0"x8'-0"x1 3/4"	ALUMINUM / GLASS	BLACK	A	ALUMINUM	BLACK	1	-	-	---	---	1	
104	3'-0"x9'-0"	GLASS	---	B	---	---	-	-	-	---	---	---	DORMA PURE FRAMELESS PIVOTING, OR EQUAL, COORD. HARDWARE I/ARCHITECT
105	3'-0"x8'-0"	GLASS	---	C	---	---	-	-	-	---	---	---	DORMA PURE FRAMELESS PIVOTING, OR EQUAL, COORD. HARDWARE I/ARCHITECT
106	3'-0"x9'-0"	GLASS	---	B	---	---	-	-	-	---	---	---	DORMA PURE FRAMELESS PIVOTING, OR EQUAL, COORD. HARDWARE I/ARCHITECT
107	(2)3'-0"x8'-0"x1 3/4"	ALUMINUM / GLASS	ANODIZED	A	ALUMINUM	ANODIZED	2	-	-	---	---	2	
108	(2)3'-0"x8'-0"x1 3/4"	ALUMINUM / GLASS	ANODIZED	A	ALUMINUM	ANODIZED	2	-	-	---	---	2	

**FRAME TYPE**

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

**DOOR TYPE**

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



**FINISH HARDWARE**

**QUALITY ASSURANCE**

- REQUIREMENTS OF REGULATORY AGENCIES.
- FURNISH FINISH HARDWARE TO COMPLY WITH THE REQUIREMENTS OF LAWS, CODES, ORDINANCES, AND REGULATIONS OF THE GOVERNMENTAL AUTHORITIES HAVING JURISDICTION WHERE SUCH REQUIREMENTS EXCEED THE REQUIREMENTS OF THE SPECIFICATIONS.
- FURNISH FINISH HARDWARE TO COMPLY WITH THE REQUIREMENTS OF THE REGULATIONS FOR PUBLIC BUILDING ACCOMMODATIONS FOR PHYSICALLY HANDICAPPED PERSONS OF THE GOVERNMENTAL AUTHORITY HAVING JURISDICTION AND TO COMPLY WITH AMERICANS WITH DISABILITIES ACT.
- PROVIDE HARDWARE FOR FIRE-RATED OPENINGS IN COMPLIANCE WITH NFPA 80 AND STATE AND LOCAL BUILDING CODE REQUIREMENTS. PROVIDE ONLY HARDWARE THAT HAS BEEN TESTED AND LISTED BY UL FOR TYPES AND SIZES OF DOORS REQUIRED AND COMPLIES WITH REQUIREMENTS OF DOOR AND DOOR FRAME LABELS.
- HARDWARE SUPPLIER.
  - SHALL BE AN ESTABLISHED FIRM DEALING IN CONTRACT BUILDERS HARDWARE. HE MUST HAVE ADEQUATE INVENTORY, QUALIFIED PERSONNEL ON STAFF AND BE LOCATED WITHIN 100 MILES OF THE PROJECT. THE DISTRIBUTOR MUST BE A FACTORY-AUTHORIZED DEALER FOR ALL MATERIALS REQUIRED. THE SUPPLIER SHALL BE OR HAVE IN EMPLOYMENT AN ARCHITECTURAL HARDWARE CONSULTANT (AHC).
  - ELECTRIFIED DOOR HARDWARE SUPPLIER.
    - SHALL BE AN EXPERIENCED DOOR HARDWARE SUPPLIER WHO HAS COMPLETED PROJECTS WITH ELECTRIFIED DOOR HARDWARE SIMILAR IN MATERIAL, DESIGN, AND EXTENT TO THAT INDICATED FOR THIS PROJECT, WHOSE WORK HAS RESULTED IN CONSTRUCTION WITH A RECORD OF SUCCESSFUL IN-SERVICE PERFORMANCE, AND WHO IS ACCEPTABLE TO MANUFACTURER OF PRIMARY MATERIALS.
    - SHALL PREPARE DATA FOR ELECTRIFIED DOOR HARDWARE, INCLUDING SHOP DRAWINGS, BASED ON TESTING AND ENGINEERING ANALYSIS OF MANUFACTURER'S STANDARD UNITS IN ASSEMBLIES SIMILAR TO THOSE INDICATED FOR THIS PROJECT.
    - SHALL HAVE EXPERIENCE IN PROVIDING CONSULTING SERVICES FOR ELECTRIFIED DOOR HARDWARE INSTALLATIONS.
- PRE-INSTALLATION MEETINGS.
  - BEFORE HARDWARE INSTALLATION, GENERAL CONTRACTOR/CONSTRUCTION MANAGER WILL REQUEST A HARDWARE INSTALLATION MEETING BE CONDUCTED ON THE INSTALLATION OF HARDWARE, SPECIFICALLY THAT OF LOCKSETS, CLOSERS, EXIT DEVICES, OVERHEAD STOPS AND COORDINATORS, MANUFACTURER'S REPRESENTATIVES OF THE ABOVE PRODUCTS, IN CONJUNCTION WITH THE HARDWARE SUPPLIER FOR THE PROJECT, SHALL CONDUCT THE MEETING. MEETINGS TO BE HELD AT JOB SITE AND ATTENDED BY INSTALLERS OF HARDWARE FOR ALUMINUM, HOLLOW METAL, AND WOOD DOORS. MEETINGS TO ADDRESS PROPER COORDINATION AND INSTALLATION OF HARDWARE, PER FINISH HARDWARE SCHEDULE FOR THIS SPECIFIC PROJECT, BY USING INSTALLATION MANUALS, HARDWARE SCHEDULE, TEMPLATES, PHYSICAL PRODUCT SAMPLES AND INSTALLATION VIDEOS.
  - WHEN ANY ELECTRICAL HARDWARE IS SPECIFIED THIS MEETING SHALL ALSO INCLUDE THE FOLLOWING TRADES/INSTALLERS: ELECTRICAL, SECURITY, ALARM SYSTEMS AND ARCHITECT.
  - CONVENE ONE WEEK OR MORE PRIOR TO COMMENCING WORK OF THIS SECTION.
  - THE HARDWARE SUPPLIER SHALL INCLUDE THE COST OF THIS MEETING IN HIS PROPOSAL.
- MANUFACTURER.
  - OBTAIN EACH TYPE OF HARDWARE (LATCH AND LOCKSETS, HINGES, CLOSERS, ETC.) FROM A SINGLE MANUFACTURER, ALTHOUGH SEVERAL MAY BE INDICATED AS OFFERING PRODUCTS COMPLYING WITH REQUIREMENTS.
  - PROVIDE ELECTRIFIED DOOR HARDWARE FROM SAME MANUFACTURER AS MECHANICAL DOOR HARDWARE, UNLESS OTHERWISE INDICATED.

**HARDWARE SETS**

- COORDINATE THE SYSTEM OPERATION AND COMPONENT LOCATIONS WITH THE OWNER, THE ARCHITECT AND ALL RELATED TRADES.

**HARDWARE SET 1:**

2 EA	CONTINUOUS HINGE	112HD	628 IVE
1 EA	REMOVE MULLION	1480	600 SAR
1 EA	EXIT DEVICE	8804	630 SAR
1 EA	EXIT DEVICE	8810	630 SAR
1 EA	MORTISE CYLINDER		626
1 EA	RIM CYLINDER		626
2 EA	OFFSET DOOR PULL	8140-2-0	628 IVE
1 EA	MULLION SEAL	5100	BLK NSP
1 EA	SURFACE CLOSER	4021 X 4020-186	684 LCN
1 EA	AUTO-EQUALIZER	4642 REG	684 LCN
2 EA	OVERHEAD STOP	1005	630 GLY
2 EA	MULL STOP	MS402CVX	628 IVE
1 SET	WEATHER SEAL (PROVIDED BY THE DOOR & FRAME MFR)		
2 EA	CORNER PAD	54CP	BLK NSP
2 EA	DOOR SWEEP	600A	CL NSP
1 EA	THRESHOLD	853	AL NSP
1 EA	ACTUATOR, JAMB MOUNT	8310-818T	LCN
1 EA	ACTUATOR, WALL MOUNT	8310-858T	LCN

THE EXIT DEVICE MUST BE DOGGED (LATCHBOLT HELD-RETRACTED) TO ALLOW THE AUTOMATIC OPERATOR TO OPEN THE DOOR. COORDINATE THE SYSTEM OPERATION AND COMPONENT LOCATIONS WITH THE OWNER, THE ARCHITECT AND ALL RELATED TRADES.

**HARDWARE SET 2:**

2 EA	CONTINUOUS HINGE	112HD	628 IVE
1 EA	REMOVE MULLION	1480	600 SAR
1 EA	EXIT DEVICE	8804	630 SAR
1 EA	EXIT DEVICE	8810	630 SAR
1 EA	MORTISE CYLINDER		626
1 EA	RIM CYLINDER		626
2 EA	OFFSET DOOR PULL	8140-2-0	628 IVE
1 EA	MULLION SEAL	5100	BLK NSP
1 EA	SURFACE CLOSER	4021 X 4020-186	684 LCN
1 EA	AUTO-EQUALIZER	4642 REG	684 LCN
2 EA	OVERHEAD STOP	1005	630 GLY
1 SET	WEATHER SEAL (PROVIDED BY THE DOOR & FRAME MFR)		
2 EA	CORNER PAD	54CP	BLK NSP
2 EA	DOOR SWEEP	600A	CL NSP
1 EA	THRESHOLD	853	AL NSP
1 EA	ACTUATOR, JAMB MOUNT	8310-818T	LCN
1 EA	ACTUATOR, WALL MOUNT	8310-858T	LCN
1 EA	BOLLARD POST	8310-866	LCN

THE EXIT DEVICE MUST BE DOGGED (LATCHBOLT HELD-RETRACTED) TO ALLOW THE AUTOMATIC OPERATOR TO OPEN THE DOOR. COORDINATE THE SYSTEM OPERATION AND COMPONENT LOCATIONS WITH THE OWNER, THE ARCHITECT AND ALL RELATED TRADES.

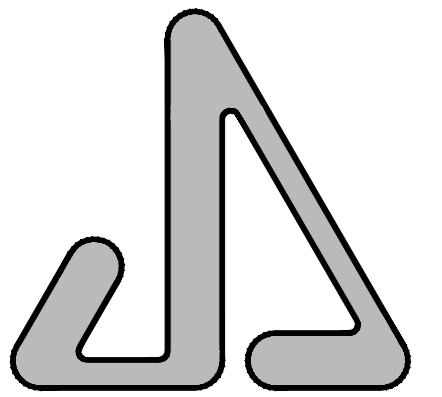
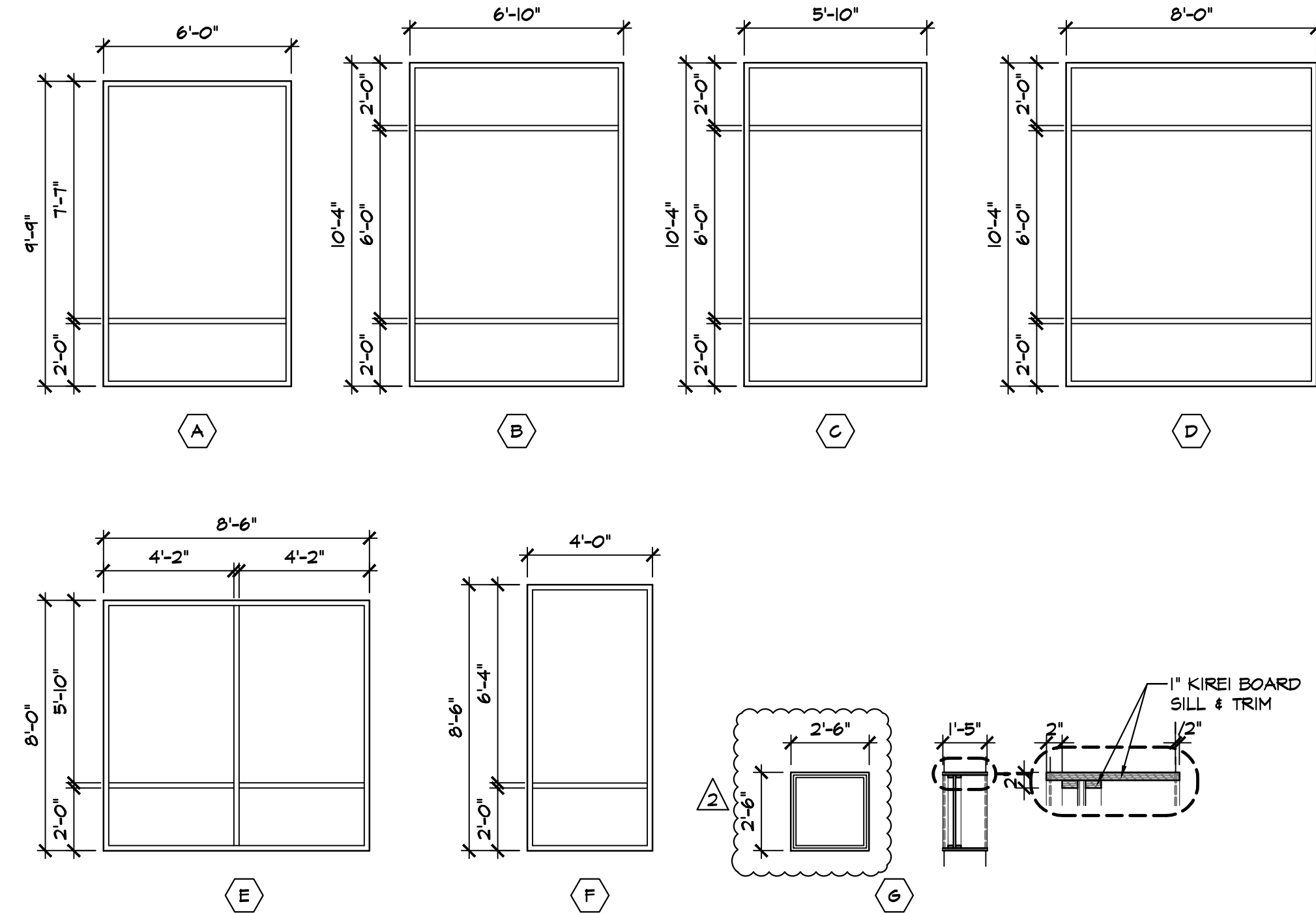
**WINDOW SCHEDULE & DATA**

WINDOW MARKER	NOMINAL SIZE	GLAZING TYPE	FRAME		REMARKS
			MATERIAL	FINISH	
A	6'-0"W X 10'-4"H	CLEAR	ALUMINUM	BLACK	LOW E GLASS, IV SOLID SURFACE SILLS & SURROUND
B	6'-10"W X 10'-4"H	CLEAR	ALUMINUM	ANODIZED	LOW E GLASS, IV SOLID SURFACE SILLS & SURROUND
C	5'-10"W X 10'-4"H	CLEAR	ALUMINUM	ANODIZED	LOW E GLASS, IV SOLID SURFACE SILLS & SURROUND
D	8'-0"W X 10'-4"H	CLEAR	ALUMINUM	ANODIZED	LOW E GLASS, IV SOLID SURFACE SILLS & SURROUND
E	9'-0"W X 8'-0"H	CLEAR	ALUMINUM	ANODIZED	LOW E GLASS, IV SOLID SURFACE SILLS & SURROUND
F	4'-0"W X 8'-6"H	CLEAR	ALUMINUM	ANODIZED	LOW E GLASS, IV SOLID SURFACE SILLS & SURROUND
G	3'-0"W X 2'-6"H	CLEAR	KIREI BOARD	CLEAR SEALED	KIREI BOARD SILL & SURROUND, SEE DETAILS

**WINDOW TYPE**

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

\*KAVNEER ENCORE FRAMING SYSTEM



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SCHEDULES  
&  
DETAILS

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**A-17**

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## GENERAL NOTES:

- 1) DETAILS, DIMENSIONS, AND ELEVATIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING BUILDING AND WALLS HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURES AND FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURES AND THE PROPOSED WORK BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. BASE CONTRACT BID PRICES UPON RECOGNITION OF THE ABOVE UNCERTAINTIES AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURES.
- 2) PRIOR TO START OF CONSTRUCTION, THE CONTRACTOR SHALL UNCOVER AND VISUALLY FIELD VERIFY THE EXISTING CONSTRUCTION AND SHALL FIELD VERIFY ALL PLAN DETAILS, DIMENSIONS, ELEVATIONS, AND CONDITIONS AND REPORT ANY DISCREPANCIES TO THE OWNER.
- 3) IF A PLAN DISCREPANCY IS DISCOVERED BY THE CONTRACTOR DURING CONSTRUCTION, THEN THE CONTRACTOR SHALL REPORT THE DISCREPANCY TO THE OWNER PRIOR TO PROCEEDING WITH THE WORK.
- 4) ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH THE MICHIGAN BUILDING CODE 2011 EDITION.
- 5) IN CASES WHERE THERE IS A CONFLICT BETWEEN THE PLANS, SPECIFICATIONS, STANDARD DRAWINGS, THE MORE RESTRICTIVE SHALL TAKE PRECEDENT, AS DETERMINED BY THE OWNER.
- 6) THE LOCATION OF ALL UTILITIES ARE NOT SHOWN ON THESE PLANS. THE CONTRACTOR SHALL VERIFY THE ACTUAL UTILITY LOCATIONS AND THE LOCATION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

## CONCRETE REMOVALS:

- 1) THE CONTRACTOR SHALL DETERMINE THE REMOVAL PROCEDURE AND CONSTRUCTION SEQUENCE TO ENSURE THE STABILITY OF THE EXISTING WALLS, GRATING, AND OTHER APPURTENANCES TO REMAIN. THE CONTRACTOR SHALL PROVIDE TEMPORARY SUPPORTS, BRACING, OR SHORING, AS NECESSARY FOR THE COMPLETION OF THE WORK. DRAWINGS AND CALCULATIONS FOR TEMPORARY WORKS SHALL BE SIGNED AND SEALED BY A REGISTERED PROFESSIONAL AND SUBMITTED BY THE CONTRACTOR TO THE OWNER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION. THIS WORK SHALL BE PERFORMED AT NO ADDITIONAL COST TO THE OWNER. UPON COMPLETION OF THE WORK, SUCH TEMPORARY SUPPORTS, BRACING, OR SHORING SHALL BE REMOVED AND REMAIN PROPERTY OF THE CONTRACTOR.
- 2) THE CONTRACTOR CAN MAKE CHANGES TO THE STRUCTURAL SYSTEMS PROVIDED THAT THE CHANGES ARE SIGNED AND SEALED BY A REGISTERED PROFESSIONAL IN THE STATE OF MICHIGAN. THIS WORK SHALL BE PERFORMED AT NO ADDITIONAL COST TO THE OWNER. DRAWINGS AND CALCULATIONS SHALL BE SUBMITTED TO THE OWNER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION. IF CHANGES TO THE STRUCTURAL SYSTEMS ARE MADE BY THE CONTRACTOR WITHOUT WRITTEN APPROVAL FROM THE OWNER, THEN THE CONTRACTOR SHALL REPLACE OR REPAIR THE WORK AS DIRECTED BY THE OWNER.
- 3) THE CONTRACTOR SHALL SUBMIT A COMPLETE, DETAILED AND SIGNED PROPOSED PROGRESS SCHEDULE WITHIN SEVEN CALENDAR DAYS AFTER THE SUCCESSFUL LOW BIDDER IS CONFIRMED BY THE OWNER. THIS SCHEDULE SHALL SHOW THE SEQUENCE OF CONSTRUCTION AND COMPLETION DATES FOR MAJOR ITEMS OF WORK. THE PROJECT CONSTRUCTION SCHEDULE SHALL BE UPDATED WEEKLY AND SUBMITTED TO THE OWNER. BI WEEKLY PROGRESS MEETINGS WITH THE OWNER ARE REQUIRED.
- 4) THE CONTRACTOR SHALL IMMEDIATELY REMOVE FROM THE PROJECT AREA ALL MATERIALS TO BE DISPOSED OF INCLUDING TIMBER, SAND, BLASTING SAND, BOARDS, AND OTHER CONSTRUCTION DEBRIS. ROUTES FOR HAULING DEBRIS FROM THE PROJECT SITE SHALL BE KEPT CLEAN DAILY. THE CONTRACTOR IS RESPONSIBLE FOR ALL PERMITS AND FEES FOR LEGAL HAULING, INCLUDING OBTAINING HAUL ROUTE PERMITS.
- 5) THE CONTRACTOR SHALL ARRANGE AN ADHESIVE ANCHOR MANUFACTURER'S REPRESENTATIVE TO PROVIDE ONSITE INSTALLATION TRAINING FOR ALL ADHESIVE ANCHORING PRODUCTS SPECIFIED. THE OWNER MUST RECEIVE DOCUMENTED CONFIRMATION THAT ALL OF THE CONTRACTOR'S PERSONNEL WHO INSTALL ADHESIVE ANCHORS ARE TRAINED PRIOR TO THE COMMENCEMENT OF INSTALLING ADHESIVE ANCHORS.
- 6) THE CONTRACTOR SHALL PROTECT ALL EXISTING FOUNDATIONS, EXISTING WALLS AND ALL OTHER APPURTENANCES TO REMAIN FROM DAMAGE DURING CONCRETE REMOVAL OPERATIONS. THE CONTRACTOR SHALL PROTECT EXPOSED PORTIONS OF THE WORK FROM MOISTURE, RAIN, FLOWING WATER, SNOW, DEBRIS, AND TEMPERATURE EXTREMES.
- 7) CARE SHALL BE TAKEN TO AVOID DAMAGE TO EXISTING UTILITIES, ELECTRICAL EQUIPMENT, OR PORTIONS OF BUILDING TO REMAIN. ANY DAMAGE SHALL BE REPAIRED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE AND AS DIRECTED BY THE OWNER.
- 8) AT THE INTERFACE (OUTLINE) BETWEEN THE EXISTING WALL TO REMAIN AND THE EXISTING SLAB TO BE REMOVED, THE CONCRETE SHALL BE MARKED AND SAWCUT FULL DEPTH OR WIDTH ON ALL HORIZONTAL AND VERTICAL SURFACES. THE LOCATION OF THE SAWCUT SHALL BE AS SHOWN IN THE REMOVAL DETAILS.
- 9) USE MANUAL PNEUMATIC HAMMERS TO REMOVE CONCRETE. LIMIT MANUAL PNEUMATIC HAMMERS TO 50 POUND MAXIMUM.
- 10) CONCRETE TO BE REMOVED WITHIN 12 INCHES OF EXISTING BUILDING FOUNDATION, BUILDING PERIMETER SLAB, WALL, OR EXISTING UTILITY CHASE TO REMAIN SHALL BE CAREFULLY REMOVED BY HAND WITH A MALLET AND COLD CHISEL.

## MASONRY REPAIR:

- 1) MASONRY REPOINTING  
CONTRACTOR SHALL REPAIR ALL CRACKED MORTAR JOINTS BY REMOVING AND REPOINTING JOINTS AS DIRECTED BY THE ENGINEER.
- 2) MASONRY UNIT REPAIR  
CONTRACTOR SHALL REMOVE ALL CRACKED EXTERIOR MASONRY AND REPLACE WITH NEW.

## CONCRETE:

- 1) CAST-IN-PLACE CONCRETE FOR WALLS SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 4500 PSI.
- 2) CONCRETE SHALL HAVE AN AIR ENTRAINING ADMIXTURE CONFORMING TO ASTM C260 AND THE AMOUNT OF ENTRAINED AIR SHALL BE 5% +/- 1%
- 3) CONCRETE ADMIXTURES CONTAINING CALCIUM CHLORIDE ARE NOT PERMITTED.
- 4) CONCRETE SHALL CONTAIN A WATER REDUCING ADMIXTURE CONFORMING TO ASTM C494 TYPE A, F, OR G.
- 5) CONCRETE REINFORCING CARBON STEEL BARS SHALL BE ASTM A615 GRADE 60 AND SHALL BE EPOXY COATED.
- 6) ALL CONCRETE ADHESIVE ANCHORS AND HARDWARE SHALL BE STAINLESS STEEL. CONCRETE ANCHORS SHALL BE INSTALLED ACCORDING TO THE MANUFACTURERS RECOMMENDATIONS.
- 7) REINFORCING STEEL DOWELING INTO CONCRETE SHALL BE HILTI HIT-RE 500-SD EPOXY ADHESIVE ANCHORING SYSTEM.
- 8) BONDBREAKER MATERIAL SHALL BE 30 POUND FELT PAPER.
- 9) ALL STEEL AND STEEL WELDMENTS EMBEDDED INTO CONCRETE SHALL BE ASTM A 36 MATERIAL AND SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.
- 10) LAP FOR #4 REINFORCING STEEL SHALL BE 24 INCHES.
- 11) LAP FOR #5 REINFORCING STEEL SHALL BE 30 INCHES.
- 12) LAP FOR #6 REINFORCING STEEL SHALL BE 36 INCHES.
- 13) LAP FOR #7 REINFORCING STEEL SHALL BE 42 INCHES.
- 14) LAP FOR #8 REINFORCING STEEL SHALL BE 56 INCHES.
- 15) MECHANICAL BAR SPLICES MAY BE USED IN LIEU OF LAP SPLICING OR WHERE REINFORCING IS SHOWN THROUGH CONSTRUCTION JOINTS. THE MECHANICAL BAR SPLICE SHALL PROVIDE A FULL TENSION SPLICE WITH A CAPACITY OF 125 PERCENT OF THE REINFORCING BAR YIELD STRENGTH. ALL SPLICES SHALL BE VISUALLY INSPECTED BY A QUALIFIED INSPECTOR TO VERIFY THAT THE SPLICE HAS BEEN MADE PROPERLY.
- 16) ALL CONCRETE REINFORCING STEEL SHALL HAVE A CLEAR COVER OF 2.0 INCHES UNLESS NOTED OTHERWISE.
- 17) REINFORCING STEEL IS TO BE BLOCKED TO PROPER LOCATION USING CHAIRS AND SPACERS. FOR EPOXY COATED REINFORCING STEEL, THE CHAIRS AND SPACERS SHALL HAVE AN EPOXY COATED FINISH. REINFORCEMENT SHALL BE TIED SECURELY WITH EPOXY COATED TIE WIRE TO PREVENT DISPLACEMENT. TACK WELDING OF REINFORCING IS PROHIBITED.
- 18) THE SURFACE OF THE EXISTING FOUNDATION WALLS AND EXISTING WALL EDGES IN CONTACT WITH NEW CONCRETE SHALL BE GIVEN A LIGHT SANDBLAST. APPLY A CONCRETE BONDING AGENT TO THESE SURFACES IN CONTACT WITH NEW CONCRETE. THE CONCRETE BONDING AGENT SHALL BE SIKA ARMATEC 110 EPOCEM AND SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.
- 19) ALL CONSTRUCTION JOINTS SHALL HAVE WATERSTOPS. WATERSTOPS SHALL BE CONTINUOUS ACROSS THE JOINT AND SHALL BE INSTALLED TO FORM A CONTINUOUS WATERPROOF SEAL. WATERSTOP SHALL BE SIKA SWELLSTOP AND SHALL BE INSTALLED PER THE MANUFACTURER'S DIRECTIONS AND AS DESCRIBED BELOW:  
  
APPLY SWELLSTOP WB PRIMER ADHESIVE TO DRY CONCRETE SURFACE, 2.0 INCHES WIDE CONTINUOUSLY ALONG THE JOINT, MAINTAINING A MINIMUM OF 2.0 INCHES CLEAR COVER TO CONCRETE VERTICAL FACE.  
  
SWELLSTOP WB PRIMER ADHESIVE SHALL BE ALLOWED TO "DRY TO TOUCH" PRIOR TO APPLICATION OF SWELLSTOP.  
  
CONTINUOUSLY ADHERE SWELLSTOP TO CONCRETE USING SWELLSTOP WB PRIMER ADHESIVE AND MAINTAIN A MINIMUM 2.0 INCHES CLEAR COVER.  
  
USE CONCRETE NAILS TO APPLY SWELLSTOP TO THE VERTICAL PORTION OF THE WALL.  
  
APPLY SWELLSTOP THE SAME DAY AS SWELLSTOP WB PRIMER ADHESIVE.  
  
SWELLSTOP SHALL BE BUTT SPLICED PRESSING ENDS TOGETHER AND ENSURING NO AIR POCKETS OR SEPARATION.  
  
PROTECT SWELLSTOP FROM MOISTURE, DIRT, OIL, DEBRIS, AND SUNLIGHT DURING THE PROGRESS OF THE WORK.  
  
REMOVE RELEASE PAPER FROM SWELLSTOP IMMEDIATELY PRIOR TO CONCRETE PLACEMENT.  
  
INSPECT SWELLSTOP FOR PREMATURE SWELLING, DISCONTINUITY, AND DEBRIS CONTAMINATION PRIOR TO CONCRETE PLACEMENT. REPLACE UNACCEPTABLE PRODUCT.  
  
PLACE AND THOROUGHLY VIBRATE CONCRETE, OR PLACE GROUT, TAKING CARE NOT TO DISTURB OR DISPLACE SWELLSTOP. DO NOT ALLOW VIBRATOR TO CONTACT SWELLSTOP.
- 20) LOW TEMPERATURE PROTECTION OF CONCRETE DURING PLACEMENT AND CURING SHALL CONFORM TO ACI 301-05 BY THE USE OF HEATED ENCLOSURES.
- 21) ALL CONCRETE SURFACES SHALL BE CAST IN FORMS. SURFACES SHALL BE FORMED IN A MANNER WHICH WILL PRODUCE A SMOOTH AND UNIFORM APPEARANCE WITHOUT RUBBING OR PLASTERING. SURFACES SHALL BE SMOOTH AND FREE FROM FLOAT AND TROWEL MARKS. ALL EXPOSED CONCRETE EDGES SHALL HAVE A 3/4" CHAMFER.
- 22) CONCRETE WALL TOP SURFACE SHALL BE GIVEN A LIGHT BROOM FINISH.
- 23) AFTER CONCRETE CURING IS COMPLETE, ALL EXPOSED SURFACES OF WALLS SHALL BE GIVEN A LIGHT SANDBLAST AND SHALL BE SEALED WITH SIKAGARD 701W. SEALER SHALL BE INSTALLED ACCORDING TO MANUFACTURES RECOMMENDATIONS.
- 24) ALL EXPOSED CONCRETE EDGES SHOWN SQUARE ON THE PLANS SHALL BE BEVELED WITH A 3/4" CHAMFER.

## SEALING WALL BASE:

- 1) SEALING CONCRETE MASONRY BASE

THE CONTRACTOR SHALL EXPOSE ALL EXISTING CONCRETE AT THE BASE OF THE MASONRY A MINIMUM OF 1'-0" BELOW FINAL GRADE AND BLAST CLEAN SURFACE AS RECOMMENDED BY THE CONCRETE SEALER MANUFACTURER. THE CONTRACTOR SHALL APPLY CONCRETE SEALER TO ALL EXPOSED CONCRETE SURFACES AFTER CLEANING.

- 2) LIST OF PROTECTIVE COATING FOR CONCRETE

HYDROZO ENVROSEAL  
MANUFACTURED BY: BASF CONSTRUCTION CHEMICAL

HYDROZO ENVROSEAL  
MANUFACTURED BY: BASF CONSTRUCTION CHEMICAL

BARRACADE SILANE  
MANUFACTURED BY: EUCLID CHEMICAL CO.

AQUAPEL PLUS 20% SILANE  
MANUFACTURED BY: L&M CONSTRUCTION CHEMICALS, INC.

STIFEL S  
MANUFACTURED BY: NOX-CRETE CHEMICALS

POWERSEAL  
MANUFACTURED BY: VEXCON CHEMICALS

## STEEL CLEANING AND COATING:

- 1) AT THE LOADING DOCK, REMOVE RUBBER BUMPERS ATTACHED TO THE STEEL CHANNELS AT FIVE LOCATIONS. SANDBLAST ALL EXPOSED STEEL SURFACES TO BRIGHT METAL AND PAINT. REPLACE ATTACHMENT HARDWARE FOR THE RUBBER BUMPERS WITH GALVANIZED HARDWARE. REINSTALL RUBBER BUMPERS.
- 2) AT THE LOADING DOCK STAIRS, SANDBLAST ALL EXPOSED STEEL SURFACES OF THE STEEL PIPE HANDRAIL, AND THE WALL MOUNTED RAILS AND BRACKETS TO BRIGHT METAL AND PAINT.
- 3) ALL EXPOSED STEEL SURFACES SHALL BE FINISHED TO THE SOCIETY FOR PROTECTIVE COATINGS (SSPC) SURFACE PREPARATION SP5.
- 4) ALL EXPOSED STEEL SURFACES SHALL BE COATED WITH A ZINC RICH THREE COAT SYSTEM. TOP COAT COLOR SHALL BE AS DIRECTED AND AS APPROVED BY THE OWNER.
- 5) LIST OF COATING SYSTEMS FOR STEEL

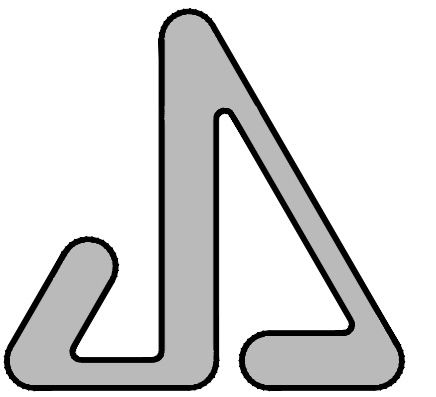
1ST COAT: CARBOZINC 859  
2ND COAT: CARBOGUARD 893  
3RD COAT: CARBOTHANE 133 VOC  
MANUFACTURED BY: CARBOLINE COMPANY

1ST COAT: CARBOZINC 859  
2ND COAT: CARBOGUARD 893  
3RD: CARBOTHANE 133 LH  
MANUFACTURED BY: CARBOLINE COMPANY

1ST COAT: INTERZINC 52  
2ND COAT: INTERGARD 475 HS  
3RD COAT: INTERTHANE 990HS  
MANUFACTURED BY: INTERNATIONAL PROTECTIVE COATINGS

1ST COAT: AMERCOAT 68HS  
2ND COAT: AMERCOAT 399  
3RD COAT: AMERCOAT 450H  
MANUFACTURED BY: PPG INDUSTRIES

1ST COAT: ZINC CLAD III HS  
2ND COAT: MACROPOXY 646 FAST CURE EPOXY  
3RD COAT: ACROLON 218 HS  
MANUFACTURED BY: SHERWIN-WILLIAMS



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## STRUCTURAL GENERAL NOTES

06.12.17	CONSTRUCTION
06.05.17	BUREAU OF FIRE SERVICES
05.01.17	PERMIT
05.01.17	BIDS
04.25.17	OWNER REVIEW
DATE:	ISSUED FOR:

