

LAKES REGIONAL HEALTHCARE

PRE-ENGINEERED BUILDING

BID DOCUMENTS

6/1/2026

UNISON DESIGN STUDIO:26022



SHEET INDEX:

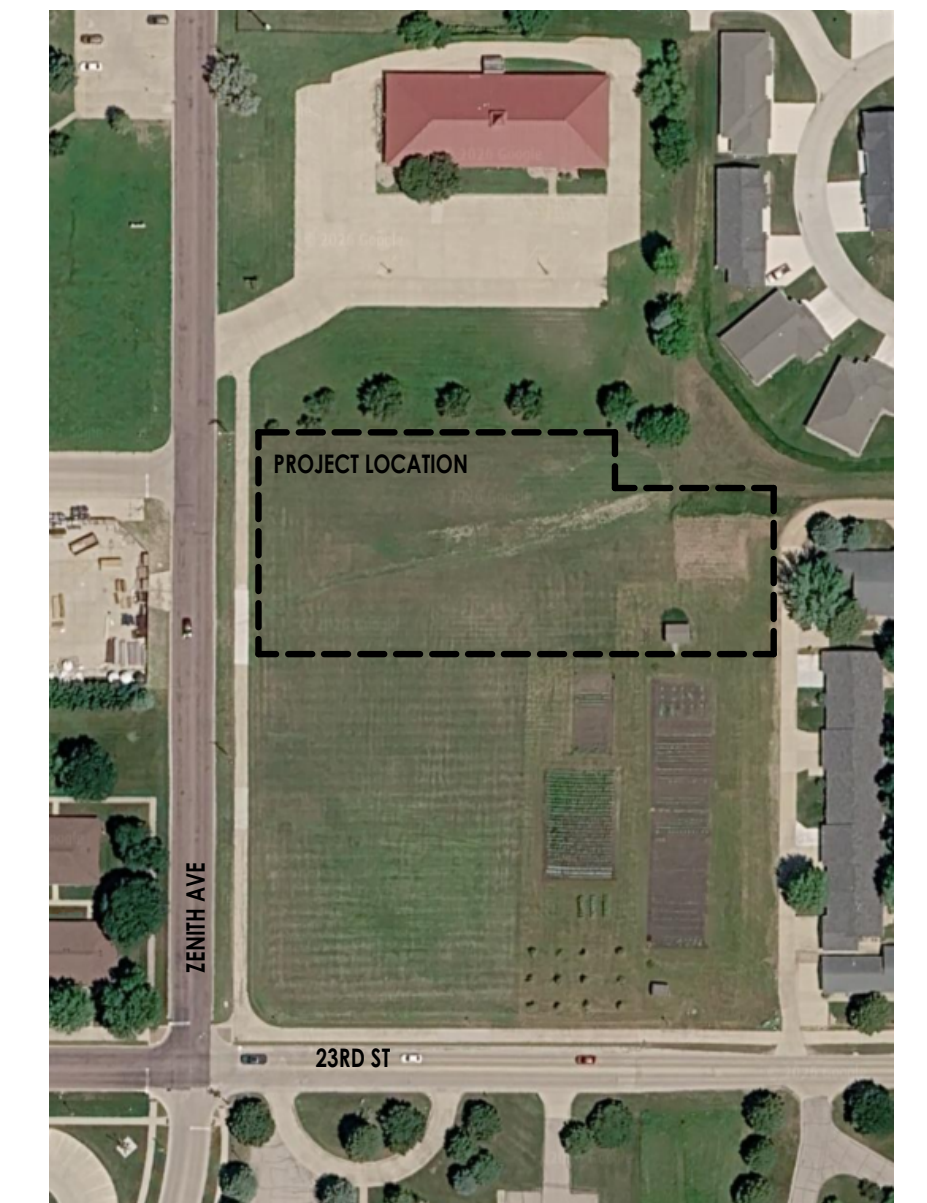
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T101	TECHNOLOGY PLAN
T501	TECHNOLOGY DETAILS

ALTERNATES:

REFER TO MECHANICAL + CIVIL DRAWINGS FOR MORE INFORMATION ABOUT ALTERNATES.

ALTERNATE NO. 1. CEILING FANS
 BASE BID: NO CEILING FANS.
 ADD ALTERNATE: PROVIDE + INSTALL CEILING FANS AS INDICATED ON MEPT DRAWINGS. PROVIDE POWER BRANCH CIRCUIT CONDUIT AND WIRE FOR CEILING FANS, AND INSTALL MECHANICAL CONTRACTOR PROVIDED DISCONNECT SWITCH AND FAN CONTROL SWITCHES.

ALTERNATE NO. 2. PARKING PAVEMENT
 BASE BID: FOUR (4) PARKING STALLS AND ASSOCIATED DRIVE AISLES.
 ADD ALTERNATE:
 • PROVIDE AND CONSTRUCT AN ADDITIONAL FOUR (4) PARKING STALLS AND ASSOCIATED DRIVE AISLES EAST OF THE STRUCTURE.
 • PROVIDE AND INSTALL AN ADDITIONAL TWO (2) TYPE S1 LIGHT FIXTURES AND ASSOCIATED CONDUIT AND WIRE ON EAST FACE OF THE STRUCTURE. EXTEND CONTROL FROM OTHER EXTERIOR LIGHTING FIXTURES.



VICINITY MAP
NOT TO SCALE

I hereby certify that the portion of this technical submission described below was prepared by me or under my direct supervision and responsible charge. I am a duly licensed architect under the laws of the State of Iowa.

HEIDI WILLIS
 Printed or typed name Date 5/29/2026

Heidi Willis
 Signature

JUNE 30, 2027
 Registration expires

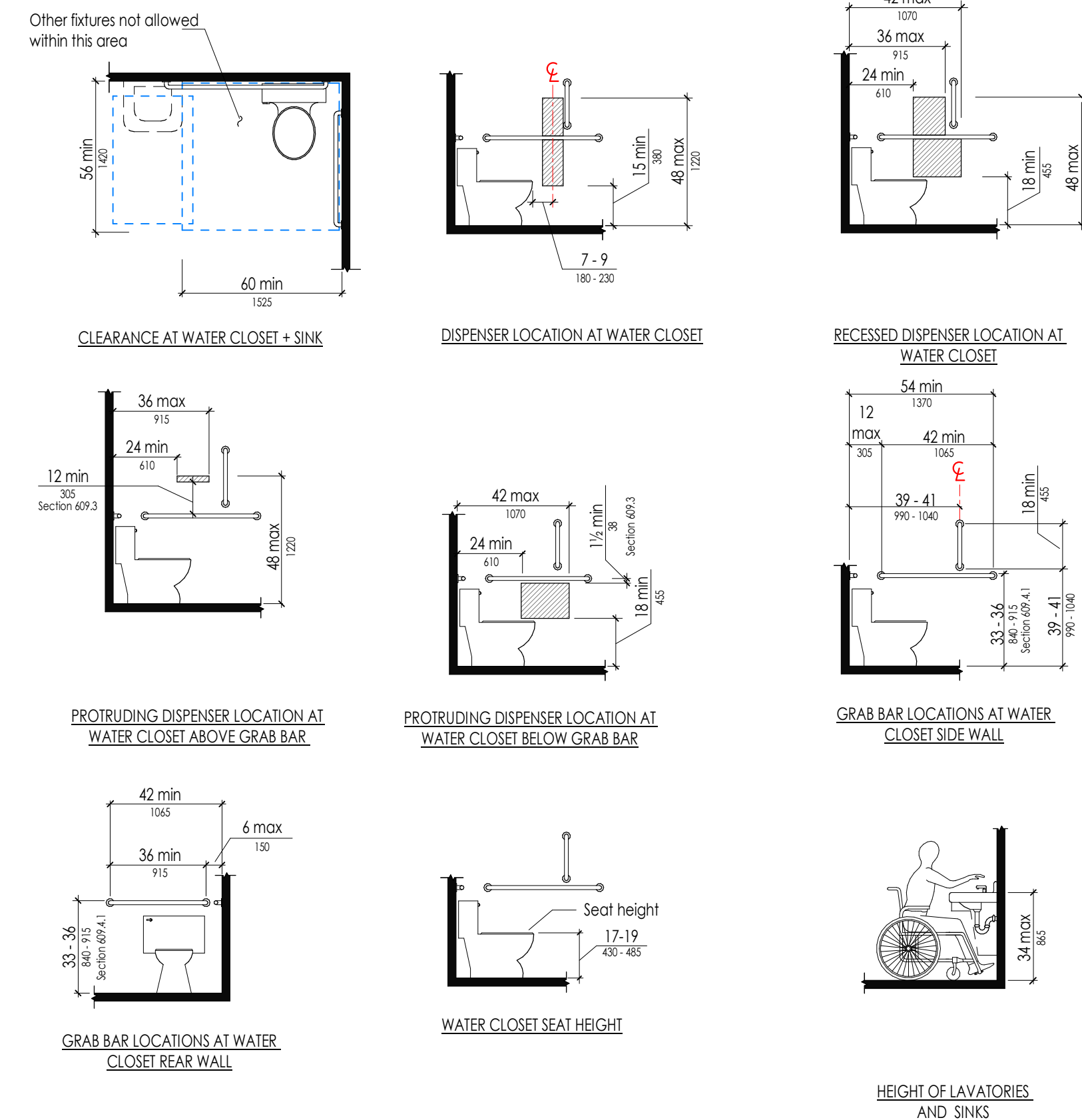
GENERAL AND ARCHITECTURAL SERIES
 Pages or sheets covered by this seal

DESIGN TEAM			
ARCHITECT UNISON DESIGN STUDIO	CIVIL BECK ENGINEERING	STRUCTURAL RAKER RHODES ENGINEERING	MEPT KEDbluestone ENGINEERING
1312 LOCUST ST, STE 204 DES MOINES IA, 50309	3301 ZENITH AVE SPIRIT LAKE, IA 51360	4717 GRAND AVE DES MOINES, IA 50312	5518 NE 88TH ST JOHNSTON, IA 50131
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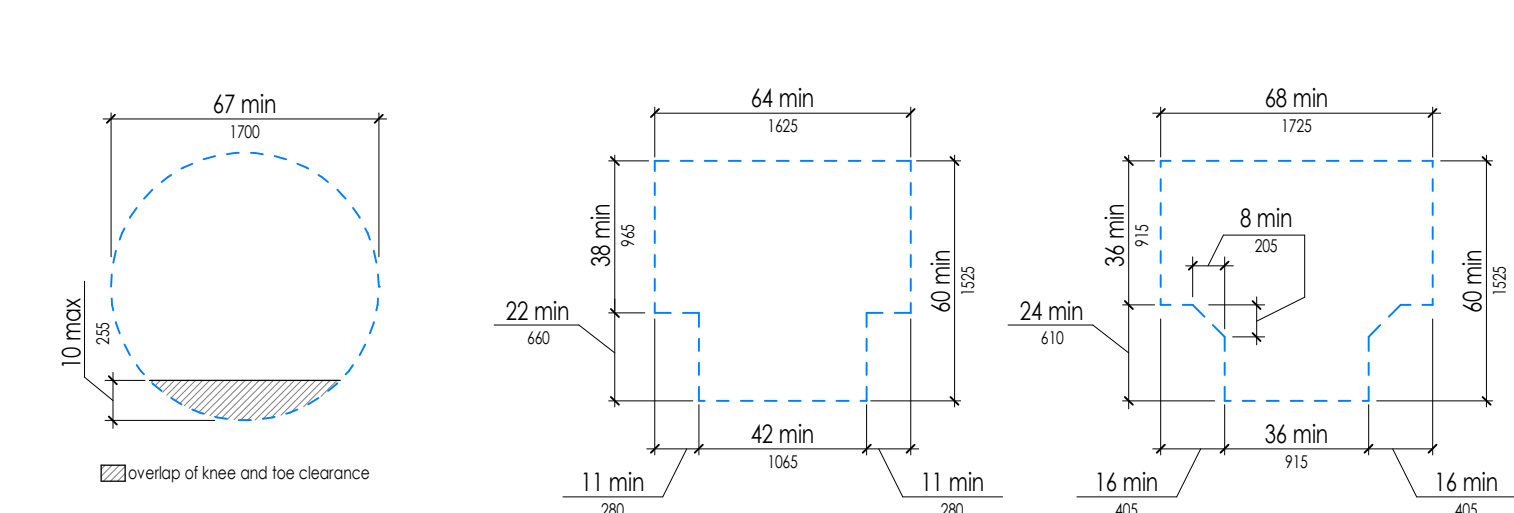


CONVENTION	DESCRIPTION
	DIMENSION SHOWING ENGLISH UNITS (IN INCHES UNLESS OTHERWISE SPECIFIED) ABOVE THE LINE AND SI UNITS (IN MILLIMETERS UNLESS OTHERWISE SPECIFIED) BELOW THE LINE
	DIMENSION FOR SMALL MEASUREMENTS
	DIMENSION SHOWING A RANGE WITH MINIMUM - MAXIMUM
	MINIMUM
	MAXIMUM
	GREATER THAN
	GREATER THAN OR EQUAL TO
	LESS THAN
	LESS THAN OR EQUAL TO
	BOUNDARY OF CLEAR FLOOR SPACE OR MANEUVERING CLEARANCE
	CENTERLINE
	DIRECTION OF TRAVEL OR APPROACH
	A WALL, FLOOR, CEILING OR OTHER ELEMENT CUT IN SECTION OR PLAN
	A HIGHLIGHTED ELEMENT IN ELEVATION OR PLAN
	LOCATION ZONE OF ELEMENT, CONTROL OR FEATURE

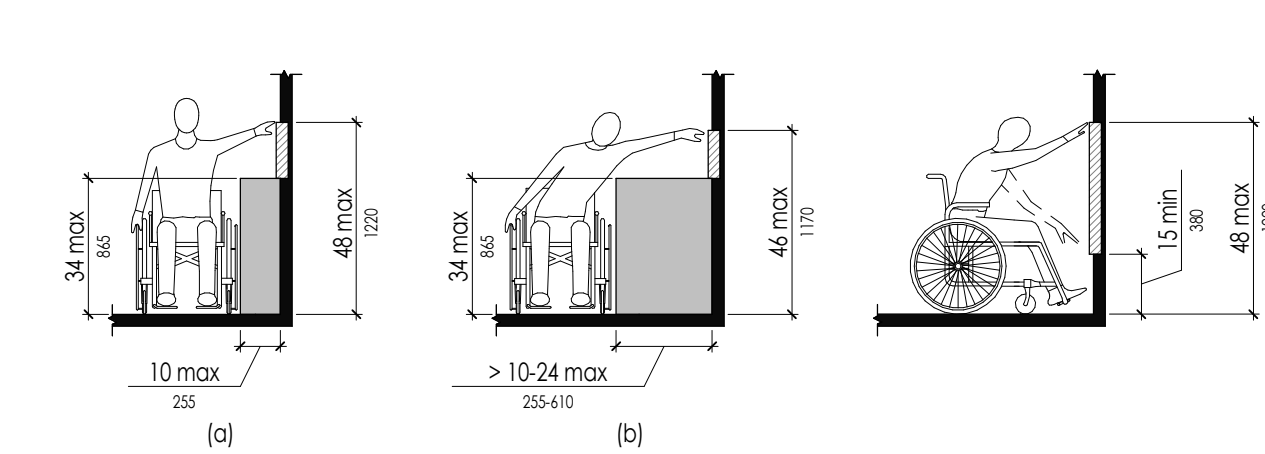
ADA BATHROOM REQUIREMENTS



ADA MANEUVERING CLEARANCE OPTIONS

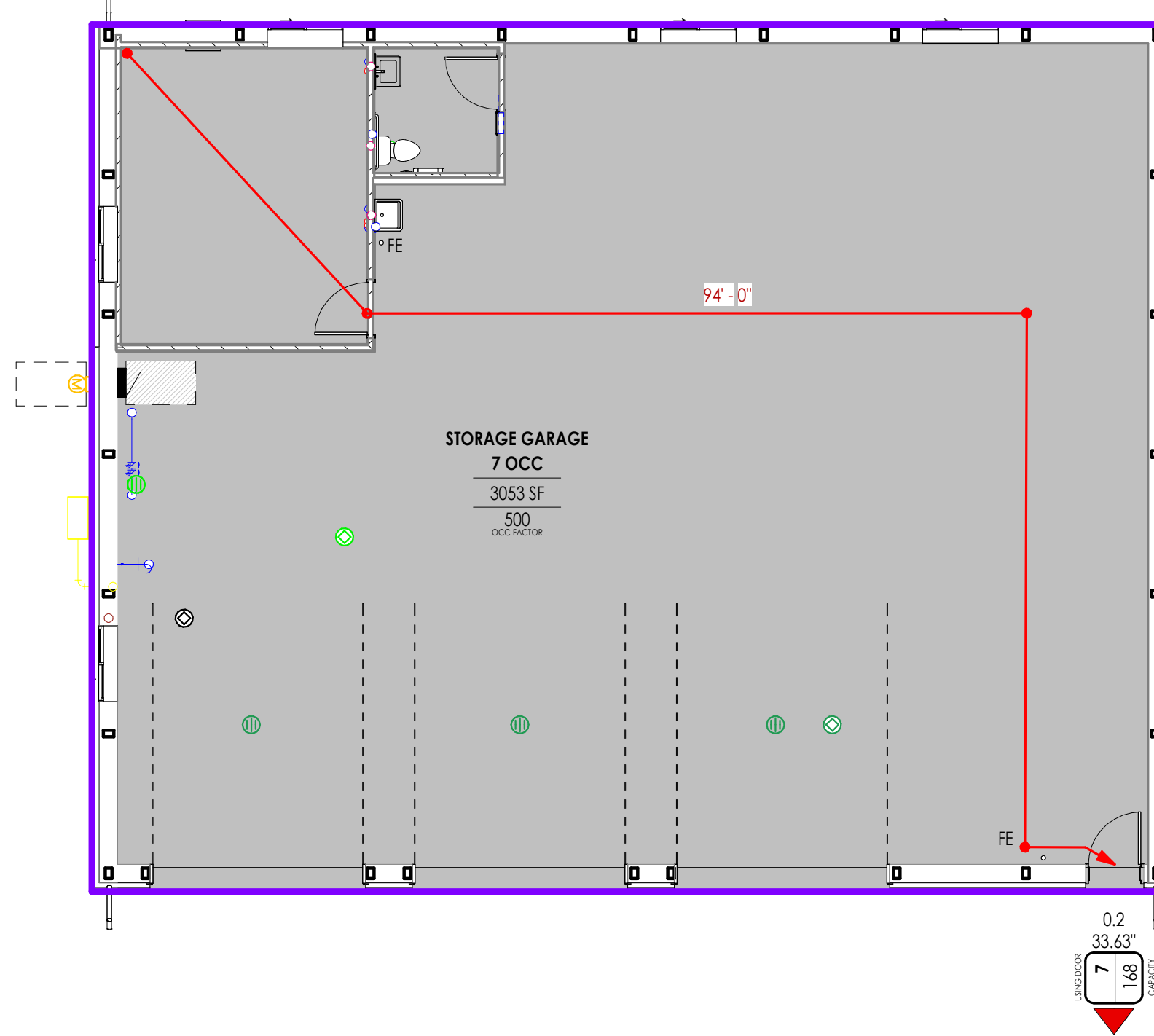


ADA REACH RANGE REQUIREMENTS



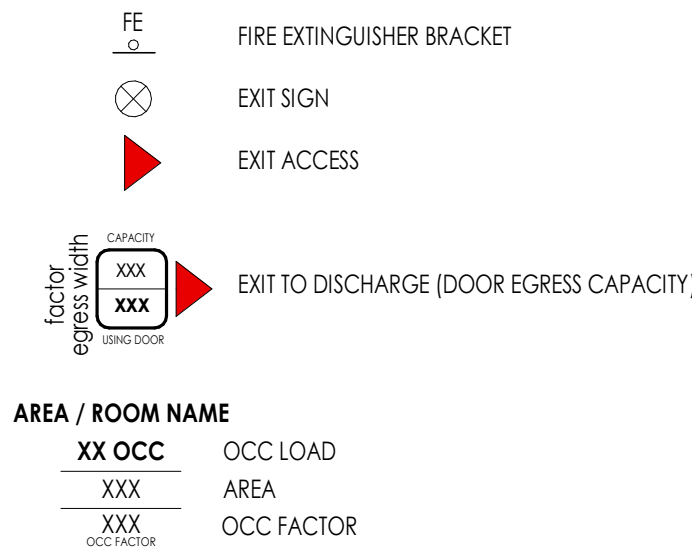
CODE REVIEW - OCCUPANT LOAD FOR AREAS

NAME	LEVEL	AREA	FUNCTION OF SPACE	OCCUPANT LOAD FACTOR	OCCUPANT LOAD FACTOR TYPE	OCCUPANT LOAD
FIRST FLOOR						
STORAGE GARAGE	FIRST FLOOR	3053 SF	WAREHOUSES	500 SF	GROSS	7
FIRST FLOOR		3053 SF				
BUILDING TOTALS		3053 SF				



1 FIRST FLOOR
1/8" = 1'-0"

LIFE SAFETY LEGEND



OCCUPANCY TYPE LEGEND



PROJECT DESCRIPTION

THE PROJECT CONSISTS OF A 2,880 SQUARE FOOT PRE-ENGINEERED BUILDING THAT WILL BE USED TO TEMPORARILY HOUSE AMBULANCES DURING AN UPCOMING CONSTRUCTION PROJECT AT THE HOSPITAL. LONG-TERM THE BUILDING IS ANTICIPATED TO BE USED AS STORAGE.

APPLICABLE CODES

2012 LIFE SAFETY CODE	2012 INTERNATIONAL ENERGY CONSERVATION CODE
2024 INTERNATIONAL BUILDING CODE	2023 NATIONAL ELECTRICAL CODE
2024 INTERNATIONAL MECHANICAL CODE	2024 INTERNATIONAL FIRE CODE
2024 UNIFORM PLUMBING CODE	

THE CITY OF SPIRIT LAKE HAS ADOPTED THE CODES LISTED AS ADOPTED BY THE STATE OF IOWA

**CHAPTER 3
OCCUPANCY CLASSIFICATION AND USE**

OCCUPANCY: S-2 LOW HAZARD STORAGE

**CHAPTER 5
GENERAL BUILDING HEIGHTS AND AREAS**

BUILDING FLOOR AREA:	2,770 SF
BUILDING STORIES HEIGHT:	25'-0"
BUILDING TYPE:	TYPE VB
SPRINKLERS:	NONE

**CHAPTER 6
TYPES OF CONSTRUCTION**

CONSTRUCTION TYPE: VB	
STRUCTURAL FIRE RATINGS (TABLE 601)	
STRUCTURAL FRAME INCLUDING COLUMNS, GIRDERS & TRUSSES	0 HR
BEARING EXTERIOR WALLS	0 HR
BEARING INTERIOR WALLS	0 HR
NONBEARING INTERIOR WALLS & PARTITIONS	0 HR
FLOOR CONSTRUCTION INCLUDING SUPPORTING BEAMS & JOISTS	0 HR
ROOF CONSTRUCTION INCLUDING SUPPORTING BEAMS & JOISTS	0 HR
FIRE RESISTANCE RATING - EXTERIOR WALLS (TABLE 705.5)	
X < 5'-0"	1 HOUR
5'-0" < X < 10'-0"	1 HOUR
10'-0" < X < 30'-0"	0 HOUR
X > 30'-0"	0 HOUR

**CHAPTER 9
FIRE AND SMOKE PROTECTION**

720.2/720.3	INSULATING MATERIALS SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND SMOKE DEVELOPED INDEX OF NOT MORE THAN 450
720.2.1	THE FLAME SPREAD AND SMOKE DEVELOPED LIMITATIONS DO NOT APPLY TO FACINGS, COVERINGS, OR LAYERS OF REFLECTIVE FOIL INSULATION INSTALLED BEHIND AND IN SUBSTANTIAL CONTACT WITH THE UNEXPOSED SURFACE OF THE CEILING, WALL OR FLOOR

**CHAPTER 10
MEANS OF EGRESS**

1005.1	EGRESS WIDTH - SEE PLAN
1006	ONE EXIT PERMITTED WITH MAXIMUM TRAVEL DISTANCE COMPLIANCE
1006.2.1	MAXIMUM COMMON PATH OF TRAVEL DISTANCE = 100 FT IN BUILDING W/ OCCUPANT LOAD LESS THAN 30
1008.2	NO REQUIRED MEANS OF EGRESS ILLUMINATION
1010.1	MINIMUM CLEAR WIDTH OF 32" AT DOORWAYS
1013.1	EXIT SIGNS ARE NOT REQUIRED IN ROOMS/AREAS THAT ONLY REQUIRE ONE EXIT OR EXIT ACCESS.

**CHAPTER 29
PLUMBING SYSTEMS**

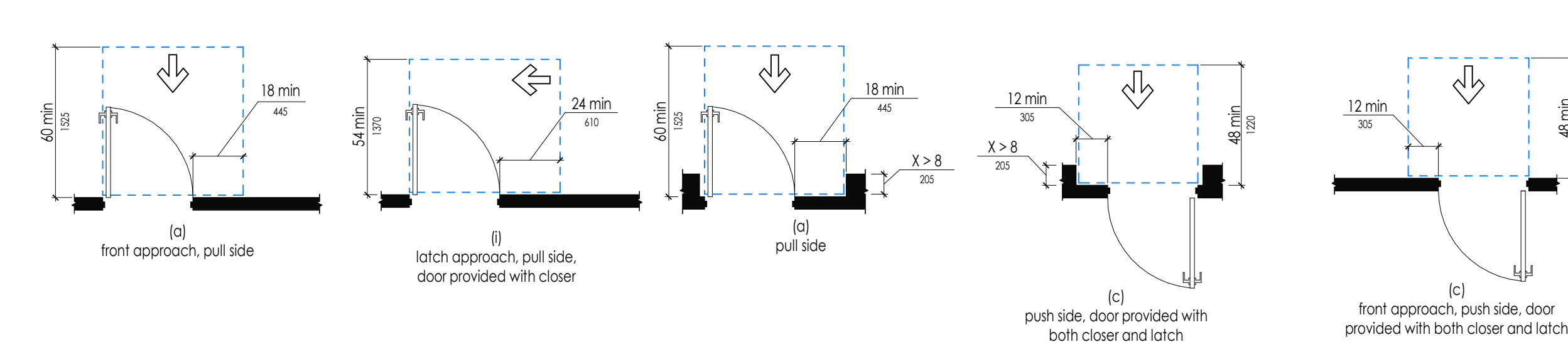
2902.1	MINIMUM # OF REQ'D PLUMBING FIXTURES		
	7 OCCUPANTS		
	TOILETS	1 PER 100	1 REQ'D / 1 PROVIDED
	SINKS	1 PER 100	1 REQ'D / 1 PROVIDED
	DRINKING FOUNTAIN	1 PER 1,000	SEE NOTE
	SERVICE SINK	1 SERVICE SINK REQUIRED, 1 PROVIDED	

DRINKING WATER PROVIDED VIA WATER COOLER.

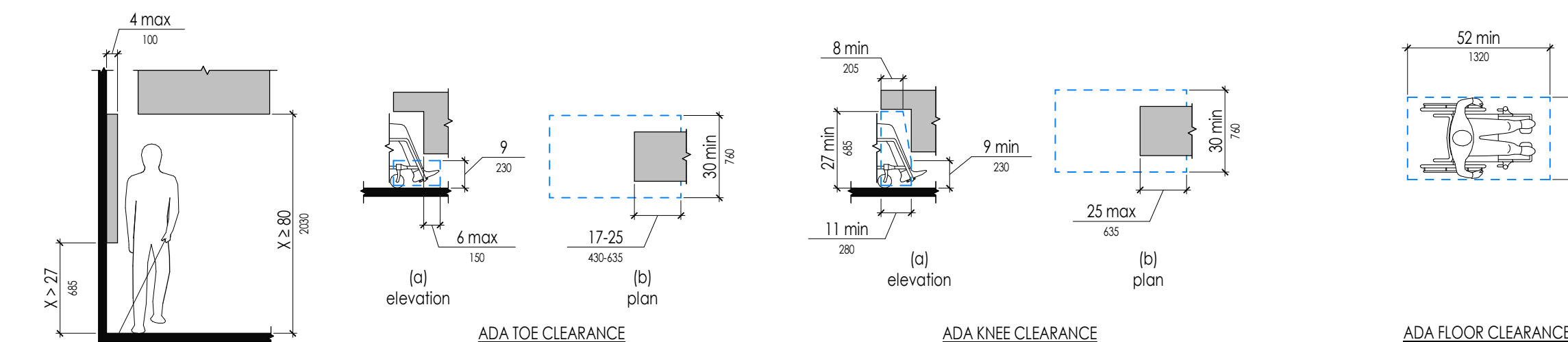
**ASHRAE 90.1
BUILDING ENVELOPE**

5.5	SEMI-HEATED SPACE (BTUS LESS THAN 14 PER HR/SQ FT)
TABLE 5.5-6	
	WOOD FRAMED WALLS ABOVE GRADE - R-15
	SLAB ON GRADE FLOORS (UNHEATED) - NO REQUIRED INSULATION
	ROOF - R-30 MINIMUM
	OPAQUE DOORS -
	SWINGING - U-0.370
	NON-SWINGING - U-0.370
	OPERABLE FENESTRATION
	MAX U-VALUE - 0.43
	MAX SHGC - NOT REQUIRED
5.5.4.2	ENTRANCE DOOR MAX U-VALUE 0.65
	SKYLIGHT FENESTRATION AREA NOT REQUIRED FOR ENCLOSED SPACES IN CLIMATE ZONES 6.

DOOR CLEARANCE ADA REQUIREMENTS



ADA CLEARANCE REQUIREMENTS



LAKES REGIONAL HEALTHCARE
PRE-ENGINEERED BUILDING

2323 US-71, SPIRIT LAKE, IA
25006



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BID DOCUMENTS
6/1/2026

REVISIONS: DATE:

PROJECT NO: 26022

CODE ANALYSIS & PLANS

G002

LEGEND

● FOUND BOUNDARY MONUMENT AS NOTED	FG PROPOSED FINISH GRADE
--- BUILDING SETBACK LIMITS	ME MATCH EXISTING GRADE
--- EXISTING MAJOR CONTOUR	TOC PROPOSED TOP OF CURB GRADE
--- EXISTING MINOR CONTOUR	(UAC) UNDISTURBED AFTER CONSTRUCTION
--- PROPOSED CONTOUR	--- EXISTING GAS LINE
--- EXISTING CURB STOP	E EXISTING UNDERGROUND ELECTRIC LINE
--- PROPOSED CURB STOP	OH EXISTING OVERHEAD UTILITY LINE
--- EXISTING GATE VALVE	CLN EXISTING CENTURY LINK NETWORK LINE
--- PROPOSED GATE VALVE	FO EXISTING FIBER OPTIC LINE
--- EXISTING FIRE HYDRANT	COM EXISTING COMMUNICATION LINE
--- PROPOSED FIRE HYDRANT	--- SAN --- EXISTING SANITARY SEWER LINE
--- EXISTING IOWA HYDRANT	--- SAN --- PROPOSED SANITARY SEWER LINE
--- EXISTING CISTERN	--- SAN --- ABANDONED UTILITY PIPE
--- EXISTING WATER METER PIT	FM EXISTING SANITARY SEWER FORCE MAIN
--- EXISTING SANITARY SEWER CLEANOUT	ST EXISTING STORM SEWER LINE
--- EXISTING SANITARY SEWER MANHOLE	--- ST --- PROPOSED STORM SEWER LINE
--- PROPOSED SANITARY SEWER MANHOLE	--- SB --- PROPOSED SUBDRAIN
--- EXISTING STORM SEWER MANHOLE	W EXISTING WATER MAIN
--- COMMUNICATION PEDESTAL	--- W --- PROPOSED WATER MAIN
--- COMMUNICATION VAULT	ROW PROJECT BOUNDARY
--- ELECTRIC PEDESTAL	SF PROPOSED SILT FENCE
--- ELECTRIC VAULT	SC PROPOSED FLOATING SILT CURTAIN
--- ELECTRIC METER	SL PROPOSED SEDIMENT LOG
--- GAS METER	FS PROPOSED FILTER SOCK
--- GAS GATE VALVE	--- EXISTING CHAIN LINK FENCE
--- UTILITY PEDESTAL	--- EXISTING WOOD FENCE
--- UTILITY MANHOLE	--- EXISTING WOOD DECK
--- AIR CONDITIONER	--- EXISTING PAVERS
--- SPRINKLER CONTROL VALVE	--- PROPOSED PAVERS
--- EXISTING MAILBOX	--- PROPOSED RIP-RAP
--- EXISTING STREET LIGHT	--- EXISTING DETECTABLE WARNING
--- EXISTING LIGHT POLE	--- PROPOSED DETECTABLE WARNING
--- EXISTING GUY WIRE	--- PROPOSED SOD
--- EXISTING UTILITY POLE	--- EXISTING GRAVEL
--- EXISTING TRAFFIC LIGHT	--- PROPOSED GRAVEL
--- 911 (ADDRESS) SIGN	--- EXISTING PCC PAVEMENT
--- STREET OR INFORMATIONAL SIGN	--- PROPOSED 6" PCC PAVEMENT
--- DECIDUOUS TREE (DIA. GIVEN)	--- PROPOSED 7" PCC PAVEMENT
--- CONIFEROUS TREE (DIA. GIVEN)	--- PROPOSED 5" PCC SIDEWALK
--- STUMP	--- PROPOSED FULL DEPTH PATCH
--- BUSH	--- EXISTING ASPHALT PAVEMENT
--- BRUSH	
--- PROPOSED RETAINING WALL	
--- EXISTING BUILDING FOOTPRINT	
--- PROPOSED BUILDING FOOTPRINT	

WHERE PUBLIC UTILITY LINES AND FIXTURES ARE SHOWN AS EXISTING ON THE PLANS OR ENCOUNTERED WITHIN THE CONSTRUCTION AREA, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE OWNER OF THOSE UTILITIES PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL PROVIDE ACCESS TO THOSE UTILITIES THAT REQUIRE SERVICE, UNDERGROUND UTILITIES AND STRUCTURES ARE SHOWN FROM LOCATES, SURVEYS AND RECORDS, AND SHALL BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THAT OTHERS MAY EXIST OF WHICH THE LOCATION IS NOT KNOWN. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING THE EXISTENCE AND EXACT LOCATION OF ALL UTILITIES AND STRUCTURES AND TO AVOID DAMAGE THERE TO. NO CLAIMS FOR ADDITIONAL COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR INTERFERENCE OR DELAY CAUSED BY UTILITY COORDINATION OR RELOCATION WORK.

THE CONTRACTOR SHALL CONTACT THE IOWA ONE-CALL SERVICE (1-800-292-8989) AT LEAST 48 HOURS PRIOR TO COMMENCING ANY WORK ON THE CONSTRUCTION SITE.

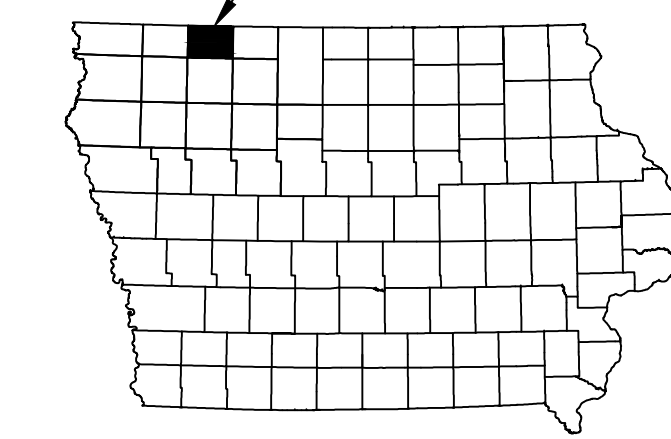
GENERAL CONSTRUCTION NOTES:

- HEAVY TRUCK TRAFFIC ON THE EXISTING ADJACENT PAVEMENTS SHALL BE KEPT TO THE MINIMUM NECESSARY FOR THE REQUIRED CONSTRUCTION OPERATIONS. ALL BASE AND EXISTING PAVEMENT REPAIRS NECESSARY DUE TO HAULING DURING CONSTRUCTION ACTIVITIES SHALL BE COMPLETED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. LIGHTER HAUL LOADS MAY BE REQUIRED TO PROTECT THE EXISTING SURFACES AND SHALL BE INCLUDED IN THE BID. NO COMPENSATION WILL BE MADE FOR ADDITIONAL HAULING ACTIVITIES OR PLACEMENT MACHINES/OPERATIONS THAT MAY BE REQUIRED TO PROTECT THE EXISTING SURFACES AND BASE MATERIALS.
- LOCATION OF UTILITIES IS APPROXIMATE. CONTRACTOR SHALL CONTACT IOWA ONE-CALL (1-800-292-8989) AT LEAST 48 HOURS PRIOR TO COMMENCING WORK ON THE PROJECT TO VERIFY LOCATION OF UTILITIES.
- NO CLAIMS FOR ADDITIONAL COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR INTERFERENCE OR DELAY CAUSED BY UTILITY COORDINATION OR RELOCATION WORK.
- ALL EXISTING UTILITY POLES, STREET LIGHTS, PEDESTALS AND TRANSFORMERS, EXCEPT THOSE NOTED IN THE PLANS, SHALL REMAIN UNDISTURBED AND FUNCTIONAL DURING CONSTRUCTION. ALL WORK SHALL TAKE PLACE WITHIN THE CURRENT ADJACENT PUBLIC ROAD RIGHT-OF-WAY, EASEMENT AREAS OR PROJECT BOUNDARY AS SHOWN IN THE PLANS SHEETS. NO PAYMENT WILL BE MADE FOR REPLACEMENT OR REPAIR TO ITEMS THAT ARE DAMAGED OUTSIDE OF THIS AREA OR WITHIN SAID WORK ZONE THAT ARE NOT NOTED IN THE PLANS.
- THE CONTRACTOR WILL BE REQUIRED TO PROVIDE CONSTRUCTION ACCESS TO THE SITE. THIS SHALL INCLUDE REMOVING, SALVAGING AND REPLACING ANY REQUIRED ITEMS NECESSARY TO ACCOMMODATE CONSTRUCTION TRAFFIC.
- ACCESS TO THE ADJACENT PROPERTIES SHALL BE MAINTAINED TO THE FULL EXTENT POSSIBLE AT ALL TIMES DURING CONSTRUCTION. THIS SHALL REQUIRE KEEPING THE ADJACENT ROADWAYS AND AREAS CLEAN AND FREE OF EQUIPMENT AND DEBRIS.
- THE PROJECT AREA WILL BE CONTROLLED THROUGH TRAFFIC CONTROL DURING CONSTRUCTION. THE ADJACENT ROADWAYS SHALL REMAIN OPEN TO TRAFFIC DURING CONSTRUCTION.
- IF THE PROJECT IS OPEN TO PROPERTIES ALONG THE PROJECT SITE, THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN TEMPORARY DRIVEWAYS AND ACCESSES DURING CONSTRUCTION. RAMPS CAN BE CONSTRUCTED OF MODIFIED SUBBASE TO BE USED FOR LATER GRADING OPERATIONS. NO SEPARATE PAYMENT WILL BE MADE FOR THIS TEMPORARY ACCESS TO LOCAL RESIDENTS.
- THE CONTRACTOR WILL BE REQUIRED TO MAINTAIN SANITARY SEWER AND WATER SERVICES TO ALL ADJACENT PROPERTIES TO THE FULL EXTENT POSSIBLE. A WRITTEN NOTICE SHALL BE PROVIDED TO THE CITY AND ANY INDIVIDUAL PROPERTY OWNERS INFORMING OF AN EXPECTED SERVICE INTERRUPTION. THIS NOTICE SHALL BE GIVEN AT LEAST 24 HOURS PRIOR TO SERVICE INTERRUPTION.
- ALL STRUCTURES AND FIXTURES, INCLUDING, BUT NOT LIMITED TO, MANHOLE COVERS AND STORM SEWER INTAKES, SHALL BE CLEAN AND FREE OF ALL DEBRIS AFTER CONSTRUCTION ACTIVITIES.
- THE CONTRACTOR SHALL APPLY NECESSARY MOISTURE TO THE CONSTRUCTION AREA TO PREVENT THE SPREAD OF DUST. SEE SECTION 1107.07 OF THE IOWA DOT STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION.
- ALL VEGETATION SHALL BE SCARIFIED PRIOR TO GRADING OF THE PROJECT. EXCEPT FOR BACKFILLING, NO VEGETATION SHALL BE PLACED UNDER, OR WITHIN 2 FEET OF ANY PAVING.
- ALL FILL MATERIAL SHALL BE COMPACTED TO 95% OF THE STANDARD PROCTOR DENSITY UNLESS STATED OTHERWISE.
- THE CONTRACTOR SHALL NOT DISTURB DESIRABLE GRASS AREAS AND DESIRABLE TREES OUTSIDE OF THE CONSTRUCTION LIMITS AS SHOWN IN THE CONSTRUCTION DOCUMENTS. THE CONTRACTOR SHALL PROTECT ALL GRASS AREAS, TREES, BUSHES AND LANDSCAPING WITHIN THE WORK ZONE UNLESS NOTED OTHERWISE IN THE PLANS. DAMAGE TO SUCH ITEMS WILL BE AT THE CONTRACTOR'S EXPENSE.
- CONTRACTOR SHALL PROTECT EXISTING TREES AND SUCH THAT ARE NOT NOTED TO BE CLEARED/GRUBBED.
- THE CONTRACTOR WILL NOT BE PERMITTED TO PARK OR SERVICE VEHICLES AND EQUIPMENT OR USE UNDISTURBED AREAS FOR STORAGE OF MATERIALS. STORAGE, PARKING, AND SERVICE AREAS WILL BE SUBJECT TO APPROVAL OF THE ENGINEER.
- ALL TOPSOIL IN THE DISTURBED AREAS SHALL BE FREE OF ROCK AND DEBRIS AND SHALL BE SUITABLE FOR THE ESTABLISHMENT OF VEGETATION, SOD AND SEEDING OPERATIONS, SUBJECT TO APPROVAL OF THE ENGINEER.
- ANY WASTE MATERIALS THAT ARE GENERATED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE PROJECT SITE. NO ADDITIONAL PAYMENT WILL BE MADE FOR THIS REMOVAL.
- INSTALLATION OF THE EROSION CONTROL DEVICES MAY REQUIRE MULTIPLE MOBILIZATIONS. THESE ITEMS MUST BE INSTALLED AS SPECIFIED AND NO ADDITIONAL PAYMENT WILL BE MADE FOR MULTIPLE MOBILIZATIONS.
- OWNER TO PROVIDE QUALITY CONTROL TESTING.
- CONTRACTOR TO PROVIDE CONSTRUCTION SURVEY.

UTILITY CONTACTS

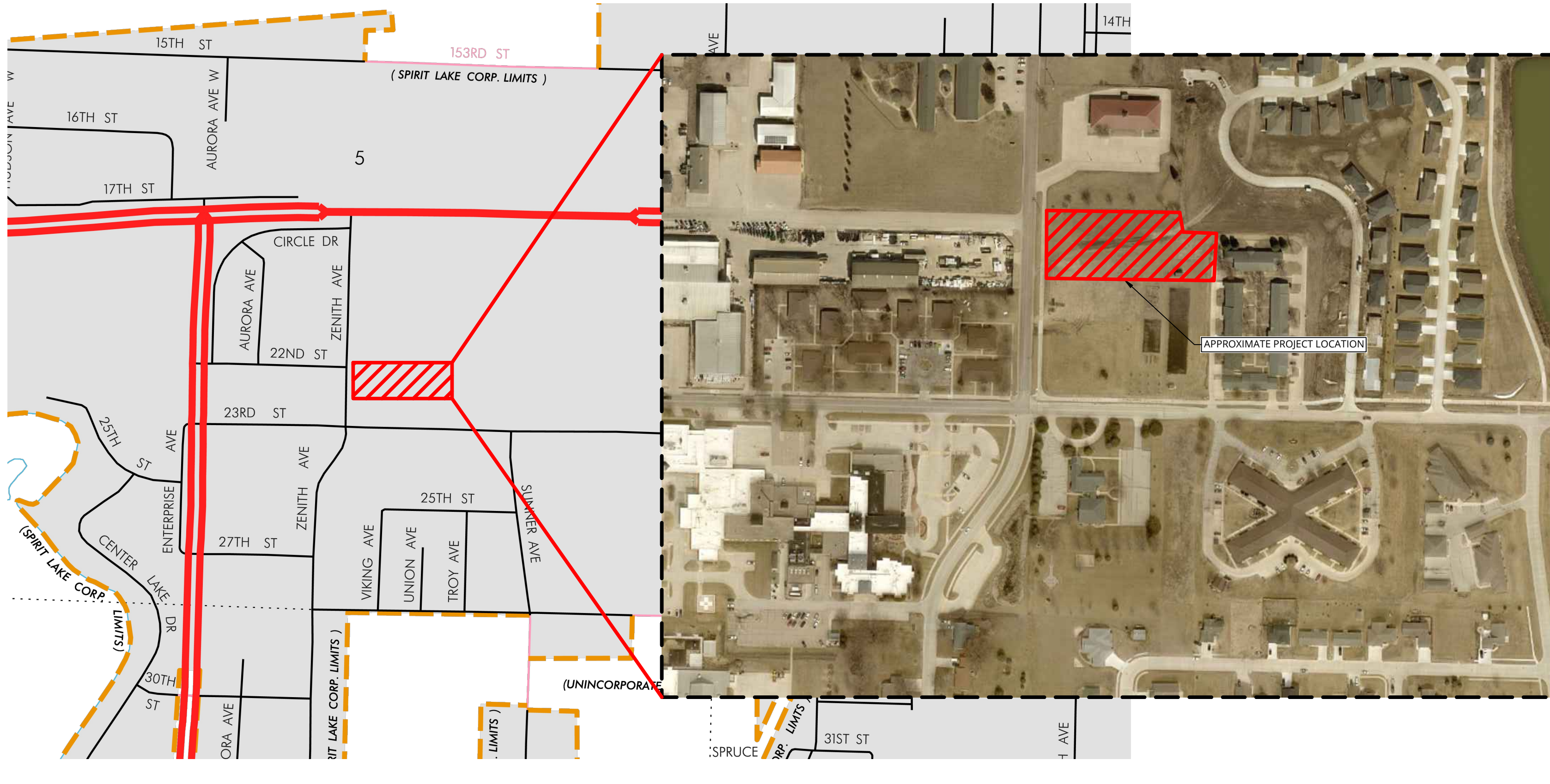
COMPANY	CONTACT NAME	PHONE	EMAIL
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IOWA HOSPITAL ASSOCIATION	DAVE AUGSPURGER	515-725-4604	icru@iowahospitalassoc.com
MEDIACOM LLC	DEAN PREUSCHL	712-330-5198	dpreuschl@mediacomcc.com
BLACK HILLS ENERGY	ASHLEY JOHNSON	712-580-6033	ashley.johnson@blackhillscorp.com
PREMIER COMMUNICATIONS	RYAN DAHM JAKE VAN ROEKEL	712-441-3680 712-578-9005	rdahm@premieronline.com jakev@premieronline.com
CITY OF SPIRIT LAKE	CULLEN ANDERA	712-336-2127	splwater@cmhsl.com
CENTURY LINK	SADIE HULL	918-547-0147	sadie.hull@lumens.com
VERIZON WIRELESS	RYAN SCHAFFER	515-201-5381	ryan.schaffer@verizonwireless.com

CITY OF SPIRIT LAKE (DICKINSON COUNTY)



ESTIMATE REFERENCE INFORMATION (BASE BID)		
ITEM NO.	ITEM CODE	ITEM DESCRIPTION
1	2010-D-1	TOPSOIL, ON-SITE Bid item is for stripping, salvaging, spreading and shaping on-site topsoil in accordance with Section 2010 of the SUDAS Standard Specifications. Quantity is based on grass areas inside the right-of-way and construction limits that will be disturbed with a 6" uniform thickness. Bid item shall include scarifying all vegetation prior to grading. All excess topsoil material shall be spoiled on site at the discretion of the Owner. Any excess topsoil not elected to be spoiled on site shall become the property of the contractor and removed from the project site in a timely and legal fashion.
2	2010-E	EXCAVATION, CLASS 10 Bid item includes 275 c.y. of on-site cut and 615 c.y. of on-site fill material. Fill quantity is based on a 30% compaction factor. Unsuitable or waste material shall become the property of the contractor and shall be removed from the project site. Suitable material may be wasted on site at the discretion of the engineer. No payment for overhaul will be made. All fill material shall be compacted to a minimum 95% of the Standard Proctor Density.
3	2010-E	EXCAVATION, CLASS 10, BORROW Bid item includes 300 C.Y. of borrow material. Quantity is based on a 30% compaction factor. All imported fill material shall be a suitable clay material approved by the Engineer prior to placement. All borrow material shall be placed in maximum 6' lifts and compacted to 95% of the Standard Proctor Density.
4	2010-G	SUBGRADE PREPARATION, 12" Bid item shall include subgrade preparation for a depth of 12" as shown in the typical sections in the class 10 excavation cut areas and in accordance with Section 2010-3.06 of the SUDAS Standard Specifications. The top 6" of soil shall be removed. The underlying 6" of material shall be scarified, mixed and recompacted to a minimum 95% of the Standard Proctor Density. The top 6" shall then be replaced and recompacted to a minimum 95% of the Standard Proctor Density.
5	2010-J	SUBBASE, MODIFIED, 2" Modified subbase will be required under all portions of the proposed parking lots, sidewalks. Parking lot quantity is based on material being placed as shown in the typical sections and shall be a minimum of 2" thickness. Sidewalk quantity is based on material being placed the full width of the sidewalk pavement or as shown in the typical sections and shall be a minimum of 2" thickness. Material shall conform to Section 4123 of the Iowa DOT Standard Specifications for Highway and Bridge Construction.
6	4010-A-1	PAVEMENT, PCC, 7" Concrete shall be Iowa DOT C-4 Mix. Coarse Aggregate shall be Class 3 Ledge Rock (Limestone or Quartzite). Bid item shall include integral curb and gutter where present. Refer to Section 7010 of the SUDAS Standard Specifications for Highway and Bridge Construction. Bid item shall include structure boxouts, epoxy coated reinforcing steel, pavement cure and joint sealant. All joints shall be sealed per SUDAS specifications.
7	5010-E-1	WATER SERVICE PIPE, TYPE K SOFT COPPER, 2" All pipe bedding shall be Class P-3 as shown in Figure 3010.104 (SW-104) of the SUDAS Standard Specifications. Bedding material shall conform to Class 1 Material (crushed stone) of Section 3010-2.02.A of the SUDAS Standard Specifications.
8	5010-E-2	WATER SERVICE CORPORATION Bid item shall include tapping saddles and corporation stops for the connection to the main. Tapping saddles are to be cast iron or stainless steel body, stainless steel double strap with stainless steel bolts and nuts. Corporation valves shall be Mueller B-25008N 300 ball valve or Ford Fd-1000, compression type. All fittings and valves shall meet the requirements of ANSI/AWWA. Contractor shall furnish and place polyethylene wrap around the service fittings.
9	5010-E-3	WATER SERVICE CURB STOP AND BOX Bid item shall include all materials required to completely install curb stop and box. Bid item shall include a Mueller 300 Ball Curb Valve, or approved equal, and associated Curb Box with adjustable riser for a minimum 6" bury. Riser shall be installed with a minimum of 6" of adjustment in either direction. Bid item shall include connections to the existing service line at the proposed curb stop location.
10	7010-A	PAVEMENT, PCC, 7" Concrete shall be Iowa DOT C-4 Mix. Coarse Aggregate shall be Class 3 Ledge Rock (Limestone or Quartzite). Bid item shall include integral curb and gutter where present. Refer to Section 7010 of the SUDAS Standard Specifications for Highway and Bridge Construction. Bid item shall include structure boxouts, epoxy coated reinforcing steel, pavement cure and joint sealant. All joints shall be sealed per SUDAS specifications.
11	7030-A	REMOVAL OF SIDEWALK Bid item shall include all saw cutting and complete removal of the existing sidewalk as shown in the plan sheets or as directed. No separate payment for the material hauling or disposal will be made. Material is to become the property of the contractor and shall be removed from the project site and disposed of in a timely and legal fashion. The contractor shall exercise care when removing the sidewalks to ensure that adjacent surfaces are not damaged. Damaged portions shall be re-sawed, removed and replaced at the discretion of the engineer at no additional cost to the owner.
12-13	7030-E	SIDEWALK, PCC, 5", 7" Concrete shall be Iowa DOT C-4 Mix. Coarse aggregate shall be Class 3 Ledge Rock (Limestone or Quartzite). Refer to Sections 7010 and 7030 of the SUDAS Standard Specifications and Sections 2301 and 2511 of the Iowa DOT Standard Specifications for Highway and Bridge Construction. Bid item shall include 'C' joints sawed at spacing equal to the width, but not to exceed 10' maximum. Connections to existing sidewalk and end of pouring sequence joints shall be 'RT' joints. Bid item shall include epoxy coated reinforcing steel, pavement cure and joint sealant material where required. Contractor shall construct the sidewalks in strict compliance with ADA requirements and Chapter 12 of the SUDAS Design Manual-General Sidewalk Requirements.
14	7030-G	DETECTABLE WARNINGS Bid item shall include all material and labor to furnish and install the detectable warnings on the proposed sidewalk as shown in the plan sheets. Panels shall be cast iron and be included on the Iowa DOT approved list of detectable warnings. Detectable warnings shall be installed in accordance with Section 7030 of the SUDAS Standard Specifications. All concrete shall match parking lot thickness (minimum 6") under all sidewalk curb ramps and detectable warnings.
16	8020-B	PAINTED PAVEMENT MARKINGS, SOLVENT/WATERBORNE Bid item shall include all labor and material required to complete all painting operations as shown or as directed. Painting shall be in accordance with Section 8020 of SUDAS Standard Specifications and Section 2527 of the Iowa DOT Standard Specifications for Highway and Bridge Construction. Bid item shall include cleaning and preparing the surface. All paint shall include approved glass beads. Bid item includes 4" yellow parking lines and access aisles.
17	8030-A	TEMPORARY TRAFFIC CONTROL Refer to SUDAS Standard Specifications and Iowa DOT Standard Road Plans that apply. Bid item shall include all signs, barricades, fencing, equipment, labor, and all other items necessary to control traffic, including pedestrian traffic, during construction. All traffic control devices shall meet the requirements of the Manual on Uniform Traffic Control Devices (MUTCD). Bid item shall include temporary signage removal, salvage, and re-install sign.
18	8040-1	BID ITEM SHALL INCLUDE ALL LABOR AND MATERIALS REQUIRED FOR THE COMPLETE REMOVAL AND REINSTALLATION OF TRAFFIC SIGNS AS NOTED IN THE PLANS. ALL SIGNS, POSTS, AND MOUNTING HARDWARE SHALL BE SALVAGED AT THE DISCRETION OF THE CITY OF SPIRIT LAKE. BID ITEM SHALL INCLUDE REMOVAL OF EXISTING FOOTING TO FULL DEPTH, AND NEW POST EMBEDMENT AND FOOTING REQUIRED FOR COMPLETE INSTALLATION. CONTRACTOR SHALL EXERCISE CARE WHILE REMOVING AND SALVAGING SIGNS. ANY DAMAGE TO SIGNS, POSTS, OR HARDWARE SHALL BE REPLACED OR REPAIRED AT THE CONTRACTOR'S EXPENSE.
19	9010-A	CONVENTIONAL SEEDING, SEEDING, FERTILIZING, AND HYDRO-MULCHING Bid item includes areas that are disturbed during construction. Seed areas with Type 1 Seed Mixture as specified in Section 9010-2.02 of the SUDAS Standard Specifications. Seed and fertilizer shall be placed conventionally with hydro-mulch applied. If seed does not establish to a minimum of 70% coverage within the first growing season, the contractor shall re-seed the project area until 70% coverage is achieved at no additional expense to the owner.
20	9030-999-A	OVERSTORY TREE Bid item shall include all work, materials, and equipment required to furnish and install overstory trees as shown in the plan sheets and in accordance with Section 9030 of the SUDAS Standard Specifications. Bid item includes installation and maintenance during establishment and warranty period, and replacements as required. Refer to landscaping sheets for notes, installation details, and warranty period.
21	9040-N-1	SILT FENCE OR SILT FENCE DITCH CHECK Contractor shall install silt fence at locations indicated in the plan sheets or as directed by the engineer. Installation shall take place prior to construction activities whenever possible. Installation may require multiple mobilizations to the project site. No additional payment will be made for multiple mobilizations.
22	9040-N-2	SILT FENCE OR SILT FENCE DITCH CHECK, REMOVAL OF SEDIMENT Bid item shall include removal of sediment once the silt has reached a height of 50% of the height of the silt fence for the duration of the project. This shall not include dirt that is placed along the silt fence as part of the grading or excavation operations.
23	9040-N-3	SILT FENCE OR SILT FENCE DITCH CHECK, REMOVAL OF DEVICE Bid item shall include the complete removal of the device once vegetation has been established to a minimum coverage of 70% along the entire project site.
24	9040-O-1	TRACK-OUT CONTROL Bid item shall include equipment, material and labor to install and completely remove the stabilized construction exits at the start and end of construction activities. The exits shall be constructed as shown in the plan sheets or as directed by the engineer and shall be sufficient to control mud track away from the project site.
25	11,010-A	CONSTRUCTION SURVEY Contractor shall provide construction survey as needed. Construction survey shall conform to SUDAS Section 11,010.
26	11,020-A	MOBILIZATION Refer to Section 11,020 of the SUDAS Standard Specifications. Shall include preparatory work and operations of all items under the contract.
27	11,050-A	CONCRETE WASHOUT Bid item includes all labor and materials required for the installation of a concrete washout. Concrete washout shall conform to Section 11,050 of the SUDAS Standard Specifications.

ESTIMATE REFERENCE INFORMATION (ALTERNATE 2)		
ITEM NO.	ITEM CODE	ITEM DESCRIPTION
1	2010-D-1	TOPSOIL, ON-SITE Bid item is for stripping, salvaging, spreading and shaping on-site topsoil in accordance with Section 2010 of the SUDAS Standard Specifications. Quantity is based on grass areas inside the right-of-way and construction limits that will be disturbed with a 6" uniform thickness. Bid item shall include scarifying all vegetation prior to grading. All excess topsoil material shall be spoiled on site at the discretion of the Owner. Any excess topsoil not elected to be spoiled on site shall become the property of the contractor and removed from the project site in a timely and legal fashion.
2	2010-E	EXCAVATION, CLASS 10 Bid item includes 15 c.y. of on-site cut and 25 c.y. of on-site fill material. Fill quantity is based on a 30% compaction factor. Unsuitable or waste material shall become the property of the contractor and shall be removed from the project site. Suitable material may be wasted on site at the discretion of the engineer. No payment for overhaul will be made. All fill material shall be compacted to a minimum 95% of the Standard Proctor Density.
3	2010-E	EXCAVATION, CLASS 10, BORROW Bid item includes 10 C.Y. of borrow material. Quantity is based on a 30% compaction factor. All imported fill material shall be a suitable clay material approved by the Engineer prior to placement. All borrow material shall be placed in maximum 6' lifts and compacted to 95% of the Standard Proctor Density.
4	2010-G	SUBGRADE PREPARATION, 12" Bid item shall include subgrade preparation for a depth of 12" as shown in the typical sections in the class 10 excavation cut areas and in accordance with Section 2010-3.06 of the SUDAS Standard Specifications. The top 6" of soil shall be removed. The underlying 6" of material shall be scarified, mixed and recompacted to a minimum 95% of the Standard Proctor Density. The top 6" shall then be replaced and recompacted to a minimum 95% of the Standard Proctor Density.
5	2010-J	SUBBASE, MODIFIED, 2" Modified subbase will be required under all portions of the proposed parking lots, sidewalks. Parking lot quantity is based on material being placed as shown in the typical sections and shall be a minimum of 2" thickness. Sidewalk quantity is based on material being placed the full width of the sidewalk pavement or as shown in the typical sections and shall be a minimum of 2" thickness. Material shall conform to Section 4123 of the Iowa DOT Standard Specifications for Highway and Bridge Construction.
6	7010-A	PAVEMENT, PCC, 7" Concrete shall be Iowa DOT C-4 Mix. Coarse Aggregate shall be Class 3 Ledge Rock (Limestone or Quartzite). Bid item shall include integral curb and gutter where present. Refer to Section 7010 of the SUDAS Standard Specifications for Highway and Bridge Construction. Bid item shall include structure boxouts, epoxy coated reinforcing steel, pavement cure and joint sealant. All joints shall be sealed per SUDAS specifications.
7	8020-B	PAINTED PAVEMENT MARKINGS, SOLVENT/WATERBORNE Bid item shall include all labor and material required to complete all painting operations as shown or as directed. Painting shall be in accordance with Section 8020 of SUDAS Standard Specifications and Section 2527 of the Iowa DOT Standard Specifications for Highway and Bridge Construction. Bid item shall include cleaning and preparing the surface. All paint shall include approved glass beads. Bid item includes 4" yellow parking lines and access aisles.
8	11,010-A	CONSTRUCTION SURVEY Contractor shall provide construction survey as needed. Construction survey shall conform to SUDAS Section 11,010.
9	11,020-A	MOBILIZATION Refer to Section 11,020 of the SUDAS Standard Specifications. Shall include preparatory work and operations of all items under the contract.
10	11,050-A	CONCRETE WASHOUT Bid item includes all labor and materials required for the installation of a concrete washout. Concrete washout shall conform to Section 11,050 of the SUDAS Standard Specifications.



LAKES REGIONAL HEALTHCARE
PRE-ENGINEERED BUILDING
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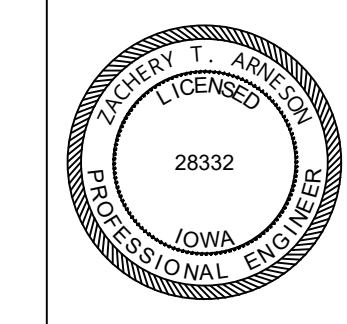
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REVISIONS: DATE:

PROJECT NO: 26022

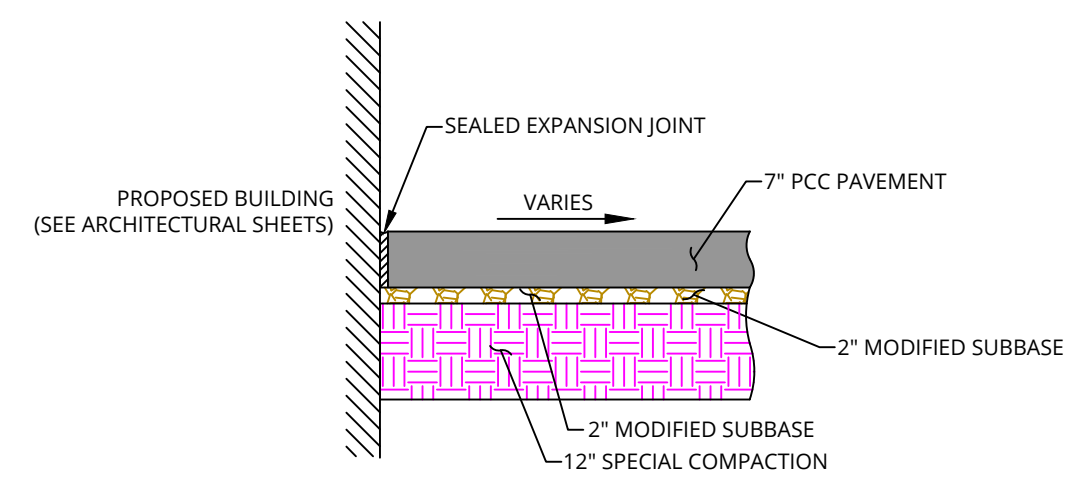
LEGEND, UTILITY CONTACT INFORMATION, GENERAL CONSTRUCTION NOTES, AND ESTIMATE REFERENCE INFORMATION

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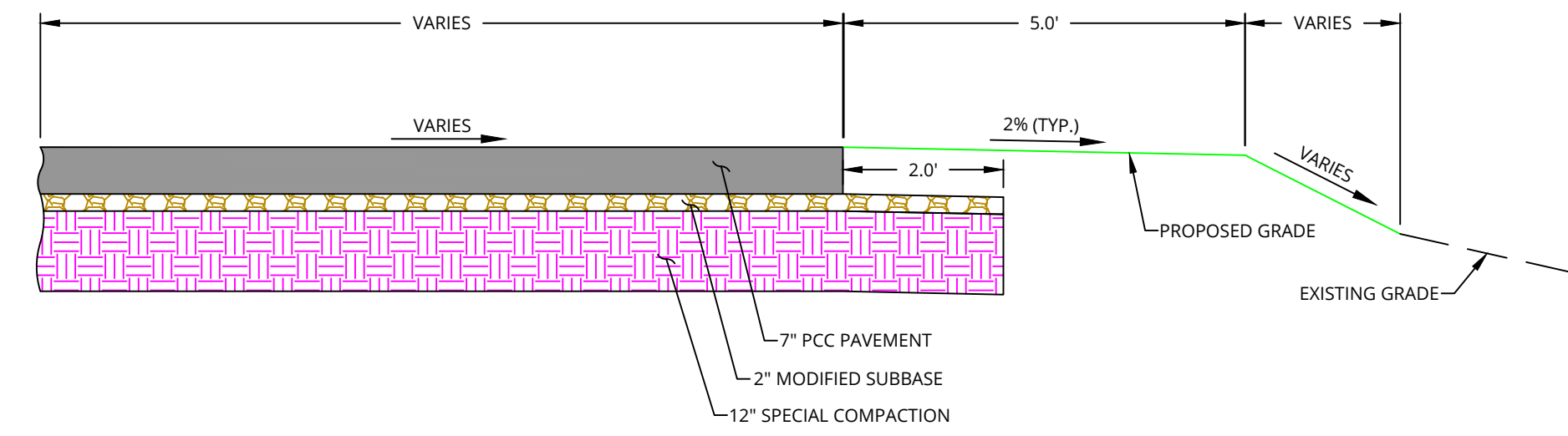


I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

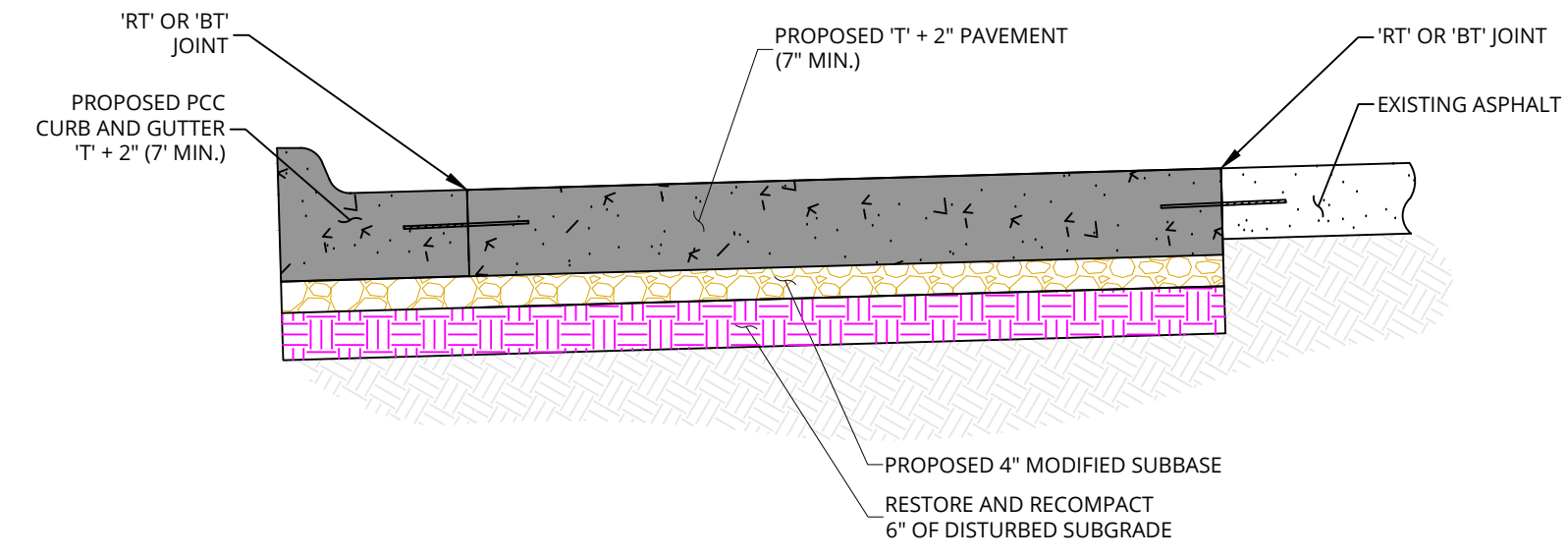
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My license renewal date is December 31, 2026
Pages or sheets covered by this seal:
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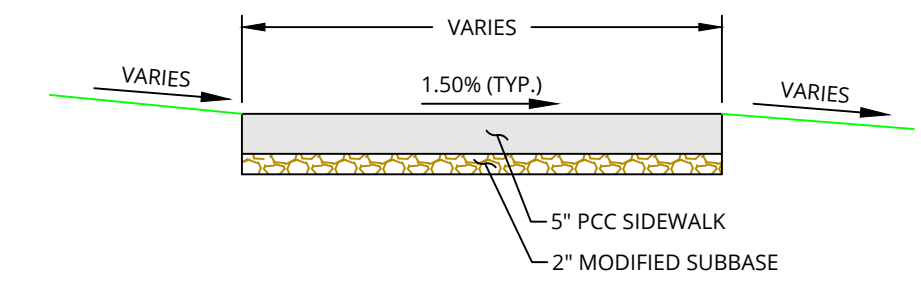
A
C101 PAVEMENT ABUTTING STRUCTURE
(NOT TO SCALE)
BASE BID
ALTERNATE 2



B
C101 TYPICAL PAVEMENT CROSS-SECTION
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BASE BID
ALTERNATE 2



C
C101 PCC FULL-DEPTH PATCH
(NOT TO SCALE)
BASE BID



D
C101 TYPICAL SIDEWALK CROSS-SECTION
(NOT TO SCALE)
BASE BID

NOTES:
 - TYPICAL JOINT SPACING SHOWN IS MAX SPACING FOR THE LONGITUDINAL JOINTS. TRANSVERSE JOINTS SHALL BE SPACED AT 12' MAX SPACING OR AS SHOWN IN THE PLAN SHEETS. IRREGULAR SPACING SHALL BE AS SHOWN OR AS DIRECTED. INTEGRAL TRANSVERSE JOINTS SHALL BE A 'C' OR 'CD' JOINT AND END OF PAVING.
 - TRANSVERSE JOINTS SHALL BE AN 'RD' OR 'DW' JOINT, DEPENDING ON SEQUENCE OR LOCATION. LONGITUDINAL JOINTS SHALL BE AN 'L-1' OR 'BT-1' JOINT.
 - EXPANSION JOINTS WILL BE REQUIRED AS SHOWN OR AS DIRECTED WHEN ABUTTING CERTAIN EXISTING PAVEMENTS.
 - 2" MOUNTABLE CURBS SHALL BE CONSTRUCTED ACROSS ALL DRIVEWAYS
 - CURB AND GUTTER SHALL BE INSTALLED INTEGRAL WITH ROADWAY PAVING
 - ALL JOINTS SHALL BE SEALED PER SDAS STANDARDS.

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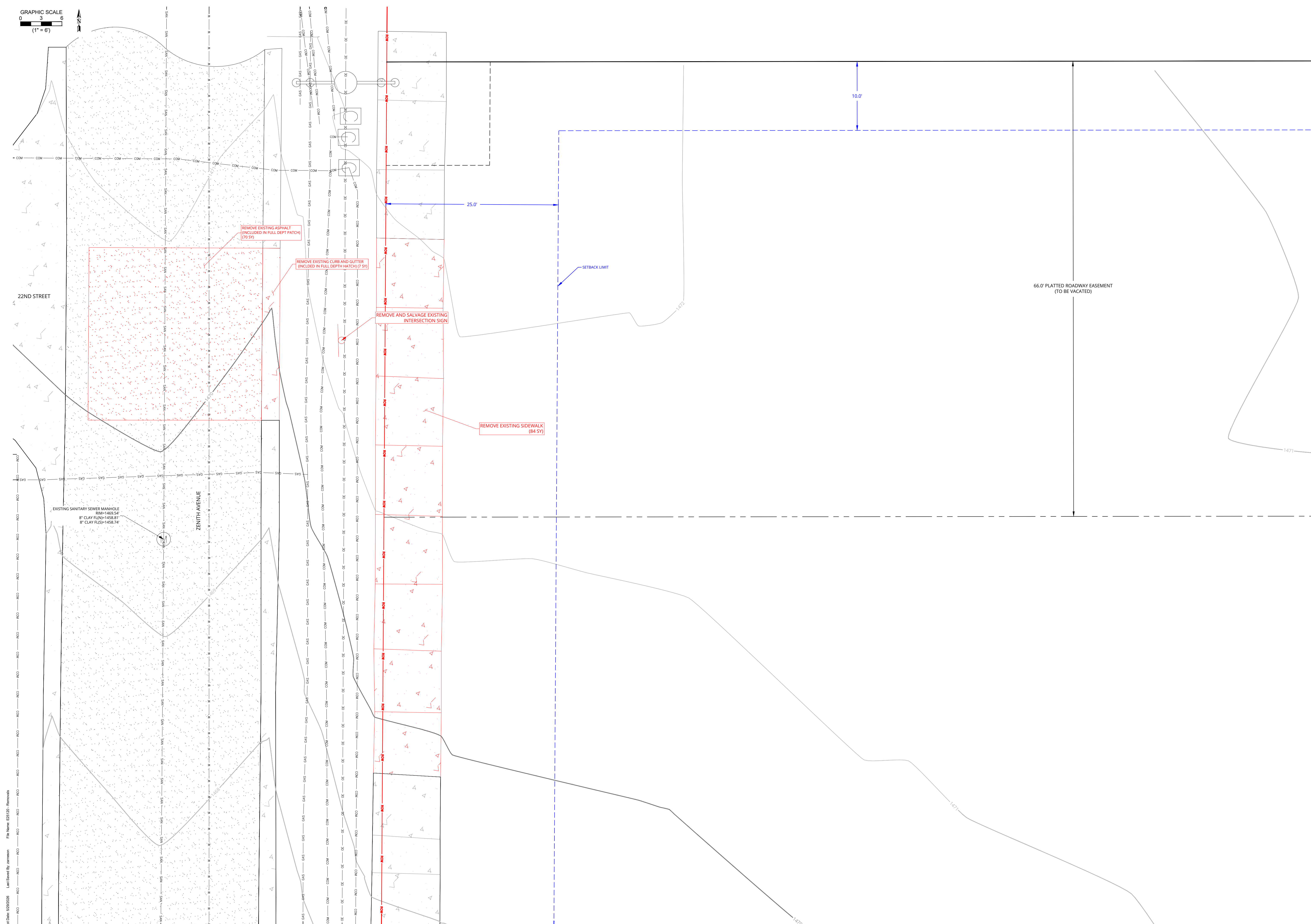
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TYPICAL SECTIONS

C101



Plot Date: 10/20/2025 Last Saved By: jarmon File Name: E212151 - Removals



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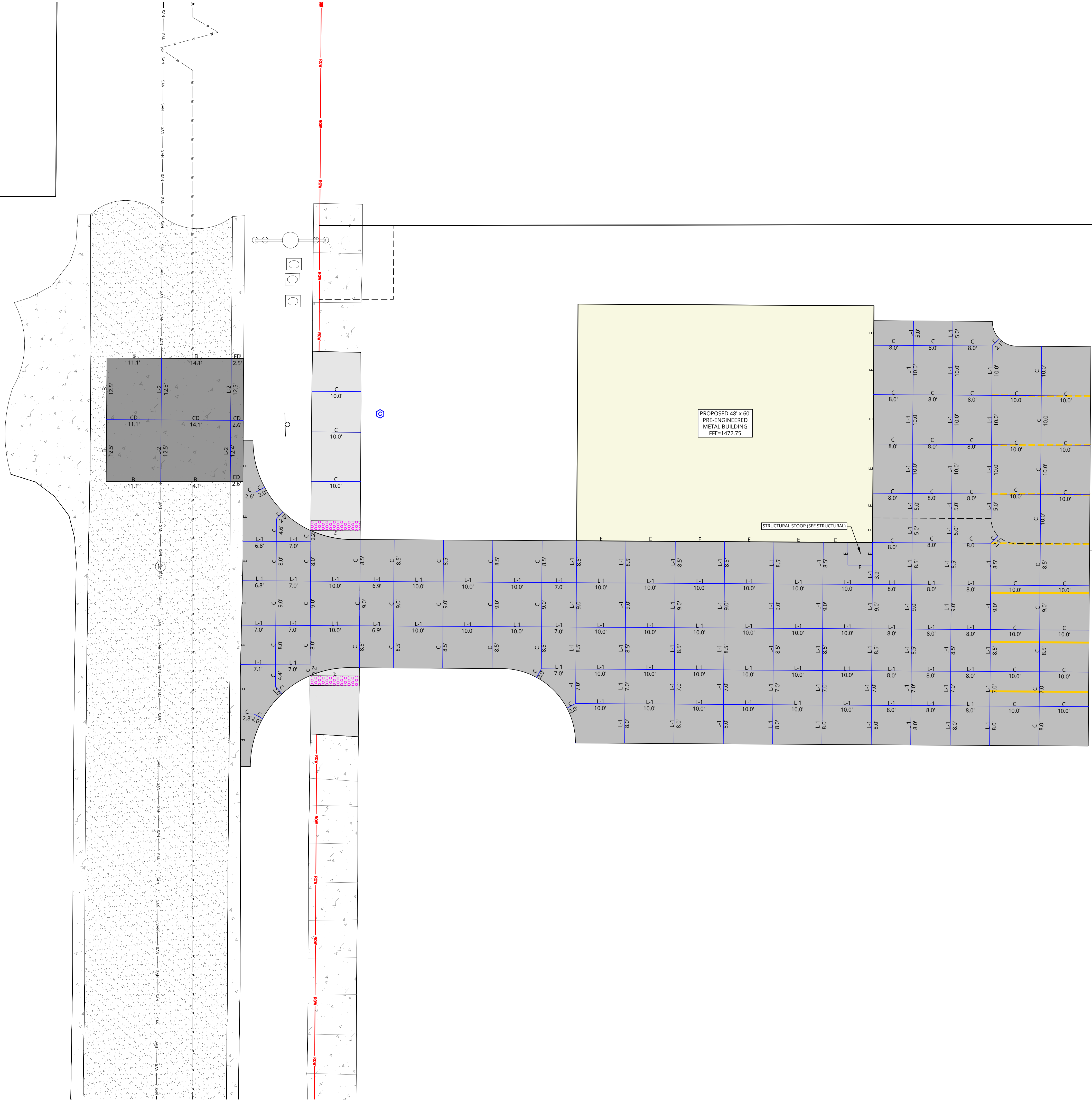
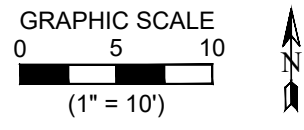
BID DOCUMENTS
6/1/2026

REVISIONS:	DATE:

PROJECT NO: 26022

REMOVALS PLAN

C200



REVISIONS:	DATE:

DETAILS OF EMBANKMENTS AND REBUILDING EMBANKMENTS

1 Use only when new roadbed overlies existing roadbed. Not for use on excavations or where new roadbed is to be built on natural ground.

2 Subgrade Preparation: Construct subgrade according to Section 2010.102.

3 Subbase Construction: Construct subbase according to Section 2010.3.08.

4 Embankment Construction: Compact with moisture and density control unless Type A Compaction is specified. Comply with Section 2010.3.04.

5 Excavation

6 Fill

7 Subgrade preparation

8 SUDAS Standard Specifications 2010.101

9 SUDAS Standard Specifications 2010.102

DESIGNATION OF ROADWAY EARTHWORK ITEMS

Type of Work	Area	Payment Method
Excavation	(A)	Excavation
Fill	(B)	Included in Excavation or Borrow
Subgrade Preparation	(C) & (D)	Subgrade Preparation

10 SUDAS Standard Specifications 2010.101

11 SUDAS Standard Specifications 2010.102

TRENCH BEDDING AND BACKFILL ZONES

Refer to the contract documents for specific material and placement requirements.

1 Required only when specified in the contract documents or when directed by the Engineer.

Key:
OD = Outside diameter of pipe
ID = Inside diameter of pipe
TW = Trench width at top of pipe
D = Depth of bedding material below pipe

12 SUDAS Standard Specifications 2010.102

DO NOT USE ON PRIMARY ROADWAYS

1 Place remainder of bedding and backfill materials as specified in the contract documents.

2 Minimum depth of backfill 12 inches as specified by the manufacturer.

3 ALLOWABLE BURY DEPTHS

PIPE MATERIAL	STANDARD	MINIMUM BURY DEPTHS	ALLOWABLE BURY DEPTHS
ASPH/FLY	12"	12"	12"
ASPH	12"	12"	12"
CONC	12"	12"	12"
PLC	12"	12"	12"

4 FLEXIBLE GRAVITY PIPE TRENCH BEDDING

5 FLEXIBLE GRAVITY PIPE TRENCH BEDDING

DO NOT USE ON PRIMARY ROADWAYS

1 Extend tracer wire up the hydrant barrel to internal terminals of tracer wire station and back down. Refer to WM-201 for details of fire hydrant assembly.

2 Clamp tracer wire to ground rod at system termination points.

3 SUDAS Standard Specifications 2010.101

4 SUDAS Standard Specifications 2010.102

TRACER SYSTEM

5 SUDAS Standard Specifications 2010.101

6 SUDAS Standard Specifications 2010.102

TRANSVERSE CONTRACTION

7 See dowel assemblies for fabrication details.

8 See Bar Size Table for Contraction Joints on Sheet 2.

9 Lower 100% joint at an end-gate location between future 'C' or 'CD' joints. Place no closer than 5 feet to a 'C' or 'CD' joint.

10 Place bars within the limits shown under dowel assemblies.

11 Edges with 1/8 inch bevel for length of joint. For HT joint, remove header block and board when second slab is placed.

12 Unless specified otherwise, use 'CD' transverse contraction joints in manhole pavement when ϕ is less than 8 inches.

13 'RT' joint may be used in lieu of 'DOW' joint at the end of the days work. Remove any pavement damaged due to the drilling at no additional cost to the Contracting Authority.

14 'DOW' joint may be used in lieu of 'RT' joint at the end of the days work.

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JOINTS

11 SUDAS Standard Specifications 2010.101

12 SUDAS Standard Specifications 2010.102

PRESSURE PIPE TRENCH BEDDING

1 Place remainder of bedding and backfill material as specified in the contract documents.

2 SUDAS Standard Specifications 2010.101

3 SUDAS Standard Specifications 2010.102

TRANSVERSE CONTRACTION

11 SUDAS Standard Specifications 2010.101

12 SUDAS Standard Specifications 2010.102

JOINTS

11 SUDAS Standard Specifications 2010.101

12 SUDAS Standard Specifications 2010.102

JOINTS

11 SUDAS Standard Specifications 2010.101

12 SUDAS Standard Specifications 2010.102

EXPANSION JOINTS

1 Use 18 inch long dowel bars with a tolerance of ± 1/8 inch. Ensure the centerlines of individual dowels are parallel to the other dowels in the assembly within ± 1/8 inch.

2 Use wires with a minimum tensile strength of 50 ksi.

3 Details apply to both transverse contraction and expansion joints.

4 Weld alternately throughout.

5 0.306 inch diameter wire. Wire sizes shown are the minimum required.

6 Maximum 0.177 inch diameter wire, welded or friction fit to upper side rail, both sides.

7 Measured from the centerline of dowel bar to bottom of lower side rail = 1/4 inch.

8 For lane width, install a minimum of 8 anchor pins evenly spaced (8 per side), to prevent movement of assembly during construction. Anchor assemblies placed on pavement or PCC base with devices approved by the Engineer.

9 If dowel basket assemblies are required for curb and gutter, the assembly length is based on the jointing layout. See PV-101, sheet 8.

10 Ensure dowel basket assembly centerline is within 2 inches of the intended joint location longitudinally and has no more than 1/4 inch horizontal skew from end of basket to end of basket.

11 Clip and remove center portion of tie during field assembly.

12 1/4 inch diameter wire.

13 SUDAS Standard Specifications 2010.101

14 SUDAS Standard Specifications 2010.102

LONGITUDINAL CONTRACTION

11 SUDAS Standard Specifications 2010.101

12 SUDAS Standard Specifications 2010.102

JOINTS

11 SUDAS Standard Specifications 2010.101

12 SUDAS Standard Specifications 2010.102

JOINTS

11 SUDAS Standard Specifications 2010.101

12 SUDAS Standard Specifications 2010.102

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TYPICAL CUT SECTION

TYPICAL FILL SECTION

DRIVEWAY GRADING

10 foot vertical curve required for 5% or greater change in grade.
Slope varies. See contract documents.
Target cross slope of 1.5% with a maximum cross slope of 2.0%.

SUDAS 7030.103
SUDAS Standard Specifications

TYPICAL JOINTING LAYOUT

TYPICAL SECTION

CONCRETE DRIVEWAY, TYPE A

Driveway radius (R) Residential: 10 foot minimum, 15 foot maximum and installed as specified in the contract documents.
Transition the curb height to 0 inches at end of driveway.
Residential 5 inches minimum, Commercial and Industrial 7 inches minimum.
Slopeback thickness through driveway to match thickness of driveway.
Center reinforcing bar vertically in the pavement.
Match thickness of adjacent roadway.
Provide 1" joint at back of curb unless 1/2" joint is specified.
For alleys, invert the pavement crown 2% toward center of alley.
Target cross slope of 1.5% with a maximum cross slope of 2.0%. If specified in the contract documents, construct the sidewalk through the driveway 2 feet wide to serve as a warning space.
If cross slope of adjacent sidewalk panel exceeds 2.0%, remove and replace to transition from existing sidewalk to sidewalk through driveway. If elevation change requires a curb ramp, comply with Figure 7030.200, curbs must be constructed using joint with expansion joint or XT-2 or BT joint when specified.
Transition street curb at maximum 1:1 slope to meet driveway curb.

SUDAS 7030.101
SUDAS Standard Specifications

PLAN VIEW

Refer to Figure 7010.901 for maximum transverse joint spacing.
Where new and existing pavements meet, and no existing dowels, tie bars, or keyways are present, provide a BT, RT, or RD joint.
Shorten jointing pattern on either side of openings to allow joints to intersect round curbs and fall at the edges of intake bouds.
Where pavement abuts an unimproved street, terminate with a type RT joint.
When radius exceeds 20 feet, add one additional "C" joint at radius intersections.

SUDAS 7010.901
SUDAS Standard Specifications

QUARTER POINT JOINTING

THIRD POINT JOINTING

GUTTERLINE JOINTING

6 inch standard curb.
BT, XT, or L joint depending on pavement thickness and construction staging.
Subbase or subgrade as specified.
Unless otherwise specified in the contract documents.
No dowels within 24" of the back of curb. With gutterline joint, place first dowel 6 inches from the joint. See Figure 7010.101, Sheet 6.

TRANSVERSE JOINT REQUIREMENTS

Pavement Thickness	Transverse Joint Type	Transverse Joint Spacing
6"	C	12'
7"	C	15'
8"	CD	15'
9"	CD	15'
10"	CD	15'

SUDAS 7010.901
SUDAS Standard Specifications

TYPICAL SECTION - CURB RAMP

DETECTABLE WARNING LOCATION AT RAILROAD CROSSING

GENERAL SIDEWALK AND CURB RAMP DETAILS

Provide a minimum 2 foot width of detectable warning surface for the full width of the curb ramp or flare.
Provide a minimum of 6 inches of concrete below the detectable warning panel.
Minimum 4 feet by 4 feet. Target cross slope of 1.5% with a maximum cross slope of 2.0%.
If normal sidewalk elevation cannot be achieved within the perpendicular ramp between the street and landing due to limited ramp length, provide a parallel ramp to make up the elevation difference between the landing and the standard sidewalk.
The length of the parallel ramp is not required to exceed 15 feet, regardless of the elevation difference across the landing space. Do not exceed 3:30 slope for parallel ramp shorter than 15 feet.
If crossing gate conflicts with location of detectable warning of a pedestrian crossing gate is provided, place detectable warning panel in advance of the crossing gate.
Locate front edge of detectable warning panel 12 to 15 feet from centerline of road. Orient truncated domes parallel to the direction of pedestrian travel.

SUDAS 7030.205
SUDAS Standard Specifications

GENERAL FEATURES OF AN ACCESSIBLE SIDEWALK

Match pedestrian street crossing slope, or flatter.
Minimum 4 feet by 4 feet. Target cross slope of 1.5% with a maximum cross slope of 2.0%.
Target cross slope of 1.5% with a maximum cross slope of 2.0%.

Key

- Curb Ramp
- Turning Space
- Detectable Warning
- Grass

Curb ramp requirements:
1. Maximum curb ramp slope of 8.3% (max).
2. Minimum length of 15'-0" at any constant slope.

SUDAS 7030.204
SUDAS Standard Specifications

CLASSES OF SIDEWALKS

Target cross slope of 1.5% with a maximum cross slope of 2.0% (excluding sidewalk through driveway).
Ensure top of curb slopes to street for drainage.
Parking Slopes:
If parking width is less than 10 feet wide, slope at 1/4 inch per foot.
If parking width is 10 feet wide and greater, slope at 1/2 inch per foot.
Special grade may be specified in the contract documents.
W = Sidewalk width as specified in the contract documents.

CLASS A SIDEWALK
Sidewalk extends back of curb to ROW.

CLASS B SIDEWALK
1'-0" or Greater

CLASS C SIDEWALK
4'-0" min.

SUDAS 7030.201
SUDAS Standard Specifications

TYPICAL CUT SECTION

TYPICAL FILL SECTION

RIGHT-OF-WAY GRADING

Parking Slope:
If parking width is less than 10 feet wide, slope at 1/4 inch per foot.
If parking width is 10 feet wide and greater, slope at 1/2 inch per foot.
4:1 slope unless otherwise specified in the contract documents.

SUDAS 7030.104
SUDAS Standard Specifications

TEMPORARY TRAFFIC CONTROL - GENERAL INFORMATION

Use when crosswalks, sidewalks, or other pedestrian facilities are closed or relocated. Ensure temporary facilities are detectable and include accessibility features consistent with the features present in the existing pedestrian facility.
Signs such as KEEP RIGHT (LEFT) may be placed to guide or direct pedestrians.
Provide continuous barriers or fencing consistent with the requirements of PROWAG to secure work areas from pedestrians.
When required in the contract documents, provide auxiliary lighting or audible information devices to assist pedestrians with visual disabilities.
Only the temporary traffic control devices related to pedestrians are shown. Other devices necessary to control vehicular traffic may be required.
Refer to Figure 8030.101 for symbol key and sign spacing.

WORK OFF OF PAVEMENT WITH MINOR ENCROACHMENT ONTO TRAVELED WAY

Berm shown is typical for slopes flatter than 3:1. For steeper slopes, increase berm size as directed by the Engineer.
Place berm in uncompactured window perpendicular to the slope at locations specified in the contract documents.
Filter sock diameter as specified in the contract documents.

SUDAS 8030.102
SUDAS Standard Specifications

LONGITUDINAL SECTION

Buffer Space (lateral) provides protection for traffic and workers.
Traffic Space allows traffic to pass through the activity area.
Advance Warning Area lets traffic well to expect ahead.
Transition Area moves traffic out of its normal path.
Activity Area is where work takes place.
Termination Area lets traffic resume normal operations.

Channelizing Device Spacing

Speed Limit (mph)	Taper (ft)	Buffer (ft)	Downstream Taper (ft)
20	20	40	40
30	30	60	60
35	35	70	70
40	40	80	80
45	45	90	90
50	50	100	100
55	55	110	110

Merging Taper Lengths for Lane Closure*

Speed Limit (mph)	Length (ft)	Design
20-29	80	6
30-34	120	6
35-39	150	7
40-44	200	8
45-49	250	10
50-54	300	13
55-59	350	13
60-69	400	13

*Values shown are for a 1:3 taper ratio. These values do not apply to one-to-one, fan-out, or staggered tapers.

SUDAS 8030.101
SUDAS Standard Specifications

GUTTERLINE JOINTING

THIRD POINT JOINTING

FULL DEPTH PATCHES - GREATER THAN 1' LONG

Patches on roadways with quarter point jointing be similar to third point jointing details.
Minimum distance between existing joint and patch is 5 feet. If distance is less than 5 feet, extend patch to existing joint.
Match existing joint type and location.
If existing joint spacing is greater than 20 feet, add "C" joint at midspan.
If aggregate or subbase material is required below patch, this material is to be 2 inches below bottom of existing pavement.
BT, XT, or L joint depending on pavement thickness and paving sequence.

SUDAS 7040.102
SUDAS Standard Specifications

PERPENDICULAR RAMPS

PARALLEL RAMPS

DETECTABLE WARNING PLACEMENT

Provide a minimum 2 foot width of detectable warning surface in the direction of pedestrian travel across the full width of the curb ramp or turning space, exclusive of curbs or flares.
When detectable warning is located on curb ramp surface, orient domes in the direction of pedestrian travel.
When the distance between the grade break and the back of curb is less than 5 feet, place detectable warning surface at the bottom of the curb ramp.
Where one corner of the curb ramp is more than 5 feet from the back of curb, construct curb ramp as a parallel curb ramp. Move grade break back as required to place detectable warning on turning space at the back of curb.

Key

- Curb Ramp
- Turning Space
- Detectable Warning

SUDAS 7030.210
SUDAS Standard Specifications

TYPICAL PLACEMENT OF BERM ON SOCK

Construct "hook" at each end on an individual section of sock or berm.
Slakes (typ.)
Disturbed Area
Area to be Protected
Water Flow
Filter Material
Water Flow
Filter Sock

SUDAS 9040.102
SUDAS Standard Specifications

SIDEWALK DETOUR

Use when crosswalks, sidewalks, or other pedestrian facilities are closed or relocated. Ensure temporary facilities are detectable and include accessibility features consistent with the features present in the existing pedestrian facility.
Signs such as KEEP RIGHT (LEFT) may be placed to guide or direct pedestrians.
Provide continuous barriers or fencing consistent with the requirements of PROWAG to secure work areas from pedestrians.
When required in the contract documents, provide auxiliary lighting or audible information devices to assist pedestrians with visual disabilities.
Only the temporary traffic control devices related to pedestrians are shown. Other devices necessary to control vehicular traffic may be required.
Refer to Figure 8030.101 for symbol key and sign spacing.

SUDAS 8030.117
SUDAS Standard Specifications

STREET OR ROAD CLOSURE

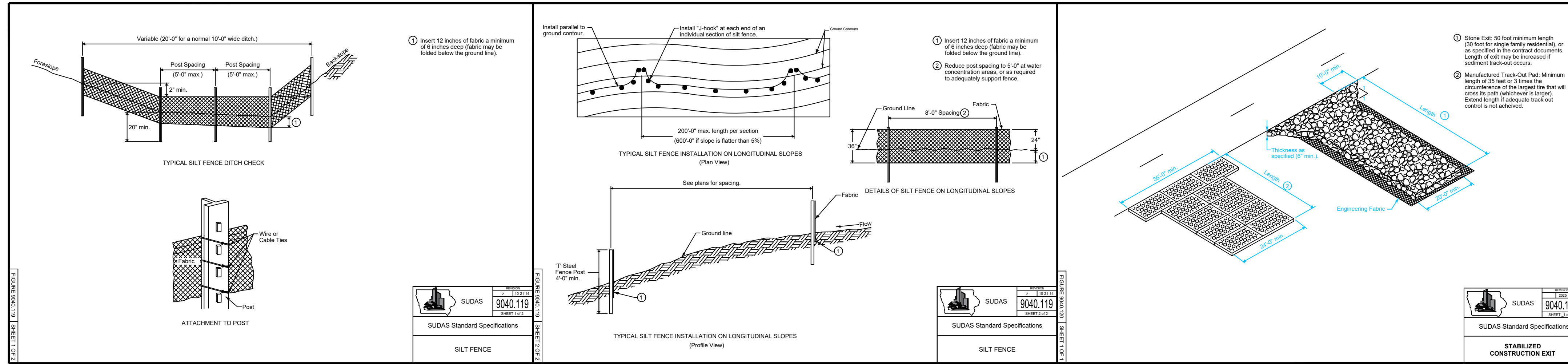
When distance "A" is less than 500 feet, place the barricade with the ROAD CLOSED TO THRU TRAFFIC sign in the middle of the traffic lane representing the work area. The barricade may be omitted if the distance to the work area is less than 250 feet.
Maintain safety fence closures to prevent unauthorized vehicles from passing through.
Place staggered Type III barricades in the roadway after the last public road intersection prior to the closure.
If local traffic is allowed to pass a Type III barricade, retroreflective sheeting is required on both sides of the barricade.
Refer to Figure 8030.101 for symbol key and sign spacing.

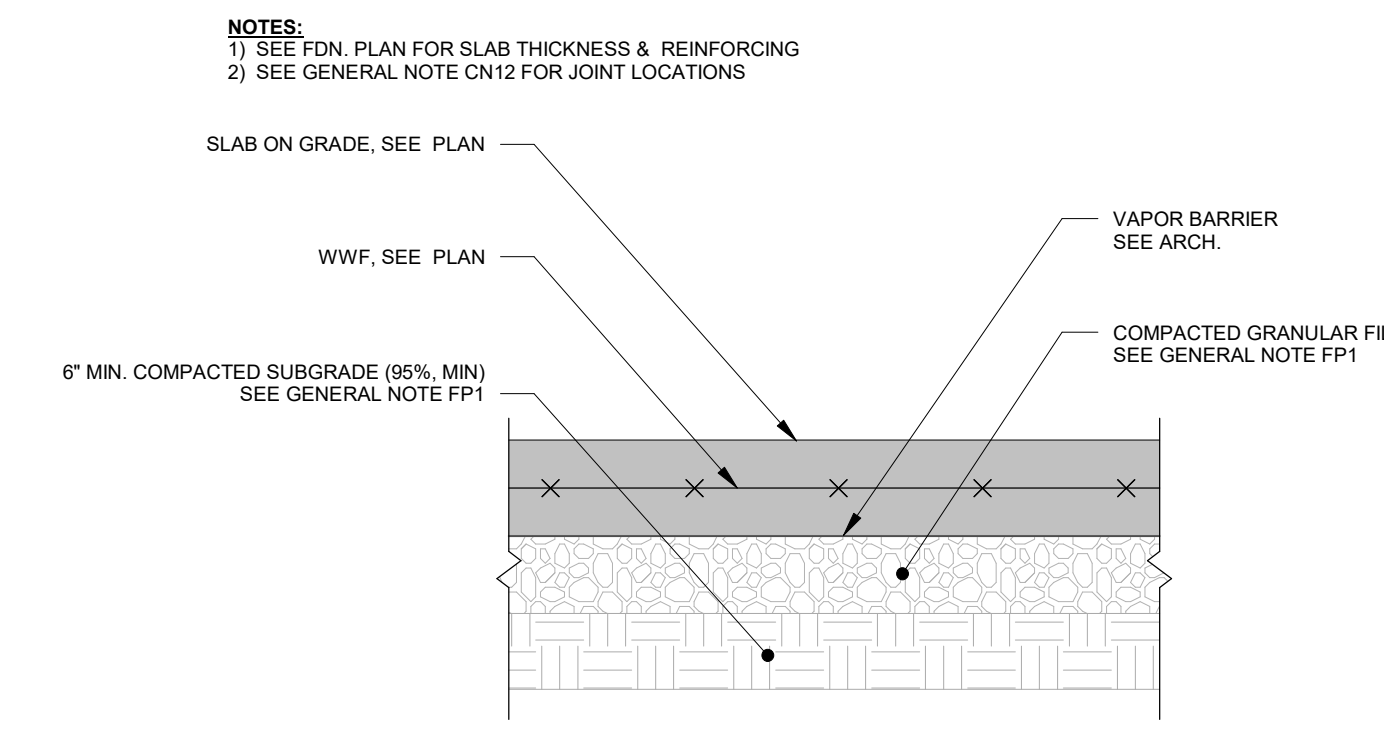
SUDAS 8030.116
SUDAS Standard Specifications

LANE CLOSURE ON LOW VOLUME STREET (SELF-REGULATING)

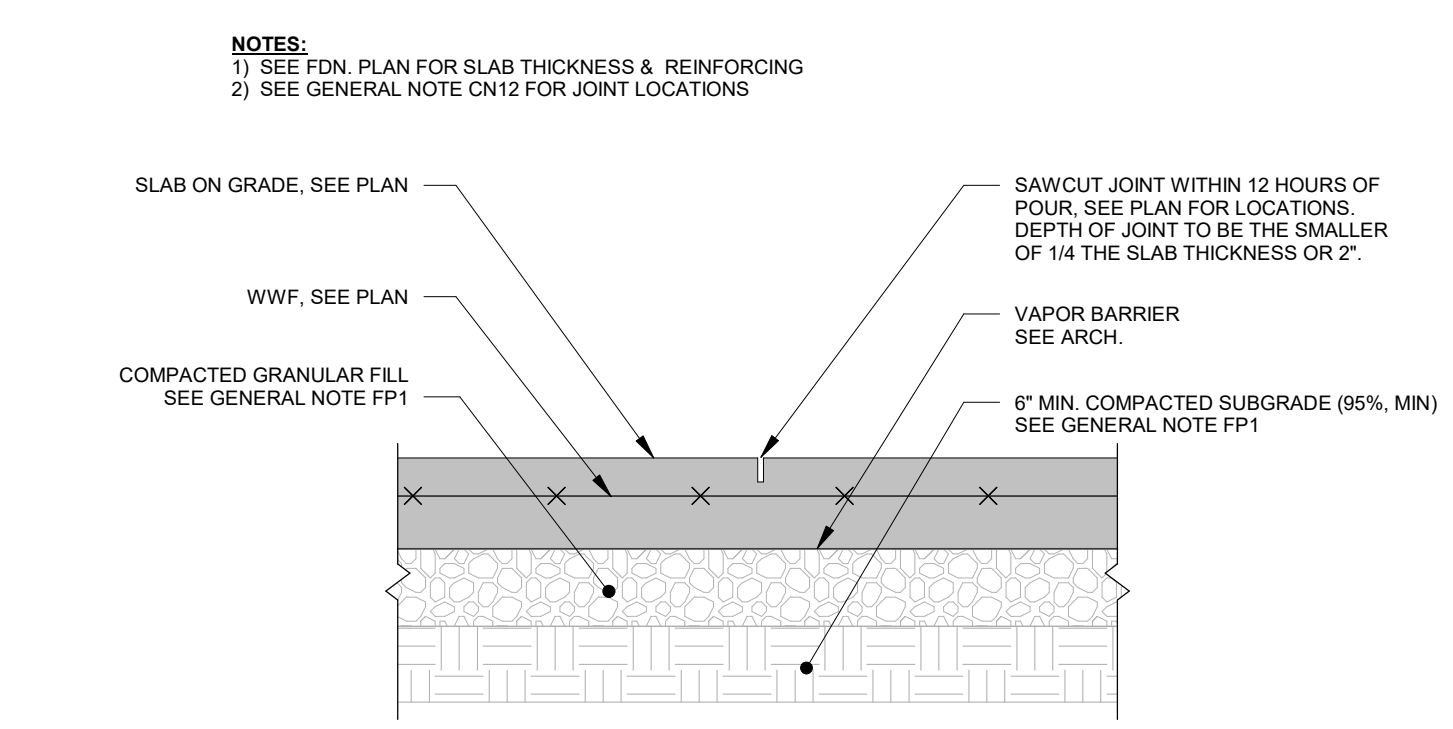
Refer to Figure 8030.101 for symbol key and sign spacing.
Alternate 1:
Use of Alternate 1 is restricted to low-speed roadways with good sight distance (unaided or unaided during daylight hours). Traffic may be self-regulating when the work space is short and drivers can see the roadway beyond.
Use one or two flaggers when motor vehicle traffic cannot effectively self-regulate.
Alternate 2:
Use of Alternate 2 is restricted to roadways where average daily traffic is fewer than 400 vehicles and good sight distance exists.
Do not use within 2,500 feet of a similar work site.
May be used for overnight closures, during non-working hours remove materials, equipment, or stockpiled waste and fill or cover encroachments.

SUDAS 8030.104
SUDAS Standard Specifications

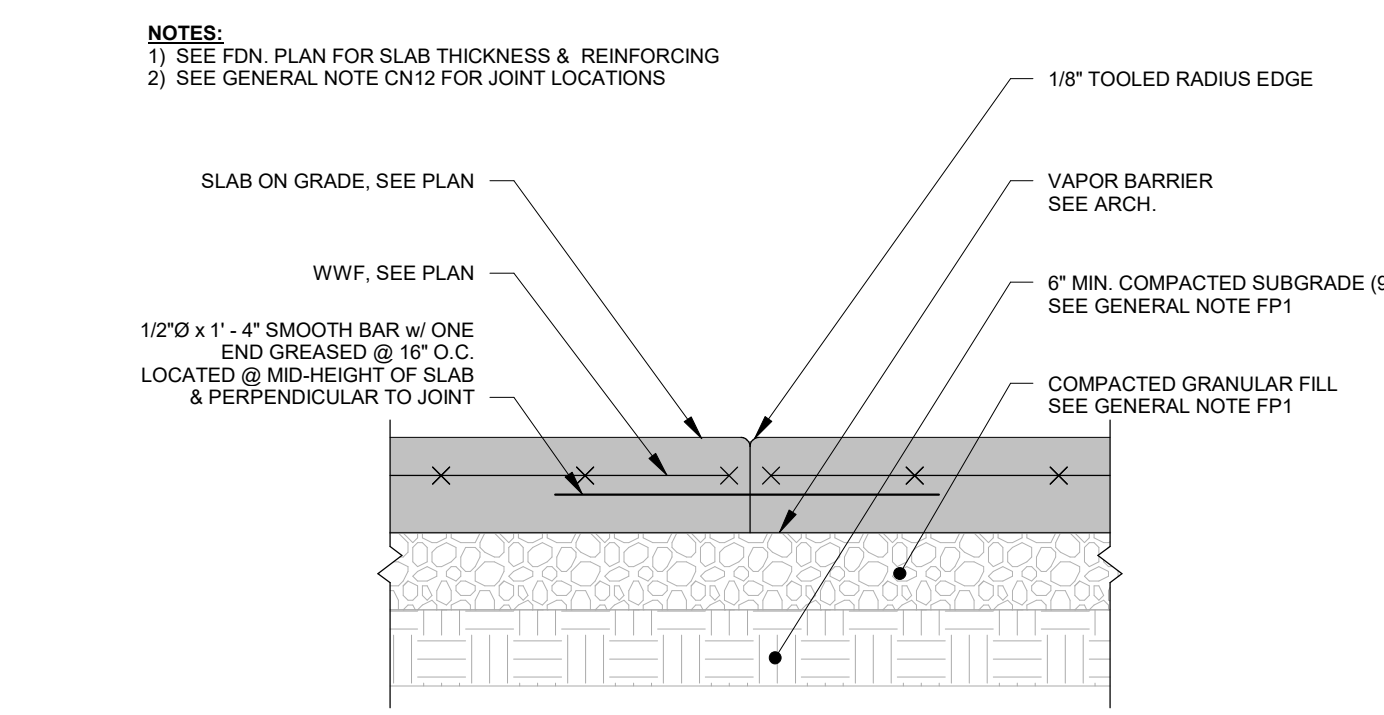




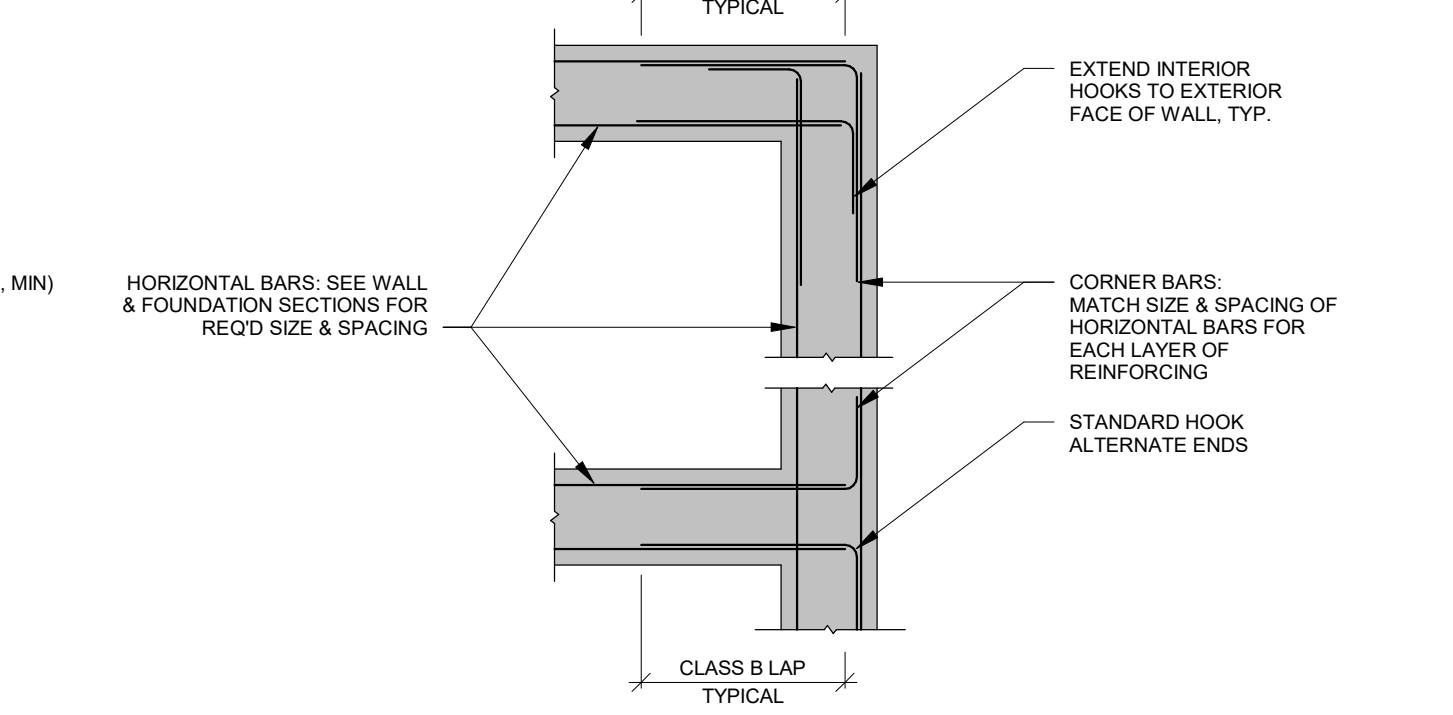
1 TYP. SLAB ON GRADE
1 1/2" = 1'-0"



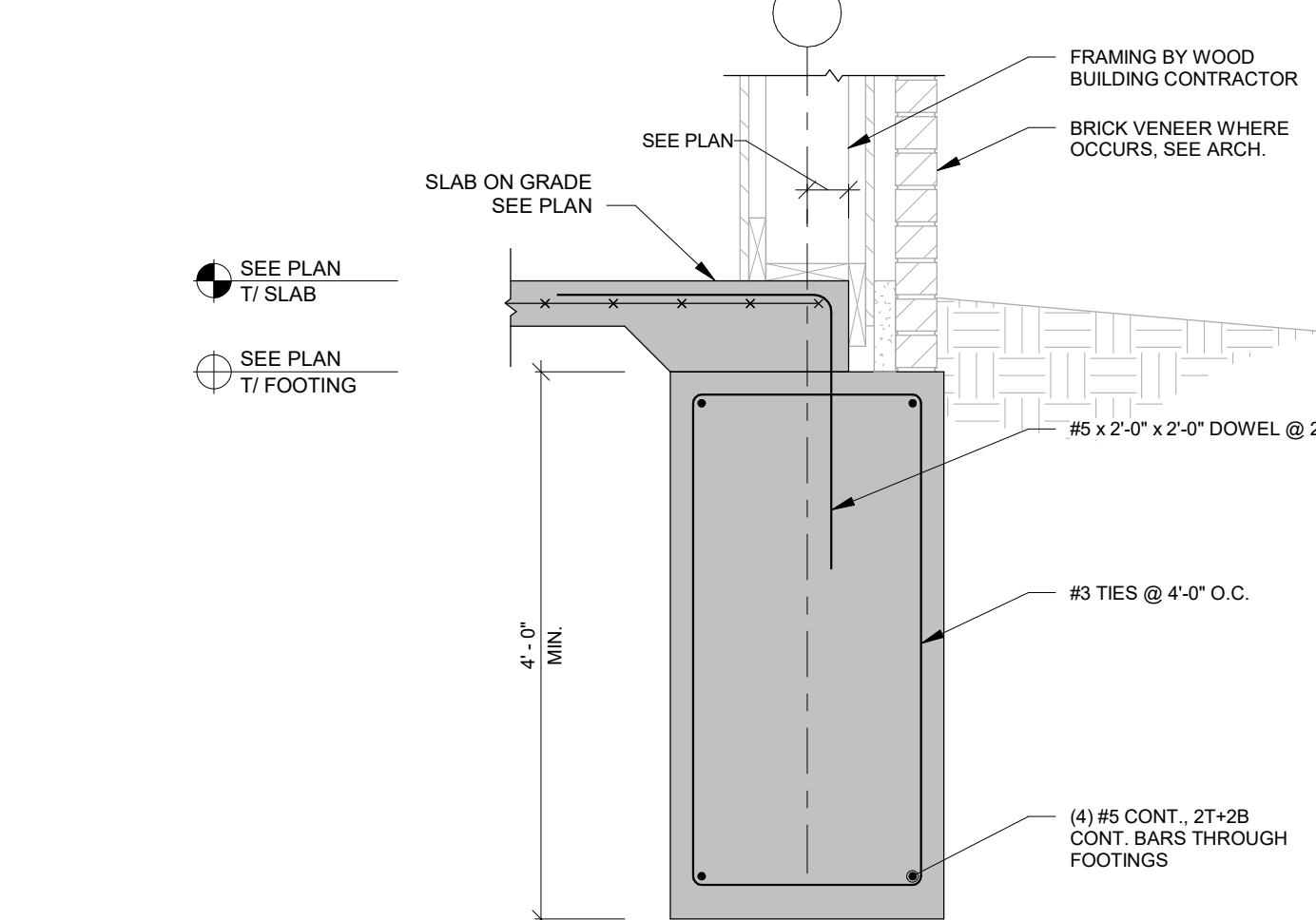
2 TYP. SLAB ON GRADE CONTROL JOINT
1 1/2" = 1'-0"



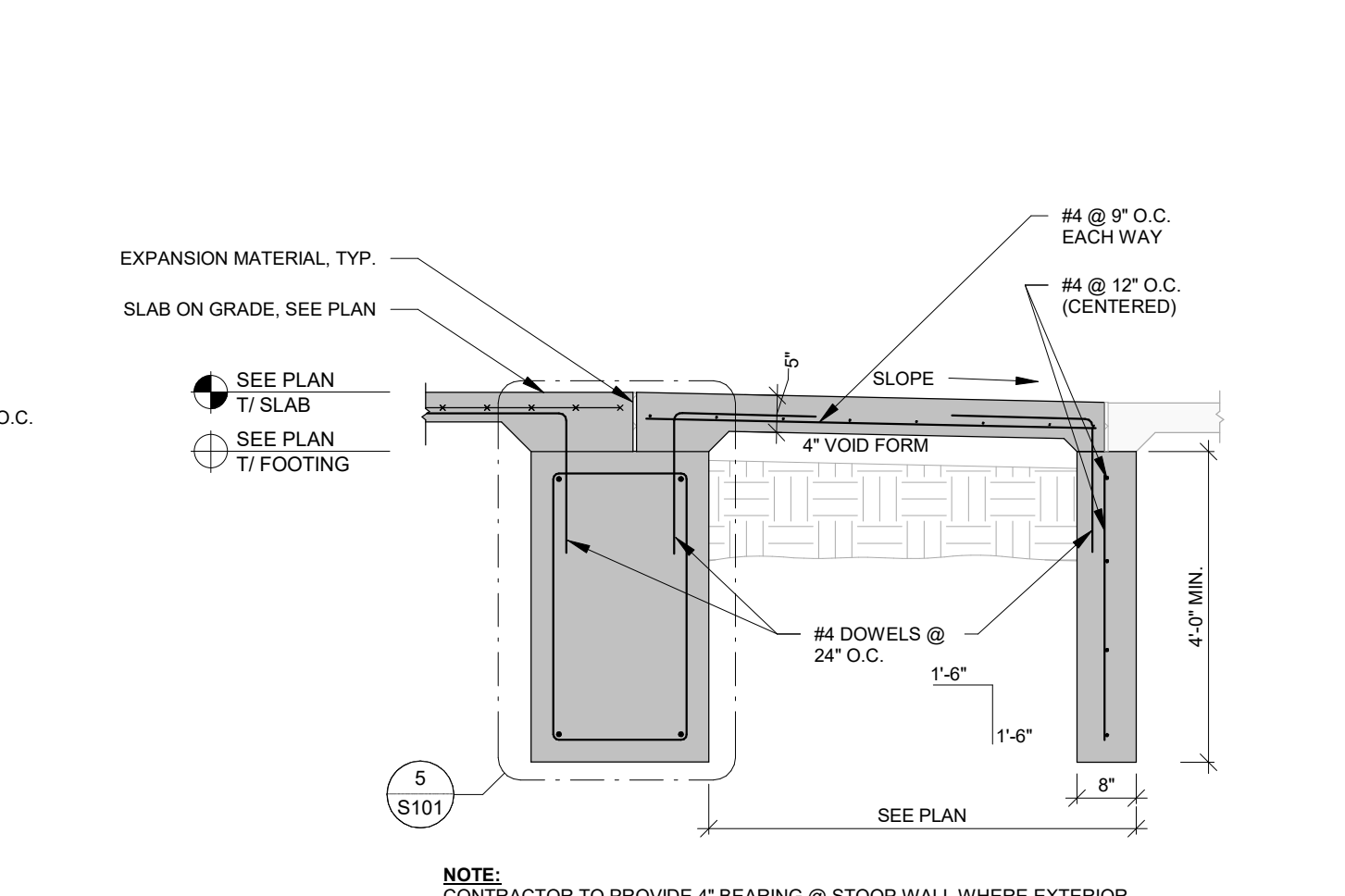
3 TYP. SLAB ON GRADE CONSTRUCTION JOINT
1 1/2" = 1'-0"



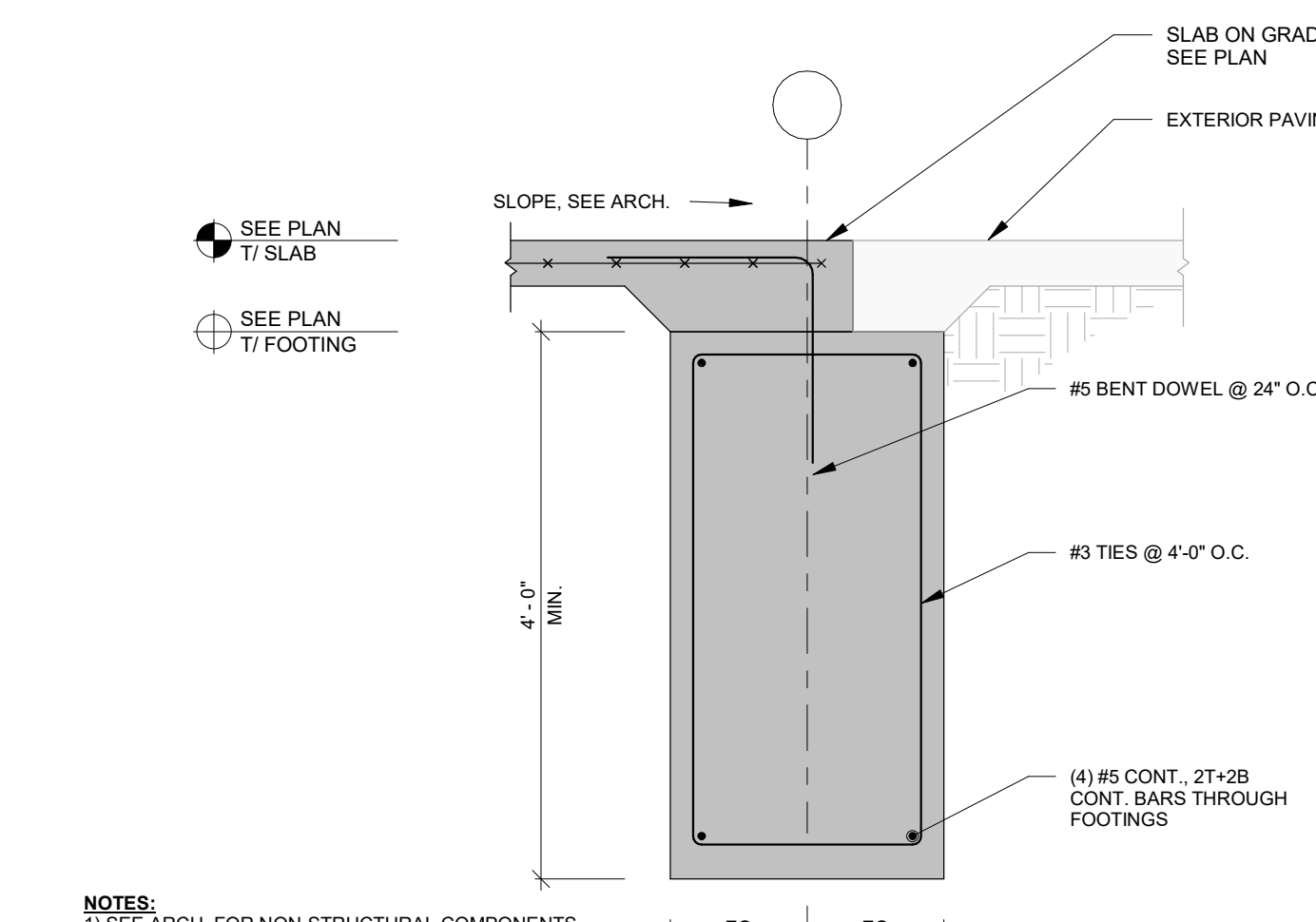
4 TYP. REINFORCING @ CORNERS
1/2" = 1'-0"



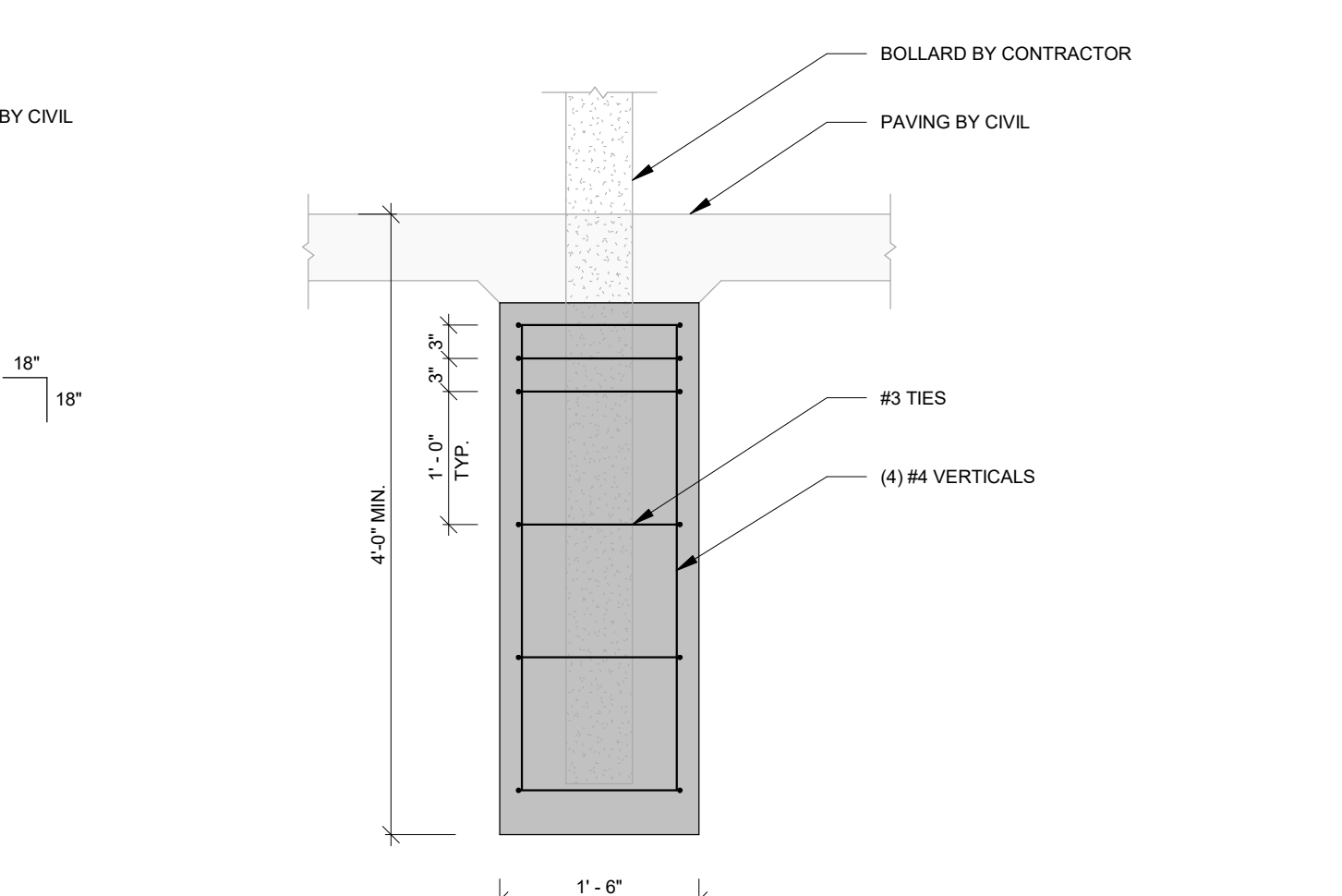
5 TRENCH FOOTING w/CURB
3/4" = 1'-0"