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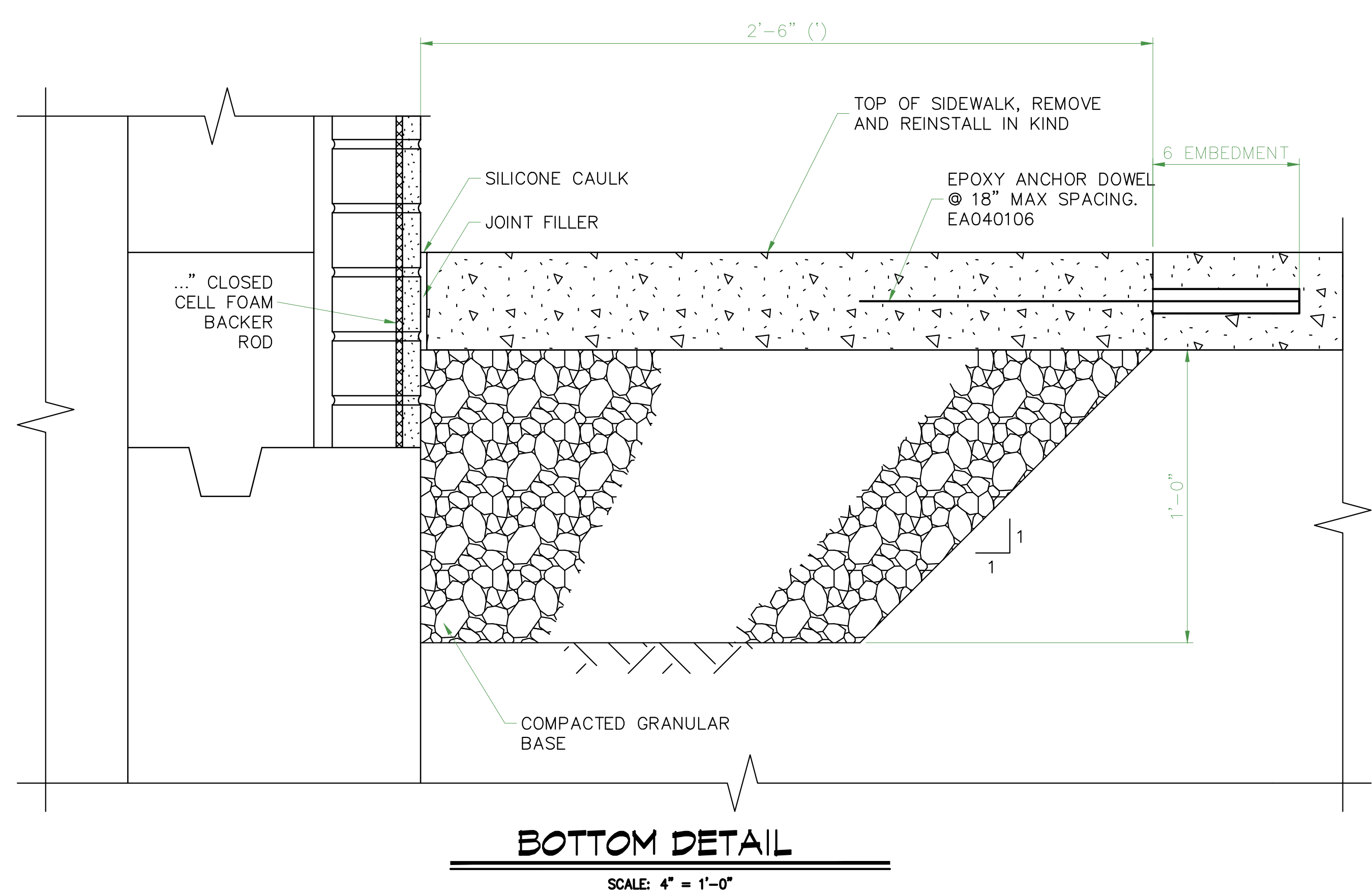
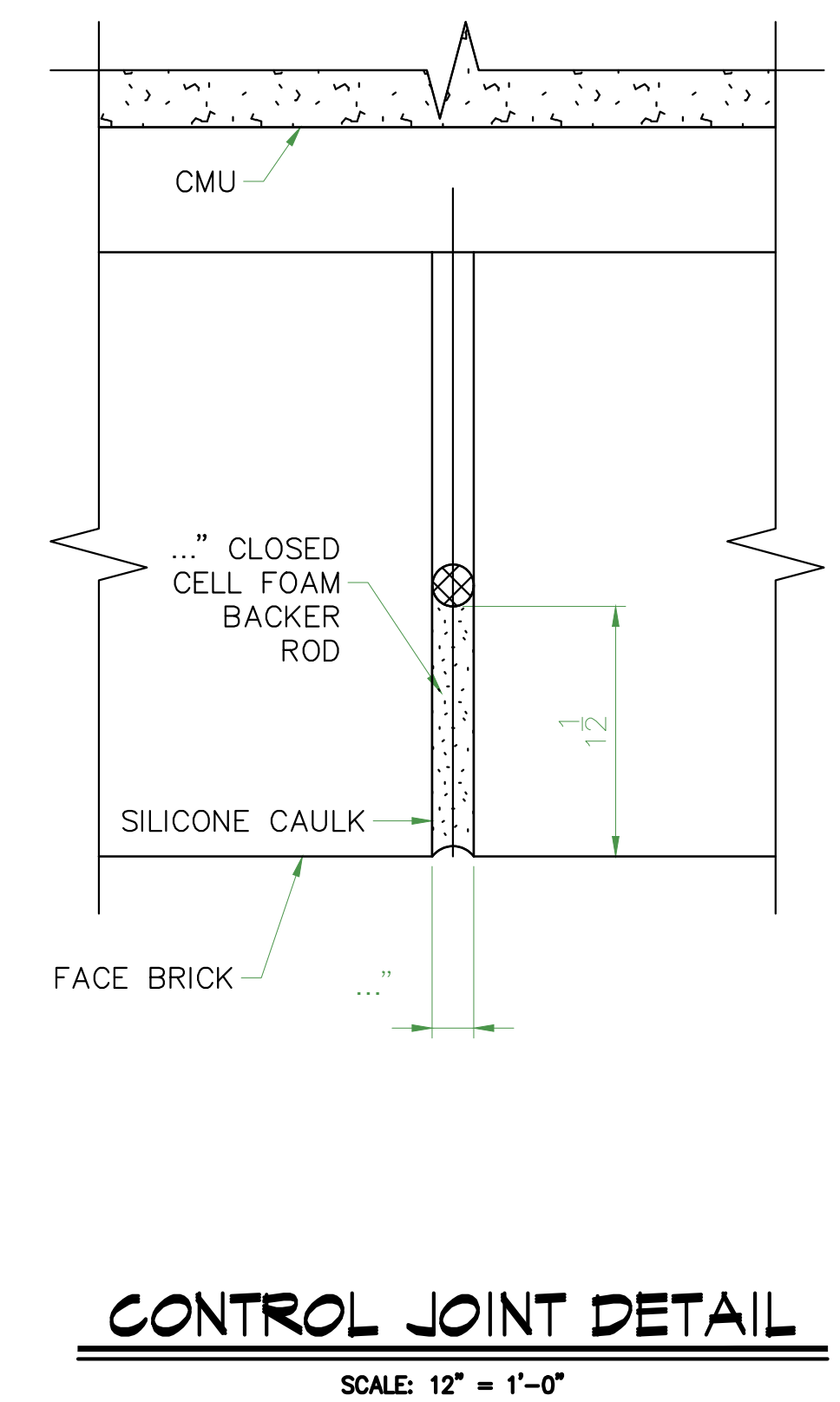
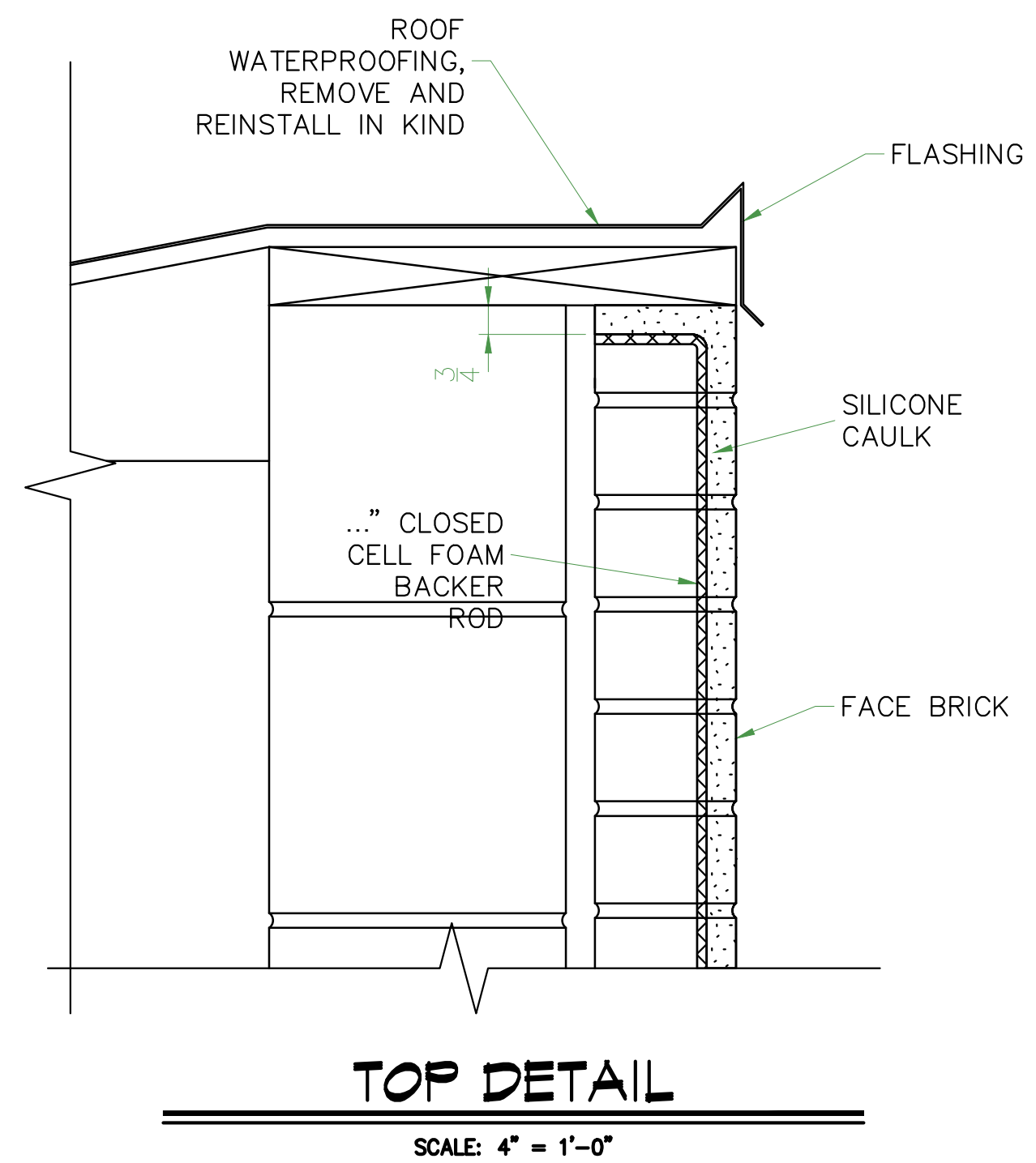
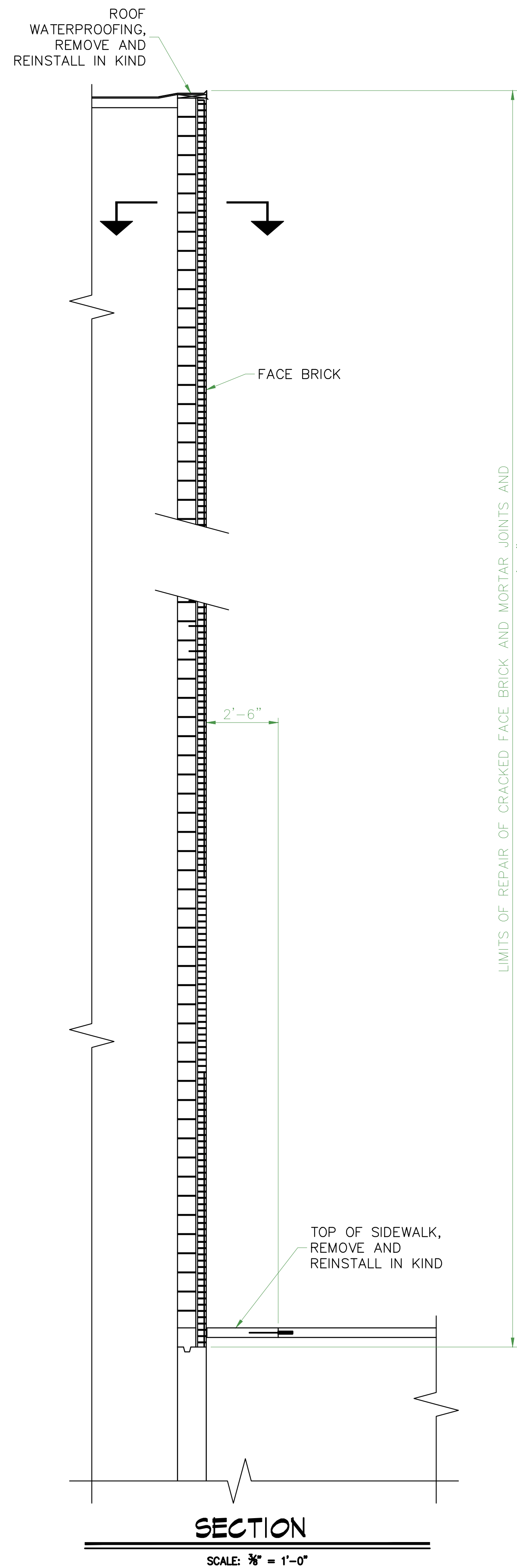
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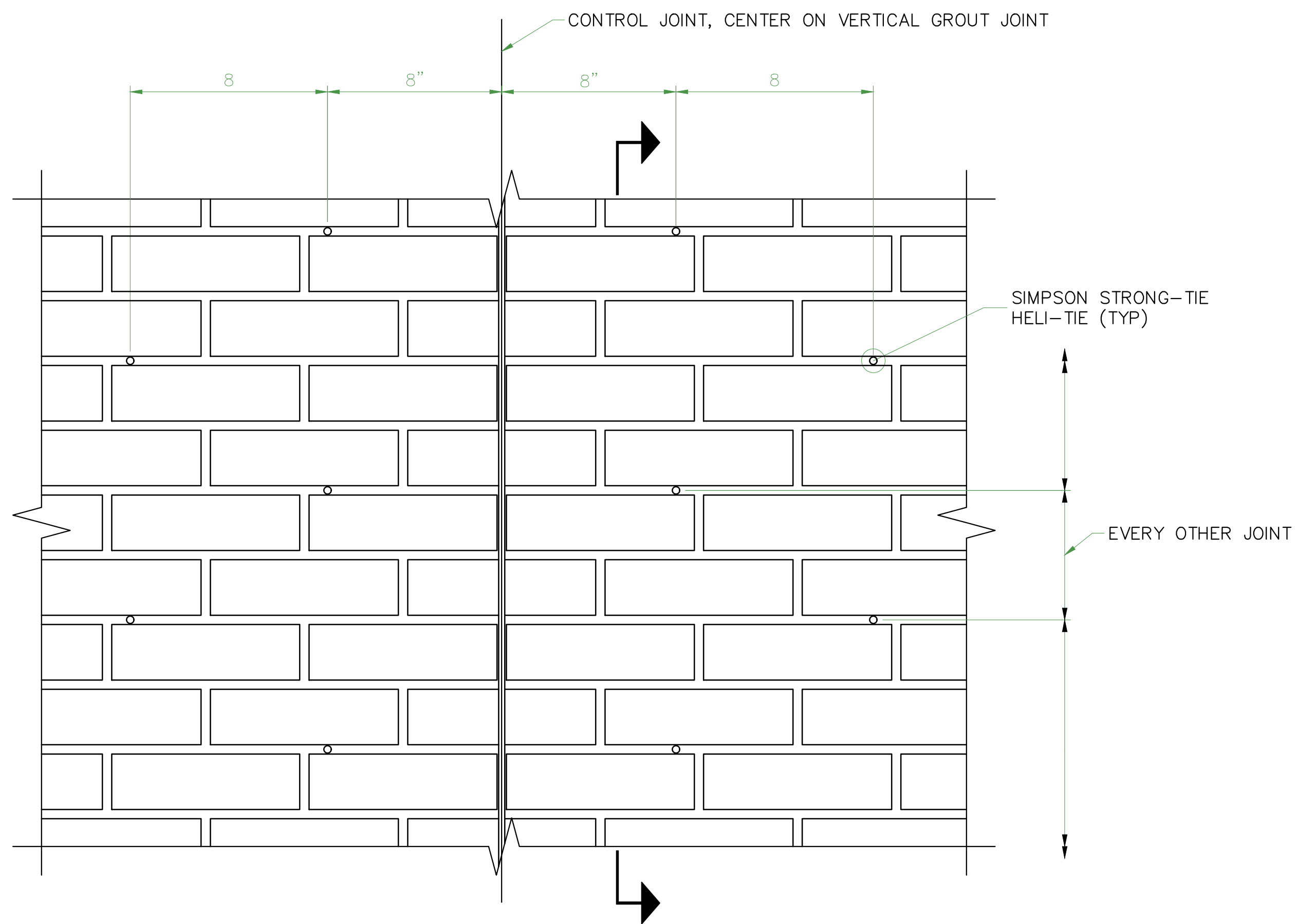
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**CONTROL  
 JOINT  
 DETAILS**

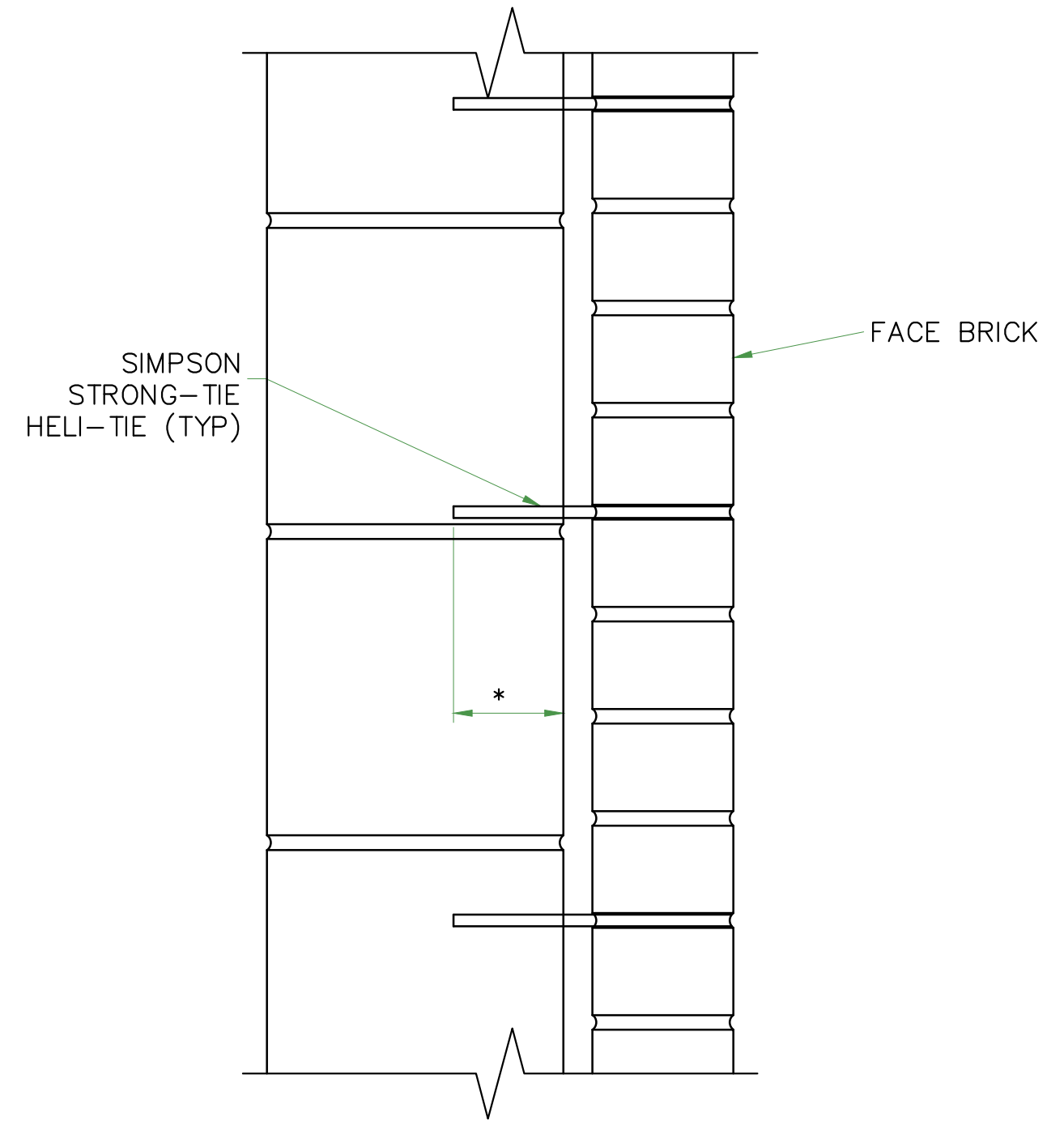
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08.05.17	BUREAU OF FIRE SERVICES
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**A-20**



**SECTION**

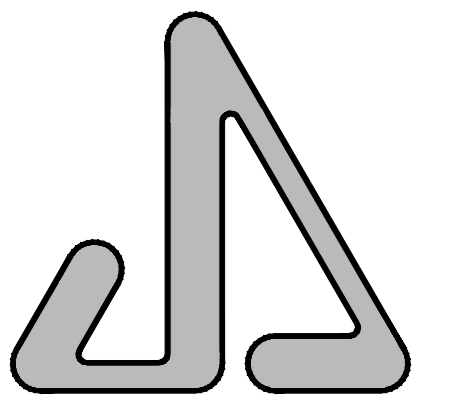
SCALE: 3/8" = 1'-0"



**SECTION**

SCALE: 3/8" = 1'-0"

\* EMBEDMENT AS RECOMMENDED BY MANUFACTURER



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**CONTROL  
 JOINT  
 DETAILS**

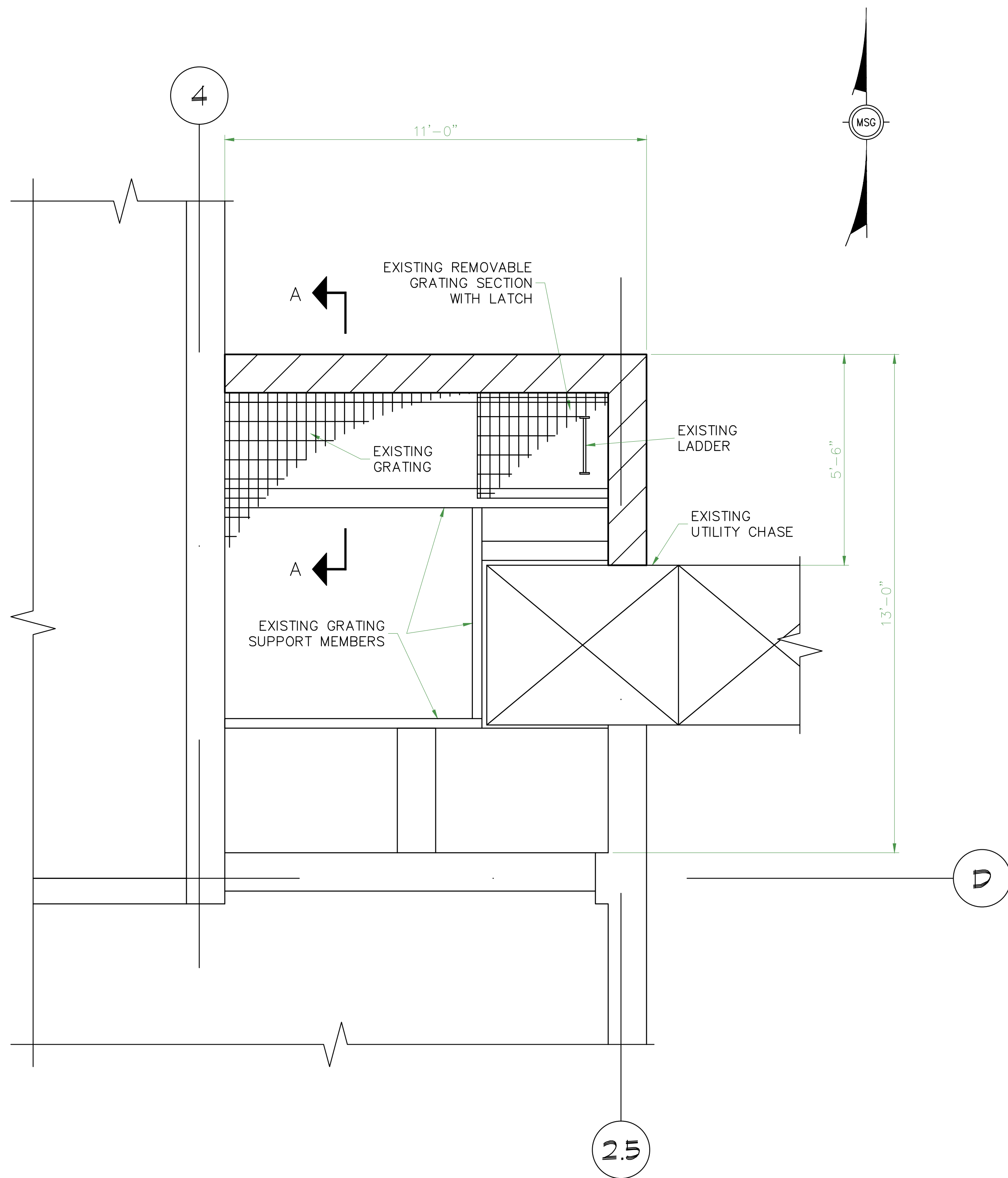
06.12.17	CONSTRUCTION
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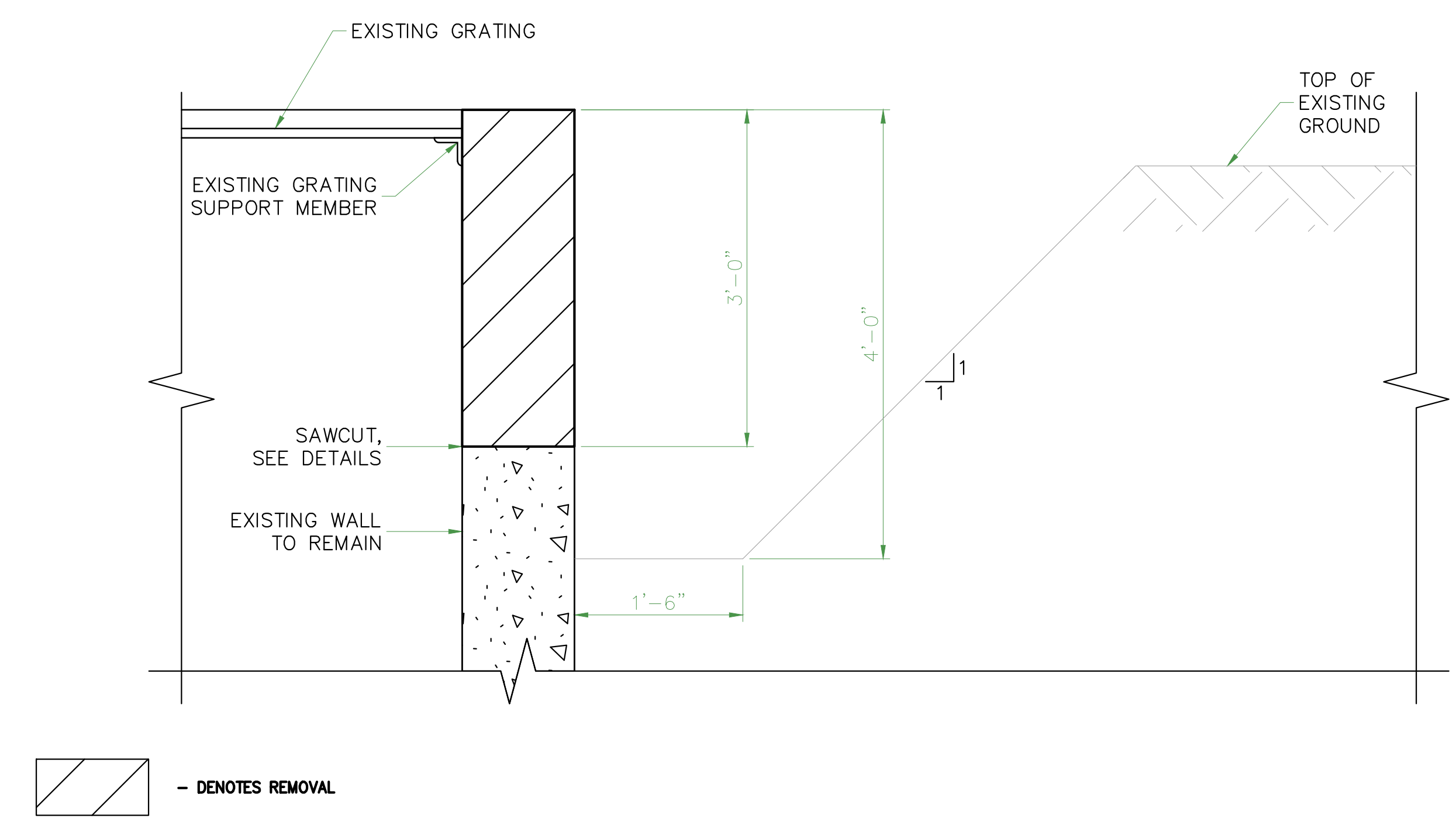
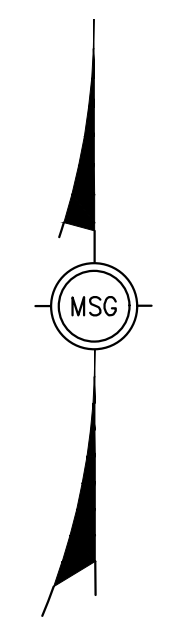
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**A-21**

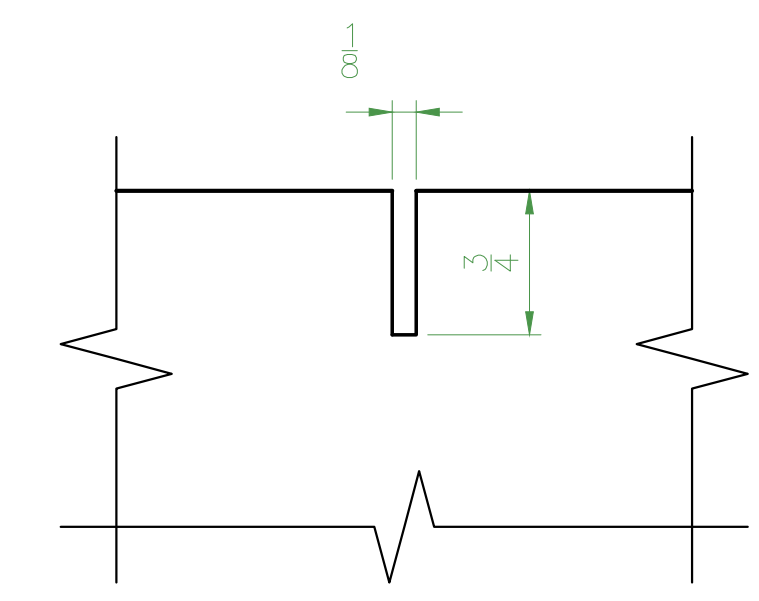
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**REMOVAL PLAN**  
SCALE: 1/8" = 1'-0"



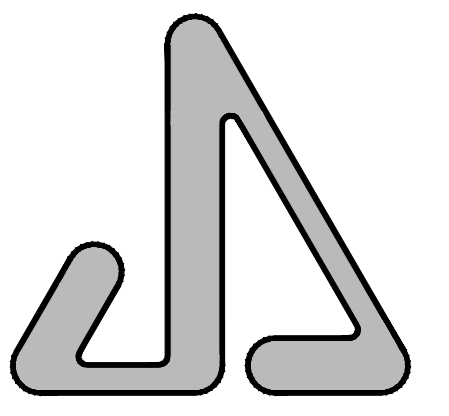
**REMOVAL SECTION A-A**  
SCALE: 1" = 1'-0"



**SAWCUT DETAIL**  
SCALE: 12" = 1'-0"

**NOTES:**

1. PORTIONS OF THE EXISTING GRATING, PORTIONS OF THE EXISTING GRATING SUPPORT MEMBERS, THE EXISTING LADDER AND LADDER SUPPORTS, AND THE EXISTING REMOVABLE GRATING SECTION AND LATCH SHALL BE REMOVED AS REQUIRED, STORED, PROTECTED, AND REINSTALLED IN KIND.



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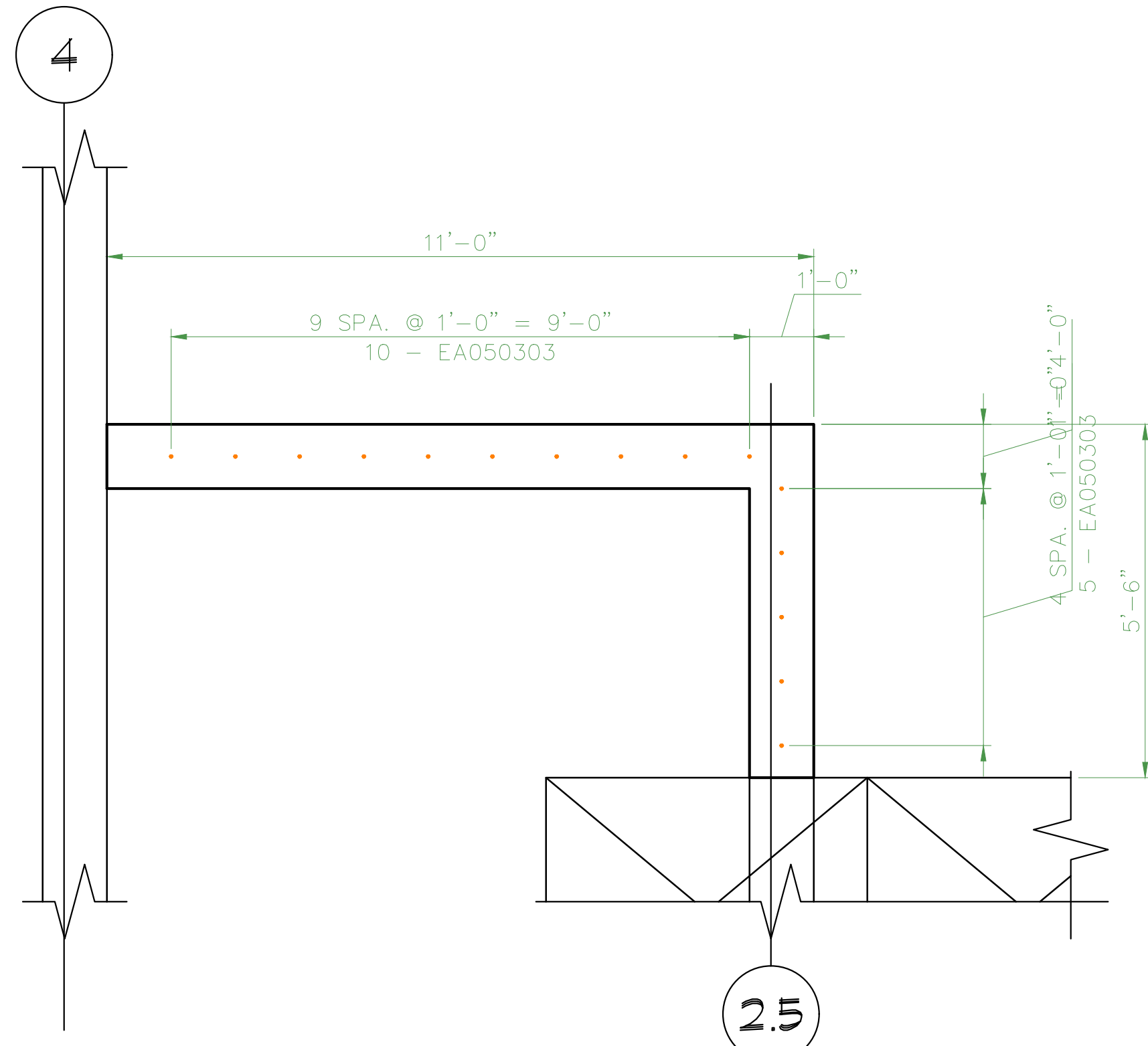
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**HVAC PIT  
REMOVAL  
PLAN**

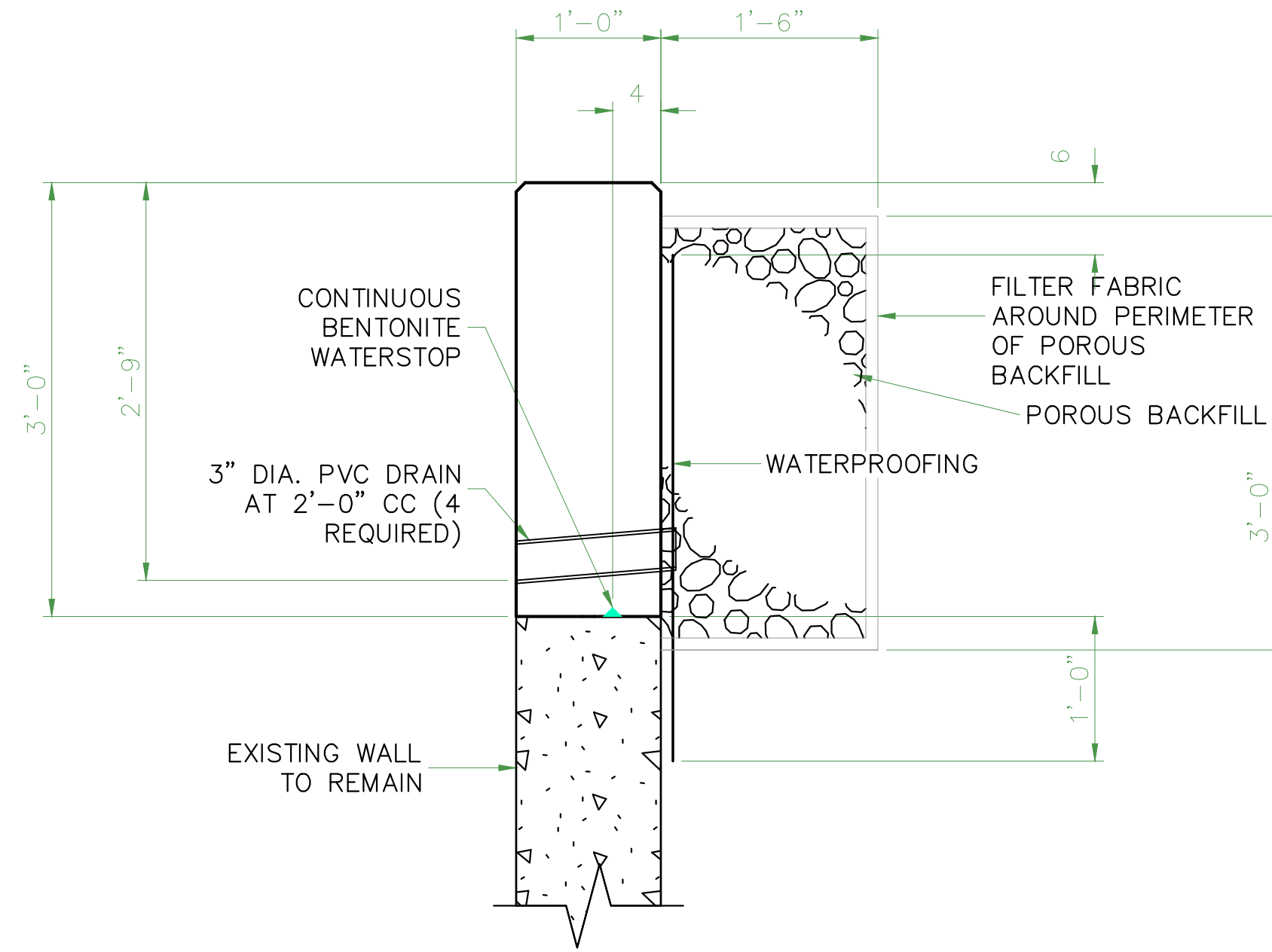
06.12.17	CONSTRUCTION
06.05.17	BUREAU OF FIRE SERVICES
05.01.17	PERMIT
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**A-22**



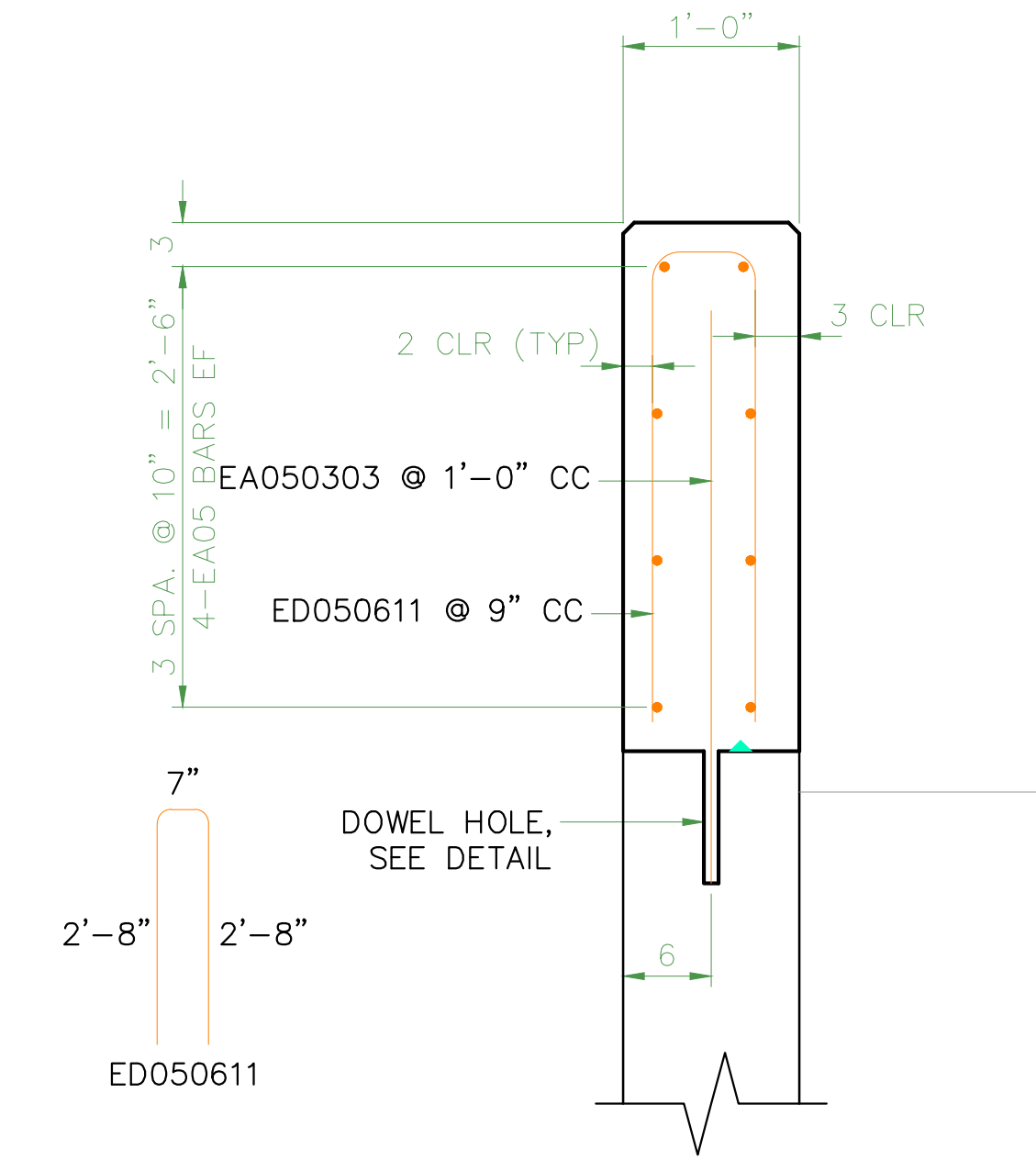
**DOWEL SPACING PLAN**

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



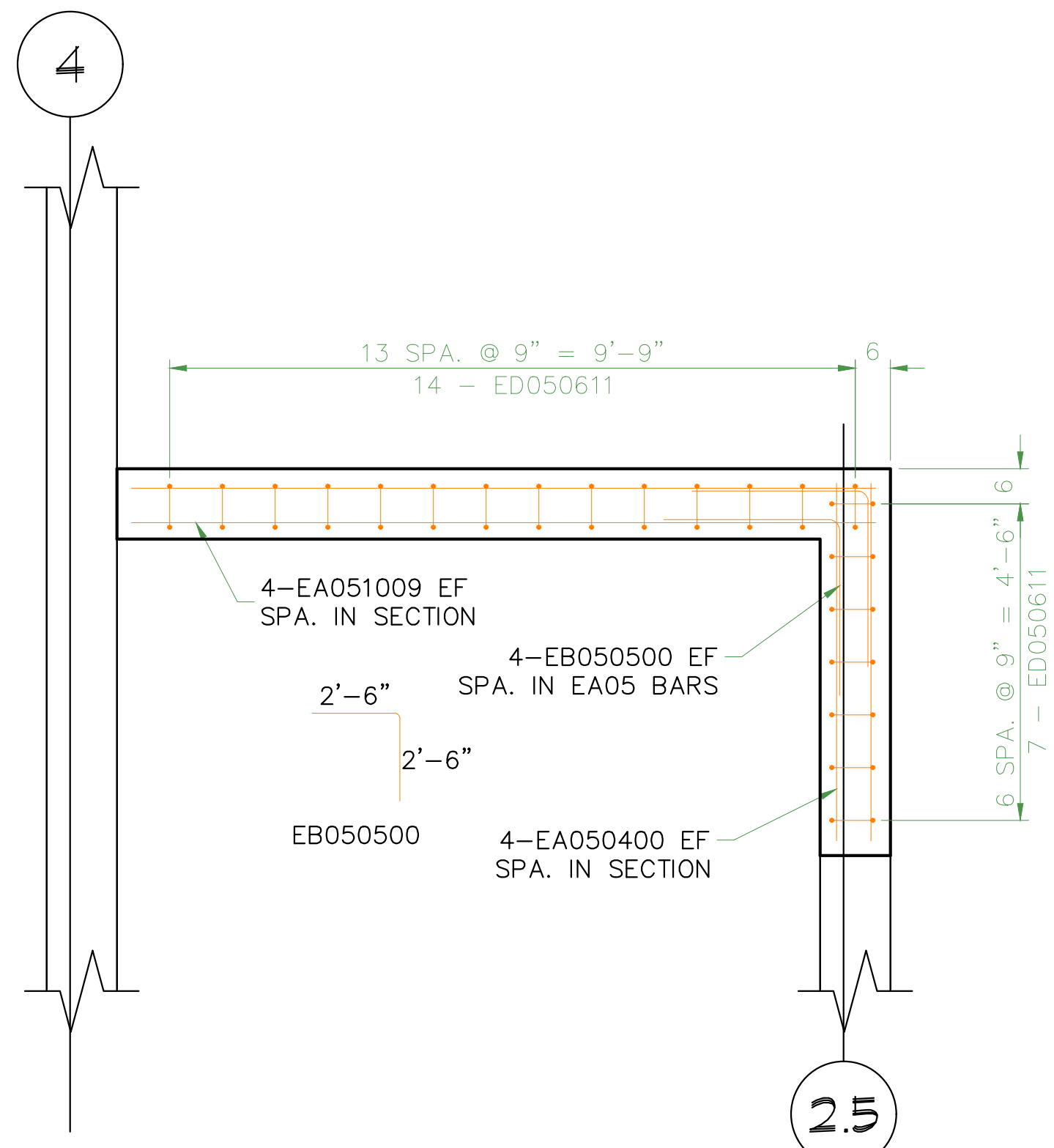
**SECTION**

SCALE: 1" = 1'-0"



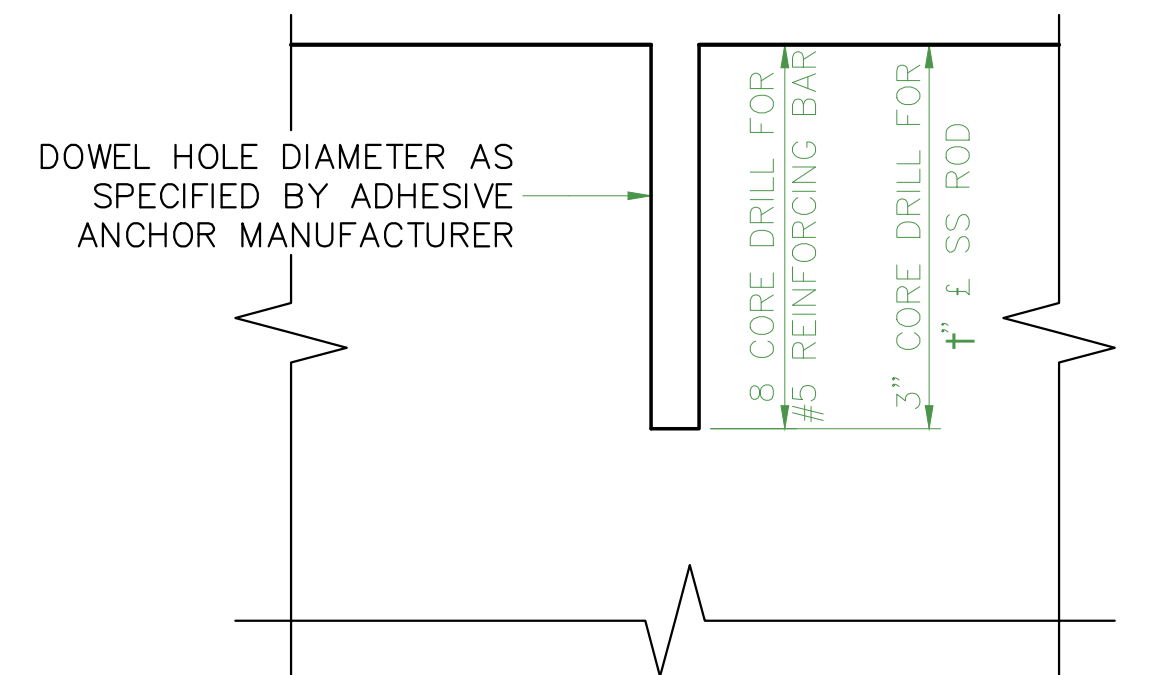
**SECTION SHOWING REINFORCEMENT**

SCALE: 1" = 1'-0"



**REINFORCEMENT PLAN**

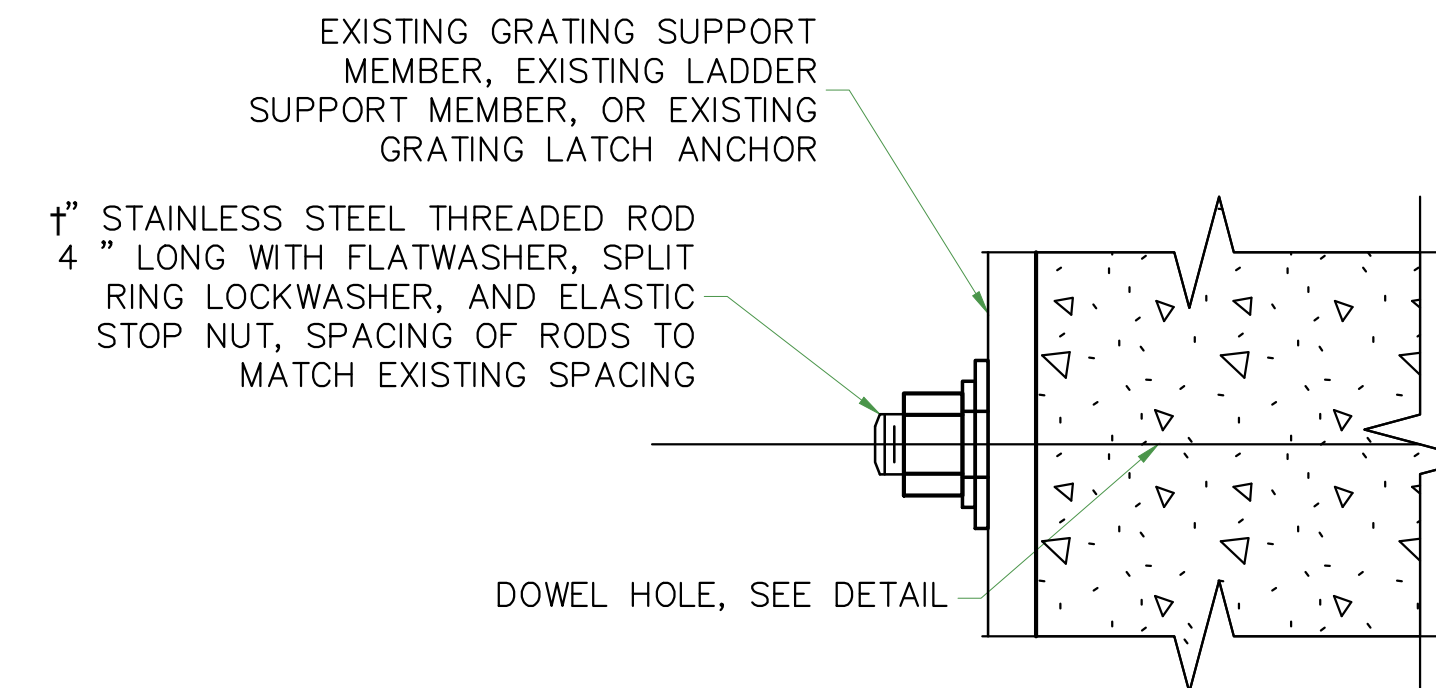
SCALE: 1/2" = 1'-0"



**DOWEL HOLE DETAIL**

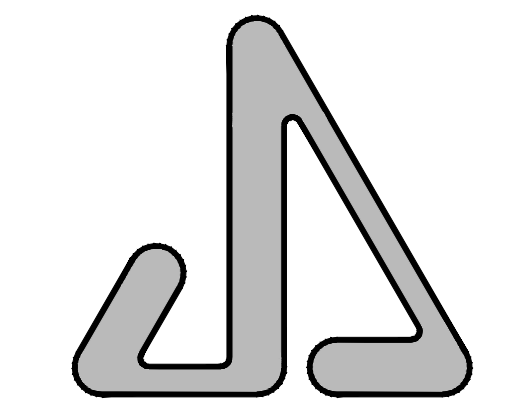
SCALE: 3" = 1'-0"

ADHESIVE ANCHOR SYSTEM SHALL BE HILTI-RE-500 EPOXY ADHESIVE ANCHOR SYSTEM OR AN APPROVED EQUIVALENT, CONTRACTOR SHALL OBTAIN TRAINING FROM ADHESIVE ANCHOR MANUFACTURER PRIOR TO START OR WORK.