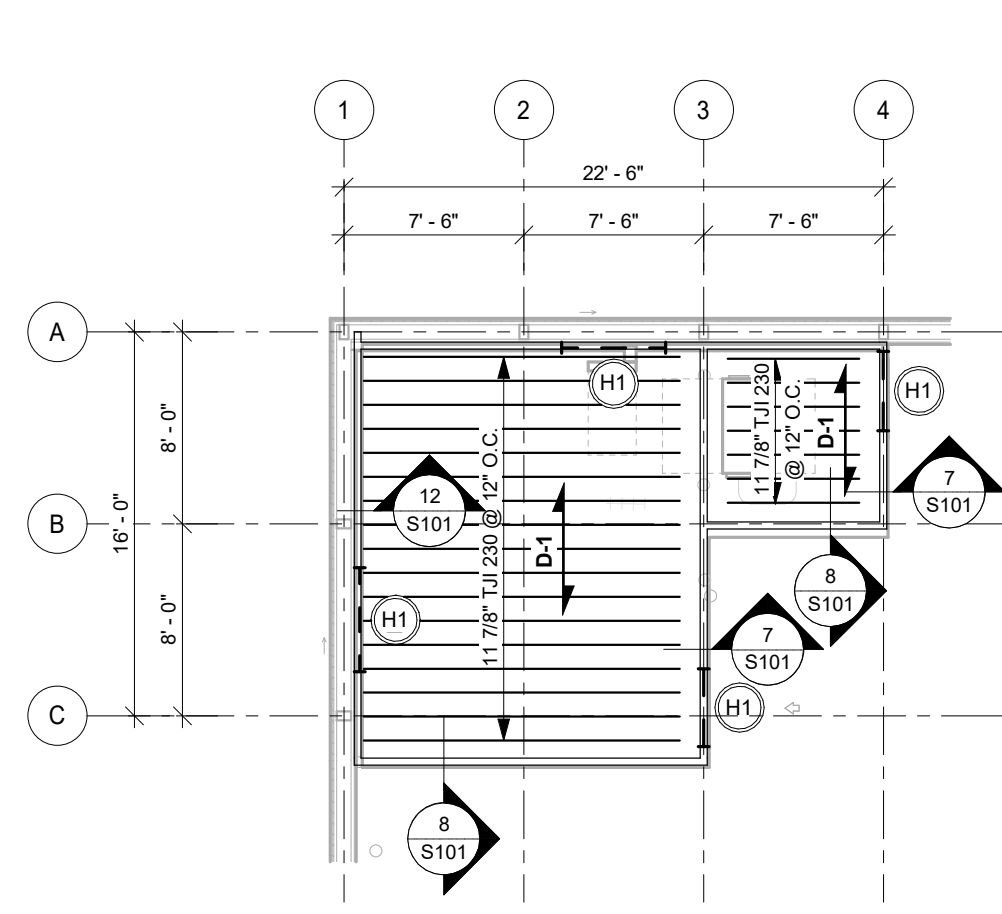
6 TYP. STOOP SECTION
1/2" = 1'-0"



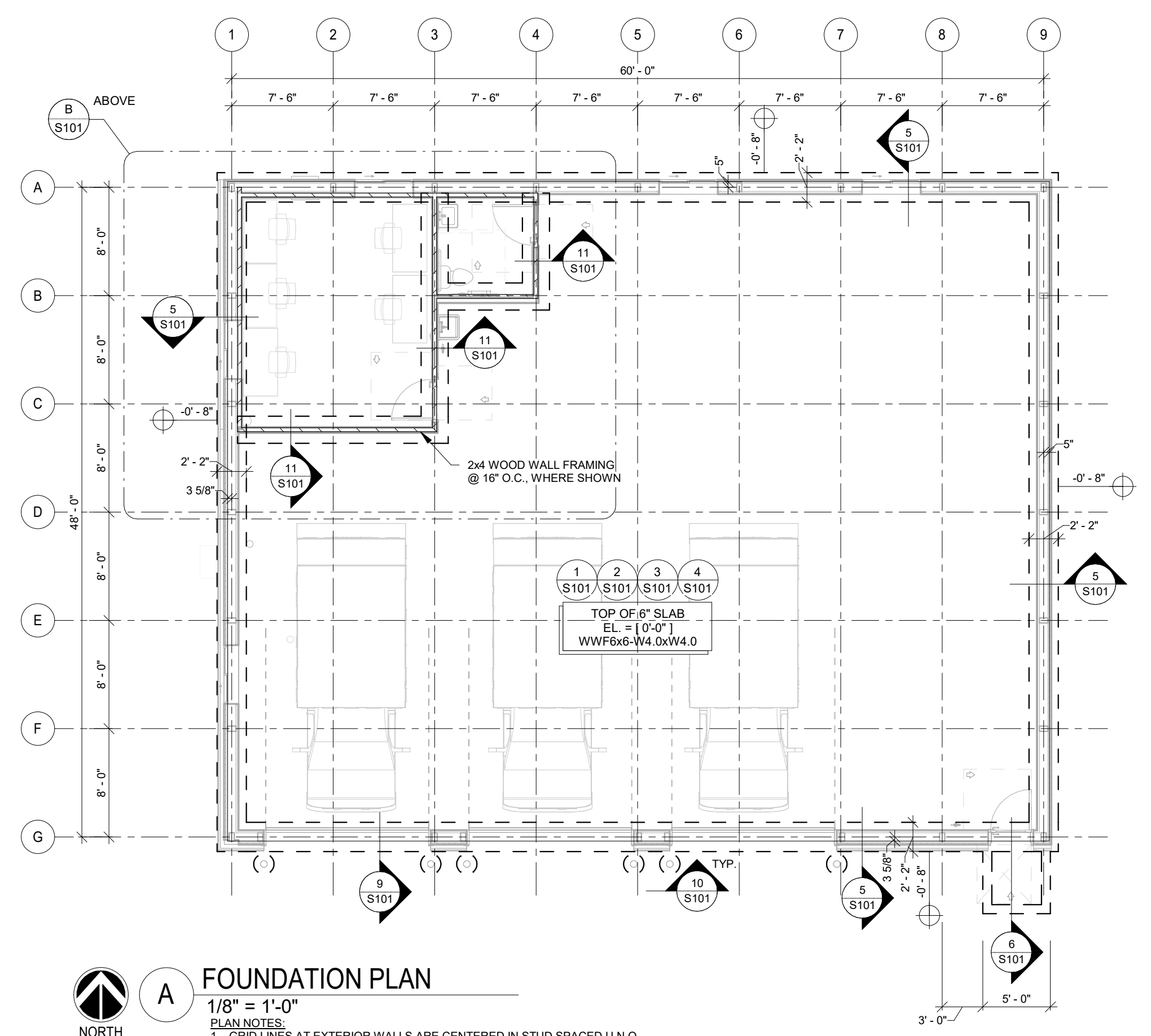
9 TRENCH FOOTING AT BLOCKOUT
3/4" = 1'-0"



10 BOLLARD
3/4" = 1'-0"



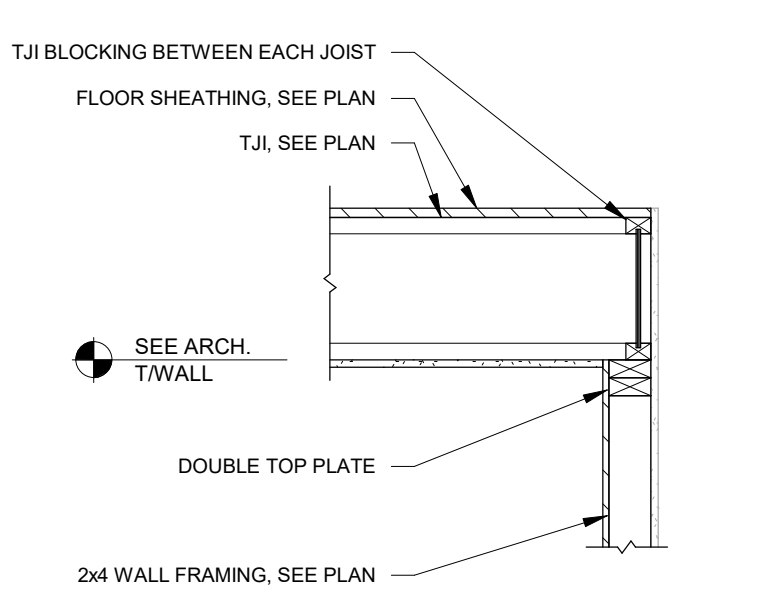
B FRAMING PLAN
1/8" = 1'-0"



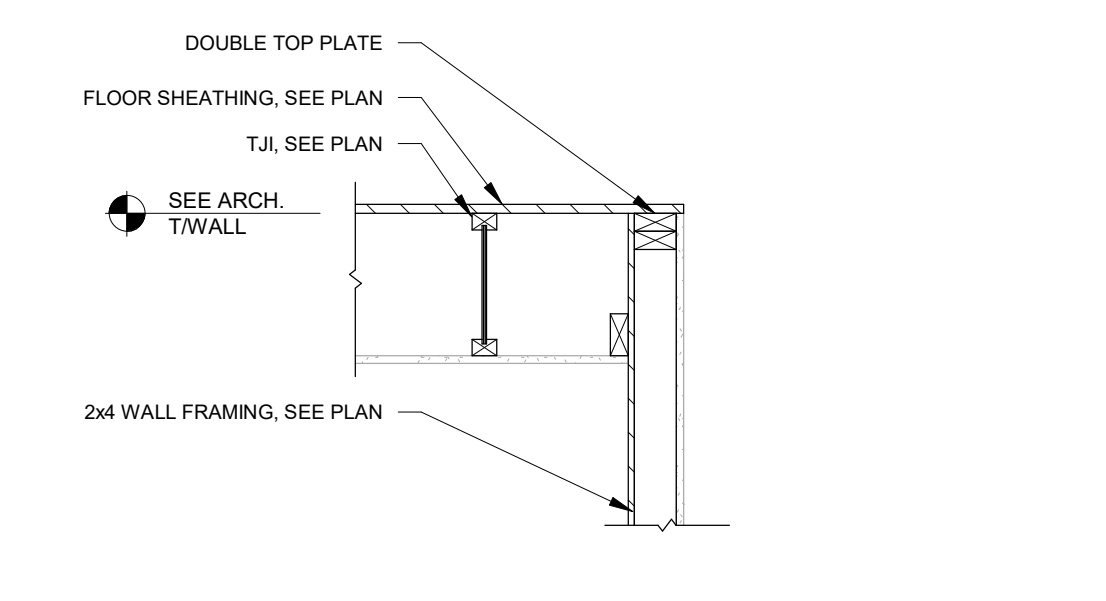
A FOUNDATION PLAN
1/8" = 1'-0"

WOOD HEADER SCHEDULE		
MARK	SIZE	NOTES
H1	(2)-2x12 w/ (2)-2x4 FULL HEIGHT STUDS + (1)-2x4 JACK STUDS @ EA. JAMB	---

WOOD SHEATHING SCHEDULE			
MARK	TYPE	DETAILS	NOTES
D-1	3/4" T&G OSB SHEATHING	SEE WF GENERAL STRUCTURAL NOTES	AT FLOORS



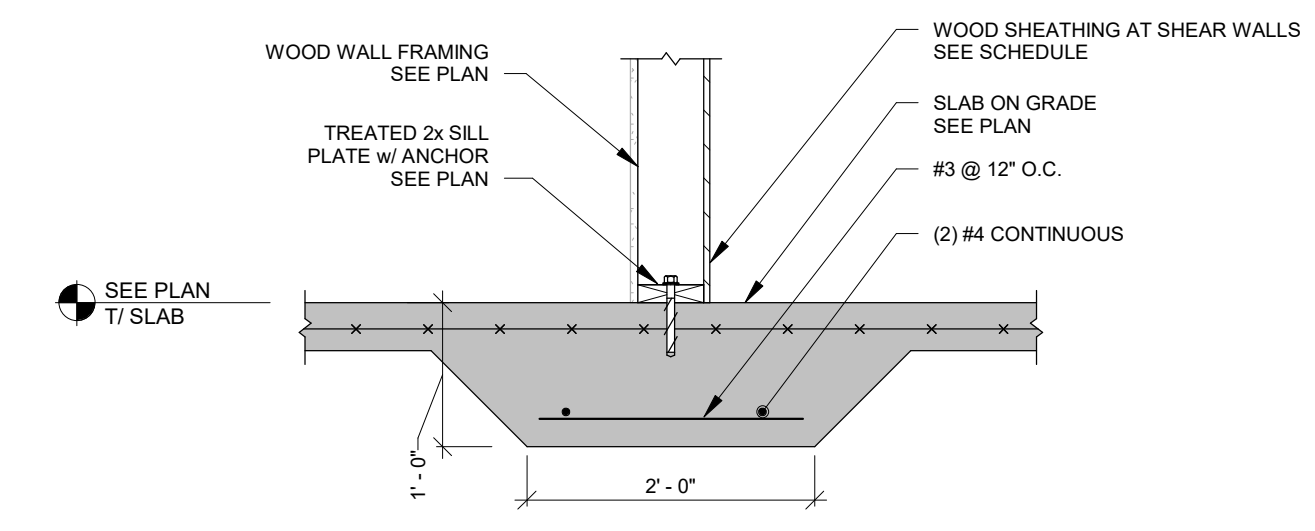
7 FRAMING DETAIL
3/4" = 1'-0"



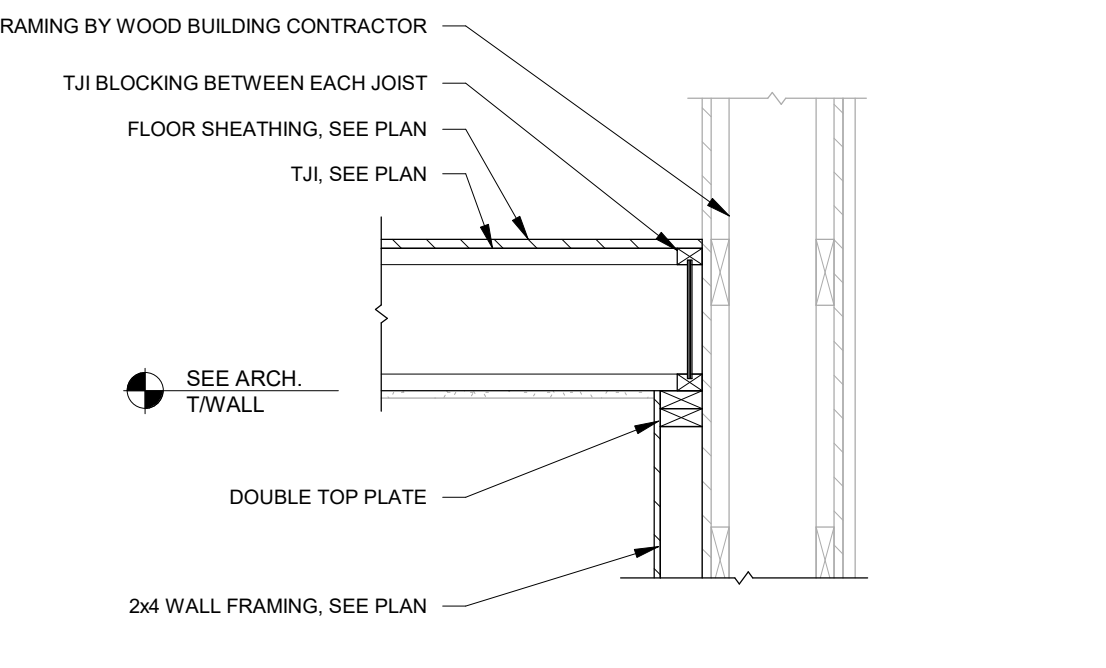
8 FRAMING DETAIL
3/4" = 1'-0"

FOUNDATION SYMBOL KEY

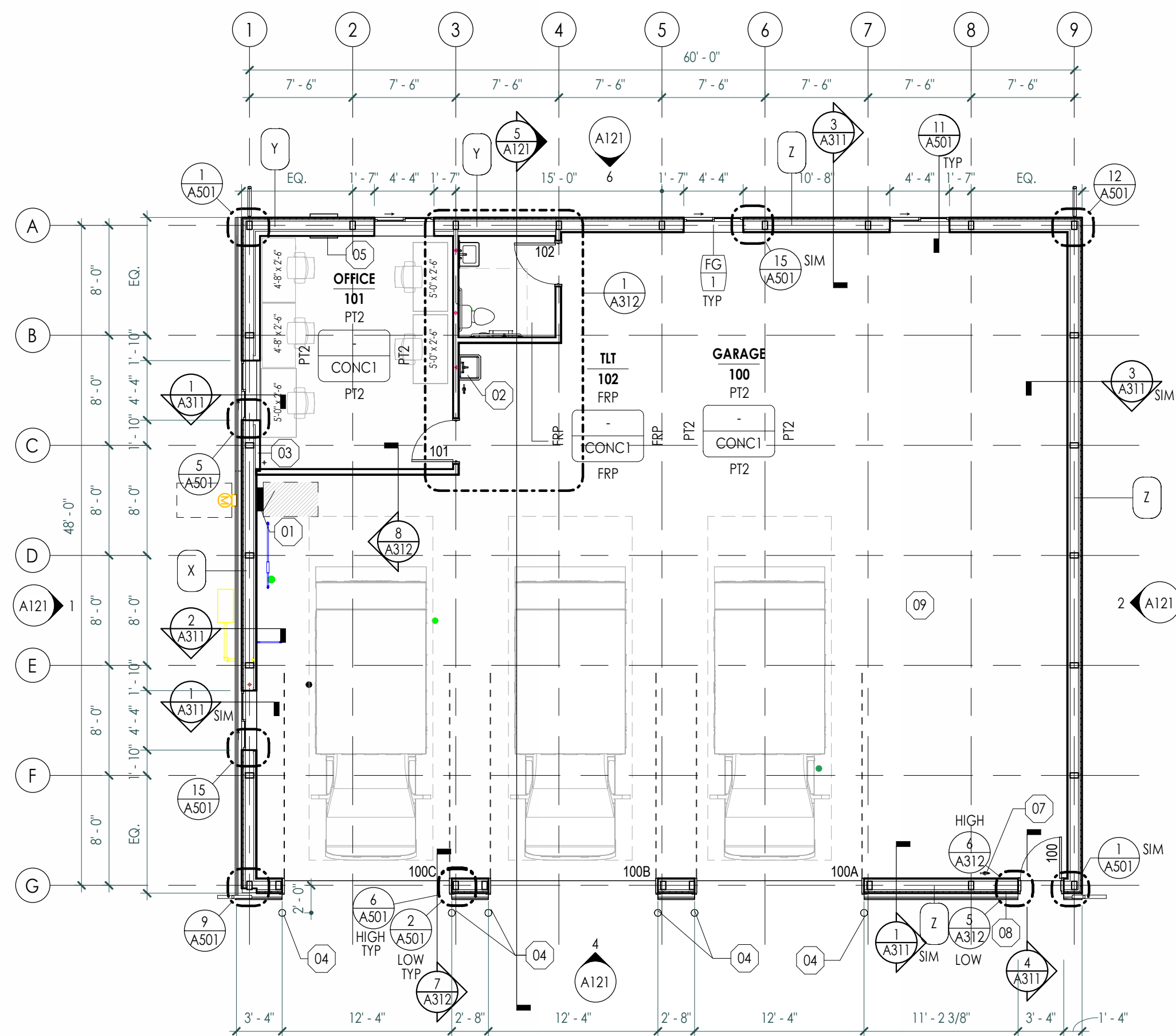
- T WALL/STEEL
- T FOOTING
- JOIST BEARING
- T BRICK LEDGE
- T FDN. STEP
- EXIST. BLDG.



11 TYP. THICKENED SLAB @ WOOD BEARING/SHEAR WALL
3/4" = 1'-0"



12 FRAMING DETAIL
3/4" = 1'-0"

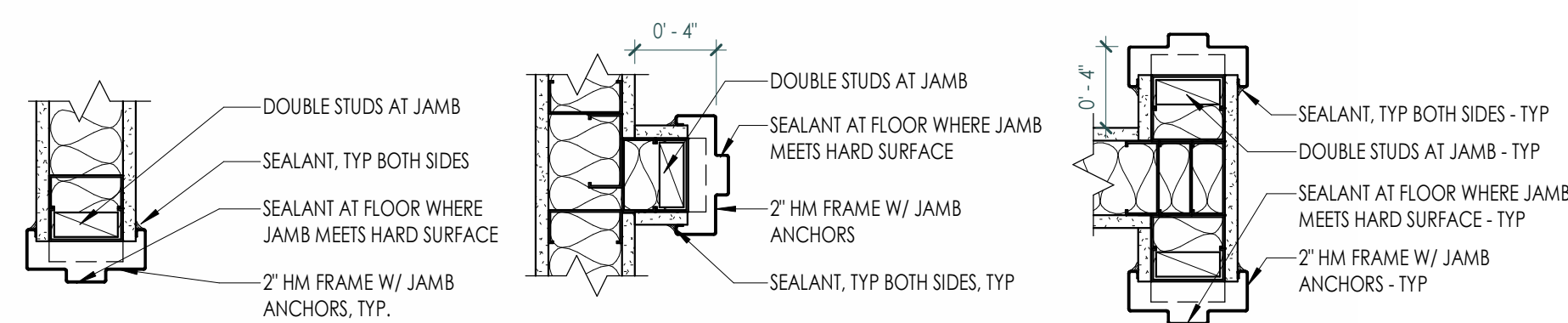


1 FIRST FLOOR PLAN
1/8" = 1'-0"

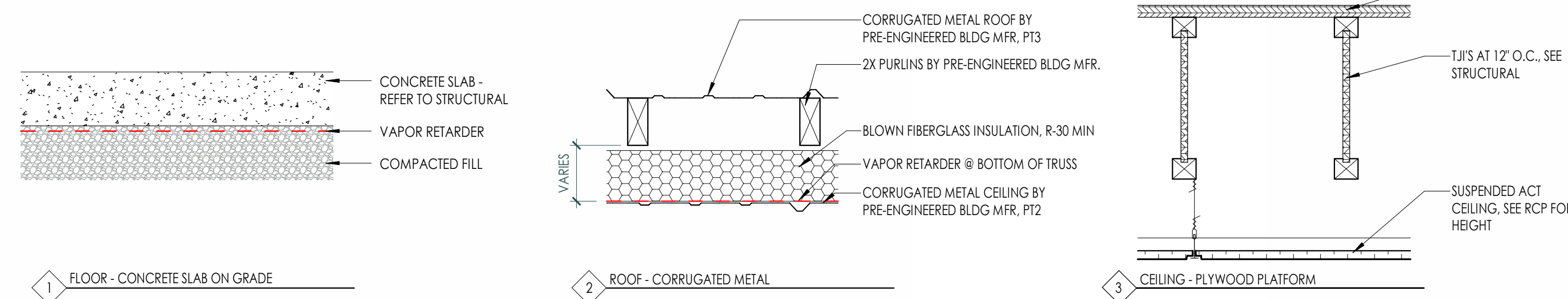
KEYNOTES - FLOOR PLAN	
#	DESCRIPTION
01	PROVIDE BACKING FOR ELECTRIC PANEL.
02	PROVIDE BACKING FOR SINK AS REQUIRED. SEE PLUMBING DWGS.
03	PROVIDE BACKING FOR WALL MOUNTED SHELF. SEE TECHNOLOGY DWGS.
04	4-1/2" DIA. 48" H BOLLARD. SEE SPECS.
05	WALL MOUNTED AIR CONDITIONER [TEMPORARY USE DURING CONSTRUCTION AT MAIN HOSPITAL BY EMS STAFF]. SEE MEPT. FOLLOW PRE-ENGINEERED BLDG MFR STANDARDS FOR INSTALLATION REQUIREMENTS OF ALL PENETRATIONS.
07	SURFACE MOUNTED FIRE EXTINGUISHER.
08	WALL MOUNTED KNOX BOX.
09	ALIGN LOCATION OF CONCRETE SAW CUT JOINTS WITH OVERHEAD DOOR JAMBS WHERE APPROPRIATE. PROVIDE SHOP DRAWING INDICATING PROPOSED CONSTRUCTION JOINT LAYOUT.

INTERIOR MATERIAL LEGEND	
MATERIAL LABEL	MATERIAL DESCRIPTION
ACT	ACOUSTICAL CEILING TILE AND GRID
CONC	CONCRETE
EX	EXISTING
GYP	GYPSUM WALL BOARD
MP	METAL PANEL
PT	PAINT
RB	RESILIENT BASE
SST	STAINLESS STEEL
STO	STONE
WB	WOOD BASE
WD	WOOD
WT	WINDOW TREATMENT

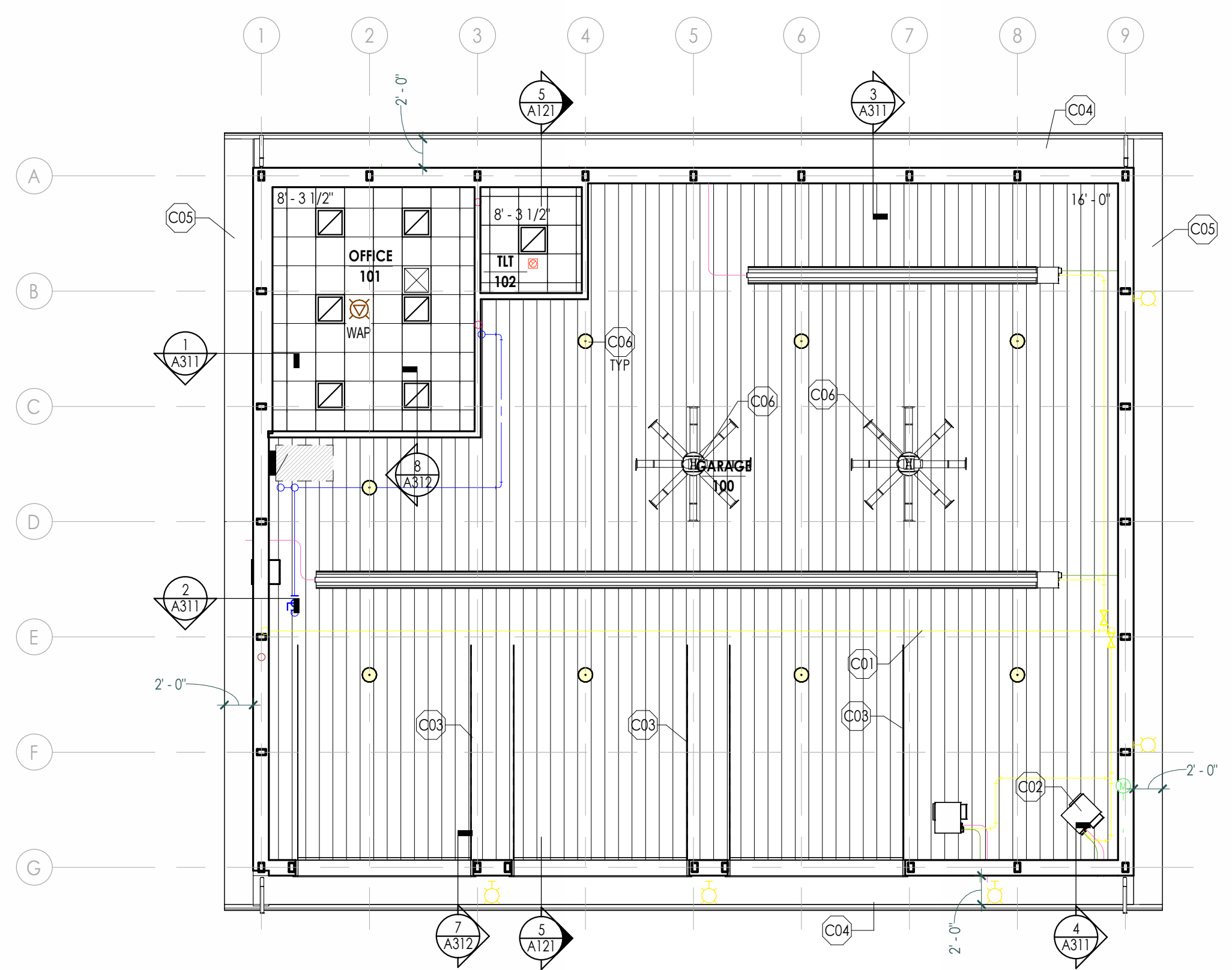
INTERIOR FINISH LEGEND					
TAG	MANUFACTURER	STYLE	COLOR	SIZE	COMMENTS
CEILING					
ACT1	ARMSTRONG CEILINGS	CALLA REGULAR, 15/16" GRID	TILES: WHITE; GRID // TRIM: WHITE	24" x 24"	
FLOOR					
CONC1		SEALED CONCRETE			
WALL					
FRP		FIBER REINFORCED PANELS	WHITE, FROM MANF. OPTIONS		
PT1	PPG	SEMI-GLOSS	ALDABRA PPG-14-28		@ HOLLOW METAL DOOR & FRAME
PT2	BY PRE-ENG. BLDG MFR.	PVDF	WHITE OR IVORY (TBD)		TYPICAL CORRUGATED METAL PANEL COLOR.
PT3	BY PRE-ENG. BLDG MFR.	PVDF	BLACK		ROOF, GUTTER, TRIM, AND DOWNSPOUT COLOR



TYP STUD WALL - HOLLOW METAL FRAME DETAILS
1 1/2" = 1'-0"



HORIZONTAL ASSEMBLIES
1 1/2" = 1'-0"

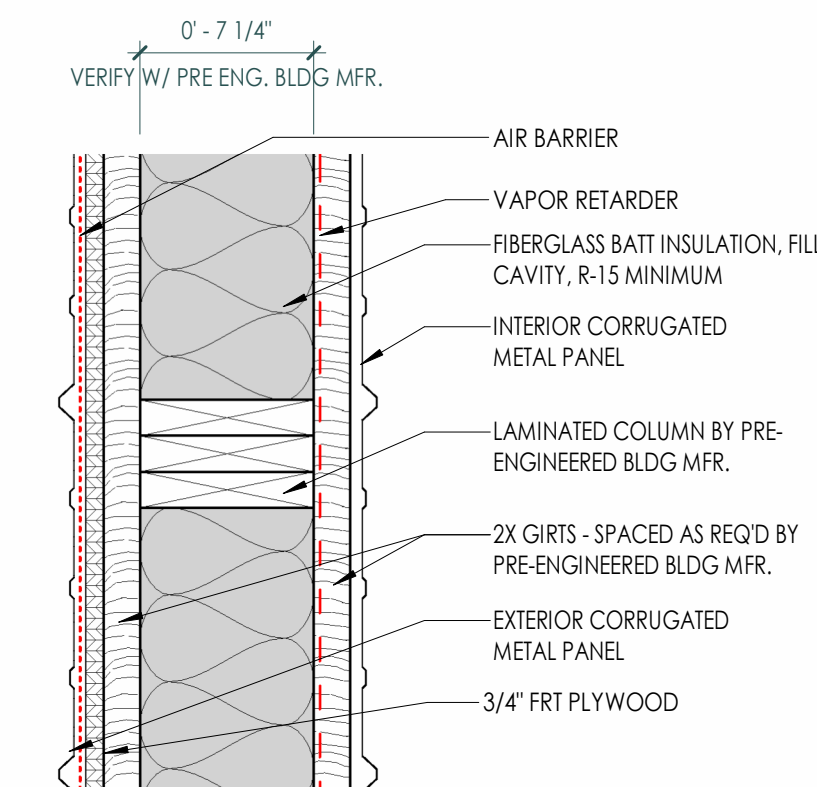


2 FIRST FLOOR REFLECTED CEILING PLAN
1/8" = 1'-0"

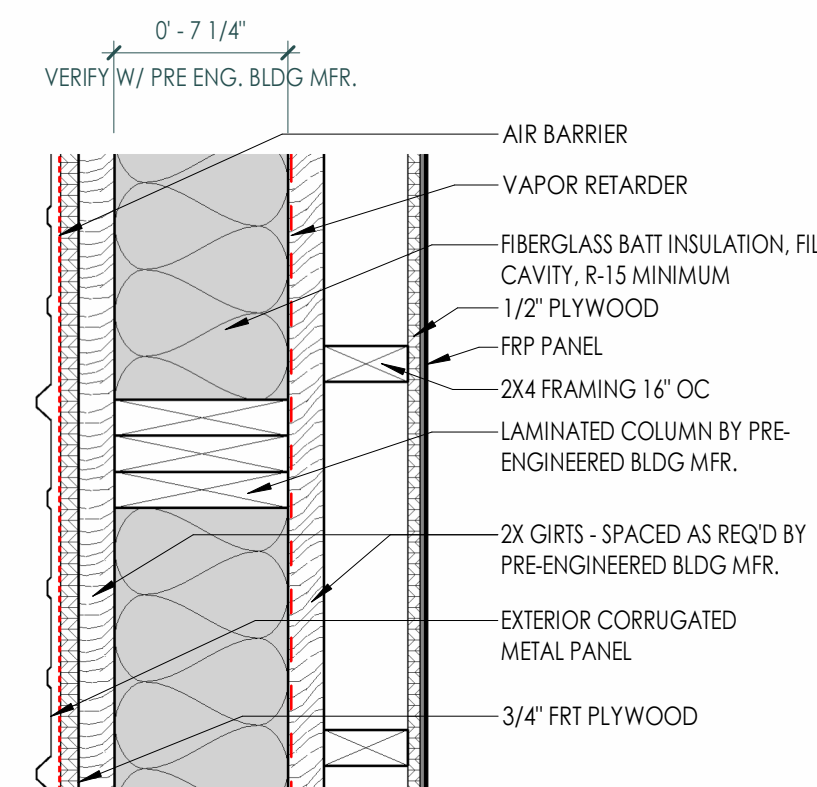
KEYNOTES - CEILING	
#	DESCRIPTION
C01	PIPING FOR RADIANT HEATERS. SEE MECH. PROVIDE BACKING AS REQUIRED.
C02	UNIT HEATER. SEE MECH. PROVIDE BACKING AS REQUIRED.
C03	OVERHEAD DOOR TRACK. PROVIDE BACKING AS REQUIRED.
C04	PRE-FINISHED SOFFIT PANEL BY PRE-ENG BLDG MFR. PT2. PROVIDE PRE-ENGINEERED BLDG MFR STANDARDS FOR VENTING + TRIM.
C05	PRE-FINISHED SLOPED SOFFIT PANEL BY PRE-ENG BLDG MFR. PT2. PROVIDE PRE-ENGINEERED BLDG MFR STANDARDS FOR VENTING + TRIM.
C06	PROVIDE BLOCKING/BACKING AS REQUIRED FOR CEILING MOUNTED LIGHT FIXTURES + CEILING FANS.

CEILING LEGEND:

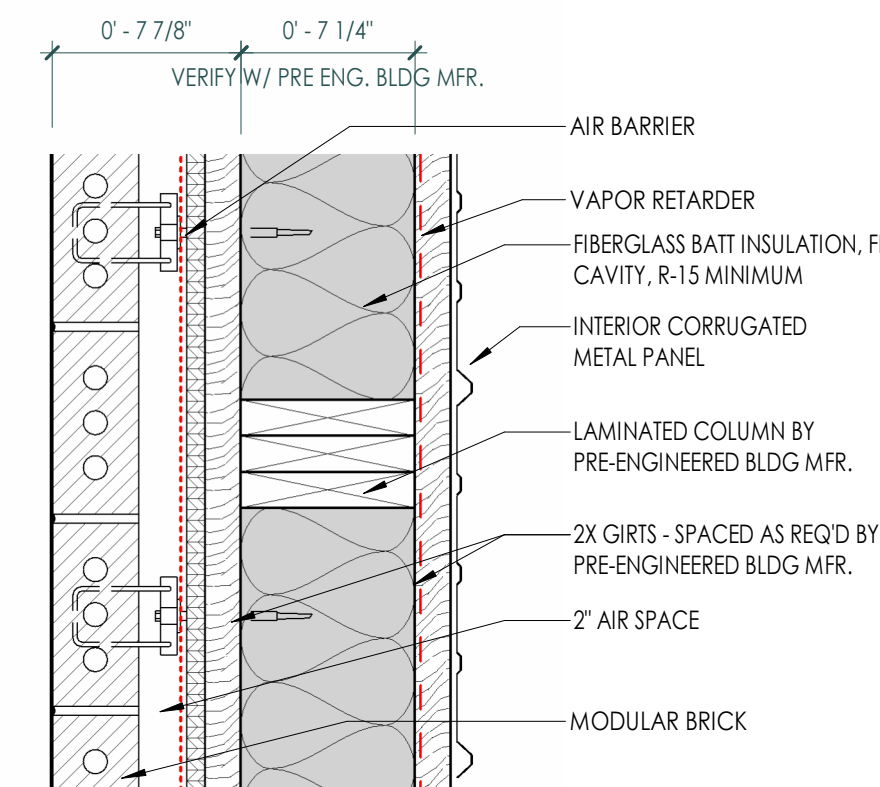
- HIGH BAY LIGHTING
- ▬ RADIANT HEATER. SEE MECH
- ▬ 2X2 RECESSED DIRECT LIGHT
- ⊠ DIFFUSER
- ▬ 2X2 ACOUSTICAL CEILING TILE
- ▬ PARTIAL HEIGHT WALL
- ▬ CORRUGATED METAL CEILING



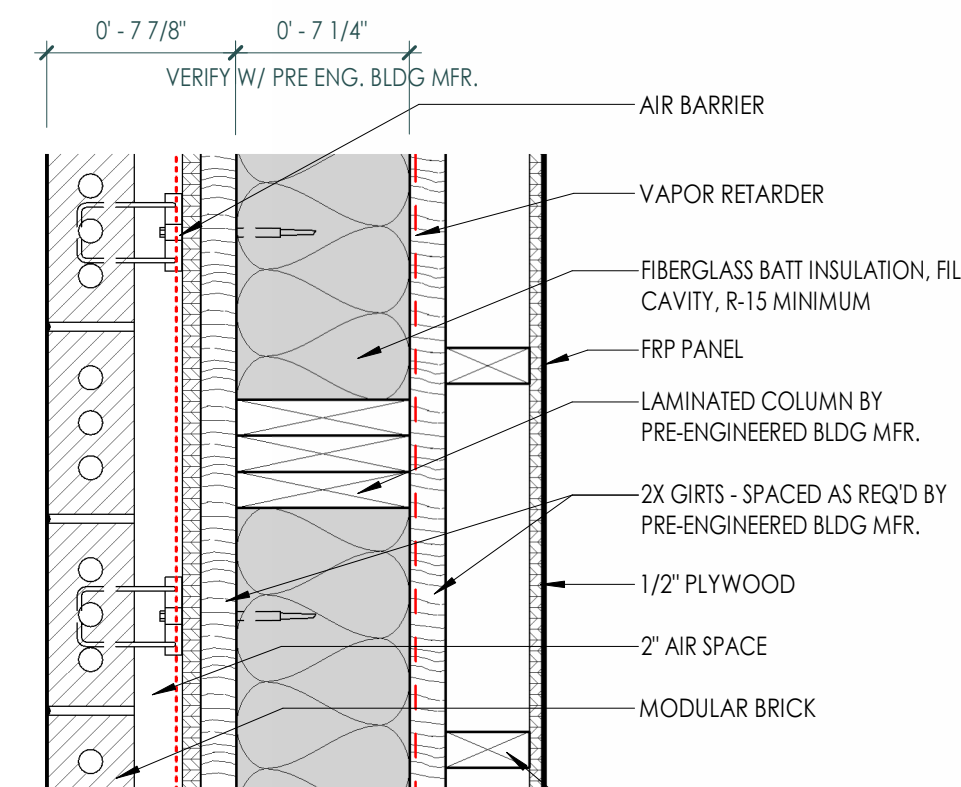
Z _Z_MTL_POLE BARN



Y _Y_MTL_POLE BARN



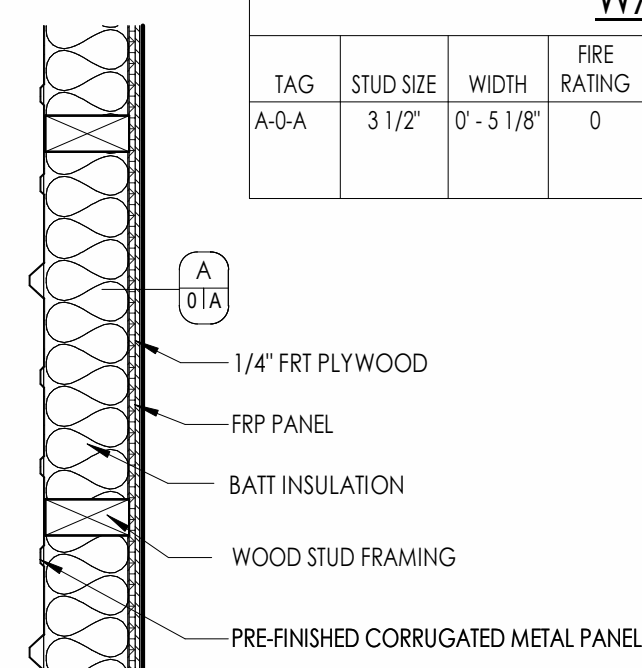
X _X_BRICK_POLE BLDG



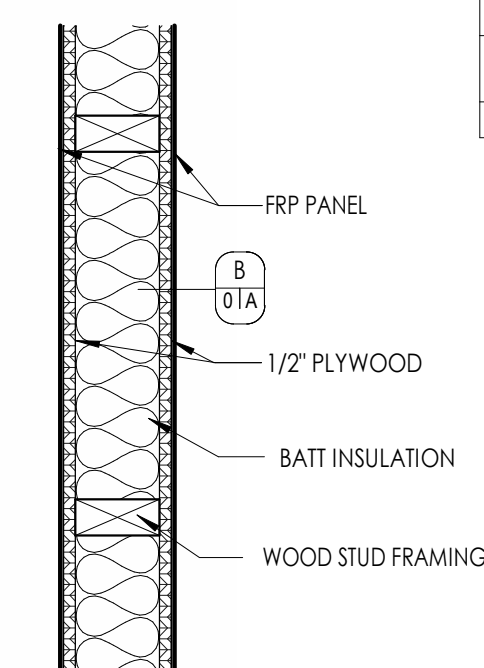
W _W_BRICK_POLE BLDG_2X4 INT FRAMING

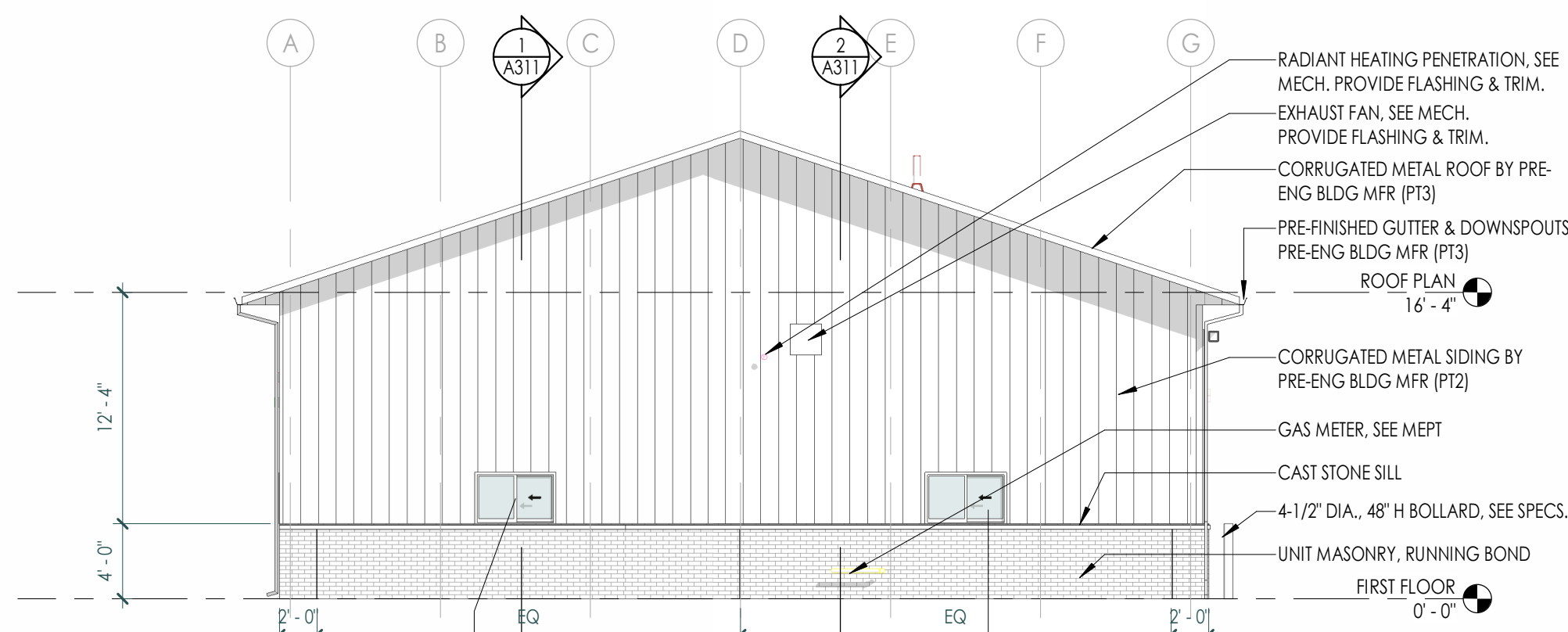
EXTERIOR WALLS
1 1/2" = 1'-0"

WALL TYPE A						
TAG	STUD SIZE	WIDTH	FIRE RATING	STC	UL #	INSULATION
A-0-A	3 1/2"	0'-5 1/8"	0	46		A

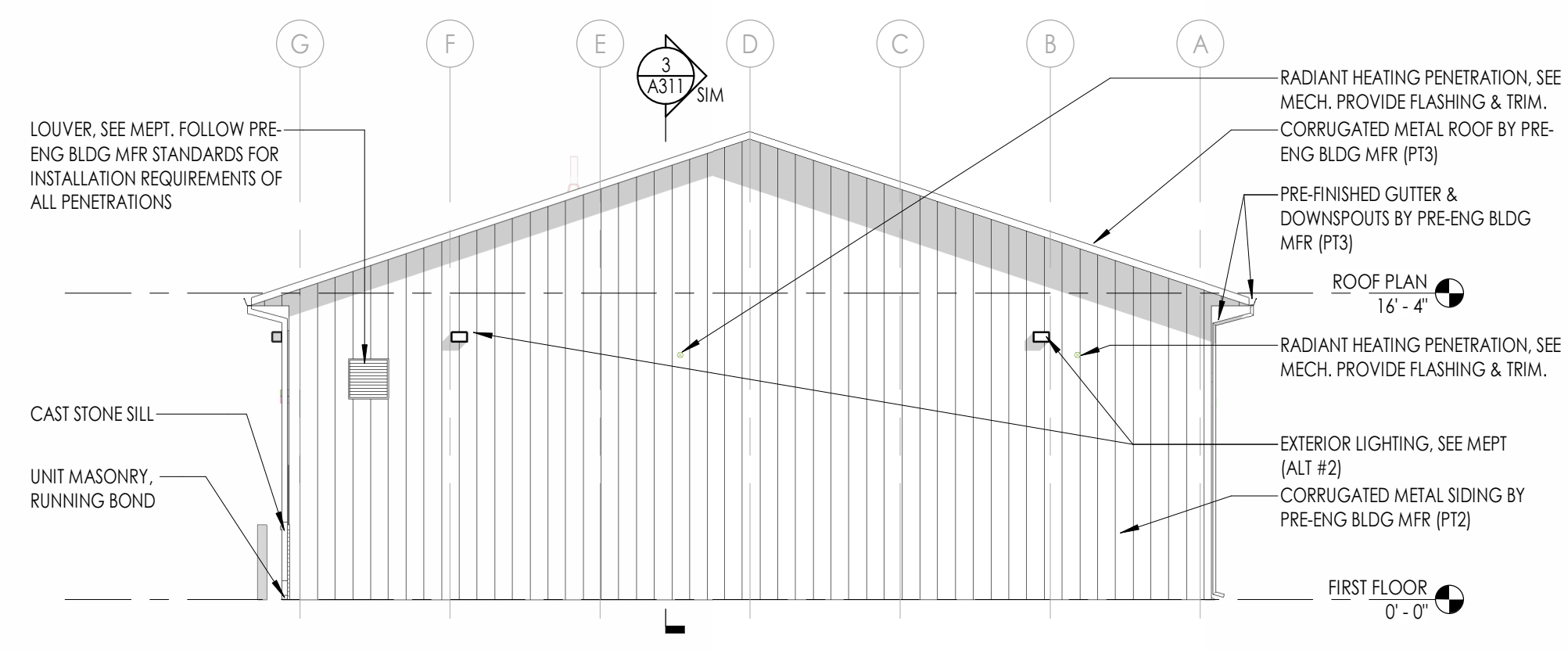


WALL TYPE B						
TAG	STUD SIZE	WIDTH	FIRE RATING	STC	UL #	INSULATION
B-0-A	3 1/2"	0'-4 3/4"	0	46		A

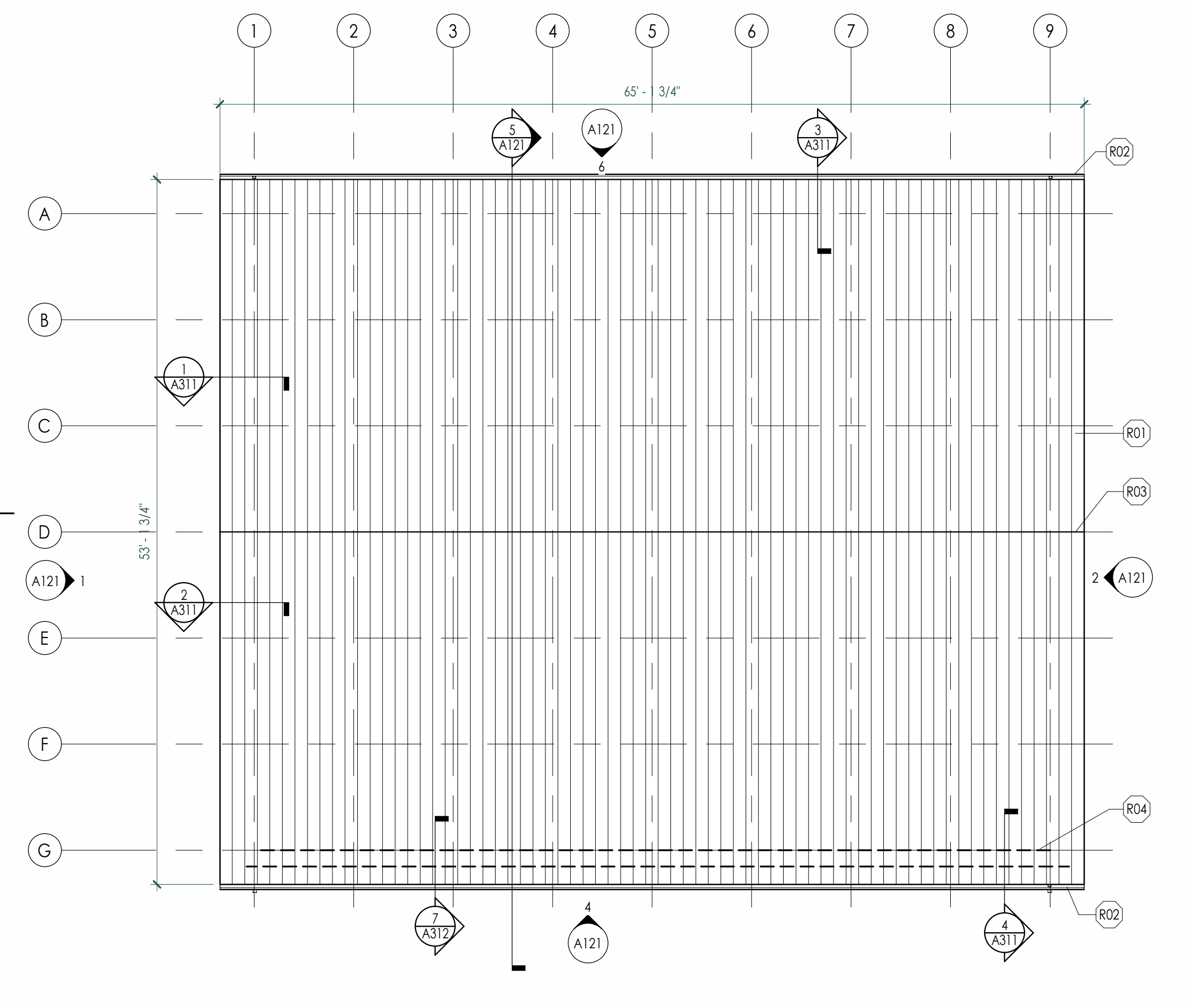




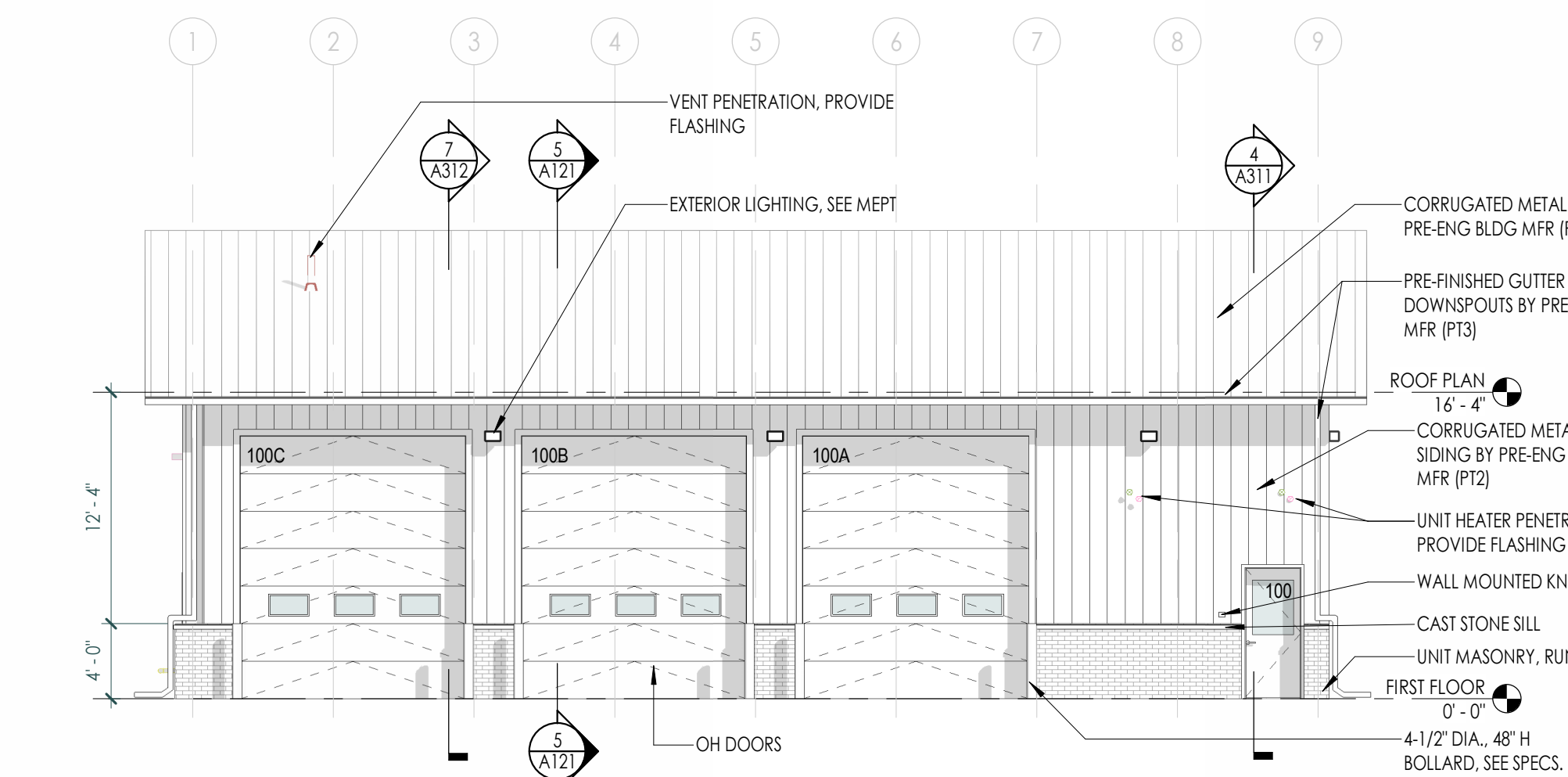
1 WEST
1/8" = 1'-0"



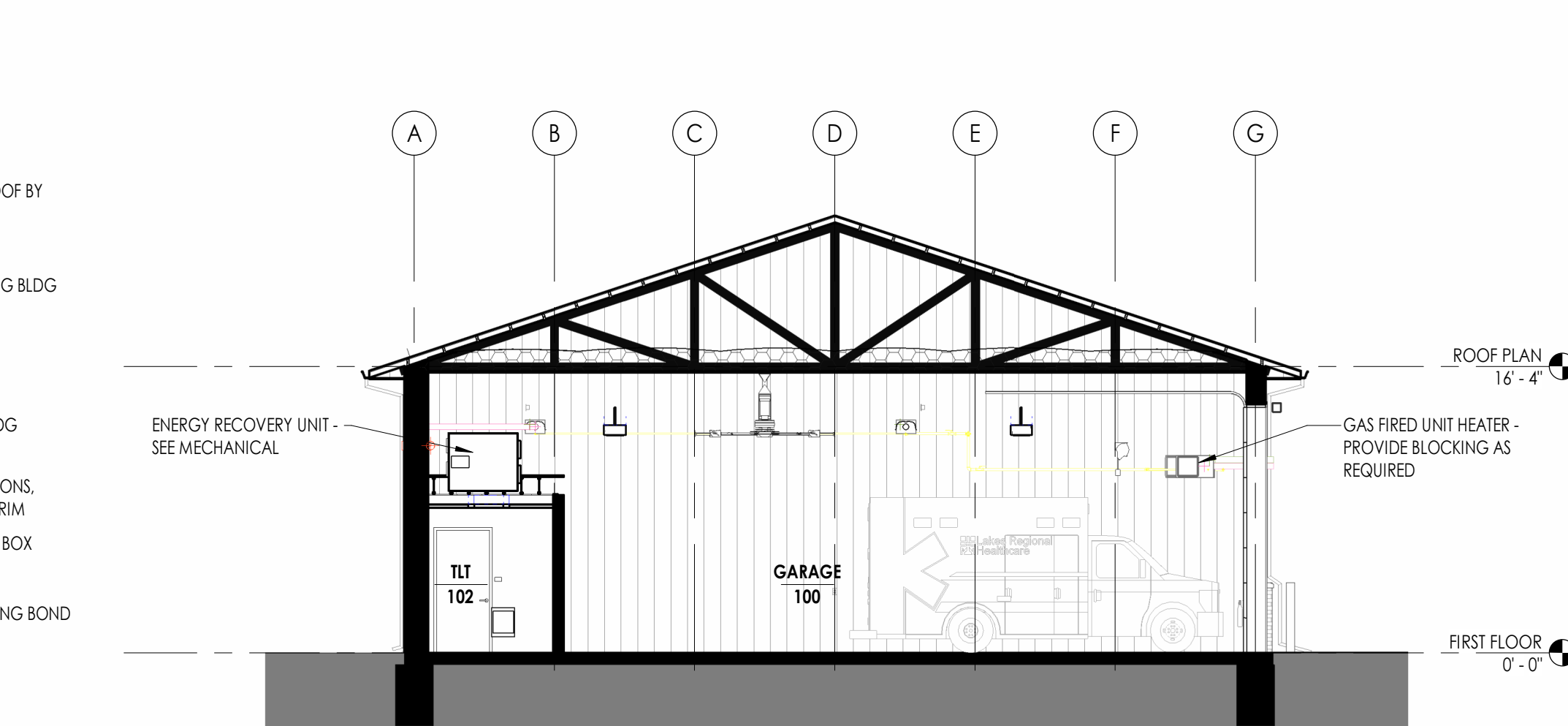
2 EAST
1/8" = 1'-0"



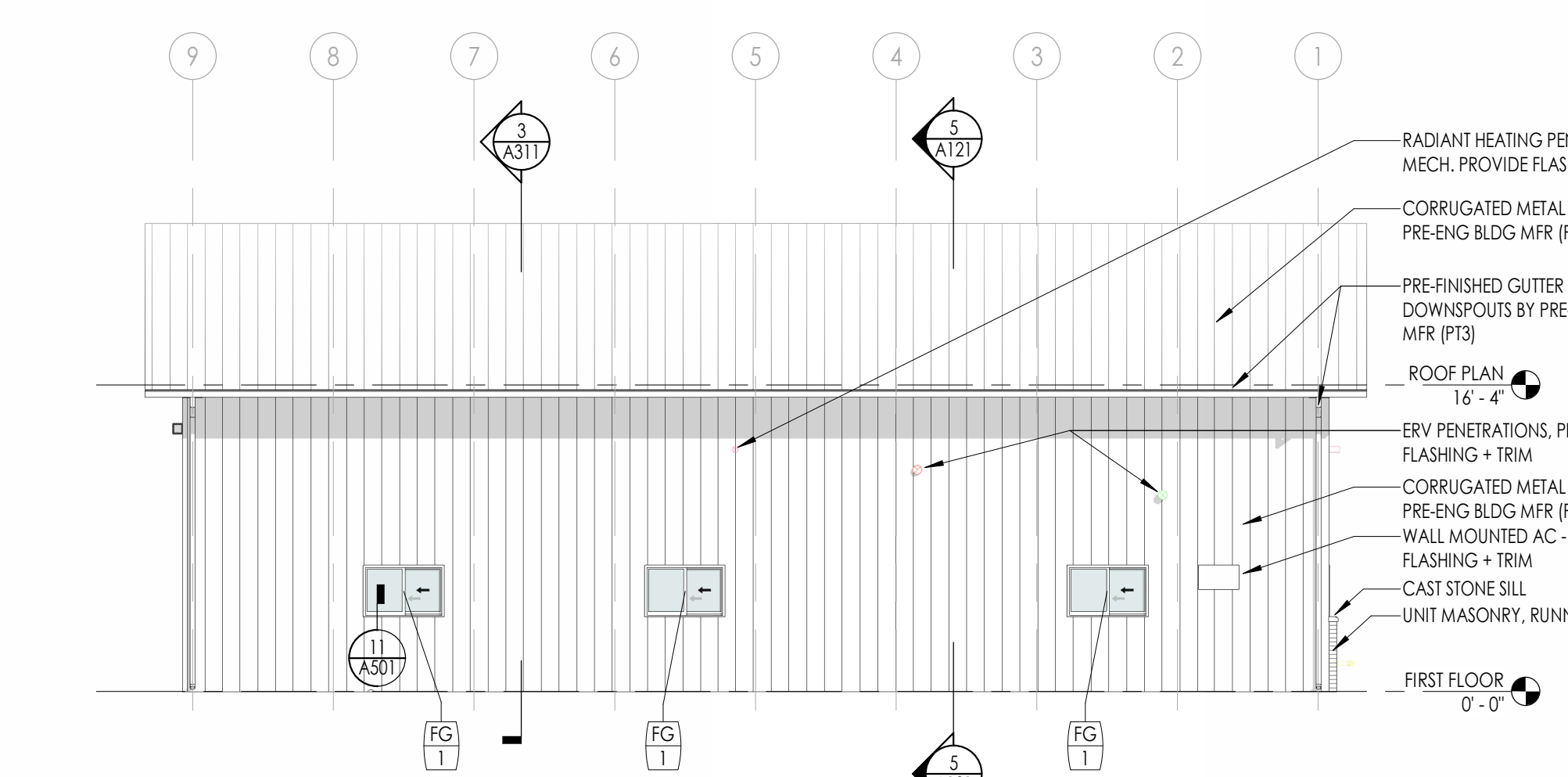
3 ROOF PLAN
1/8" = 1'-0"



4 SOUTH
1/8" = 1'-0"

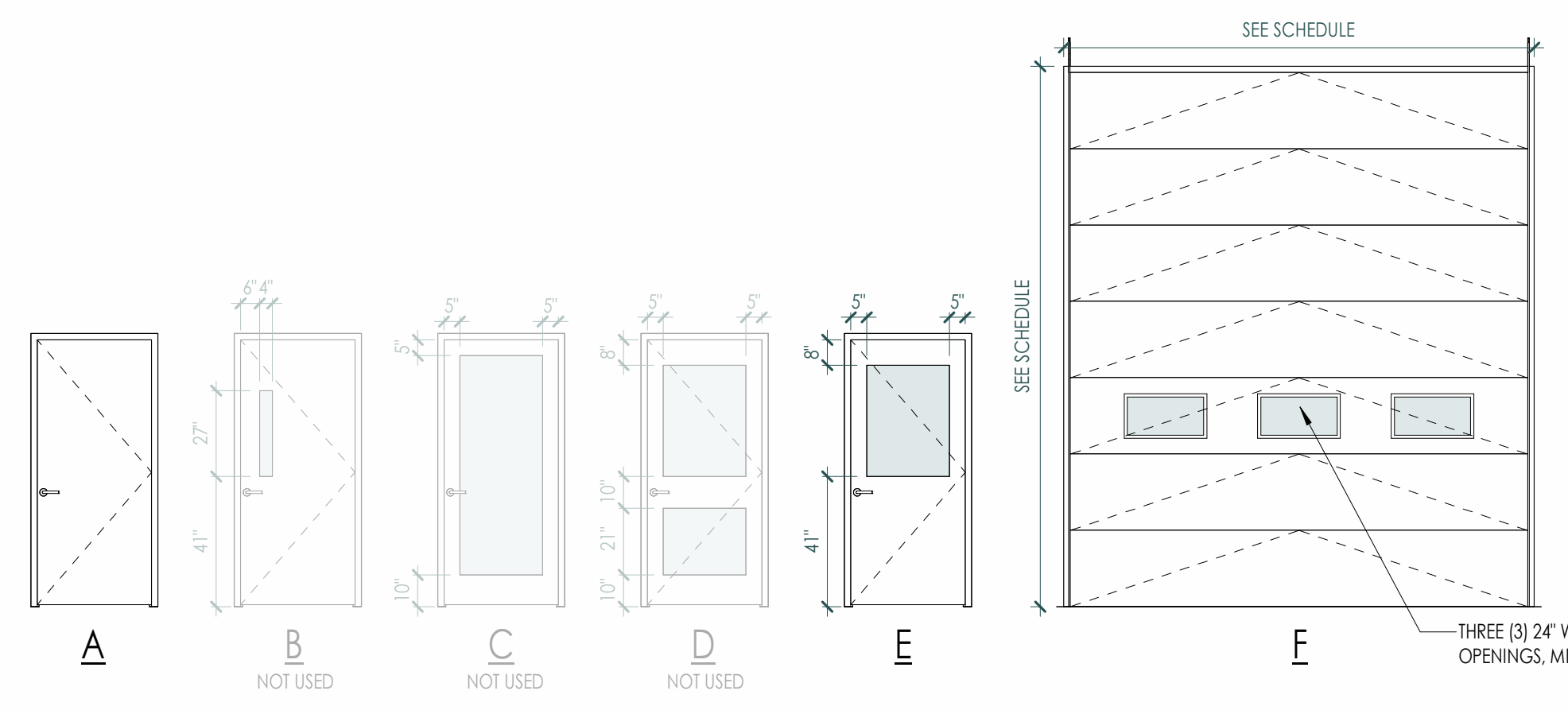


5 BUILDING SECTION
1/8" = 1'-0"



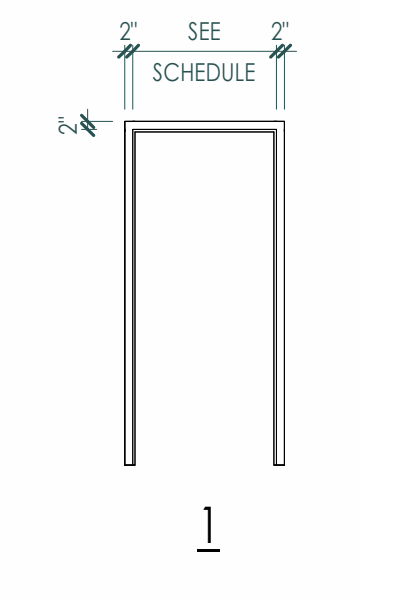
6 NORTH
1/8" = 1'-0"

KEYNOTES - ROOF PLAN	
#	DESCRIPTION
R01	PRE-FINISHED METAL ROOF BY PRE-ENGINEERED BLDG MFR.
R02	PRE-FINISHED METAL GUTTER & DOWNSPOUTS BY PRE-ENGINEERED BLDG MFR.
R03	RIDGE. PROVIDE VENTED RIDGE CAP & TRIM. BY PRE-ENGINEERED BLDG MFR.
R04	ROOF SNOW & ICE GUARDS BY PRE-ENGINEERED BLDG MFR.

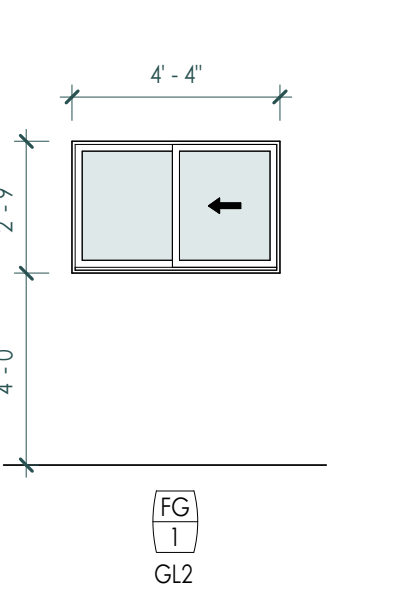


DOOR LEAF STYLES
1/4" = 1'-0"

MARK	DESCRIPTION	WIDTH	HEIGHT	THICKNESS	LEAF STYLE	DOOR LEAF		DOOR FRAME				AUTO OPENER	ACCESS CONTROL	COMMENTS
						LEAF MATERIAL	LEAF FINISH	FRAME TYPE	FRAME MATERIAL	FRAME FINISH	FIRE RATING			
100	SINGLE	3'-0"	7'-0"	1 3/4"	E	HM	PT	1	HM	PT	0	No	No	
100A	OVERHEAD DOOR	12'-0"	14'-0"	2"	F	ALUM			White			No	No	(7) 2'-0" H SECTION PANELS
100B	OVERHEAD DOOR	12'-0"	14'-0"	2"	F	ALUM			White			No	No	(7) 2'-0" H SECTION PANELS
100C	OVERHEAD DOOR	12'-0"	14'-0"	2"	F	ALUM			White			No	No	(7) 2'-0" H SECTION PANELS
101	SINGLE	3'-0"	7'-0"	1 3/4"	A	HM	PT	1	HM	PT	--	No	No	
102	SINGLE	3'-0"	7'-0"	1 3/4"	A	HM	PT	1	HM	PT	--	No	No	
Grand total:		6												



FRAME ELEVATION
1/4" = 1'-0"

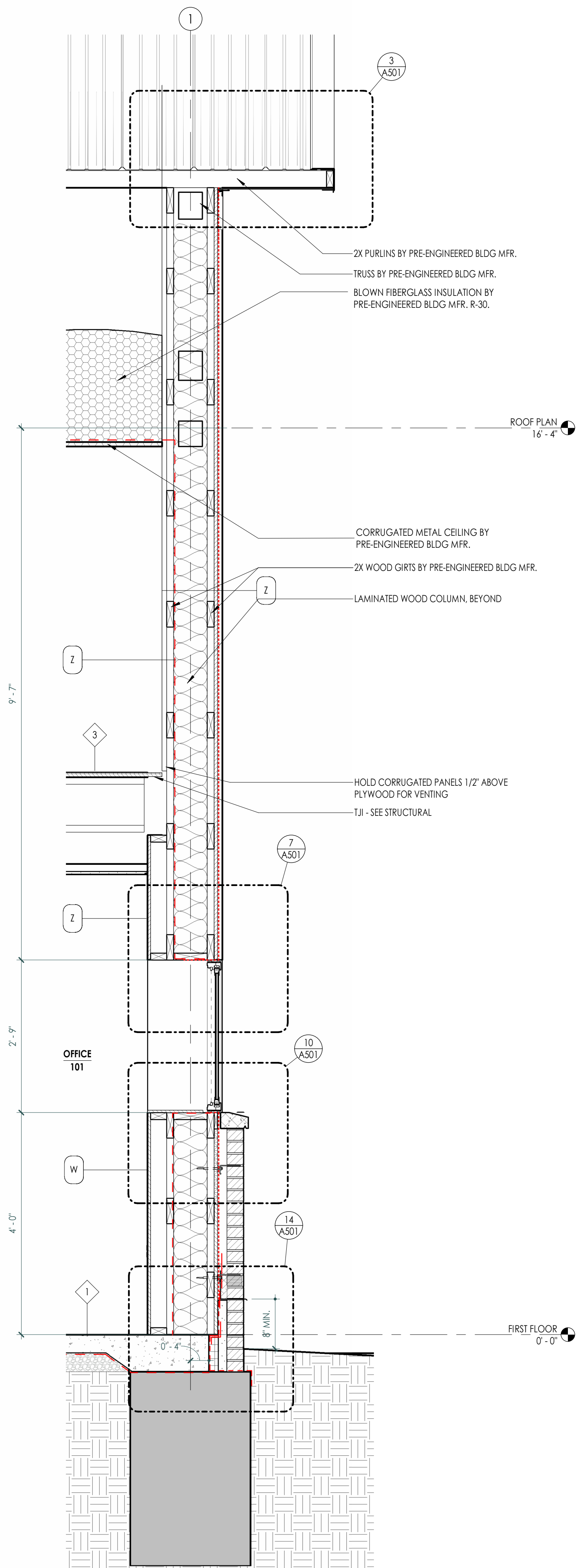


GLAZING ELEVATION
1/4" = 1'-0"

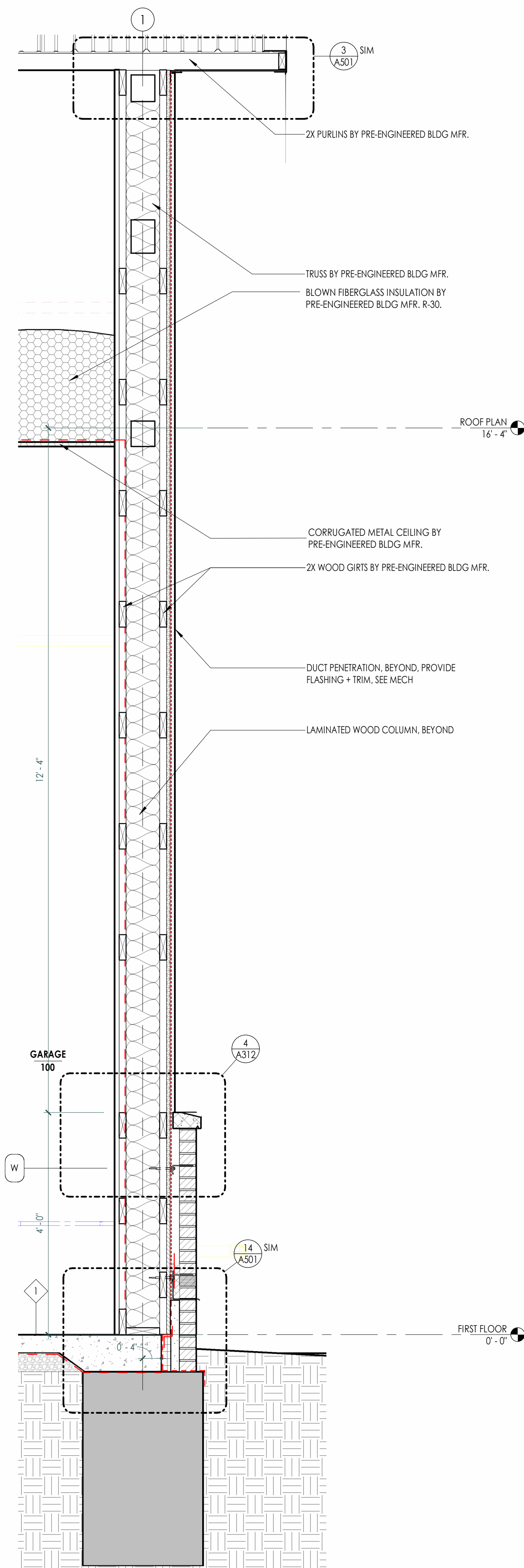
GLAZING TYPES:

GL1	1/2" OVERALL THICKNESS FULLY TEMPERED, INSULATED GLASS
GL2	1" CLEAR LOW E INSULATED GLASS

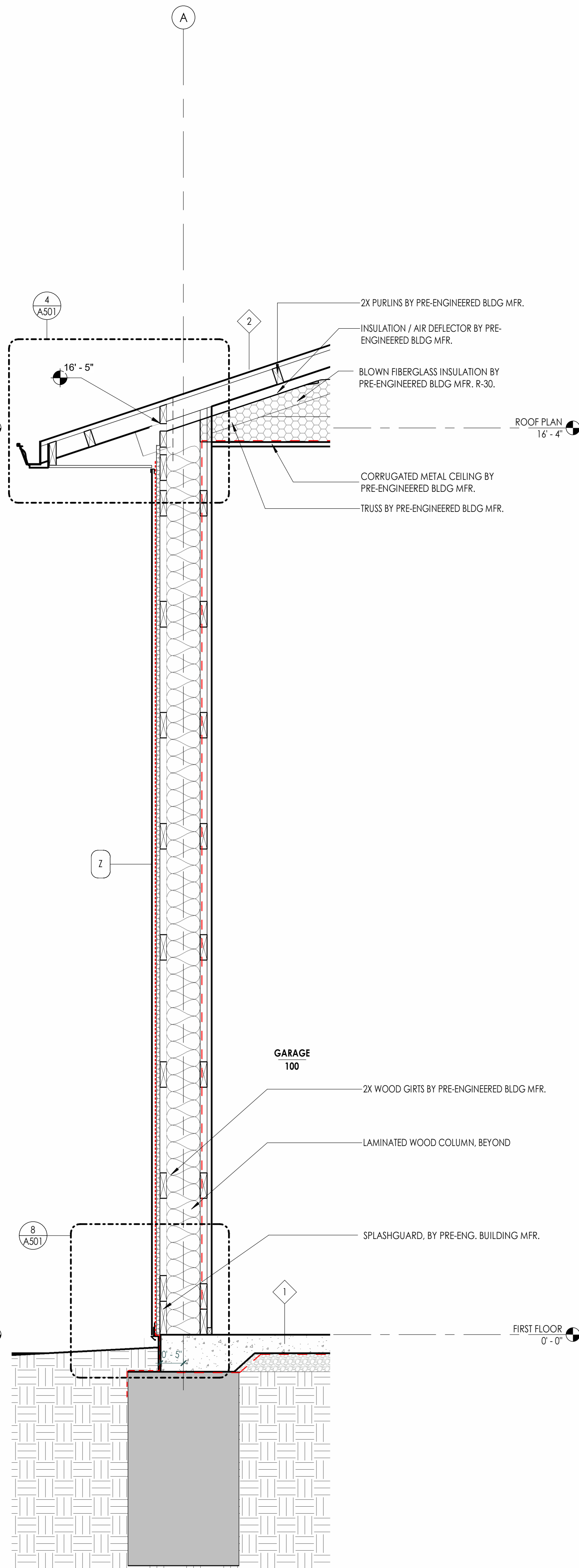
VISION GLASS



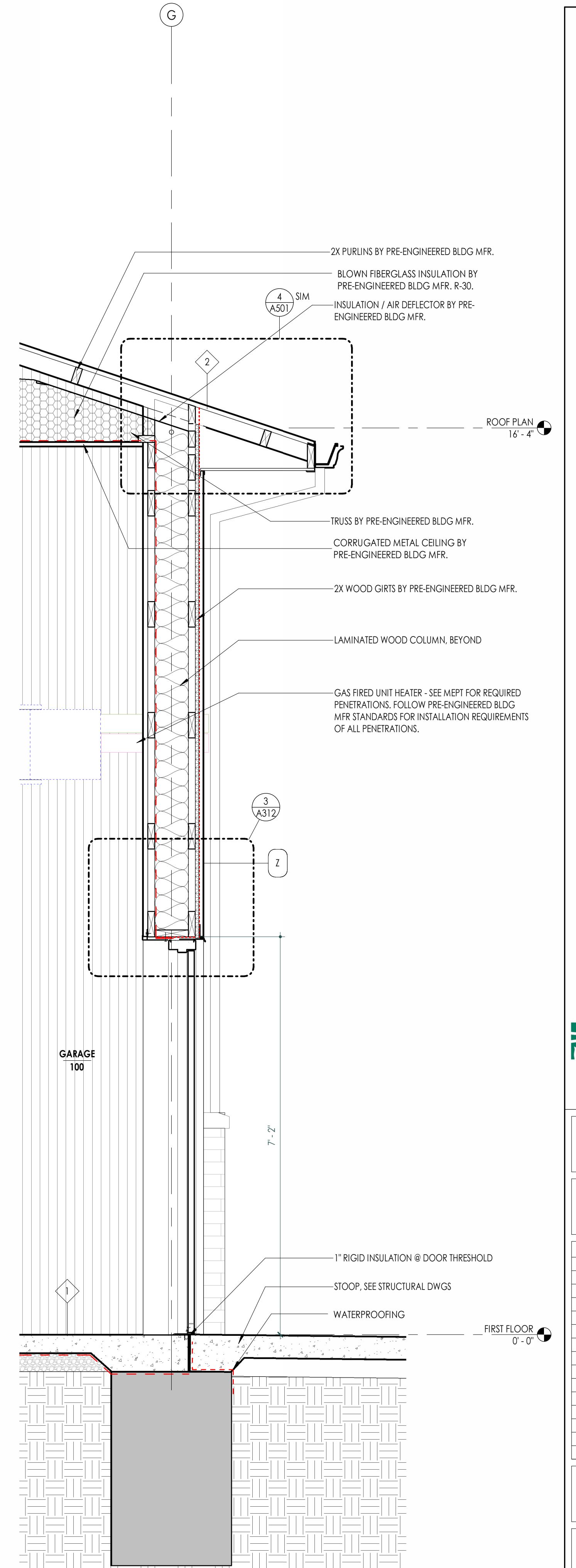
1 WALL SECTION @ WEST MASONRY - OFFICE
3/4" = 1'-0"



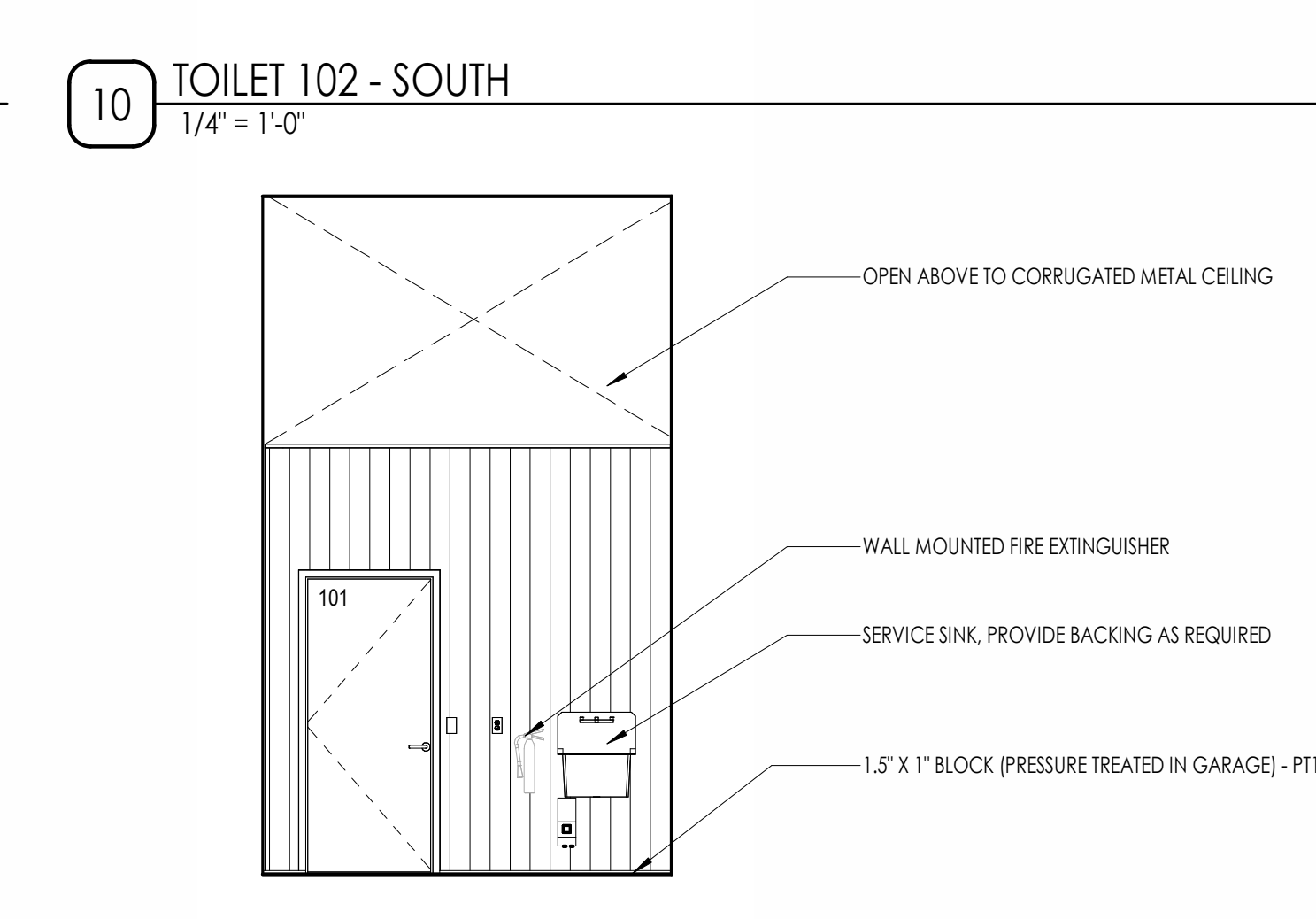
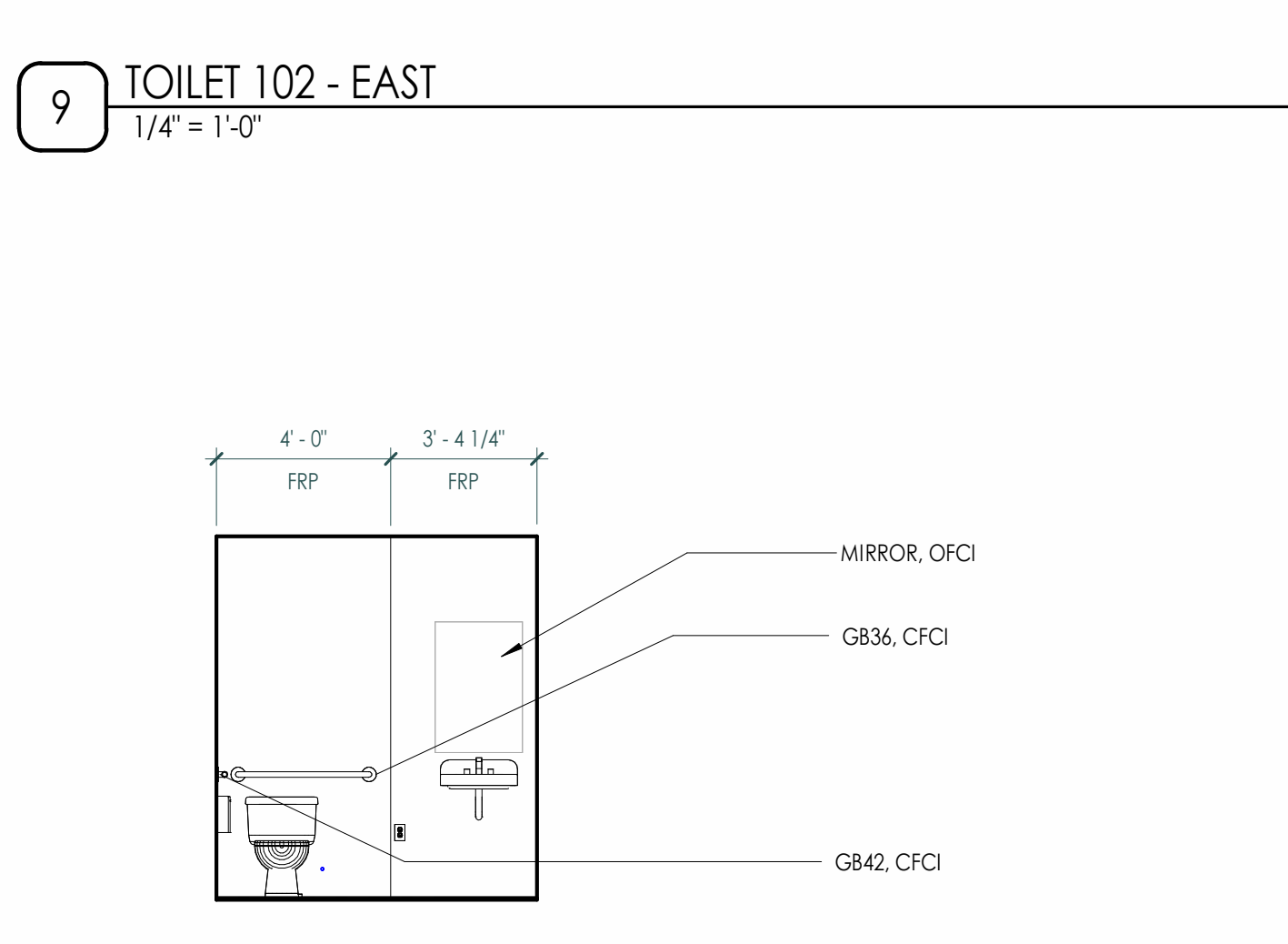
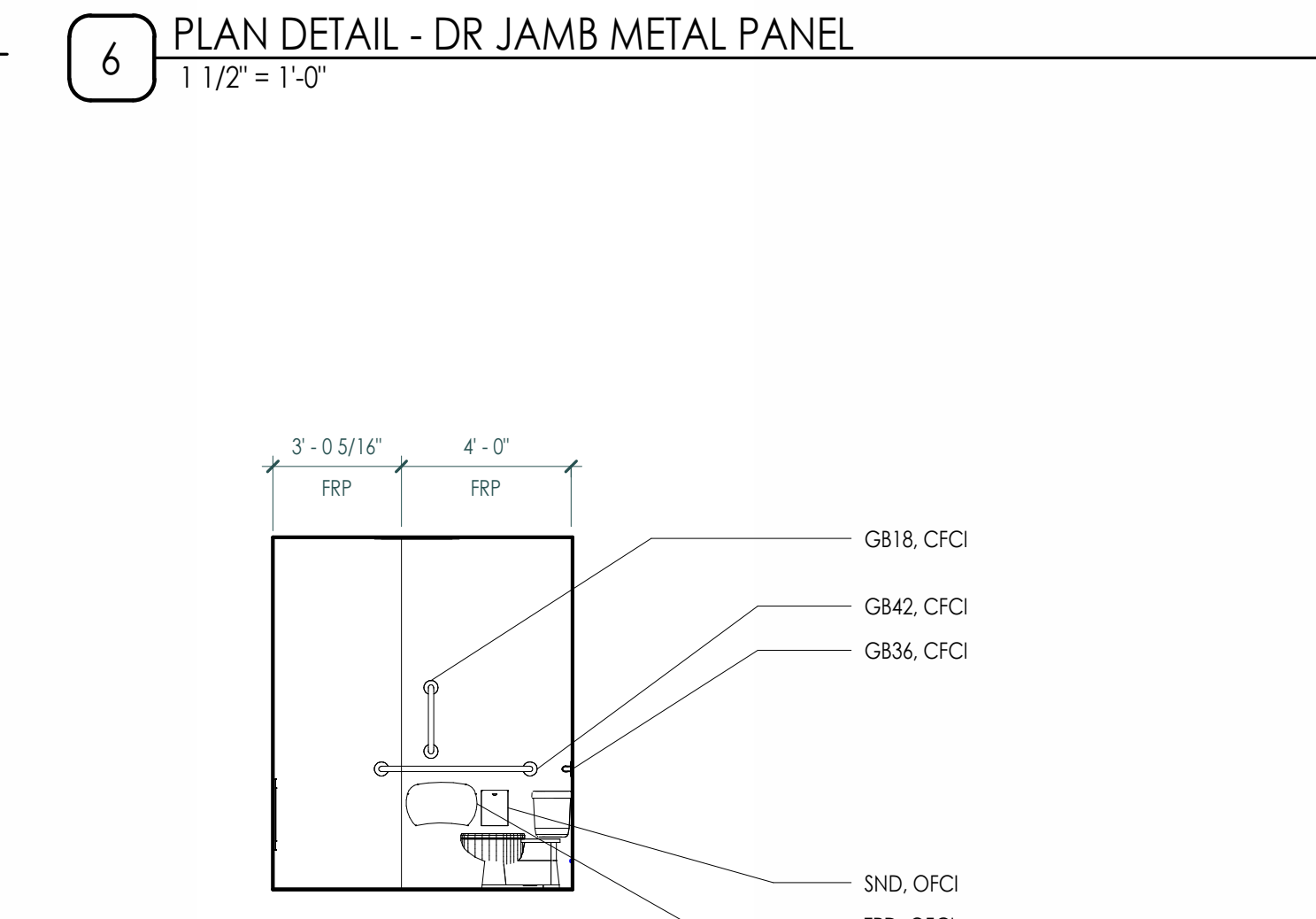
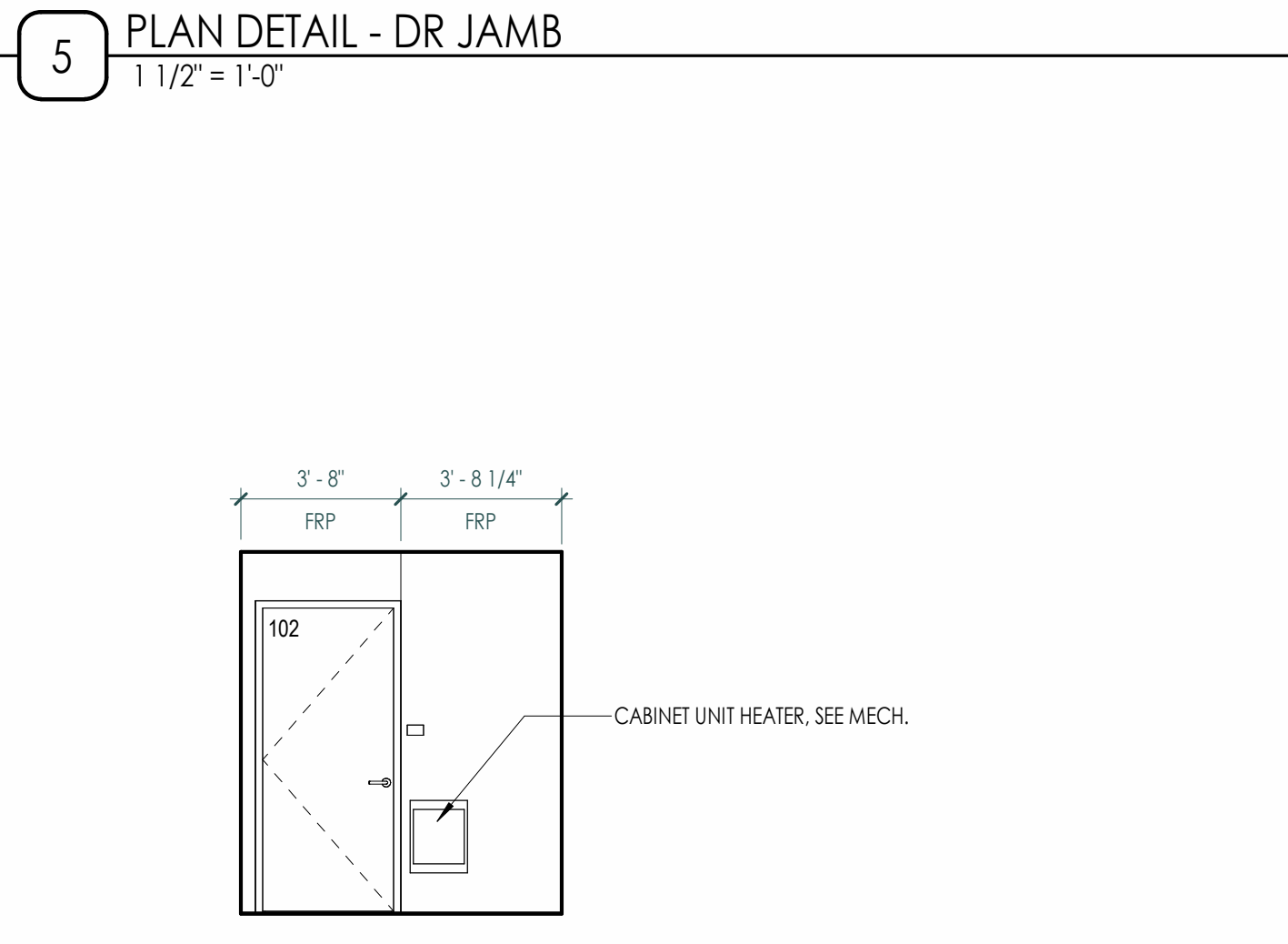
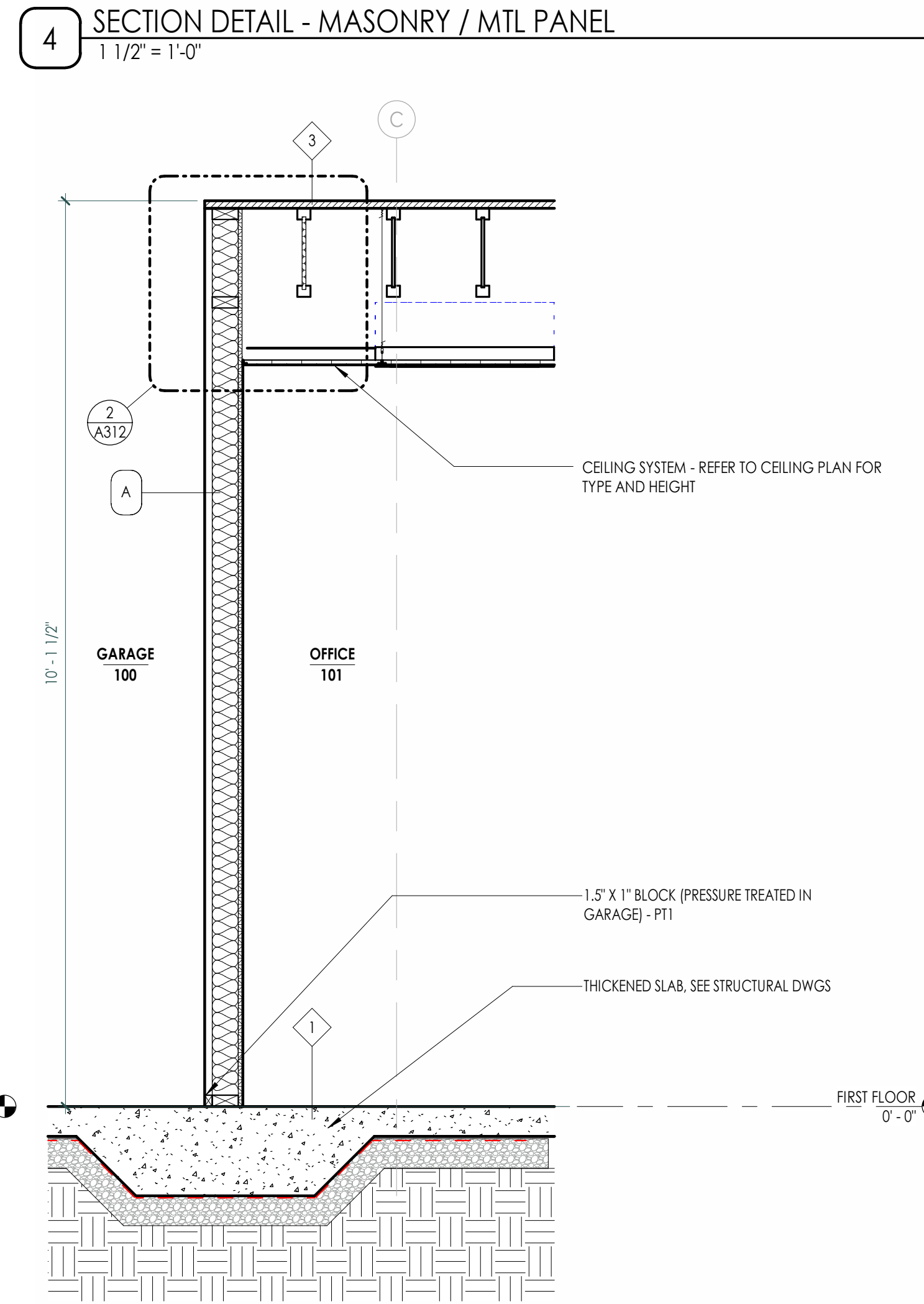
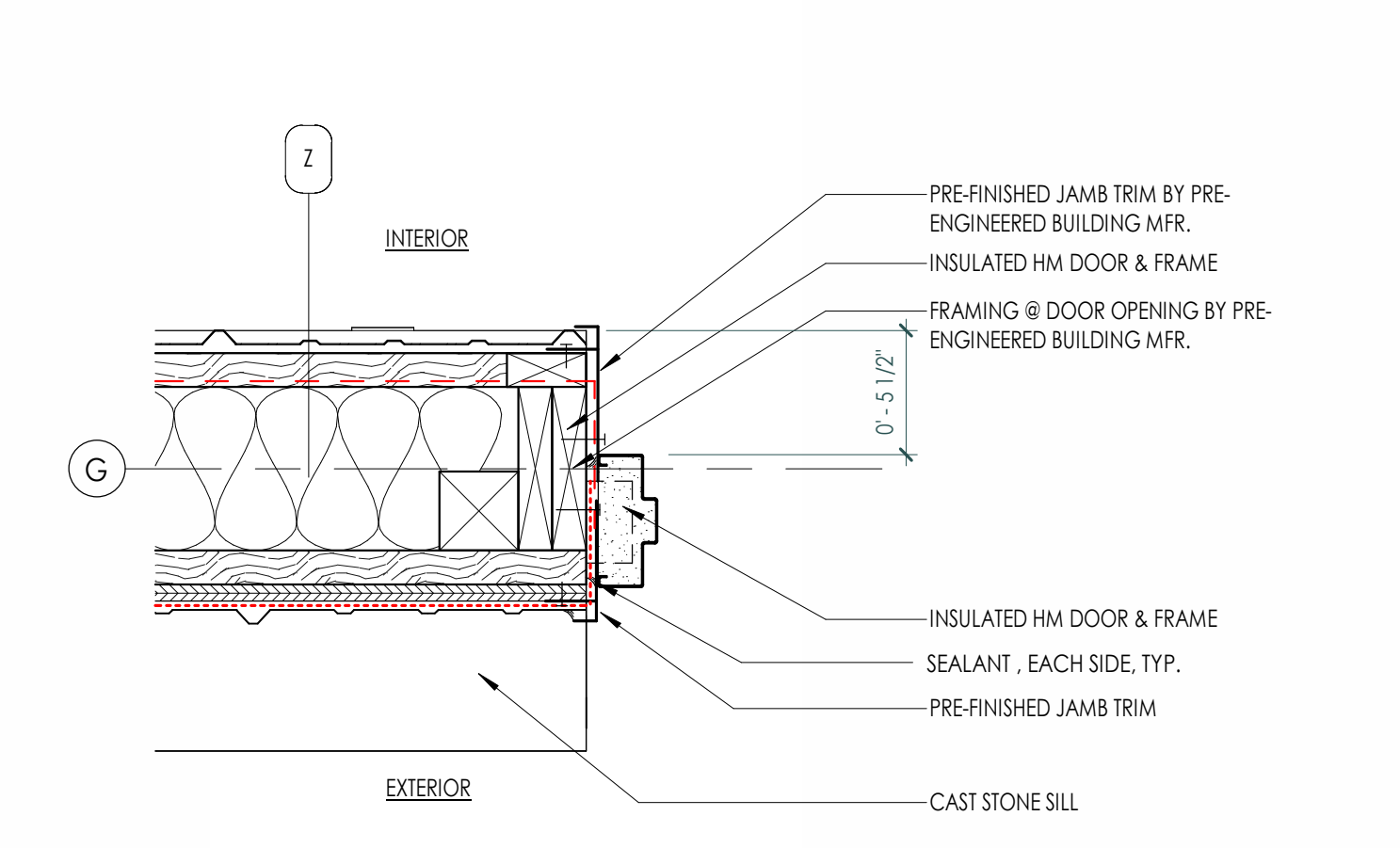
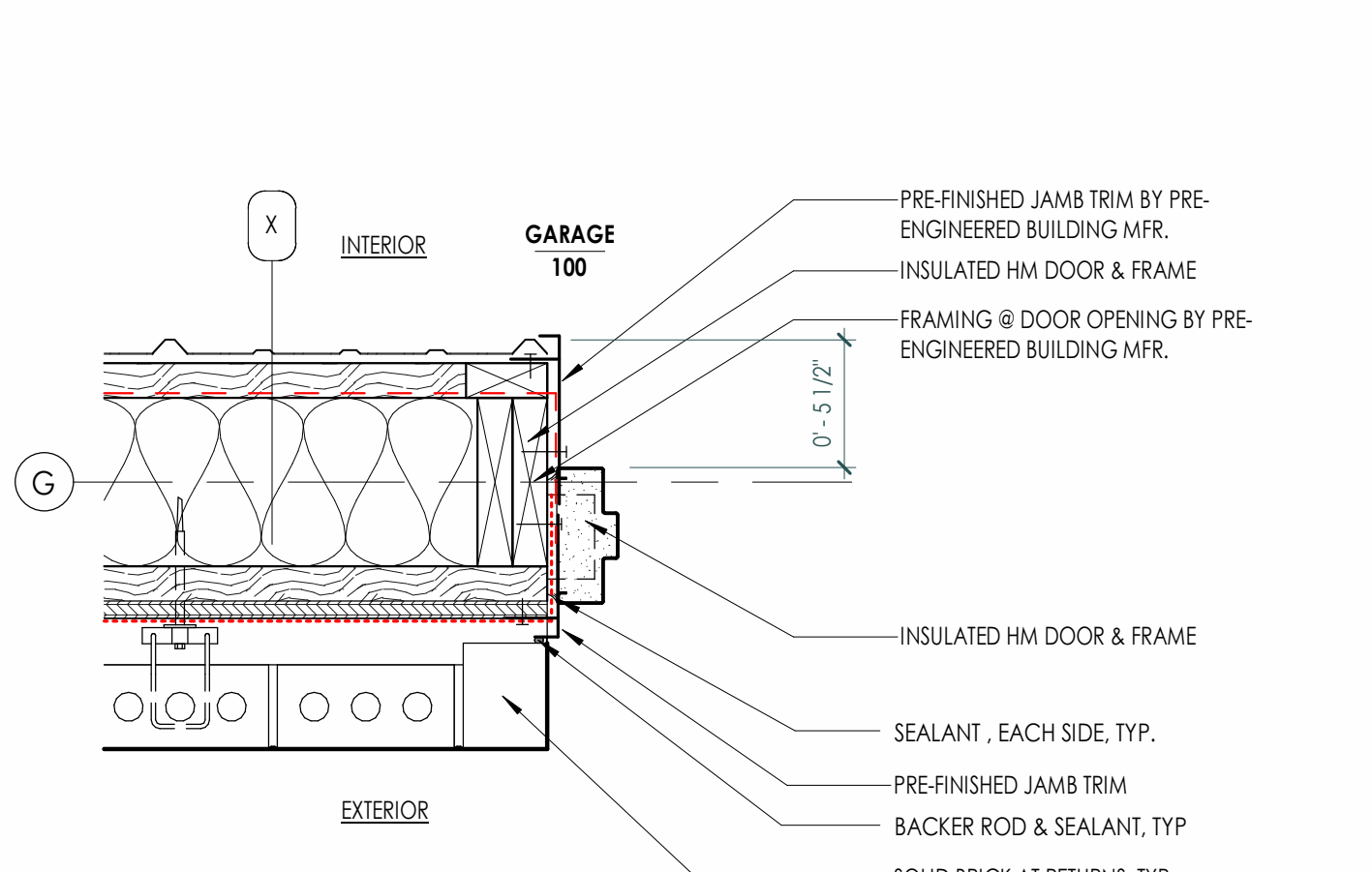
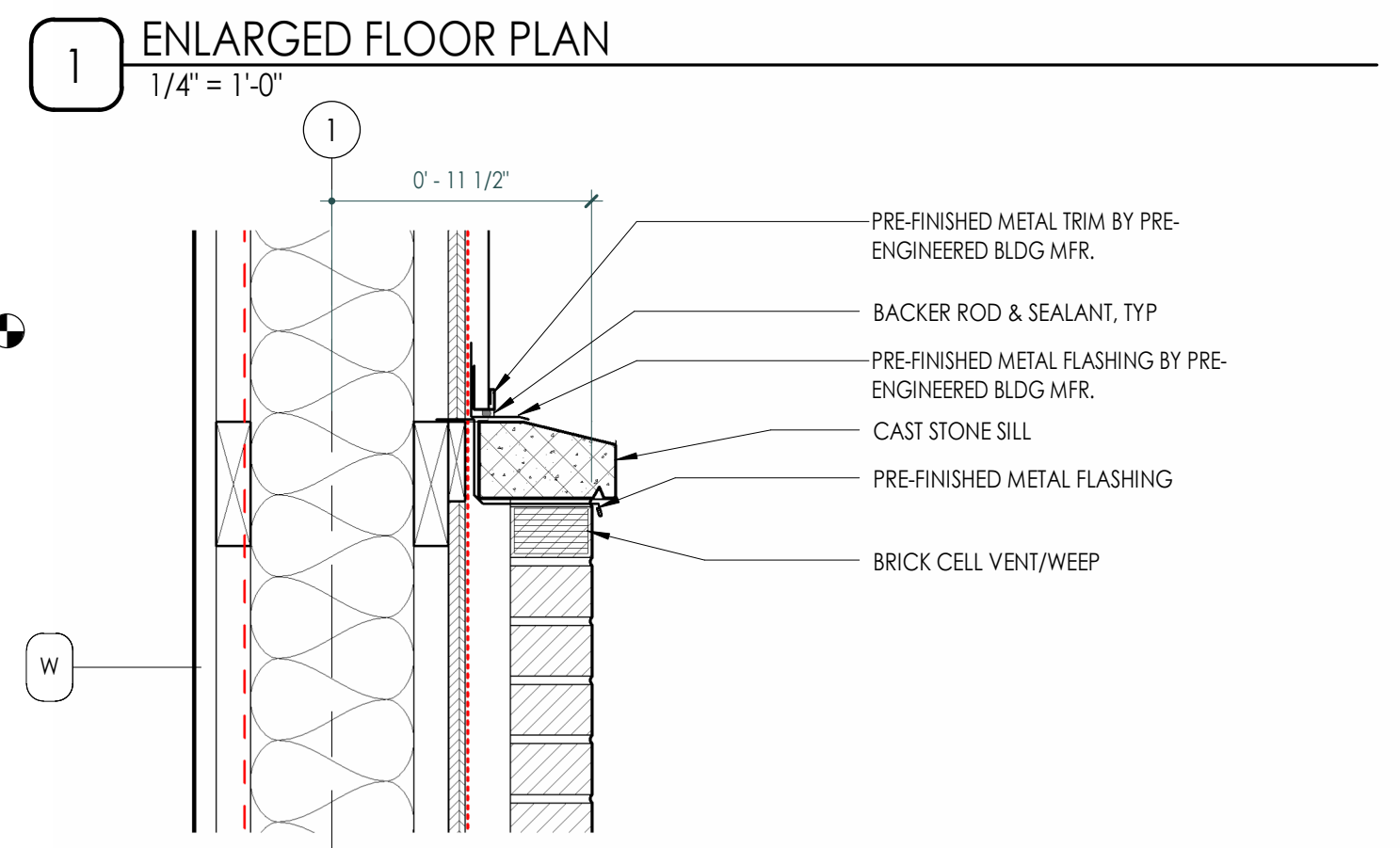
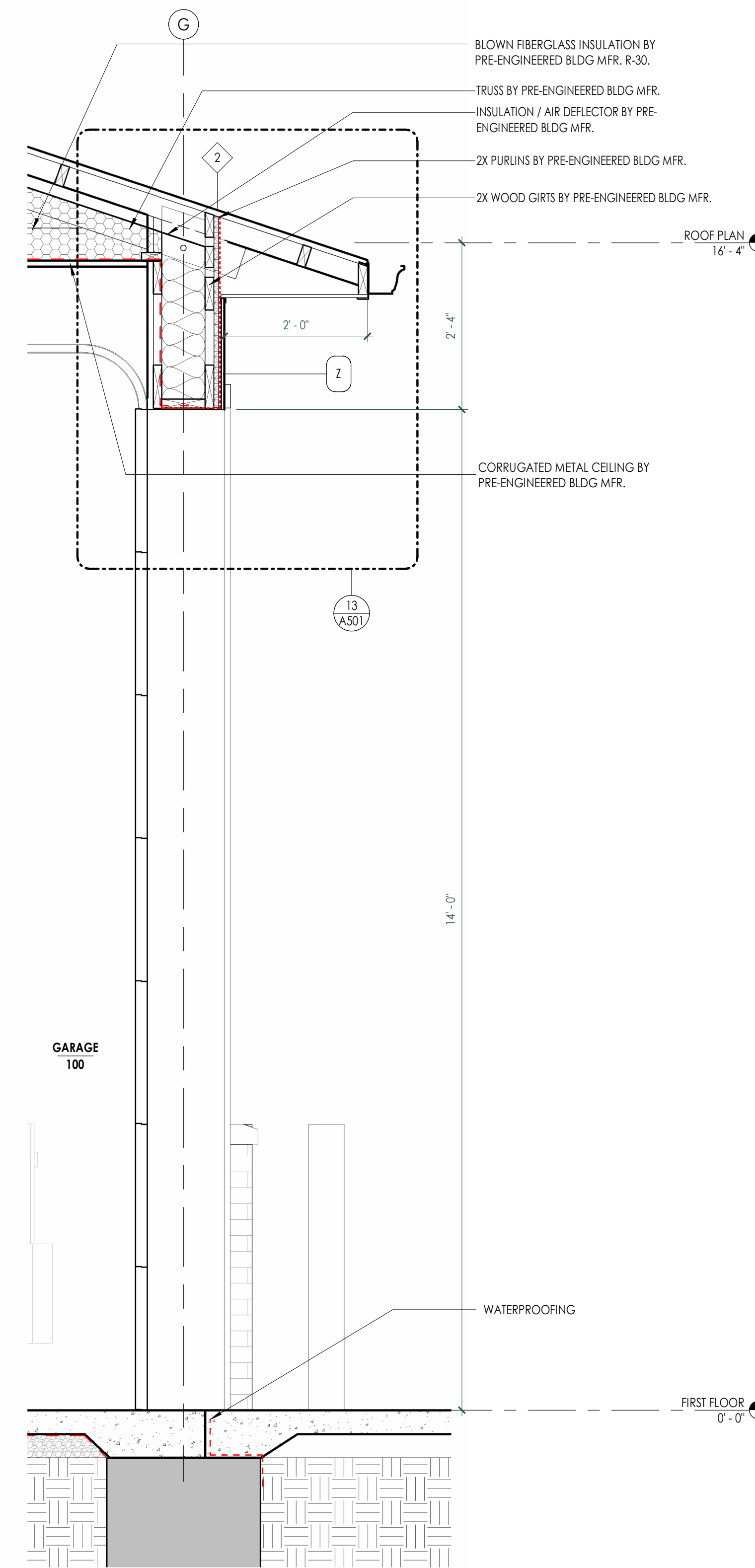
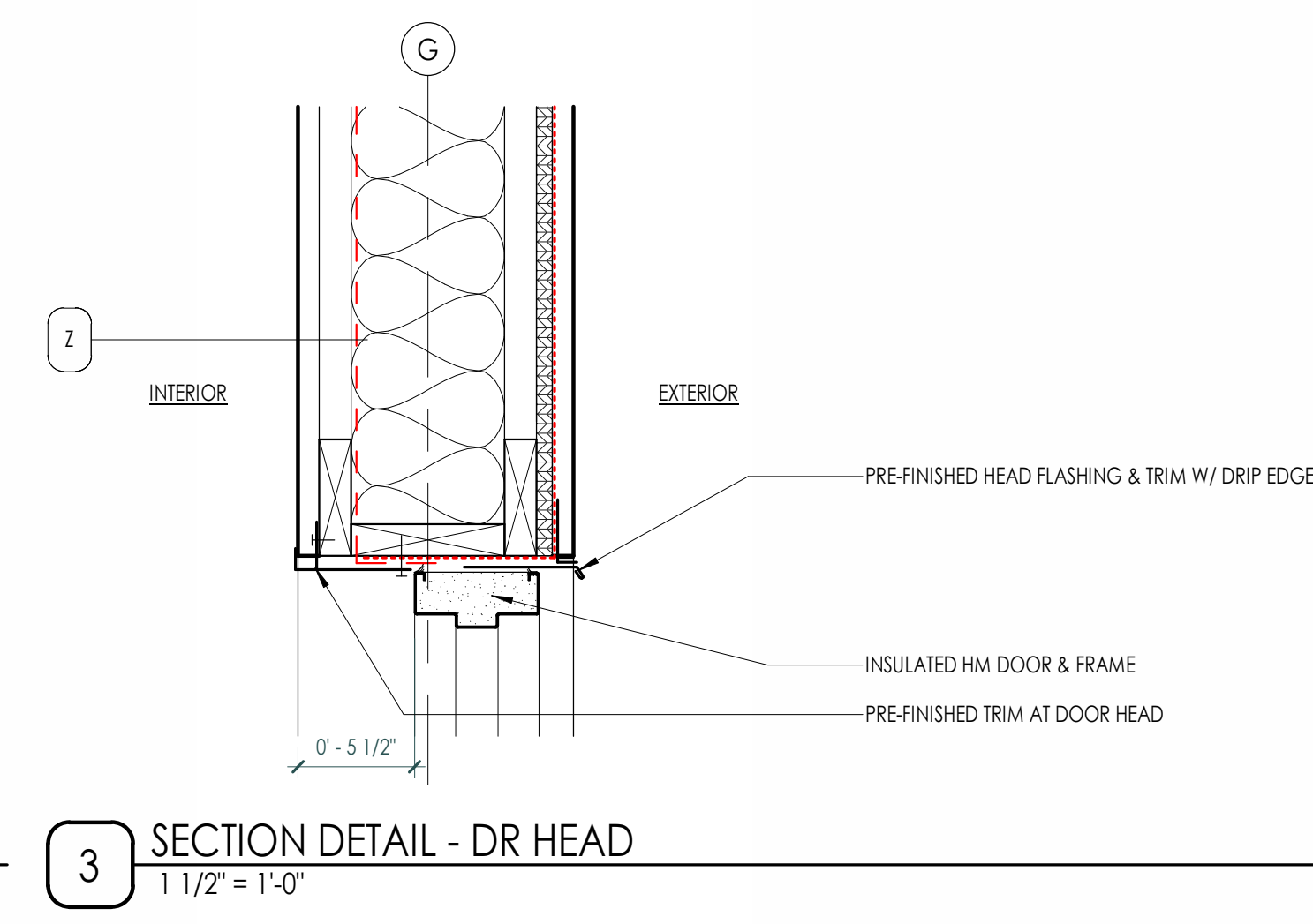
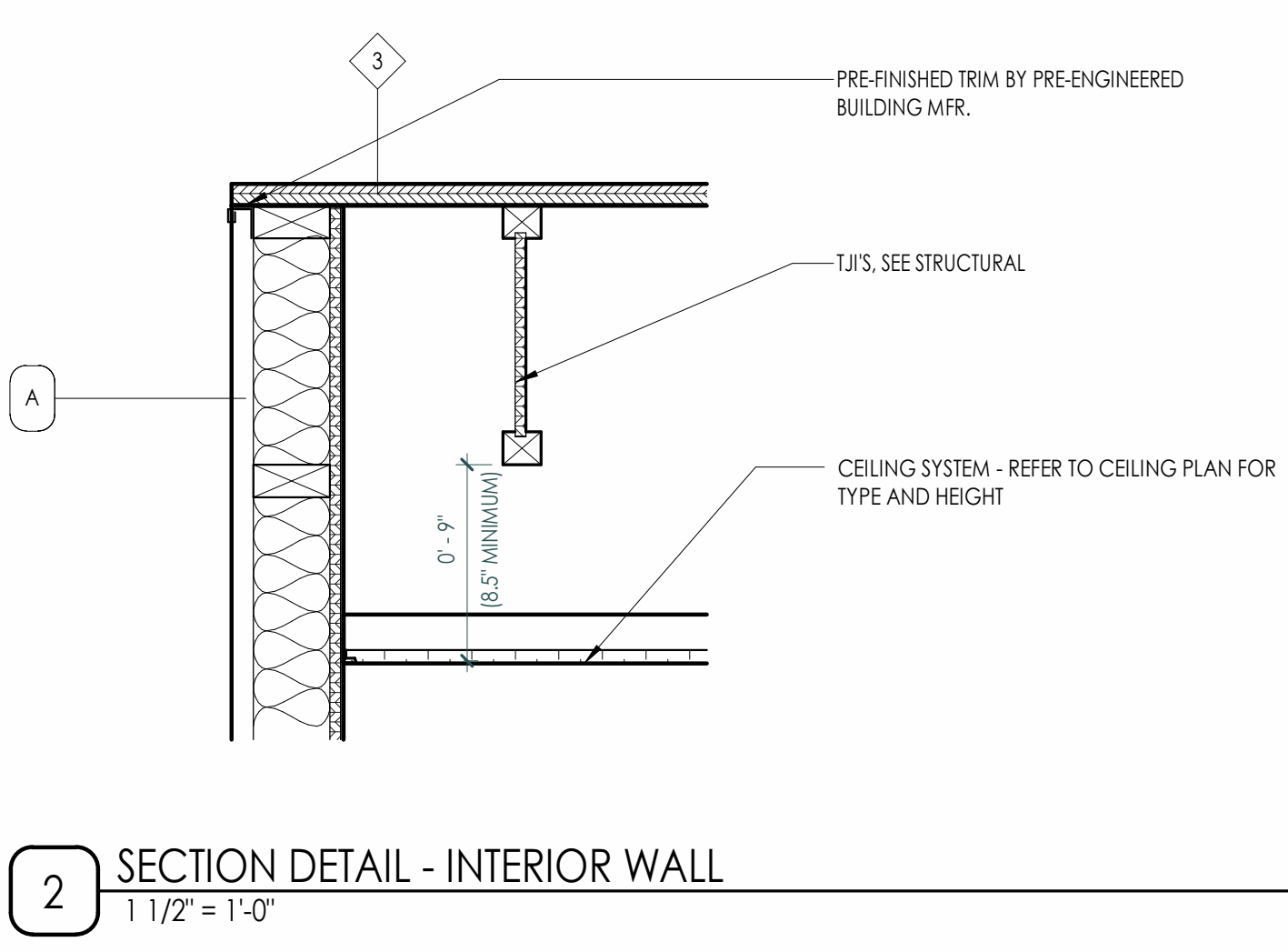
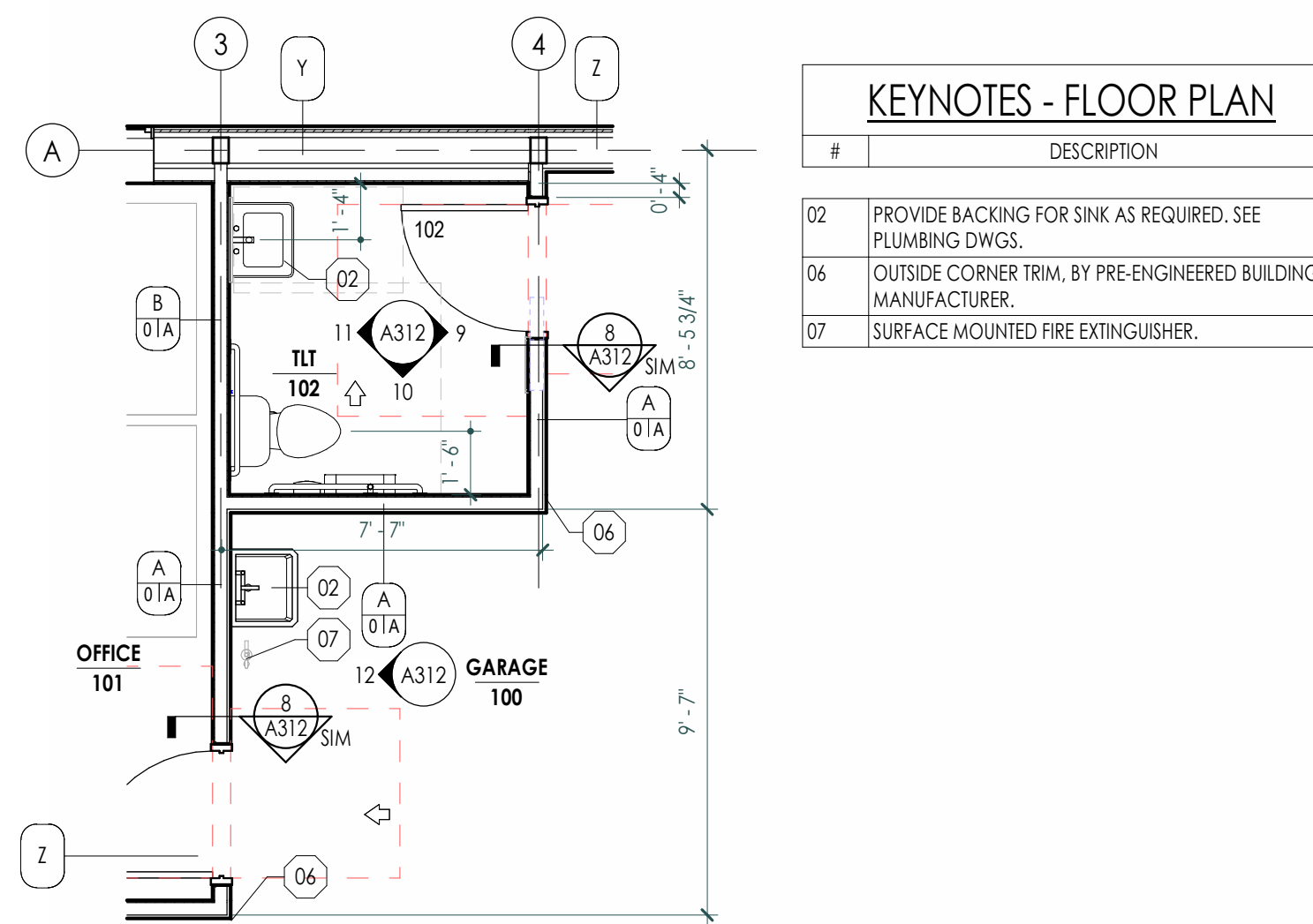
2 WALL SECTION @ MASONRY - GARAGE
3/4" = 1'-0"