**WALL ANCHOR DETAIL**

SCALE: 6" = 1'-0"



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HVAC PIT  
DETAILS

06.12.17 CONSTRUCTION  
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05.01.17 PERMIT  
05.01.17 BIDS  
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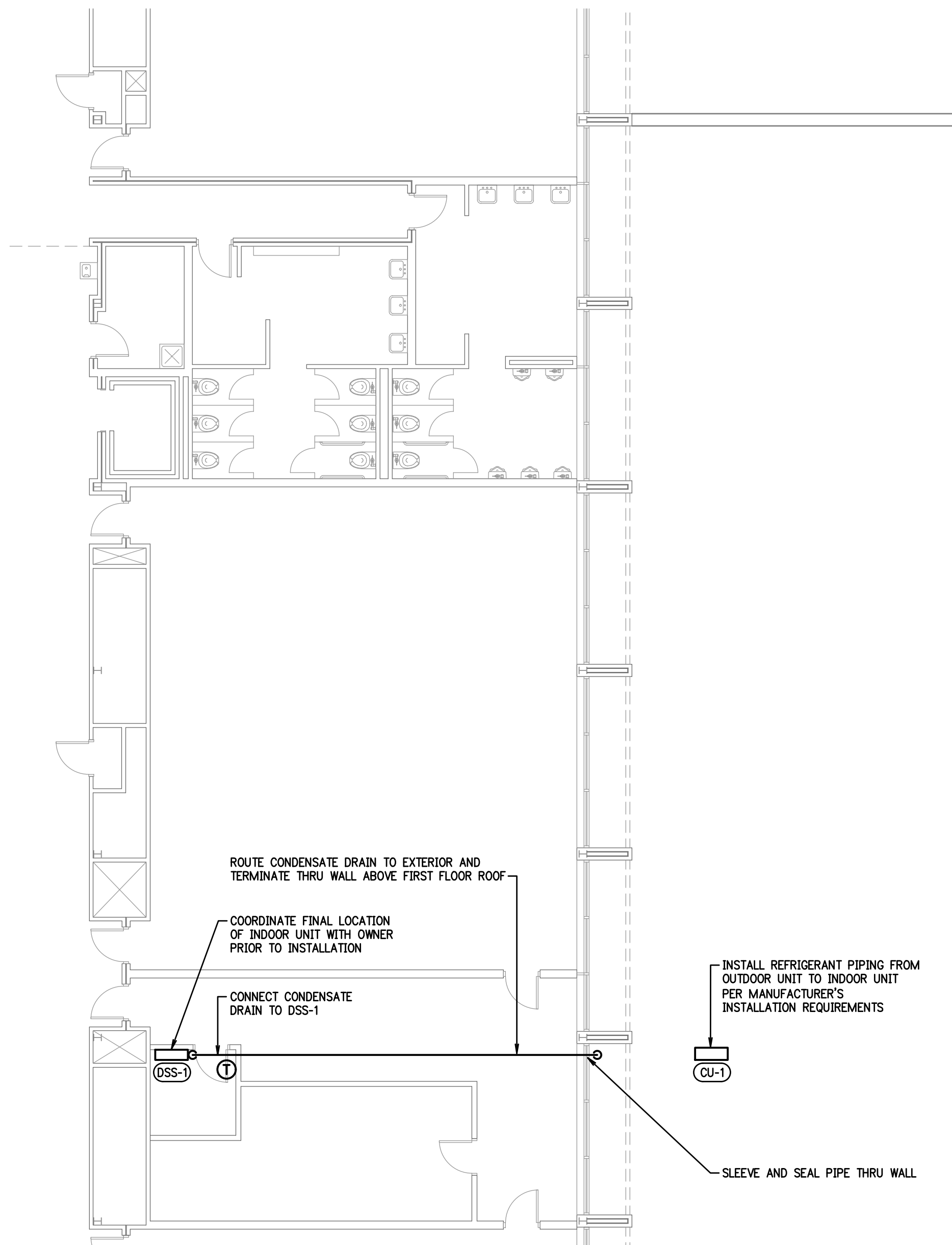
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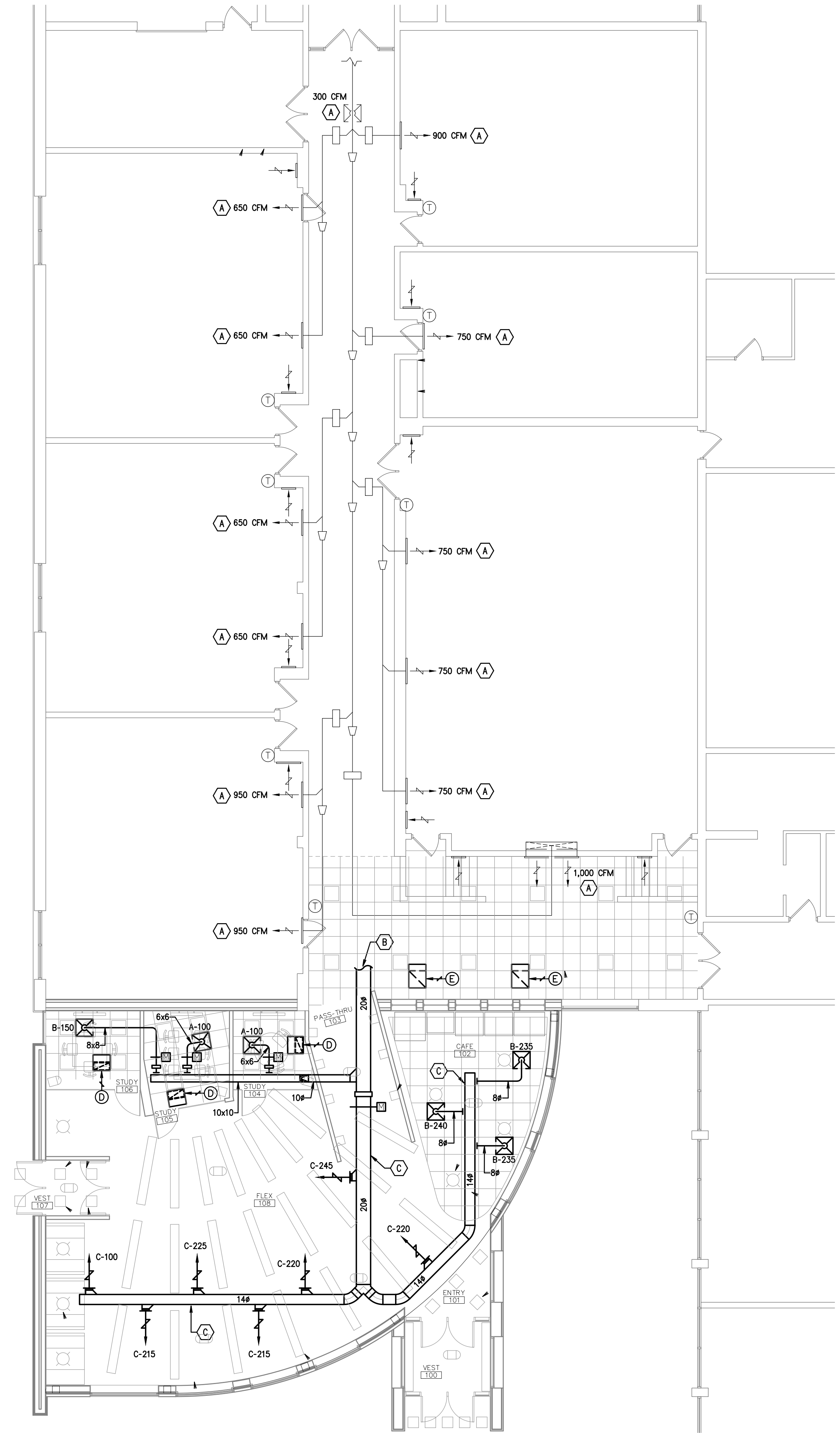
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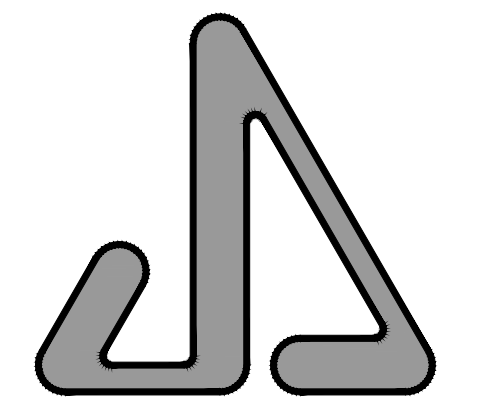
**PARTIAL SECOND FLOOR PLAN - MECHANICAL**  
SCALE: 1/8"=1'-0"



**PARTIAL FIRST FLOOR PLAN - MECHANICAL**  
SCALE: 1/8"=1'-0"

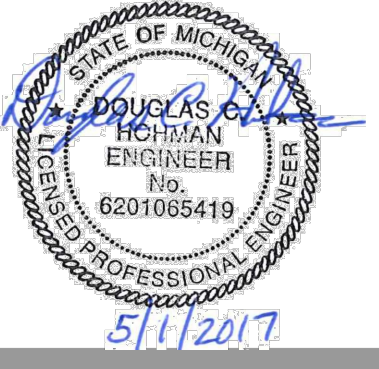


- PLAN NOTES:**
- A. RE-BALANCE EXISTING AIR DEVICE TO QUANTITY SHOWN.
  - B. CONNECT TO EXISTING 20" SUPPLY DUCT IN THIS APPROXIMATE LOCATION.
  - C. MOUNT DUCTWORK AS HIGH AS POSSIBLE. SUPPORT FROM STRUCTURE AS REQUIRED.



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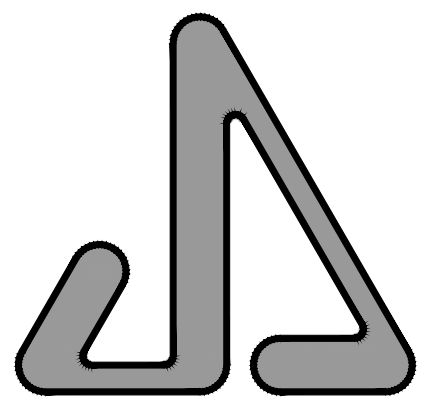
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**PARTIAL FLOOR PLANS - MECHANICAL**

06.12.17	CONSTRUCTION
06.05.17	BUREAU OF FIRE SERVICES
5.1.17	PERMIT
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PARTIAL  
FLOOR PLAN -  
MECHANICAL  
PIPING

06.12.17	CONSTRUCTION
06.05.17	BUREAU OF FIRE SERVICES
05.30.17	ADDENDUM #6
5.25.17	ADDENDUM #4
5.1.17	PERMIT
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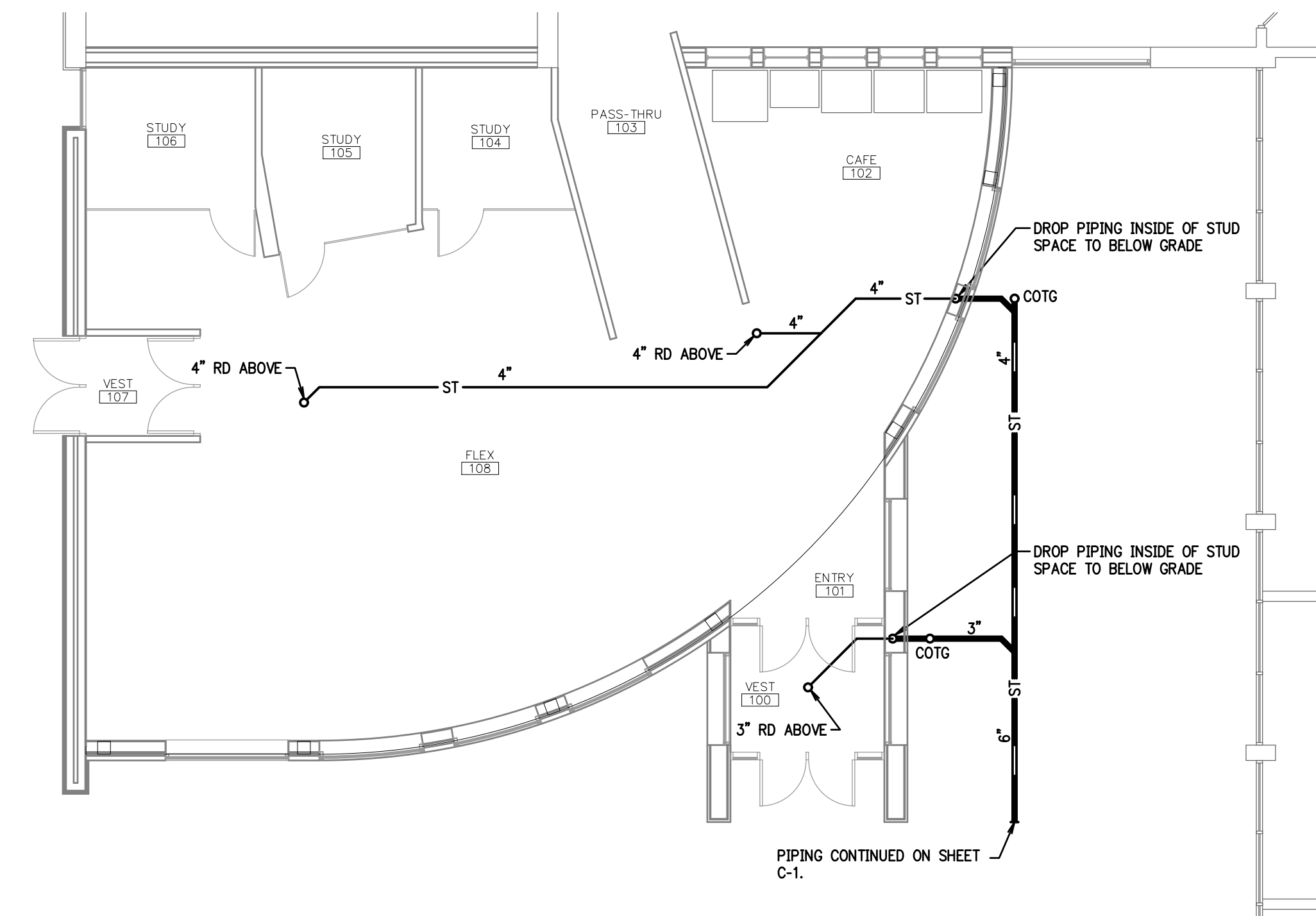
# M201

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### PLUMBING LEGEND

STORM DRAIN , RAIN WATER DRAIN - ABOVE FLOOR	ST	
STORM DRAIN , RAIN WATER DRAIN - BELOW FLOOR	ST	
ROOF DRAIN	RD	
DOWN SPOUT	DS	
CLEANOUT PLUG	CO	
FLOOR CLEANOUT	FCO	
WALL CLEANOUT	WCO	
CLEANOUT TO GRADE	COTG	
NEW PIPING - DARK		
EXISTING PIPING - LIGHT		
PIPING DOWN (ELBOW)		
PIPING UP (ELBOW)		
RISE OR DROP		
BRANCH - TOP CONNECTION		
BRANCH - BOTTOM CONNECTION		
CAP ON END OF PIPE		
VALVE ON RISE OR BRANCH		
VALVE ON DROP OR BRANCH		



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

#### OUTLINE PLUMBING SPECIFICATIONS

##### DIVISION 22 - BASIC MECHANICAL REQUIREMENTS

###### A. General:

These are Outline Specifications and not intended to cover all necessary items, but are to serve only as a guide. It is intended that complete Mechanical Systems as described herein will be furnished and installed.

Contractor shall visit the job site and examine all existing conditions.

All work shall be installed in accordance with local and state codes and regulations and shall receive the approval of the inspection department having jurisdiction.

All work specified herein shall carry the Contractor's Warranty for workmanship and materials for a period of one year minimum (or as specified) from the date of final acceptance or beneficial use by the Owner, whichever occurs first. The Contractor shall remedy the defects and reimburse the Owner for all damage to other work, whether caused by the defects or the work of correcting same.

All work shall be done by mechanics skilled in the particular trade involved, under responsible supervision and with the best modern practices.

All materials shall be new and of the grade and quality specified. Only the best material of each class specified shall be used.

In new construction, the General Contractor will provide duct openings and pipe shaft openings where shown on the architectural or structural drawings and also where indicated and sized by this Contractor.

This Contractor shall provide all miscellaneous steel and hardware as required to support, hang and secure all equipment as furnished, relocated or revised by him, unless such materials are specifically called out to be provided by other Contractors.

Manufacturer's directions shall be followed in all cases where the manufacturers of articles used in this Contract furnish directions covering specific points not shown on the drawings or mentioned in the specifications.

All work installed under this contract shall be tested in the presence of and to the satisfaction of the inspecting authority having jurisdiction and the Owner's Representative.

Mechanical shop drawings, fixture cuts, and schedules shall be submitted for review, in general, before starting the work involved, and so as to cause no delay in this work or that of any other Contractor or Subcontractor. Shop drawings may be submitted in electronic format utilizing PDF files. The submitted shall be organized by specification section and contain all required information within a PDF document for each specification section. If hard copies of shop drawings are submitted, a minimum of six copies shall be submitted. All shop drawings whether electronic or hard copies shall bear the stamp of approval of the Contractor as evidence that the submittals have been approved by him.

This Contractor shall cooperate fully with the Owner in scheduling and making connections into existing service lines so as to cause the least possible inconvenience and shortest interruption of service. Contractor shall include any time and materials necessary for draining, venting, purging and refilling the existing system to permit connection of the new or removal of existing equipment, piping, etc.

This Contractor to remove all unused ductwork, piping, etc. from the area and remove it from the premises. The Owner shall be given the option of retaining any removed items. The Contractor shall, in general, keep the site clean and free of all debris generated by his work.

Before running any ducts, piping, etc. within the building, this Contractor shall assure himself that they can be installed as contemplated without trapping or interfering with columns, beams, piping, fixtures, etc. Contractor to verify all measurements and conditions at job site before proceeding with the work.

###### B. Scope of Work:

Roof drains and piping

###### a. Contract Closeout:

###### Testing and Adjustment:

Contractor shall operate all parts of the entire system, make any and all adjustments and repairs, and shall leave the entire work tested and ready for operation by the Owner.

###### Record Drawings:

Contractor shall keep an accurate record of all deviations from contract drawings. He shall neatly and correctly enter, in colored pencil, any deviations on drawings affected during the progress of the project and shall keep drawings available for inspection. At completion of job and before final acceptance, make any final corrections to drawings and deliver same to the Owner's Representative.

###### C. Hangers and Supports for Piping and Equipment:

All piping materials furnished and all procedures followed in fabrication and erection shall comply with the applicable sections of the Local Building Code, applicable Pressure Piping Code, and requirement of applicable sections of "Building Services Piping", ASME B31.9, latest revision and addenda.

Contractor shall furnish and install all adjustable hangers, special pipe supports spring hangers, anchors, guides, clamps, rods, miscellaneous iron supports and appurtenances as required to securely and properly hang or support the piping systems. On insulated piping, hangers to be oversized to fit on the outside of insulation with a heavy gauge protection pipe saddle or shield. Vertical lines shall be supported by pipe clamp type supports designed for this purpose at each floor level. Hangers to be equivalent to Anvil International No. 260 clevis type, or for bare copper pipe, Anvil International File CT-99C.

###### Rigid PVC Pipe

Pipe Size	Maximum Spacing
Thru 1-1/4"	2-1/2'
1-1/2" & 2"	3'
2-1/2"	3-1/2'
3"	3-1/2'
4"	3-1/2'

###### Hanger and Rod Size Shall be as Follows:

Pipe Size	Rod Size
3/4" to 2" inclusive	3/8"
2-1/2" to 3-1/2" inclusive	1/2"
4" and 5"	5/8"

Contractor shall do all excavating and backfilling in connection with his work. No piping shall be laid in water. Backfill within building shall be clean fine sand, as approved by the Owner's Representative, to proper finished grade. Backfill outside of building lines shall be tamped sand to 24 inches above pipe with remaining backfill being clean earth to proper finished grade.

Sleeves shall be installed by Contractor wherever pipes pass through wood, concrete or masonry slabs, walls, floors or ceilings. Openings around exposed and concealed pipes or in sleeves for pipes passing through floor slabs, fire-rated walls, smoke partitions, or fire rated ceilings must be sealed with a noncombustible fire stop material. Seal at both sides of wall. Insulation shall not extend through sleeve. Pack sleeve opening with STI SpecSeal or equivalent. Depth of fill material shall provide same fire rating as floor or wall penetrated. Fiberglass is not acceptable except as a backing for the above materials.

Sanitary and storm piping shall be cleaned by flushing with water.

##### DIVISION 22 - PLUMBING

###### SECTION 22 0700 - PLUMBING INSULATION

###### A. General:

All work shall be done by experienced insulation applicators in strict accordance with manufacturer's latest recommendations and shall be finished in a neat and workmanlike manner. Thermal conductivity shall not exceed 0.24 BTUH per square foot 1" thick. Insulation shall be equivalent to Owens-Corning Fiberglass 25 ASJ/SSL.

All insulation shall have a composite rating including insulation adhesives, jacket, etc. as follows. The composite assembly shall have a flame spread rating not over 25 and a smoke developed rating not higher than 50.

Pipe fittings shall be covered with preformed insulating fittings such as Zeston 25/50 rated PVC insulated fitting cover (pearl gray finish).

At hangers and supports of insulated pipe, provide high density insulation (maximum deflection 1/8 inches) and 12 inches long, 22 gauge galvanized sheet metal shields covering 50% of the circumference.

###### B. Piping:

###### Cold Service:

Storm Water Horizontal Piping up to 45° Angle and Roof Sumps: 1 inch

###### SECTION 22 1316 - SANITARY WASTE & VENT PIPING

###### A. Sanitary Waste and Storm Inside Building Underground:

Asphalt-coated service weight cast iron, hubless end. Joints, "Clamp-All" Model #125, "Husky" 4000 or "Mission" Heavy Weight.

Plastic PVC, Schedule 40 ASTM D2665, DWV with solvent welded socket joints.

###### B. Sanitary Waste, Vent and Storm Aboveground:

Asphalt-coated service weight cast iron, hubless end, 3 inches and smaller. Joints, neoprene rubber gasket with stainless steel clamp.

Plastic PVC, Schedule 40, ASTM D2665, DWV with solvent welded socket joints. (Not allowable in return air plenums.)

###### SECTION 22 1319 - SANITARY WASTE PIPING SPECIALTIES

###### A. Cleanouts:

COTG - Exterior cleanout, Zurn Z-1406-HD-VP.  
WCO - Wall cleanout, Zurn ZS-1469.

Approved Manufacturers: Zurn, Josam, Mifab and Jay R. Smith

###### B. Roof Drain (RD):

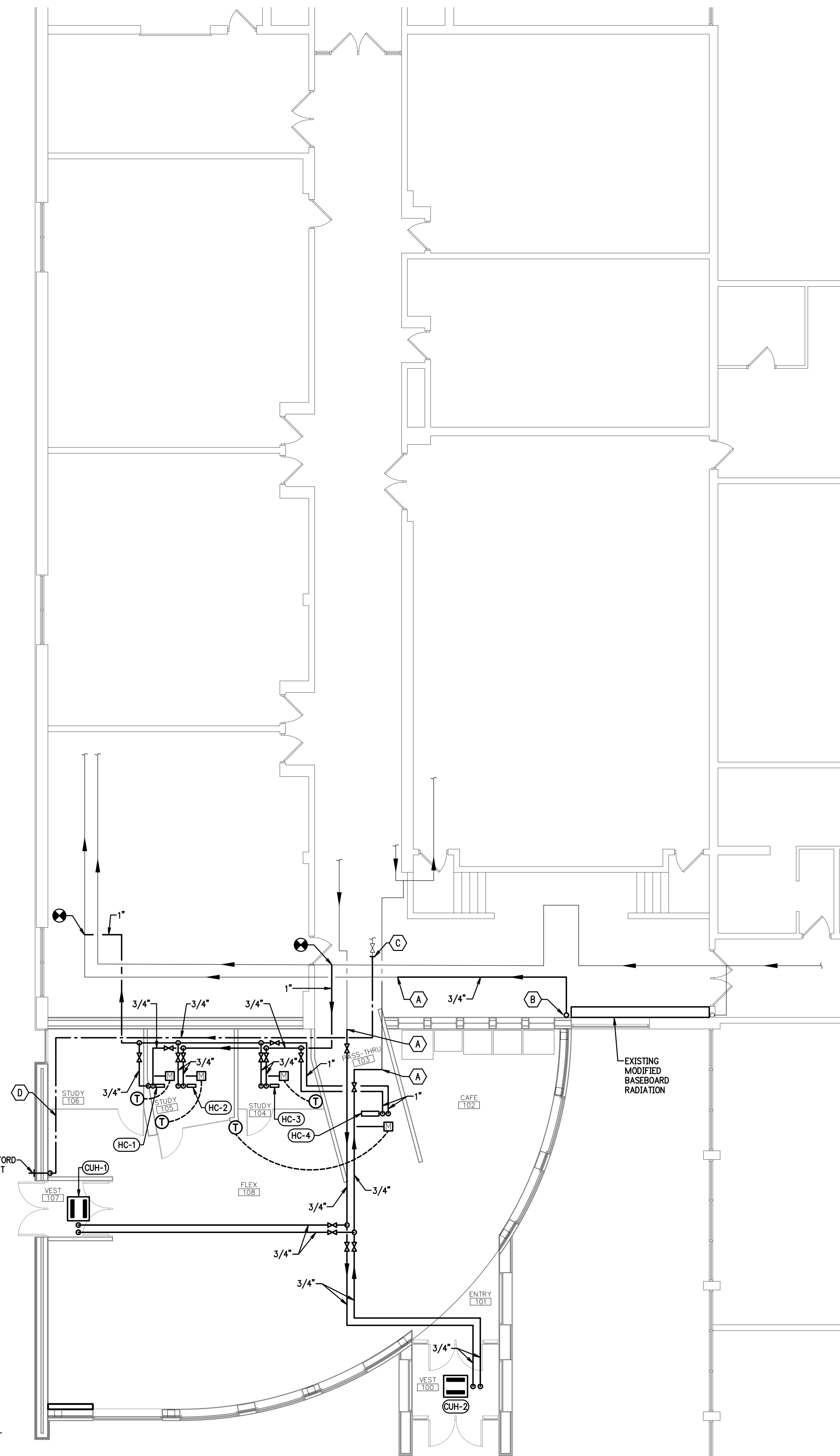
RD - Roof Drain: Zurn Z-100ERC

Approved Manufacturers: Zurn, Josam, Mifab and Jay R. Smith

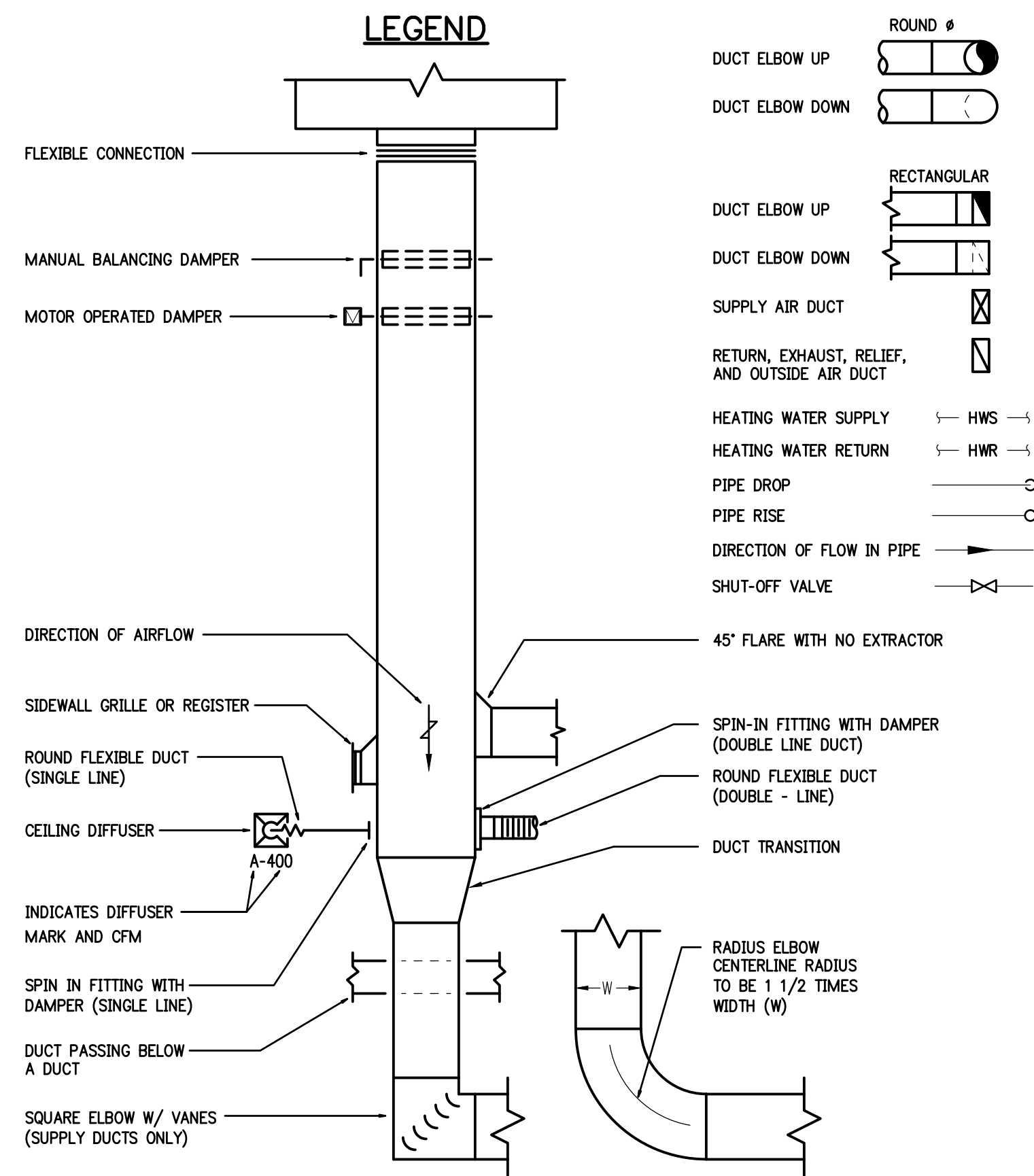
END OF OUTLINE SPECIFICATION

#### PLAN NOTES:

- CONNECT TO EXISTING PIPING IN THIS APPROXIMATE AREA.
- NEW 3/4" HWR DOWN TO EXISTING MODIFIED BASEBOARD RADIATION.
- CONNECT TO EXISTING 3/4" DOMESTIC COLD WATER IN EXISTING BUILDING. FIELD VERIFY EXACT LOCATION.
- DOMESTIC COLD WATER PIPE TO BE TYPE 'L' COPPER, HARD TEMPER, SOLDERED OR PRESS CONNECTED JOINTS, WROUGHT STANDARD WEIGHT PRESSURE RATED FITTINGS AND 1/2" INSULATION.



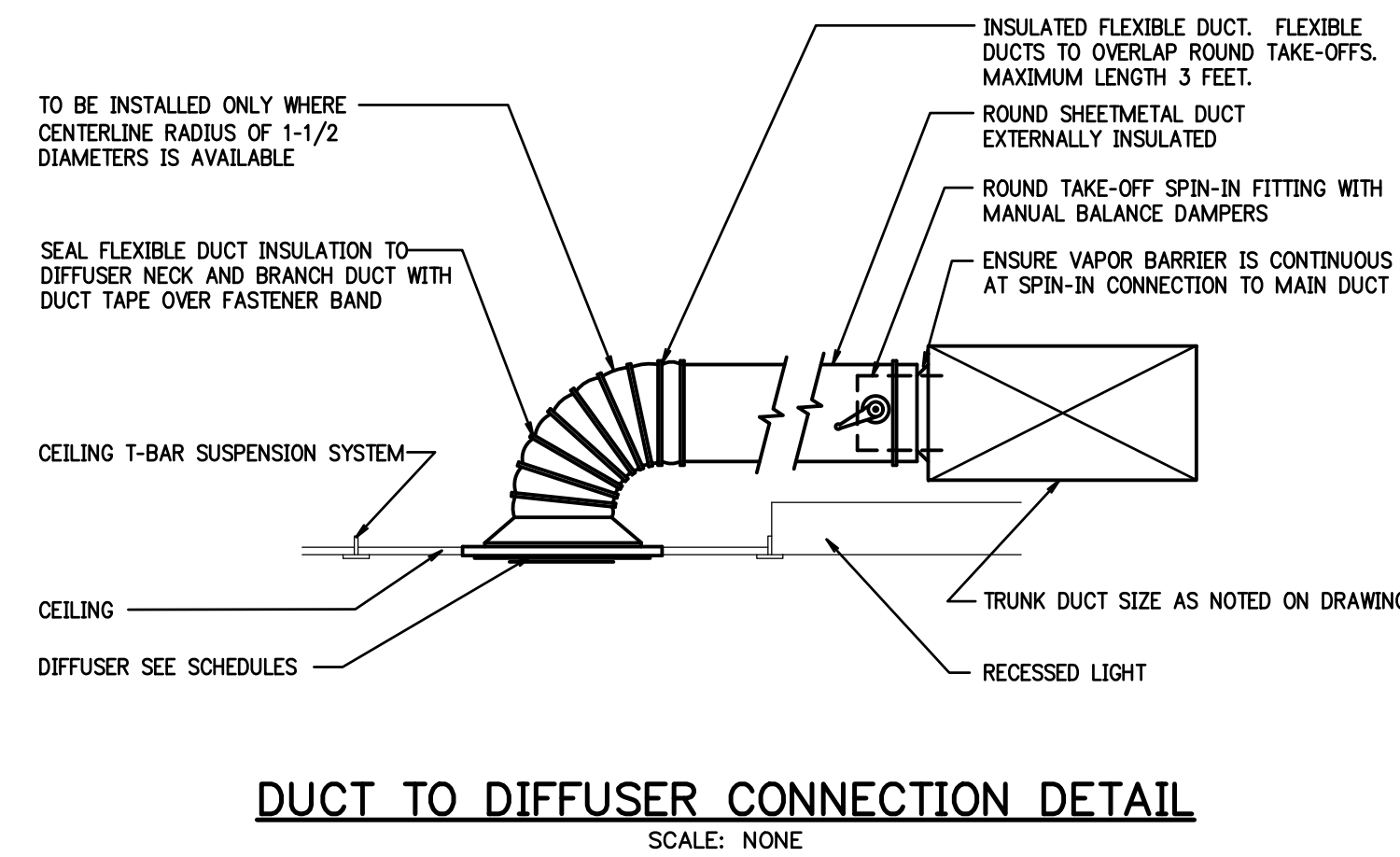
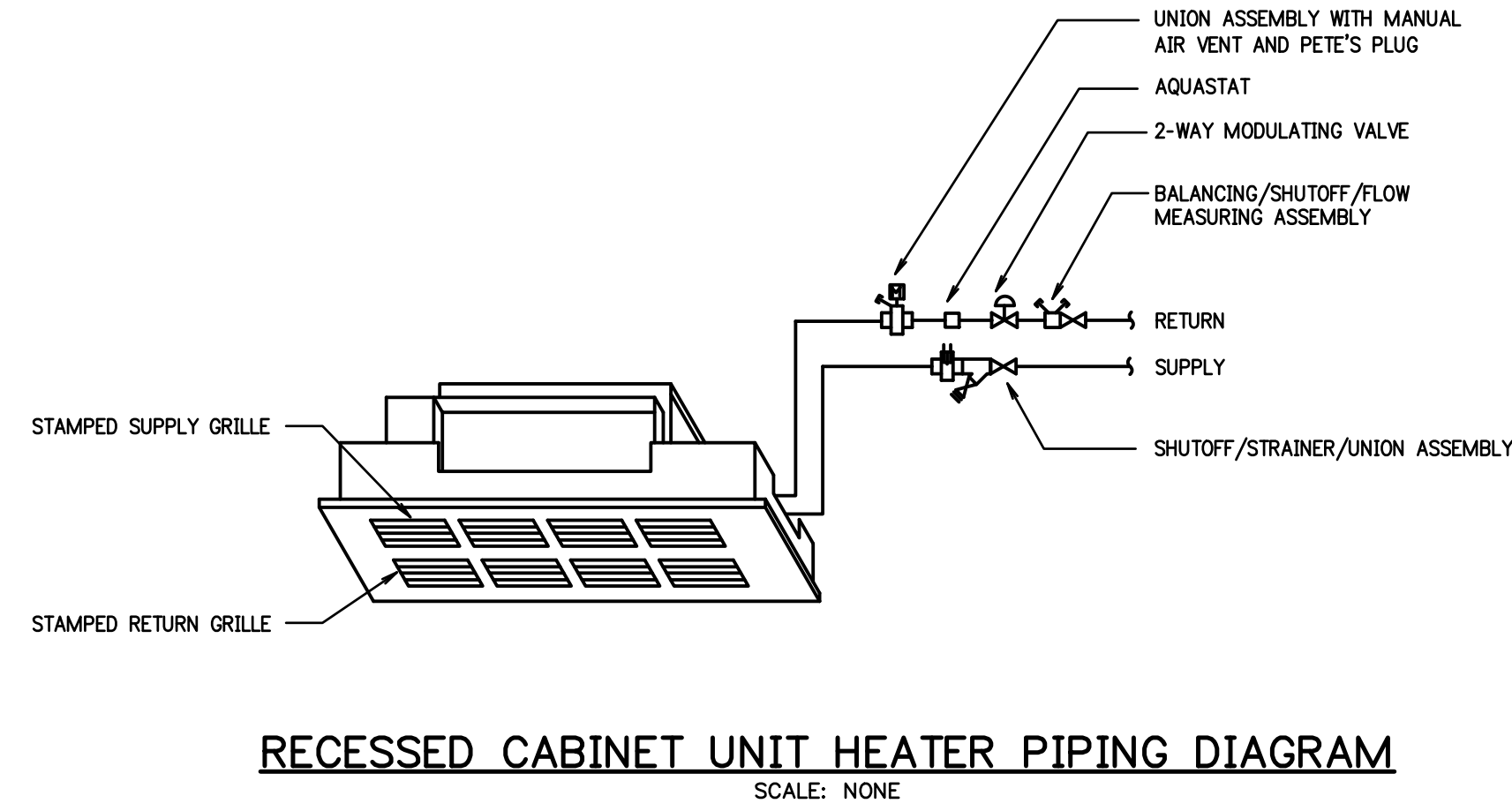




**DUCTWORK NOTES:**

- ALL DUCTWORK SHALL BE FABRICATED AND INSTALLED PER THE LATEST SMACNA STANDARDS.
- ALL TRANSVERSE AND LONGITUDINAL SEAMS ARE TO BE SEALED WITH A DUCT SEALER MATERIAL. SEE SPECIFICATION FOR TYPE.
- ALL DUCTWORK SHALL BE FABRICATED, AT A MINIMUM, PER THE FOLLOWING PRESSURE REQUIREMENTS AS LISTED IN THE LATEST SMACNA HVAC DUCT CONSTRUCTION STANDARDS:
 

PRESSURE RATING	DUCTWORK
2" POSITIVE OR NEGATIVE	1. SUPPLY AIR DUCTWORK IN CONSTANT AIR VOLUME SYSTEMS WITHOUT TERMINAL UNITS. 2. RETURN AIR DUCTS.
- DIMENSIONS OF DUCTWORK AT 2" POSITIVE OR NEGATIVE PRESSURE, SPECIFIED TO BE INTERNALLY LINED, ARE AIR FLOW DIMENSIONS AND DO NOT INCLUDE AN ALLOWANCE FOR INSULATION THICKNESS. SHEETMETAL DIMENSIONS SHALL BE INCREASED AS REQUIRED TO PROVIDE THE AIR FLOW SIZES SHOWN.
- ALL SUPPLY AND RETURN DUCTWORK, RATED AT 2" POSITIVE OR NEGATIVE PRESSURE, SHALL BE INTERNALLY LINED.