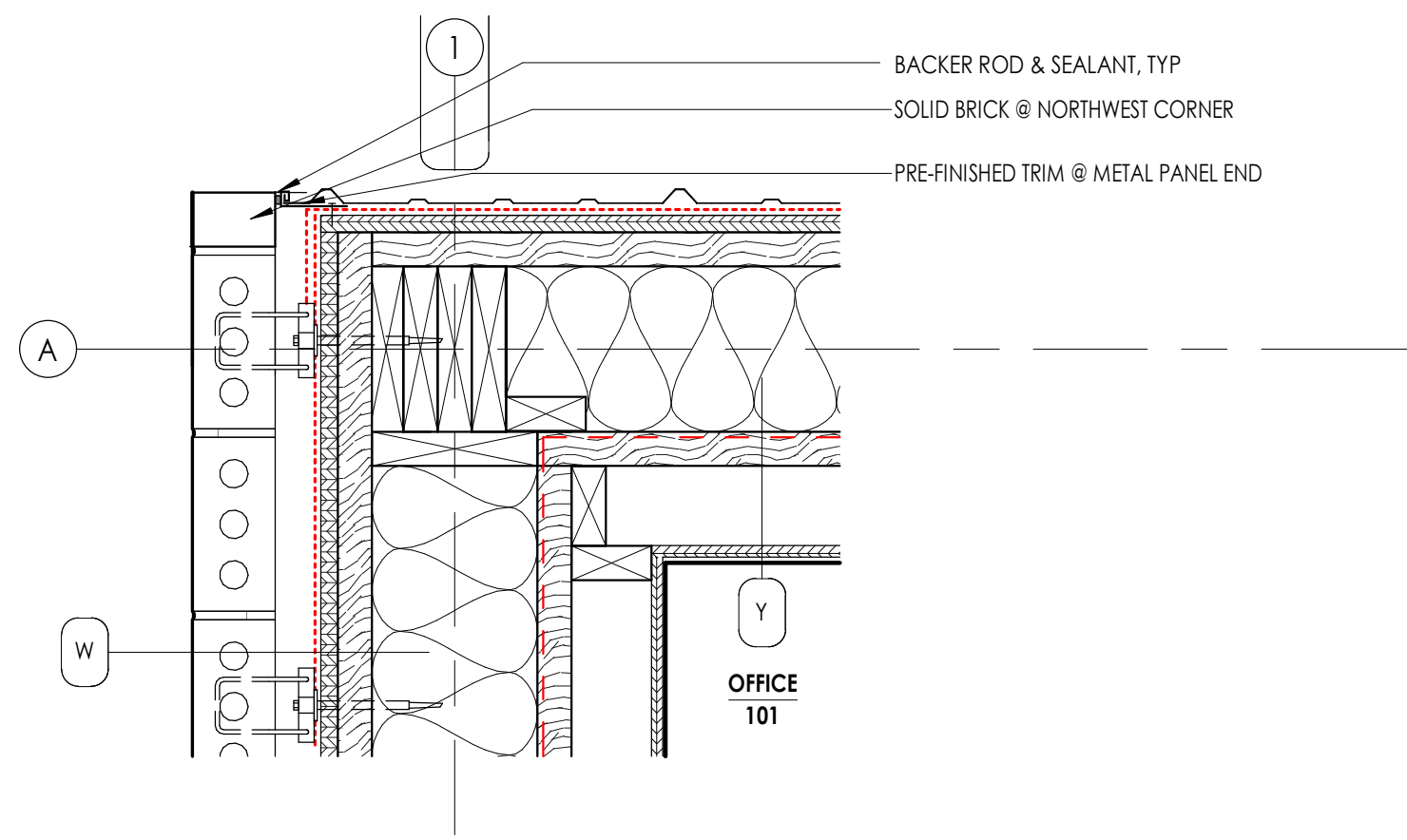


3 WALL SECTION @ NORTH ELEVATION
3/4" = 1'-0"

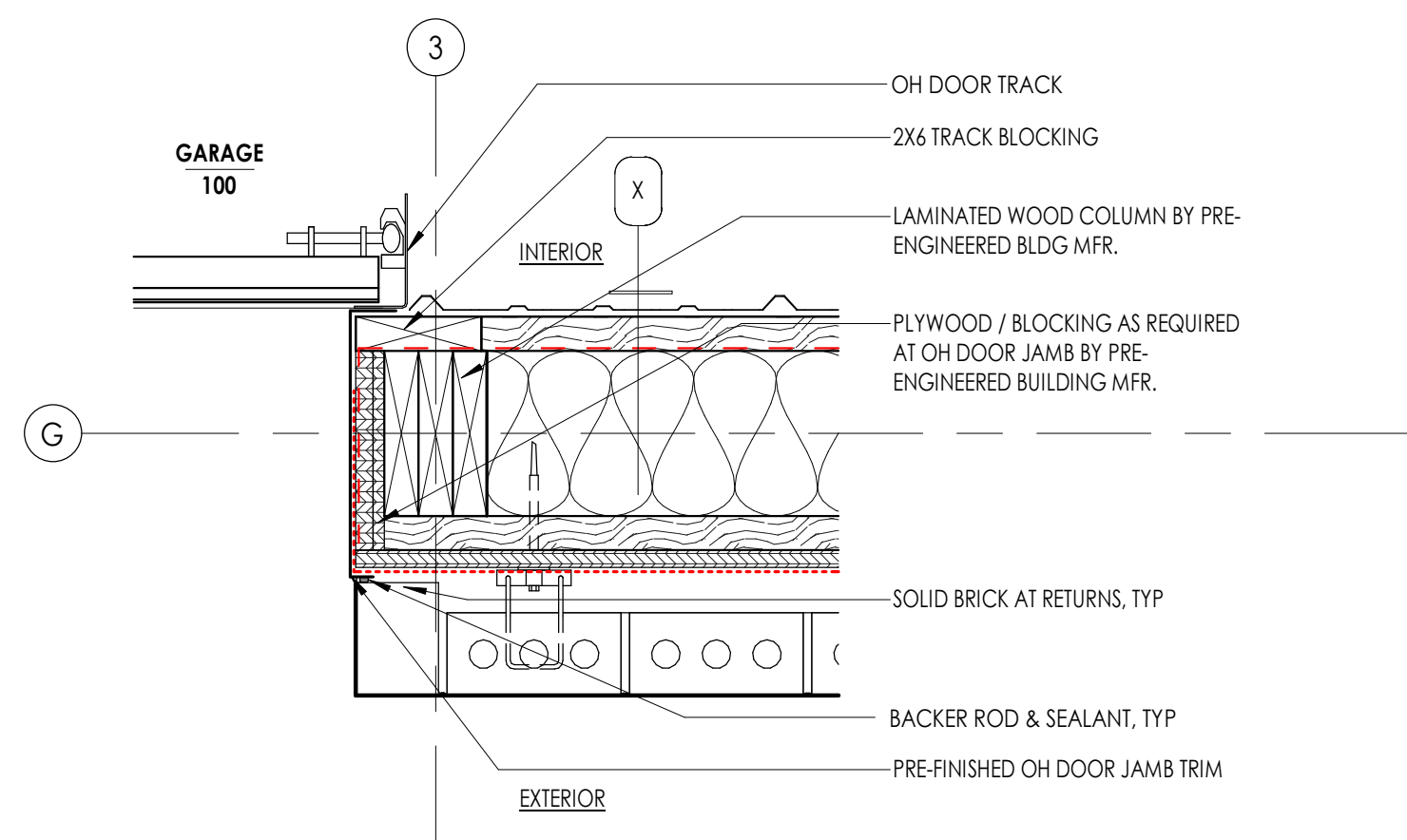


4 WALL SECTION @ ENTRY DOOR
3/4" = 1'-0"

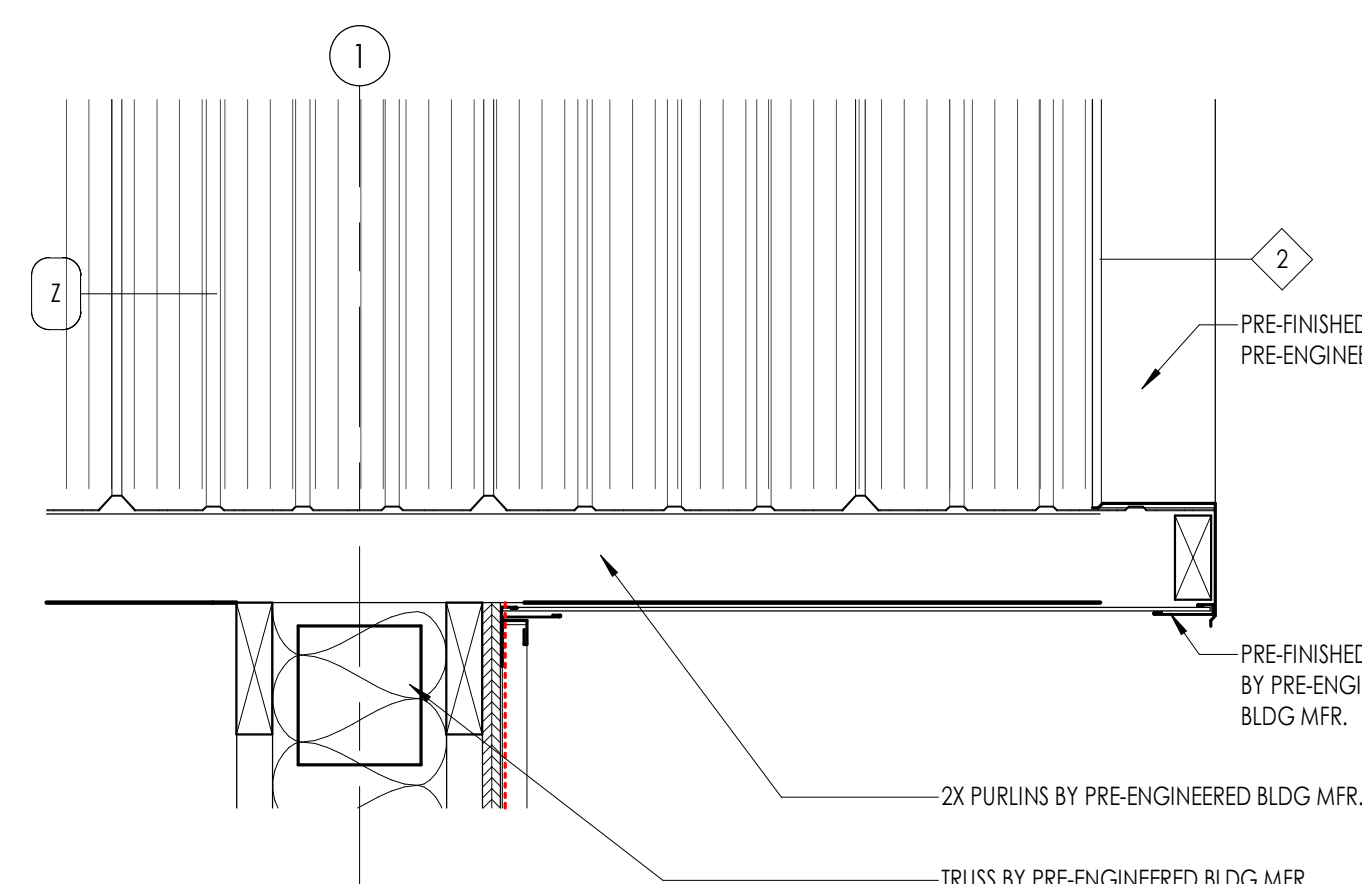




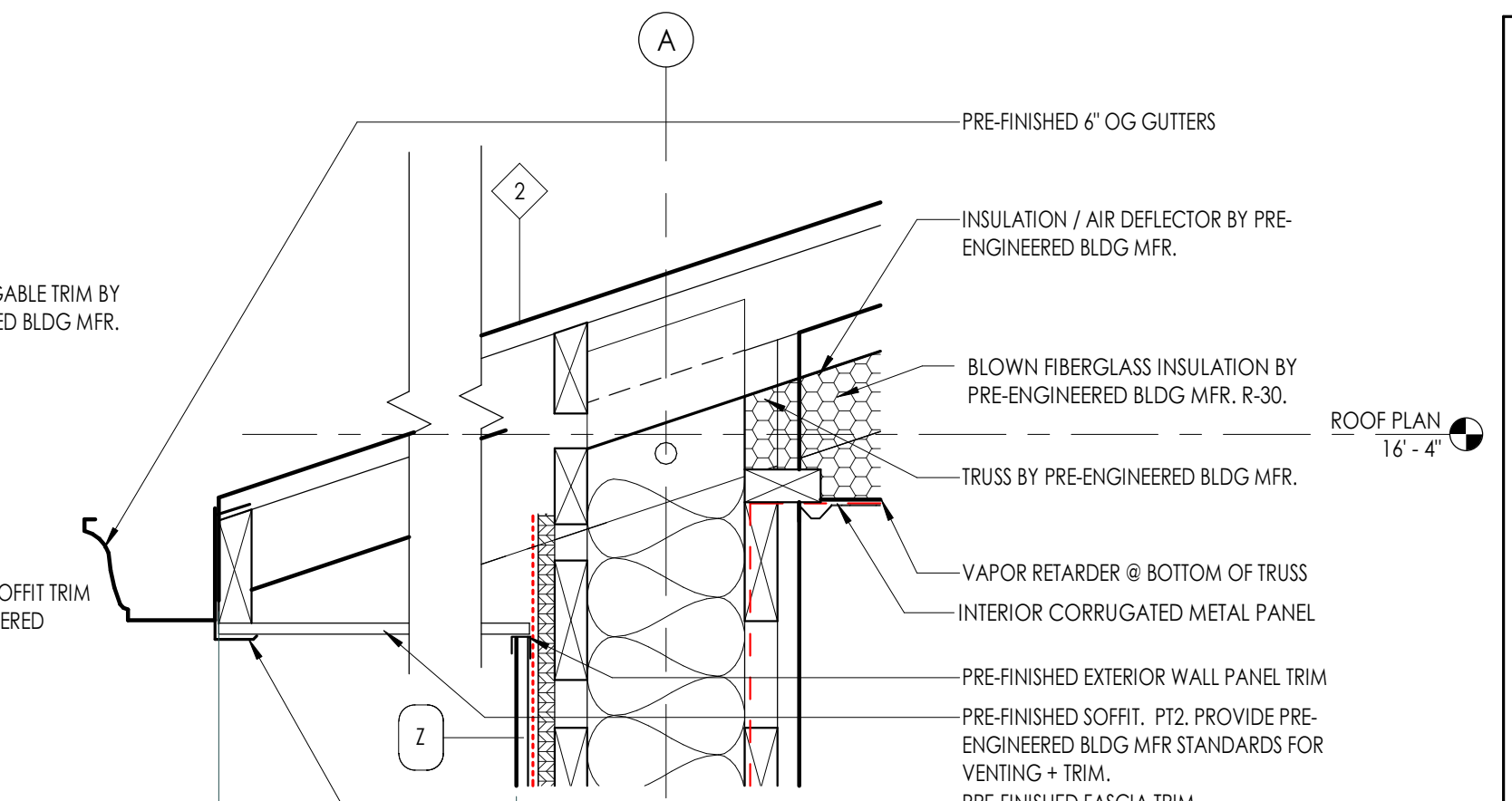
1 PLAN DETAIL - NORTHWEST CORNER
1 1/2" = 1'-0"



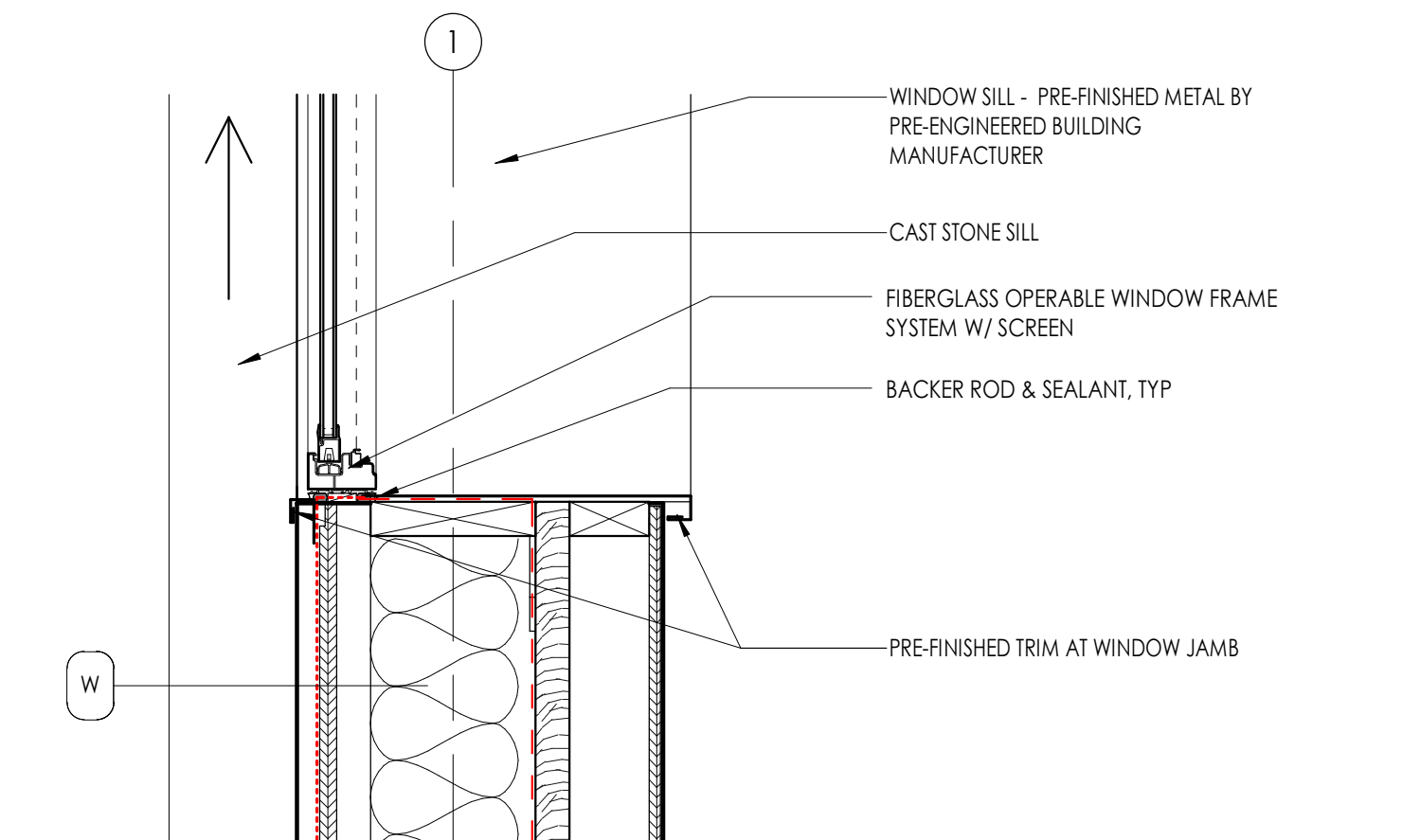
2 PLAN DETAIL - OH DR JAMB LOW
1 1/2" = 1'-0"



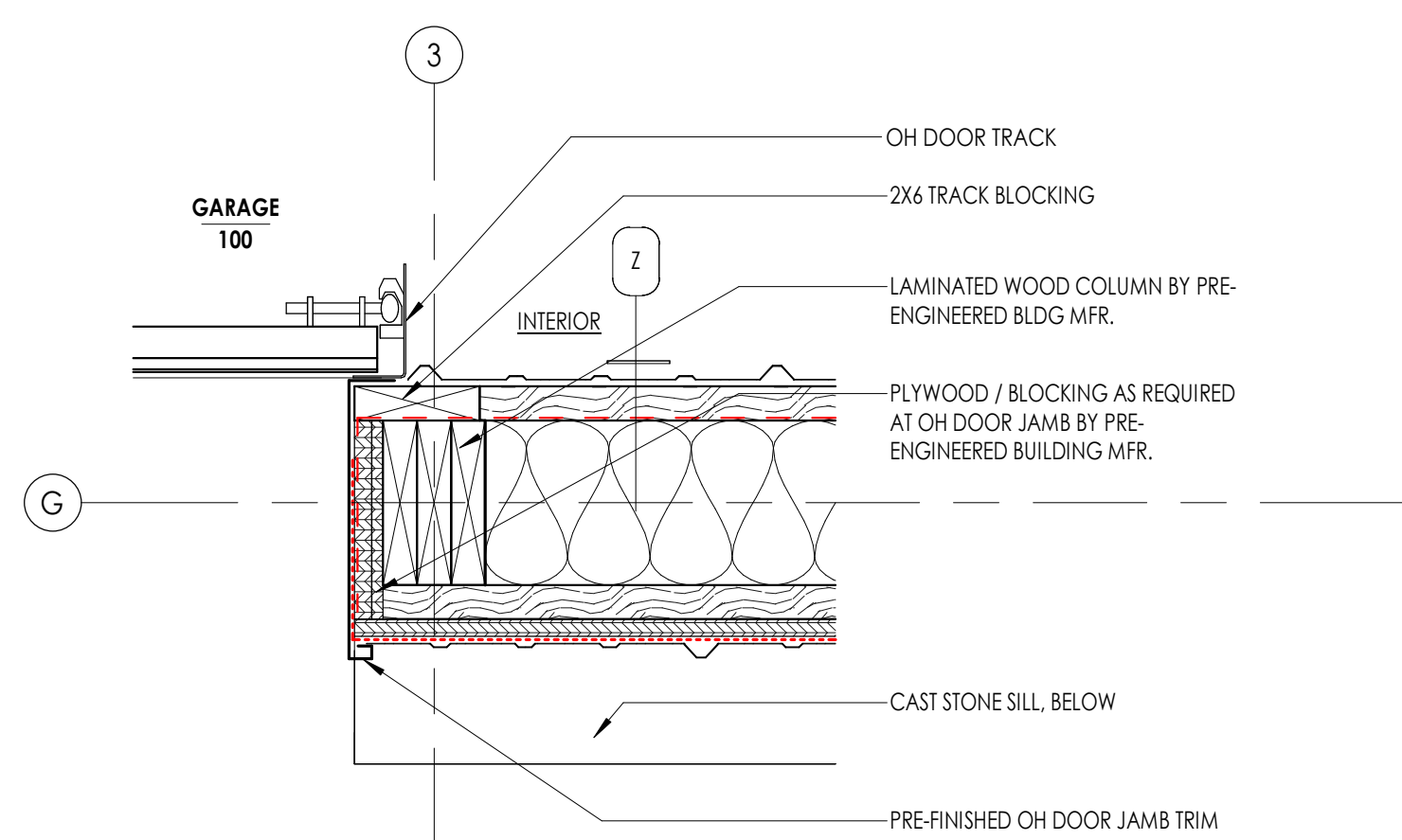
3 SECTION DETAIL - EAVE
1 1/2" = 1'-0"



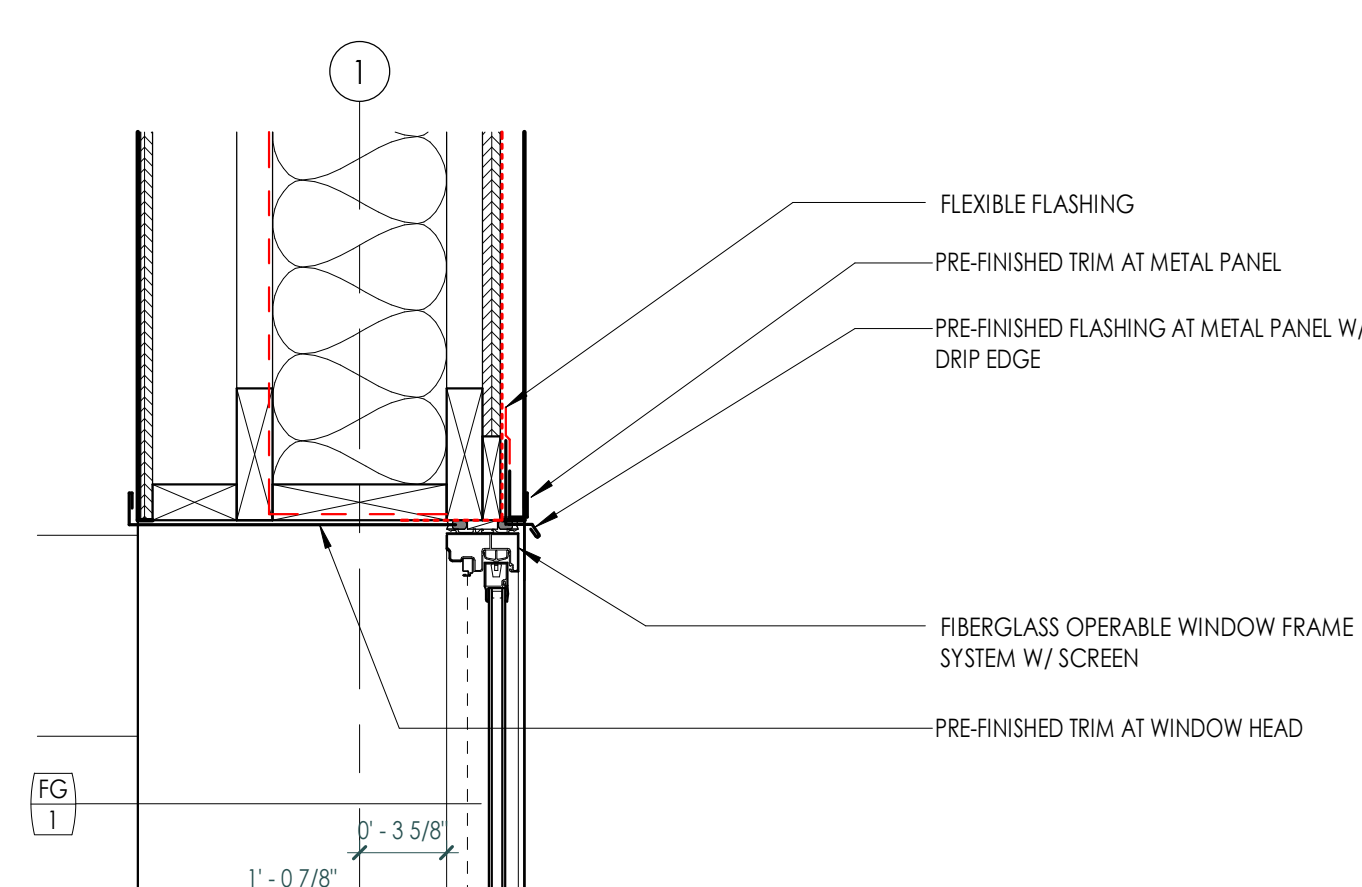
4 SECTION DETAIL - EAVE OVERHANG
1 1/2" = 1'-0"



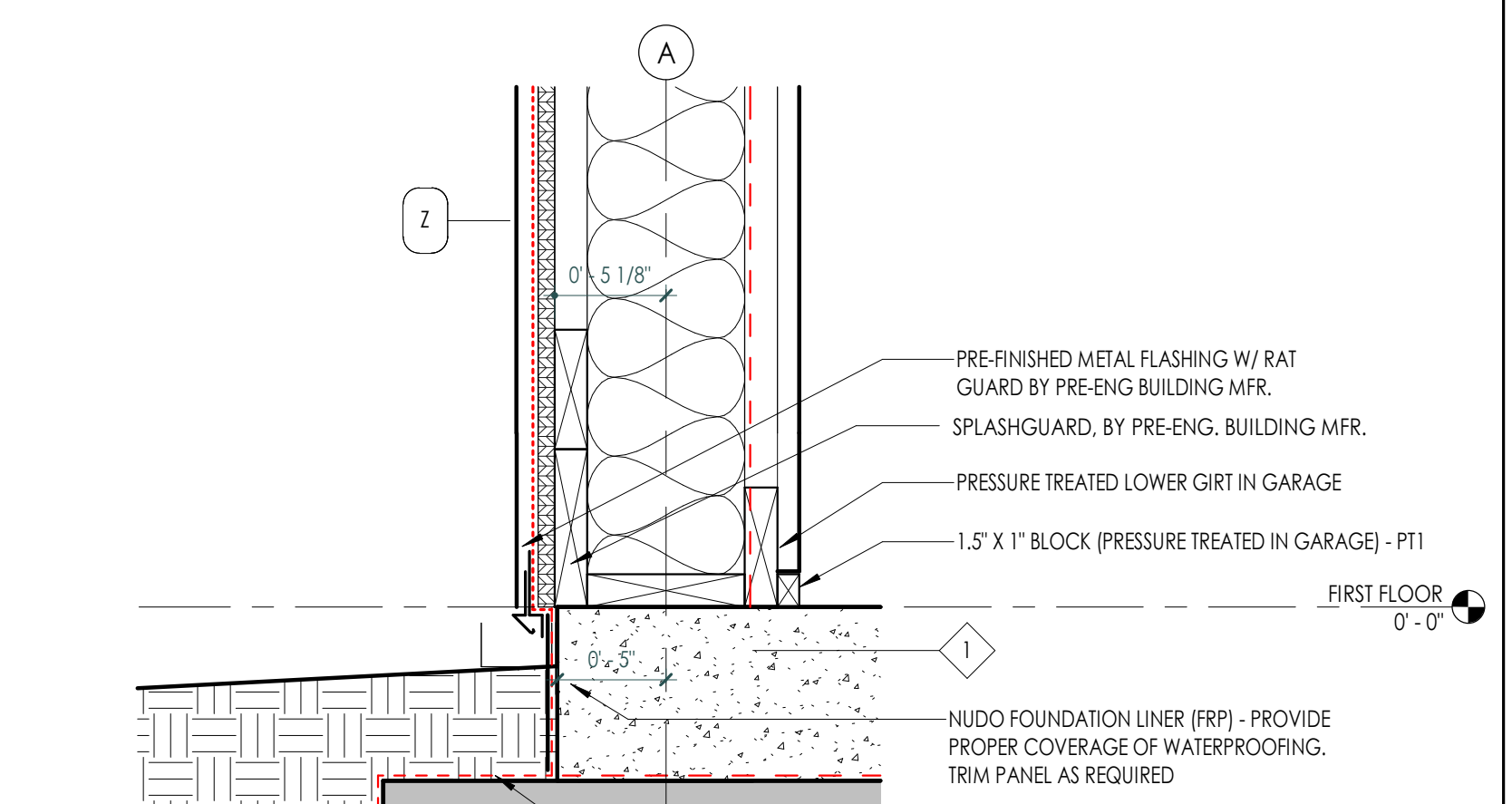
5 PLAN DETAIL - WINDOW JAMB
1 1/2" = 1'-0"



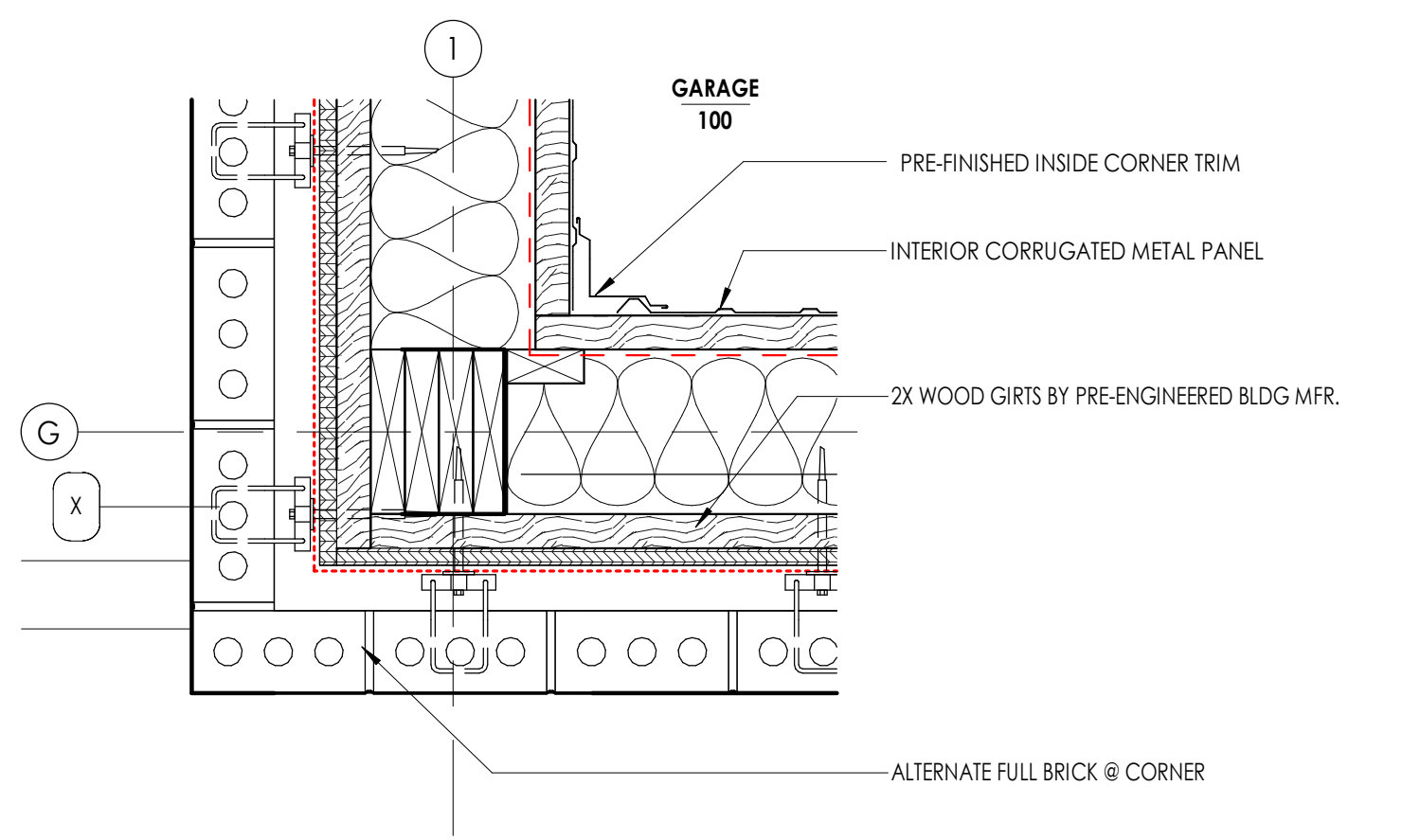
6 PLAN DETAIL - OH DR JAMB HIGH
1 1/2" = 1'-0"



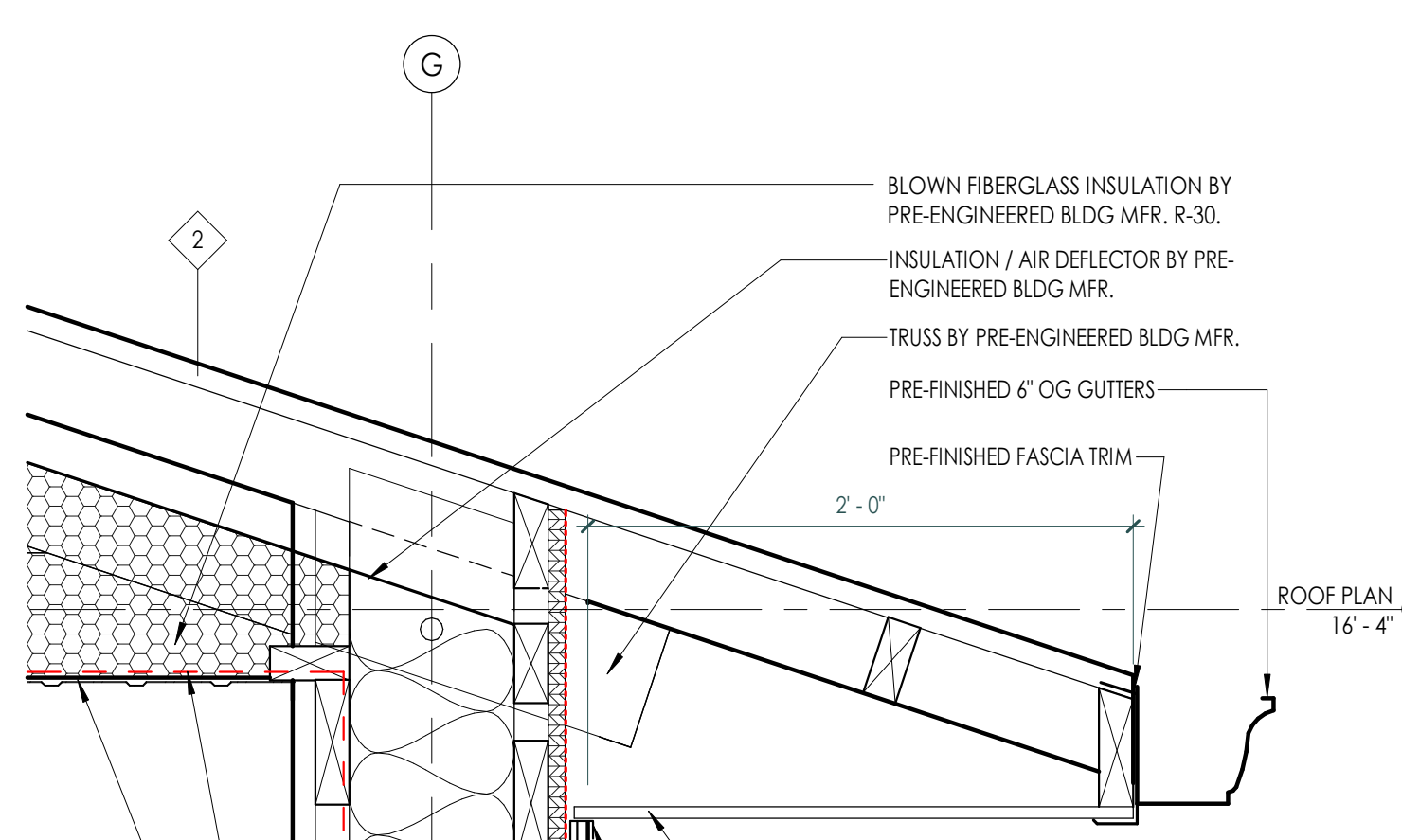
7 SECTION DETAIL - WINDOW HEAD
1 1/2" = 1'-0"



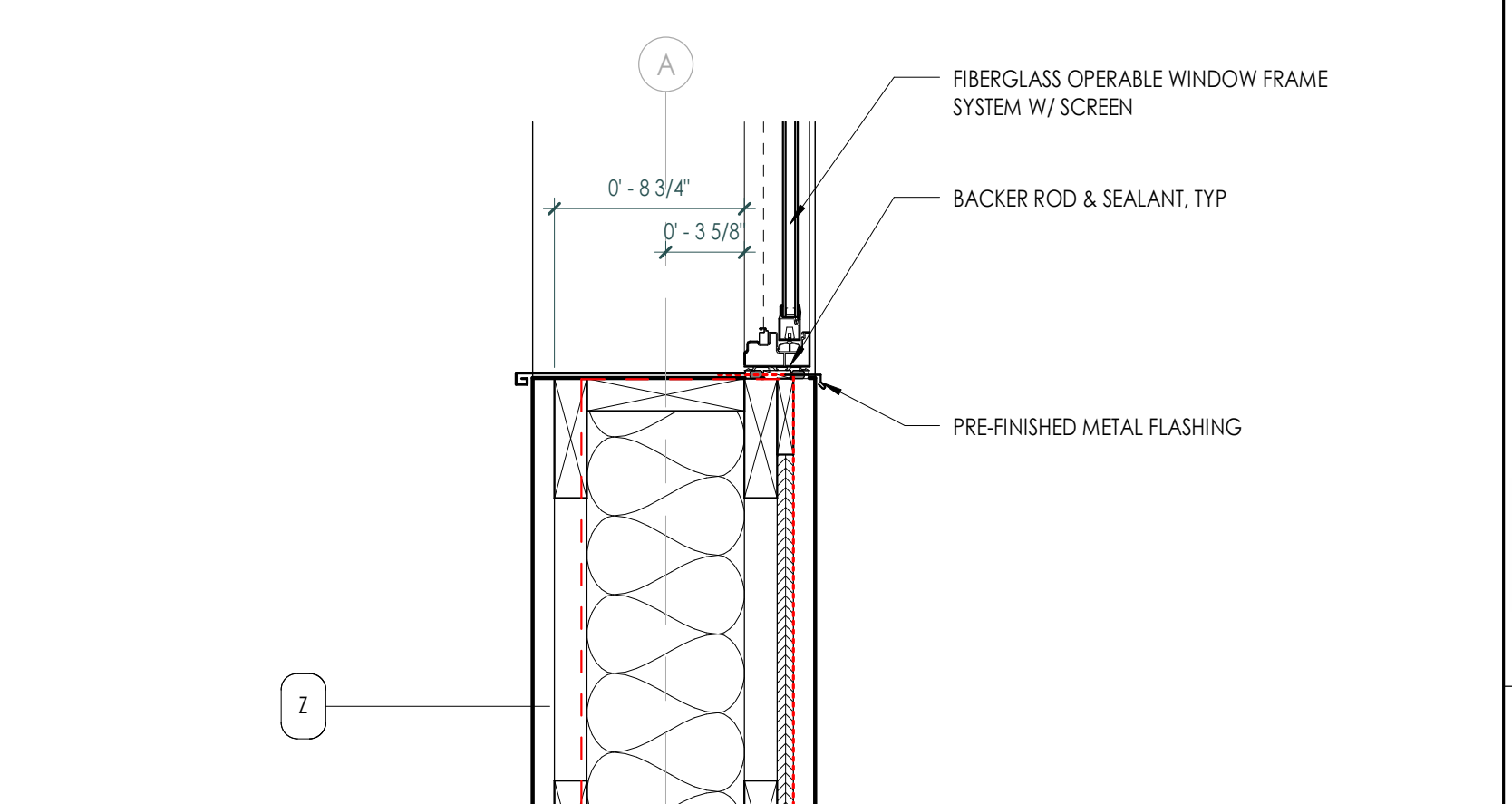
8 SECTION DETAIL - MTL PANEL BASE
1 1/2" = 1'-0"



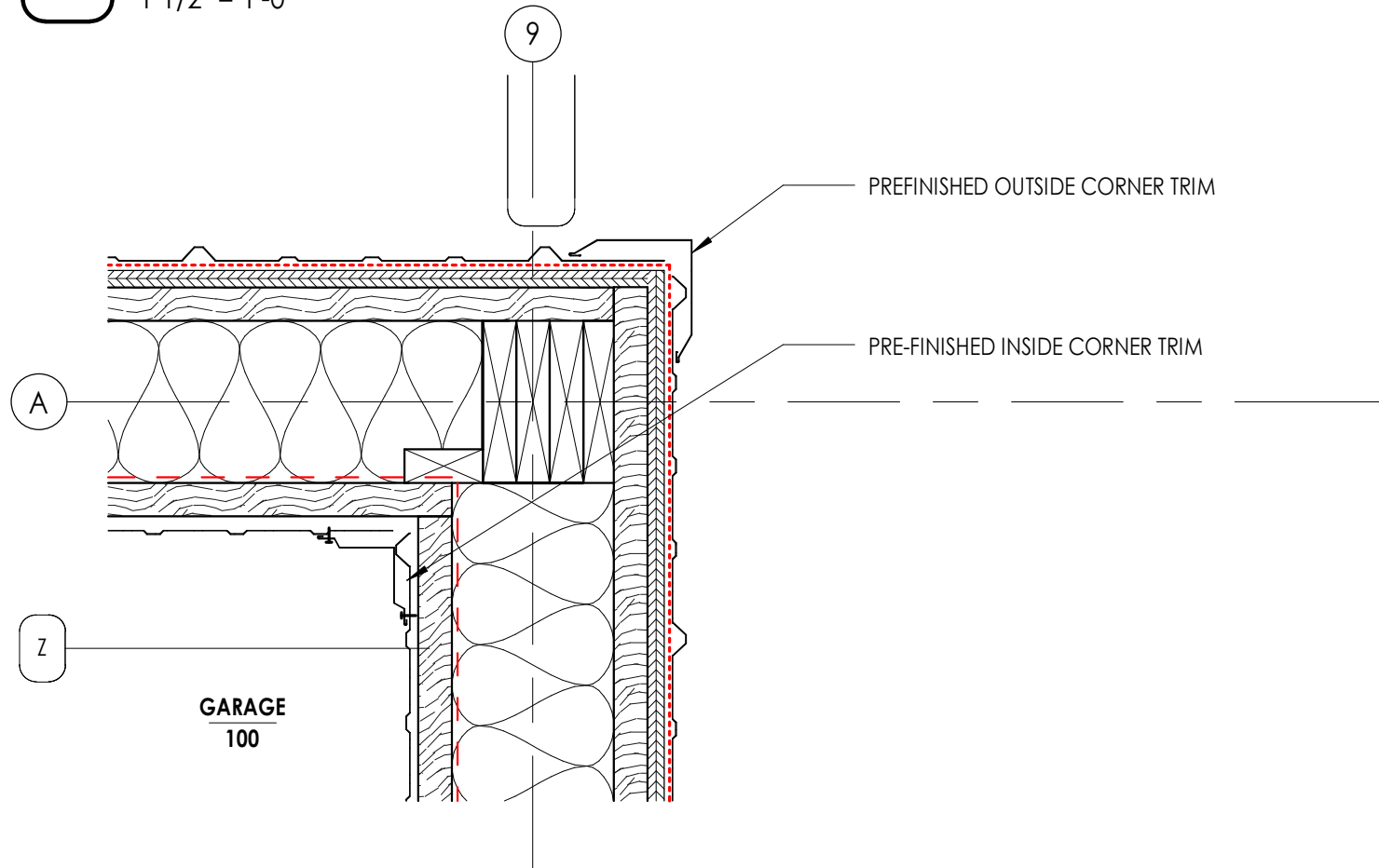
9 PLAN DETAIL - SOUTHWEST CORNER
1 1/2" = 1'-0"



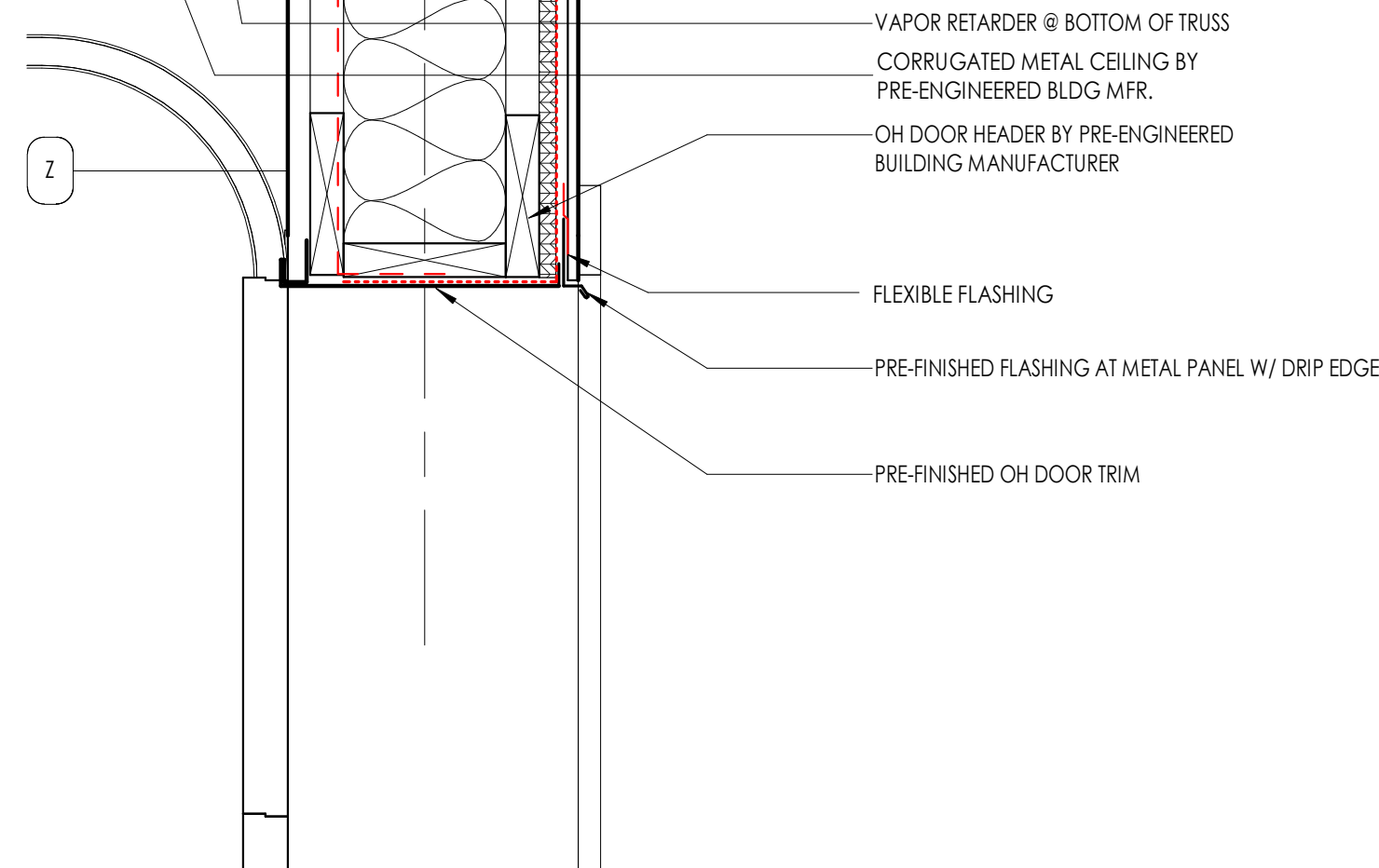
10 SECTION DETAIL - WINDOW SILL IN MASONRY
1 1/2" = 1'-0"



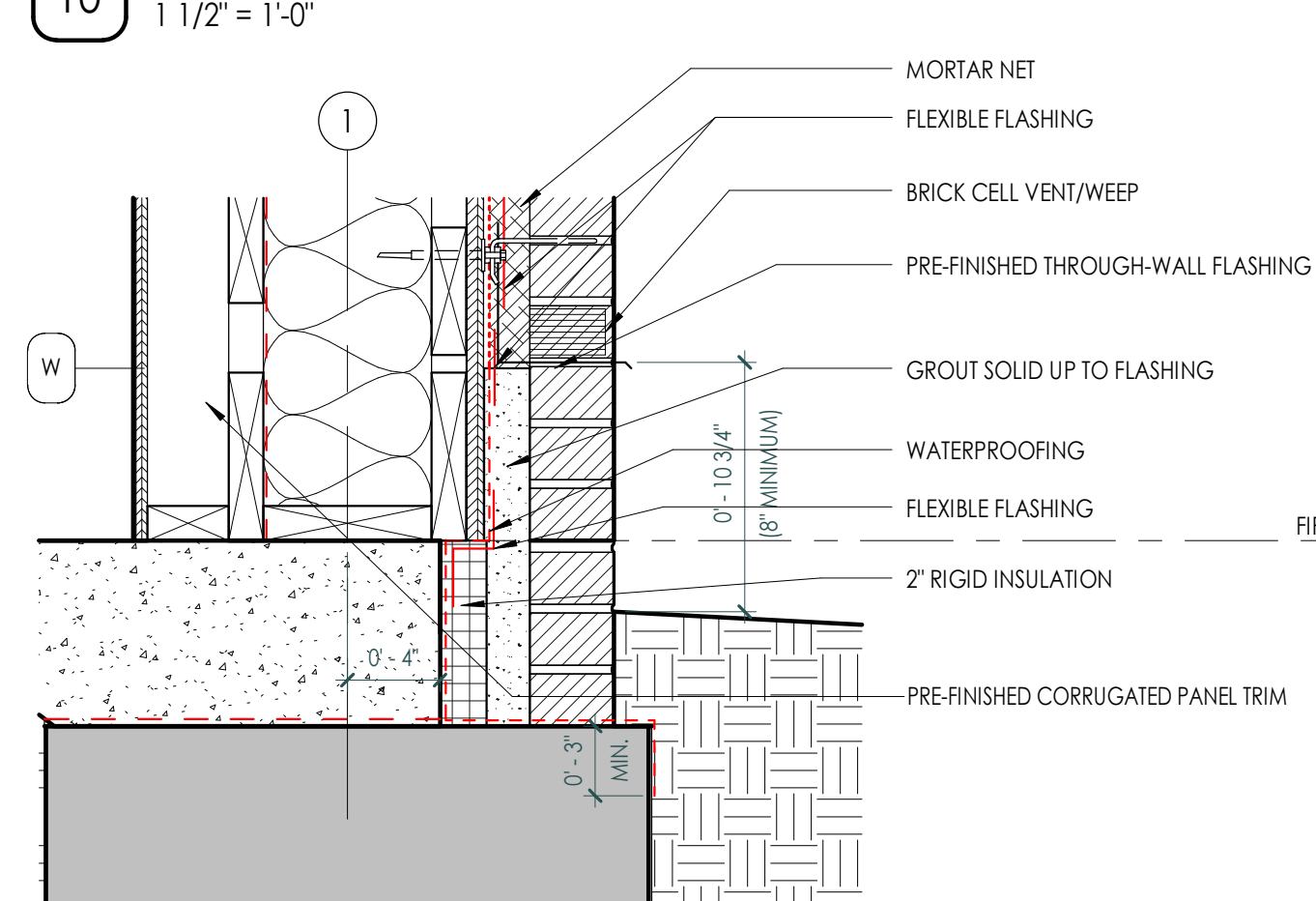
11 SECTION DETAIL - WINDOW SILL @ METAL PANEL
1 1/2" = 1'-0"



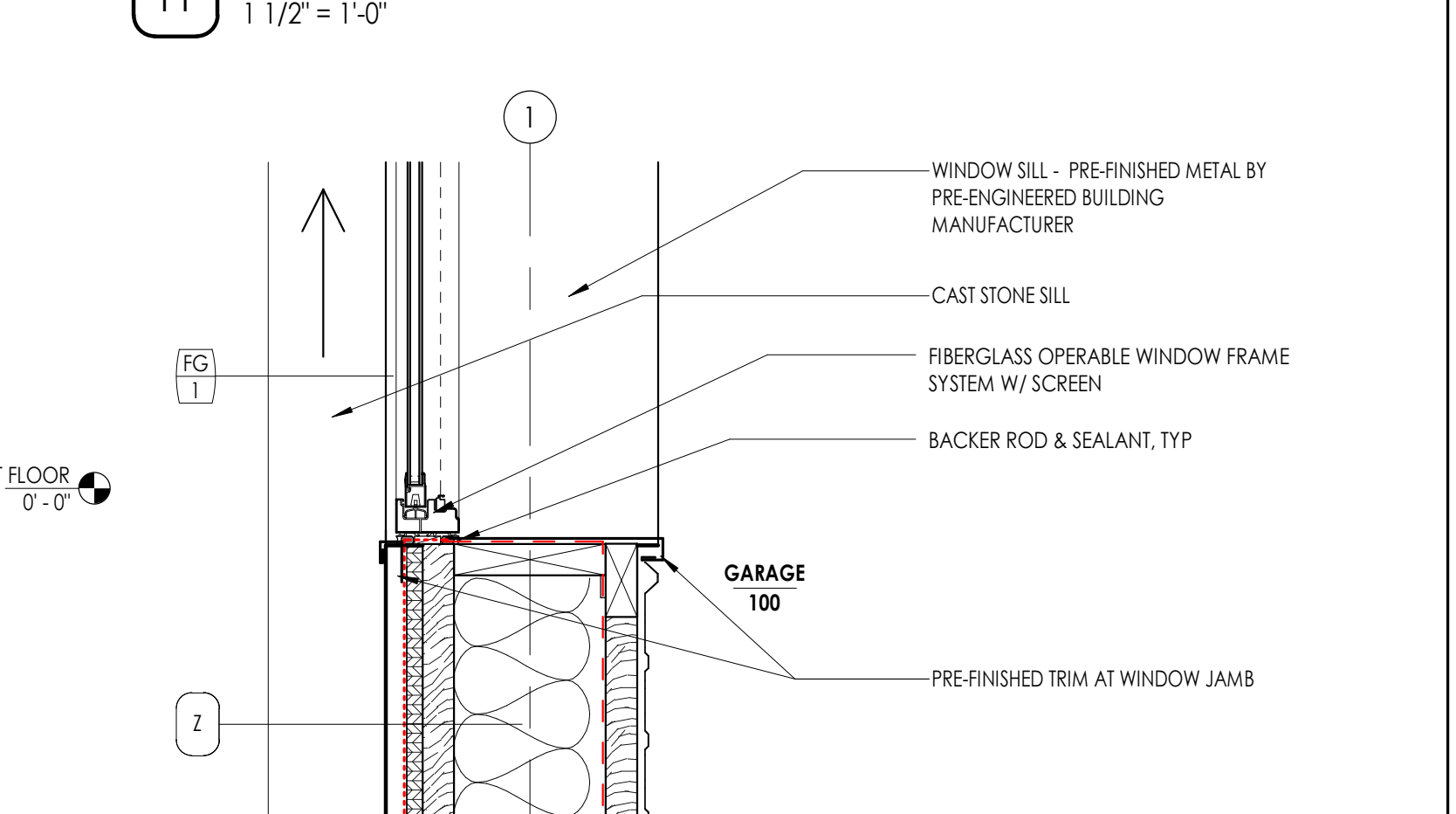
12 PLAN DETAIL - NORTHEAST CORNER
1 1/2" = 1'-0"



13 SECTION DETAIL - OH DR HEAD
1 1/2" = 1'-0"



14 SECTION DETAIL - MASONRY BASE
1 1/2" = 1'-0"



15 PLAN DETAIL - WINDOW JAMB
1 1/2" = 1'-0"

ABBREVIATIONS		
▲ T	TEMPERATURE DIFFERENCE	LB POUND
⊙	ROUND	LBHR POUNDS PER HOUR
ABV	ABOVE	LD LINEAR DIFFUSER
AC	AIR CONDITIONING	LP LOW PRESSURE
AD	AREA DRAIN	LP LIQUEFIED PETROLEUM GAS
ADD	ADDENDUM	LVR LOUVER
AIE	ARCHITECT/ENGINEER	LWT LEAVING WATER TEMPERATURE
AFF	ABOVE FINISHED FLOOR	MA MIXED AIR
AFUE	ANNUAL FUEL UTILIZATION EFFICIENCY	MAX MAXIMUM
ALT	ALTERNATE	MBH ONE THOUSAND BTU PER HOUR
AP	ACCESS PANEL	M.C. MECHANICAL CONTRACTOR
ARCH	ARCHITECT/ARCHITECTURAL	MD MOTORIZED DAMPER
BAS	BUILDING AUTOMATION SYSTEM	MECH MECHANICAL
BFF	BELOW FINISHED FLOOR	MFR MANUFACTURER
BHP	BRAKE HORSEPOWER	MIN MINIMUM
BLW	BELOW	MISC MISCELLANEOUS
BTU	BRITISH THERMAL UNITS	MP MEDIUM PRESSURE
BTUH	BRITISH THERMAL UNITS PER HOUR	MTR MAKEUP AIR
CAP	CAPACITY	MJA MAKEUP AIR
CB	CATCH BASIN	NC NOT IN CONTRACT
CD	CEILING DIFFUSER	NC NORMALLY CLOSED
CFM	CUBIC FEET PER MINUTE	NIC NOT IN CONTRACT
CFM	CUBIC FEET PER HOUR	NG NATURAL GAS
CLC	CEILING	NR NUMBER
C.M.	CONSTRUCTION MANAGER	NO NORMALLY OPEN
CN	CLEAN OUT	NTS NOT TO SCALE
CV	CONTROL VALVE	O OXYGEN
CW	COLD WATER	OA OUTSIDE AIR
DD	DEGREE	ORD OVERFLOW ROOF DRAIN
DB	DRY BULB	PRD PRESSURE REDUCING VALVE
DC	DIRECT DIGITAL CONTROLS	PV POST INDICATOR VALVE
DIA	DIAMETER	PLBG PLUMBING
DN	DOWN	PRESS PRESSURE
DE	DEIONIZED WATER	PRV PRESSURE REDUCING VALVE
EAT	ENTERING AIR TEMPERATURE	PSI POUNDS PER SQUARE INCH
E.C.	ELECTRICAL CONTRACTOR	PSIG POUNDS PER SQUARE INCH GAUGE
ELEC	ELECTRICAL EQUIPMENT	PWR POWER
EWC	ELECTRIC WATER COOLER	RA RETURN AIR
EWT	ENTERING WATER TEMPERATURE	RCP RADIANT CEILING PANEL
EA	EXHAUST AIR	RD ROOF DRAIN
EG	EXHAUST GRILLE	REC RECESSED
EXIST	EXISTING	RED REDUCER
F	DEGREES FAHRENHEIT	RG RETURN GRILLE
FO	FLOOR CLEAN OUT	RH RELATIVE HUMIDITY
FD	FLOOR DRAIN	RLA RELIEF AIR
FDC	FIRE DEPARTMENT CONNECTION	RM ROOM
FL	FLOOR	RPM REVOLUTIONS PER MINUTE
FO	FUEL OIL	SA SUPPLY AIR
FOV	FUEL OIL VENT	SAN SANITARY
FOR	FUEL OIL RETURN	SD SMOKE DAMPER
FOS	FUEL OIL SUPPLY	SG SQUARE FOOT
FPC	FIRE PROTECTION CONTRACTOR	SG SUPPLY GRILLE
FPM	FEET PER MINUTE	SM SURFACE MOUNT
FPS	FLOOR SINK	SP STATIC PRESSURE
FT	FOOT/FEET	SR SUPPLY REGISTER
FTR	FIN TUBE RADIATION	STEAM STEAM
GAL	GALLON	T THERMOSTAT
GF	GAS-FIRED	T.C. TEMP CONTROLS CONTRACTOR
G.C.	GENERAL CONTRACTOR	TD TEMPERATURE DROP
GPM	GALLONS PER MINUTE	TD TRENCH DRAIN
GW	GREASE WASTE	TEMP TEMPERATURE
HB	HOSE BIBB	TYP TYPICAL
HP	HORSE POWER	UG UNDERGROUND
HP	HIGH PRESSURE	VAC VACUUM
HTG	HEATING	V VENT
HTR	HEATER	VAV VARIABLE AIR VOLUME
HW	HOT WATER	VENT VENTILATION
HYD	HYDRANT	VTR VENT THROUGH ROOF
ID	INDIRECT DRAIN	W WASTE
IN	INCH	WB WET BULB
I.E.	INVERT ELEVATION	WCO WALL CLEAN OUT
K.E.C.	KITCHEN EQUIPMENT CONTRACTOR	WH WALL HYDRANT
LAT	LEAVING AIR TEMPERATURE	YCO YARD CLEANOUT

EQUIPMENT ABBREVIATIONS

AC	AIR CONDITIONING UNIT	ERV	ENERGY RECOVERY VENTILATOR
ACCU	AIR COOLING CONDENSING UNIT	EWHR	ELECTRIC WATER HEATER
AHU	AIR HANDLING UNIT	FCU	FAN COIL UNIT
AS	AIR SEPARATOR	FP	FIRE PUMP
B	BOILER	GI	GREASE INTERCEPTOR
BCU	BLOWER COIL UNIT	GRV	GRAVITY ROOF VENTILATOR
CH	CHILLER	HP	HEAT PUMP
CT	COOLING TOWER	HWP	HEATING WATER PUMP
CUH	CABINET UNIT HEATER	HRU	HEAT RECOVERY UNIT
CHWP	CHILLED WATER PUMP	P	PUMP
CP	CONDENSER PUMP	PRV	POWER ROOF VENTILATOR
DBP	DUCT MOUNTED BOOSTER PUMP	RF	RETURN FAN
DC	DUCT MOUNTED COIL	RHC	REHEAT COIL
CP	DOMESTIC WATER CIRCULATING PUMP	RTU	ROOF TOP UNIT
EF	EXHAUST FAN	SP	SUMP PUMP
EDC	ELECTRIC DUCT COIL	UH	UNIT HEATER
ET	EXPANSION TANK	WH	WATER HEATER

GENERAL PLAN SYMBOLS	
	PLAN REVISION NUMBER
	DETAIL NUMBER ON SHEET
	SHEET NUMBER WHERE DETAIL IS PLACED
	KEYNOTE SYMBOL
	POINT WHERE NEW CONNECTS TO EXISTING
	ROOM NAME / NUMBER
	AREA BEING DEMOLISHED
	AREA NOT IN CONTRACT
	SCHEDULED EQUIPMENT (UNDERLINED)
	NONSCHEDULED EQUIPMENT
	EXISTING EQUIPMENT - HALF-TONE - (E) PREFIX
	EXISTING RELOCATED EQUIPMENT - (R) PREFIX
DUCTWORK SYMBOLS	
	RECT. DUCT SIZE (WIDTH / HEIGHT)
	ROUND DUCT SIZE (DIAMETER)
	OVAL DUCT SIZE (WIDTH / HEIGHT)
	EXISTING DUCT TO REMAIN
	DUCT TO BE DEMOLISHED
	SUPPLY AIR
	RETURN AIR
	EXHAUST AIR
	OUTSIDE AIR
	FLUE GAS VENT
	COMBUSTION AIR
	RECT. SUPPLY DUCT RISE / DROP
	ROUND SUPPLY DUCT RISE / DROP
	RECT. RETURN DUCT RISE / DROP
	ROUND RETURN DUCT RISE / DROP
	RECT. EXHAUST DUCT RISE / DROP
	ROUND EXHAUST DUCT RISE / DROP
	FLEXIBLE DUCTWORK
AIR TERMINALS	
	SUPPLY GRILLE, REGISTER, DIFFUSER
	RETURN GRILLE, REGISTER, DIFFUSER
	EXHAUST GRILLE, REGISTER, DIFFUSER
DIFFUSER CALLOUT SYMBOL	
	NECK SIZE
	CD-1
	60-15
	100
	MARK
	SLOT QT. (IF APPLICABLE)
DAMPER TYPES	
	MANUAL DAMPER
	MOTORIZED DAMPER
	BACKDRAFT DAMPER
	SMOKE DAMPER
	FIRE DAMPER
	COMB. FIRE/ SMOKE DAMPER

MECHANICAL PIPING SYMBOLS	
	NOMINAL PIPE SIZE
	EXISTING PIPE TO REMAIN
	PIPE TO BE DEMOLISHED
	BOILER BLOW DOWN
	BOILER FEED-WATER
	CHILLED-WATER SUPPLY
	CHILLED-WATER RETURN
	CONDENSER-WATER SUPPLY
	CONDENSER-WATER RETURN
	FUEL OIL SUPPLY
	FUEL OIL RETURN
	GEOTHERMAL LOOP SUPPLY
	GEOTHERMAL LOOP RETURN
	HOT-WATER SUPPLY
	HOT-WATER RETURN
	REFRIGERANT LINESET
	LOW PRESSURE STEAM SUPPLY
	LOW PRESSURE STEAM RETURN
	MEDIUM PRESSURE STEAM SUPPLY
	MEDIUM PRESSURE STEAM RETURN
	HIGH PRESSURE STEAM SUPPLY
	HIGH PRESSURE STEAM RETURN
	NATURAL GAS
	LIQUID PROPANE
	CONDENSATE DRAIN
PIPE FITTINGS	
	PIPE RISE / DROP
	PIPE ELBOW
	PIPE TEE HORIZONTAL / RISER / DROP
	PIPE CAP / CONTINUATION
PIPE ACCESSORIES	
	BALANCING VALVE
	BALL VALVE
	GATE VALVE
	GENERIC ISOLATION VALVE
	PRESSURE REDUCING VALVE
	2-WAY ELEC. CONTROL VALVE
	3-WAY ELEC. CONTROL VALVE
	FLOW SENSOR
	PRESSURE SENSOR
	TEMPERATURE SENSOR & WELL
	INLINE SENSOR
	FLEXIBLE CONNECTOR
	PRESSURE GAUGE
	UNION
	STRAINER
	ANGLE VALVE
	BUTTERFLY VALVE
	PLUG VALVE
	GAS METER
	INLINE PUMP
	HOSE BIBB/ HYDRANT
	P/T PORT
	AIR VENT
	PRESSURE RELIEF
	STEAM TRAP
	THERMOMETER
DATA DEVICES	
	THERMOSTAT
	HUMIDISTAT
	TEMPERATURE & HUMIDITY DETECTOR
	TEMPERATURE & CO2 DETECTOR
	GENERIC DETECTOR
	DDC SENSOR. SEE ABBREVIATIONS LIST

PLUMBING PIPING SYMBOLS	
	NOMINAL PIPE SIZE
	EXISTING PIPE TO REMAIN
	PIPE TO BE DEMOLISHED
	COLD WATER TYPE
	COLD WATER
	SOFTENED COLD WATER
	HOT WATER TYPE
	HOT WATER
	HOT WATER 140°
	SOFTENED HOT WATER
	HOT WATER RECIRC TYPE
	HOT WATER RECIRC
	HOT WATER RECIRC 140°
	SOFTENED HOT WATER RECIRC
	DEIONIZED WATER
	DEIONIZED WATER RETURN
	REVERSE OSMOSIS
	REVERSE OSMOSIS RETURN
	WATER SERVICE
	STORM
	STORM OVERFLOW
	SANITARY
	PUMPED DISCHARGE
	VENT
	ACID WASTE
	ACID VENT
	GREASE SANITARY
	GREASE VENT
	OIL WASTE
	OIL VENT
	COMPRESSED AIR
PIPE FITTINGS	
	PIPE RISE / DROP
	PIPE ELBOW
	PIPE TEE HORIZONTAL / RISER / DROP
	PIPE CAP / CLEANOUT / CONTINUATION
PIPE ACCESSORIES	
	BALANCING VALVE
	BALL VALVE
	GATE VALVE
	GENERIC ISOLATION VALVE
	PRESSURE REDUCING VALVE
	2-WAY ELEC. CONTROL VALVE
	3-WAY ELEC. CONTROL VALVE
	FLOW SENSOR
	PRESSURE SENSOR
	TEMPERATURE SENSOR & WELL
	INLINE SENSOR
	FLEXIBLE CONNECTOR
	PRESSURE GAUGE
	UNION
	STRAINER
	ANGLE VALVE
	BUTTERFLY VALVE
	PLUG VALVE
	GAS METER
	INLINE PUMP
	HOSE BIBB/ HYDRANT
	P/T PORT
	AIR VENT
	PRESSURE RELIEF
	STEAM TRAP
	THERMOMETER
FIXTURE SYMBOLS	
	FLOOR DRAIN (ROUND)
	FLOOR DRAIN (SQUARE)
	FLOOR CLEANOUT
	FLOOR SINK
	COMBINATION ROOF DRAIN
	ROOF DRAIN

GENERAL NOTES - MECHANICAL

- PROVIDE ALL MATERIALS AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE HVAC SYSTEMS AS INDICATED ON DRAWINGS, AS SPECIFIED, AND AS REQUIRED BY MOST CURRENT INTERNATIONAL, MECHANICAL CODE AND ANY APPLICABLE LOCAL CODES. PROVIDE CLEARANCE FOR INSPECTION, REPAIR, REPLACEMENT, AND SERVICE TO ALL EQUIPMENT TO INCLUDE A MINIMUM OF 36 INCHES FROM ALL OBSTRUCTIONS (WALLS, STRUCTURE, DUCTWORK, PIPES, ETC.). CLEARANCE SHALL MAINTAIN ACCESS TO ALL ELECTRICAL PANELS, ACCESS DOORS, CONTROLLERS, VALVES, JUNCTION BOXES AND OPERATORS AND INCLUDE THE AREA DIRECTLY IN FRONT OF AND ABOVE THE SYSTEM COMPONENTS. INSTALL PIPING SO THAT ALL VALVES, STRAINERS, UNIONS, FLANGES, ACCESSORIES, AND OTHER APPARATUS REQUIRING ACCESS ARE ACCESSIBLE.
- MECHANICAL CONTRACTOR SHALL VISIT THE JOB SITE AND EXAMINE THE DRAWINGS OF OTHER TRADES PRIOR TO BIDDING TO THOROUGHLY FAMILIARIZE HIMSELF WITH EXISTING CONDITIONS AND THE SCOPE OF THE PROJECT. FAILURE TO DO SO DOES NOT RELIEVE THE MECHANICAL CONTRACTOR OF THE RESPONSIBILITY TO UNDERSTAND THE SCOPE OR OF UNDERSTANDING ANY FIELD CONDITIONS WHICH COULD BE REASONABLY EXPECTED TO BE KNOWN BY A THOROUGH INVESTIGATION.
- DRAWINGS ARE DIAGRAMMATICAL IN NATURE. IT IS NOT INTENDED THAT THE DRAWINGS SHOW EVERY DUCT, FITTING, TRANSITION, DAMPER, ETC., AND IT IS UNDERSTOOD THAT WHILE THE DRAWINGS MUST BE FOLLOWED AS CIRCUMSTANCES WILL PERMIT, THE PROPER INSTALLATION ACCORDING TO THE TRUE INTENT AND MEANING OF THE DRAWINGS, LOCAL CODES AND STANDARD PRACTICES SHALL BE PROVIDED. MECHANICAL CONTRACTOR TO PROVIDE ALL DUCTWORK TRANSITIONS, FLEXIBLE CONNECTIONS, AND ACCESSORIES AS REQUIRED. FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO INSTALLATION. REPORT ANY PROBLEMS OR CONFLICTS TO THE OWNER OR ENGINEER.
- ANY MINOR CHANGES IN THE LOCATION OF EQUIPMENT, DUCTS, PIPE CONTROL DEVICES, ETC., FROM THOSE LOCATIONS SHOWN ON THE DRAWINGS SHALL BE MADE WITHOUT EXTRA COST IF SO DIRECTED BY THE OWNERS REPRESENTATIVE OR ENGINEER BEFORE THE INSTALLATION IS MADE. A MINOR CHANGE IN LOCATION SHALL BE CONSIDERED TO BE WITHIN 6'-0" OF THE ORIGINALLY INDICATED LOCATIONS.
- VERIFY ALL DIMENSIONS BY FIELD MEASUREMENTS. VERIFY FINAL LOCATIONS FOR ROUGH-INS WITH FIELD MEASUREMENTS AND WITH THE REQUIREMENTS OF THE ACTUAL EQUIPMENT TO BE CONNECTED.
- WHERE MOUNTING HEIGHTS ARE NOT DETAILED OR DIMENSIONED, INSTALL SYSTEMS, MATERIALS, AND EQUIPMENT TO PROVIDE THE MAXIMUM HEADROOM POSSIBLE.
- INSTALL SYSTEMS, MATERIALS AND EQUIPMENT LEVEL AND PLUMB, PARALLEL AND PERPENDICULAR TO OTHER BUILDING SYSTEMS AND COMPONENTS WHERE INSTALLED EXPOSED IN FINISHED SPACES AND GIVING RIGHT-OF-WAY PRIORITY TO SYSTEMS REQUIRED TO BE INSTALLED AT A SPECIFIED SLOPE.
- INSTALL ALL HVAC EQUIPMENT IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS, CONTRACT DOCUMENTS, AND APPLICABLE CODES AND REGULATIONS.
- ALL OPENINGS IN FIRE-RATED AND SMOKE-RATED WALLS DUE TO DUCTWORK, PIPING AND CONTROL CONDUIT SHALL BE FIRE STOPPED WITH AN APPROVED FIRE STOP MATERIAL, COORDINATE INSTALLATION WITH ARCHITECTURAL CODE PLANS.
- MECHANICAL CONTRACTOR SHALL COORDINATE CEILING DIFFUSER/GRILLE/REGISTER LOCATIONS WITH LIGHTING, FIRE ALARM EQUIPMENT AND FIRE SUPPRESSION SYSTEMS.
- WHERE NEW WORK OCCURS, MECHANICAL CONTRACTOR SHALL PATCH AND SEAL ALL WALLS, FLOORS AND CEILINGS TO MATCH EXISTING. MECHANICAL CONTRACTOR SHALL VERIFY WITH OWNER ALL PATCHING MATERIALS AND INSTALLATION METHODS.
- MECHANICAL CONTRACTOR SHALL PROVIDE MANUAL BALANCE DAMPERS IN ALL BRANCH TAKE-OFFS TO SUPPLY DIFFUSERS. PROVIDE ADDITIONAL MANUAL BALANCE DAMPERS IN MAIN AND SUB-MAIN DUCTS AS REQUIRED TO ENSURE THE SUPPLY AND RETURN AIR SYSTEMS CAN BE BALANCED TO THE SPECIFIED DESIGN AIRFLOW.
- IN AREAS WHERE A CEILING GRID EXISTS, THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL AND REPAIR OF EXISTING CEILING GRID AND TILES AS NECESSARY FOR INSTALLATION OF VENTILATING WORK. ANY PORTION OF THE EXISTING TILES OR GRID WHICH BECOME DAMAGED DURING REMOVAL SHALL BE REPLACED BY THE MECHANICAL CONTRACTOR. DO NOT ROUTE DUCT OR PIPING ABOVE OR BELOW ELECTRICAL PANELS INCLUDING SERVICE CLEARANCES.
- ALL RECTANGULAR AND/OR ROUND SUPPLY AND RETURN DUCTWORK SHOWN ON THE PLANS MAY BE CONVERTED TO EQUIVALENT ROUND/RECTANGULAR DUCTWORK AT THE DISCRETION OF THE MECHANICAL CONTRACTOR. ANY DUCT CONVERSIONS SHALL BE SUBMITTED AS PART OF THE DUCTWORK SHOP DRAWINGS FOR APPROVAL BY THE ENGINEER.
- MECHANICAL CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING METHODS OF BRINGING IN MECHANICAL EQUIPMENT THROUGH BUILDING INTO MECHANICAL ROOMS.
- PIPING SHALL NOT BE SUPPORTED FROM OTHER PIPING, CONDUIT, OR DUCTWORK.
- PROVIDE CHAIN WHEEL OPERATORS FOR ALL VALVES IN EQUIPMENT ROOMS MOUNTED GREATER THAN 7'-0" ABOVE FLOOR LEVEL. CHAIN SHALL EXTEND TO 7'-0" ABOVE FLOOR LEVEL.
- COORDINATE PIPE ROUTING TO AVOID RUNNING PIPING BELOW ROOF HATCHES, SKYLIGHTS AND ACCESS PANELS.
- ALL CONTROL WIRING ROUTED EXPOSED IN SPACES SUCH AS MECHANICAL ROOMS OR ABOVE HARD CEILINGS SHALL BE ROUTED IN CONDUIT. CONTROL WIRING ROUTED ABOVE ACCESSIBLE CEILINGS IS NOT REQUIRED TO BE RUN IN CONDUIT, BUT SHOULD BE SECURELY STRAPPED TO PERMANENT SUPPORTS FOR A CLEAN INSTALLATION.
- ALL THERMOSTATS SHALL BE MOUNTED AT SAME ELEVATION AS ADJACENT LIGHT SWITCHES UNLESS NOTED OTHERWISE.

GENERAL NOTES - FUEL GAS

- ALL FUEL GAS WORK SHOULD BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION:
 - 2024 NFPA 54 - NATIONAL FUEL GAS CODE
 - 2024 UNIFORM PLUMBING CODE
 - LOCAL CODES, INCLUDING ALL AMENDMENTS AND ORDINANCES
- NATURAL GAS SERVICE, METER AND UTILITY REGULATOR SHALL BE PROVIDED AND INSTALLED BY THE GAS UTILITY COMPANY, PAID FOR BY THE OWNER.
- TEST AND PURGE NATURAL GAS PIPING PER NFPA 54 RECOMMENDATIONS.
- PROVIDE GAS PIPING TO EQUIPMENT AND ALL FINAL CONNECTIONS REQUIRED FOR OPERATION.
- PROVIDE A LEVER HANDLE GAS SHUT-OFF VALVE IN THE BRANCH PIPING OF EACH APPLIANCE OR PIECE OF EQUIPMENT. FOR EACH APPLIANCE INSTALL QUICK DISCONNECT FLEXIBLE PIPE WHEN ALLOWED BY CODE, AND RESTRAINING DEVICE FURNISHED BY OWNER. PROVIDE PRESSURE REDUCING VALVES AT EACH PIECE OF EQUIPMENT OR APPLIANCE IF GAS PRESSURE GREATER THAN 10" W.C. IS USED DOWNSTREAM FROM THE GAS METER.
- NATURAL GAS PIPING INSTALLED BELOW FLOOR SHALL BE INSTALLED IN CONDUIT AND VENTED PER NFPA 54 REQUIREMENTS.
- EMERGENCY GAS SOLENOID VALVES SHALL BE WIRED TO BE POWER OPEN/FAN CLOSED.
- VENT ALL REGULATORS PER FUEL GAS CODE REQUIREMENTS, EITHER TO THE BUILDING EXTERIOR OR BY PROVIDING VENT LIMITING DEVICES APPROVED FOR INDOOR LOCATIONS.

MECHANICAL SHEET INDEX	
M000	MECHANICAL TITLE SHEET
M101	MECHANICAL & PLUMBING PLAN
M501	MECHANICAL DETAILS
M502	PLUMBING DETAILS
M601	MECHANICAL SCHEDULES
M602	PLUMBING SCHEDULES

GENERAL NOTES - PLUMBING

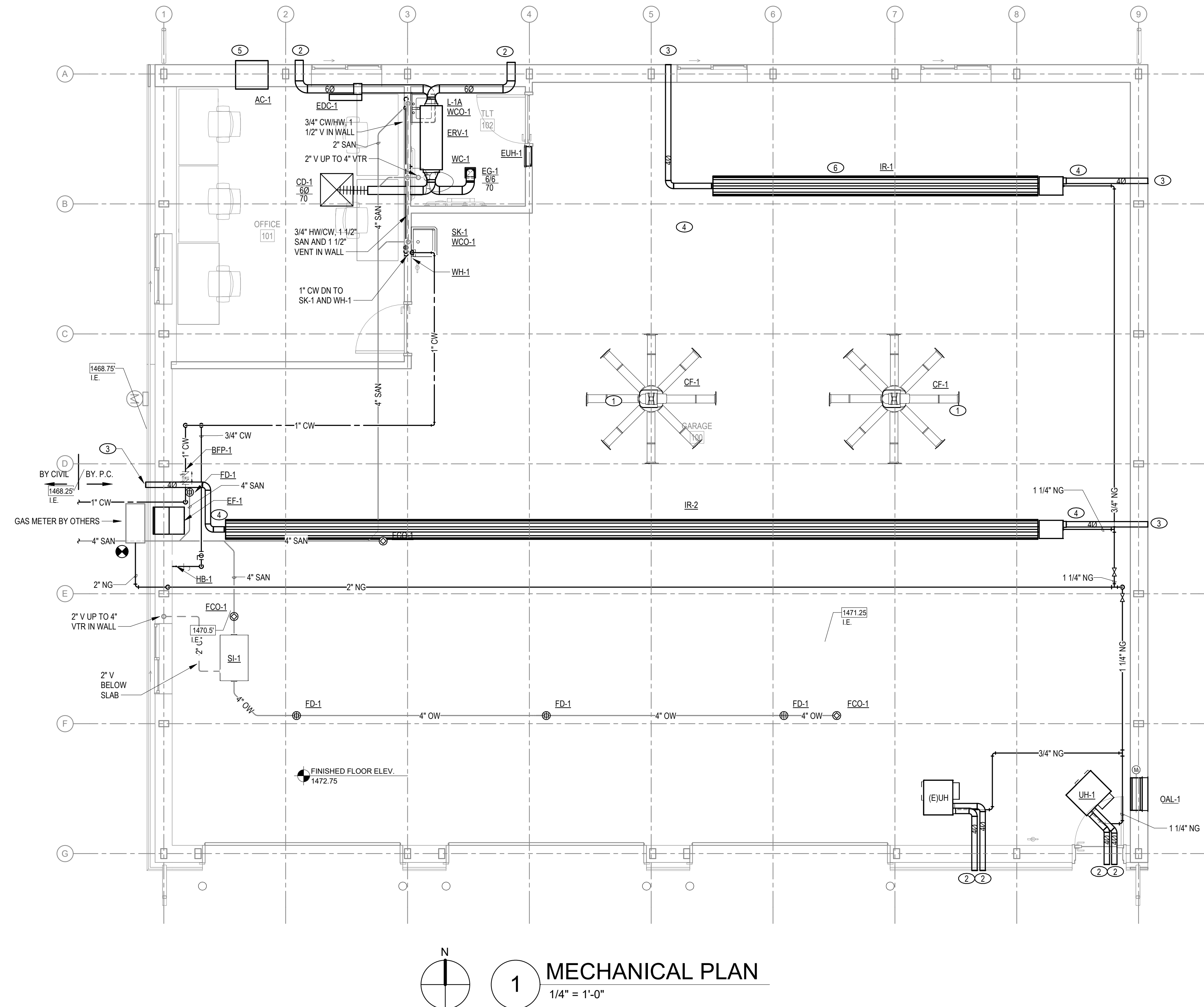
- ALL PLUMBING WORK SHOULD BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION:
 - 2024 UNIFORM PLUMBING CODE
 - 2019 ADA STANDARDS FOR ACCESSIBLE DESIGN
 - 2012 INTERNATIONAL ENERGY CONSERVATION CODE
 - LOCAL CODES, INCLUDING ALL AMENDMENTS AND ORDINANCES.
- THESE DRAWINGS ARE DIAGRAMMATIC, NOT ALL PIPING, FITTINGS, OFFSETS, VALVES OR OTHER ACCESSORIES ARE SHOWN. THE PLUMBING CONTRACTOR SHALL PROVIDE AND INSTALL ANY/ALL NECESSARY PIPING, FITTINGS, VALVES, REGULATORS, GAUGES, HANGERS, INSULATION, EQUIPMENT, FIXTURES, ETC. REQUIRED FOR A COMPLETE FUNCTIONAL SYSTEM AS SHOWN ON PLUMBING PLANS AND AS OUTLINED IN SPECIFICATION INFORMATION UNLESS OTHERWISE NOTED.
- PLUMBING CONTRACTOR SHOULD UTILIZE THESE PLANS AND PROVIDE RECORD DRAWING COMMENTARY REFLECTING ACTUAL INSTALLATION. PROVIDE ONE HARD-COPY SET TO ARCHITECT/ENGINEER.
- PLUMBING CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL FEES AND PERMITS REQUIRED TO ACCOMPLISH THIS WORK.
- PLUMBING CONTRACTOR SHOULD REVIEW ANTICIPATED MAN/MATERIAL LIFT EQUIPMENT WITH OWNER'S REPRESENTATIVE PRIOR TO UTILIZING FOR INSTALLATION. DAMAGED FLOORING RESULTING FROM UNAPPROVED EQUIPMENT WILL BE REPLACED AT THE PLUMBING CONTRACTOR'S EXPENSE.
- REFER TO WRITTEN SPECIFICATIONS FOR EQUIPMENT AND MATERIAL RELATED TO THIS WORK.
- COORDINATE SEQUENCE OF PLUMBING WORK CLOSELY WITH GENERAL CONTRACTOR/ CONSTRUCTION MANAGER AND OTHER TRADES TO AVOID CONFLICTS.
- ADA COMPLIANCE SHALL BE MAINTAINED WHERE ADJUSTMENTS ARE MADE TO FIXTURES LOCATED WITHIN ADA TOILET ROOMS.
- PLUMBING CONTRACTOR SHOULD TAKE PRECAUTIONS NECESSARY TO MINIMIZE CONSTRUCTION DEBRIS TRANSFER TO ADJACENT NON-WORK AREAS.
- PRIOR TO COMMENCING WORK ON THIS PROJECT, VERIFY DEPTH, SIZE, LOCATION AND CONDITION OF ALL EXISTING UTILITIES IN FIELD. SHOULD CONDITIONS EXIST OTHER THAN THOSE INDICATED WHICH WOULD CAUSE THE DESIGN TO BE ALTERED, CONTRACTOR SHALL NOTIFY OWNER AND ENGINEER IMMEDIATELY.
- PLUMBING UTILITY CONNECTIONS SHALL EXTEND TO 5'-0" OUTSIDE OF THE BUILDING FOR CONNECTION BY THE SITE UTILITIES CONTRACTOR.
- COORDINATE ALL BELOW FLOOR PLUMBING PIPING AND EQUIPMENT WITH STRUCTURAL PLANS.
- COORDINATE INSTALLATION OF PLUMBING WORK WITH ALL OTHER TRADES SO AS TO AVOID UNNECESSARY DELAY OR INTERFERENCES. PLUMBING CONTRACTOR SHALL REVIEW ARCHITECTURAL AND EQUIPMENT SHEETS.
- PLUMBING CONTRACTOR SHALL RUN ALL DOMESTIC WATER, WASTE AND VENT, NATURAL GAS, MEDICAL GAS, COMPRESSED AIR, AND STORM PIPING AS HIGH AS POSSIBLE WITHIN THE CEILING / TRUSS SPACE. COORDINATE THE LOCATION OF ALL PIPING WITH THE STRUCTURAL PLANS, ARCHITECTURAL CEILING HEIGHTS, AND OTHER TRADES TO AVOID CONFLICTS. NOTIFY GENERAL CONTRACTOR/ CONSTRUCTION MANAGER AS SOON AS ANY CONFLICTS ARE DETECTED. FAILURE TO PROPERLY COORDINATE PIPE ROUTING WITH OTHER TRADES WILL BE REQUIRED TO BE MOVED AT THE PLUMBING CONTRACTOR'S EXPENSE.
- PLUMBING CONTRACTOR SHALL COORDINATE PIPE ROUTING TO AVOID ROOF HATCHES, SKYLIGHTS, EQUIPMENT SERVICE ACCESS AND ACCESS PANELS.
- PLUMBING CONTRACTOR SHALL FIELD VERIFY MEANS AND METHODS REQUIRED TO BRING FLEXIBLE WATER AND WASTE LINES TO THE BUILDING. COORDINATE STORAGE AND LAY DOWN AREAS WITH THE GENERAL CONTRACTOR/ CONSTRUCTION MANAGER PRIOR TO BRINGING MATERIALS TO THE PROJECT SITE.
- REFERENCE ARCHITECTURAL DRAWINGS FOR CODE-RATED WALLS, FLOORS, AND CEILINGS. PROVIDE UL RATED, FM APPROVED FIRE STOP AT ALL NEW PLUMBING PIPE PENETRATIONS THROUGH FIRE RATED WALLS, FLOORS AND CEILINGS.
- PLUMBING CONTRACTOR SHALL PROVIDE PLUMBING DROPS TO PLUMBING FIXTURES SHALL BE CONCEALED IN THE WALL UNLESS OTHERWISE NOTED.
- FLUSH NEW WATER PIPING AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION PRIOR TO CONNECTING ANY FIXTURES OR EQUIPMENT.
- PROVIDE WATER HAMMER ARRESTORS SERVING QUICK-CLOSING VALVES IN EACH BRANCH OR AT APPLIANCE OR FIXTURE.
- ALL VALVES, TRAP PRIMERS, WATER HAMMER ARRESTORS OR OTHER EQUIPMENT SHOWN IN WALLS OR ABOVE NON-ACCESSIBLE CEILING SHALL BE INSTALLED BEHIND AN ACCESS PANEL. REFERENCE ARCHITECTURAL REFLECTED CEILING PLANS FOR CEILING TYPES, HEIGHTS, AND OTHER CEILING MOUNTED ITEMS.
- INSTALL SHUT-OFF VALVES ON ALL HOT & COLD WATER LINES TO FIXTURE OR APPLIANCE. ALL APPLIANCE OR FIXTURE WATER AND WASTE LINES TO BE OBTAINED FROM PLATES.
- ALL VALVES, UNIONS, ETC. SHALL BE SAME SIZE AS PIPE UNLESS OTHERWISE INDICATED ON DRAWINGS.
- ALL PLUMBING PIPING SHALL BE SUPPORTED. SEE SPECIFICATIONS.
- FURNISH & INSTALL ALL BACKFLOW PROTECTION DEVICES REQUIRED BY AUTHORITY HAVING JURISDICTION. BACKFLOW DEVICES REQUIRING TESTING SHALL BE INSTALLED NO HIGHER THAN 5'-0" ABOVE FINISHED FLOOR.
- PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR TESTS AND CERTIFICATION OF REDUCED PRESSURE BACKFLOW DEVICE PER AUTHORITY HAVING JURISDICTION. BACKFLOW CERTIFICATION SHALL BE POSTED ON BACKFLOW DEVICE ONCE TESTING HAS BEEN COMPLETED.
- ALL WATER LINES SHALL BE RUN OVERHEAD UNLESS OTHERWISE NOTED.
- PROVIDE ESCUTCHEON PLATES AND SILICONE SEALANT AT ALL UTILITY PENETRATIONS INTO WALLS, CEILINGS, AND FLOORS. DO NOT USE CAULKS OR EXPANDING FOAMS FOR SEALANT.
- COORDINATE FLOOR DRAIN AND CLEANOUT ROUGH-IN WITH SELECTED FLOOR COVERING SYSTEM.
- DO NOT UTILIZE COMBINATION WASTE AND VENT SYSTEM FOR SINKS AND LAVATORIES ROUGHED IN ABOVE FLOOR.
- NOTIFY LOCAL INSPECTOR PRIOR TO BACKFILL OF ALL UNDER SLAB PLUMBING. ANY WORK COVERED PRIOR TO INSPECTION SHALL BE UNCOVERED AT THE INSPECTOR'S REQUEST.
- FLOOR/SEAL ALL DRAIN TRAPS WITH MINERAL OIL.
- PROVIDE TRAP PRIMERS FOR FLOOR DRAINS IN RESTROOMS, WHERE REQUIRED BY CODES. PROVIDE DEEP SEAL TRAPS FOR F

GENERAL NOTES:

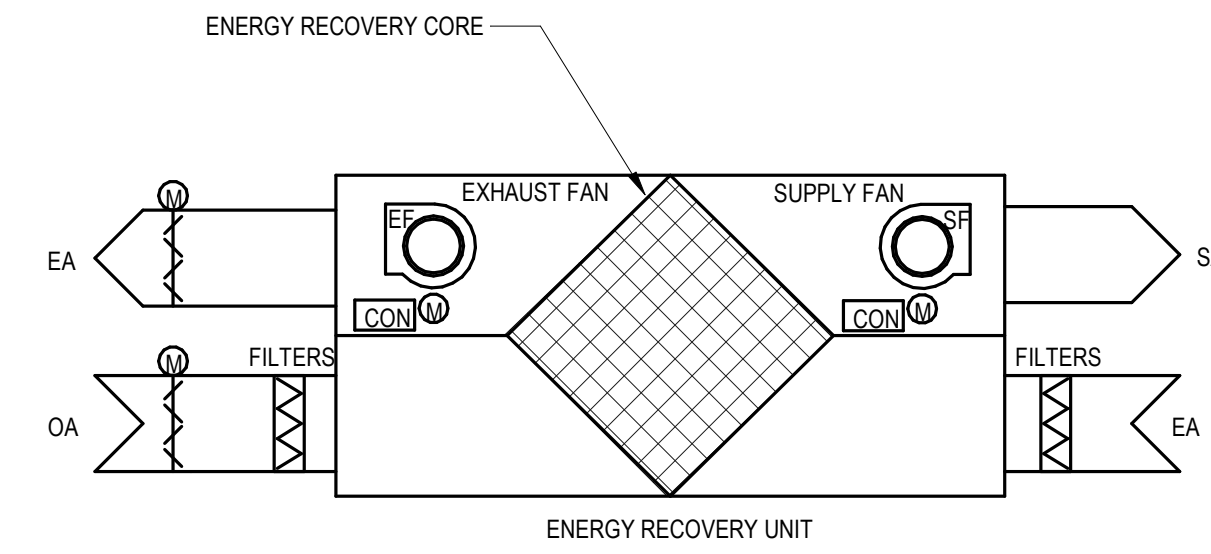
- SANITARY PIPING SHOWN ON PLAN IS BELOW SLAB.
- INSTALL ALL OVERHEAD PIPING AS HIGH AS POSSIBLE UNDER CEILING.
- PIPING AND DUCTWORK IS INTENDED TO BE INSTALLED BELOW THE 16' - 0" HARDLID CEILING.

KEYED NOTES:

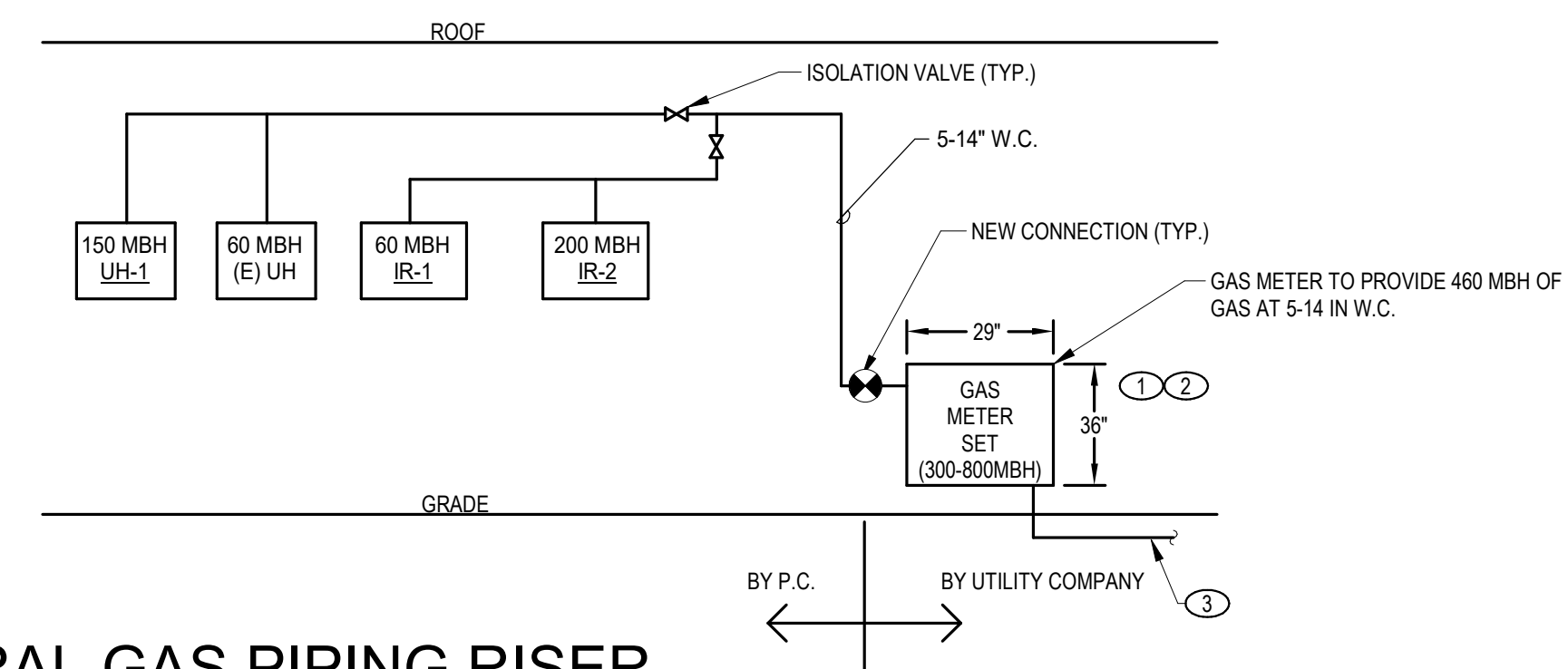
- CEILING FAN, CF-1, IS PART OF ALTERNATE 1. PROVIDE 6" DOWNROD FOR CEILING FAN INSTALLATION. BOTTOM OF CEILING FAN MUST STAY 14' - 0" ABOVE FINISHED FLOOR LEVEL.
- TERMINATE DUCT WITH HOODED WALL CAP WITH BIRDSCREEN AND DAMPER.
- TERMINATE WITH MANUFACTURER APPROVED VENT CAP.
- SLOPE VENT PER MANUFACTURER INSTRUCTION.
- WALL SLEEVE FURNISHED BY M.C.
- USE ANGLED SHIELD TO DIRECT HEAT TO THE MIDDLE OF THE SPACE



1 MECHANICAL PLAN
1/4" = 1'-0"

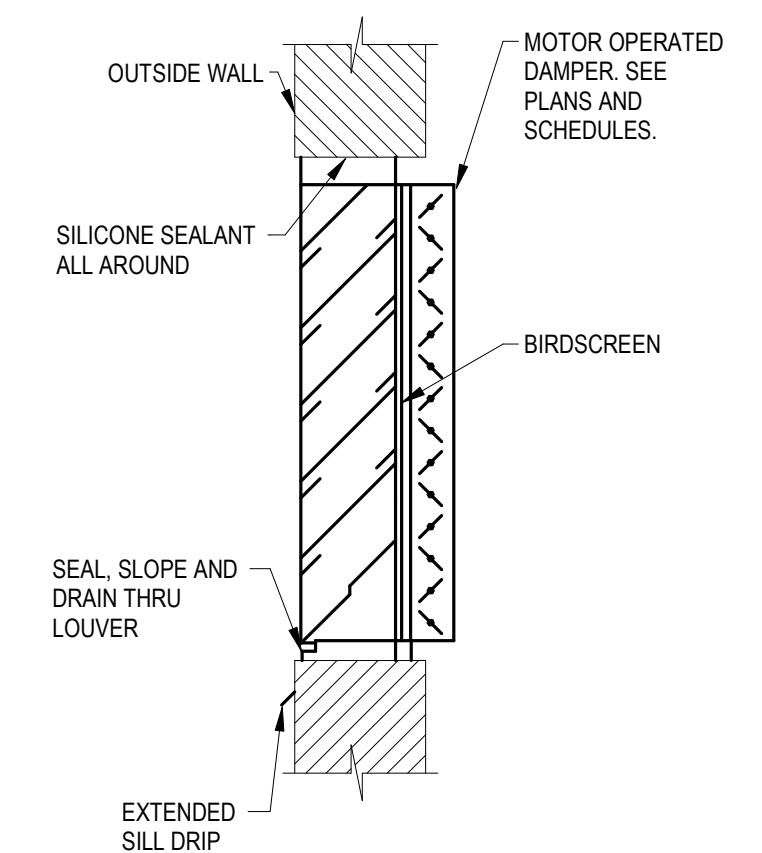


7 ENERGY RECOVERY UNIT DIAGRAM
N.T.S.

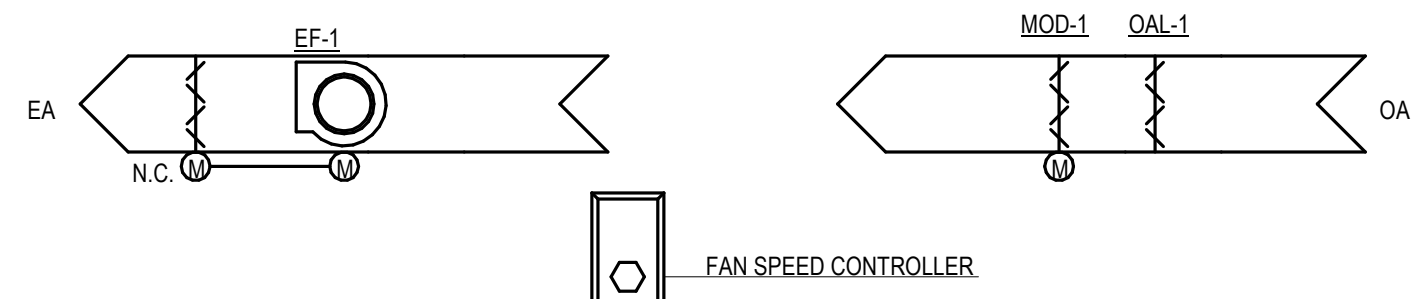
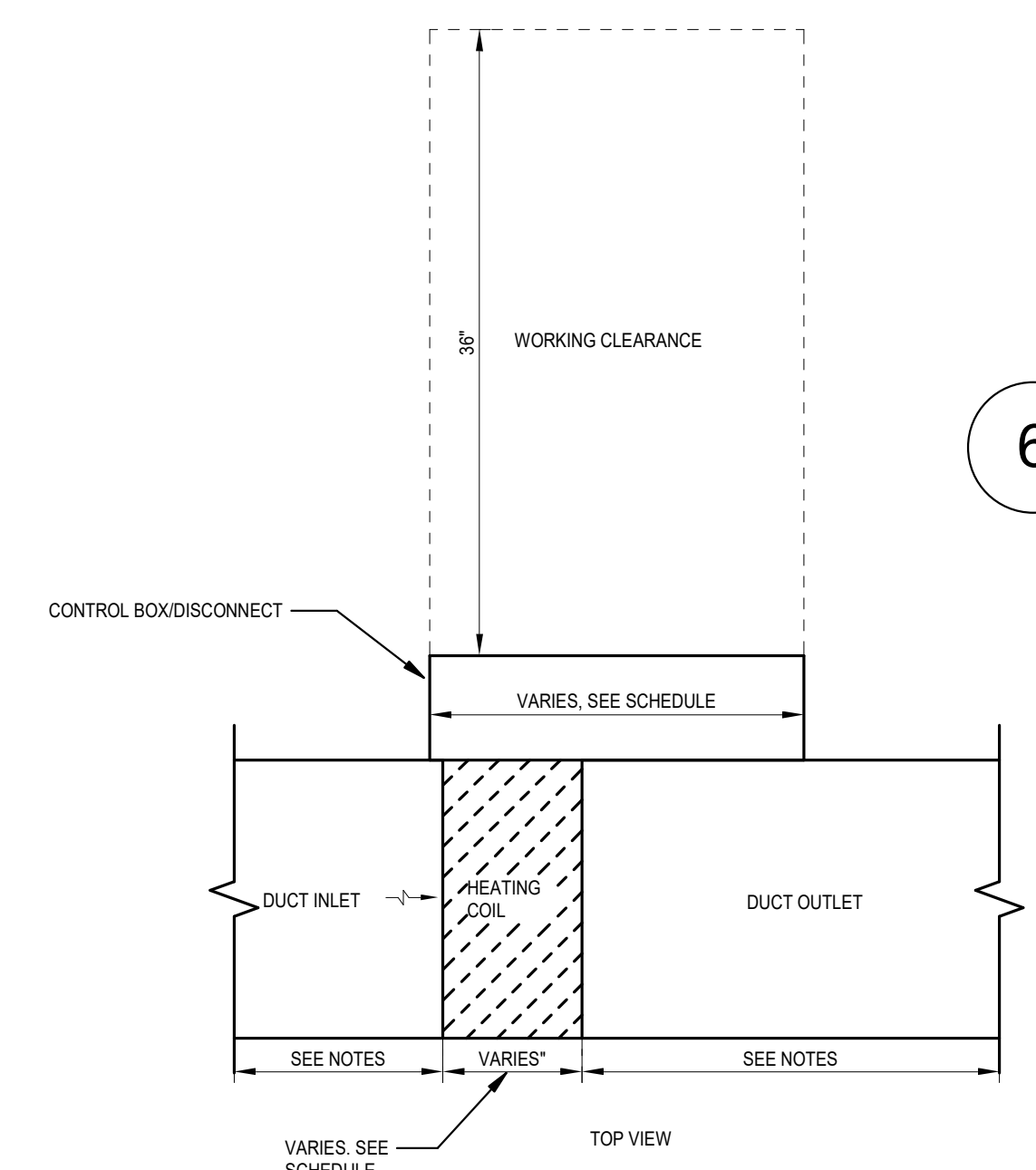


3 NATURAL GAS PIPING RISER
N.T.S.

- GENERAL NOTES:**
- SEE PLANS FOR PIPE SIZES.
 - VENT ALL REGULATORS PER THE FUEL GAS CODE.
 - PAINT ALL EXPOSED PIPING AND FITTINGS. COORDINATE COLOR WITH ARCHITECT
 - MECHANICAL CONTRACTOR IS RESPONSIBLE FOR ALL NEW SERVICE AND METER FEES ASSOCIATED WITH INSTALLING NEW GAS METER(S).
 - COORDINATE LOCATION OF SOLENOID VALVES WITH ARCHITECT.
 - METER SET DIMENSIONS LISTED ARE APPROXIMATE. M.C. TO COORDINATE FINAL METER SET DIMENSIONS BASED ON PROJECT SPECIFIC METER SET DESIGN WITH UTILITY COMPANY.
 - COORDINATE ANY MODIFICATIONS TO THE EXISTING METER WITH UTILITY COMPANY.
- KEYED NOTES:**
- M.C. TO PROVIDE UNI-STRUT RACK AND MOUNTING HARDWARE PER UTILITY COMPANY REQUIREMENTS.
 - M.C. TO PROVIDE BOLLARD POSTS PER UTILITY COMPANY REQUIREMENTS. REFER TO NATURAL GAS METER SET BOLLARD DETAIL FOR ADDITIONAL REQUIREMENTS.
 - UNDER GROUND GAS UTILITY MAIN BY OTHERS.

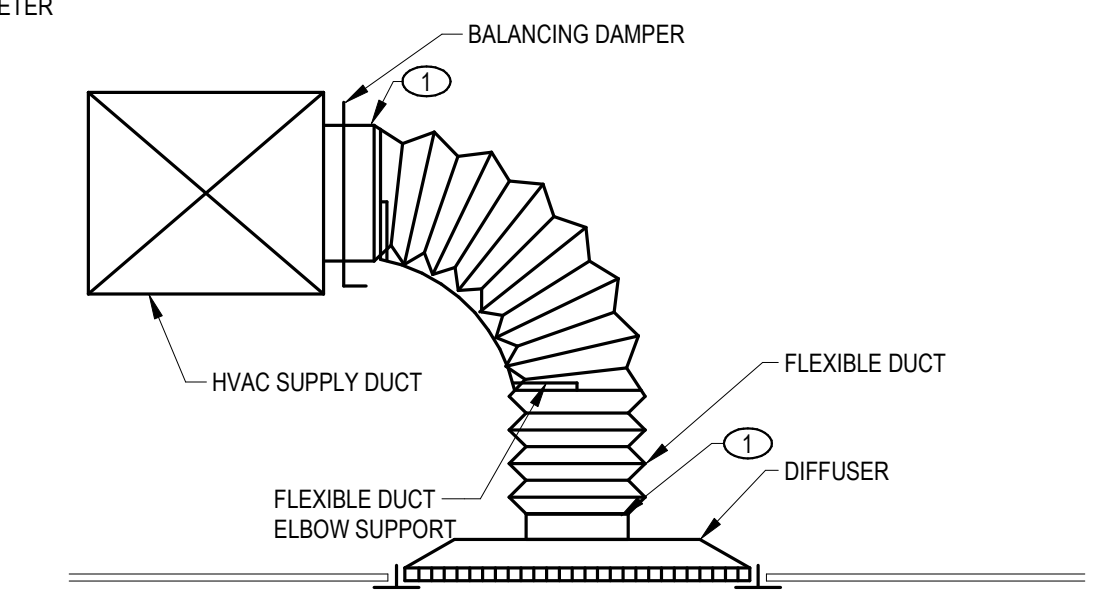


6 LOUVER AND DAMPER - NO DUCTWORK
N.T.S.



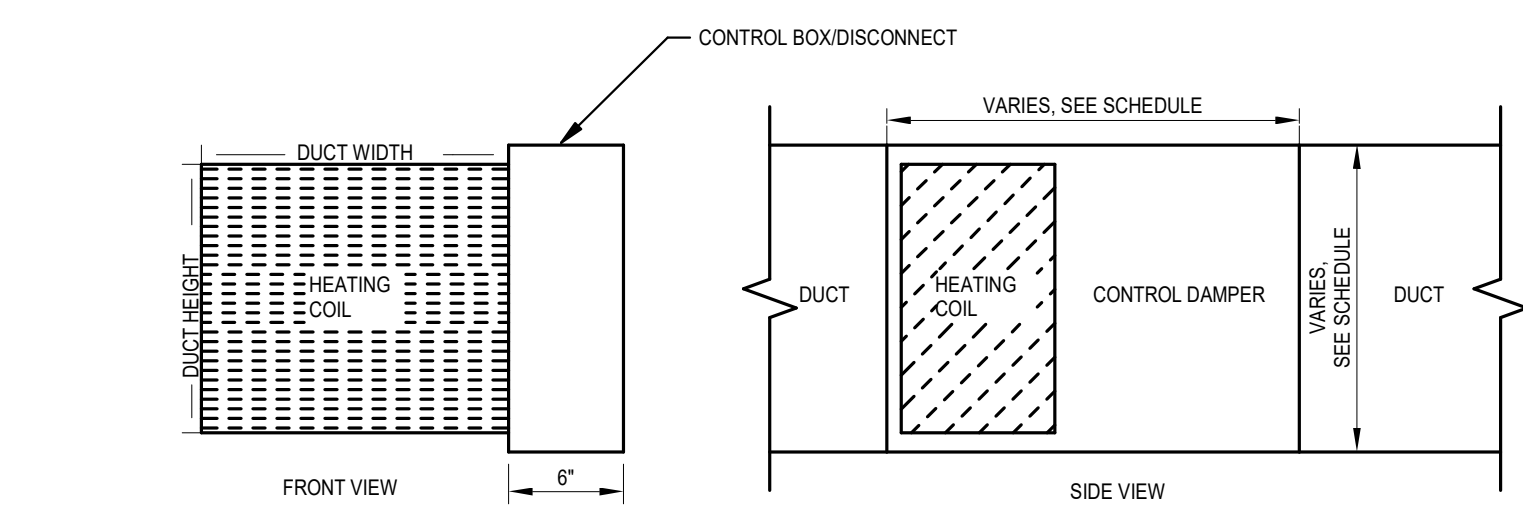
5 EXHAUST FAN - SPEED DIAL
N.T.S.

- GENERAL NOTES:**
- OUTSIDE AIR MOTORIZED DAMPER SHALL BE OPEN WHEN EXHAUST FAN IS ON



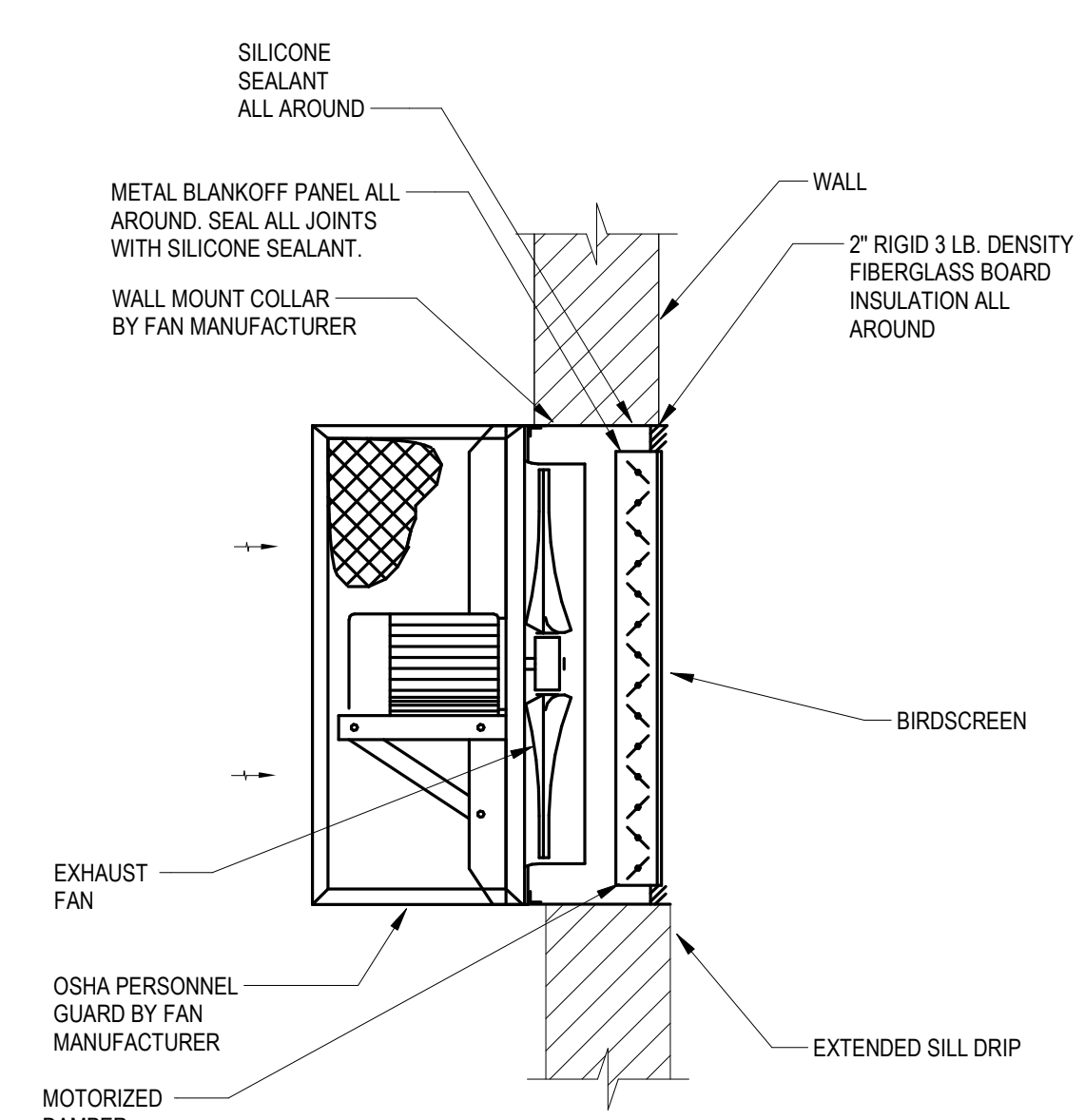
2 FLEX DUCT INSTALL
N.T.S.

- GENERAL NOTES:**
- INSTALL FLEXIBLE DUCT ELBOW SUPPORTS AT ALL FLEXIBLE DUCT 90 DEGREE BENDS.
 - 5'-0" MAX FLEXIBLE DUCT LENGTH ALLOWED
- KEYED NOTES:**
- M.C. TO USE ZIP TIES TO ATTACH FLEX DUCT TO DUCT TAP AND DIFFUSER

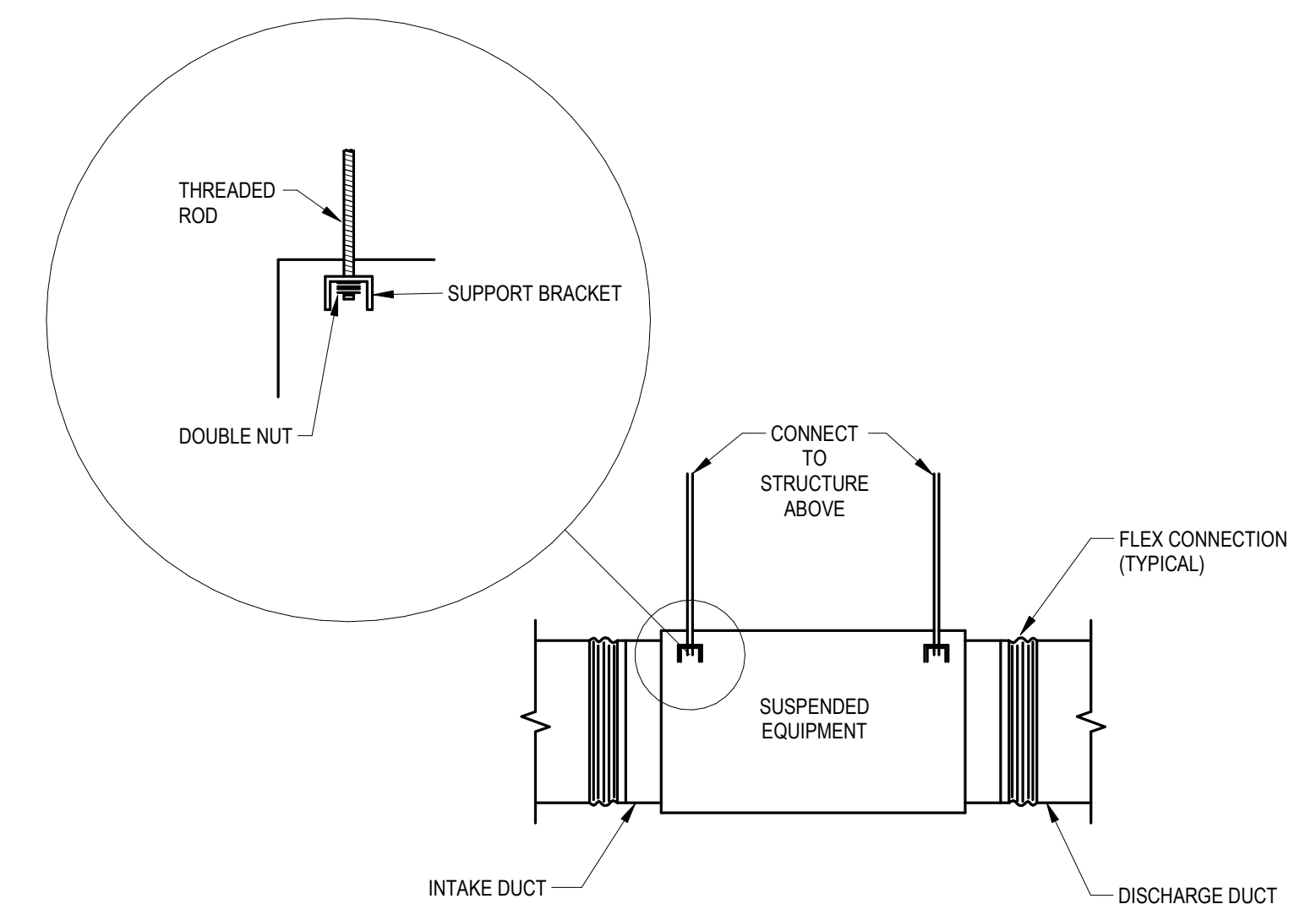


8 SUPPLEMENTAL ELECTRIC DUCT COIL
N.T.S.

- GENERAL NOTES:**
- CONTRACTOR TO INSTALL PER MANUFACTURERS REQUIREMENTS. COORDINATE WITH SHOP DRAWINGS.
 - HEATER SHALL NOT BE INSTALLED CLOSER THAN 4" DOWNSTREAM OR UPSTREAM FROM A FAN OUTLET, ABRUPT TRANSITION, OR OTHER OBSTRUCTIONS.
 - ELBOWS OR TURNS MUST BE LOCATED AT LEAST 4" FROM THE INLET OF THE HEATER & 2" FROM THE OUTLET OF THE HEATER.
 - COORDINATE COIL DIMENSIONS WITH DUCT DRAWINGS.