DUCTLESS SPLIT SYSTEM AIR CONDITIONING UNIT													
SCHEDULE BASED ON TRANE													
MARK	FAN CFM LOW	FAN CFM MED	FAN CFM HIGH	EAT D.B. °F	EAT W.B. °F	HEATING MBH	COOLING TOTAL MBH	AUXILIARY HEAT	MODEL	CONDENSING UNIT			POWER
										MARK	AMBIENT °F	MODEL	
DSS-1	190	240	310	80	67	-	12.5	-	4MYW1612	CU-1	95	4TYK1612	208/1/60

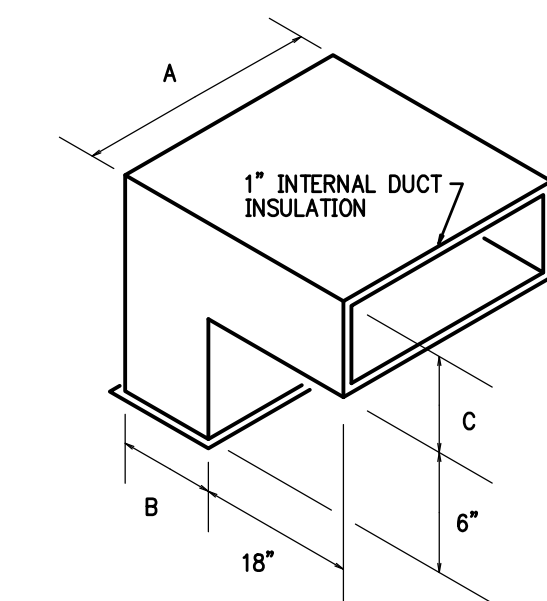
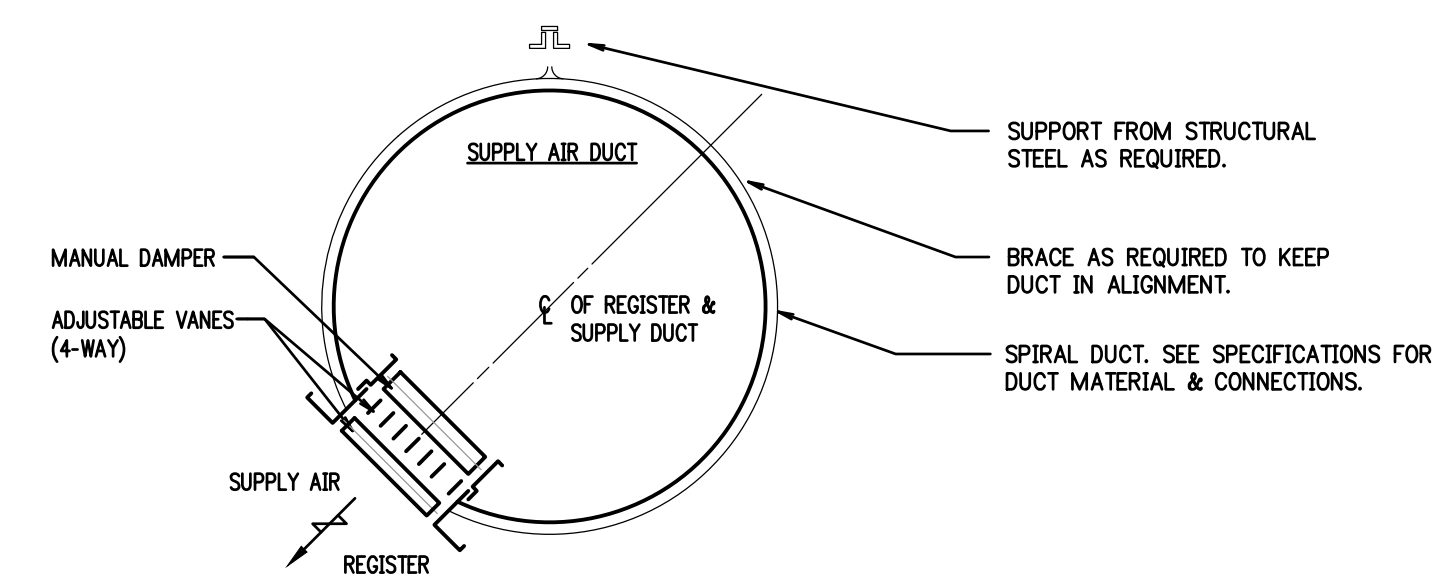
- NOTES:
- COOLING ONLY WITH LOW AMBIENT COOLING CAPABILITY.
  - PROVIDE OUTDOOR MOUNTING PAD FOR OUTDOOR UNIT.
  - PROVIDE INDOOR UNIT WITH CONDENSATE PUMP EQUAL TO ADVANTAGE VRF MODEL NO. CONDUMP4HWB01 AND MOUNTING BRACKET.

CABINET UNIT HEATERS													
SCHEDULE BASED ON TRANE													
MARK	TYPE	MBH	EWT F	GPM	MAX. PD FT. HD.	EAT F	LAT F	FAN			MODEL	POWER	REMARKS
								CFM	RPM	HP			
CUH-1	HORIZONTAL RECESSED	10.4	135	1.05	5.11	60	103.4	222	998	37w	FFEB02	115/1/60	
CUH-2	HORIZONTAL RECESSED	10.4	135	1.05	5.11	60	103.4	222	998	37w	FFEB02	115/1/60	

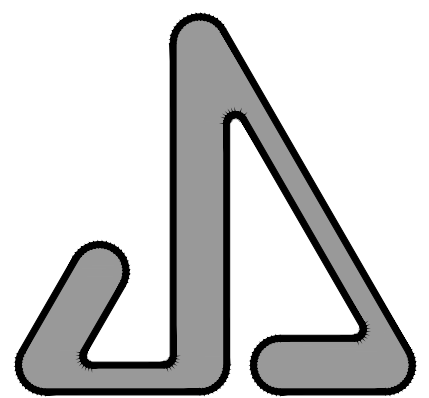
HEATING COILS													
SCHEDULE BASED ON GREENHECK													
MARK	CFM	AIR					WATER			REMARKS			
		EAT °F	LAT °F	MBH	P.D. IN.	FACE VEL. FPM	GPM	EWT °F	P.D. FT.				
HC-1	150	55	95.2	6.5	0.10	267	0.5	135	0.1	MODEL NO. W12299N			
HC-2	100	55	94.4	4.3	0.05	400	0.3	135	0	MODEL NO. W10266N			
HC-3	100	55	94.4	4.3	0.05	400	0.3	135	0	MODEL NO. W10266N			
HC-4	2,150	55	95.8	95	1.10	938	7.7	135	8.7	MODEL NO. HWS8503S12-16.5x20-RH			

GRILLES REGISTERS AND DIFFUSERS							
SCHEDULE BASED ON PRICE							
MARK	USAGE	STYLE	MODEL	SIZE	DESCRIPTION OF BLOW	DAMPER	REMARKS
A	SUPPLY	LAY-IN	ASDA	24x24 - 6"ø	4-WAY	N	
B	SUPPLY	LAY-IN	ASDA	24x24 - 8"ø	4-WAY	N	
C	SUPPLY	DUCT	SDGE	16x6	DOUBLE DEFLECTION	Y	1
D	RETURN	LAY-IN	APDR	24x12	---	N	2
E	RETURN	LAY-IN	APDR	24x24	---	N	2

- NOTES:
- MOUNT DIRECTLY TO DUCT AT 45 DEGREE ANGLE TO FINISHED FLOOR.
  - PROVIDE RETURN AIR ELBOW.



- NOTE:
- A = GRILLE WIDTH
  - B = GRILLE DEPTH
  - C = GRILLE DEPTH PLUS 2" OR MAXIMUM OF 12"



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MECHANICAL  
 SCHEDULES &  
 DETAILS

06.12.17 CONSTRUCTION  
 06.05.17 BUREAU OF FIRE SERVICES  
 5.10.17 ADDENDUM 1  
 5.1.17 PERMIT  
 5.1.17 BIDS

DATE: ISSUED FOR:

DRAWN: BRR

REVIEW'D: DCH

201545

**M301**

4 OF 5

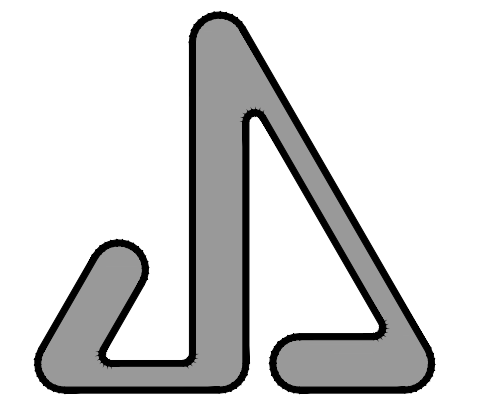


**LEGEND**

	LOW VOLTAGE DIMMER WIRED TO THE CEILING MOUNTED LIGHTING CONTROL DEVICE / POWER PACK
	CORNER MOUNTED OCCUPANCY SENSOR WITH POWER PACK (24VDC-150mA)
	LIGHTING CONTROL OCCUPANCY SENSOR POWER PACK, 120/277V INPUT, 150mA OUTPUT, MOUNTED IN AN ACCESSIBLE CEILING, PROVIDE IN QUANTITIES AS REQUIRED PER MANUFACTURER'S REQUIREMENTS, WHETHER SHOWN OR NOT;
	LOW VOLTAGE FOUR BUTTON SWITCH, WIRED TO THE LOW VOLTAGE RELAY SYSTEM
	ULTRASONIC OCCUPANCY SENSOR / DAY LIGHT SENSOR, CEILING MOUNTED, WIRED TO THE LOW VOLTAGE RELAY CABINET
	DUPLEX RECEPTACLE
	DUPLEX RECEPTACLE, TAMPER RESISTANT, WITH USB CHARGING OUTLET
	DOUBLE DUPLEX RECEPTACLE, 2-GANG, 4-OPENING
	TAMPER-RESISTANT DUPLEX RECEPTACLE WITH GROUND FAULT CIRCUIT INTERRUPTER PROTECTION
	FACELESS GFCI DEVICE
	RECESS TV BACKBOX; SEE SHEET T101
	FLOOR BOX; FOUR COMPARTMENT, WITH TWO DUPLEX RECEPTACLE
	FLOOR BOX; MULT-GANG, MULTI-CONFIGURATION WITH TWO DUPLEX
	HEAVY DUTY SAFETY SWITCH, SIZE AS NOTED, FUSED AS NOTED, NEMA 1
	HEAVY DUTY SAFETY SWITCH, SIZE AS NOTED, FUSED AS NOTED, NEMA 3R
	JUNCTION BOX, BLANK COVER
	JUNCTION BOX FOR DOOR OPERATOR, BLANK COVER, COORDINATE SIZE REQUIREMENTS AND LOCATION
	OUTLET TO BE DUPLEX OR MATCHING RECEPTACLE IF EQUIPMENT IS FURNISHED WITH CORD AND PLUG, OR JUNCTION BOX AND/OR SAFETY SWITCH WITH SEALTITE CONNECTION IF EQUIPMENT IS TO BE WIRED DIRECT. VERIFY THE REQUIRED OUTLET AND WIRE ALL EQUIPMENT COMPLETE
M.H.	MOUNTING HEIGHT, FLOOR TO BOTTOM OF ITEM
W.P.	ITEM TO BE WEATHERPROOF
	CONDUIT CONCEALED IN WALL OR ABOVE CEILING, EXPOSED IN UNFINISHED AREAS
	CONDUIT CONCEALED UNDER FLOOR
	HOME RUN TO PANEL; GROUND, PHASE 'A', 'B', 'C' AND NEUTRAL
	CONDUIT TURNED UP, CONDUIT TURNED DOWN
	EXISTING ITEM TO REMAIN, UNLESS NOTED OTHERWISE. REPLACE WITH NEW DEVICE
	EXISTING ITEM TO BE REMOVED
	RECEPTACLE PANEL; 120/208V-3PH-4W
	LOW VOLTAGE RELAY CABINET
	MOTOR, HORSEPOWER AS NOTED
	FIRE ALARM CONTROL PANEL
	FIRE ALARM SPEAKER AND STROBE 75 CD UNLESS NOTED OTHERWISE
	FIRE ALARM STROBE 75 CD UNLESS NOTED OTHERWISE
	FIRE ALARM PULL STATION

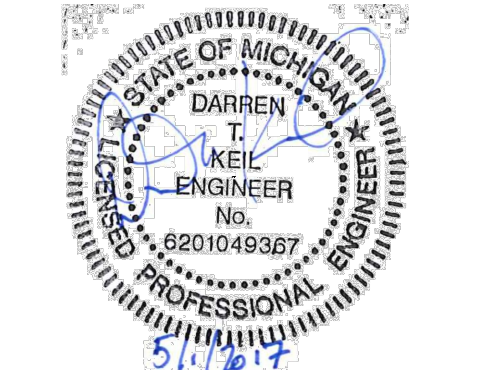
**LUMINAIRE SCHEDULE**

	LED - EXIT SIGN, 11"W X 8"H X 2"D, DIFFUSE, THERMOPOASTIC HOUSING, STENCIL FACE, WALL MOUNTED, ARROWS AS SHOWN, WHITE HOUSING FINISH, WHITE FACE, GREEN LETTERS, 120V 1-1/2 HOUR BATTERY BACK-UP OPERATION	DUAL-LITE LX U R W E I EMERGI-LITE W PREM SNX DN R EXITRONIX ILX R EM WH LITHONIA LQM S W 3 R 120/277 ELN SD SURE-LITE LPX75D
	LED - EXIT SIGN, 11"W X 8"H X 2"D, DIFFUSE, THERMOPOASTIC HOUSING, STENCIL FACE, CEILING MOUNTED, ARROWS AS SHOWN, WHITE HOUSING FINISH, WHITE FACE, GREEN LETTERS, 120V 1-1/2 HOUR BATTERY BACK-UP OPERATION	DUAL-LITE LX U R W E I EMERGI-LITE W PREM SNX DN R EXITRONIX ILX R EM WH LITHONIA LQM S W 3 R 120/277 ELN SD SURE-LITE LPX75D
	BATTERY OPERATED EMERGENCY LIGHT, WALL/CEILING MOUNTED, A MAXIMUM OF 12'-0" A.F.F., 13"W X 7"H X 6"D, SEALED BATTERY, TWO 1.5/3.6V ADJUSTABLE LED LAMP HEADS, 1-1/2 HOUR OPERATION, WHITE FINISH, 120V	DUAL-LITE EVHC 6 W BC EXITRONIX LED-52 WH G2 LITHONIA ELMG LED W LP03VS THOMAS & BETTS OW LUX SD SURE-LITE LEM4
	LUMINAIRE TO CONTAIN AN EMERGENCY BATTERY INVERTER PACK (1,400 LUMEN MINIMUM) CONCEALED IN LUMINAIRE HOUSING, WITH 1-1/2 HOUR BATTERY BACK-UP OPERATION, 120V	
	LED - 55W; 4,600 LUMENS, 4,000° K COLOR TEMPERATURE, PENDANT MOUNTED CIRCULAR SHAPED LUMINAIRE, 36" DIA. X 1" X 1", SUSPENSION THROUGH CANOPY, 0-10V 10% DIMMING DRIVER, BRUSHED ALUMINUM FINISH, SILVER POWER CABLE, ACRYLIC LENS, 120V	AXO LIGHT USUL160LEDANXX DELRAY UC3 S W40 CS BDIM-WI SATTLER SLIM DIRECT 711.69.51.00.27.Z 70.E
	LED - 63W; 8,600 LUMENS, 4,000° K COLOR TEMPERATURE, PENDANT MOUNTED CIRCULAR SHAPED LUMINAIRE, 48" DIA. X 3" X 7" H., OPAL COVER ON THE OUTSIDE, SUSPENSION THROUGH CANOPY, 0-10V 10% DIMMING DRIVER, BRUSHED ALUMINUM FINISH, SILVER POWER CABLE, 120V	CAMMAN LIGHTING P2435-70-40K-CLV-1-WM-BA-AC DELRAY 6714 S W40 BDIM-WI CS SATTLER CIRCOLO INVERSE 265.69.51.00.27.Z 70.E TMS LIGHTING 6050-48-60LED-120-40K-F31-DIML
	LED - 20W; 1,500 LUMENS, 4,000° K COLOR TEMPERATURE, DOWNLIGHT, 4" DIA. X 12" X 10" X 6" D., CLEAR TRIM, SEMI-SPECULAR FINISH, 0-10V DIMMING DRIVER, 120V	CREE KR 4 13L 40K 120V 10V LITHONIA LDN4 40/05 L04 AR LS 120 EZ10 WILA LIGHTING 621-444-SSA60-80-120V-BDIM LIGHTOLIER P4R D 10 N Z10 U VB P4R D B 40 VB P4R D CL
	LED - 7.1W/FT.; 375 LUMENS/FT., 4,000° K COLOR TEMPERATURE, RECESSED LUMINAIRE, 6.24" X 4.88" D. X 96" L., MOUNTED VERTICAL IN WALL, FLUSH SHIELDING, STEEL HOUSING, WHITE REFLECTOR, ACRYLIC LENS, 0-10V 10% DIMMING DRIVER, DRYWALL TRIM, 120V	AXIS LIGHTING BMRLED B3 MF 400 80 40 FL 8 W 120 D 1 DF FOCAL POINT FSM4L FL 375LF 40K 1C 120 LD1 TF WH 8 PHILIPS 39S1 L A K Q S 4 08 1 1
	SAME AS TYPE 'L1' LUMINAIRE, EXCEPT 26W/4FT.; 2500 LUMENS/4FT., WITH DRYWALL TRIM FOR CEILING MOUNTING	
	LED - 28W/4FT.; 2,572 LUMENS/4FT., 4,000° K COLOR TEMPERATURE, PENDANT MOUNTED LINEAR LUMINAIRE, EXTRUDED ALUMINUM CONSTRUCTION, WHITE POWER CORD, ANODIZED ALUMINUM FINISH, 0-10V 10% DIMMING DRIVER, 120V	ALW TRPSDINT 8 LED LED-LOW 4000K 0/10V AL 120 LUMIUM LIGHTING H1 CSD 8' 40K L0 1V 10D SC MF MA 55 SW PSS XX SPI LIGHTING LLCR-C-096-L57.3WC 40K 120 8' CAA AN04 DML
	LED - 26W; 2500 LUMENS, 4,000K COLOR TEMPERATURE, 24" X 24" X 4" LAY-IN LUMINAIRE, FROSTED WHITE ACRYLIC DIFFUSER, CENTER SHIELDING OPAL ACRYLIC LENS, 0-10V 10% DIMMING DRIVER, STEEL WHITE REFLECTOR AND MATTE SATIN WHITE HOUSING, 120V	COLUMBIA LSER 30 G C ED U DAY-BRITE 2 FG G 20L 840 2 DS 120 DIM LITHONIA 2ALL2 CTRF 20L EZ10 LP840 METALUX 22ALNG LD4 20 R UNV L840 CD 1
	LED - 2.5W/FT., 185 LUMENS/FT., 4,000K COLOR TEMPERATURE, 0.5"W X 0.1"H X LENGTH AS SHOWN, EXTERIOR SURFACE MOUNTED LINEAR LUMINAIRE, 120° BEAM ANGLE, CLEAR LENS, MOUNTING CHANNEL, MOUNTING CLIPS, SPLICE BOX, CONNECTORS, 24V, AND 120V POWER SUPPLY	CALI LLED80000-SR-3.6W-LED4.0K-WET-WH; 120 XF INFINA DL-AC-FLEX-40; DL-AC-FLEX-HW-00F JUNO SLW212 20FT 40K 80CRI; DLDP5 96W FPC2T LUMINII LL30WET-46K-XX-XX-XX, PSV-96W-24V-U2ND-D OMNILIGHT HELWL-41-S0-16; OPS-96-E-24



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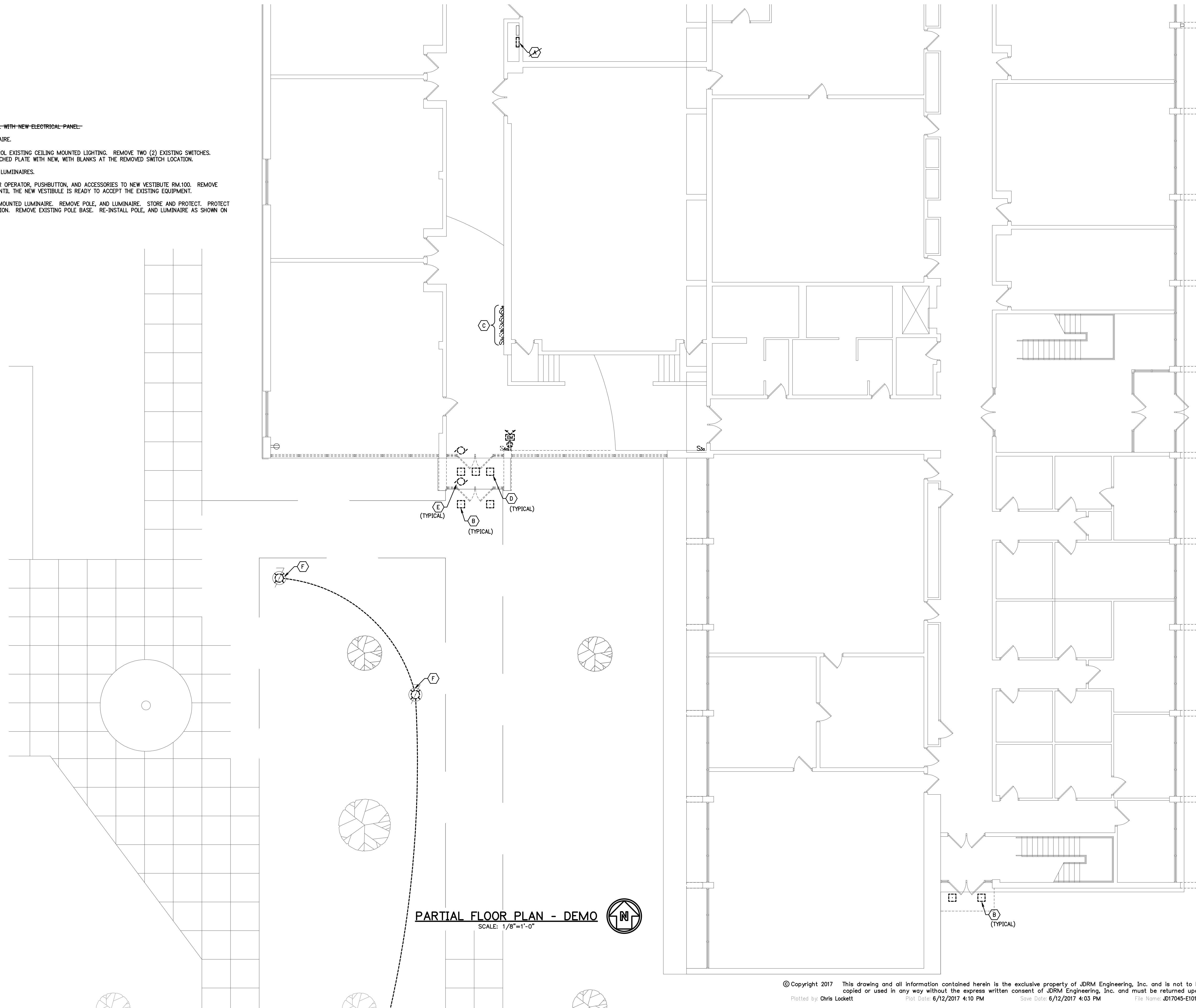
**LUMINAIRE  
 SCHEDULE  
 LEGEND**

06.12.17	CONSTRUCTION
06.05.17	BUREAU OF FIRE SERVICES
05.16.17	ADDENDUM #1
5.1.17	PERMIT
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DATE:	ISSUED FOR:
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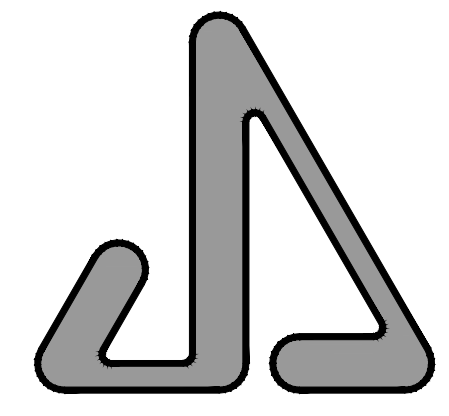
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**FLOOR PLAN NOTES:**

- A. ~~REPLACE EXISTING ELECTRICAL PANEL WITH NEW ELECTRICAL PANEL.~~
- B. REMOVE EXISTING DOWNLIGHT LUMINAIRE.
- C. THREE (3) EXISTING SWITCHES CONTROL EXISTING CEILING MOUNTED LIGHTING. REMOVE TWO (2) EXISTING SWITCHES. REPLACE THE EXISTING GANGED SWITCHED PLATE WITH NEW, WITH BLANKS AT THE REMOVED SWITCH LOCATION.
- D. REMOVE EXISTING CEILING MOUNTED LUMINAIRES.
- E. RELOCATE EXISTING AUTOMATIC DOOR OPERATOR, PUSHBUTTON, AND ACCESSORIES TO NEW VESTIBULE RM.100. REMOVE EQUIPMENT, PROTECT, AND STORE, UNTIL THE NEW VESTIBULE IS READY TO ACCEPT THE EXISTING EQUIPMENT.
- F. RELOCATE EXISTING EXTERIOR POLE MOUNTED LUMINAIRE. REMOVE POLE, AND LUMINAIRE. STORE AND PROTECT. PROTECT EXISTING FEEDER DURING CONSTRUCTION. REMOVE EXISTING POLE BASE. RE-INSTALL POLE, AND LUMINAIRE AS SHOWN ON SITE PLAN, WITH NEW POLE BASE.

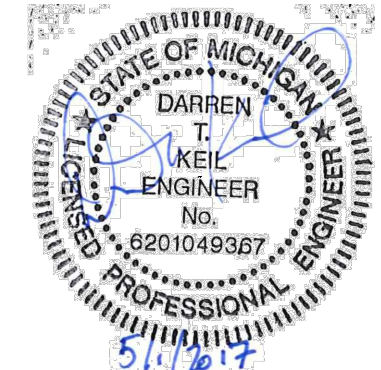


**PARTIAL FLOOR PLAN - DEMO**  
SCALE: 1/8"=1'-0"



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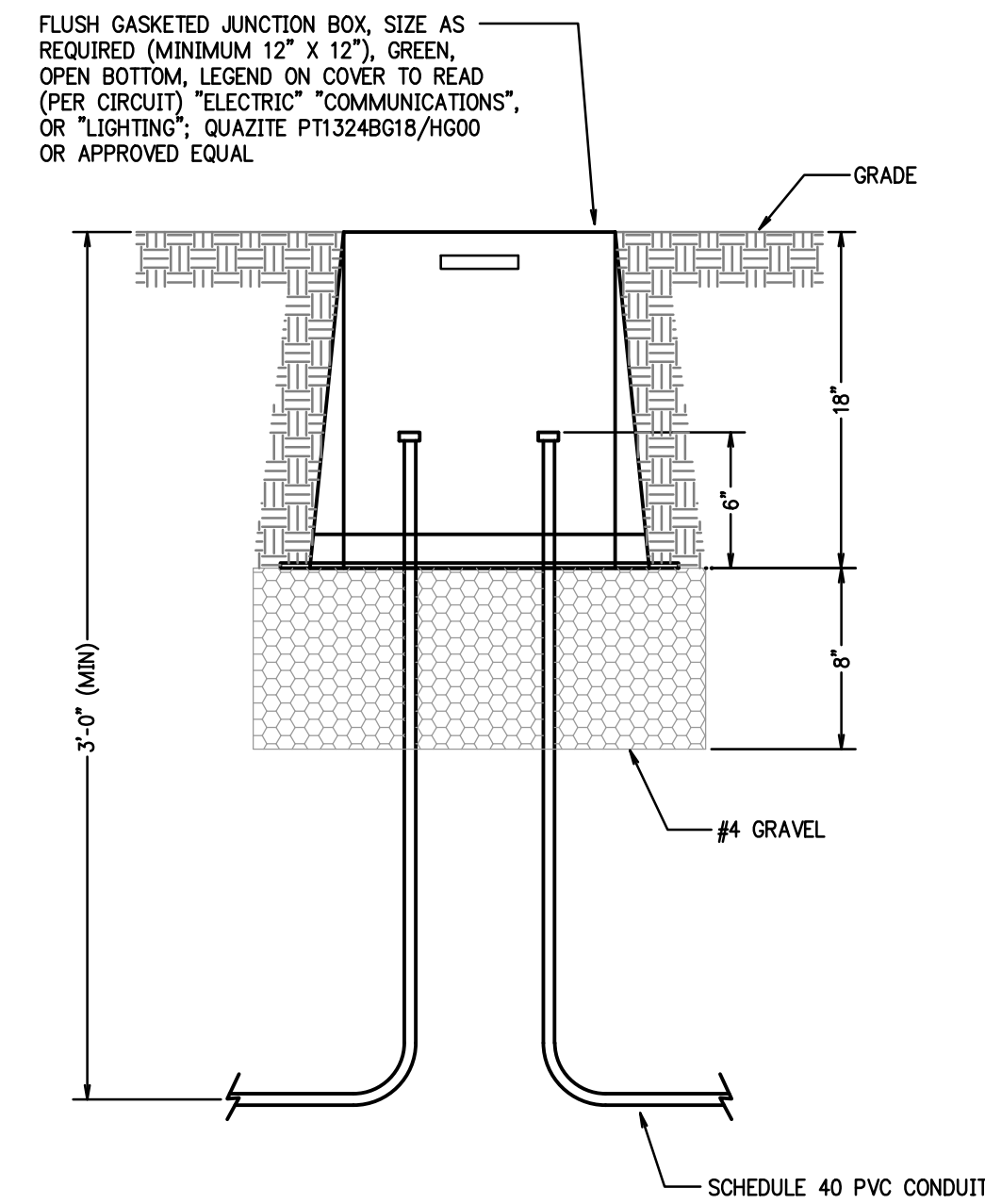
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**PARTIAL  
FLOOR PLAN  
DEMO**

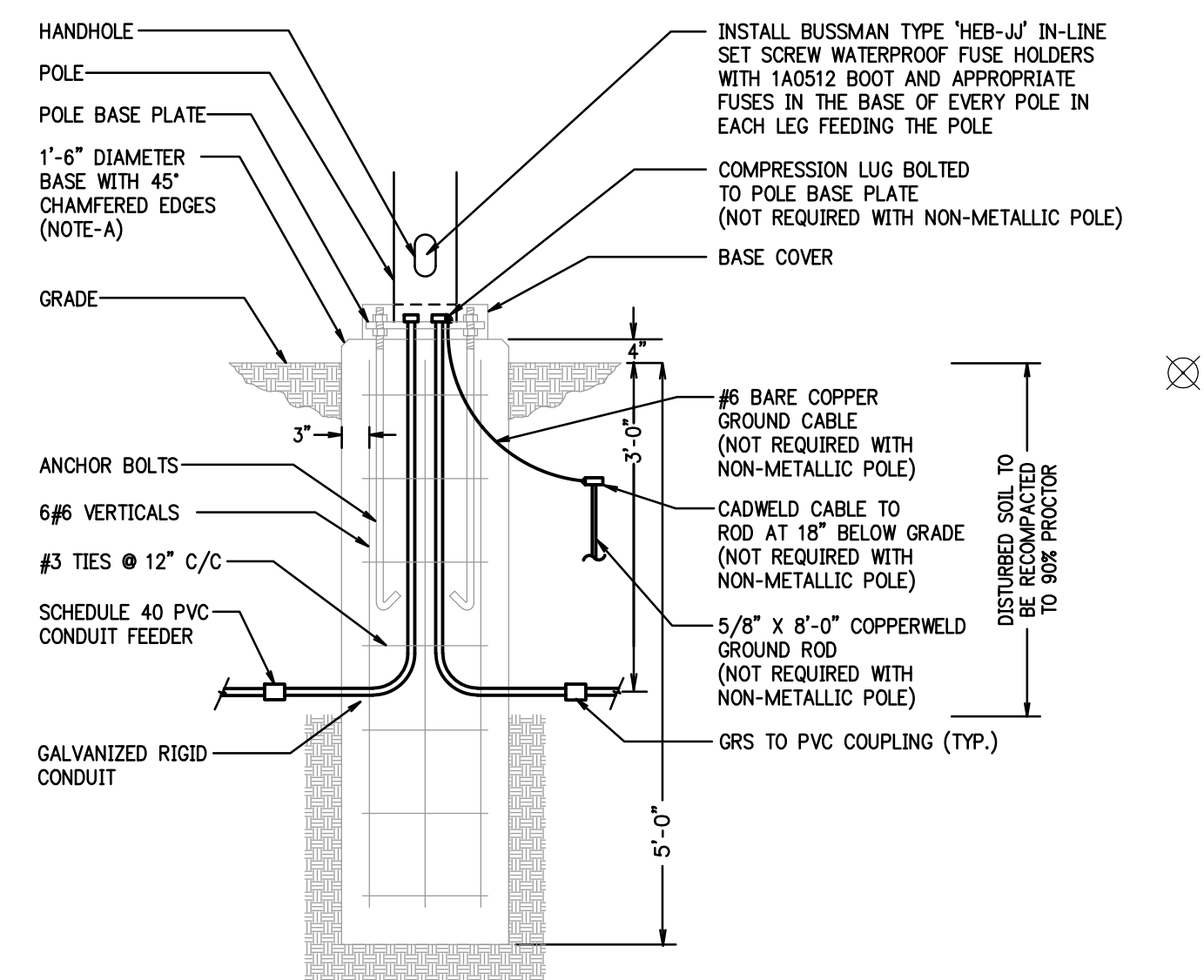
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**E101**

OF



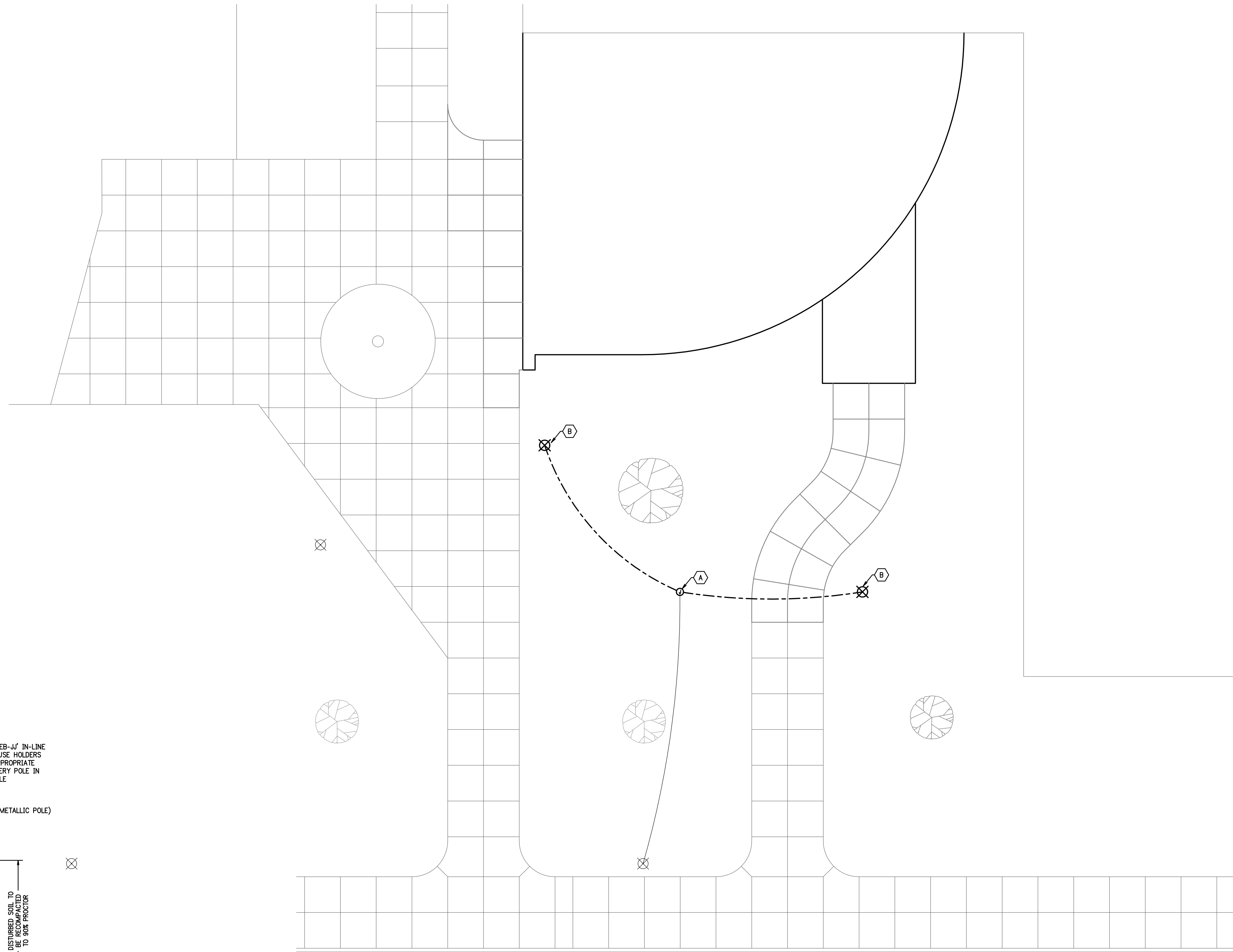
**IN GROUND JUNCTION BOX DETAIL**  
SCALE: NONE



**POLE BASE NOTE:**

A. BASE FORM SHALL HAVE AN INTERNAL COATING TO PROVIDE A SMOOTH FINISH UPON REMOVAL (SONOTUBE FINISH FREE FIBER FORM OR EQUIVALENT). BASE FORM SHALL SHAPE CONCRETE CHAMFER (A GROUND CHAMFER IS NOT ACCEPTABLE) AND FORM SHALL NOT EXTEND MORE THAN 18\"/>

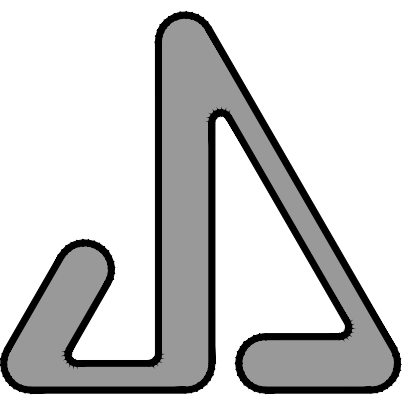
**POLE BASE DETAIL**  
SCALE: NONE



**PARTIAL SITE PLAN - ELECTRICAL**  
SCALE: 1/8"=1'-0"

**SITE PLAN NOTES:**

- A. PULL BACK EXISTING SITE LIGHTING CONDUCTORS AT EXISTING SITE LIGHTING POLE. INTERCEPT THE EXISTING UNDERGROUND RACEWAY SYSTEM. INSTALL WEATHERPROOF IN-GROUND JUNCTION BOX. SEE DETAIL THIS SHEET. EXTEND NEW CONDUCTORS TO NEW EXTERIOR POLE LOCATIONS. MATCH EXISTING CONDUIT AND CABLE SIZE. SOURCE PANEL LOCATED IN THE FACILITIES BUILDING / PHYSICAL PLANT.
- B. INSTALL NEW POLE BASE FOR RELOCATED EXTERIOR SITE LIGHTING POLES. SEE DETAIL ON THIS SHEET.



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LIFE SCIENCE  
BUILDING

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**SITE PLAN  
ELECTRICAL**

06.12.17 CONSTRUCTION  
06.05.17 BUREAU OF FIRE SERVICES  
5.16.17 ADDENDUM 1

DATE: ISSUED FOR:

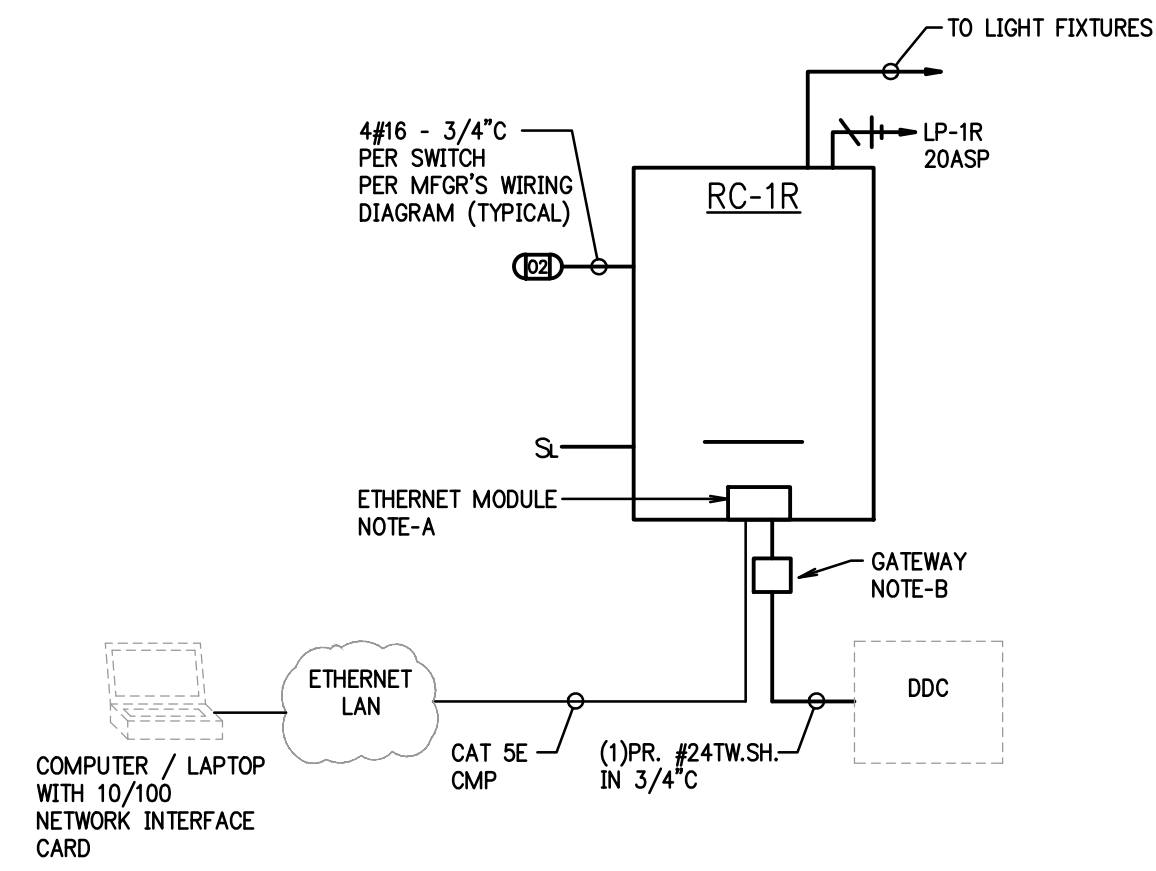
DRAWN CPL

REVIEW'D DTK

201545

**E201**

OF



~SEE DRAWINGS FOR QUANTITIES AND LOCATIONS~  
**LIGHTING CONTROL SYSTEM RISER**  
 SCALE: NONE

**NOTES:**

- A. COORDINATE IP ADDRESSING WITH OWNER.
- B. COORDINATE GATEWAY PROTOCOL WITH DDC SYSTEM.

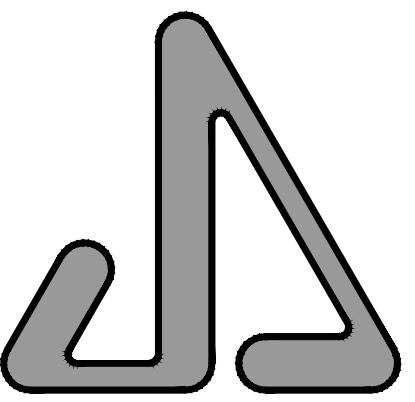
RELAY CABINET 'RC-1R' CONTROL SCHEDULE												
RELAY NUMBER	DIMMER NUMBER	CIRCUIT CONTROL		FUNCTION	ZONE	INDIVIDUAL					REMARKS	
		PANEL	NUMBER			SWITCH	PHOTOCELL ON	PHOTOCELL OFF	TIME SWITCH ON	TIME SWITCH OFF		WARNING OFF
R1	DIM1	LP-1R	2	VEST.RM.100, ENTRY RM.101, VEST.RM.107, FLEX RM.108		X		X	X	X		
R2	DIM2	LP-1R	2	FLEX RM.108		X		X	X	X		
R3	DIM3	LP-1R	2	FLEX RM.108		X		X	X	X		
R4	DIM4	LP-1R	4	PASS THRU 103		X		X	X	X		
R5	DIM5	LP-1R	4	CAFERM.102		X		X	X	X		
R6	DIM6	LP-1R	4	FLEX RM.108		X		X	X	X		
R7	DIM7			SPARE								
R8	DIM8			SPARE								

**FLOOR PLAN NOTES:**

- A. NEW EXTERIOR CANOPY LUMINAIRE WIRED TO EXISTING ELECTRICAL PANEL LP-Z. EXISTING PANEL LP-Z HAS TIME SWITCH AND PHOTOCELL CONTROL.
- B. TYPE 'A' LUMINAIRES MOUNTED AT 84" ABOVE FINISHED FLOOR.
- C. TYPE 'B' LUMINAIRES MOUNTED AT 90" ABOVE FINISHED FLOOR. LUMINAIRE IS NOT ATTACHED TO THE FLOATING GRID. MOUNT LUMINAIRE TO STRUCTURE ABOVE.
- D. TYPE 'L1' LUMINAIRE MOUNTED AT 12" ABOVE FINISHED FLOOR. LUMINAIRE IS 8'-0" LENGTH, MOUNTED VERTICAL IN WALL.
- E. TYPE 'L1S' LUMINAIRE AREA MOUNTED AT DIFFERENT HEIGHTS. THE FIRST ROW WITH THE IN INTERIOR END OF THE LUMINAIRE STARTS AT 114" ABOVE FINISHED FLOOR AND THEN SLOPE UPWARD TOWARD THE EXTERIOR, WITH THE THIRD ROW OF LUMINAIRES NEAR THE EXTERIOR WALL WITH THE EXTERIOR END OF THE LUMINAIRE ENDS AT 144" ABOVE FINISHED FLOOR.
- F. THE LUMINAIRES IN THE OPEN AREA ARE WIRED THROUGH A LOW VOLTAGE RELAY CABINET WITH TIME SWITCH CONTROL. THE LUMINAIRES SHALL BE PROGRAMMED TO OPERATE FROM 7 AM TO 10 PM. AFTER 10 PM, THE CEILING MOUNTED OCCUPANCY SENSORS SHALL TURN LUMINAIRES ON FOR ONE (1) ADDITIONAL HOUR WHEN OCCUPANCY IS DETECTED. THIS SHALL REPEAT IF ANY OCCUPANCY IS DETECTED IN THE SPACE DURING OFF HOURS. THE DAYLIGHT / OCCUPANCY SENSORS SHALL MAINTAIN 40 FC MINIMUM BASED ON THE COMBINATION OF EXTERIOR DAY LIGHT AND ROOM LUMINAIRE OUTPUT LEVEL. THE ROOM MANUAL CONTROL SHALL HAVE FOUR (4) BUTTONS: ON, OFF, 50% LIGHTING LEVEL, AND 10% LIGHTING LEVEL. THE MANUAL OVERRIDE SWITCH ACTIVATED DURING 7 AM TO 10 PM SHALL OPERATE FOR ONE (1) HOUR, THEN RETURN TO THE NORMAL OPERATION OF LUMINAIRES ON 7 AM TO 10 PM.
- G. THE LUMINAIRES ARE WIRED FOR DIMMING CONTROL, WITH CEILING MOUNTED OCCUPANCY SENSOR FOR VACANCY MODE OPERATION (WHEN NO OCCUPANT IS DETECTOR, TURN LUMINAIRES OFF WITH MANUAL CONTROL TO TURN LUMINAIRES ON).

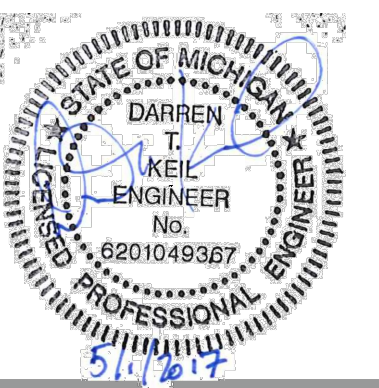


**PARTIAL FLOOR PLAN - LIGHTING**  
 SCALE: 1/8"=1'-0"



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**PARTIAL  
 FLOOR PLAN  
 LIGHTING**

06.12.17 CONSTRUCTION  
 06.05.17 BUREAU OF FIRE SERVICES  
 05.16.17 ADDENDUM #1  
 5.1.17 PERMIT  
 BIDS  
 5.1.17

DATE: ISSUED FOR:

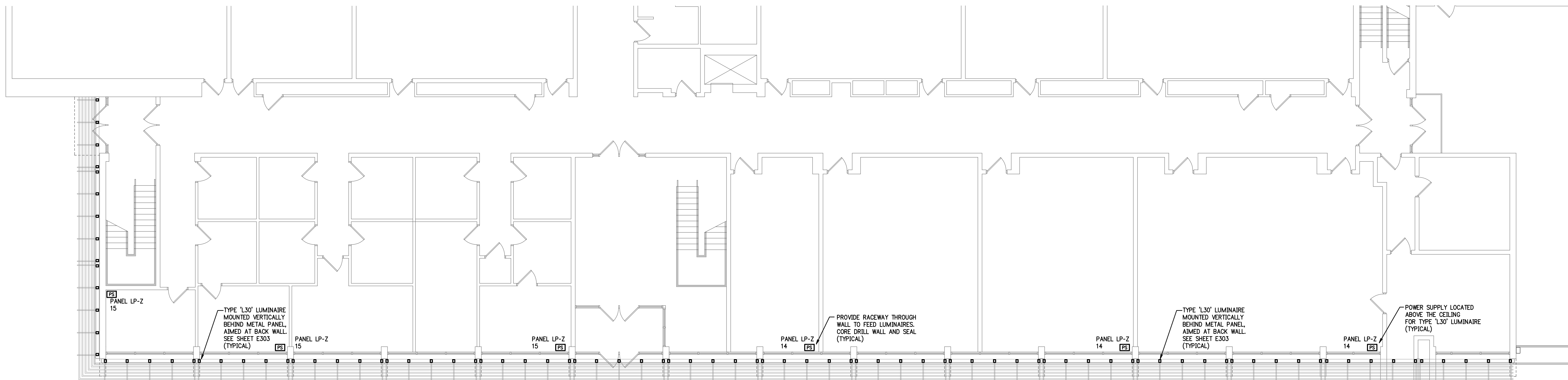
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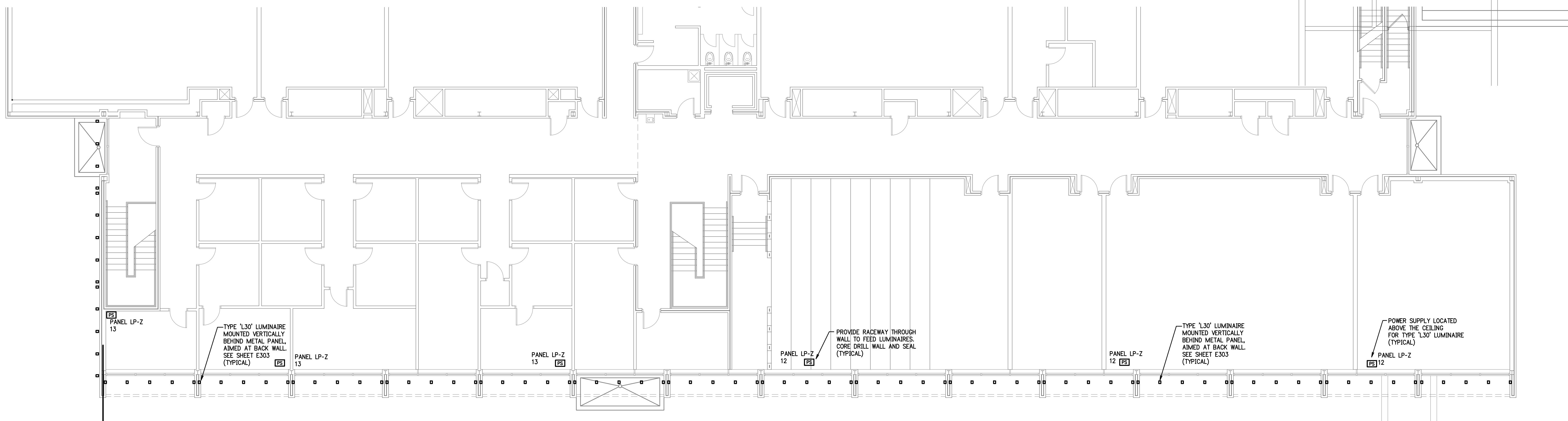
**E301**

OF



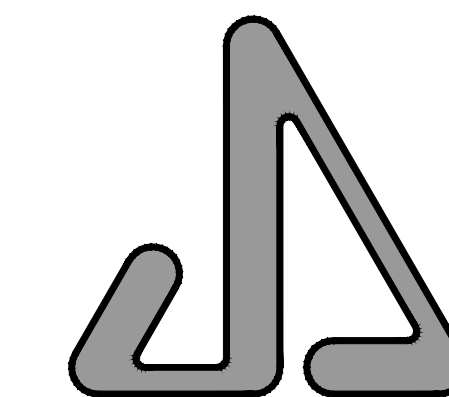
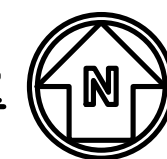
**PARTIAL FIRST FLOOR PLAN - EXTERIOR LIGHTING - ALTERNATE NO.2**

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



**PARTIAL SECOND FLOOR PLAN - EXTERIOR LIGHTING - ALTERNATE NO.2**

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

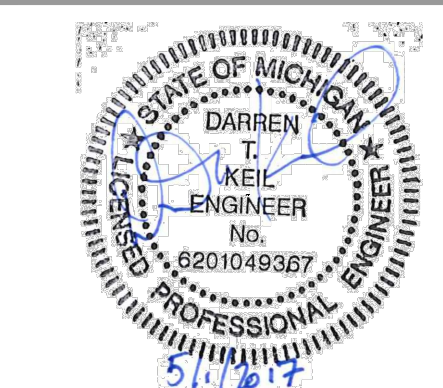


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**PARTIAL FIRST  
 AND SECOND FLOOR  
 PLAN - LIGHTING  
 ALTERNATE NO.2**

06.12.17 CONSTRUCTION  
 08.05.17 BUREAU OF FIRE SERVICES  
 5.1.17 PERMIT  
 5.1.17 BIDS

DATE: ISSUED FOR:

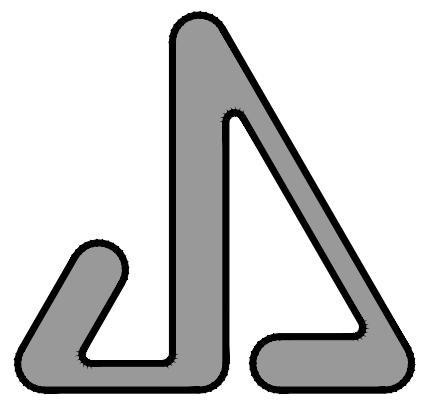
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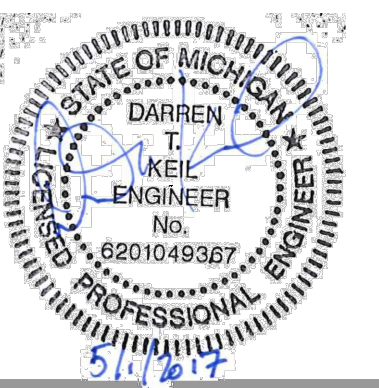
**E302**

OF



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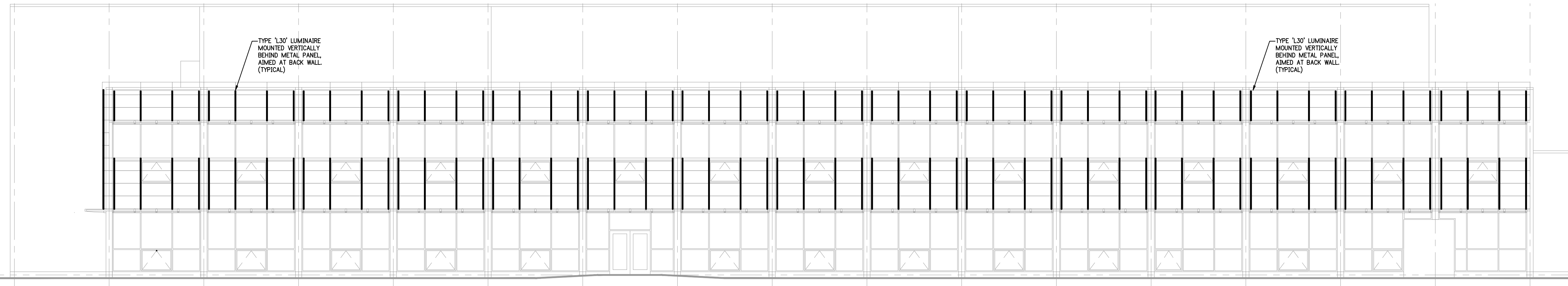
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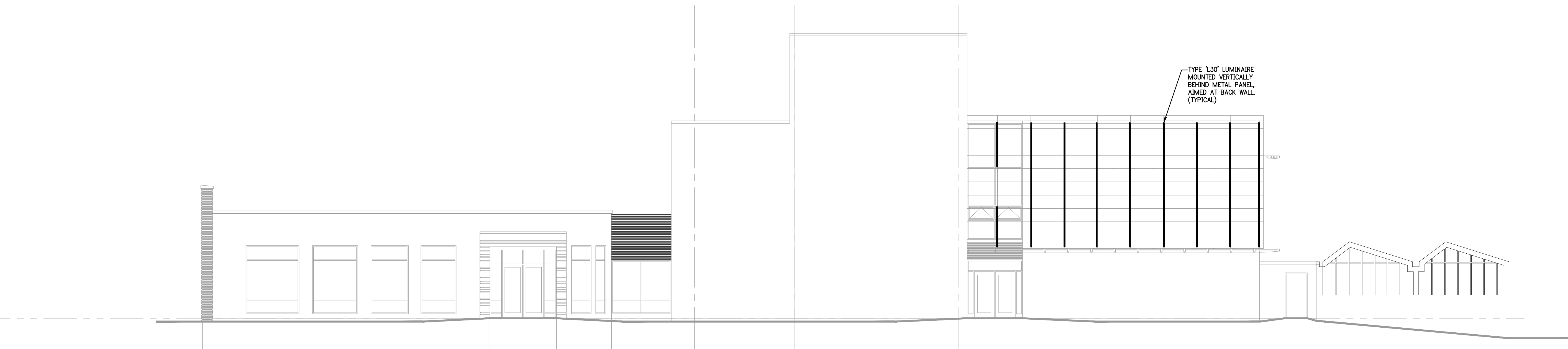
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**PARTIAL FIRST  
 AND SECOND FLOOR  
 PLAN - LIGHTING  
 ALTERNATE NO.2**



**SOUTH ELEVATION - EXTERIOR LIGHTING - ALTERNATE NO.2**  
 SCALE: 1/8"=1'-0"



**WEST ELEVATION - EXTERIOR LIGHTING - ALTERNATE NO.2**  
 SCALE: 1/8"=1'-0"

06.12.17 CONSTRUCTION  
 06.05.17 BUREAU OF FIRE SERVICES  
 5.1.17 PERMIT  
 5.1.17 BIDS

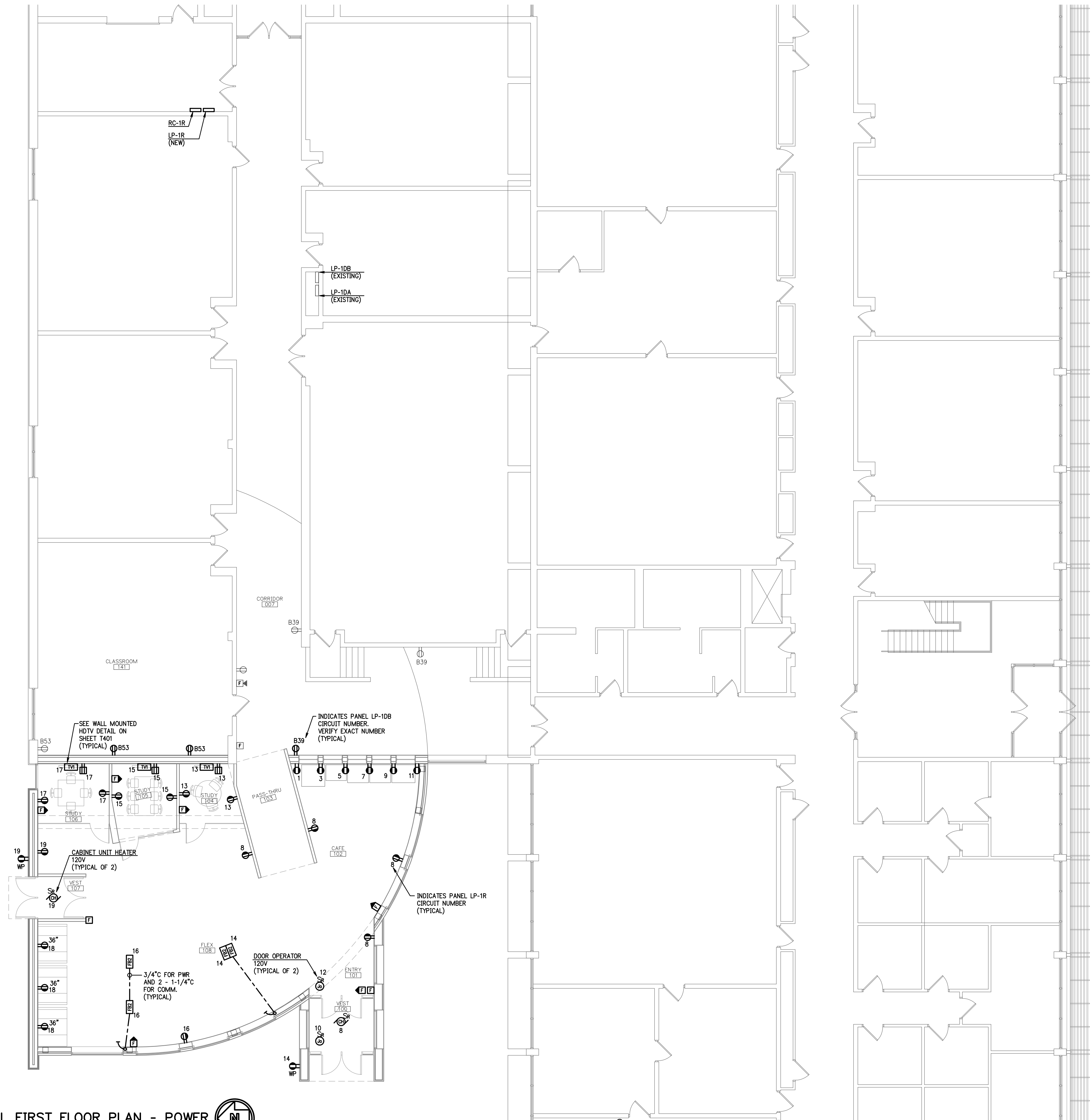
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**E303**

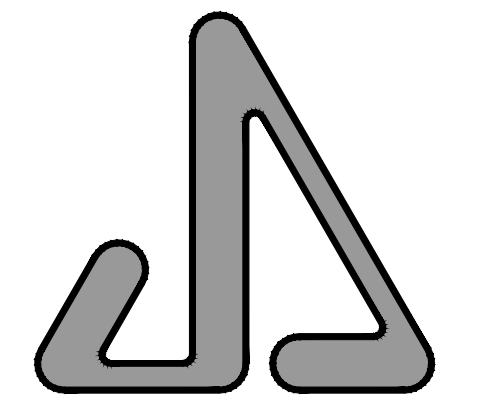
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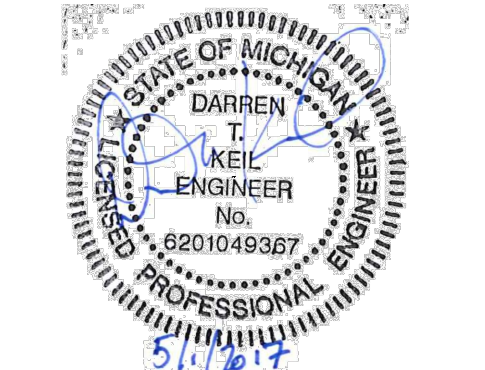
**PARTIAL FIRST FLOOR PLAN - POWER**  
 SCALE: 1/8"=1'-0"

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 Plotted by: Chris Lockett Plot Date: 6/12/2017 4:11 PM Save Date: 6/12/2017 4:06 PM File Name: J017045-E401-EPI.DWG



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**PARTIAL  
 FLOOR PLAN  
 POWER**

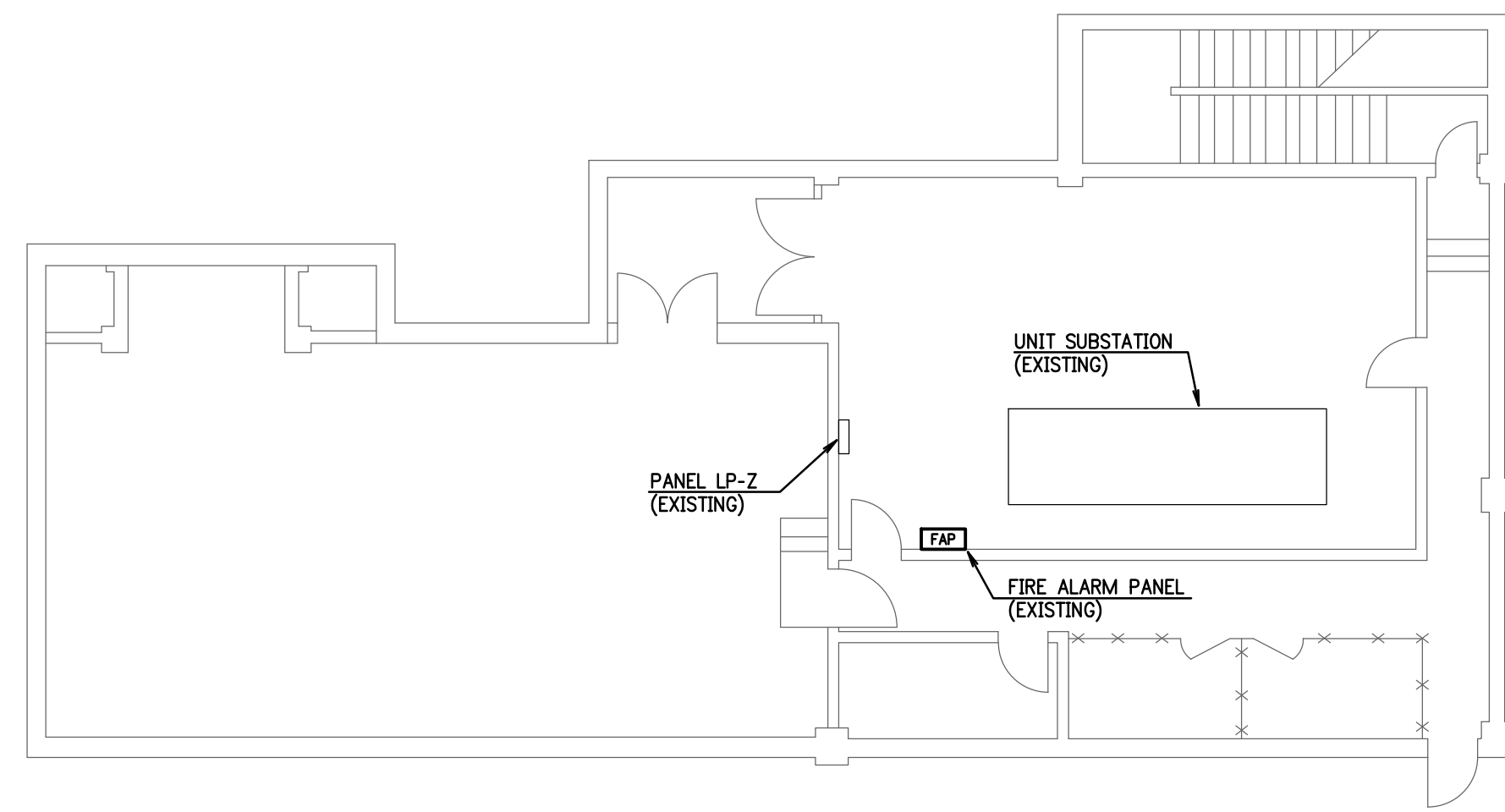
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 5.1.17 PERMIT  
 5.1.17 BIDS  
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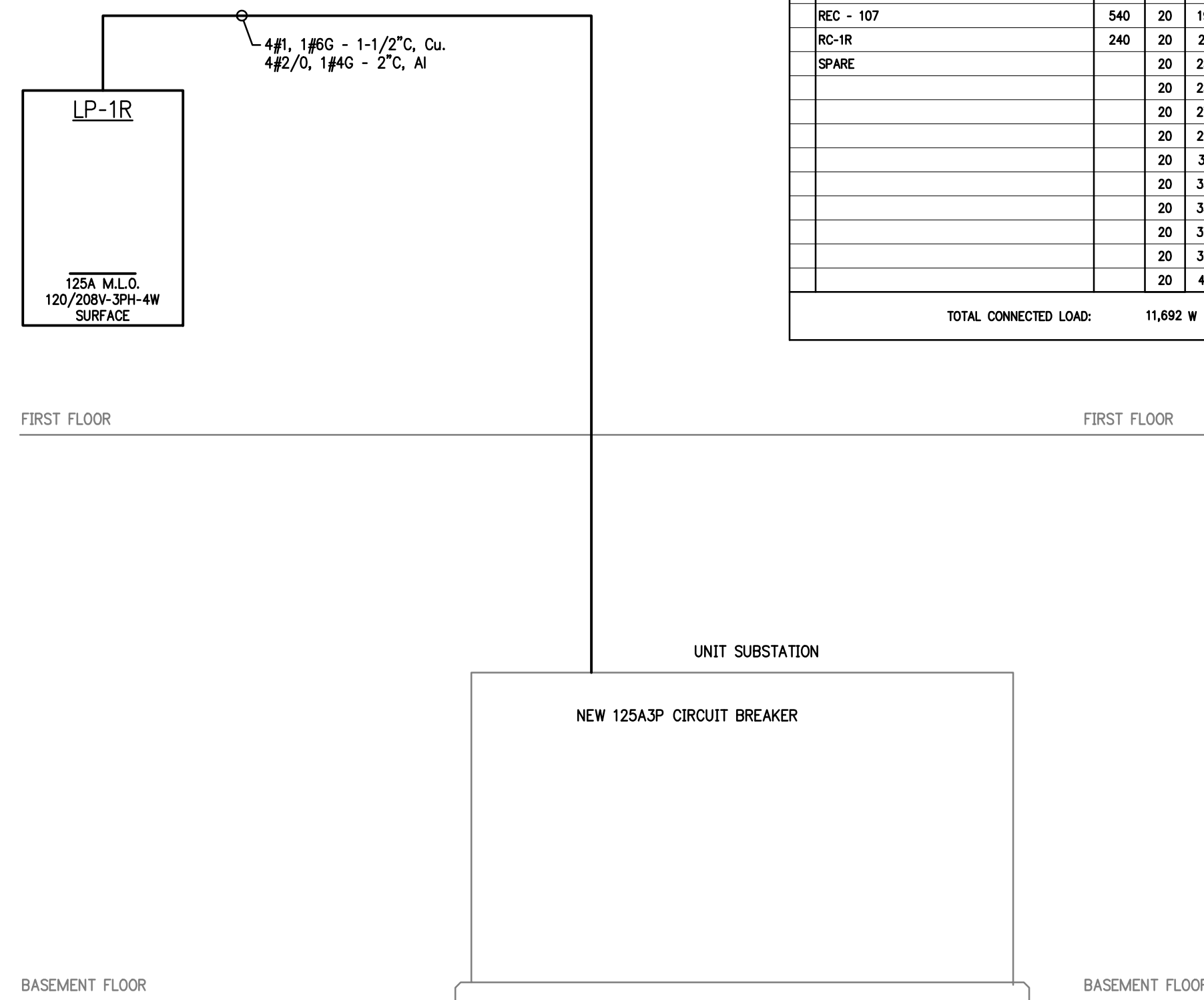
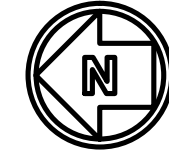
**E401**  
 OF

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**PARTIAL BASEMENT FLOOR PLAN - POWER**

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

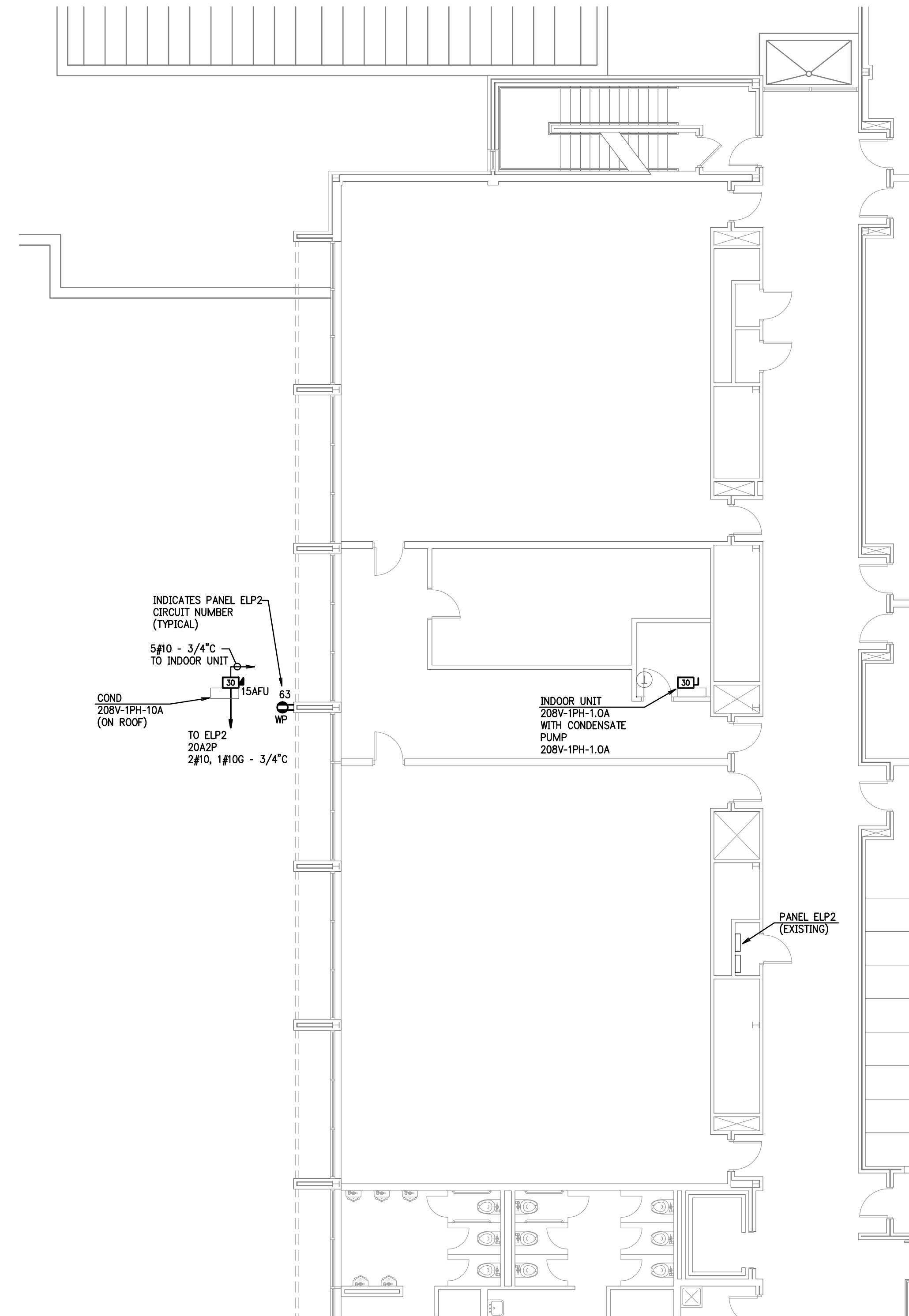


**PANEL RISER**

SCALE: NONE

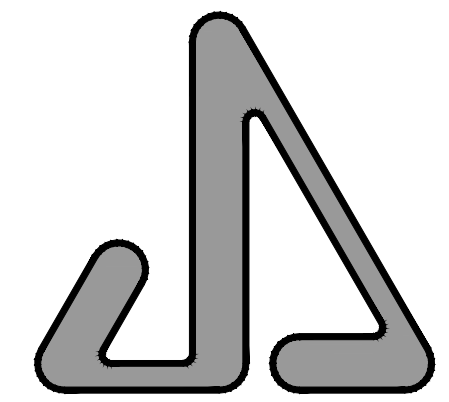
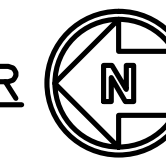
LP-1R											
125A-M.L.O.			VOLTAGE: 120/208V-3PH-4W						SURFACE		
LOAD DESCRIPTION	LOAD	BKR AMP	BKR No	PH	BKR No	BKR AMP	LOAD	LOAD DESCRIPTION	LOAD	BKR AMP	NOTES
VENDIND - 102	180	20	1	A	2	20	1,438	LTG - 100,01,07,08			
VENDIND - 102	180	20	3	B	4	20	1,178	LTG - 102,03,08			
VENDIND - 102	180	20	5	C	6	20		SPARE			
VENDIND - 102	180	20	7	A	8	20	900	REC - 100,01,02			
VENDIND - 102	180	20	9	B	10	20	1,000	DOOR OPERATOR - 101			
VENDIND - 102	180	20	11	C	12	20	1,000	DOOR OPERATOR - 100			
REC - 104	900	20	13	A	14	20	540	REC - 108			
REC - 105	900	20	15	B	16	20	540	REC - 108			
REC - 106	900	20	17	C	18	20	540	REC - 108			
REC - 107	540	20	19	A	20	20		SPARE			
RC-1R	240	20	21	B	22	20		SPARE			
SPARE		20	23	C	24	20		SPARE			
		20	25	A	26	20					
		20	27	B	28	20					
		20	29	C	30	20					
		20	31	A	32	20					
		20	33	B	34	20					
		20	35	C	36	20					
		20	37	A	38	20					
		20	39	B	40	20					
		20	41	C	42	20					
TOTAL CONNECTED LOAD:		11,692 W			32 AMPS						

2017-05-02



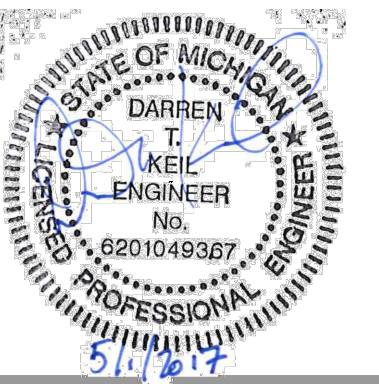
**PARTIAL SECOND FLOOR PLAN - POWER**

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



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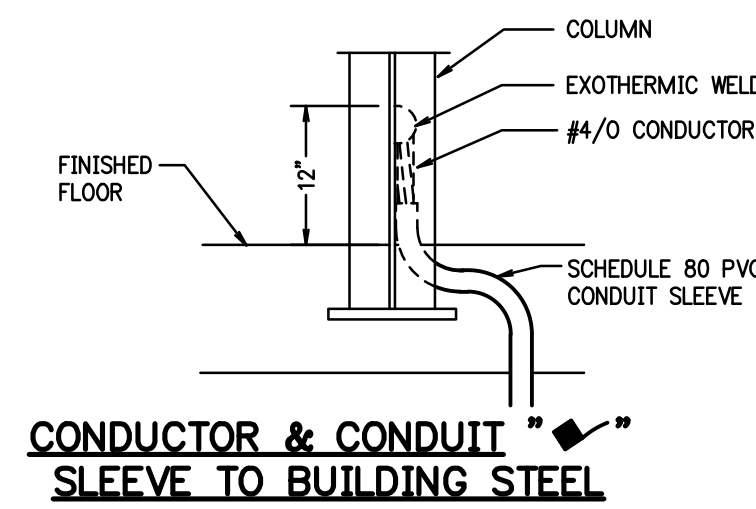
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PARTIAL  
 FLOOR PLAN  
 POWER

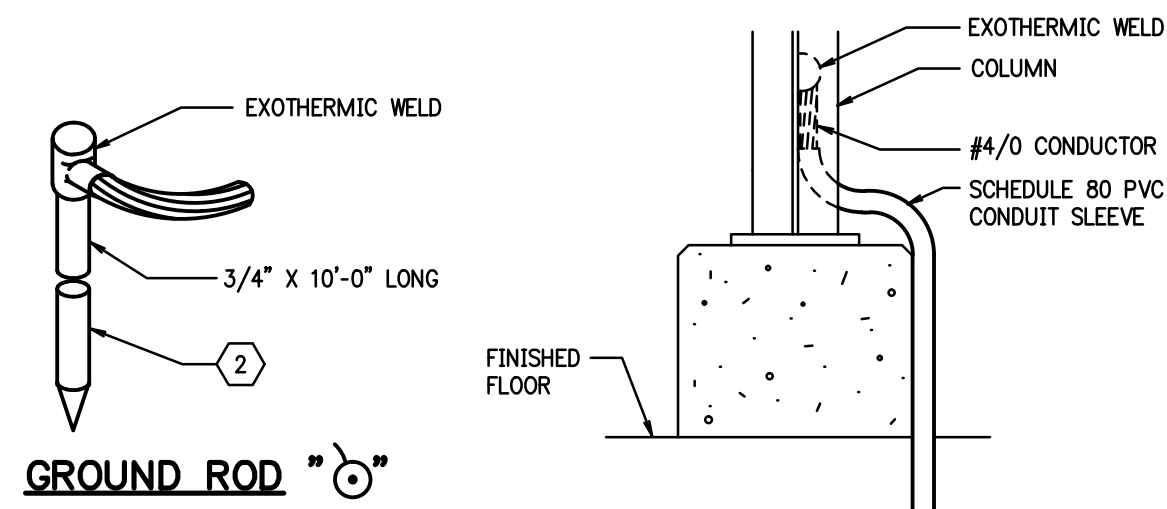
06.12.17	CONSTRUCTION
08.05.17	BUREAU OF FIRE SERVICES
5.1.17	PERMIT
5.1.17	BIDS
DATE:	ISSUED FOR:
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REVIEW'D	DTK
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**E402**

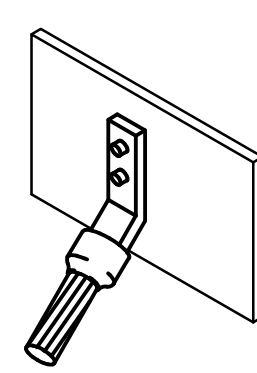
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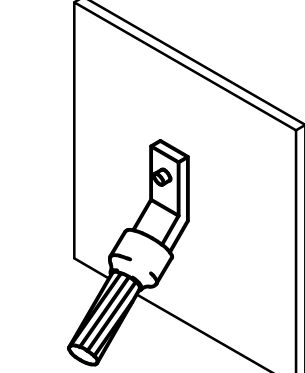
**CONDUCTOR & CONDUIT "SLEEVE" TO BUILDING STEEL**



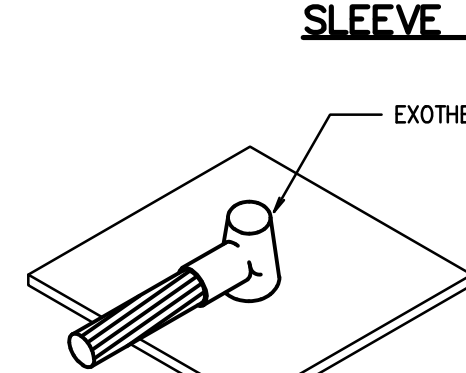
**GROUND ROD "SLEEVE" TO BUILDING STEEL**



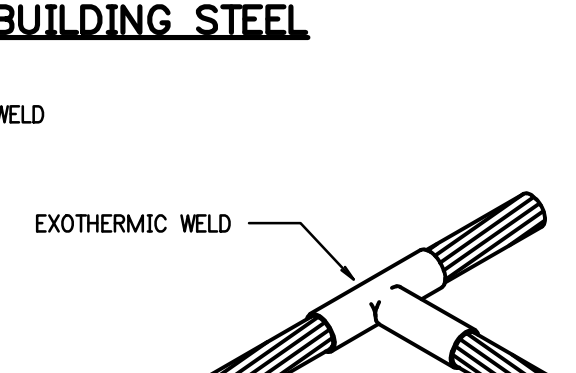
**CONDUCTOR TO GROUND BAR**



**EQUIPMENT GROUND**



**CONDUCTOR TO BUILDING STEEL**



**CONDUCTOR JUNCTION**

**GROUNDING NOTES:**

- GROUNDING CONDUCTOR SHALL BE LAID SLACK A MINIMUM OF 18" BELOW FINISHED GRADE (30" BELOW FINISHED GRADE WHERE GROUNDING RING EXISTS).
- GROUND RODS SHALL BE LOCATED A MINIMUM OF 10'-0" AWAY FROM BUILDING. GROUND CONDUCTOR FROM BUILDING THROUGH FOUNDATION SHALL BE INSTALLED IN SCHEDULE 80 PVC CONDUIT.
- GROUND RESISTANCE SHALL BE 3 OHMS MAXIMUM. ADDITIONAL RODS OR ROD EXTENSIONS SHALL BE DRIVEN TO OBTAIN THIS VALUE BY TEST.
- ALL GROUND CONDUCTORS SHALL BE A #4/0-7 STRAND SOFT, BARE COPPER CONDUCTOR MINIMUM, UNLESS NOTED OTHERWISE IN THESE DRAWINGS OR SPECIFICATIONS

**GROUNDING DETAILS**

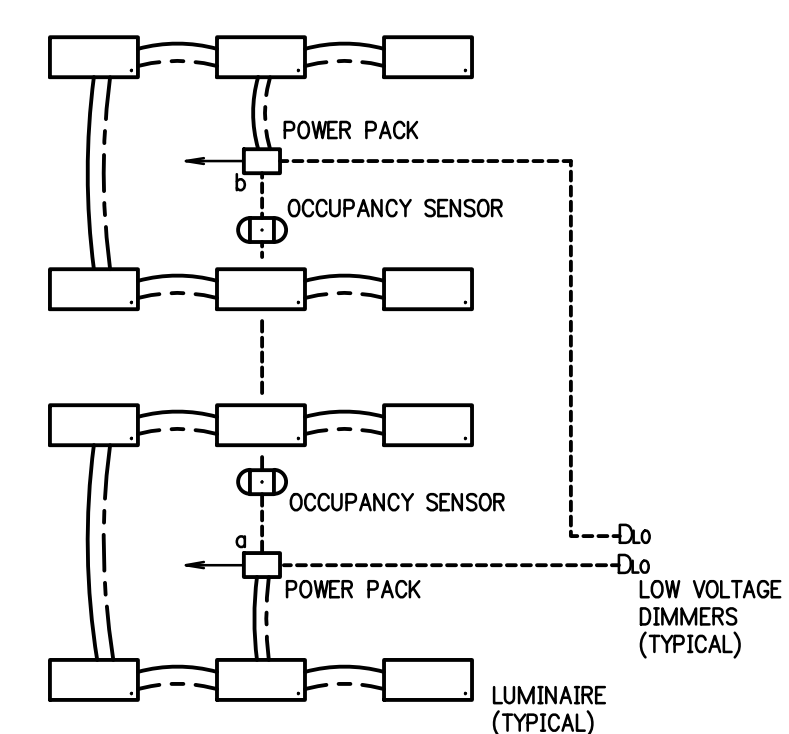
SCALE: NONE

WIRE SIZING TABLE		
FOR 120V-20A BRANCH CIRCUITS ONLY, UNLESS OTHERWISE NOTED		
IF DISTANCE A+B IN FEET IS: (SEE DIAGRAM AT RIGHT)	USE COPPER WIRE IN METALLIC CONDUIT, AWG SIZE AS FOLLOWS ON ENTIRE CIRCUIT AND SIZE CONDUIT ACCORDINGLY:	
0' TO 100'	#12 (MIN.)	
100' TO 175'	#10	
175' TO 300'	#8	
300' TO 450'	#6 (MAX.)	