4 FAN - WALL - PROP
N.T.S.

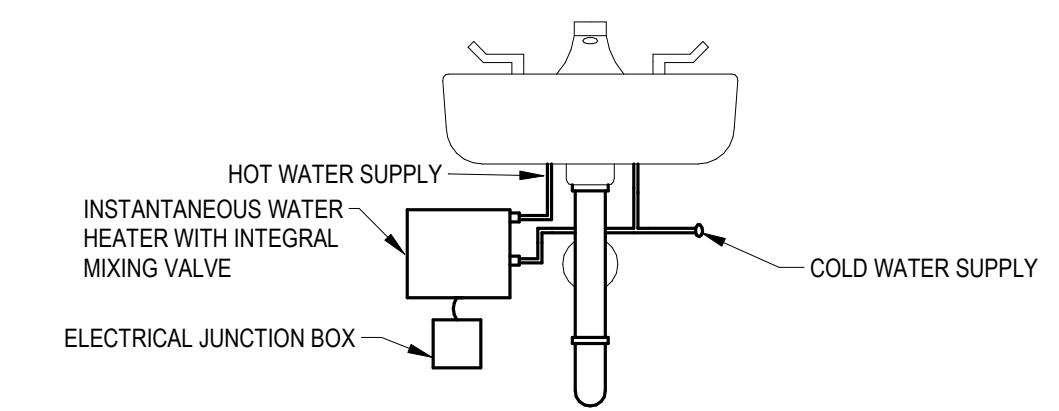


1 EQUIPMENT - SUSPENDED
N.T.S.

- GENERAL NOTES:**
- INSTALL EQUIPMENT WITH MOTOR ACCESSIBLE FOR SERVICE AND REMOVAL.

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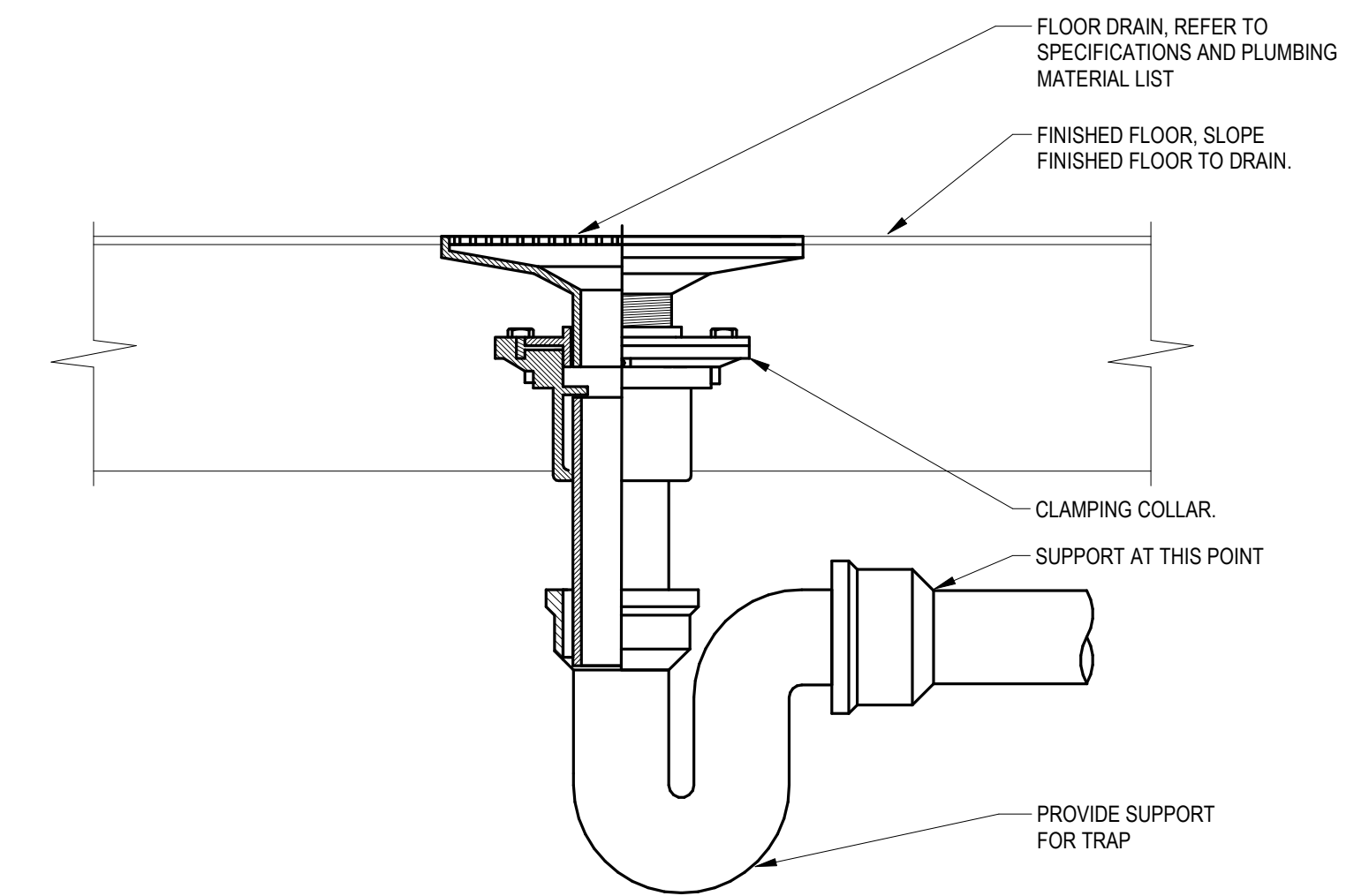


CABINET TWO HANDLE FAUCET WITH INSTANTANEOUS WATER HEATER

3 PLUMBING LAV INSTALLATION
N.T.S.

GENERAL NOTES:

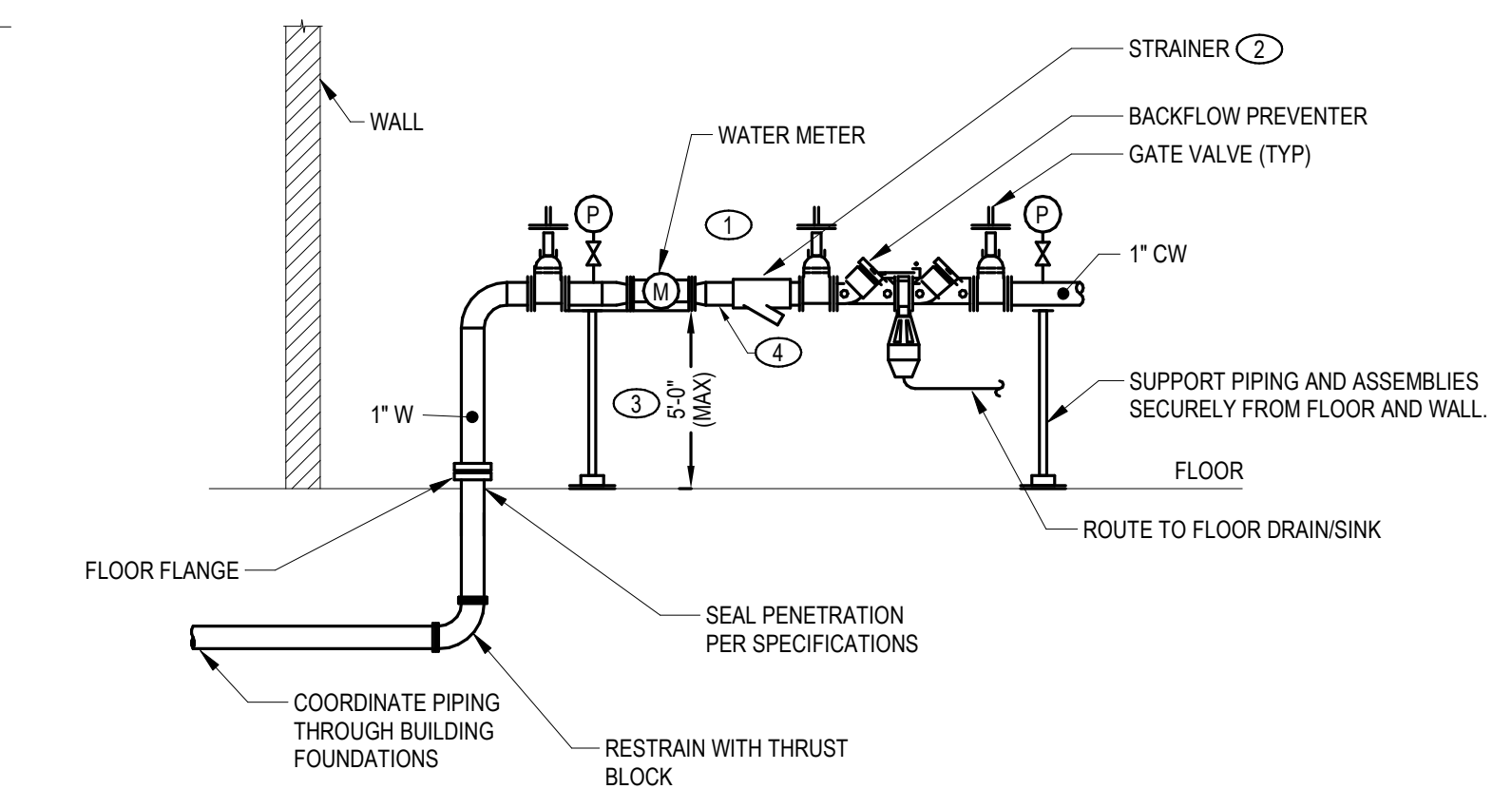
1. PEX PIPING SHALL NOT BE ALLOWED IN RATED WALLS.
2. WATER HEATER TO BE LOCATED IN AN ACCESSIBLE LOCATION. COORDINATE INSTALLATION LOCATION WITH ARCHITECTURAL CASEWORK PLANS.



2 FLOOR DRAIN - ON GRADE
N.T.S.

GENERAL NOTES:

1. REFER TO PLUMBING MATERIAL LIST FOR SPECIFIC DRAIN OPTIONS & ACCESSORIES.



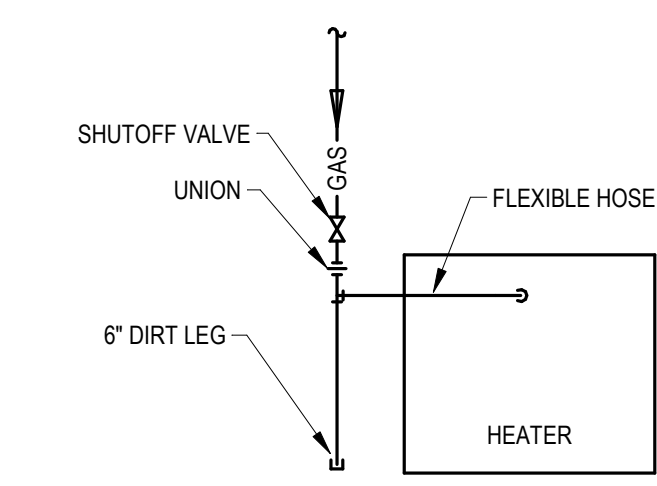
1 WATER SERVICE ENTRANCE - WM, BFP
N.T.S.

KEYED NOTES:

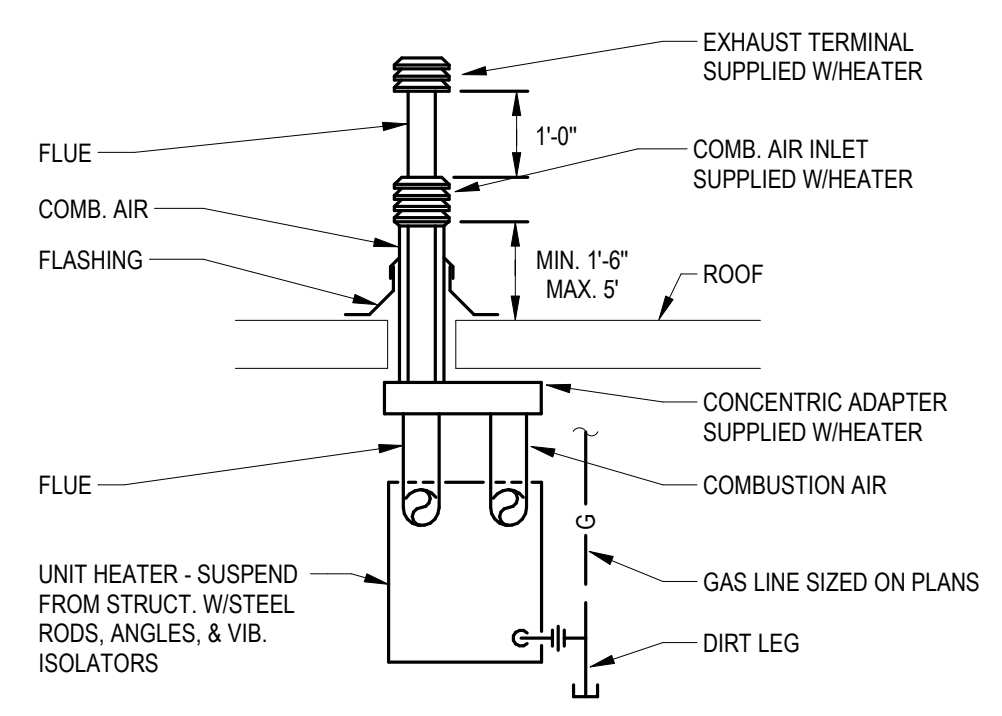
1. VERIFY METER SIZE, QUANTITY, & INSTALLATION REQUIREMENTS WITH UTILITY. PROVIDE & INSTALL REMOTE METERING EQUIPMENT WHEN REQUIRED. MAINTAIN UPSTREAM AND DOWNSTREAM PIPE DIAMETERS AS REQUIRED BY METER MANUFACTURER.
2. STRAINER MAY BE SUPPLIED INTEGRAL TO BACKFLOW PREVENTER ASSEMBLY.
3. INSTALL THE BACKFLOW PREVENTER ASSEMBLY AT A MINIMUM DISTANCE FROM THE FLOOR OF 12"
4. PROVIDE 4" TEST TEE WITH GATE VALVE. PIPE TO AN APPROVED LOCATION ON THE OUTSIDE WALL OF THE BUILDING WITH POTABLE METALLIC PIPE FOR DES MOINES WATER WORKS METER TESTING REQUIREMENT.

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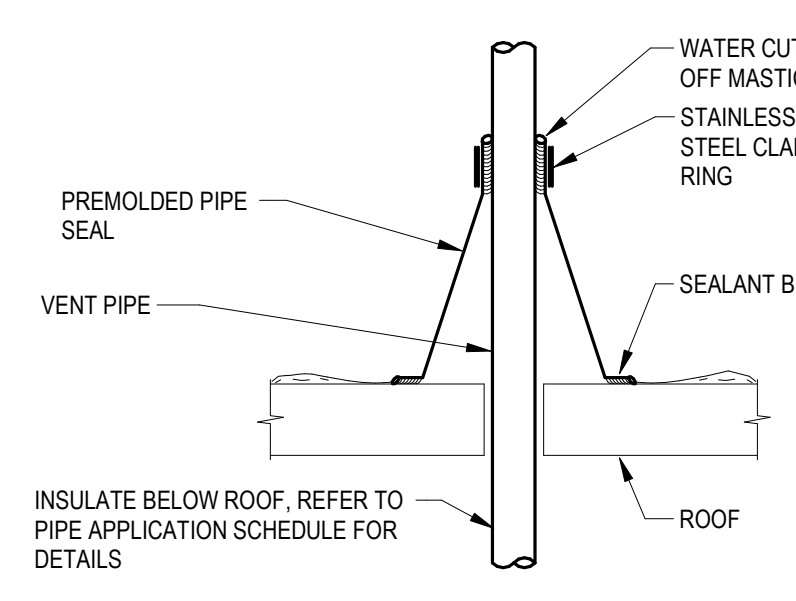
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6 GAS CONNECTION DETAIL
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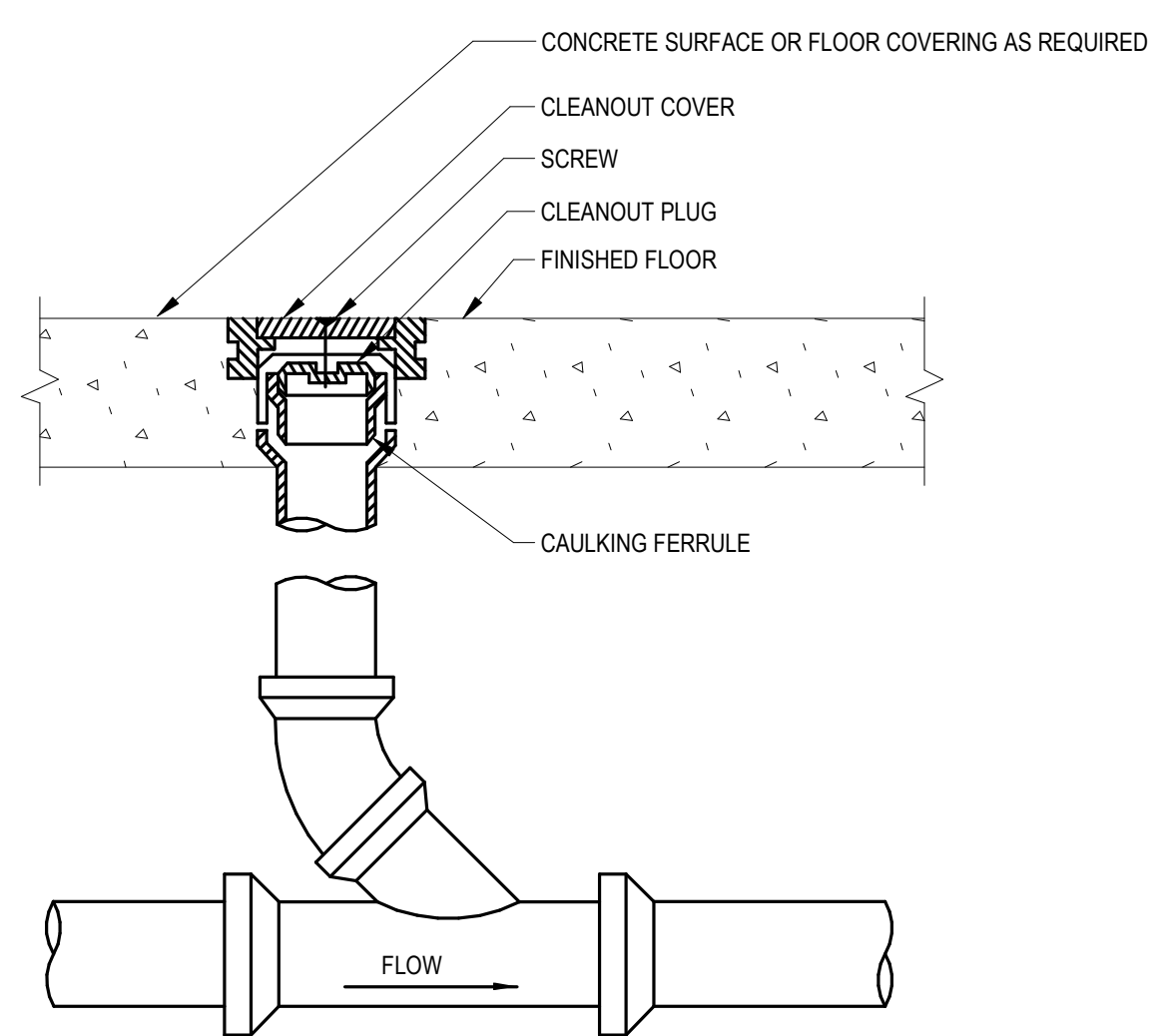
5 GAS FIRED UNIT HEATER
N.T.S.



4 VENT THROUGH ROOF
N.T.S.

GENERAL NOTES:

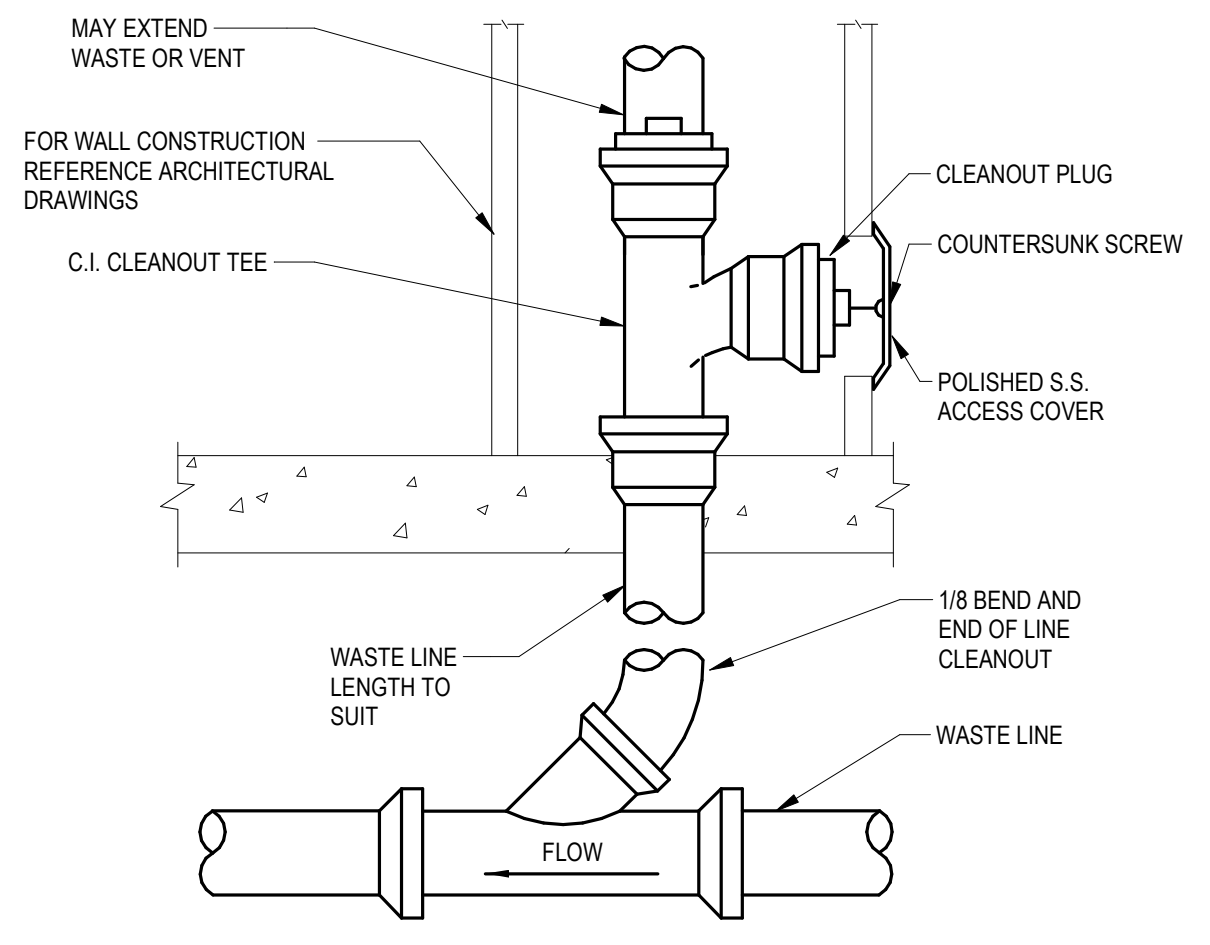
1. PIPE SEAL SHALL BE COMPATIBLE WITH ROOFING SYSTEM.
2. THE MINIMUM PIPE SIZE FOR ALL ROOF PENETRATIONS SHALL BE 4"
3. ALL VENTS SHALL BE A MINIMUM OF 10' (GENERAL) 25' (HEALTHCARE) FROM ALL OUTSIDE AIR INTAKES. FIELD COORDINATE WITH ALL TRADES PRIOR TO ROUGH IN.



8 FLOOR CLEANOUT
N.T.S.

GENERAL NOTES:

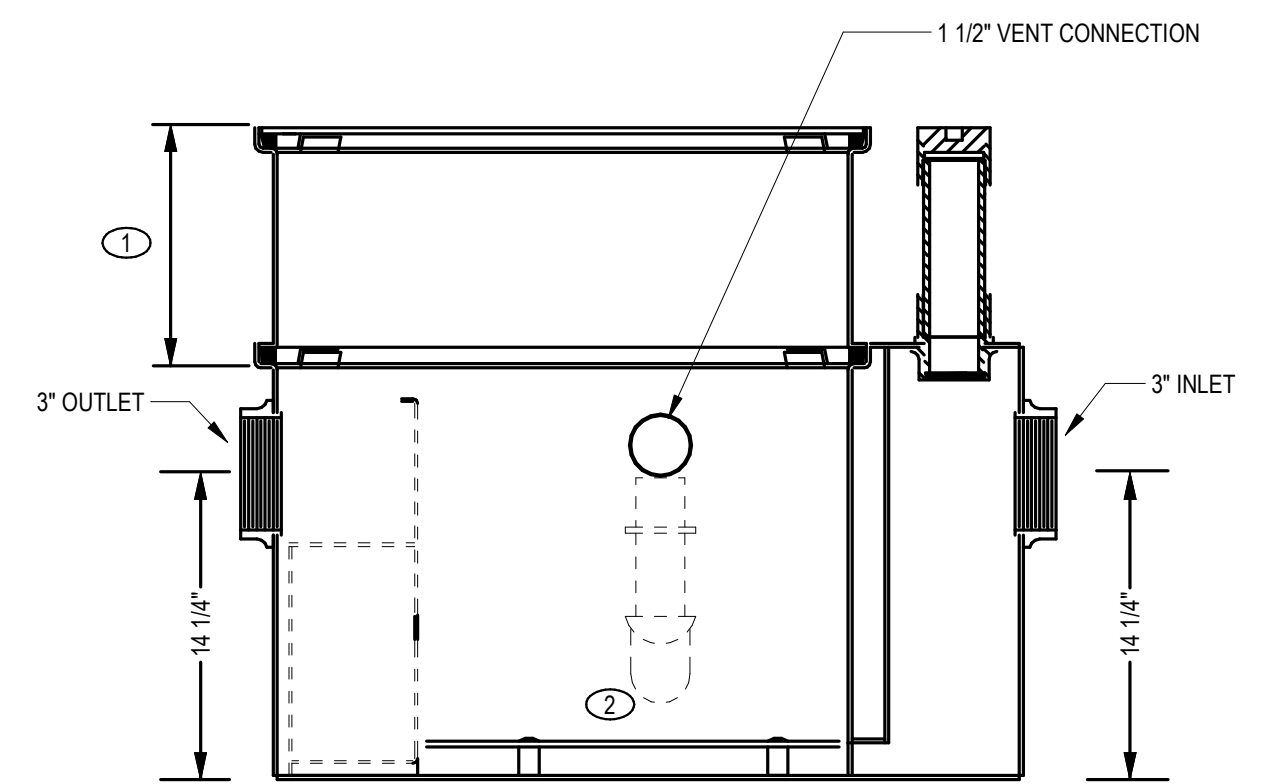
1. REFER TO PIPING APPLICATION SCHEDULE AND SPECIFICATIONS FOR ALLOWED JOINT TYPES.
2. INSTALL FLOOR CLEANOUTS IN ALL OF THE FOLLOWING LOCATIONS:
 - A. ALL LOCATIONS SHOWN ON THE FLOOR PLANS
 - B. IN ALL HORIZONTAL BRANCHES THAT ARE GREATER THAN 5'-0" IN LENGTH
 - C. EVERY 100' OF DEVELOPED PIPING LENGTH
 - D. EACH AGGREGATE HORIZONTAL CHANGE IN DIRECTION EXCEEDING 135°.



9 WALL CLEANOUT
N.T.S.

GENERAL NOTES:

1. REFER TO PIPING APPLICATION SCHEDULE AND SPECIFICATIONS FOR ALLOWED JOINT TYPES.
2. INSTALL WALL CLEANOUTS IN ALL LOCATIONS SHOWN ON THE FLOOR PLANS.
3. INSTALL WALL CLEANOUTS IN DRAIN LINES AND RISERS SERVING ALL OF THE FOLLOWING PLUMBING FIXTURES:
 - A. URINALS
 - B. SINKS
4. COORDINATE ALL WALL CLEANOUT LOCATIONS AND ELEVATIONS WITH ARCHITECTURAL PLANS AND ELEVATIONS PRIOR TO ROUGH IN.



GENERAL NOTES:

1. INSTALL PER MANUFACTURERS REQUIREMENTS.

KEYED NOTES:

1. CONTRACTOR TO CONFIRM EXTENSION DEPTH FOR RECESSED INSTALLATIONS AND PLANNED PIPING INVERT ELEVATIONS.
2. CONTRACTOR TO PLUG OIL DRAW OFF CONNECTION WHERE THE ADJUSTABLE DRAW OFF PIPING IS NOT USED.

7 SAND-OIL INTERCEPTOR
N.T.S.



COIL SCHEDULE - ELECTRIC DUCT COIL																						
MARK	MANUFACTURER	MODEL	SERVICE	ROOM NAME	COIL CONFIGURATION STYLE (NOTE 1)	AIRFLOW (CFM)	COIL DIMENSIONS (IN.)			COIL PERFORMANCE										DISCONNECT BY TYPE	NOTES	
							W	X	H	EAT (°F)	KW	COIL LAT (°F)	VOLT	PH	FLA	MCA	MOCP	FLA	MCA			MOCP
							EDC-1	STELPRO	MJAA	OFFICE 101	FLANGED	70	6	X	6	-20	1.5	48	240			1

- NOTES:
 1. COIL STYLE TO BE FLANGED

MOTOR OPERATED DAMPER SCHEDULE																					
MARK	MANUFACTURER	MODEL	SERVICE	EQUIP	AIR STREAM	DAMPER MATERIAL	AREA	SIZE (IN.)		AIRFLOW (CFM)		MAX AIR PRESSURE DROP (IN. W.C.)	MAX FACE VELOCITY (FPM)	OPPOSED OR PARALLEL BLADES	HORIZONTAL OR VERTICAL BLADES	INSULATED	ACTUATOR			NOTES	
								W	H	MAX.	MIN.						TYPE	NORMALLY OPEN OR CLOSED	VOLT		PH
								MOD-1	GREENHECK	VCD	OAL-1						OUTSIDE AIR	GALV STEEL	4		24

NOTES:

UNIT HEATER SCHEDULE - GAS FIRED															
MARK	MANUFACTURER	MODEL	SERVICE	NOMINAL CFM	HEATING			HP	VOLT	PH	ELECTRICAL			CONTROL TYPE	NOTES
					INPUT (MBH)	OUTPUT (MBH)	GAS PRESS. (IN. W.C.)				DISCONNECT BY	STARTER BY			
					UH-1	MODINE	PTP				GARAGE 100	2,870	200		

- NOTES:
 1. CONTROL TYPES:
 1. UNIT MOUNTED THERMOSTAT (EXTERNAL KNOB ADJUSTMENT. NO TOOLS REQUIRED)

ENERGY RECOVERY VENTILATOR SCHEDULE																						
MARK	MANUFACTURER	MODEL	SERVICE	AIRFLOW		DUCT CONNECTIONS		MAX. BLOCK PRESSURE DROP (IN. W.C.)	MIN. THERMAL EFFECTIVENESS		FAN		ELECTRICAL (NOTE 2)						NOTES			
				CFM	CFM	SUPPLY	EXHAUST		SUPPLY	EXHAUST	COOLING	HEATING	BHP	MHP	VOLT	PH	FLA	MCA		MOCP	DISCONNECT BY	CONTROL BY
				ERV-1	BROAN	BLP	GENERAL		70	70	6	6	0.4	0.4	74%	82%	1/25	1/20		120	1	2.4

NOTES:

RADIANT TUBE HEATER SCHEDULE															
MARK	MANUFACTURER	MODEL	SERVICE	HEATING - GAS			BTU/LF	MOUNTING ANGLE	ELECTRICAL					NOTES	
				PRESSURE (IN. W.C.)	INPUT (MBH)	ELEMENT LENGTH (FT.)			DISCONNECT BY	CONTROLLER BY					
				IR-1	ROBERTS GORDON	BH			GARAGE 100	7-14"	60	20	3000		0°
IR-2	ROBERTS GORDON	BH	GARAGE 100	7-14"	200	40	5000	0°	3	120	1	EC	NON-FUSED	MFR	

- NOTES:
 1.

CABINET UNIT HEATER SCHEDULE - ELECTRIC																						
MARK	MANUFACTURER	MODEL	SERVICE	CONFIGURATION			NOMINAL AIRFLOW (CFM)	ELECTRIC HEATING COIL		CONTROLS TYPE	CABINET DIMENSIONS			ELECTRICAL						NOTES		
				CABINET	MOUNTING	DISCHARGE		NUMBER OF STAGES	KW		HEIGHT (IN.)	WIDTH (IN.)	DEPTH (IN.)	HP	VOLT	PH	FLA	MCA	MOCP		DISCONNECT BY	
				EUH-1	INDEECO	WAI		VESTIBULE	VERTICAL		RECESSED	FRONT	100	1	1.5	1	19-5/16"	15-3/4"	5"		FHP	120

- NOTES:
 1. VERIFY FINAL COLOR SELECTION WITH ARCHITECT.
 CONFIGURATION NOTES:
 CABINET: HORIZONTAL OR VERTICAL
 MOUNTING: CONCEALED / RECESSED / SEMI-RECESSED / SURFACE
 DISCHARGE: BOTTOM / TOP / DUCTED / FRONT
 CONTROL TYPES:
 1. UNIT MOUNTED THERMOSTAT
 2. WALL MOUNTED THERMOSTAT - STAND ALONE
 3. WALL MOUNTED THERMOSTAT - DDC

CEILING FAN SCHEDULE																		
MARK	MANUFACTURER	MODEL	SERVICE	DIAMETER (FT)	# OF AIRFOILS	MAX FAN RPM	DRIVE	ELECTRICAL										NOTES
								HP	VOLT	PH	FLA	MCA	MOCP	DISCONNECT BY				
								CF-1	MINKAIRE	XTREME	GARAGE 100	7	8	75	DIRECT	FHP	120	

- NOTES:
 1. PROVIDE FAN WITH SPEED CONTROLLER. INSTALL CONTROLLER NEXT TO FAN DISCONNECTS.
 2. COORDINATE MOUNTING HEIGHT WITH OTHER HANGING ITEMS AND MAINTAIN MANUFACTURER'S REQUIRED CLEARANCES.
 3. COORDINATE COLOR WITH ARCHITECT.

AIR CONDITIONER UNIT SCHEDULE																							
MARK	MANUFACTURER	AIR CONDITIONER MODEL	SERVICE	FAN			MIN. OUTPUT (BTUH)	REFRIGERANT	EFFICIENCY	HEATING	HEATING COIL	ELECTRICAL						NOTES					
				AIRFLOW (CFM) (HIGH SPEED)	EXT. S.P. (IN. W.C.)	HP						TYPE	EER	MIN. OUTPUT (BTUH)	KW	VOLT	PH		FLA	MCA	MOCP	DISCONNECT BY	CONTROLLER BY
				AC-1	WHIRLPOOL	WHAT						OFFICE 101	250	0.5	FHP	8,000	R32		10.1	5,000	1.5	115	1

- NOTES:
 1. WALL THERMOSTAT BY MANUFACTURER
 2. WALL SLEEVE FOR INSTALLATION IN EXTERIOR WALL TO BE FURNISHED BY M.C.
 3. CONDENSATE DRAIN TO BE ROUTED TO GRADE THROUGH EXTERIOR WALL

GRILLES, REGISTERS, & DIFFUSERS SCHEDULE											
MARK	MANUFACTURER	MODEL	STYLE	BORDER (NOTE 1)	INLET SIZE (INCH) (NOTE 2)	FACE SIZE (INCH)	DAMPER NEEDED	MATERIAL	COLOR	NOTES	
											CD-1
EG-1	TITUS	350FL	PANEL FACE	LAY-IN	SEE DWG.	6X6	NO	ALUMINUM	WHITE		

- NOTES:
 1. CONTRACTOR SHALL DETERMINE PROPER MARGIN STYLE TO MATCH CEILING TYPE.
 2. BRANCH DUCT TO DIFFUSERS SHALL BE AT THE SAME SIZE AS THE DIFFUSER NECK, UNLESS SHOWN OTHERWISE.

PIPING APPLICATION SCHEDULE						
SYSTEM (NOTE 1)	LOCATION	DESIGN WORKING PRESSURE (PSI)	MATERIAL	JOINTS	USAGE SIZE RANGE	NOTES
NATURAL GAS	ABOVE GRADE 5 PSI PRESSURE OR LESS	LP	SCH 40 BLACK STEEL	THREADED OR WELDED	ALL	2

- NOTES:
 1. REFER TO EACH PIPING SPECIFICATION FOR SPECIFIC PIPING REQUIREMENTS.
 2. GAS PIPING IS PROHIBITED FROM BEING INSTALLED IN SOLID PARTITIONS OR WALLS UNLESS IN A CHASE OR CASING (PIPE SLEEVE).
 3. PAINT EXPOSED & EXTERIOR INSULATION WITH TWO COATS EXTERIOR GRADE LATEX.

LOUVER SCHEDULE											
MARK	MANUFACTURER	MODEL	SERVICE	AIRFLOW (CFM)	SIZE (INCHES)			FREE AREA VEL. (FPM)	MAX S.P. (IN. W.C.)	FINISH (NOTE 1)	NOTES
					W	X	H				
OAL-1	GREENHECK	ESD	GARAGE 100	900	24	X	24	1.4	679	0.06	BAKED ENAMEL

- NOTES:
 1. COLOR SELECTION BY ARCHITECT.

DUCTWORK APPLICATION SCHEDULE														
AIR HANDLING SYSTEM	EQUIPMENT SERVICE	AIRSTREAM	DUCTWORK LOCATION (ALL DUCT CONCEALED UNLESS NOTED OTHERWISE)	SYSTEM TYPE (CONSTANT VOLUME OR VAV OR BOTH)	ACTUAL PRESSURE RATING (IN W.C.) (NOTES 4, 5, & 6)		DUCTWORK MATERIAL	SINGLE OR DOUBLE WALL	DUCT SHAPE ROUND / RECT / FLAT OVAL	INSULATION APPLICATION (NOTE 1)				NOTES
					SEAL CLASS	ERV-1				MINIMUM R-VALUE (NOTE 2)	THICKNESS (IN.) (NOTE 3)	TYPE	LINER, WRAP OR BOARD	
					ENERGY RECOVERY VENTILATOR	ERV-1				OUTSIDE AIR	OUTSIDE AIR HOOD TO ERV	CONSTANT VOLUME	C	
ENERGY RECOVERY VENTILATOR	ERV-1	SUPPLY AIR	FAN TO AIR OUTLET	CONSTANT VOLUME	C	C	GALVANIZED SHEET METAL	SINGLE	ROUND	R-6	2.2"	A	WRAP	
ENERGY RECOVERY VENTILATOR	ERV-1	EXHAUST AIR	ERV TO EXHAUST AIR HOOD	CONSTANT VOLUME	C	C	GALVANIZED SHEET METAL	SINGLE	ROUND	R-6	2.2"	A	WRAP	
ENERGY RECOVERY VENTILATOR	ERV-1	EXHAUST AIR	AIR INLET TO ERV	CONSTANT VOLUME	C	C	GALVANIZED SHEET METAL	SINGLE	ROUND	R-6	2.2"	A	WRAP	
GAS-FIRED APPLIANCE INTAKES AND FLUES	UH-1	COMBUSTION AIR	INSIDE THE BUILDING; INLET TO COMBUSTION AIR	CONSTANT VOLUME	N/A	N/A	SCH 40 CPVC	-	ROUND	R-6	2.2"	A	WRAP	
GAS-FIRED APPLIANCE INTAKES AND FLUES	UH-1	FLUE	INSIDE THE BUILDING; COMBUSTION AIR TO OUTLET	CONSTANT VOLUME	N/A	N/A	SCH 40 CPVC	-	ROUND	R-4	1-1/2"	A	WRAP	
DUCTWORK ACCESSORIES	GENERAL	GENERAL	-	CONSTANT VOLUME	N/A	N/A	-	-	ROUND	R-6	2.2"	A	WRAP	

- NOTES:
 1. DUCT DIMENSIONS SHOWN ON PLAN ARE CLEAR INSIDE DIMENSIONS AND DO NOT INCLUDE INSULATION.
 2. R-VALUE LISTED IN SCHEDULE IS THE MINIMUM ALLOWABLE INSTALLED R-VALUE.
 3. INSULATION THICKNESS LISTED IS THE MINIMUM ALLOWABLE INSULATION THICKNESS. CONTRACTOR TO VERIFY REQUIRED INSULATION THICKNESS BASED ON INSULATION DENSITY USED.
 4. DUCT SEAL CLASS TO BE BASED ON PRESSURE CLASS AS NOTED BELOW:
 CLASS A: -10" W.C. THRU -4" W.C.
 CLASS B: -3" W.C.
 CLASS C: -2" W.C. THRU +2" W.C.
 CLASS B: +3" W.C.
 CLASS A: +4" W.C. THRU +10" W.C.
 5. ACTUAL DUCT CONSTRUCTION SHALL EXCEED THE ACTUAL PRESSURE RATING LISTED AND FALL INTO ONE OF THE STANDARD DUCT PRESSURE CLASS RATINGS AS FOLLOWS:
 0.5", 1", 2", 3", 4", 6", 10" (POSITIVE OR NEGATIVE)

- INSULATION TYPES:
 TYPE A: FLEXIBLE FIBERGLASS - OUTSIDE WRAP
 TYPE B: SEMI-RIGID FIBERGLASS BOARD (EXTERIOR OF DUCT)
 TYPE C: FLEXIBLE FIBERGLASS LINER
 TYPE D: PREFORMED RIGID FIBERGLASS ACOUSTICAL LINER
 TYPE E: FLEXIBLE MINERAL FIBER DUCT WRAP
 TYPE F: FLEXIBLE FIBERGLASS SPIRAL DUCT LINER

FAN SCHEDULE																										
MARK	MANUFACTURER	MODEL	SERVICE	TYPE	AIRFLOW (CFM)	S.P. (IN. W.C.)	MAX FAN RPM	DRIVE	WHEEL DIA. (INCHES)	MAX AMCA SONES	FAN CONSTRUCTION				ELECTRICAL (FAN)				DAMPER			NOTES				
											HOUSING (STEEL OR ALUM)	WHEEL (STEEL OR ALUM)	FAN CLASS	COATINGS	BHP	MHP	VOLT	PH	DISCONNECT BY	STARTER BY	TYPE (MOTORIZED OR GRAVITY)		VOLT	PH	CONTROL TYPE	
											EF-1	GREENHECK	SE	GARAGE 100	SIDEWALL EXHAUST FAN	900	0.5	1725	DIRECT	14.0	10.8		STEEL	STEEL	CLASS I	NO

- NOTES:
 1. MOTORIZED BACKDRAFT DAMPER WIRED TO OPEN WHEN FAN OPERATES. FAN TO HAVE A SINGLE POINT POWER CONNECTION FOR FAN AND DAMPER FOR ON / OFF FANS.

- CONTROL TYPE:
 TYPE 1. WALL MOUNTED SWITCH



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LAVATORIES AND SINK SCHEDULE													
MARK	MANUFACTURER (NOTE 1)		DESCRIPTION				FIXTURE DIMENSIONS (INCHES)					AREA SERVED	NOTES
	FIXTURE	TRIM	FIXTURE	TRIM	ACCESSORIES	OVERALL		INSIDE BOWL					
						SIDE TO SIDE	FRONT TO BACK	SIDE TO SIDE	FRONT TO BACK	DEPTH			
L-1	ZURN Z-5340 SERIES	DELTA 22C SERIES	WALL MOUNTED, WHITE VITREOUS CHINA, 4" CENTER FAUCET HOLES. HOLES FOR CONCEALED ARM CARRIER. WALL SUPPORTED CONCEALED ARM CARRIER WITH PLATE SET SECURELY WITHIN WALL. PROVIDE ALL REQUIRED ACCESSORIES FOR INSTALLATION.	SINGLE HANDLE MIXING FAUCET, DOUBLE-HOLE WITH DECK PLATE, CONVENTIONAL SPOUT WITH LAMINAR FLOW OUTLET, WASHERLESS PUSH/PULL LEVER HANDLE WITH SUPPLIES 4" ON CENTER. CHROME-PLATED TRIM. MAXIMUM FLOW TO BE 0.5 GPM. PROVIDE RESTRICTIVE DEVICE AND ESCUTCHEON PLATE AS REQUIRED.	QUARTER-TURN 3/8" CHROME PLATED HEAVY BRASS ANGLE SUPPLIES AND LOOSE KEY STOPS WITH CHROME PLATED SOFT COPPER RISERS OR FLEXIBLE BRAIDED STAINLESS STEEL RISERS AND CHROME ESCUTCHEONS. PERFORATED DRAIN GRATE, CHROME-PLATED P-TRAP, TAILPIECE AND ESCUTCHEON.	20	18 1/4	16 1/2	10 1/4	6 3/8	RESTROOM		
SK-1	JUST A18664-J	DELTA 28C6 SERIES	STAINLESS STEEL WALL HUNG SINK, SINGLE BOWL WITH INTEGRATED BACKPLASH, 2 FAUCET HOLES ON 8" CENTERS, 1/4 GAUGE TYPE 304, SELF-RIMMING, COMPLETELY UNDERCOATED, 3-1/2" DIAMETER DRAIN OUTLET.	TWO HANDLE WALLMOUNT MIXING FAUCET, 2-HOLE ON 8" CENTERS WITH 4" HOODED WRISTBLADE HANDLES, INTEGRAL CHECK STOPS. CHROME PLATED, ALL BRASS CONSTRUCTION, 8" SWING SPOUT WITH 8.25" REACH, LAMINAR FLOW OUTLET. MAXIMUM FLOW TO BE 1.5 GPM. PROVIDE RESTRICTIVE DEVICE AND ESCUTCHEON PLATE AS REQUIRED.	QUARTER-TURN 3/8" CHROME PLATED HEAVY BRASS ANGLE SUPPLIES AND LOOSE KEY STOPS WITH CHROME PLATED SOFT COPPER RISERS OR FLEXIBLE BRAIDED STAINLESS STEEL RISERS AND CHROME ESCUTCHEONS. PERFORATED DRAIN GRATE, CHROME-PLATED P-TRAP, TAILPIECE AND ESCUTCHEON.	31	19 1/2	28	16	10 1/2	GARAGE		

- NOTES:
1. SEE SPECIFICATIONS FOR LIST OF ACCEPTABLE MANUFACTURERS AND INSTALLATION REQUIREMENTS.

PIPING APPLICATION SCHEDULE (PLUMBING)

SYSTEM (NOTE 1)	LOCATION	DESIGN WORKING PRESSURE (PSI)	MATERIAL	JOINTS	USAGE SIZE RANGE	INSULATION APPLICATION		NOTES
						THICKNESS (IN.)	TYPE (NOTES 2, 3)	
DOMESTIC COLD WATER	ABOVE GRADE	125	TYPE L COPPER	SOLDER OR MECHANICAL PRESS CONNECTION	1-1/4" OR LESS	1/2"	ELASTOMERIC FOAM OR FIBERGLASS	-
			PEX	PEX EXPANSION	1-1/2" & GREATER	1"	ELASTOMERIC FOAM OR FIBERGLASS	-
DOMESTIC HOT WATER SUPPLY	ABOVE GRADE	125	TYPE L COPPER	SOLDER OR MECHANICAL PRESS CONNECTION	1-1/4" OR LESS	1"	ELASTOMERIC FOAM OR FIBERGLASS	-
			PEX	PEX EXPANSION	1-1/2" & GREATER	1"	ELASTOMERIC FOAM OR FIBERGLASS	-
SANITARY/VENT	BELOW GRADE	N/A	CAST IRON AND/OR SCH 40 PVC	BELL & SPIGOT, NO HUB, OR SOLVENT	ALL	-	-	-
	ABOVE GRADE (NON PLENUM)	N/A	CAST IRON, DWV COPPER, AND/OR SCH 40 PVC	BELL & SPIGOT, NO HUB, SOLDER, OR SOLVENT	ALL	1/2"	FIBERGLASS	4

- NOTES:
1. REFER TO EACH PIPING SPECIFICATION FOR SPECIFIC PIPING REQUIREMENTS.
2. SEE SPECIFICATION SECTION 230719 FOR COMPLETE INSULATION AND JACKETING REQUIREMENTS. ALL INSULATION SHALL BE PLENUM RATED MEETING ASTM E84 WHERE INSTALLED IN A RETURN AIR PLENUM.
3. INSTALL RIGID CALCIUM SILICATE INSERTS AT ALL PIPING HANGERS.
4. INSULATE ALL PLUMBING VENT PIPE WITHIN 10' OF ROOF PENETRATION.

WATER HEATER SCHEDULE (DOMESTIC)

MARK	MANUFACTURER	MODEL	FUEL GAS OR ELECTRIC	INPUT (BTUH OR KW)	EFFECTIVE GPM	DESIGN GPM	HW SETPOINT	TEMP RISE (°F) (NOTE 1)	WORKING PRESSURE	STORAGE TANK SIZE (GAL)	ASME RATED	ELECTRICAL				NOTES
												AMPS	VOLT	PH	DISCONNECT BY	
WH-1	CHRONOMITE	M-30L	ELEC	7.2	0.35	1.0	110	49	150 PSI	-	NO	30	240	1	MFR	1, 2

- NOTES:
1. TEMPERATURE RISE BASED ON 1.0 GPM OF FLOW.
2. PROVIDE WITH 16X16 RECESSED WALL SLEEVE, Z-S1816D, TO CONCEAL HEATER & DISCONNECT.

PLUMBING CONNECTION SCHEDULE

FIXTURE	MINIMUM BRANCH SIZING				FIXTURE CONNECTION SIZE			NOTES
	CW	HW	SAN	VENT	CW	HW	SAN	
FLOOR DRAIN/FLOOR SINK	-	-	4"	2"	-	-	4"	
HOSE BIBB	3/4"	-	-	-	1/2"	-	-	
HAND SINK	1/2"	1/2"	1 1/2"	1 1/4"	3/8"	3/8"	1 1/2"	1, 2
LAVATORY	1/2"	1/2"	1 1/4"	1 1/4"	3/8"	3/8"	1 1/4"	1, 2
SERVICE SINK	3/4"	3/4"	3"	1 1/2"	1/2"	1/2"	3"	1
WATER CLOSET	1/2"	-	4"	2"	3/8"	-	4"	2

- NOTES:
1. ALL BELOW GRADE SANITARY AND VENT PIPING SHALL BE A MINIMUM OF 2".
2. ALL SUPPLY PIPING SERVING MORE THAN A SINGLE FIXTURE SHALL HAVE A MINIMUM PIPE SIZE OF 3/4".

PLUMBING MATERIAL LIST

FIXTURE	ADA (NOTE 1)	MANUFACTURER (NOTE 2)	DESCRIPTION	AREA SERVED	NOTES
AG-1	-	WATTS 909AG SERIES	FIXTURE: IN-LINE AIR GAP FITTING. PRESSURE FIT INLET FOR USE WITH STANDPIPE. FEMALE THREAD TO STANDPIPE.	GARAGE	
BEP-1	-	WATTS LF099	FIXTURE: REDUCED PRESSURE BACKFLOW PREVENTER, SPRING LOADED CHECKS WITH A DIFFERENTIAL PRESSURE RELIEF VALVE BETWEEN THE CHECK VALVES. BRONZE WITH BRONZE, PLASTIC OR STAINLESS STEEL INTERNAL PARTS AND STAINLESS STEEL SPRINGS. THE WETTED SURFACE OF THE BACKFLOW PREVENTER SHALL CONTAIN LESS THAN 0.25% LEAD BY WEIGHT. UNITS SHALL INCLUDE FOUR TEST COCKS WITH SHUT-OFF VALVES AND SHALL BE BACKFLOW TESTED AT THE FACTORY, RATED FOR 175 PSI AT 33 DEGREES F. TO 140 DEGREES F. MAXIMUM PRESSURE DROP 15 PSI AT 10 FPS REGARDLESS OF SIZE. FLOW PRESSURE DROP CURVES SHALL BE SUBMITTED. ALL PARTS TO BE SERVICEABLE WITHOUT REMOVING UNIT FROM LINE. WITH SHUTOFF BALL VALVES ON BOTH SIDES OF UNIT AND AIR GAP DRAIN FITTING. PROVIDE AND INSTALL BRONZE OR EPOXY COATED STRAINER UPSTREAM FROM UNIT. APPROVED BY: USC FCCC & HR, AWWA C511-92, ASSE 1013, IAPMO AND SBCCI LISTED. UNIT SHALL BE SAME SIZE AS PIPE IF NO SIZE IS SHOWN ON THE DRAWING.	GARAGE	ACCESSORIES: PROVIDE WITH AIR GAP DRAIN FITTING EQUAL TO AG-X.
FCO-1	-	ZURN Z-1400	FIXTURE: FLOOR CLEANOUT - CAST IRON THREADED ADJUSTABLE HOUSING, FLANGED FERRULE WITH PLUG AND SECURED STAINLESS STEEL TOP. TOP STYLE SHALL MATCH FLOOR FINISH AS FOLLOWS: UNFINISHED FLOOR - ROUND SOLID SCORIATED TOP, TILE - ROUND RECESSED TOP	GARAGE	
FD-1	-	ZURN Z415 SERIES	FIXTURE: FLOOR DRAIN - 6" DIAMETER NICKEL BRONZE ADJUSTABLE TOP, 4" BOTTOM OUTLET, CAST IRON BODY WITH 1/2" TRAP PRIMER CONNECTION, FLASHING COLLAR, DEEP SEAL TRAP.	GARAGE	
HB-1	-	WOODFORD MODEL 21	FIXTURE: INDOOR WALL HYDRANT, BRASS CONSTRUCTION, VACUUM BREAKER, 3/4" COLD MALE HOSE CONNECTION, STANDARD FINISH, METAL WHEEL HANDLE.	GARAGE	
SOL-1	-	ZURN Z1186 SERIES	FIXTURE: RECESSED SAND OIL INTERCEPTOR, STEEL BODY WITH ACID RESISTANT COATING ON THE INSIDE, GASKETED LID, 3" INLET AND OUTLET CONNECTIONS, 1-1/2" VENT CONNECTION AND 2" ADJUSTABLE OIL DRAW-OFF CONNECTIONS. BASIN TO HAVE 30 GALLON WATER CAPACITY AND RATED FLOW RATE OF 50 GPM. INTEGRAL, REMOVABLE SEDIMENT STRAINER BASKET AND HORIZONTAL SECONDARY DIFFUSING BAFFLE. CLEANOUT PLUG IN TOP OF HOUSING AT OUTLET PIPING CONNECTION. ACCESSORIES: HEAVY DUTY, GASKETED TRAFFIC COVER RATED FOR 10,000 LB LIVE LOAD. HOUSING AND CLEANOUT EXTENSION SECTIONS FOR RECESSED INSTALLATION. STEEL BODY WITH ACID RESISTANT COATING ON THE INSIDE. EXTENSION SHALL BE 3" FOR HEAVY DUTY LID AND INLET/OUTLET INVERT ELEVATIONS SHOWN ON PLAN. CONTRACTOR TO VERIFY FINAL EXTENSION DIMENSION BASED ON PLANNED INSTALLATION.	GARAGE	
WC-1	WC-1A	ZURN Z-5555 SERIES (NON-ADA) ZURN Z-5551 SERIES (ADA)	FIXTURE: TANK TYPE, ACCESSIBLE WATER CLOSET - FLOOR MOUNTED, BOTTOM OUTLET, WHITE VITREOUS CHINA, SIPHON JET, 1.6 GALLONS PER FLUSH, ELONGATED BOWL. ACCESSORIES: WHITE, EXTRA HEAVY, OPEN FRONT, INJECTION MOLDED, SOLID PLASTIC SELF-SUSTAINING SEAT WITH CHECK HINGE AND STAINLESS STEEL OR PLATED STEEL POSTS AND NUTS. QUARTER-TURN CHROME PLATED HEAVY BRASS ANGLE SUPPLY (LOOSE KEY) STOP WITH CHROME PLATED SOFT COPPER RISER OR FLEXIBLE BRAIDED STAINLESS STEEL RISER.	RESTROOM	
WCO-1	-	ZURN Z-1446	FIXTURE: WALL CLEANOUTS SHALL HAVE CAST IRON ACCESS BODY, GAS AND WATERTIGHT THREADED PLUG, ROUND STAINLESS STEEL ACCESS COVER AND EXTENDED MACHINE SCREW.	GARAGE	

- NOTES:
1. FIXTURE TO BE ADA COMPLIANT AND INSTALLED AT ADA HEIGHT. COORDINATE REQUIRED LOCATIONS WITH ARCHITECTURAL DRAWINGS.
2. SEE SPECIFICATIONS FOR LIST OF ACCEPTABLE MANUFACTURERS AND INSTALLATION REQUIREMENTS.