THESE TABLES ARE BASED ON AN EVENLY DISTRIBUTED LOAD ALLOWING A 3% VOLTAGE DROP AT LAST OUTLET; APPLY ACCORDINGLY.

**LEGEND**

- LOW VOLTAGE CAT-5e CABLE
- LOW VOLTAGE 0-10VDC WIRES
- LINE VOLTAGE
- LINE VOLTAGE FEED
- MANUFACTURERS: COOPER CONTROLS, GREENGATE, HUBBELL-AUTOMATION, LEVITON, NLIGHT, SENSOR SWITCH, WATT STOPPER



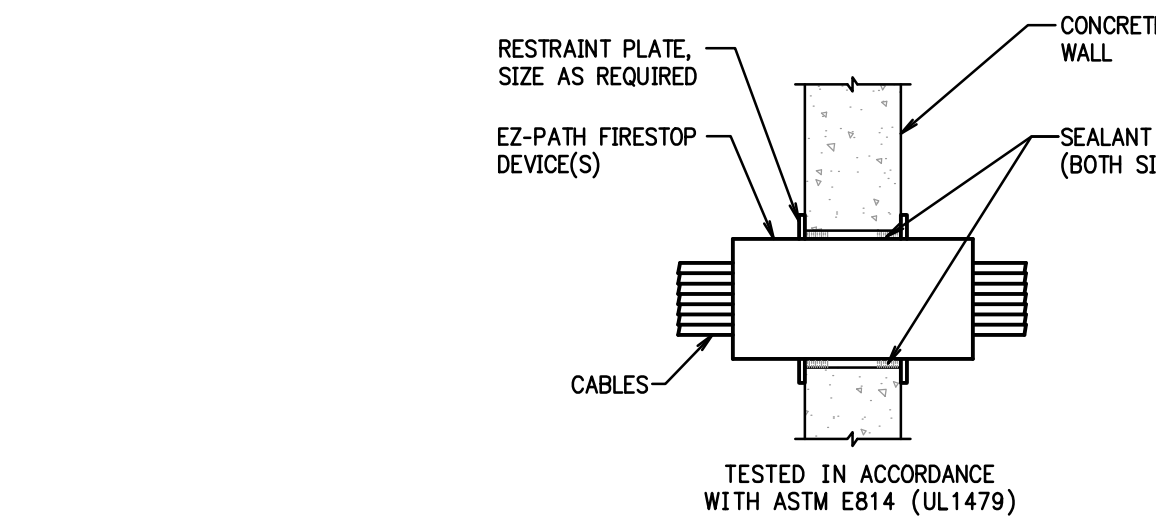
**TYPICAL ROOM LIGHTING SYSTEM LAYOUT WITH AND WITHOUT 0-10V DIMMING WIRING DIAGRAM**

SCALE: NONE

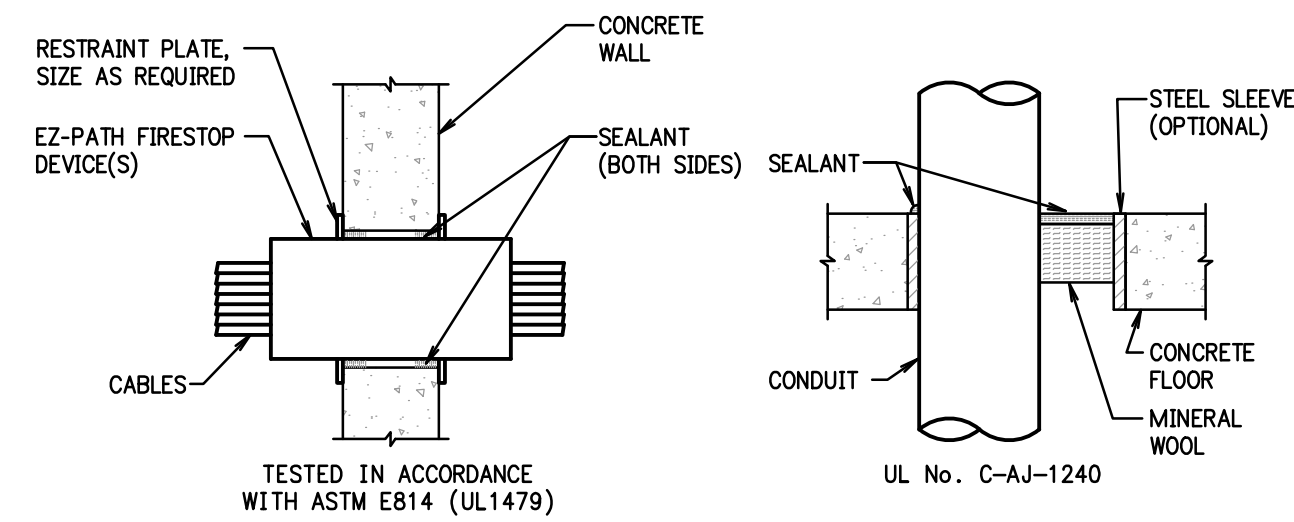
WIRE LEGEND		CONDUCTORS IN CONDUIT ONLY (THHN)	
CABLE	DESCRIPTION	SIZE AND TYPE	COLOR
C	CONTROL CIRCUIT	2#14 THHN	1-ORANGE (+), 1-BROWN (-)
M	ADDRESSABLE CIRCUIT	2#18 TW, SH. PR. WP 975	1-RED (+), 1-BLACK (-)
P	POWER/DOOR HOLDER	2#14 THHN	2-GRAY
S	SIGNAL CIRCUIT	2#14 THHN	1-RED (+), 1-BLACK (-)
N	REMOTE ANNUNCIATOR	2#18 TW, SH. PR. WP 975 & 2#14 THHN	1-RED (+), 1-BLACK (-)

**WIRE LEGEND NOTES:**

- SPECIFIED CABLES BASED UPON WEST PENN, ACCEPTABLE APPROVED CABLE MANUFACTURERS INCLUDE BELDEN, ATLAS, BSCC, AND REMEE.



**CONCRETE/MASONRY FLOOR & WALLS**



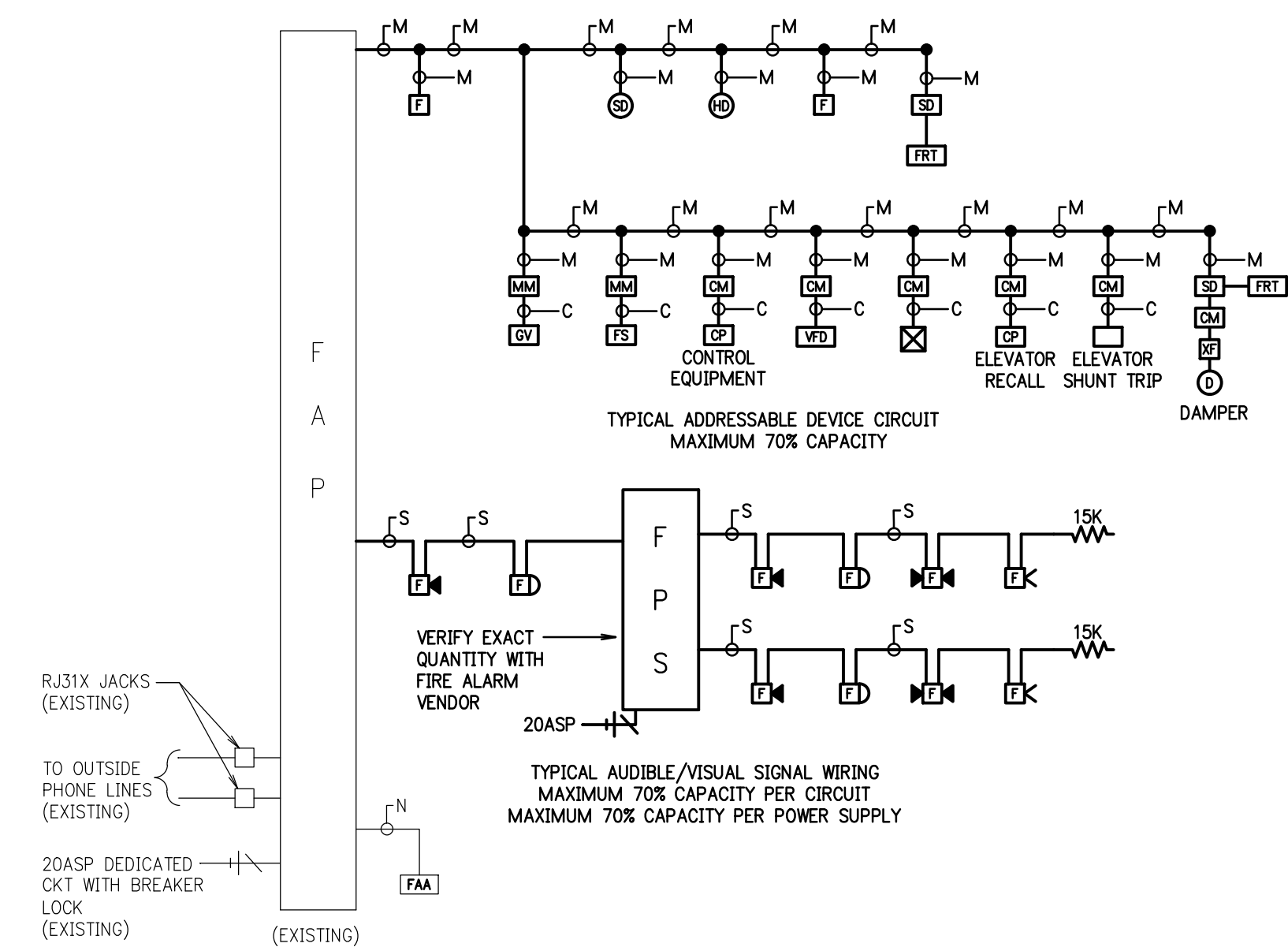
**GYPSON WALLBOARD ASSEMBLIES**

**NOTES:**

- CABLE AND CONDUIT PENETRATION DETAILS ARE BASED ON A UL LISTED 2 HOUR FIRE RATED ASSEMBLY (MINIMUM) UTILIZING STI FIRESTOP PRODUCTS. MANUFACTURER'S SHALL BE STI, HILTI, 3M OR APPROVED EQUAL. REFER TO MANUFACTURER'S SPECIFICATIONS AND INSTALLATION DETAILS FOR EXACT INSTALLATION METHODS.
- PACKING AND SEALANT DEPTHS SHALL BE PER MANUFACTURER'S SPECIFICATIONS FOR UL ASSEMBLY RATING COMPLIANCE.
- ALL FIRE STOP LOCATIONS SHALL BE LABELED AT POINT OF PENETRATION LABEL SHALL IDENTIFY FIRE STOPPING MATERIAL, U.L. LISTING NUMBER AND HOUR RATING OF WALL/FLOOR.

**CONDUIT/CABLE PENETRATIONS THROUGH RATED ASSEMBLIES**

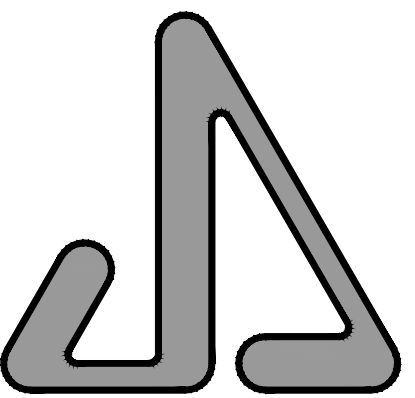
SCALE: NONE



**FIRE ALARM RISER**

(ADDRESSABLE HORN/STROBES)

SCALE: NONE

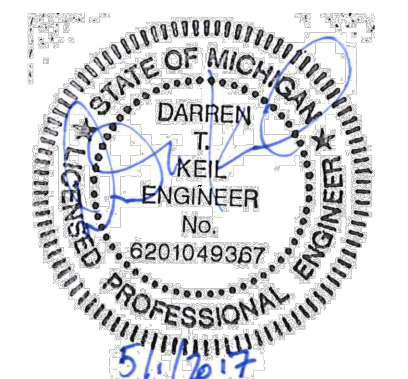


JAMES S. JACOBS ARCHITECTS, PLLC

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EXTERIOR FACADE IMPROVEMENTS & BUILDING ADDITION FOR:

MONROE COUNTY COMMUNITY COLLEGE

LIFE SCIENCE BUILDING

1555 S. RAISINVILLE ROAD  
MONROE, MICHIGAN 48161

PROPERTY OWNER CONTACT:  
MR. JACK BURNS  
1555 S. RAISINVILLE ROAD  
MONROE, MICHIGAN 48161  
TELEPHONE: (734) 384-4249

**ELECTRICAL DETAILS**

06.12.17 CONSTRUCTION  
08.05.17 BUREAU OF FIRE SERVICES  
5.1.17 PERMIT  
5.1.17 BIDS

DATE: ISSUED FOR:

DRAWN CPL

REVIEW'D DTK

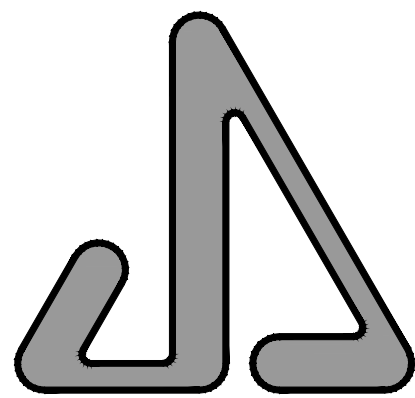
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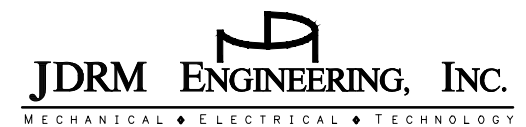




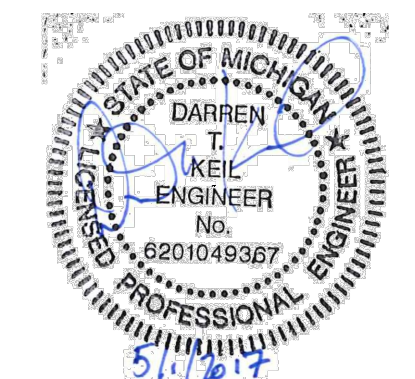


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# ELECTRICAL SPECIFICATION

## DELIVERY, STORAGE AND HANDLING:

STORE POLES ON DECAY-RESISTANT-TREATED SKIDS AT LEAST 12 INCHES (300 MM) ABOVE GRADE AND VEGETATION. SUPPORT POLES TO PREVENT DISTORTION AND ARRANGE TO PROVIDE FREE AIR CIRCULATION.

HANDLE WOOD POLES SO THEY WILL NOT BE DAMAGED. DO NOT USE POINTED TOOLS THAT CAN INDENT POLE SURFACE MORE THAN 1/4 INCH (6 MM) DEEP. DO NOT APPLY TOOLS TO SECTION OF POLE TO BE INSTALLED BELOW GROUND LINE.

RETAIN FACTORY-APPLIED POLE WRAPPINGS ON FIBERGLASS AND LAMINATED WOOD POLES UNTIL RIGHT BEFORE POLE INSTALLATION. HANDLE POLES WITH WEB FABRIC STRAPS.

RETAIN FACTORY-APPLIED POLE WRAPPINGS ON METAL POLES UNTIL RIGHT BEFORE POLE INSTALLATION. HANDLE POLES WITH WEB FABRIC STRAPS.

## EXTRA MATERIALS:

EXIT SIGNS: FURNISH 10% EXTRA (MINIMUM OF 2) EXIT SIGNS, INCLUDING UP TO 50 FEET OF CONDUIT AND WIRING FOR EACH SIGN.

FURNISH 10% (MINIMUM OF 1) ADDITIONAL OF EACH LAMP TYPE AND RATING INSTALLED.

FURNISH 1% (MINIMUM OF 1) ADDITIONAL OF EACH BALLAST TYPE AND RATING INSTALLED.

FURNISH 1% (MINIMUM OF 1) ADDITIONAL OF EACH DRIVER TYPE.

EXTRA MATERIALS SHALL BE MATERIALS MATCHING IDENTICALLY INSTALLED PRODUCTS AND SHALL BE FURNISHED IN PACKAGING THAT IDENTIFIES AND PROTECTS THE PRODUCT FOR STORAGE.

## B. PRODUCTS:

### LUMINAIRES:

SURFACE MOUNTED LUMINAIRES WITH LABELS, STICKERS, EMBLEMS THAT ARE VISIBLE AFTER LUMINAIRE IS INSTALLED SHALL HAVE ALL VISIBLE LABELS EXCEPT "UL" LABEL REMOVED.

ACRYLIC LENSES FOR RECESSED FLUORESCENT LUMINAIRES SHALL BE 0.125 THICK, AND SHALL BE KSH 12 OR DB 12 UNLESS OTHERWISE NOTED.

SURFACE MOUNTED LUMINAIRES IN FINISHED AREAS SHALL CONTAIN NO VISIBLE KNOCKOUTS.

ALL NON-METALLIC LOUVERS MUST MEET STATE AND LOCAL REGULATIONS REGARDING FLAME SPREAD AND SMOKE DENSITY GENERATION.

EXPOSED FASTENERS SHALL BE FLUSH WITH ADJACENT SURFACE WITH MATCHING FINISH. MOUNTING HARDWARE SHALL BE CONCEALED WHERE FEASIBLE.

RECESSED FLUORESCENT LUMINAIRE HOUSINGS SHALL BE PAINTED AFTER FABRICATION WITH ELECTROSTATICALLY APPLIED BAKED WHITE ENAMEL WITH A MINIMUM REFLECTANCE OF 88%.

ALL DOORS SHALL HAVE MITERED CORNERS WITH WHITE FINISH UNLESS OTHERWISE NOTED.

LAMP SOCKETS SHALL BE KEYS TO LAMP BASE FOR POSITION ORIENTED LAMPS AND FOR OPEN/ENCLOSED RATINGS AS REQUIRED FOR EACH LUMINAIRE.

LUMINAIRES SHALL COMPLY WITH UL-1598 AND BE LISTED AND LABELED FOR INSTALLATION IN WET LOCATIONS BY AN NRTL ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.

METAL PARTS: FREE OF BURRS AND SHARP CORNERS AND EDGES.

SHEET METAL COMPONENTS: CORROSION-RESISTANT ALUMINUM, UNLESS OTHERWISE INDICATED. FORM AND SUPPORT TO PREVENT WARPING AND SAGGING.

HOUSINGS: RIGIDLY FORMED, WEATHER- AND LIGHT-TIGHT ENCLOSURES THAT WILL NOT WARP, SAG OR DEFORM IN USE. PROVIDE FILTER/BREATHER FOR ENCLOSED LUMINAIRES.

DOORS, FRAMES AND OTHER INTERNAL ACCESS: SMOOTH OPERATING, FREE OF LIGHT LEAKAGE UNDER OPERATING CONDITIONS, AND DESIGNED TO PERMIT RELAMPING WITHOUT USE OF TOOLS. DESIGNED TO PREVENT DOORS, FRAMES, LENSES, DIFFUSERS AND OTHER COMPONENTS FROM FALLING ACCIDENTALLY DURING RELAMPING AND WHEN SECURED IN OPERATING POSITION. DOORS SHALL BE REMOVABLE FOR CLEANING OR REPLACING LENSES. DESIGNED TO DISCONNECT BALLAST WHEN DOOR OPENS.

EXPOSED HARDWARE MATERIAL ON EXTERIOR LUMINAIRES: STAINLESS STEEL

PLASTIC PARTS: HIGH RESISTANCE TO YELLOWING AND OTHER CHANGES DUE TO AGING, EXPOSURE TO HEAT, AND UV RADIATION.

LIGHT SHIELDS: METAL Baffles, FACTORY INSTALLED AND FIELD ADJUSTABLE, ARRANGED TO BLOCK LIGHT DISTRIBUTION TO INDICATED PORTION OF NORMALLY ILLUMINATED AREA OF FIELD.

REFLECTING SURFACES SHALL HAVE MINIMUM REFLECTANCE AS FOLLOWS, UNLESS OTHERWISE INDICATED:

- WHITE SURFACES: 85 PERCENT
- SPECULAR SURFACES: 83 PERCENT
- DIFFUSING SPECULAR SURFACES: 75 PERCENT

LENSES AND REFRACTORS GASKETS: USE HEAT- AND AGING RESISTANT GASKETS TO SEAL AND CUSHION LENSES AND REFRACTORS IN LUMINAIRE DOORS.

FACTORY-APPLIED FINISH FOR STEEL LUMINAIRES: COMPLY WITH NAAMMS "METAL FINISHES MANUAL FOR ARCHITECTURAL AND METAL PRODUCTS" FOR RECOMMENDATIONS FOR APPLYING AND DESIGNATING FINISHES.

### LED DRIVERS:

THE LED DRIVERS SHALL BE MATCHED TO THE LED MODULE SYSTEM PROVIDED IN THE LUMINAIRE. THE DRIVER SHALL INCLUDE THE FOLLOWING FEATURES:

- 0-10V DIMMING CONTROL TO PROVIDE LUMINAIRE DIMMING TO 10% LIGHT OUTPUT MINIMUM.
- RATED TO 100,000 HOUR OPERATION.
- MOISTURE AND VIBRATION PROTECTION TO THE ELECTRONICS.
- MODULE TEMPERATURE CONTROL PROTECTION.
- CONSTANT LIGHT OUTPUT TO REGULATE THE LIGHT OUTPUT OVER THE LIFE OF THE LUMINAIRE.
- END OF LIFE SIGNAL.

## C. EXECUTION:

### INSTALLATION:

PROVIDE STRUCTURAL SUPPORT FOR RECESSED LUMINAIRES AS REQUIRED BY CODE AND/OR LOCAL AUTHORITY HAVING JURISDICTION.

INSTALL LAMPS IN ALL LUMINAIRES INSTALLED UNDER THIS CONTRACT AND FURNISHED WITH EQUIPMENT IN ACCORDANCE WITH THE LUMINAIRE SCHEDULE, OR AS REQUIRED. LAMPS SHALL BE NEW AND UNUSED PRIOR TO INSTALLATION. ALL LAMPS SHALL BE IN WORKING ORDER AT THE TIME OF FINAL ACCEPTANCE OF THE WORK BY THE OWNER AND THE ENGINEER/ARCHITECT.

ONLY THE NUMBER OF LAMPS AND TUBES REQUIRED TO PROVIDE ADEQUATE LIGHTING FOR WORK YET TO BE DONE IN EACH AREA, AND ACCEPTABLE LIGHTING ELSEWHERE AS DETERMINED BY THE ENGINEER/ARCHITECT SHALL BE INSTALLED BY THE CONTRACTOR AT THE TIME LUMINAIRES ARE INSTALLED AND TESTED. REMAINING LAMPS AND TUBES ARE TO BE INSTALLED NOT MORE THAN TEN DAYS PRIOR TO ACCEPTANCE OF THE PROJECT BY THE OWNER. ALL INCANDESCENT LAMPS UTILIZED DURING CONSTRUCTION SHALL HAVE NEW LAMPS INSTALLED

NOT MORE THAN TEN DAYS PRIOR TO ACCEPTANCE OF THE BUILDING BY THE OWNER.

LUMINAIRES UTILIZING STRAIGHT TUBE FLUORESCENT, COMPACT FLUORESCENT LAMPS, OR DOUBLE-ENDED H.I.D. LAMPS SHALL BE INSTALLED SUCH THAT ALL LAMPS ARE PARALLEL WITH RESPECT TO EACH OTHER.

CONTRACTOR SHALL PROVIDE MANUFACTURER PRODUCT SAFETY DATA SHEETS FOR ALL LAMP AND BALLAST TYPES. THE DATA SHEETS SHALL BE INCLUDED IN THE PROJECT "OPERATIONS AND MAINTENANCE" MANUALS.

CONTRACTOR SHALL INSTALL EXTRA EXIT SIGNS AS DIRECTED. EXTRA SIGNS NOT INSTALLED SHALL BE TURNED OVER TO THE OWNER.

LUMINAIRES THAT ARE AIMABLE SHALL BE ADJUSTED AS DIRECTED.

EXTERIOR LUMINAIRES SHALL HAVE IN-LINE FUSES INSTALLED IN POLE AT HANDHOLE IN ADDITION TO INTERNAL PROTECTION.

LUMINAIRES SHALL BE INSTALLED PERPENDICULAR AND PARALLEL TO WALLS AND CEILING. LUMINAIRES SHALL BE SET LEVEL AND PLUMB.

MASTER-SATELLITE LUMINAIRES SHALL BE INSTALLED WITH AN ADHESIVE RED DOT STICKER ON THE MASTER LIGHT LUMINAIRE DOOR FRAME TO INDICATE THE LUMINAIRE HOUSING THE BALLASTS.

### CLEANING:

- REMOVE DIRT, DEBRIS AND BUGS FROM ENCLOSURES.
- CLEAN PHOTOMETRIC CONTROL SURFACES AS RECOMMENDED BY MANUFACTURER.

FOR DIMMED FLUORESCENT LUMINAIRES, THE CONTRACTOR SHALL BURN IN THE FLUORESCENT LAMPS AT FULL INTENSITY FOR A PERIOD OF 100 HOURS PRIOR TO OPERATING DIMMING FUNCTION OF THE DIMMING BALLAST.

### POLE INSTALLATION:

ALIGN POLE FOUNDATIONS AND POLES FOR OPTIMUM DIRECTIONAL ALIGNMENT OF LUMINAIRES AND THEIR MOUNTING PROVISIONS ON THE POLE. POLES SHALL BE ADJUSTED TO BE PLUMB AND LEVEL IN ALL DIRECTIONS.

POLES AND CONCRETE BASES SHALL BE INSTALLED CONFORMING TO THE FOLLOWING WITH RESPECT TO LOCATIONS:

- EXACT LOCATIONS SHALL BE COORDINATED WITH CIVIL AND LANDSCAPE DRAWINGS.
- POLES SHOWN AT EDGE OF PARKING LOTS SHALL BE INSTALLED WITH EDGE OF BASE NO CLOSER THAN 4" TO THE EDGE OF THE PARKING LOT.
- POLES INSTALLED IN THE PARKING LOT AND WITHIN 5'-0" OF THE PERIMETER OF THE PARKING LOT SHALL BE INSTALLED ON A CONCRETE BASE EXTENDING NO LESS THAN 27" ABOVE FINAL GRADE.
- POLES SHALL BE INSTALLED MAINTAINING A MINIMUM HORIZONTAL DISTANCE OF 5'-0" FROM FIRE HYDRANTS, STORM DRAINAGE PIPING, WATER, GAS, ELECTRIC, COMMUNICATIONS AND SEWER LINES.
- POLES SHALL BE INSTALLED MAINTAINING A MINIMUM HORIZONTAL DISTANCE OF 15'-0" FROM TREES.

CONCRETE POLE FOUNDATIONS SHALL BE CAST-IN-PLACE, WITH ANCHOR BOLTS TO MATCH POLE-BASE FLANGE. CONCRETE POLE FOUNDATION SHALL BE AS DETAILED ON DRAWINGS.

FOUNDATION-MOUNTED POLES SHALL BE INSTALLED WITH LEVELING NUTS. TIGHTEN TOP NUTS TO TORQUE LEVEL RECOMMENDED BY POLE MANUFACTURER.

- GROUT VOID BETWEEN POLE BASE AND FOUNDATION. USE NON-SHRINK OR EXPANDING CONCRETE GROUT FIRMLY PACKED TO FILL SPACE.
- INSTALL BASE COVERS, UNLESS OTHERWISE INDICATED.
- MAKE A DRAIN HOLE THROUGH GROUT TO DRAIN CONDENSATION FROM INTERIOR OF POLE.

RAISE AND SET POLES USING WEB FABRIC SLINGS (NOT CHAIN OR CABLE). LUMINAIRES SHALL BE INSTALLED ON POLES PRIOR TO ERECTION OF THE POLES ON THE BASE. UNDER NO CIRCUMSTANCE SHALL POLES BE ERECTED WITHOUT LUMINAIRES MOUNTED.

### CORROSION PREVENTION:

ALUMINUM: DO NOT USE IN CONTACT WITH EARTH OR CONCRETE. WHEN IN DIRECT CONTACT WITH A DISSIMILAR METAL, PROTECT ALUMINUM BY INSULATING FITTINGS OR TREATMENT.

STEEL CONDUITS: IN CONCRETE FOUNDATIONS, WRAP CONDUIT WITH 0.010-INCH THICK, PIPE-WRAPPING PLASTIC TAPE APPLIED WITH A 50 PERCENT OVERLAP.

### FIELD QUALITY CONTROL:

EMERGENCY LIGHTING UNITS SHALL BE TESTED FOR ILLUMINATION AND NORMAL POWER/BATTERY POWER TRANSFER.

LUMINAIRES AND LAMPS SHALL BE TESTED FOR NORMAL OPERATION AND ILLUMINATION.

INSPECT EACH INSTALLED LUMINAIRE FOR DAMAGE. REPLACE DAMAGED LUMINAIRES AND COMPONENTS.

LUMINAIRES AND LAMPS SHALL BE TESTED FOR NORMAL OPERATION AND ILLUMINATION.

ILLUMINATION OBSERVATIONS: VERIFY NORMAL OPERATION OF LIGHTING UNITS AFTER INSTALLING LUMINAIRES AND ENERGIZING CIRCUITS WITH NORMAL POWER SOURCE.

- VERIFY OPERATION OF PHOTOELECTRIC CONTROLS.

PREPARE A WRITTEN REPORT OF TESTS, INSPECTIONS, OBSERVATIONS AND VERIFICATIONS INDICATING AND INTERPRETING RESULTS. IF ADJUSTMENTS ARE MADE TO LIGHTING SYSTEM, RETEST TO DEMONSTRATE COMPLIANCE WITH STANDARDS.

## SECTION 28 3101 - FIRE ALARM - ADDRESSABLE

### A. GENERAL:

PROVIDE A COMPLETE, ADDRESSABLE FIRE ALARM SYSTEM TO BE CONNECTED, TESTED AND LEFT IN FIRST-CLASS OPERATING CONDITION. ALL EQUIPMENT HEREIN SPECIFIED SHALL BE MANUFACTURED BY EDWARDS OR ENGINEER APPROVED EQUAL BY SIMPLEX OR NOTIFIER AND SHALL BE LISTED BY UNDERWRITERS LABORATORIES. THE ENTIRE INSTALLATION SHALL CONFORM TO THE NATIONAL FIRE PROTECTION ASSOCIATION STANDARDS ARTICLE 72, N.E.C. AND LOCAL AUTHORITIES HAVING JURISDICTION.

THE FIRE ALARM SYSTEM SHALL MONITOR THE INTEGRITY OF ALL ALARM INITIATING AND INDICATING APPLIANCE CIRCUITS, AND SHALL BE PROVIDED WITH AUTOMATICALLY CHARGED STANDBY BATTERIES TO MAINTAIN SYSTEM OPERATION FOR (24-HOURS) IN THE NORMAL SUPERVISORY MODE, PLUS HAVE SUFFICIENT CAPACITY TO OPERATE IN THE ALARM MODE FOR 5-MINUTES AT THE CONCLUSION OF THIS SUPERVISORY TIME PERIOD. BATTERIES SHALL BE SUPERVISED FOR CONNECTION TO THE SYSTEM AND A LOW VOLTAGE THRESHOLD. THE AUTOMATIC BATTERY CHARGER SHALL BE CAPABLE OF CHARGING FULLY DISCHARGED SYSTEM BATTERIES TO (70% CAPABILITY IN 12-HOURS) FOR SYSTEMS WITH 24-HOURS OF STANDBY.

THE MANUFACTURER SHALL SUPPLY THE OWNER WITH BUILDING WIRING PRINTS, EQUIPMENT, SCHEMATICS AND NECESSARY TOOLS TO MAINTAIN THE SYSTEM ALONG WITH EQUIPMENT OPERATING INSTRUCTIONS.

### B. SYSTEM OPERATION:

THE CONTROL PANEL SHALL OBTAIN ITS PRIMARY OPERATING POWER FROM A (120 VAC SINGLE-PHASE 60 HZ) PROVIDED WITH A DEDICATED AND SECURED DISCONNECT SWITCH.

## C. SYSTEM CONTROL PANEL FEATURES:

THE FIRE ALARM SYSTEM CONTROL PANEL IS EXISTING SIMPLEX.

TO INSURE COMPATIBILITY, THE NEW DEVICES SHALL BE SUPPLIED BY THE MANUFACTURER OF THE FIRE ALARM CONTROL PANEL.

EQUIPMENT SHALL CONSIST OF BUT NOT BE LIMITED TO THE FOLLOWING, AS MANUFACTURED BY SIMPLEX:

- PHOTO-ELECTRIC SMOKE DETECTORS;
- DUCT-MOUNTED SMOKE DETECTORS;
- MANUAL FIRE ALARM STATIONS;
- AUTOMATIC HEAT DETECTORS;
- HORNS;
- HORN/STROBES;
- STROBES;
- ANNUNCIATOR;

## D. EXECUTION:

THE CONTRACTOR SHALL FURNISH AND INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS ALL WIRING, CONDUIT, AND OUTLET BOXES FOR A COMPLETE SYSTEM AS DESCRIBED HEREIN AND AS SHOWN ON THE DRAWINGS.

CONDUCTORS SHALL BE UL LISTED FOR NON-POWER LIMITED FIRE PROTECTIVE CIRCUIT CONDUCTORS PER NEC ARTICLE 760, AS REQUIRED, MANUFACTURER RECOMMENDED COLOR CODE SHALL BE USED AND ALL WIRES SHALL BE TAGGED AT ALL JUNCTION POINTS. CONDUCTORS SHALL TEST FREE FROM SHORTS TO GROUND OR SHORTS BETWEEN CONDUCTORS.

FINAL TERMINATIONS OF THE EQUIPMENT SHALL BE MADE UNDER THE DIRECT SUPERVISION OF AN AUTHORIZED MANUFACTURER'S REPRESENTATIVE.

THIS CONTRACTOR SHALL GUARANTEE ALL EQUIPMENT, LABOR ON EQUIPMENT, ALL WIRING FREE FROM MECHANICAL AND ELECTRICAL DEFECTS FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF INSTALLATION.

THE CONTRACTOR SHALL INSTALL ONE (1) 4-UTP TELEPHONE CABLE FROM SYSTEM PANEL TO THE MAIN TELEPHONE BACKBOARD. TERMINATE TO THE TELEPHONE SYSTEM AS DIRECTED BY THE OWNER OR LOCAL TELEPHONE COMPANY.

THE SYSTEM WIRING AND INSTALLATION SHALL BE IN COMPLIANCE WITH APPLICABLE CODES, PROJECT DRAWINGS AND AS REQUIRED BY THE MANUFACTURER. ALL WIRING SHALL BE COLOR CODED, TAGGED AND CHECKED TO ASSURE THAT IT IS FREE FROM SHORTS AND GROUNDS.

FIRE ALARM PULL STATIONS INSTALLED BUT NOT IN SERVICE SHALL BE COVERED AND LEGIBLY LABELED "NOT IN SERVICE".

FIRE ALARM DEVICES INSTALLED BUT NOT IN SERVICE SHALL BE COVERED FOR PROTECTION UNTIL SYSTEM IS IN OPERATION.

## E. SYSTEM TESTING:

THE COMPLETED SYSTEM SHALL BE TESTED IN ACCORDANCE WITH N.F.P.A. STANDARD 72H.

## F. SYSTEM SERVICE SUPPORT:

THE SYSTEM'S VENDOR MUST EMPLOY FACTORY TRAINED TECHNICIANS AND MAINTAIN A SERVICE ORGANIZATION WITHIN 50 MILES OF THE JOBSITE. THIS ORGANIZATION MUST HAVE A MINIMUM OF 10 YEARS EXPERIENCE SERVICING FIRE ALARM SYSTEMS AND PROVIDE 24-HOUR EMERGENCY SERVICE.

## G. WARRANTY:

THE EQUIPMENT AND WIRING SHALL BE WARRANTED TO BE FREE FROM ELECTRICAL AND MECHANICAL DEFECTS FOR A PERIOD OF ONE (1) YEAR COMMENCING WITH START-UP AND BENEFICIAL USE OF ANY PORTION OF THE SYSTEM.

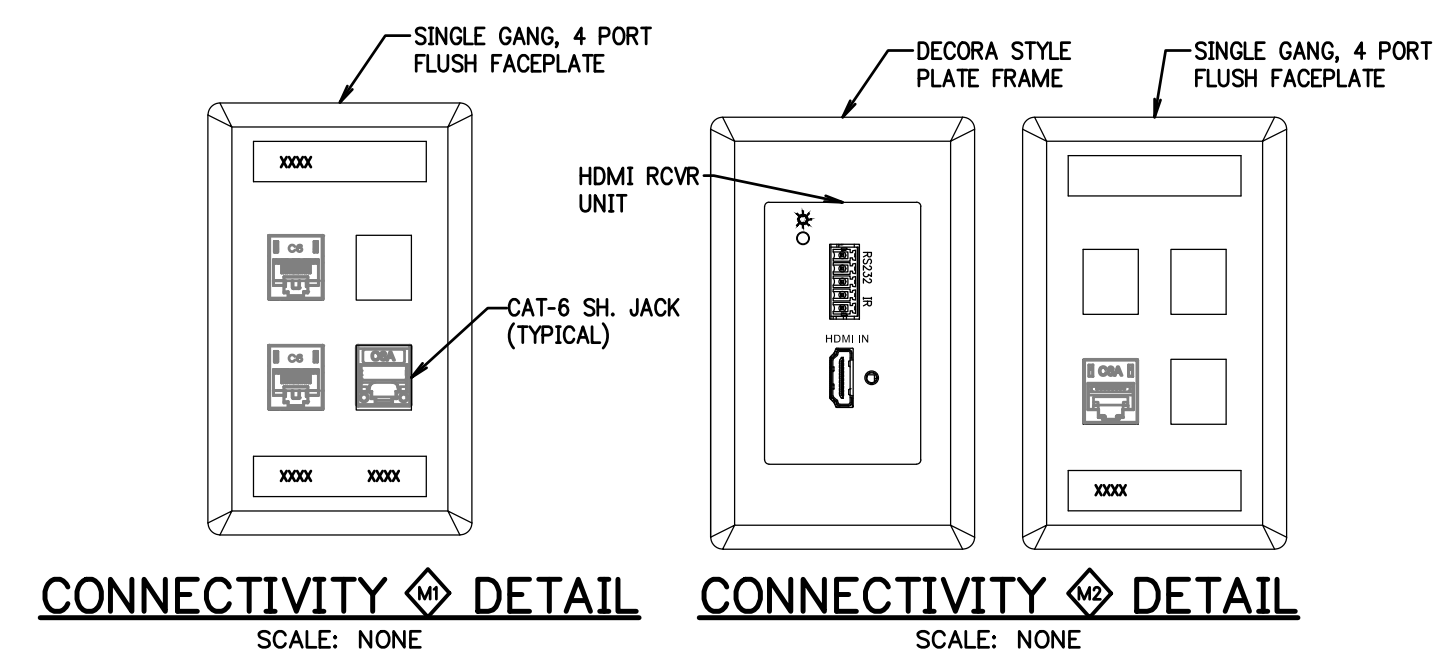
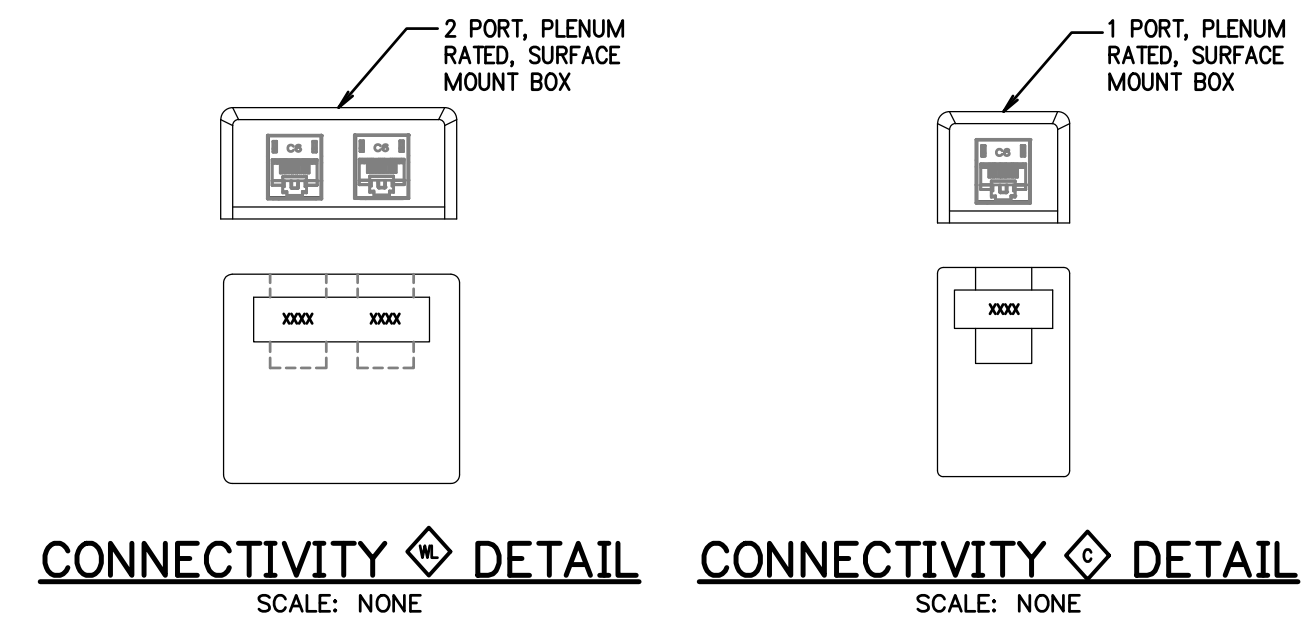
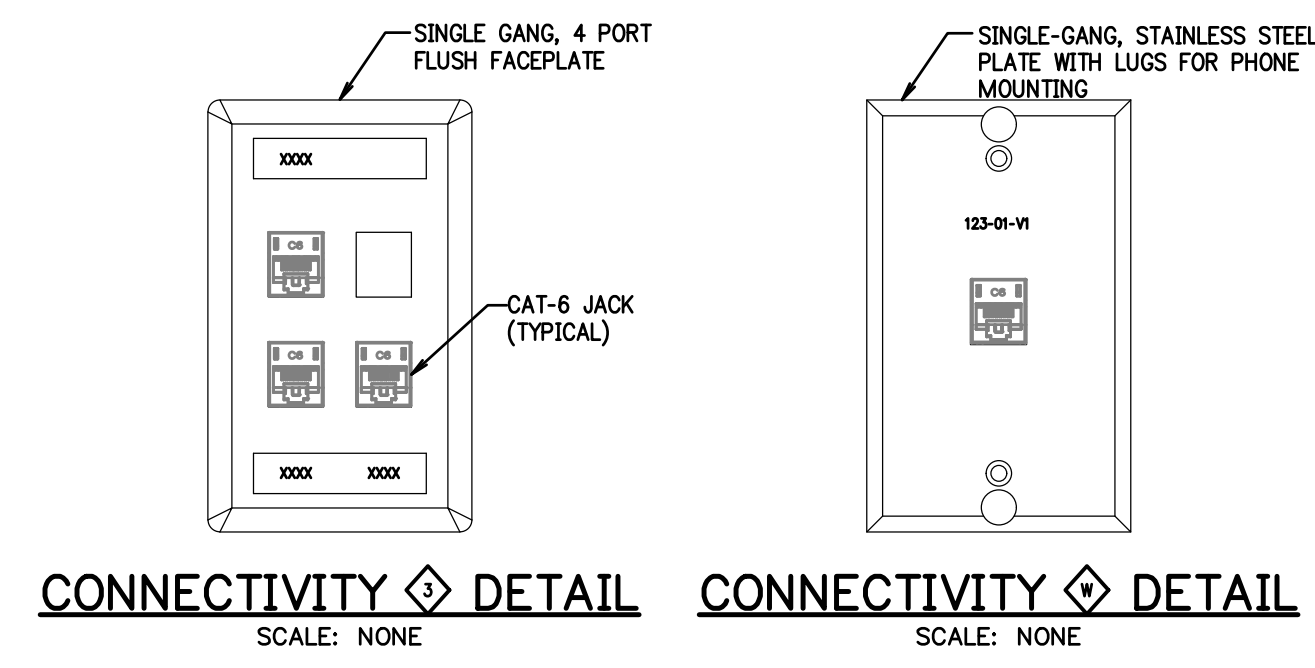
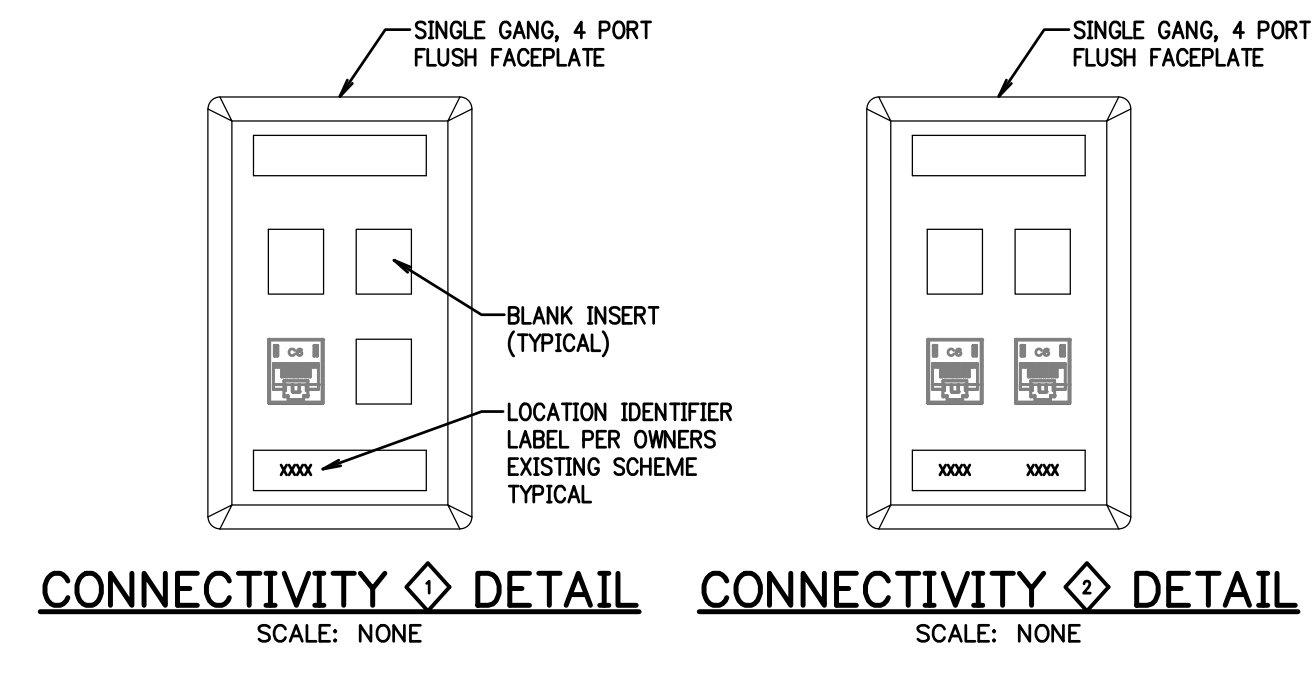
END OF SPECIFICATION

06.12.17	CONSTRUCTION
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DATE:	ISSUED FOR:
DRAWN	CPL
REVIEW'D	DTK

201545

# E603

OF



CABLE SCHEDULE	
MARK	DESCRIPTION
C6B	HORIZONTAL COMMUNICATIONS CABLE: 100 OHM, 4-UNSHIELDED TWISTED PAIR (4UTP), 23 AWG SOLID COPPER, PLENUM RATED CMP, BLUE JACKET CATEGORY-6; SUPERIOR ESSEX 66-246-2B
C6Y	HORIZONTAL SURVEILLANCE CABLE: 100 OHM, 4-UNSHIELDED TWISTED PAIR (4UTP), 23 AWG SOLID COPPER, PLENUM RATED CMP, YELLOW JACKET, CATEGORY-6; SUPERIOR ESSEX 66-246-6B, NOTE-C
C6S	HORIZONTAL MULTIMEDIA CABLE: 100 OHM, 4-SHIELDED/FOILED TWISTED PAIRS (4-F/UTP), 23 AWG SOLID COPPER, PLENUM RATED CMP, TIA CATEGORY-6, GRAY JACKET; SUPERIOR ESSEX 61-246-3B, NOTE-C
R6B	CATV DROP CABLE: 75 OHM, RG-6/U COAXIAL CABLE, PLENUM RATED CATVP, 18 AWG SOLID COPPER, 0.244" O.D. NOMINAL. WEST PENN. 25Q841
RG11	CATV TRUNK CABLE: 75 OHM, RG-11/U COAXIAL CABLE, PLENUM RATED CATVP, 14 AWG SOLID COPPER, 0.352" O.D. NOMINAL. WEST PENN. 25Q821
PC6	COMMUNICATIONS PATCH CORD, 8-CONDUCTORS, TIA/EIA CATEGORY-6; HUBBELL PC6XXX (NOTES-A, B)
PCHD	HDMI PATCH CABLE, LENGTH AS REQUIRED; EXTRON ULTRA SERIES
PC3.5	PC AUDIO PATCH CORD, M-M, LENGTH AS REQUIRED; EXTRON MINI AUDIO CABLE SERIES
RS232	RS232 CONTROL CABLE; BELDEN 88105, OR APPROVED EQUAL FROM WEST PENN, GENERAL CABLE, OR WINDY CITY WIRE

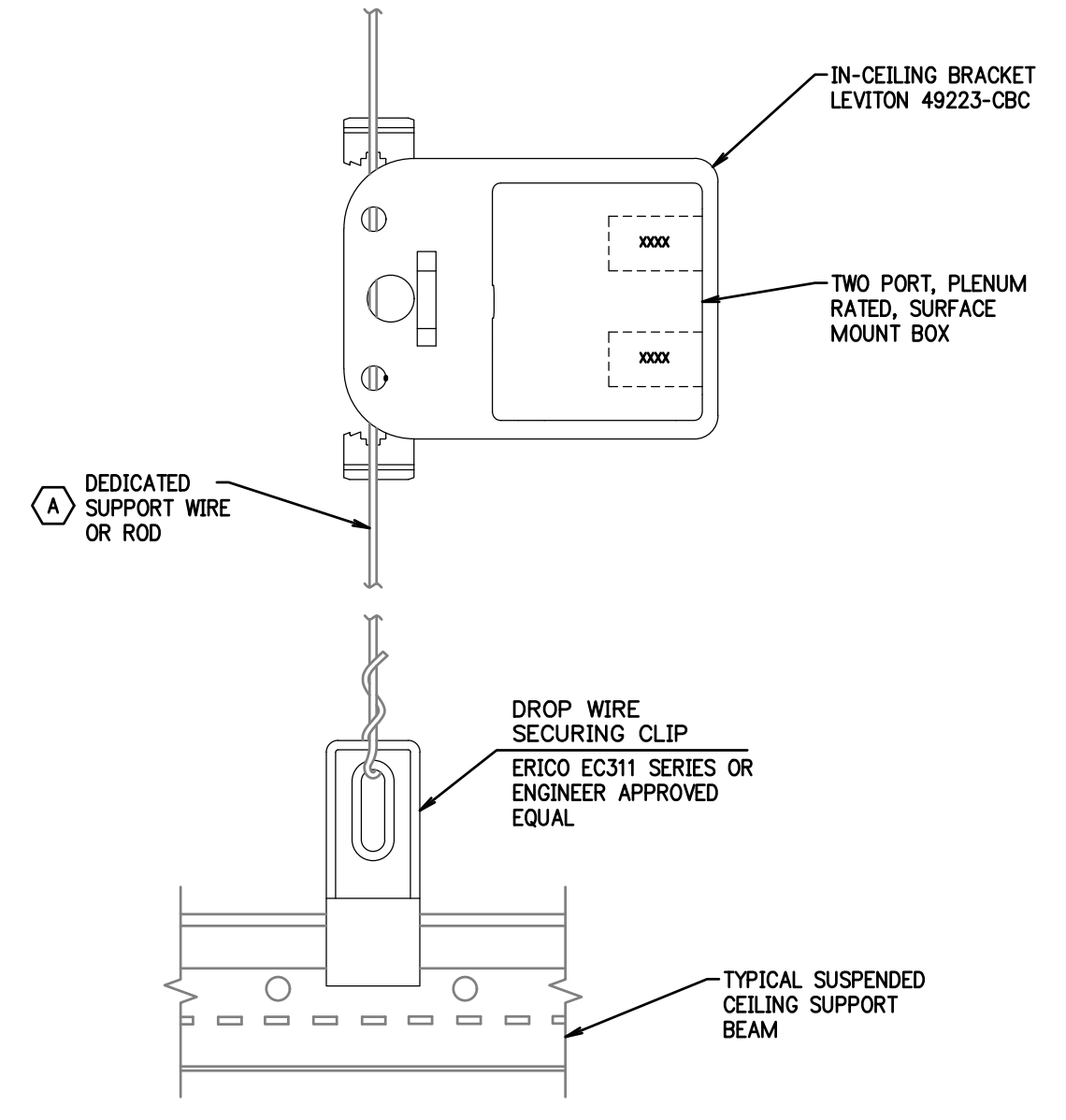
- CABLE SCHEDULE NOTES:**
- PROVIDE ONE (1) PATCH CORD PER HORIZONTAL DATA PATCH PANEL PORT. CORDS SHALL BE CAT-6 WITH BLUE JACKET. VERIFY LENGTHS WITH THE OWNER.
  - PROVIDE ONE (1) PATCH CORD PER HORIZONTAL SURVEILLANCE PATCH PANEL PORT. CORDS SHALL BE CAT-6 WITH YELLOW JACKET. VERIFY LENGTHS WITH THE OWNER.
  - CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING CUSTOM CABLING FROM MANUFACTURER IN A TIMELY MANNER. NO ADDITIONAL COMPENSATION SHALL BE GIVEN FOR CUSTOM CABLES.

CONNECTIVITY SCHEDULE			
MARK	DESCRIPTION	CABLING	
		TYPE	QTY
◇	COMMUNICATIONS OUTLET (1-DATA) CONNECTIVITY CONSISTING OF: ONE (1) 4-PORT, SINGLE-GANG, STAINLESS STEEL FLUSH FACEPLATE; HUBBELL SSFL14 ONE (1) 8-POSITION, CATEGORY-6 JACK, WIRED T568B (DATA); HUBBELL HXJ6BK NOTE-A,B,C,D	C6B	1
◇	COMMUNICATIONS OUTLET (2-DATA) CONNECTIVITY CONSISTING OF: ONE (1) 4-PORT, SINGLE-GANG, STAINLESS STEEL FLUSH FACEPLATE; HUBBELL SSFL14 TWO (2) 8-POSITION, CATEGORY-6 JACKS, WIRED T568B (DATA); HUBBELL HXJ6BK NOTE-A,B,C,D	C6B	2
◇	COMMUNICATIONS OUTLET (3-DATA) CONNECTIVITY CONSISTING OF: ONE (1) 4-PORT, SINGLE-GANG, STAINLESS STEEL FLUSH FACEPLATE; HUBBELL SSFL14 THREE (3) 8-POSITION, CATEGORY-6 JACKS, WIRED T568B (DATA); HUBBELL HXJ6BK NOTE-A,B,C,D	C6B	3
◇	WALL MOUNTED TELEPHONE OUTLET CONNECTIVITY CONSISTING OF: ONE (1) SINGLE-GANG STAINLESS STEEL PLATE, WITH LUGS FOR PHONE MOUNTING; WITH 8-POSITION CATEGORY-6 JACK, WIRED T568B (VOICE); HUBBELL P630S1GJ8 NOTE-A,B,C,D	C6B	1
◇	WIRELESS ACCESS POINT OUTLET (1-DATA) CONNECTIVITY CONSISTING OF: ONE (1) 2-PORT, PLENUM RATED SURFACE MOUNT BOX; HUBBELL ISB2 TWO (2) 8-POSITION, CATEGORY-6 JACK, WIRED T568B (DATA); HUBBELL HXJ6BK NOTE-A,B,C,D,E	C6B	2
◇	SURVEILLANCE CAMERA OUTLET (1-DATA) CONNECTIVITY CONSISTING OF: ONE (1) 1-PORT, PLENUM RATED SURFACE MOUNT BOX; HUBBELL ISB1 ONE (1) 8-POSITION, CATEGORY-6 JACK, WIRED T568B (DATA); HUBBELL HXJ6BK NOTE-A,B,C,D,E,F	C6Y	1
◇	MULTIMEDIA OUTLET (2-DATA/1-HDMI) CONNECTIVITY CONSISTING OF: ONE (1) 4-PORT, SINGLE-GANG, STAINLESS STEEL FLUSH FACEPLATE; HUBBELL SSFL14 TWO (2) 8-POSITION, CATEGORY-6 JACKS, WIRED T568B (DATA); HUBBELL HXJ6BK ONE (1) 8-POSITION, SHIELDED, CATEGORY-6 JACK, WIRED T568B (DATA); HUBBELL SJ6 NOTE-A,B,C,D,G	C6B C6S	2 1
◇	MULTIMEDIA OUTLET (1-DATA/1-CATV/1-HDMI/1-RS232) CONNECTIVITY CONSISTING OF: ONE (1) 4-PORT, SINGLE-GANG, STAINLESS STEEL FLUSH FACEPLATE; HUBBELL SSFL14 ONE (1) SINGLE-GANG, STAINLESS STEEL DECORA STYLE PLATE FRAME; HUBBELL SS26 ONE (1) 8-POSITION, CATEGORY-6 JACK, WIRED T568B (DATA); HUBBELL HXJ6BK ONE (1) DECORA STYLE HDMI/RS232 STP RECEIVER UNIT; EXTRON 60-1531-13 NOTE-A,B,C,D,G	C6B C6S	1 1

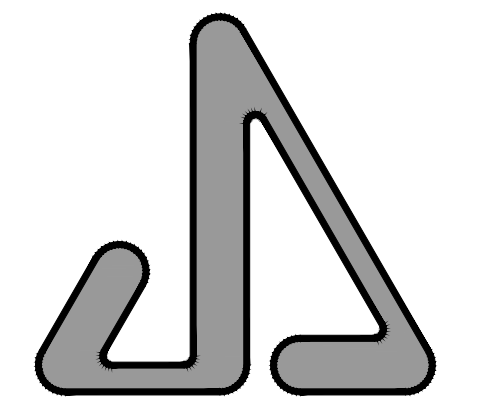
- CONNECTIVITY SCHEDULE NOTES:**
- LABEL FACEPLATE WITH A LOCATION IDENTIFIER AS DIRECTED BY OWNER.
  - FACEPLATE SHALL MATCH THE ELECTRICAL RECEPTACLE FACEPLATE MATERIAL, FINISH, AND COLOR. CONTRACTOR SHALL COORDINATE.
  - CONTRACTOR TO FURNISH BLANK INSERTS IN ALL UNUSED PORTS. ALL INSERTS, BLANK OR OTHERWISE, SHALL MATCH FACEPLATE.
  - CONTRACTOR SHALL FURNISH AND INSTALL 106 FRAMES (HUBBELL BR106) AND ACTIVATION PLATES AS REQUIRED FOR OUTLETS LOCATED IN SURFACE MOUNTED RACEWAY AND FLOOR BOXES PLATE/FRAME COLORS TO MATCH RACEWAY.
  - OUTLET LOCATION IS ABOVE ACCESSIBLE CEILING FOR WLAN ACCESS POINT CONNECTIVITY, U.N.O. PROVIDE 20' OF CABLE SLACK ON J-HOOK COILED AT 200% OF MAXIMUM BEND RADIUS.
  - AT LOCATIONS REQUIRING A STANDARD COMMUNICATIONS OUTLET BOX (EXPOSED CEILING AREAS, ETC.) PROVIDE STAINLESS STEEL FACEPLATE/COVER AS REQUIRED.
  - SHIELDED CAT-6 CABLING WIRES DIRECT BETWEEN CONNECTIVITY "M1" & "M2". SEE COLLABORATIVE SYSTEM BLOCK DIAGRAM ON SHEET T401 FOR FURTHER REQUIREMENTS.

LEGEND	
▽	COMMUNICATION OUTLET, 4-11/16" SQ. 2-1/8" DEEP BOX WITH SINGLE GANG PLASTER RING, 1-1/4" STUBBED UP AND OUT ABOVE ACCESSIBLE CEILING
IT1	RECESSED TV BACKBOX, STEEL, 3-GANG, WITH METAL DIVIDER BETWEEN POWER & LOW VOLTAGE, 3/4" FOR POWER, (2) 1" FOR AUDIOVISUAL/COMMUNICATIONS, PROVIDE WITH DUPLEX RECEPTACLE AS REQUIRED, COMMUNICATIONS AND AUDIOVISUAL CONNECTIVITY AS INDICATED; ARLINGTON INDUSTRIES TVB5507 WITH ALL ACCESSORIES REQUIRED, OR ENGINEER APPROVED EQUAL BY FSR OR LEGRAND
IF1	POWER/COMM/AUDIOVISUAL FLOOR BOX, 10" X 12" X 4"D, RECESSED, 1 SINGLE, 1 DOUBLE AND 1 FOUR GANG OPENING, BRASS EDGING, 1.25 KNOCKOUTS, TWO DUPLEX RECEPTACLES AND DATA AS INDICATED ON DRAWINGS.; FSR FL-500P WITH COVER, OR EQUAL BY HUBBELL OR LEGRAND, VERIFY FLOORBOX COVER REQUIREMENTS WITH THE ARCHITECT
IF2	POWER / COMMUNICATIONS FLUSH FLOOR BOX, 4-COMPARTMENT, WITH ONE (1) 1-1/4" FOR COMM; LEGRAND RFB4 SERIES WITH ALL ACCESSORIES REQUIRED OR EQUAL BY HUBBELL AND FSR. COORDINATE COVER REQUIREMENTS WITH THE ARCHITECT
CO	COMMUNICATIONS OUTLET/JUNCTION BOX 4-11/16" SQ. 2-1/8" DEEP BOX WITH FACEPLATE OR COVER AND CONDUITS AS REQUIRED
◇	COMMUNICATIONS CONNECTIVITY ITEM, SEE CONNECTIVITY SCHEDULE ON THIS SHEET
XXXX	COMMUNICATIONS CABLE ITEM, SEE CABLE SCHEDULE ON THIS SHEET
MF	WLAN ACCESS POINT, FURNISHED BY OWNER, INSTALLED BY CONTRACTOR, CONTRACTOR SHALL PROVIDE ALL MOUNTING HARDWARE REQUIRED FOR INSTALLATION IN LAY-IN AND OPEN CEILING AREAS
F.B.G.C.	FURNISHED BY GENERAL CONTRACTOR, INSTALLED AND/OR WIRED BY ELECTRICAL CONTRACTOR
F.B.O.	FURNISHED BY OTHERS, INSTALLED AND/OR WIRED BY ELECTRICAL CONTRACTOR
L.D.	LOCATE AS DIRECTED
M.H.	MOUNTING HEIGHT, FLOOR TO BOTTOM OF ITEM
MOD	MODIFICATION. ITEM MANUFACTURER PART NUMBER DOES NOT DESCRIBE ALL OPTIONS OR REQUIREMENTS. REFER TO ITEM DESCRIPTION AND/OR SPECIFICATIONS FOR EXACT REQUIREMENTS.
U.N.O.	UNLESS NOTED OTHERWISE
ACR	ACCESS CONTROL ROUGH-IN DOOR LOCATION, SEE DETAIL ON SHEET T402
PR	PROXIMITY READER ROUGH-IN LOCATION, WITH BLANK COVER, SEE DETAIL ON SHEET TXXX FOR FURTHER REQUIREMENTS
ICP	FIXED DOME, OUTDOOR RATED DAY/NIGHT IP CAMERA, 6-15/32"DIA. X 5-15/32"H, 1/3" MOS IMAGE SENSOR, 720P HD, CLEAR DOME, 0.008 LUX COLOR, 0.004 LUX B/W, 2.8-10mm VARIOFOCAL LENS, 9W POE; PANASONIC WV-S2511LN. NOTE-A
IPD	360° PANORAMIC DOME, INDOOR RATED, VANDAL RESISTANT, 6-1/16"DIA. X 3-15/32"H, 1/3" MOS IMAGE SENSOR, 1080P HD, 1.5 LUX COLOR, 1.2LUX B/W, 6W POE; PANASONIC WV-SW458, NOTE-A
LDH	48" LED HDTV, 1080P, TWO (2) 10W SPEAKERS, WITH THE FOLLOWING INPUTS - 2 HDMI, 1 USB, 1 COMPONENT, 1 COMPOSITE, 1 ETHERNET, 1 RF/CATV, 1-RS232 AND THE FOLLOWING OUTPUTS - 1 DIGITAL AUDIO, 1 3.5 MINI JACK, 400 X 400 VESA MOUNT PATTERN, 120V - 105W MAX POWER CONSUMPTION; SAMSUNG UN48J500AFXZA OR APPROVED EQUAL FROM LG & SHARP
TS	COLLABORATION SYSTEM INCLUDING HDMI SWITCHER, SYSTEM CONTROLLER, & TABLE CABLE CUBBY; EXTRON TEAMWORK 400 SERIES (INCLUDING DTP T SWR HD 4K, DTP R HWP 232 D, CABLE CUBBY 700, (2) RETRACTOR SM CABLE CUBBY MOUNTS, AC+USB 224 US, RETRACTOR SM FILLER MODULE, (4) RETRACTOR SM HDMI, RETRACTOR SM NETWORK, IPCP PRO 250, AND ALL MOUNTING HARDWARE REQUIRED.) OR ENGINEER APPROVED EQUIVALENT SOLUTIONS FROM LEGRAND/QUICKTRON, LIBERTY A/V SOLUTIONS, CRESTRON, OR KRAMER ELECTRONICS

- LEGEND NOTES:**
- PROVIDE WITH A PANASONIC CLASS 10 8GB SD CARD FOR BACKUP RECORDING UPON NETWORK FAILURE.

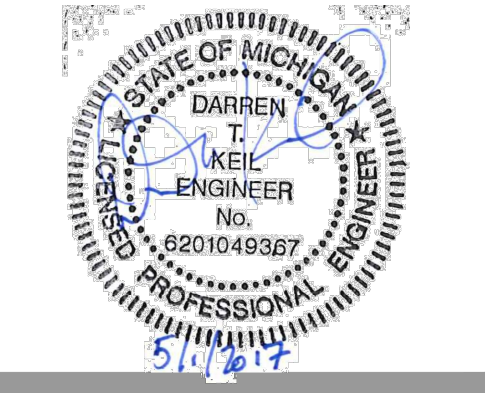


- NOTES:**
- USE OF IN-CEILING BRACKET SHALL REQUIRE A DEDICATED SUPPORT WIRE INSTALLED IN CONFORMANCE TO NEC 300.11(A). USE OF CEILING SUPPORT WIRES FOR MOUNTING BRACKET IS NOT CODE COMPLIANT WITH 300.11(A).



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PROPERTY OWNER CONTACT:  
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TECHNOLOGY LEGEND & SCHEDULES

06.12.17 CONSTRUCTION  
06.05.17 BUREAU OF FIRE SERVICES  
05.28.17 ADDENDUM #4  
5.1.17 PERMIT  
5.1.17 BIDS

DATE: ISSUED FOR:

DRAWN: TAR

REVIEW'D: DTK

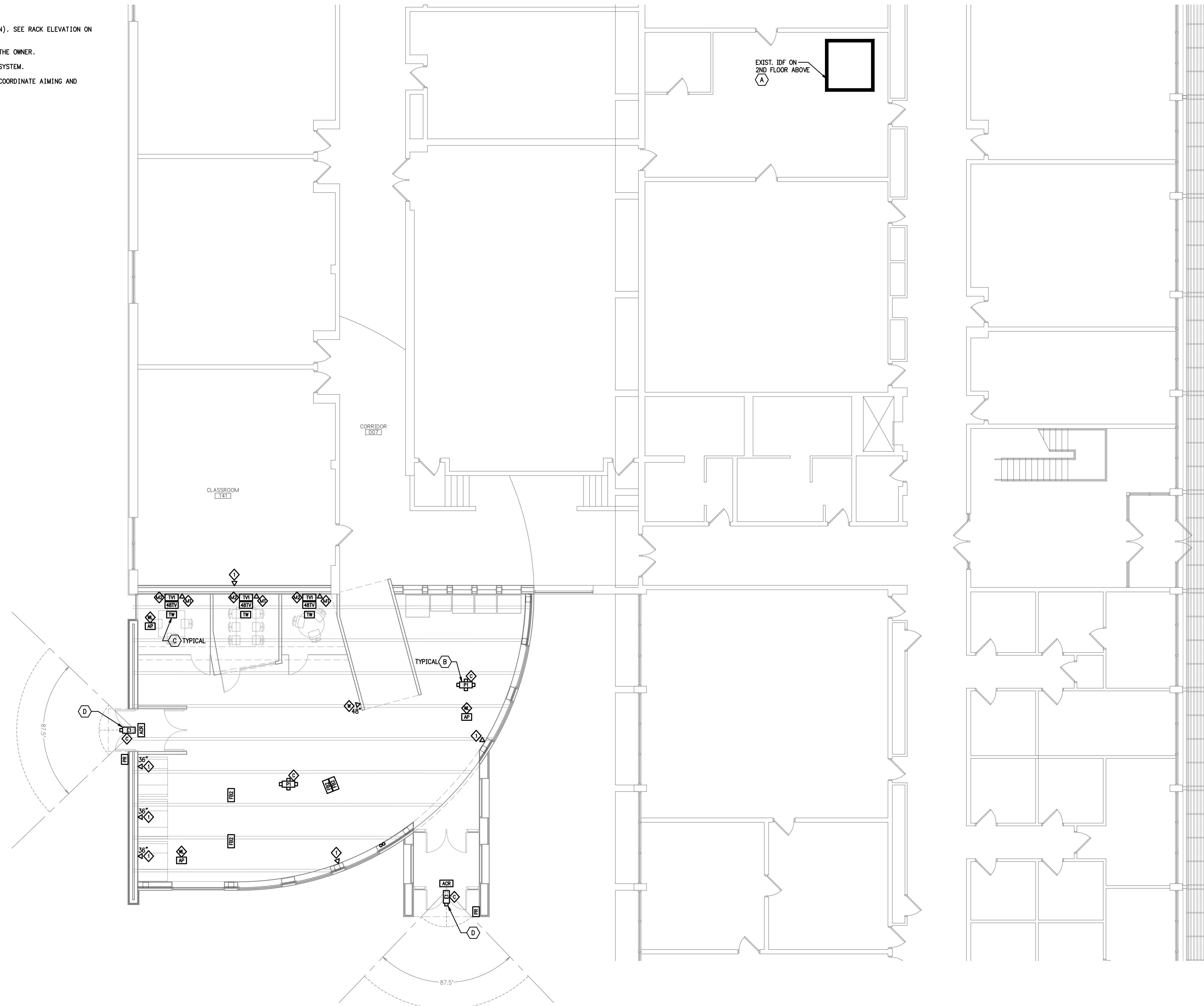
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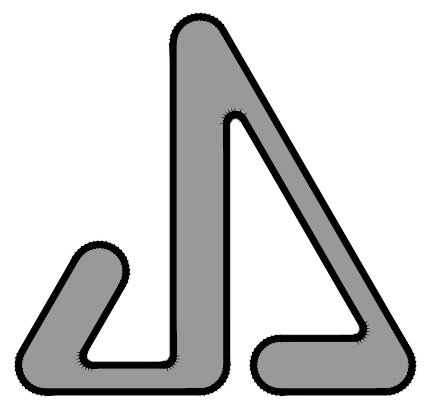
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**PLAN NOTES:**

- A. HOME-RUN NEW COMMUNICATIONS CABLING TO EXISTING IDF (VERIFY LOCATION). SEE RACK ELEVATION ON SHEET T401 FOR FURTHER REQUIREMENTS.
- B. COORDINATE CAMERA VIEW (FISHEYE, PANORAMIC, DOUBLE PANORAMIC) WITH THE OWNER.
- C. SEE DETAILS ON SHEET T401 FOR FURTHER REQUIREMENTS OF THE TEAMWORK SYSTEM.
- D. MOUNT CAMERA IN CANOPY, PROVIDE ALL MOUNTING ACCESSORIES REQUIRED. COORDINATE AIMING AND VIEWING ANGLE WITH THE OWNER.

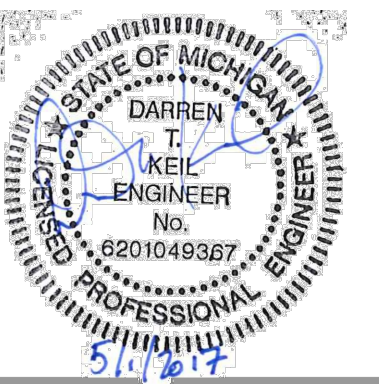


**PARTIAL FLOOR PLAN - TECHNOLOGY**  
SCALE: 1/8"=1'-0"



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**PARTIAL  
FLOOR PLAN -  
TECHNOLOGY**

06.12.17 CONSTRUCTION  
06.06.17 BUREAU OF FIRE SERVICES  
5.1.17 PERMIT  
5.1.17 BIDS

DATE: ISSUED FOR:

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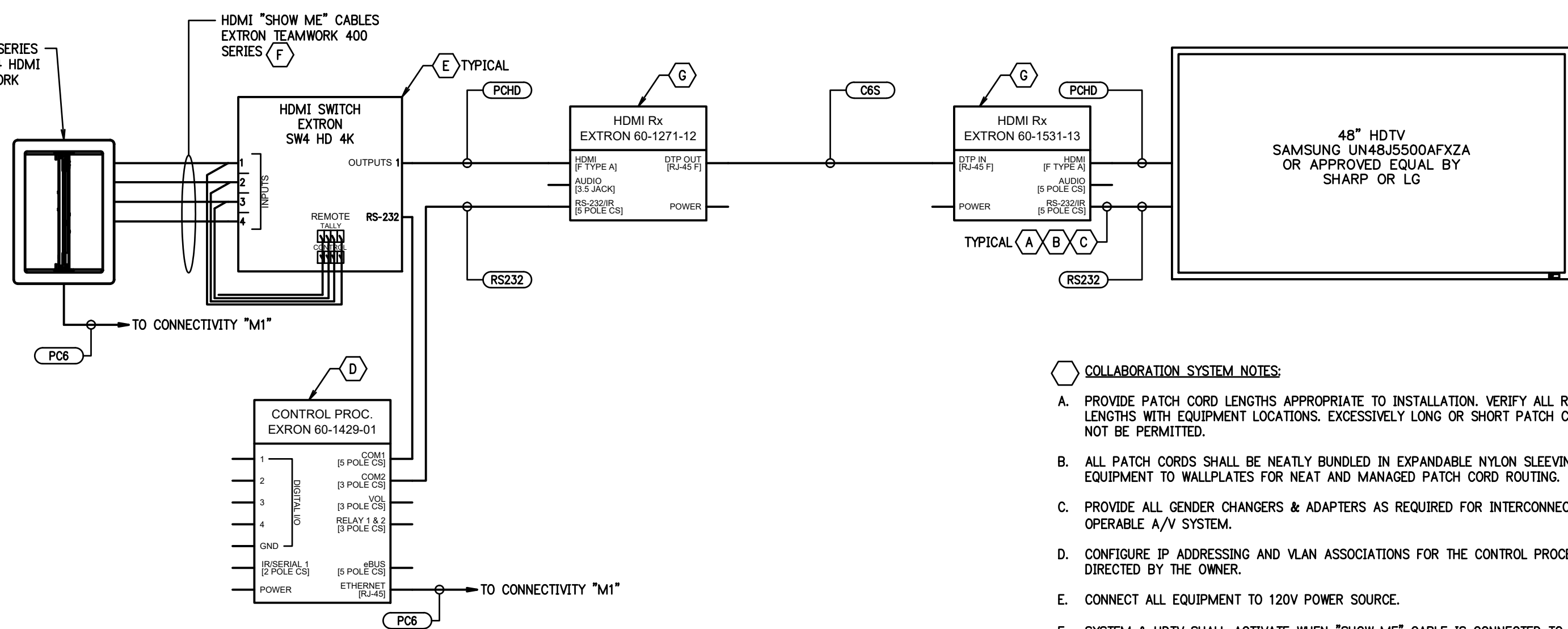
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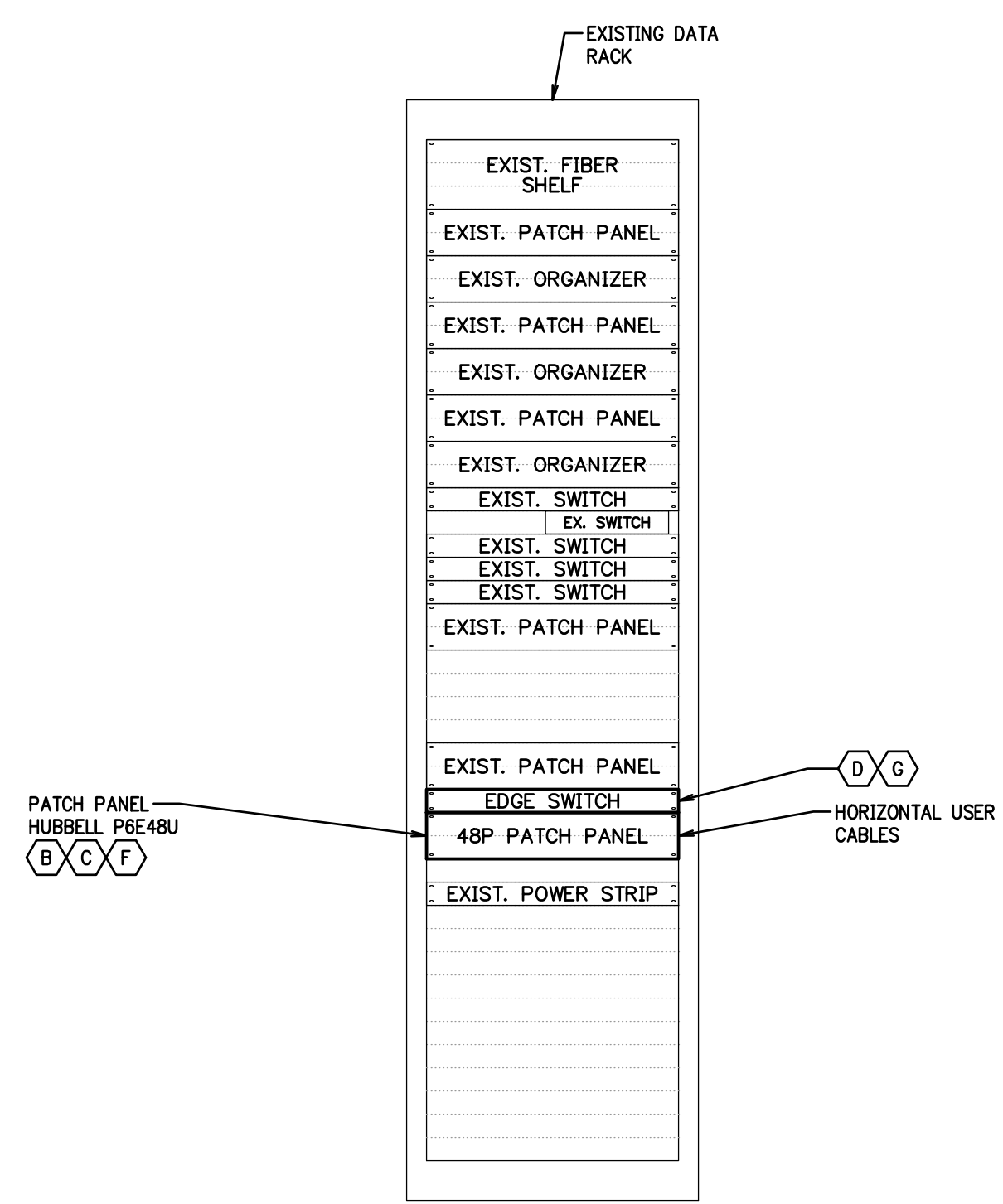
CABLE CUBBY, EXTRON 700 SERIES WITH POWER/USB MODULE, 4 HDMI CABLE RETRACTORS, 1 NETWORK CABLE RETRACTOR, & ALL ACCESSORIES REQUIRED



**COLLABORATION SYSTEM BLOCK DIAGRAM**  
SCALE: NONE

**COLLABORATION SYSTEM NOTES:**

- PROVIDE PATCH CORD LENGTHS APPROPRIATE TO INSTALLATION. VERIFY ALL REQUIRED LENGTHS WITH EQUIPMENT LOCATIONS. EXCESSIVELY LONG OR SHORT PATCH CORDS WILL NOT BE PERMITTED.
- ALL PATCH CORDS SHALL BE NEATLY BUNDLED IN EXPANDABLE NYLON SLEEVING FROM EQUIPMENT TO WALLPLATES FOR NEAT AND MANAGED PATCH CORD ROUTING.
- PROVIDE ALL GENDER CHANGERS & ADAPTERS AS REQUIRED FOR INTERCONNECTION AND AN OPERABLE A/V SYSTEM.
- CONFIGURE IP ADDRESSING AND VLAN ASSOCIATIONS FOR THE CONTROL PROCESSOR AS DIRECTED BY THE OWNER.
- CONNECT ALL EQUIPMENT TO 120V POWER SOURCE.
- SYSTEM & HDTV SHALL ACTIVATE WHEN "SHOW ME" CABLE IS CONNECTED TO SOURCE EQUIPMENT (LAPTOP, ETC.). BY PRESSING SHARE BUTTON SWITCHER SHALL AUTOMATICALLY SWITCH TO SELECTED "SHOW ME" CABLE INPUT. WHEN NO INPUTS ARE DETECTED, AFTER 5 MINUTES, HDTV/SYSTEM SHALL TURN OFF.
- IN LIEU OF SHIELDED TWISTED PAIR TRANSMITTER/RECEIVER UNITS, CONTRACTOR MAY UTILIZE CUSTOM STAINLESS STEEL PLATES WITH HDMI AND RS232 PORTS (HUBBELL, SEMTRON, PANEL CRAFTERS) AND ASSOCIATED PLENUM RATED HDMI & RS232 CABLING. PLENUM RATED IN WALL CABLING SHALL BE HIGH SPEED TYPE SUPPORTING A MINIMUM OF 10.2Gbps AND CERTIFIED BY THE PREMIUM HDMI CABLE CERTIFICATION PROGRAM (COVID & LIBERTY CABLE ARE APPROVED MANUFACTURERS). IF PICTURE QUALITY IS UNACCEPTABLE AS DETERMINED BY THE OWNER AND ENGINEER CONTRACTOR SHALL PROVIDE AN ACTIVE CABLE BOOSTER/EQUALIZER AT THE DISPLAY END OF THE CABLE (EXTRON HD 4K 101 PLUS OR ENGINEER APPROVED EQUAL).



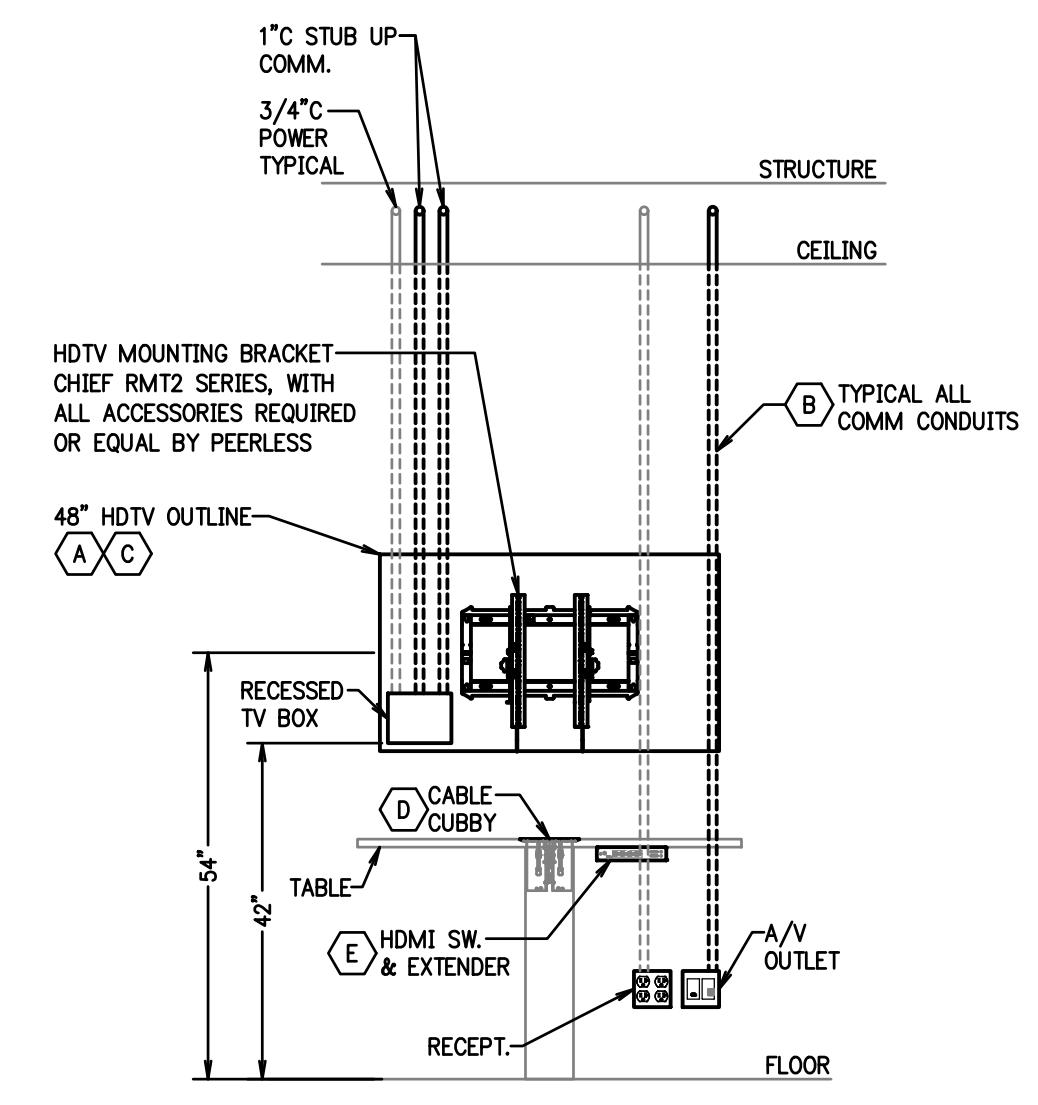
**RACK ELEVATION - EXISTING IDF**  
SCALE: NONE

**RACK ELEVATION NOTES:**

- COORDINATE INSTALLATION OF PATCH PANELS WITH EXISTING EQUIPMENT, THE OWNER, & NEW NETWORK EQUIPMENT.
- PROVIDE PATCH CORDS AS REQUIRED.
- EVENLY DISTRIBUTE PoE DEVICES ACROSS SWITCHES TO BALANCE PoE POWER REQUIREMENTS.
- PROVIDE WITH TWO (2) CABLE SUPPORT BARS, STUFFER CAPS AND DESIGNATION LABEL KITS, PREPRINTED AS REQUIRED AND INSTALLED.
- CONTRACTOR SHALL PROVIDE A \$4500 ALLOWANCE FOR PURCHASE OF 48 PORT 1PoE EDGE SWITCH WITH IGG SFP+ MODULE(S) BY THE OWNER (BROCADE ICX7450-48P/ICX7400-48P/ICX7400-48P-TW-0101). CONTRACTOR TO CONFIGURE SWITCH (VLANs, IP ADDRESSING, ETC.) AS REQUIRED FOR AN OPERABLE EXTENSION OF THE CAMPUS NETWORK. PROVIDE ALL PATCH CORDS REQUIRED FOR CONNECTION FROM SFP+ TO THE CAMPUS NETWORK. COORDINATE ALL REQUIREMENTS WITH THE OWNER IT DEPARTMENT.

**GENERAL A/V NOTES:**

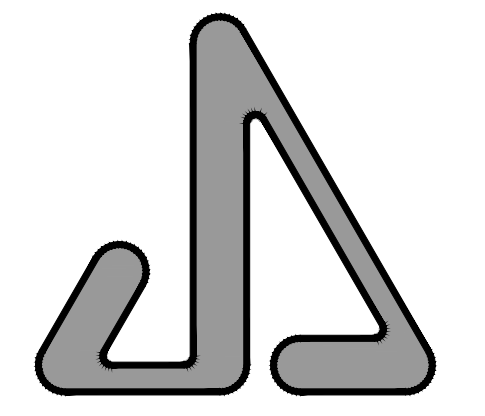
- THE CONTRACTOR SHALL INCLUDE 48 HOURS OF TRAINING FOR THE OWNER'S PERSONNEL ON THE OPERATION AND MAINTENANCE OF THE EQUIPMENT PROVIDED. SCHEDULE TRAINING SESSIONS WITH THE OWNER IN 4 HOUR BLOCKS.
- THE TRAINING COURSES SHALL BE TAUGHT BY A MANUFACTURER'S REPRESENTATIVE AT THE OWNER'S LOCATION. A BRIEF RESUME AND BACKGROUND DESCRIPTION SHALL BE INCLUDED OF THE CONTRACTOR'S TRAINING PERSONNEL WHO WILL CONDUCT THE TRAINING SESSIONS, AND WHAT WILL BE PRESENTED.
- THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL TRAINING MATERIALS. THE OWNER WILL BE RESPONSIBLE FOR PROVIDING THE TRAINING ROOM FACILITIES AT THE OWNER'S LOCATION. THE CONTRACTOR SHALL VIDEO RECORD THE TRAINING SESSION AND FURNISH THE OWNER FOUR COPIES OF THE SYSTEMS MANUALS AND THE TRAINING RECORDING.
- SYSTEM MANUALS SHALL CONTAIN THE SYSTEM BLOCK DIAGRAM, BASIC SYSTEM OPERATION OUTLINE, EQUIPMENT OWNERS MANUALS, EQUIPMENT SERVICE AND REPAIR MANUALS, SYSTEM LAYOUT, DATE OF INSTALLATION AND CONTACT PERSON WITH PHONE NUMBER.



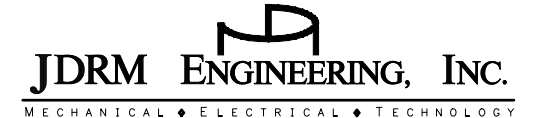
**WALL MOUNTED HDTV DETAIL**  
SCALE: NONE

**HDTV DETAILS NOTES:**

- EXAMPLE 48" HDTV SHOWN WITH A UNIVERSAL FLAT WALL TV MOUNT. COORDINATE OUTLET LOCATIONS WITH TV MOUNTING BRACKET INSTALLATION SO THAT OUTLETS ARE HIDDEN BEHIND HDTV.
- IN EXPOSED OR HARD CEILING AREAS EXTEND COMMUNICATIONS CONDUIT STUB UPS TO NEAREST ACCESSIBLE CEILING AREA AS REQUIRED.
- VERIFY MOUNTING HEIGHT OF HDTV AND ASSOCIATED MOUNT WITH ARCHITECT & APPROVED ARCHITECTURAL FURNITURE.
- COORDINATE INSTALLATION OF CABLE CUBBY IN TABLE WITH ARCHITECT & APPROVED ARCHITECTURAL FURNITURE PRIOR TO ROUGH-IN. VERIFY INSTALLATION LOCATION WITH THE ARCHITECT. PROVIDE ALL MOUNTING HARDWARE REQUIRED.
- PROVIDE FURNITURE MOUNTING HARDWARE/UNDER TABLE MOUNTING KIT AS REQUIRED. COORDINATE INSTALLATION LOCATION WITH THE ARCHITECT & APPROVED ARCHITECTURAL FURNITURE.



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**TECHNOLOGY DETAILS**

06.12.17	CONSTRUCTION
06.05.17	BUREAU OF FIRE SERVICES
5.1.17	PERMIT
5.1.17	BIDS

DATE: ISSUED FOR:

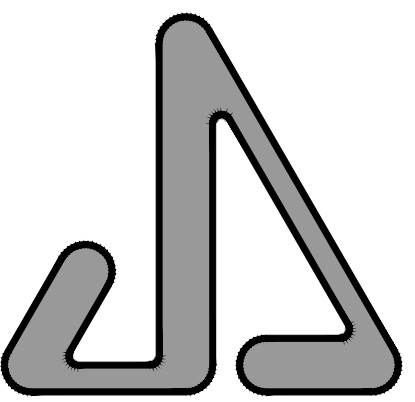
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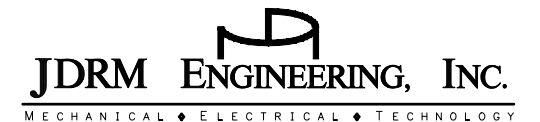
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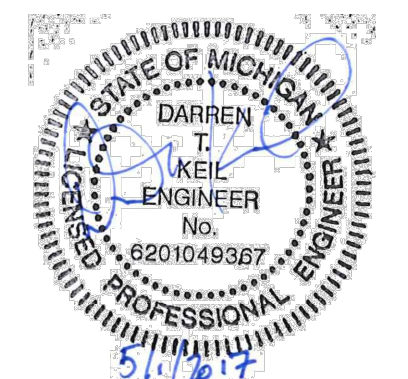


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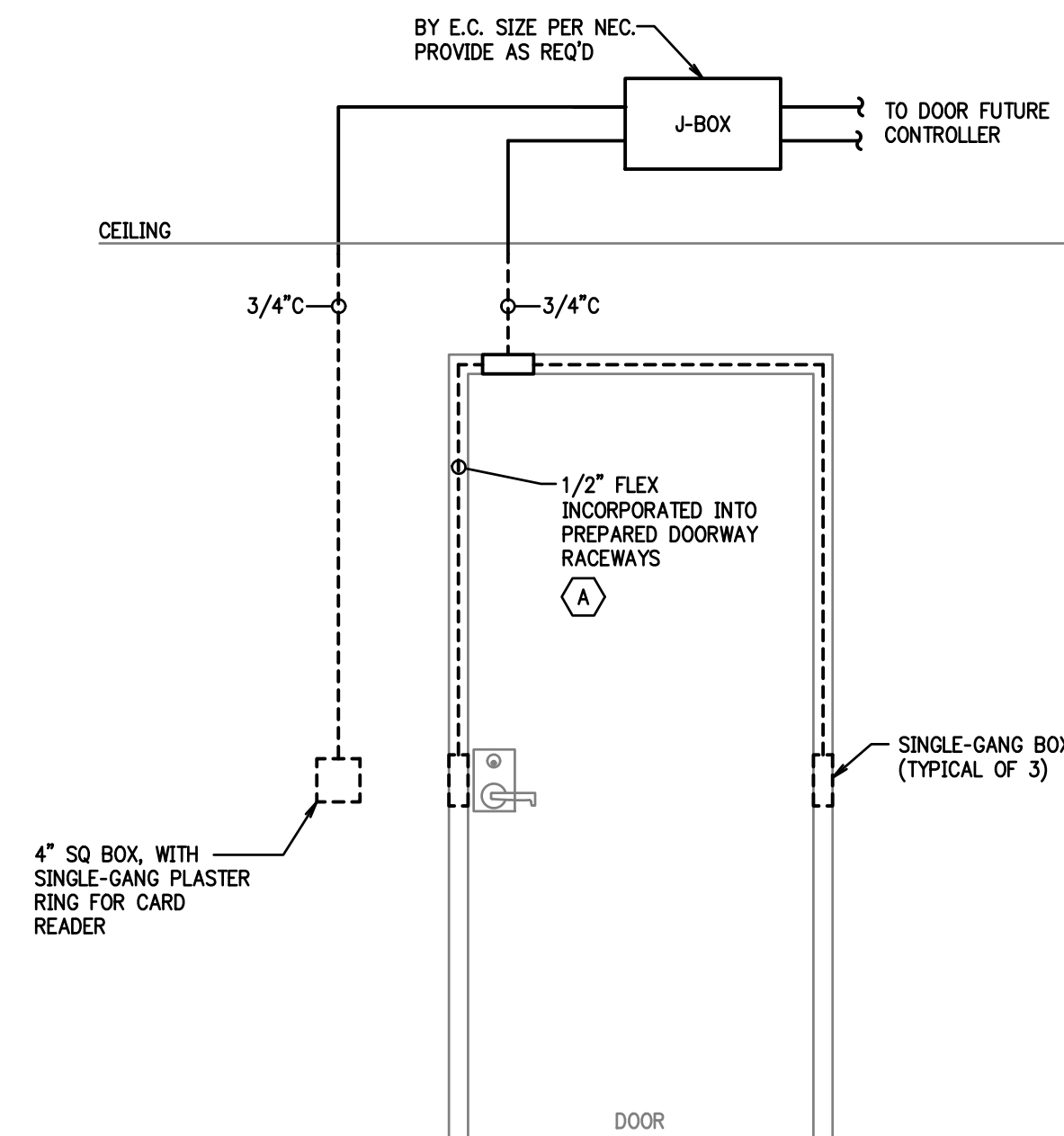
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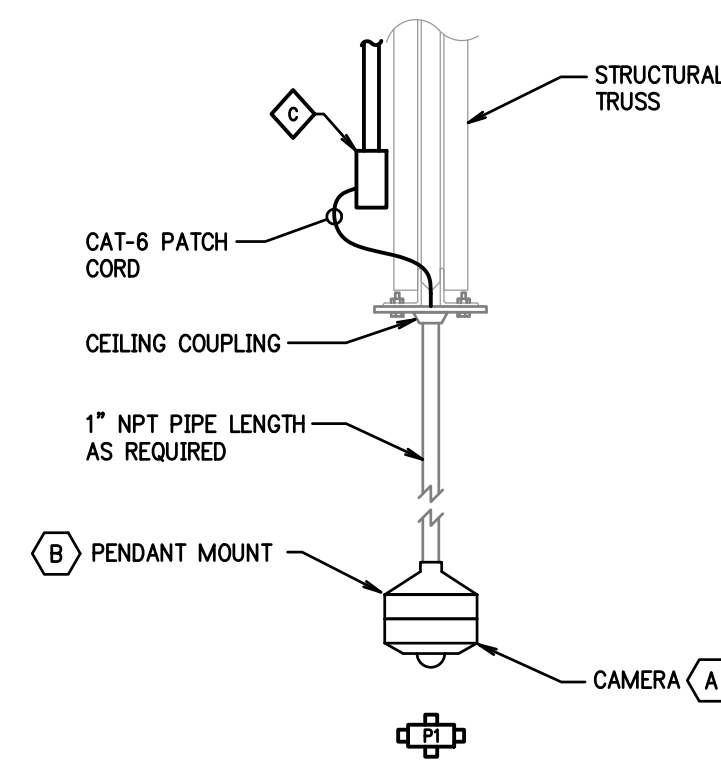
SECURITY  
 DETAILS



**TYPICAL ACCESS CONTROL DOOR  
 ROUGH-IN DETAIL**  
 SCALE: NONE

GENERAL DOOR HARDWARE DETAIL NOTES:

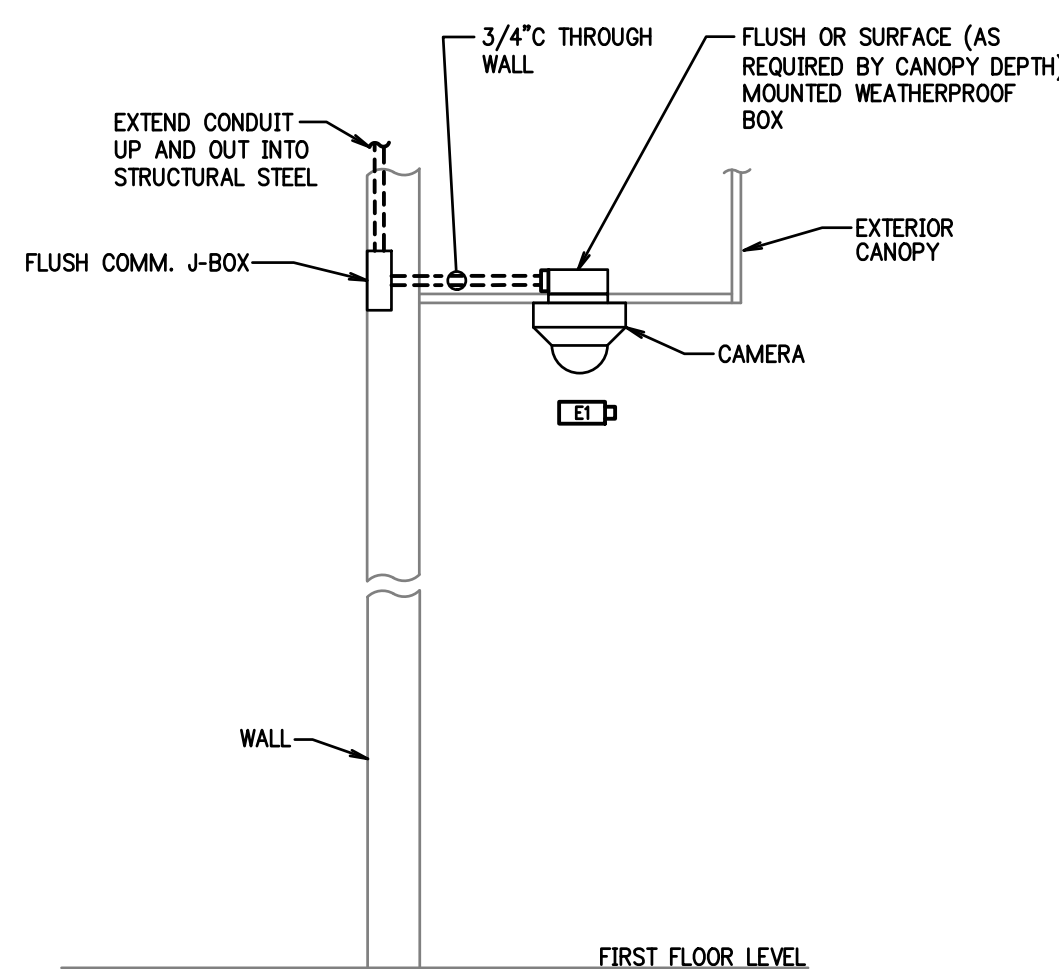
- A. ALL PATHWAYS SHALL BE CLEAR WITH NO SHARP EDGES UP TO THE HEADER.



**PENDANT MOUNTED CAMERA DETAILS**  
 SCALE: NONE

PENDANT MOUNTED CAMERA NOTES:

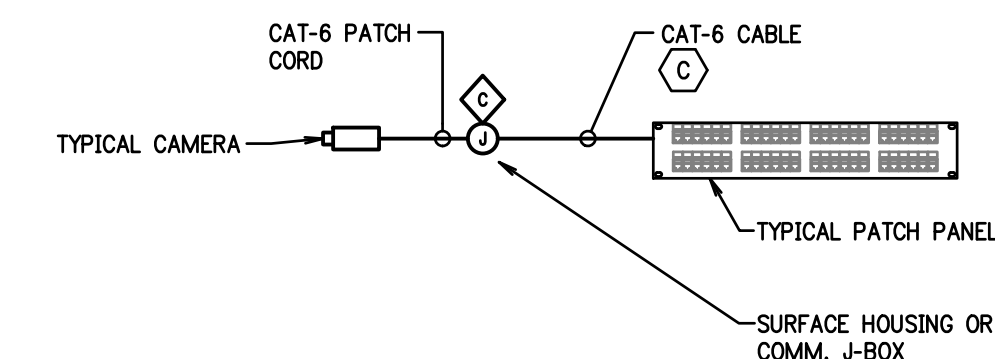
- A. COORDINATE LOCATIONS WITH LIGHTING, HVAC, SLOPED CEILING, ETC. TO PROVIDE UNOBSTRUCTED FIELD OF VIEW.
- B. VERIFY MOUNTING REQUIREMENTS WITH MANUFACTURER AND PROVIDE ADDITIONAL MOUNTING HARDWARE AS REQUIRED.
- C. GENERIC EXAMPLE. UTILIZE MANUFACTURER'S PENDANT MOUNTING ACCESSORIES IF AVAILABLE.



**CANOPY MOUNTED CAMERA DETAIL**  
 SCALE: NONE

GENERAL SURVEILLANCE SYSTEM NOTES:

1. THE VIDEO SURVEILLANCE SECURITY SYSTEM SHALL BE COMPLETE, READY FOR OPERATION AND SHALL INCLUDE ALL CONDUIT, BOXES, WIRING, TESTING, PROGRAMMING AND AUXILIARY MATERIAL REQUIRED TO FULFILL THE ABOVE OBJECTIVE WHETHER OR NOT SPECIFICALLY ENUMERATED HEREIN OR ON THE DRAWINGS.
2. PROVIDE ELECTRONIC SHOP DRAWINGS FOR THE SURVEILLANCE SYSTEM INCLUDING THE FOLLOWING ITEMS:
  - FUNCTIONAL DESCRIPTION OF THE SPECIFIED SYSTEM.
  - DETAILED ONE-LINE SCHEMATIC WIRING DIAGRAMS OF THE SYSTEM AND THE INTERCONNECTION WIRING.
  - LAYOUT DRAWINGS SHOWING ACCURATELY SCALED COMPONENTS AND SPATIAL RELATIONSHIP TO ASSOCIATED EQUIPMENT. INCLUDE RACK ELEVATION WITH ALL EQUIPMENT LABELED.
  - DESCRIPTION OF PROPOSED TRAINING SESSION.
  - DETAILED LIST OF EACH PIECE OF EQUIPMENT WITH MODEL NUMBERS FOR EACH SYSTEM COMPONENT.
  - MANUFACTURER'S SPECIFICATION SHEETS ON EACH ITEM OF EQUIPMENT.
  - CONFIRMATION THAT THE MANUFACTURER'S REPRESENTATIVE WILL PROVIDE JOB SITE SUPERVISION DURING THE INSTALLATION OF THE SYSTEM, PERFORM THE FINAL TESTING OF THE SYSTEM AND INSTRUCT/PERFORM TRAINING OF THE OPERATING PERSONNEL ON THE OPERATION OF THE SYSTEM.
3. PROVIDE RECORD DRAWINGS AND OPERATIONS & MAINTENANCE MANUAL CONTAINING THE SYSTEM BLOCK DIAGRAM, BASIC SYSTEM OPERATION OUTLINE, EQUIPMENT OWNER'S MANUALS, TEST REPORTS, EQUIPMENT SERVICE AND REPAIR MANUALS, SYSTEM LAYOUT, DATE OF INSTALLATION, AND CONTACT PERSON AND PHONE NUMBER. PROVIDE LAMINATED COPY OF VIRTUAL CAMERA NUMBERING AND DESCRIPTION LIST.
4. LABEL ALL CABLES IN THE EQUIPMENT RACK AT OR NEAR ALL CONNECTORS TO INDICATE WHAT DEVICE THEY ARE CONNECTED TO.
5. AIM, FOCUS AND POSITION CAMERAS AS SHOWN ON THE DRAWINGS. FIELD VERIFY CAMERA LENSING FOR EXACT VIEW DESIRED WITH THE OWNER. LENSING SHOWN ON THE DRAWINGS SHALL BE THE STARTING POINT AND ADJUSTED UP OR DOWN IN THE FIELD AS REQUIRED.
6. SET UP AND PROGRAM VIDEO ANALYTICS WINDOWS FOR MOTION RECORDING AND ALARMS AS DETERMINED BY THE OWNER.
7. INTEGRATE THE SYSTEM WITH THE ACCESS CONTROL AND SECURITY SYSTEMS AS INDICATED. UPON CARD READER USE AT ENTRANCES, CAMERA AT EXTERIOR AND INTERIOR VICINITY SHALL COMMENCE RECORDING.
8. ACTIVATE TAMPERING ALARMS ON ALL CAMERAS.
9. TREAT ACRYLIC DOMES AND WINDOWS AFTER INSTALLATION WITH APPROVED PLASTIC CLEANER AND POLISH.
10. CONFIGURE USER LOGINS AS DIRECTED BY THE OWNER FOR REMOTE VIEWING OF CAMERAS VIA THE LAN AND WAN.
11. COORDINATE IP ADDRESSING OF CAMERAS WITH THE OWNER.
12. INTEGRATE CAMERAS WITH THE SITES EXISTING SURVEILLANCE VIDEO MANAGEMENT SYSTEM (SALIENT) AS REQUIRED. PROVIDE ALL CAMERA LICENSING AND SYSTEM PROGRAMMING REQUIRED FOR NEW CAMERAS. COORDINATE RECORDING PARAMETERS WITH THE OWNER. PROVIDE SUFFICIENT ADDITIONAL NETWORK VIDEO RECORDING STORAGE UNITS/HARD DISKS AS REQUIRED TO MAINTAIN CURRENT LENGTH OF TIME VIDEO IS STORED WITH THE ADDITIONAL CAMERAS INSTALLED DURING THIS PROJECT. COORDINATE ADDITIONAL STORAGE REQUIREMENTS WITH THE OWNER.
13. CONFIGURE SD CARDS FOR BACKUP STORAGE IF NETWORK CONNECTION IS UNAVAILABLE.



**TYPICAL SURVEILLANCE CAMERA WIRING DIAGRAM**  
 SCALE: NONE

06.12.17 CONSTRUCTION  
 06.05.17 BUREAU OF FIRE SERVICES  
 5.1.17 PERMIT  
 5.1.17 BIDS

DATE: ISSUED FOR:

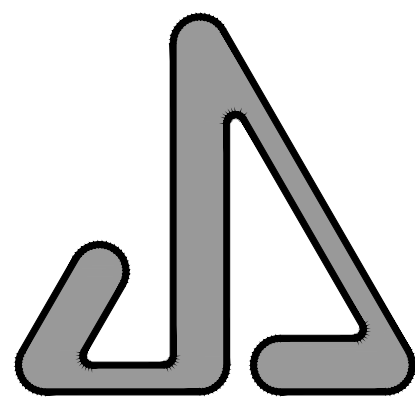
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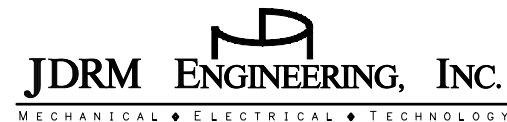
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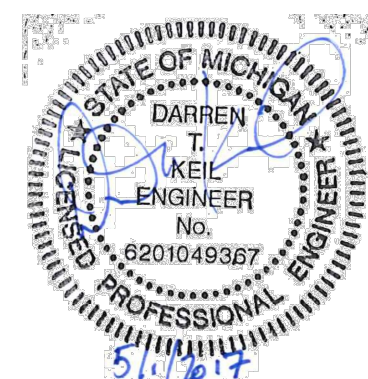


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TECHNOLOGY  
SPECIFICATIONS

**SECTION 27 0528 - COMMUNICATIONS RACEWAY SYSTEMS**

**A. DESCRIPTION OF WORK:**

PROVIDE A COMPLETE STRUCTURED RACEWAY SYSTEM INCLUDING ALL BOXES, BACKBOARDS, OUTLET BOXES, CONDUIT, CABLE TRAYS, J-HOOKS, FITTINGS, SLEEVES, ETC. FOR THE COMMUNICATIONS SYSTEM AS SHOWN ON THE DRAWINGS, SPECIFIED OR REQUIRED.

**B. QUALITY ASSURANCE:**

THE INSTALLATION OF THE COMMUNICATIONS RACEWAY SYSTEMS SHALL COMPLY WITH ALL APPLICABLE NEC, NEMA AND ANSI STANDARDS AND MEET OR EXCEED THE LATEST EDITION TIA-569 STANDARDS FOR COMMUNICATIONS PATHWAYS AND SPACES FOR COMMERCIAL BUILDINGS.

THE INSTALLATION OF THE COMMUNICATIONS RACEWAY SYSTEMS SHALL BE PERFORMED UNDER THE DIRECTION AND SUPERVISION OF THE CONTRACTOR'S DESIGNATED CERTIFIED INSTALLER/TECHNICIAN.

**C. PRODUCTS AND EQUIPMENT:**

**BACKBOARDS:**

PROVIDE IN THE AREAS OR ROOMS AS INDICATED ON THE DETAILED ENGINEERING DRAWINGS AND DOCUMENTS, FOR MOUNTING ELECTRICAL, ELECTRONIC, DATA AND TELECOMMUNICATION EQUIPMENT, A/C GRADE PLUGGED-IN-TAPA PLYWOOD SHEETS 48"W X 96"H X 3/4"THK IN SIZE, PAINTED WITH TWO (2) COATINGS OF FIRE RETARDANT PAINT; FLAME CONTROL 20-20 OR ENGINEER APPROVED EQUAL, UNLESS NOTED OTHERWISE. PLYWOOD SHEETS SHALL BE INSTALLED FLUSH ON THE FINISHED DRYWALL, BLOCK OR CONCRETE WALL, SECURELY ANCHORED TO THE BUILDING STRUCTURE, AND EXTENDING 4" OR LESS FROM THE FLOOR OR CURB UP THE WALL 8'-0". ALL COMMUNICATION CABLE CONDUITS SHALL STUB ONTO EITHER THE BACKBOARDS OR ONTO CABLE TRAYS AND LADDER SYSTEMS.

**OUTLETS AND PLATES:**

EACH TELEPHONE OR COMMUNICATIONS OUTLET SHALL BE A 4-11/16" SQUARE 2-1/8" DEEP BOX WITH 1-1/4" RAISED SINGLE-GANG OR DOUBLE-GANG PLASTER RING AS REQUIRED AND 1-1/4" CONDUIT (UNLESS NOTED OTHERWISE) STUBBED OUT ABOVE THE ACCESSIBLE CEILING INTO THE JOIST AREA, OR STUBBED OUT BELOW THE FLOOR INTO THE JOIST AREA BELOW AS INDICATED ON THE DRAWINGS. CONDUIT SHALL TURN TOWARDS THE MAIN CABLE ROUTING PATH OR CABLE TRAY AND HAVE AN INSULATED BUSHING INSTALLED.

CONDUIT HOME RUNS, EXTENDED TO THE CABLE TRAY AND/OR OTHERWISE EXTENDED BEYOND THE TURN OUT, SHALL HAVE A GROUNDING BUSHING INSTALLED AND BE BONDED TO THE COMMUNICATION GROUNDING SYSTEM.

COMMUNICATIONS OUTLET MOUNTING HEIGHT SHALL BE ADA COMPLIANT, 18" TO CENTERLINE ABOVE FINISHED FLOOR (A.F.F.) UNLESS NOTED OTHERWISE (CONTRACTOR TO VERIFY). EACH OUTLET SHALL BE PROVIDED WITH A MATCHING BLANK COVER PLATE UNLESS NOTED OTHERWISE. OUTLET FACEPLATES SHALL BE AS NOTED ON THE DRAWINGS.

**CONDUITS:**

CONDUITS SHALL BE INSTALLED PER SECTION 26 0533 - RACEWAYS OF THIS SPECIFICATION EXCEPT AS NOTED. THE SIZES OF CONDUITS SHALL BE AS SHOWN ON THE DRAWINGS, MINIMUM SIZE IS 1-1/4". ALL CONDUITS SHALL BE REAMED AND FURNISHED WITH INSULATION AND/OR GROUNDING BUSHINGS AS REQUIRED. FLEXIBLE STEEL CONDUITS SHALL NOT BE UTILIZED FOR COMMUNICATIONS RACEWAY SYSTEMS WITHOUT SPECIFIC WRITTEN APPROVAL OF THE ENGINEER FOR THE APPLICATION.

**D. EXECUTION:**

**CONDUITS:**

CONDUITS SHALL BE SIZED AS PER THE LATEST EDITION TIA-569 OR AS NOTED ON THE DRAWINGS, WHICHEVER IS MORE STRINGENT. WHERE SECTIONS OF CONDUIT RUNS ARE LONGER THAN 100'-0", OR HAVE MORE THAN 1800 OF BENDS, OR HAVE A REVERSE (GREATER THAN 90) BEND, PULL BOXES SHALL BE PROVIDED AND INSTALLED. BENDS IN CONDUITS LARGER THAN 2" SHALL BE LONG-SWEEP BENDS, UNLESS OTHERWISE NOTED, IN NO INSTANCE SHALL THE INSIDE RADIUS OF BENDS BE LESS THAN:

- SIX TIMES THE SIDE DIAMETER FOR CONDUITS UP TO AND INCLUDING 2"
- TEN TIMES THE SIDE DIAMETER FOR CONDUITS OVER 2".

CONDUITS ENTERING TELEPHONE AND DATA CLOSETS SHALL TERMINATE AS CLOSE AS POSSIBLE TO THE WALL THROUGH WHICH THE CONDUITS ENTER, UNLESS NOTED OTHERWISE. IN-FLOOR CONDUITS SHALL TERMINATE 4" A.F.F. OR CURB UNLESS NOTED OTHERWISE. ALL CONDUITS SHALL BE LEFT CLEAN, DRY AND FREE OF DEBRIS OR OTHER OBSTRUCTIONS, WITH INSULATED GROUNDING BUSHING INSTALLED.

PROVIDE A 1/8" NYLON OR POLYPROPYLENE PULL STRING IN ALL CONDUITS.

**SECTION 27 1300 - COMMUNICATIONS CABLE SYSTEMS**

**A. GENERAL:**

ALL WORK SHALL CONFORM TO THE LATEST EDITION OF N.E.C., NATIONAL, STATE AND LOCAL CODES WHICH APPLY.

ALL ABANDONED COMMUNICATIONS CABLING SHALL BE REMOVED AS PER NEC 770.25, 800.25, 820.25.

ALL WORK SHALL CONFORM TO THE LATEST EDITION OF TIA-568, 569, 606, 607, THE BICSI TELECOMMUNICATIONS DISTRIBUTION METHODS MANUAL (TDMM), NEMA-250, IEEE, ANSI, ISO, NATIONAL, STATE AND LOCAL STANDARDS FOR COMMERCIAL BUILDING WIRING FOR VOICE AND DATA COMMUNICATIONS AS APPLICABLE.

ALL MATERIAL AND EQUIPMENT SHALL CONFORM TO ALL U.L. AND NEMA STANDARDS WHICH APPLY. ALL COMPONENTS AND MATERIALS SHALL BE U.L. LISTED, WHERE APPLICABLE, ALL COMPONENTS AND MATERIALS SHALL BE U.L. VERIFIED AS MEETING THE TIA PERFORMANCE CATEGORY SPECIFICATIONS INDICATED.

THE CONTRACTOR SHALL FURNISH, INSTALL AND TEST AS REQUIRED, ALL RACEWAY, CABLE, EQUIPMENT RACKS, PATCH PANELS, CABLE SUPPORTS, CONNECTORS, FACEPLATES, CROSS-CONNECT BLOCKS, POWER STRIPS, CABLE TRAYS, RACK EQUIPMENTS, ACCESSORIES, ETC, AS INDICATED TO PROVIDE A COMPLETE AND FUNCTIONING INSTALLATION.

THE CONTRACTOR SHALL BID THE PROJECT AS SPECIFIED AND SHOWN ON THE DRAWINGS AND DOCUMENTS. THE INSTALLATION SHALL BE UNDER THE SUPERVISION OF A CERTIFIABLY TRAINED INSTALLER/TECHNICIAN WITH A MINIMUM OF FIVE (5) YEARS OF FIELD EXPERIENCE. ALL CRAFTSMEN ON THE PROJECT SHALL HAVE RECEIVED CERTIFIABLE TRAINING AND RELATED HANDS-ON EXPERIENCE. ACCEPTABLE CERTIFIABLE TRAINING SHALL BE AS BY BICSI, NIAJTO OR ENGINEER APPROVED EQUAL. THE CONTRACTOR SHALL HAVE A RCDD STAFFED AS A PERMANENT FULL-TIME EMPLOYEE. THE CONTRACTOR'S PROJECT FOREMAN SHALL BE A BICSI ITS INSTALLER LEVEL 2, OR GREATER.

CONTRACTOR SHALL WARRANTY HIS ENTIRE INSTALLATION AGAINST DEFECTS IN WORKMANSHIP AND MATERIALS FOR A PERIOD OF TWO (2) YEARS.

CONTRACTOR SHALL MAINTAIN AND SUPPORT THE EQUIPMENT MANUFACTURER'S WARRANTIES FOR ALL EQUIPMENT FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER THIS CONTRACT FOR THE LIFE OF THE EQUIPMENT MANUFACTURER'S WARRANTIES, AND/OR AS OTHERWISE NOTED IN THE DETAILED ENGINEERING DOCUMENTS.

SLEEVES THROUGH WALLS SHALL BE STEEL CONDUIT WITH BUSHINGS, SIZED AS NOTED. CONDUIT TYPE SHALL BE AS PER SPECIFICATIONS. SLEEVES THROUGH FIREWALLS SHALL HAVE FIRE STOP INSTALLED AS PER SPECIFICATIONS.

CONTRACTOR SHALL TAKE CARE DURING INSTALLATION TO ASSURE THAT CABLES ARE INSTALLED FREE FROM ALL KINKS, SHARP BENDS, PINCHES, CRUSHES, GOUGES, CUTS OR ANY OTHER PHYSICAL DAMAGE WHICH MAY CAUSE ANY PHYSICAL OR ELECTRICAL CHARACTERISTIC ALTERATIONS TO THE COMMUNICATION, DATA OR OPTICAL FIBER CABLES.

CONTRACTOR SHALL BE RESPONSIBLE FOR THE PHYSICAL AND ELECTRICAL INTEGRITY OF THE CABLE BEING INSTALLED AND SHALL REPLACE ANY AND ALL CABLES FOUND DEFICIENT FOR ANY REASON.

ALL CABLES SHALL BE OF A SINGLE CONTINUOUS RUN, WITH NO SPLICES, IN-LINE CONNECTORS, ETC.

ALL CABLE RUNS, CONDUITS, TRAYS AND OTHER RACEWAYS SHALL BE ROUTED PARALLEL TO OR PERPENDICULAR TO THE BUILDING STRUCTURE; NO DIAGONAL RUNS WILL BE PERMITTED.

THE CONTRACTOR SHALL PROVIDE COMMUNICATIONS SPACES, PATHWAYS, RACEWAYS, ETC. AS PER THE LATEST EDITION TIA-569 AND AS INDICATED TO PROVIDE A COMPLETE AND FUNCTIONAL INSTALLATION.

VERIFY WITH THE ARCHITECT OR THE LOCAL BUILDING AUTHORITY, THE FIRE-RATING REQUIREMENTS OF ANY WALL OR FLOOR TO BE BREACHED BY A CONDUIT, CABLE, RACEWAY OR OTHER PENETRATION AS PER ASTM E-119 (NFPA-251 AND UL-263) STANDARDS. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT IN WRITING OF ALL EXISTING NON-COMPLIANT CONDITIONS FOR RESOLUTION. THE PRESENCE OF EXISTING NON-COMPLIANT CONDITIONS WILL NOT EXEMPT THE CONTRACTOR FROM MEETING THE INSTALLATION FIRE RATING REQUIREMENTS.

PROVIDE THROUGH-PENETRATION FIRESTOPS AS PER ASTM E-814 AND UL-1479. FIRESTOP SYSTEMS SHALL HAVE BEEN TESTED BY U.L. AND MEET THE RATING CRITERIA, AS PUBLISHED IN THE U.L. FIRE RESISTANCE DIRECTORY, REFERENCED TO THE LATEST EDITION TIA-569 AND THE TDMM FOR GENERAL GUIDELINES AND OVERVIEW OF FIRESTOP TECHNOLOGY AND METHODS. CONSULT INDIVIDUAL MANUFACTURER'S INSTRUCTIONS FOR SPECIFIC APPLICATION DETAILS.

ALL COMMUNICATION CABLING THAT PENETRATES RATED WALLS/STRUCTURES SHALL BE IN STI EZ-PATH SERIES 22 OR 33 AS REQUIRED FOR 40% FILL WITH 50% GROWTH AVAILABLE.

OPENINGS AROUND CABLE CHANNELS, CONDUITS OR IN SLEEVES PENETRATING FIRE-RATED FLOOR SLABS, WALLS, PARTITIONS, CEILINGS OR SMOKE PARTITIONS, SHALL BE SEALED AT BOTH SIDES OF THE PARTITION. PACK OPENINGS WITH CALCIUM SILICATE BLOCKS, 3M BRAND FIRE BARRIER CAULK CP25 AND PUTTY 303, 3M BRAND SERIES 7902/7904 SYSTEMS FOR FLOOR AND WALLS, NELSON FLAME SEAL SYSTEM, OR AN AUTHORITY HAVING JURISDICTION ACCEPTED MATERIAL HAVING THE SAME FIRE-RATING AS THE FLOOR OR WALL PENETRATED. FIBERGLASS IS NOT ACCEPTABLE.

ALL COMMUNICATIONS RACEWAYS AND EQUIPMENT SHALL BE BONDED TOGETHER AND TO THE COMMUNICATIONS GROUNDING SYSTEM PROVIDED. THE COMMUNICATIONS GROUNDING SYSTEM IS TO BE BONDED TO THE BUILDING GROUNDING SYSTEM PER THE N.E.C. AND LATEST EDITION TIA-607 STANDARDS AND AS INDICATED ON THE ENGINEERING DOCUMENTS.

GROUNDING SYSTEM TERMINATIONS SHALL BE BY MEANS OF IRREVERSIBLE COMPRESSION-TYPE CONNECTORS, EXOTHERMIC WELDING, AND BRONZE BOLT, STAR WASHERS AND NUT CONNECTIONS OR ENGINEER APPROVED EQUIVALENT, SETSCREW-TYPE AND/OR BOX LUG TYPE TERMINATIONS ARE NOT ACCEPTABLE.

CONTRACTOR SHALL SUBMIT ELECTRONIC COPIES OF CUT SHEETS AND SHOP DRAWINGS FOR ALL ITEMS OF MATERIALS AND EQUIPMENT TO BE FURNISHED AND INSTALLED FOR APPROVAL BY THE ENGINEER PRIOR TO PURCHASE, MANUFACTURE OR INSTALLATION. CONTRACTOR SHALL INCLUDE SUBMITTALS FOR ALL TEST EQUIPMENT, PROCEDURES, AND SAMPLE TEST REPORTS.

THE COMPLETED CABLING INSTALLATION SHALL BE FULLY TESTED AND VERIFIED IN ACCORDANCE WITH THE LATEST EDITION TIA-568 LEVEL III ACCURACY STANDARDS FOR BASIC LINK PERFORMANCE, AND THE LATEST ACCEPTABLE INDUSTRY STANDARDS.

THE CONTRACTOR SHALL PREPARE COMPLETE CABLE TEST REPORTS FOR ALL INSTALLED CABLES FOR REVIEW AND ACCEPTABLE BY THE ENGINEER PRIOR TO FINAL ACCEPTANCE OF THE CABLING SYSTEM. TEST REPORTS MUST BE IN A SEARCHABLE/SORTABLE DIGITAL FORMAT WHICH INCLUDES THE TEST MANUFACTURER'S REPORT VIEWING SOFTWARE.

END OF SPECIFICATION

06.12.17	CONSTRUCTION
06.05.17	BUREAU OF FIRE SERVICES
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