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PLUMBING SCHEDULES

M602

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ELECTRICAL ABBREVIATIONS		
1P	1 POLE (2P, 3P, 4P, ETC.)	LTNG LIGHTNING
A	6" ABOVE COUNTER OR BACKSPASH TO CENTERLINE OF DEVICE	LV LOW VOLTAGE
A, AMP	AMPERE	M INSTALL DEVICE IN MILLWORK
AC	ABOVE COUNTER, AIR CONDITIONING UNIT	MAX MAXIMUM
ACLG	ABOVE CEILING	MAG S MAGNETIC STARTER
AF	AMP FRAME	MPC MOMENTARY CONTACT
AFB	ABOVE FINISHED FLOOR	MCB MAIN CIRCUIT BREAKER
AFG	ABOVE FINISHED GRADE	MCC MOTOR CONTROL CENTER
AFCI	ARC FAULT CIRCUIT INTERRUPTER	MDC MAIN DISTRIBUTION CENTER
AHU	AIR HANDLING UNIT	MDP MAIN DISTRIBUTION PANEL
AL	ALUMINUM	MFR MANUFACTURER
ALT	ALTERNATE	MFS MAIN FUSED DISCONNECT SWITCH
AMP	AMPERE	MH MANHOLE
AMPL	AMPLIFIER	MIC MICROPHONE
ANUN	ANNUNCIATOR	MIN MINIMUM
APPROX	APPROXIMATELY	MISC MISCELLANEOUS
AQ-STAT	AQUASTAT	MLO MAIN LUGS ONLY
ARCH	ARCHITECT, ARCHITECTURAL	MMS MANUAL MOTOR STARTER
AS	AMP SWITCH	MOA MULTI-OUTLET ASSEMBLY
AT	AMP TRIP	MSP MOTOR STARTER PANELBOARD
ATC	AUTOMATIC TEMPERATURE CONTROLS CONTRACTOR	MSBD MAIN SWITCHBOARD
ATS	AUTOMATIC TRANSFER SWITCH	N/A NOT APPLICABLE
AUTO	AUTOMATIC	NFDS NON-FUSED SAFETY DISCONNECT SWITCH
AUX	AUXILIARY	NIC NOT IN CONTRACT
AV	AUDIO VISUAL	NL NIGHT LIGHT
AWG	AMERICAN WIRE GAUGE	N.O. NORMALLY OPEN
B	BLACK DEVICE COLOR WITH BLACK UNBREAKABLE THERMOPLASTIC COVER	NPF NORMAL POWER FACTOR
		NTS NOT TO SCALE
		OC ON CENTER
		OH OVERHEAD
BAS	BUILDING AUTOMATION SYSTEM	OL OVERLOADS
BATT	BATTERY	PA PUBLIC ADDRESS
BD	BOARD	PB PULL BOX OR PUSHBUTTON
BLDG	BUILDING	PC PLUMBING CONTRACTOR
BMS	BUILDING MANAGEMENT SYSTEM	PE PNEUMATIC ELECTRIC
C	CONDUIT	PEDESTAL
CAB	CABINET	PF POWER FACTOR
CAT	CATALOG	PH PHASE
CATV	CABLE TELEVISION	PIV POST INDICATING VALVE
CB	CIRCUIT BREAKER	PNL PANEL
CCTV	CLOSED CIRCUIT TELEVISION	PP POWER POLE
CKT	CIRCUIT	PR PAIR
CLG	CEILING	PR1 PRIMARY
CM	CONSTRUCTION MANAGER	PROJ PROJECTION
COMB	COMBINATION	PRV POWER ROOF VENTILATOR
CMPR	COMPRESSOR	PT POTENTIAL TRANSFORMER
CONN	CONNECTION	PVC POLYVINYL CHLORIDE (CONDUIT)
CONST	CONSTRUCTION	PWR POWER
CONT	CONTINUATION OR CONTINUOUS	QTY QUANTITY
CONTR	CONTRACTOR	RAC RIGID ALUMINUM CONDUIT
CP	CIRCULATING PUMP	RCEPT RECEPTACLE
CRT	CATHODE-RAY TUBE	REQD REQUIRED
CT	CURRENT TRANSFORMER	RM ROOM
CTR	CENTER	RMC RIGID METALLIC CONDUIT
CJ	COPPER	RTU ROOF TOP UNIT
DEPT	DEPARTMENT	SC SURFACE CONDUIT
DET	DETAIL	SEC SECONDARY
DIA	DIAMETER	SHT SHEET
DISC	DISCONNECT	SIM SIMILAR
DIST	DISTRIBUTION	SLD SINGLE-LINE DIAGRAM
DN	DOWN	SIN SOLID NEUTRAL
DO	AUTOMATIC DOOR OPENER	SPEC SPECIFICATION
DPR	DAMPER	SPKR SPEAKER
DS	SAFETY DISCONNECT SWITCH	SP SPARE
DT	DOUBLE THROW	SPP SINGLE-POINT POWER
DWG	DRAWING	SR SURFACE RACEWAY
EC	ELECTRICAL CONTRACTOR	SS STAINLESS STEEL
ECB	ENCLOSED CIRCUIT BREAKER	SSW SELECTOR SWITCH
ELEC	ELECTRIC, ELECTRICAL	SIS STOP/START PUSHBUTTONS
ELEV	ELEVATOR	STA STATION
ELU	EMERGENCY LIGHTING UNIT	STD STANDARD
EM	EMERGENCY	SURF SURFACE MOUNTED
EMS	ENERGY MANAGEMENT SYSTEM	SW SWITCH
EMT	ELECTRICAL METALLIC TUBING	SWBD SWITCHBOARD
EP	ELECTRIC PNEUMATIC	SYM SYMMETRICAL
EPO	EMERGENCY POWER OFF	SYSTEM SYSTEM
EQUIP	EQUIPMENT	TEL TELEPHONE
EWC	ELECTRIC WATER COOLER	TERM TERMINAL
EXIST	EXISTING	T TAMPER RESISTANT
EXH	EXHAUST	TL TWIST LOCK
EXP	EXPLOSION PROOF	T-STAT THERMOSTAT
FA	FIRE ALARM	TTC TELEPHONE TERMINAL CABINET
FABP	FIRE ALARM BOOSTER POWER SUPPLY PANEL	TV TELEVISION
FACP	FIRE ALARM CONTROL PANEL	TVTC TELEVISION TERMINAL CABINET
FCU	FAN COIL UNIT	TYP TYPICAL
FIXT	FIXTURE	UC UNDER COUNTER
FLR	FLOOR	UE UNDERGROUND ELECTRICAL
FLUOR	FLUORESCENT	UG UNDERGROUND
FPC	FIRE PROTECTION CONTRACTOR	UH UNIT HEATER
FU	FUSE	UT UNDERGROUND TELEPHONE
FUDS	FUSED SAFETY DISCONNECT SWITCH	UTIL UTILITY
GA	GAUGE	UV ULTRAVIOLET
GAL	GALLON	V VOLT
GALV	GALVANIZED	VA VOLT-AMPERES
GC	GENERAL CONTRACTOR	VDT VIDEO DISPLAY TERMINAL
GEN	GENERATOR	VERT VERTICAL
GFI	GROUND FAULT CIRCUIT INTERRUPTER	VFD VARIABLE FREQUENCY DRIVE
GFP	GROUND FAULT PROTECTOR	VOL VOLUME
GND	GROUND	W WATT
GYP BD	GYP SUM BOARD	W/ WITH
HWC #	DOMESTIC WATER CIRCULATING PUMP	WG WIRE GUARD
HDA	HANDS-OFF-AUTOMATIC SWITCH	WH WATER HEATER
H	INSTALL DEVICE HORIZONTALLY	W/O WITHOUT
HH	HANDHOLE	WP WEATHERPROOF
HP	HORSEPOWER	XFMR TRANSFORMER
HPF	HIGH POWER FACTOR	XFR TRANSFER
HT	HEIGHT	#* LOCATION-SPECIFIC MOUNTING
HTG	HEATING	HEIGHT ABOVE FINISHED FLOOR TO CENTERLINE OF DEVICE
HTR	HEATER	
HV	HIGH VOLTAGE	
HVAC	HEATING, VENTILATING AND AIR CONDITIONING	
IC	INTERRUPTING CAPACITY	< ANGLE
IG	ISOLATED GROUND	@ AT
IMC	INTERMEDIATE METAL CONDUIT	▲ DELTA
INCAND	INCANDESCENT	• FEET
IR	INFRARED	- INCHES
IW	INTERLOCK WITH	# NUMBER
J-BOX	JUNCTION BOX	Ø PHASE
K.E.C.	KITCHEN EQUIPMENT CONTRACTOR	C CENTER LINE
KV	KILOVOLT	P PLATE
KVA	KILOVOLT-AMPERE	
KVAR	KILOVOLT-AMPERE REACTIVE	
KW	KILOWATT	
KWH	KILOWATT HOUR	
LT	LIGHT	
LTG	LIGHTING	

BREAKER FUNCTION SCHEDULE	
SYMBOL	DESCRIPTION
A	ARC FAULT INTERRUPTER (AFI)
AR	ARC ENERGY REDUCTION MAINTENANCE SWITCH
E	EXISTING BREAKER TO REMAIN
EM	PROVIDE IDENTIFICATION PER NEC 700.12(I)(2)(4)
EN	EXISTING BREAKER SERVING NEW CIRCUIT
G	GROUND FAULT CIRCUIT INTERRUPTER (GFCI) PROTECTION (5mA)
GF	GROUND FAULT CIRCUIT INTERRUPTER FOR EQUIPMENT (30mA)
GE	ADJUSTABLE GROUND FAULT PROTECTION FOR EQUIPMENT
HL	HANDLE LOCK TO LOCK BREAKER IN CLOSED POSITION
KF	KEY INTERLOCK (# REPRESENTS GROUPED KEYING)
LSI	LONG-TIME, SHORT-TIME, INSTANTANEOUS ADJUSTMENT
LSIG	LONG-TIME, SHORT-TIME, INSTANTANEOUS ADJUSTMENT, AND GROUND FAULT ADJUSTMENT
LSIA	LONG-TIME, SHORT-TIME, INSTANTANEOUS ADJUSTMENT, AND GROUND FAULT ALARM
N	NEW BREAKER IN EXISTING PANEL
NE	NEW BREAKER SERVING EXISTING CIRCUIT
SD	DEDICATE SERVICE DISCONNECT
ST	SHUNT TRIP (120V OPERATED UNLESS NOTED OTHERWISE)

EQUIPMENT/DEVICE HOME RUN KEY	
1.	BRANCH CIRCUIT WIRING SHALL BE #12AWG UNLESS NOTED OTHERWISE ON THE PLAN OR IN THE SCHEDULES.
2.	AS A MINIMUM, USE 10 AWG CONDUCTOR FOR 20 AMPERE, 120 VOLT BRANCH CIRCUIT HOME RUNS LONGER THAN 100 FEET AND 277 VOLT BRANCH CIRCUIT HOME RUNS LONGER THAN 200 FEET.
3.	REFER TO SPECIFICATION SECTION 260519 FOR ADDITIONAL REQUIREMENTS.



GENERAL PLAN SYMBOLS	
MARK	SCHEDULED EQUIPMENT (UNDERLINED)
MARK	NONSCHEDULED EQUIPMENT
(E) MARK	EXISTING EQUIPMENT - (E) PREFIX (HALFTONE)
(R) MARK	EXISTING RELOCATED EQUIPMENT - (R) PREFIX
#	SECTION VIEW, TOP REPRESENTS DETAIL NUMBER, BOTTOM REPRESENTS SHEET NUMBER
#	ENLARGED VIEW, TOP REPRESENTS VIEW NUMBER, BOTTOM REPRESENTS SHEET NUMBER
---	NEW WORK BY THE EC (DARK SOLID LINE)
---	NEW UNDERGROUND WORK BY THE EC (DARK DASHED LINE)
---	WORK BY OTHERS AND/OR EXISTING (LIGHT SOLID LINE)
---	DEMO WORK BY THE EC (DARK DASHED LINE)
---	MATCHLINE
X	KEYED NOTE
◇	LIGHTING CONTROL CALLOUT SYMBOL (DIAMOND)
◇	ELECTRICAL EQUIPMENT SYMBOL (OCTAGON)

GENERAL ELECTRICAL SYMBOLS	
Ⓜ	ELECTRICAL CONNECTION
EPO	EMERGENCY STOP PUSH BUTTON
DPM	DIGITAL POWER METER
PP	AUTOMATIC DOOR PUSH PAD
Panelboard	PANELBOARD
UT	UTILITY TRANSFORMER
SW	SWITCHBOARD
T	TRANSFORMER
DISC	DISCONNECT SWITCH
UPM	UTILITY POWER METER
CS	COMBINATION STARTER
EL	ELECTRICAL EQUIPMENT (DASHED LINES INDICATE CODE REQUIRED CLEARANCES)
GB	GROUND BAR
HH#	HAND HOLE

POWER SYMBOLS	
Ⓜ	DUPLX / DOUBLE DUPLX RECEPTACLE, NEMA 5-20R, EMERGENCY POWER
Ⓜ	DUPLX / DOUBLE DUPLX RECEPTACLE, NEMA 5-20R
Ⓜ _{CD} Ⓜ _{CR}	CORD REEL / CORD DROP
Ⓜ	SIMPLEX RECEPTACLE, NEMA 5-20R
Ⓜ	SPECIAL RECEPTACLE
Ⓜ	RECESSED FLOOR BOX OR POKE-THRU
Ⓜ	CEILING MOUNTED RECEPTACLE, NEMA 5-20R
Ⓜ	SURFACE MOUNT MULTI-OUTLET ASSEMBLY
H \$	HORSE POWER RATED SWITCH

FIRE ALARM SYMBOLS	
FAP	CONTROL PANEL
NEP	NOTIFICATION APPLIANCE CIRCUIT EXTENDER PANEL
FAA	REMOTE ANNUNCIATOR PANEL
PIV	POST INDICATOR VALVE AND TAMPER SWITCH
PS	AIR PRESSURE SWITCH
TS	VALVE TAMPER SWITCH
S	WATER FLOW SWITCH
SD BR	BEAM SMOKE REFLECTOR
SD #	LINEAR BEAM SMOKE DETECTOR
SD #	LINEAR BEAM SMOKE DETECTOR
SD	DUCT SMOKE DETECTOR
RI	DUCT SMOKE DETECTOR REMOTE INDICATOR STATION
H	HEAT DETECTOR ADDRESSABLE
LHD	LINEAR HEAT DETECTION CABLE
F	ADDRESSABLE FIRE ALARM MANUAL PULL STATION
SD	SMOKE DETECTOR
AV #	AUDIO/VISUAL NOTIFICATION APPLIANCE, CEILING MOUNTED
V #	VISUAL NOTIFICATION APPLIANCE, CEILING MOUNTED
S #	SPEAKER NOTIFICATION APPLIANCE, CEILING MOUNTED
SV #	SPEAKER/VISUAL NOTIFICATION APPLIANCE, CEILING MOUNTED
V #	HORN NOTIFICATION APPLIANCE, WALL MOUNTED
AV #	AUDIO/VISUAL NOTIFICATION APPLIANCE, WALL MOUNTED
V #	SPEAKER NOTIFICATION APPLIANCE, WALL MOUNTED
SV #	SPEAKER/VISUAL NOTIFICATION APPLIANCE, WALL SWITCH
V #	VISUAL NOTIFICATION APPLIANCE, WALL MOUNTED
AM	ADDRESSABLE MONITOR MODULE
AR	ADDRESSABLE RELAY MODULE
MD	MAGNETIC DOOR HOLDER
HD	HVAC ELEVATOR HOISTWAY DAMPER
SD	HVAC SMOKE DAMPER
ZAM	ZONE ADAPTER MODULES
CO	CO DETECTOR
VCC	VOICE COMMAND CENTER
CD	DUCT CO DETECTOR
B	BELL
HF	HIGH FIDELITY SPEAKER - CEILING MOUNT
VHF	HIGH FIDELITY SPEAKER - WALL MOUNT
ASD	AIR SAMPLING SMOKE DETECTOR
FSD	FIRE SMOKE DAMPER

LIGHTING SYMBOLS	
CRITICAL	CRITICAL FIXTURE (FULL SHADED)
LS	LIFE SAFETY (HALF SHADED)
RM	RECESSED MOUNTED (DIAGONAL SLASH)
SM	SURFACE MOUNTED
SP	SURFACE OR PENDANT FIXTURE (DOTS)
PM	POLE MOUNTED SITE FIXTURE
AR	RECESSED DOWNLIGHT (ARROW INDICATES WALL WASH)
EM	EMERGENCY LIGHT
SD	SINGLE / DOUBLE FACED EXIT SIGN
EM	EMERGENCY REMOTE HEAD (SINGLE/DOUBLE)
EM	COMBINATION EXIT/EMERGENCY LIGHT
WM	WALL MOUNTED FIXTURE (STEM OR STEMS)
CF	CYLINDRICAL FIXTURE (ARROW INDICATES WALL WASH)

LIGHTING CONTROL SYMBOLS	
W	WALL SWITCH
DS	CEILING MOUNT SENSOR, DUAL TECHNOLOGY
IR	CEILING MOUNT SENSOR, INFRARED TECHNOLOGY
US	CEILING MOUNT SENSOR, ULTRASONIC TECHNOLOGY
PC	PHOTOCELL

- GENERAL NOTES**
- ALL INSTALLATIONS SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES INCLUDING, BUT NOT LIMITED TO, THE NATIONAL ELECTRICAL CODE (NEC), INTERNATIONAL BUILDING CODE (IBC), AMERICANS WITH DISABILITIES ACT (ADA) ACCESSIBILITY GUIDELINES, AND THE INTERNATIONAL ENERGY CONSERVATION CODE (IECC). THE AUTHORITY HAVING JURISDICTION (AHJ) SHALL HAVE FINAL APPROVAL OF ALL INSTALLATIONS AND PRACTICES.
 - ALL MATERIALS FURNISHED SHALL BE NEW, FREE OF DEFECTS, AND LISTED BY A NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL) UNLESS NOTED OTHERWISE.
 - INSTALLATION OF EQUIPMENT SHALL COMPLY WITH CURRENT STANDARDS AND SPECIFICATIONS APPROVED BY THE AHJ. INSTALL ALL CABLES AND WIRING IN CONDUIT OR RACEWAY UNLESS NOTED OTHERWISE. DO NOT SUPPORT CABLES OR WIRING FROM CEILING DEVICES, PIPING, DUCTWORK, OR CEILING FRAMING. PROVIDE NEW WIRING FOR ALL BRANCH CIRCUITS AND FEEDERS.
 - FEEDERS SHOWN ON DRAWINGS ARE SCHEMATIC ONLY. CONDUIT RUNS SHALL NOT INCLUDE BENDS GREATER THAN 90 DEGREES. CONDUITS ABOVE GRADE SHALL BE RUN PARALLEL OR PERPENDICULAR TO BUILDING LINES AND STRUCTURE.
 - CIRCUIT WIRING FOR THE EMERGENCY SYSTEM SHALL BE INSTALLED IN SEPARATE CONDUITS OR RACEWAYS AND SHALL REMAIN COMPLETELY INDEPENDENT OF ALL OTHER WIRING AND EQUIPMENT PER NEC REQUIREMENTS.
 - ALL FEEDER AND BRANCH CIRCUITS TO PANELS, MOTORS, LIGHT FIXTURES, RECEPTACLES, AND GENERAL DISTRIBUTION EQUIPMENT SHALL INCLUDE AN EQUIPMENT GROUNDING CONDUCTOR SIZED PER THE NEC. THE CONDUIT SYSTEM SHALL NOT BE USED AS AN EQUIPMENT GROUND.
 - REFER TO MECHANICAL AND PLUMBING EQUIPMENT SCHEDULES FOR EQUIPMENT CONNECTIONS, DISCONNECT REQUIREMENTS, AND CONTROLS. THE ELECTRICAL CONTRACTOR (EC) SHALL PROVIDE AND INSTALL ALL ITEMS INDICATED AS 'BY EC' ON THE MECHANICAL AND PLUMBING SCHEDULES.
 - ELECTRICAL SCOPE OF WORK SHALL BE INSTALLED AS DIRECTED BY THE GENERAL CONTRACTOR (GC) AND THE OWNER. PROVIDE TEMPORARY AND PERMANENT CONNECTIONS AS REQUIRED TO MEET CONSTRUCTION REQUIREMENTS. COORDINATE ALL REQUIRED OUTAGES WITH THE GC AND OWNER AS OUTLINED IN THE SPECIFICATIONS.
 - ALL WIRING AND FEEDER SIZES SHOWN ARE BASED ON COPPER CONDUCTORS UNLESS NOTED OTHERWISE.
 - THE CONTRACTOR SHALL COORDINATE INSTALLATION OF ELECTRICAL SYSTEMS AND ALL EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS TO MAINTAIN NEC-REQUIRED CLEARANCES, INCLUDING WORKING CLEARANCES AT ELECTRICAL DISTRIBUTION EQUIPMENT AND INSTALLATIONS ABOVE ACCESSIBLE CEILING.
 - CONDUIT FOR POWER WIRING MAY NOT BE INSTALLED BELOW FLOOR SLABS UNLESS NOTED OTHERWISE OR REVIEWED AND APPROVED BY ENGINEER AND OWNER. RACEWAYS FOR LOW-VOLTAGE CABLING (CONTROLS, TELECOMMUNICATIONS, ETC.) SHALL NOT BE INSTALLED BELOW OR WITHIN FLOOR SLABS UNLESS SPECIFICALLY NOTED. WHERE LOW-VOLTAGE CABLING IS ROUTED BELOW OR WITHIN SLABS, CONTRACTOR SHALL VERIFY CABLING IS LISTED FOR SUCH USE.
 - ALL ELECTRICAL CONDUCTORS SHALL BE STRANDED COPPER WITH TYPE THHN/THWN INSULATION UNLESS NOTED OTHERWISE. MINIMUM WIRE SIZE SHALL BE #12 AWG FOR GENERAL WIRING AND #10 AWG FOR HOMERUNS. REFER TO SPECIFICATIONS OR SHEET-SPECIFIC NOTES FOR ADDITIONAL INFORMATION.
 - ALL NEW CIRCUITS REQUIRING NEUTRAL CONDUCTORS SHALL HAVE DEDICATED NEUTRALS. SHARED NEUTRALS ARE NOT PERMITTED.
 - A GREEN EQUIPMENT GROUNDING CONDUCTOR SHALL BE PROVIDED TO ALL LOADS. THE CONDUCTOR SHALL BE SIZED PER THE NEC. ALL GROUNDING CONDUCTORS SHALL BE INSTALLED IN CONDUIT.
 - ALL BUILDING WIRING SHALL BE INSTALLED IN CONDUIT TO ACHIEVE CIRCUITING AS SHOWN. MINIMUM BRANCH CONDUIT SIZE SHALL BE 3/4" UNLESS NOTED OTHERWISE. SIZE CONDUCTORS PER NEC APPLICABLE AND CONDUIT FILL REQUIREMENTS.
 - ALL HOME RUN CONDUITS FROM ELECTRICAL PANELBOARDS TO THE FIRST JUNCTION BOX SHALL BE A MINIMUM OF 1" CONDUIT AND SHALL TERMINATE IN A 4-1/16" SQUARE BY 2-1/8" DEEP (MINIMUM) JUNCTION BOX. JUNCTION BOX COVERS SHALL BE PAINTED AND CLEARLY MARKED WITH CIRCUIT NUMBERS. EACH HOME RUN RACEWAY SHALL HAVE SPARE CAPACITY FOR ONE (1) ADDITIONAL CIRCUIT AND ITS DEDICATED NEUTRAL, BASED ON NEC CHAPTER 9, TABLE 1 AND ANNEX C.
 - NO CABLING MAY BE USED WITHIN SPECIFIED LOCATIONS. REFER TO PLAN SHEETS FOR ADDITIONAL INFORMATION.
 - ALL CONDUIT ROUTED EXPOSED IN FINISHED SPACES SHALL BE ROUTED PARALLEL OR PERPENDICULAR TO WALLS AND CEILING. EXPOSED CONDUIT ROUTING SHALL BE REVIEWED WITH THE ARCHITECT AND ENGINEER PRIOR TO INSTALLATION.
 - COORDINATE THE EXACT LOCATION OF ALL DEVICES ABOVE OR BELOW COUNTERTOPS OR SIMILAR INSTALLATIONS WITH OTHER TRADES. ARCHITECTURAL ELEVATIONS, AND APPROVED SUBMITTALS PRIOR TO ROUGH-IN. ARCHITECTURAL ELEVATIONS AND DETAILS TAKE PRECEDENCE OVER ELECTRICAL DRAWINGS.
 - ALL CUTTING AND PATCHING REQUIRED FOR CONDUITS, DEVICES, OR OTHER ELECTRICAL EQUIPMENT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR UNLESS NOTED OTHERWISE.
 - ALL PENETRATIONS THROUGH FIRE-RATED WALLS, FLOORS, AND CEILINGS SHALL BE SEALED WITH AN NRTL-APPROVED FIRESTOP SYSTEM EQUAL TO OR EXCEEDING THE RATING OF THE PENETRATED ASSEMBLY.
 - COORDINATE LOCATIONS OF ALL ELECTRICAL ITEMS INCLUDING, BUT NOT LIMITED TO, LIGHTING FIXTURES, CEILING-MOUNTED DEVICES (OCCUPANCY SENSORS, FIRE ALARM DEVICES, SPEAKERS, ETC.), SPRINKLER HEADS, AND HVAC DIFFUSERS/RETURNS. CENTER DEVICES IN CEILING TILES WHERE POSSIBLE.
 - ALL CEILING DEVICES REQUIRING WIRE TERMINATIONS SHALL BE INSTALLED WITH MANUFACTURER-RECOMMENDED BACK BOXES AND SUPPORTS AS REQUIRED BY THE NEC OR MANUFACTURER.
 - COORDINATE ALL MOUNTING OF ELECTRICAL MATERIALS, EQUIPMENT, AND DEVICES REQUIRED FOR EQUIPMENT SUPPLIED BY OTHERS. ELECTRICAL INSTALLATIONS SHALL NOT INTERFERE WITH OPERATION OR ACCESS. ALL SUCH INSTALLATIONS SHALL BE REVIEWED AND APPROVED BY THE SUPPLYING CONTRACTOR PRIOR TO ROUGH-IN.
 - BOXES LOCATED ON OPPOSITE SIDES OF FIRE-RATED WALLS SHALL BE OFFSET A MINIMUM OF 24" OR SHALL BE PROTECTED WITH A FIRE-RATED MATERIAL EQUAL TO OR GREATER THAN THE WALL RATING.
 - BOXES LOCATED ON OPPOSITE SIDES OF NON-FIRE-RATED WALLS SHALL BE OFFSET A MINIMUM OF 6".
 - REMOVE AND REINSTALL CEILING TILES AS NECESSARY TO PERFORM REQUIRED ELECTRICAL WORK. REPLACE ALL DAMAGED CEILING TILES WITH NEW TILES OF THE SAME MANUFACTURER AND MODEL.
 - PROVIDE FIELD TYPED PANELBOARD DIRECTORIES TO REFLECT AS-CONSTRUCTED CONDITIONS. FIELD VERIFY DURING CONSTRUCTION AND REFLECT EXISTING CONDITIONS.

ELECTRICAL SHEET LIST	
E000	ELECTRICAL TITLE SHEET
ES101	ELECTRICAL SITE PLAN
E101	ELECTRICAL PLANS
E501	ELECTRICAL DETAILS
E601	ELECTRICAL SCHEDULES

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6/1/2026

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PROJECT NO: 26022

ELECTRICAL TITLE SHEET

E000

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Richard K. Larson
5/29/26
Date

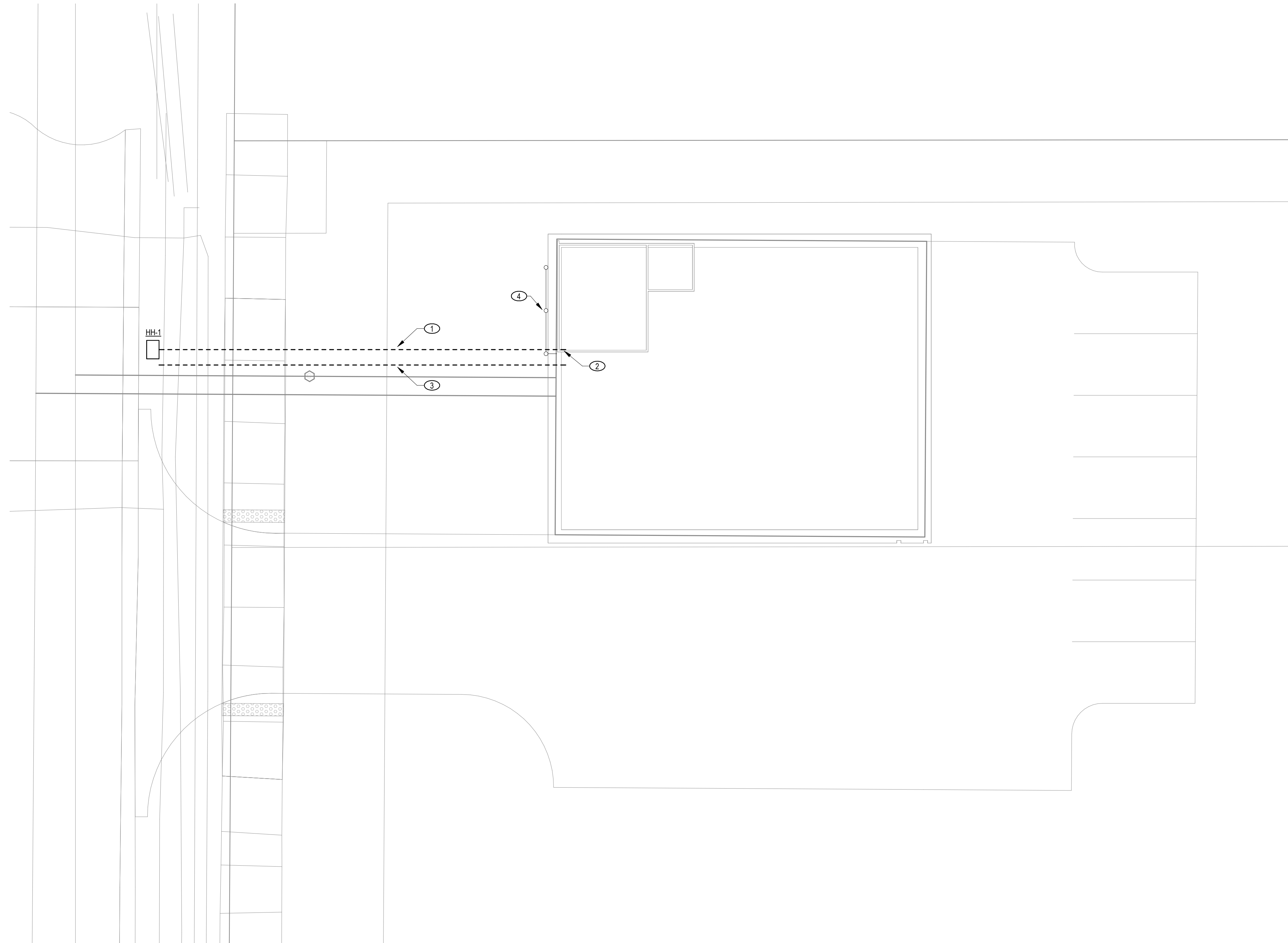
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Richard K. Larson
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KEYED NOTES:

1. PROVIDE (1) 2" SCHEDULE 40 PVC CONDUIT FOR COPPER/FIBER SERVICE PROVIDERS. CONDUIT TO BE EXTENDED TO THE NEAREST SERVICE PROVIDER PEDESTAL. CONDUIT TO INCLUDE PULL STRING FOR FUTURE INSTALLS. COORDINATE EXACT LOCATIONS WITH UTILITIES. SERVICE PROVIDER TO PROVIDE CABLING TO THE DEMARC.
2. REFER TO 1/101 FOR CONDUIT STUB UP LOCATION. CONDUIT TO TRANSITION FROM PVC TO RIGID METALLIC CONDUIT PRIOR TO PENETRATION CONCRETE FLOOR. STUB CONDUIT A MINIMUM OF 18" ABOVE FINISH FLOOR.
3. PROPOSED ROUTING FOR UNDERGROUND ELECTRICAL SERVICE CONDUCTORS. COORDINATE WITH ELECTRICAL UTILITY. UNDERGROUND CONDUCTORS AND RACEWAY TO METER RISER CONDUIT. REFER TO 5/E501 FOR ADDITIONAL INFORMATION.
4. GROUND RODS. REFER TO 6/E501 FOR ADDITIONAL INFORMATION.



1

ELECTRICAL SITE PLAN

1" = 10'-0"



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ELECTRICAL SITE PLAN

ES101

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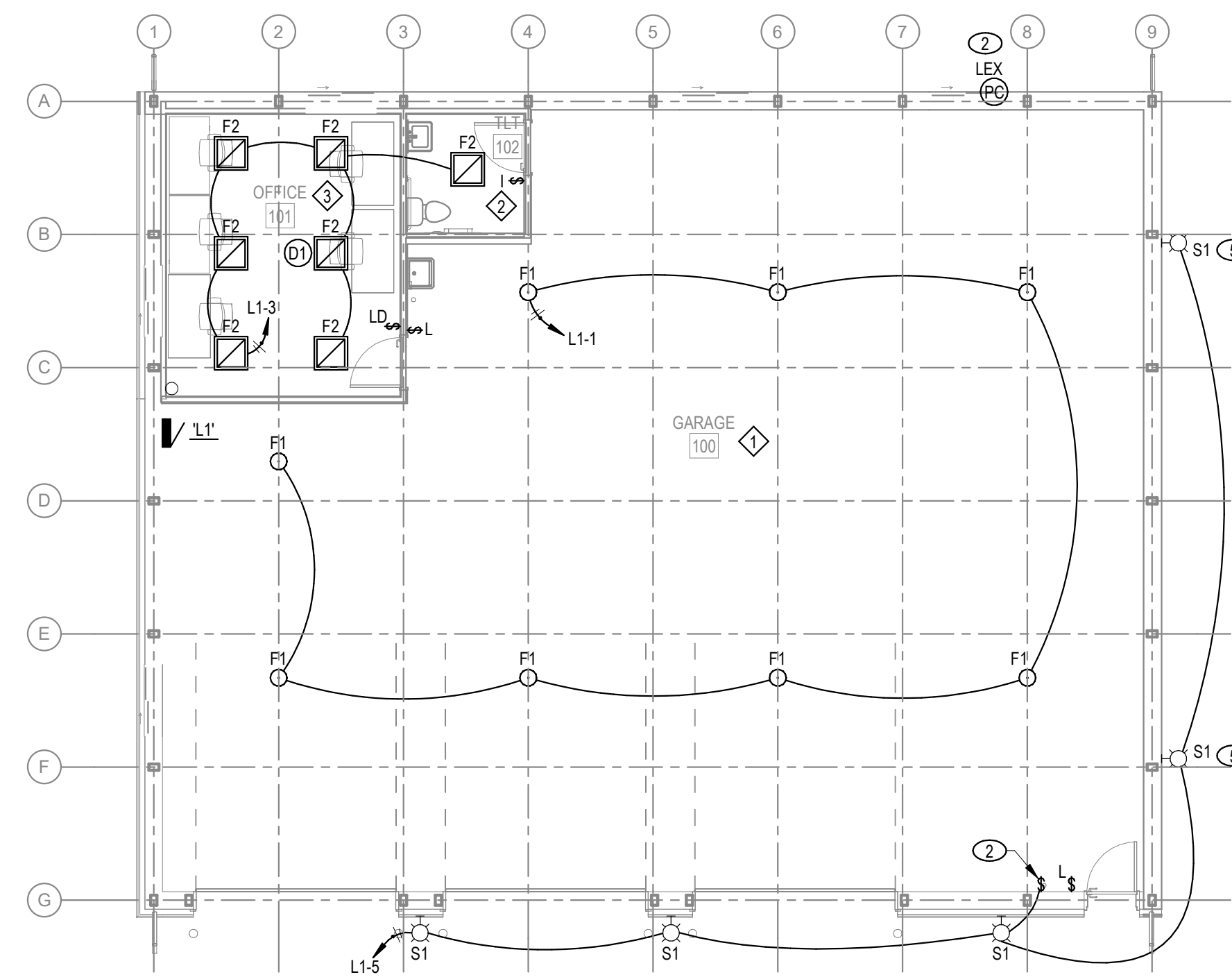
LIGHTING CONTROLS	
TYPE	DESCRIPTION
1	MANUAL ON/OFF
2	AUTO ON TO 100% BY OCCUPANCY SENSOR WITH MANUAL OVERRIDE. AUTO OFF AFTER 15 MINUTES OF BEING UNOCCUPIED
3	AUTO ON TO 25% BY OCCUPANCY SENSOR WITH MANUAL OVERRIDE TO 100%. AUTO OFF AFTER 15 MINUTES OF BEING UNOCCUPIED

GENERAL NOTES:

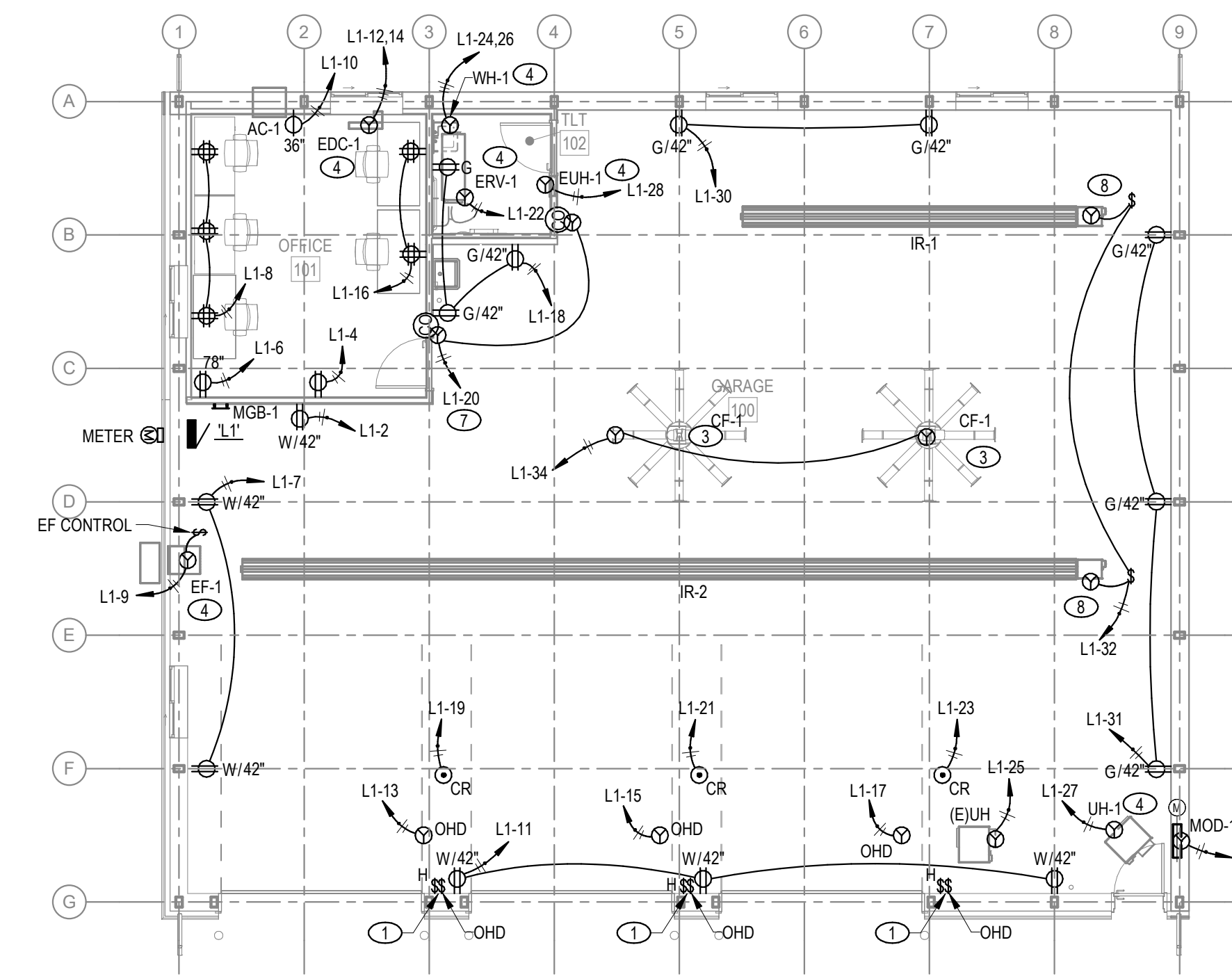
- ROUGH-IN FOR RECEPTACLES IN OFFICE 101 AND TL1 102 TO BE RECESSED TO ALLOW FOR FLUSH DEVICE PLATES ON FINISHED WALL SURFACE. HOME RUN CONDUIT FROM PANEL TO FIRST JUNCTION BOX TO BE INSTALLED WITH EMT CONDUIT. MC CABLING IS ACCEPTABLE FOR REMAINING RECEPTACLE DEVICES AS AN ALTERNATE TO EMT CONDUIT.
- CONDUIT AND BOXES FOR RECEPTACLES, EQUIPMENT POWER CONNECTIONS, LIGHTING FIXTURES, AND CONTROLS IN GARAGE 100 MAY BE SURFACE MOUNTED. ALL CONDUIT FITTINGS IN GARAGE 100 SHALL BE "RAINTIGHT" STEEL COMPRESSION.
- RECEPTACLES WITH SUBSCRIPT "W" SHALL BE INSTALLED IN GRAY OR WHITE CAST BOXES WITH CAST WHILE-IN-USE COVER. REFER TO RECEPTACLE SCHEDULE FOR ADDITIONAL INFORMATION.

KEYED NOTES:

- OVERHEAD DOOR CONTROL STATION AND DISCONNECT SWITCH, OVERHEAD DOOR CONTROL STATION FURNISHED BY DOOR VENDOR. ROUGH-IN AND WIRING BY E.C. CONFIRM FINAL LOCATIONS WITH OWNER PRIOR TO INSTALLATION.
- CONTROL EXTERIOR WALL MOUNT FIXTURES VIA PHOTOCELL WITH MANUAL OVERRIDE SWITCH TO OVERRIDE PHOTOCELL. INSTALL PHOTOCELL PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- INSTALLATION OF CEILING FANS AND ANY ASSOCIATED POWER BRANCH CIRCUIT CONDUIT AND WIRING SHALL BE PART OF ALTERNATE #01. COORDINATE LOCATION OF CONTROL SWITCHES. COORDINATE INSTALLATION OF M.C. PROVIDED UNIT DISCONNECT SWITCH NEXT TO CONTROL SWITCHES.
- DISCONNECT PROVIDED FACTORY INSTALLED ON EQUIPMENT BY MANUFACTURER. E.C. TO PROVIDE EQUIPMENT BRANCH FEEDER CONDUIT AND WIRING FROM INDICATED POWER SOURCE.
- EXTERIOR LIGHTING FIXTURE AND ASSOCIATED LIGHTING BRANCH CIRCUIT CONDUIT AND WIRING SHALL BE PART OF ALTERNATE #02.
- SECURE CORD REEL TO STRUCTURAL FRAMING MEMBER. REFER TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR MOUNTING REQUIREMENTS. COORDINATE BACKING WITH GENERAL CONTRACTOR.
- INSTALL CO DETECTOR ON DEDICATED 120V CIRCUIT.
- MOUNT DISCONNECT SWITCH FOR TUBE HEATER IN ACCESSIBLE LOCATION ON CEILING.



2 FIRST FLOOR - LIGHTING PLAN
1/8" = 1'-0"



1 FIRST FLOOR - POWER & SYSTEMS PLAN
1/8" = 1'-0"



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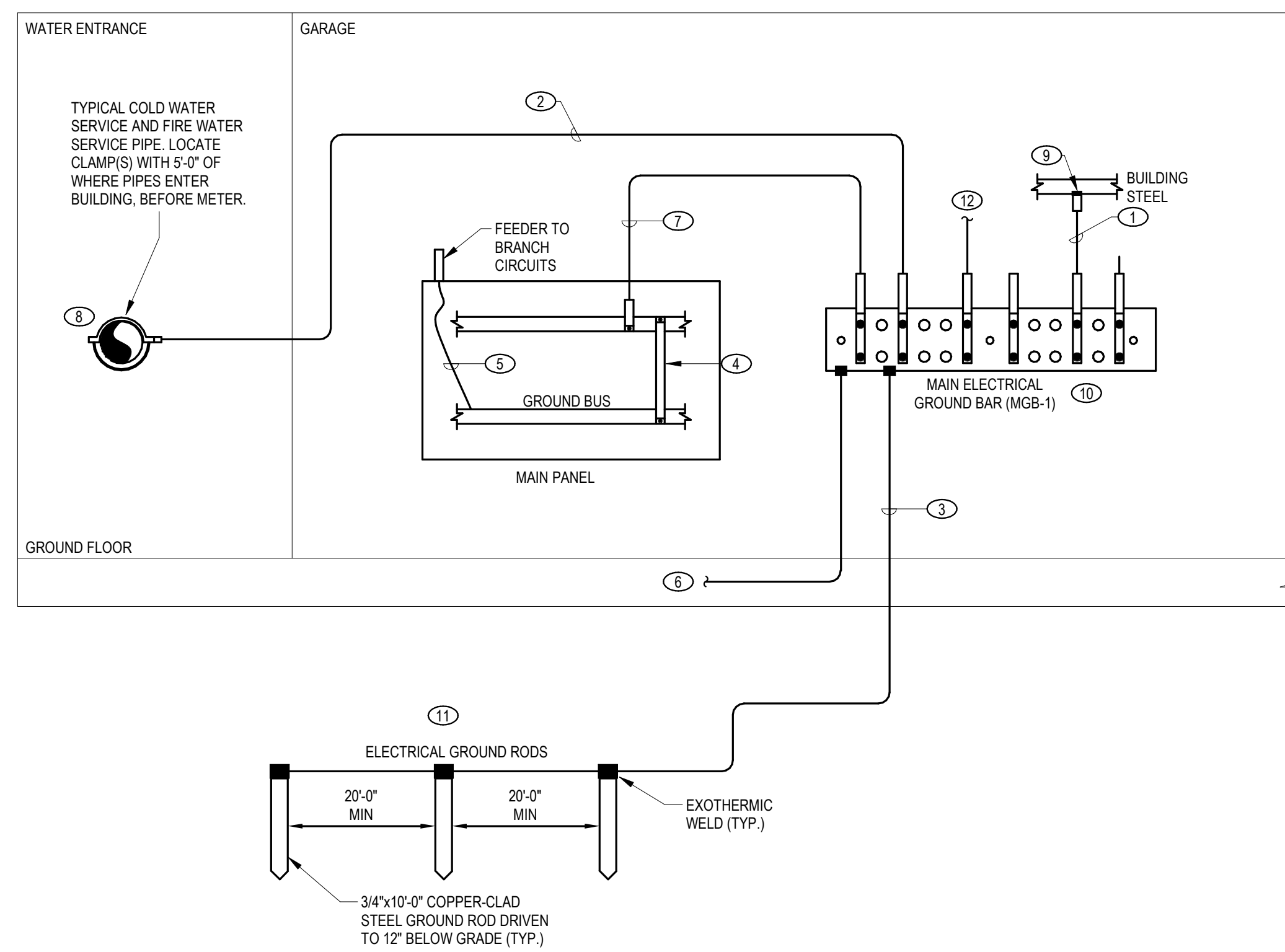
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ELECTRICAL PLANS

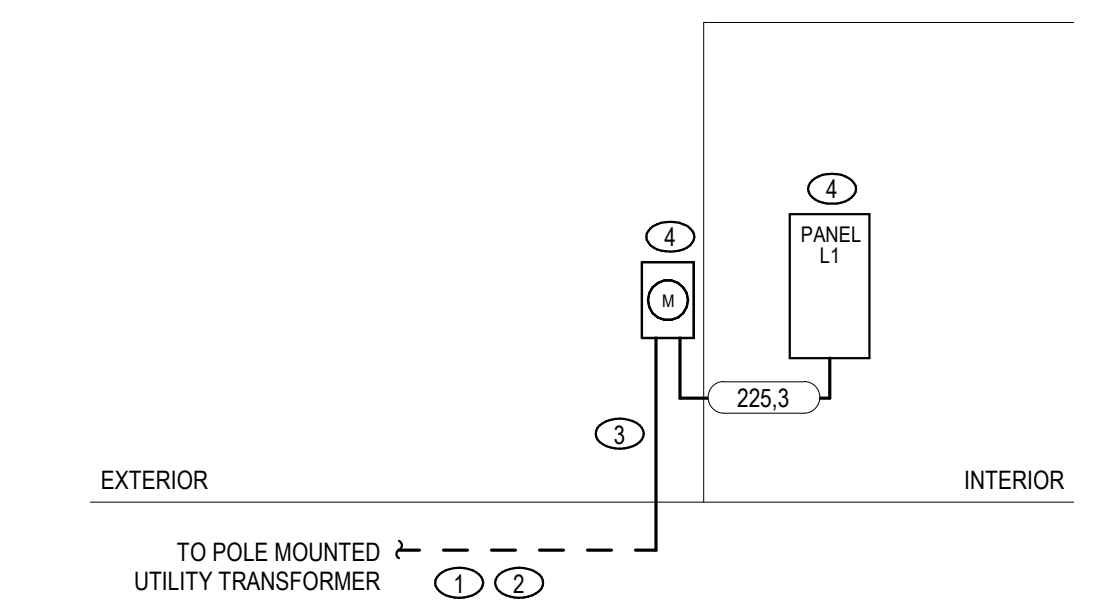
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6 GROUNDING RISER DIAGRAM
N.T.S.

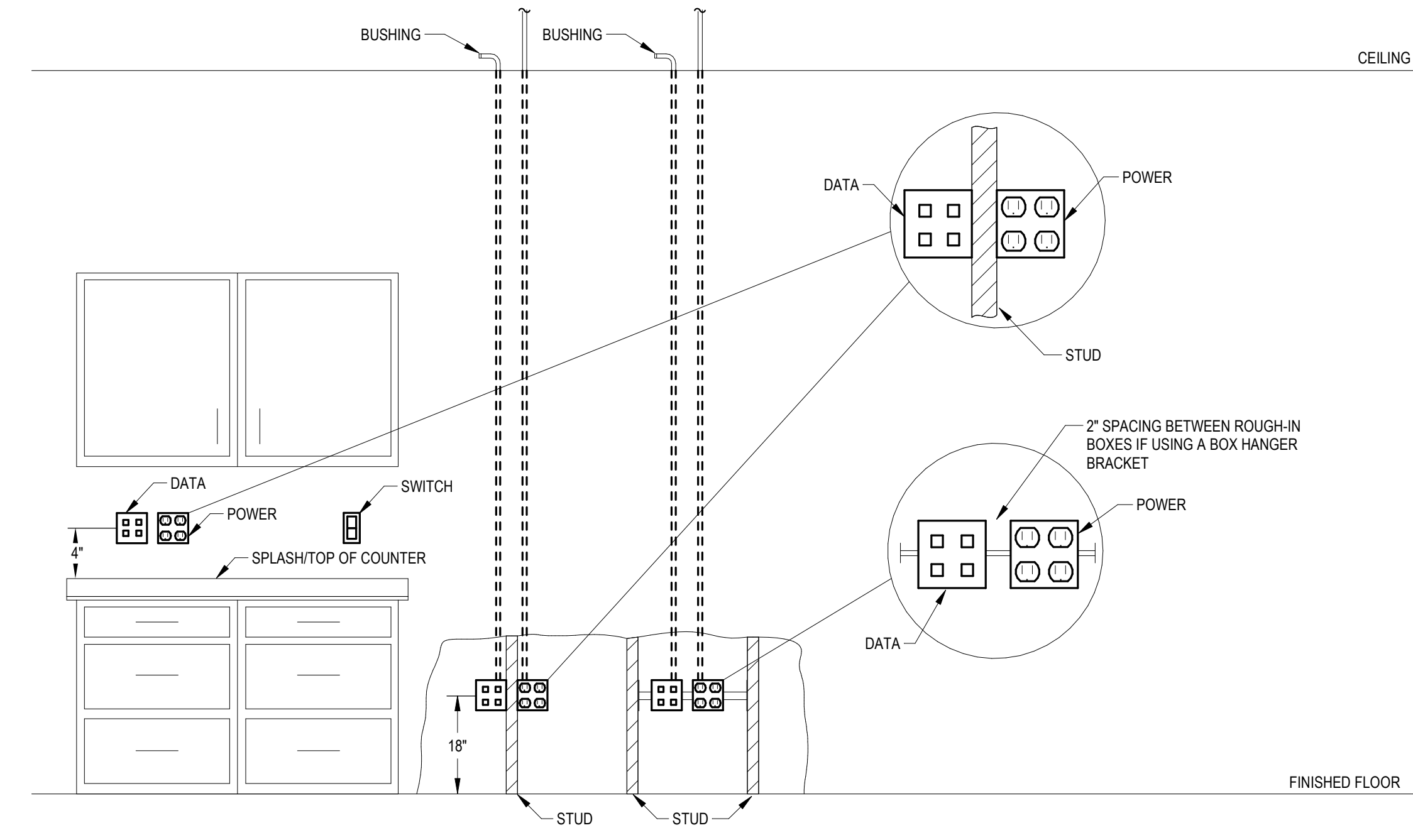
PANEL FEEDER SCHEDULE - COPPER						
CALL OUT	OCPD RATING	PARALLEL SETS	PHASE	GRD	CONDUIT	
225,3	225	1	#4/0	NEUTRAL		2-1/2"



5 ELECTRICAL RISER DIAGRAM
N.T.S.

KEYED NOTES:

- UNDERGROUND UTILITY SECONDARY CABLING FROM UTILITY POLE AND POLE-MOUNTED TRANSFORMERS TO LINE-SIDE OF METER SOCKET INSTALLED BY UTILITY. ASSOCIATED COSTS TO BE INVOICED DIRECT TO OWNER.
- INSTALLATION OF UNDERGROUND CABLING TO BE SCHEDULED BY ELECTRICAL CONTRACTOR WITH UTILITY. METER SOCKET MUST BE INSTALLED, INSPECTED AND PASSED BY STATE OF IOWA ELECTRICAL INSPECTOR PRIOR TO SCHEDULING CONNECTION WITH UTILITY. ANTICIPATE MINIMUM OF 2-4 WEEKS FROM SCHEDULING TO ON-SITE WORK COMMENCING.
- ELECTRICAL CONTRACTOR TO PROVIDE 2-1/2" SCHEDULE 80 PVC RISER CONDUIT FROM METER SOCKET TO BELOW GRADE. REFER TO UTILITY COMPANY INSTALLATION REQUIREMENTS FOR ADDITIONAL INFORMATION.
- SURFACE MOUNT EQUIPMENT. COORDINATE THE INSTALLATION OF BACKING BEHIND EQUIPMENT FOR SECURE MOUNTING.



3 SCHEMATIC ELECTRICAL MOUNTING DETAIL
N.T.S.

NOTES:

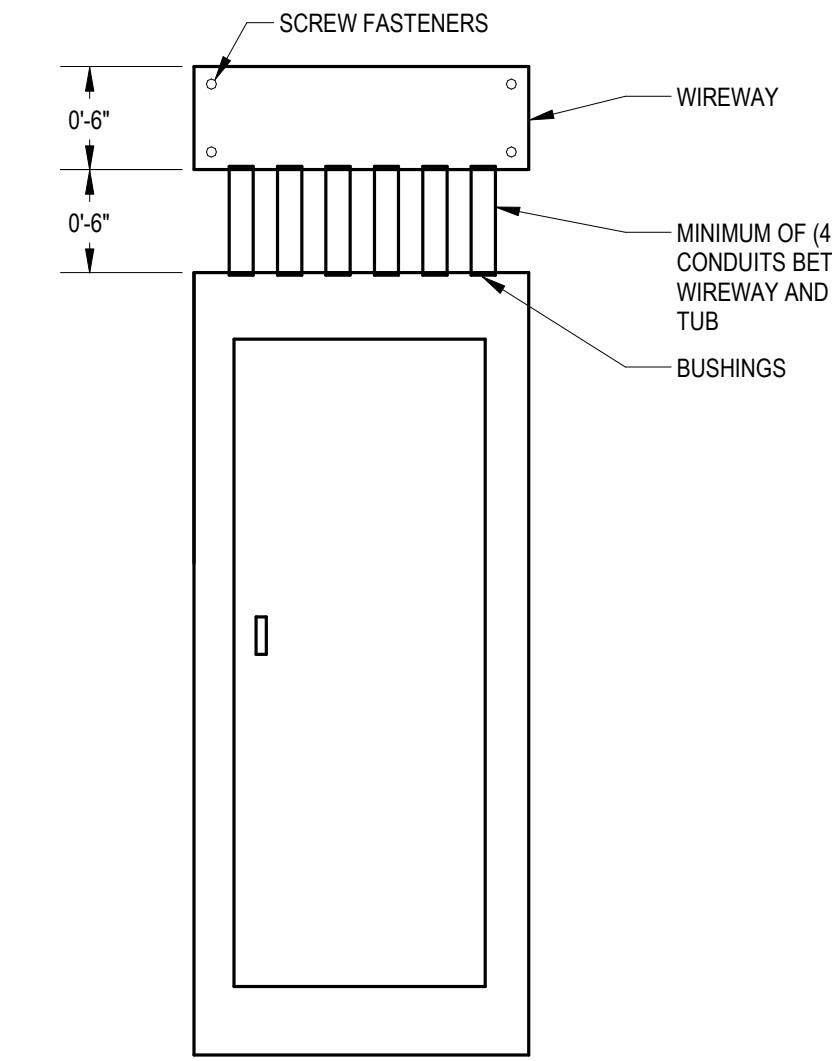
- SOME DEVICES SHOWN MAY NOT BE USED. DETAIL IS NOT TO SCALE.
- MOUNTING HEIGHTS ARE AS SHOWN IN THIS DETAIL UNLESS NOTED OTHERWISE ON THE FLOORPLAN.
- TYPICAL FOR POWER AND DATA IN THE SAME GENERAL LOCATION. POWER AND DATA ROUGH-IN TO BE MOUNTED ADJACENT TO EACH OTHER ON EITHER SIDE OF A STUD OR BETWEEN STUDS IF USING A BRACKET HANGER. IF USING A BRACKET HANGER, POWER AND DATA BOXES TO BE INSTALLED WITH A 2" SPACE BETWEEN THEM.
- ALL DEVICES TO BE INSTALLED IN ACCORDANCE WITH ADA STANDARDS FOR ACCESSIBLE DESIGN. REFER TO AHJ ADOPTED NEC - INFORMATIVE ANNEX J OR AHJ ADOPTED PUBLISHING OF ADA STANDARDS FOR ACCESSIBLE DESIGN FOR ADDITIONAL INFORMATION.

NOTES:

- SEAL ANY HOLES IN EXTERIOR WALLS OR FOUNDATIONS. FINISH TO MATCH SURFACE.
- SEE PLANS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- ALL CONDUCTOR TO BE ROUTED IN CONDUIT UNLESS NOTED OTHERWISE.

KEYED NOTES:

- BUILDING STEEL GROUNDING ELECTRODE CONDUCTOR.
- WATER SERVICE BONDING CONDUCTOR.
- GROUNDING ELECTRODE CONDUCTOR AND ASSOCIATED GROUND RODS.
- MAIN BONDING JUMPER.
- EQUIPMENT GROUND CONDUCTOR; SIZE PER NEC TABLE 250.122 OR AS SHOWN ON THE PLANS.
- CONCRETE ENCASED ELECTRODE. MINIMUM 20'-0" LENGTH.
- MAIN GROUND BAR BONDING CONDUCTOR; #3/0 MINIMUM OR AS SHOWN ON THE PLANS.
- PROVIDE #2/0 COPPER JUMPER OVER WATER METER AND GROUND STRAPS FOR WATER PIPING.
- UL LISTED EXOTHERMIC OR PERMANENT COMPRESSION STYLE CONNECTION.
- GROUND BAR. REFER TO DRAWINGS FOR MORE INFORMATION.
- FURNISH AND INSTALL COUNTERPOISE SYSTEM GROUND ROD USING AN EXOTHERMIC CONNECTION. VERIFY THAT SERVICE GROUND IMPEDANCE IS LESS THAN 5 OHMS.
- BONDING CONDUCTOR, #6CU WITH GREEN INSULATION



4 PANELBOARD WIREWAY
N.T.S.

NOTES:

- WIREWAY TO BE 6" DEEP AND THE ENTIRE WIDTH OF THE PANEL TUB.
- WIREWAY TO HAVE A COVER WITH SCREW FASTENERS.

PANEL # " "

FED FROM " # " "

(VOLTAGE)

(AIC RATING)

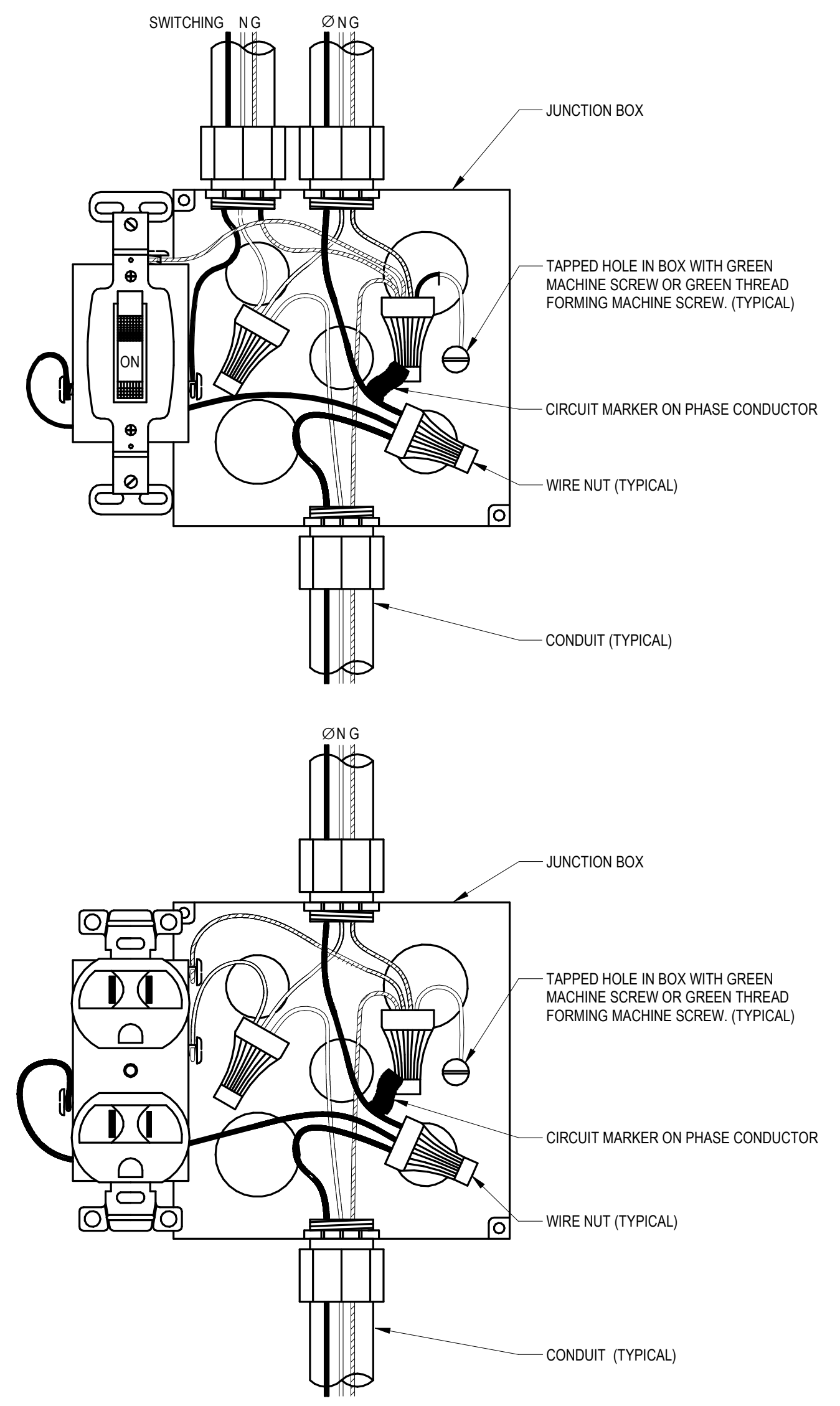
PHASE A - BLACK
PHASE B - RED
NEUTRAL - WHITE
GROUND - GREEN

ENGINEER: KEDbluestone
CONTRACTOR:

2 PANEL BOARD NAMEPLATE
N.T.S.

NOTES:

- FOR 240V SYSTEMS, FOLLOW COLORS AS SHOWN.
- NAME PLATE SHALL BE PERMANENTLY ATTACHED TO PANELBOARD. REFER TO SPECIFICATION SECTION 260553 FOR NAMEPLATE CONSTRUCTION REQUIREMENTS.



1 RECEPTACLE-SWITCH WIRING DETAIL
N.T.S.

NOTES:

- GREEN GROUND CONDUCTOR SHALL BE CONTINUOUS SO THAT REMOVAL OF DEVICE WILL NOT INTERFERE WITH GROUND CONTINUITY PER 250.148 (B).
- INSTALL AN EQUIPMENT BONDING JUMPER TO THE METALLIC BOX USING A LISTED GROUNDING SCREW PER 250.146. THE BONDING JUMPER MAY BE OMITTED ON SURFACE MOUNTED BOXES.
- PROVIDE SEPARATE NEUTRAL FOR EACH CIRCUIT.

LUMINAIRE SCHEDULE													
TYPE	DESCRIPTION	MANUFACTURER/MODEL	FINISHES	LIGHT SOURCE	MOUNTING	DELIVERED LUMENS	CRI	CCT	DIMMING	DISTRIBUTION	WATTS	VOLTAGE	EMERGENCY BACK-UP
F1	ROUND LED HIGH BAY, FROSTED HIGH IMPACT LENS, LUMEN SELECTABLE, SET AT 15000 LUMENS, MOUNT FIXTURE 14'-0" AFF	COLUMBIA CRN2	WHITE	LED	SUSPENDED	15000/18000/22000	80	3500 K	0-10V, 10% DIM	LAMBERTIAN	100 W	120 V	N/A
F2	2XZ LED FLAT PANEL, BACK LIT	COLUMBIA CBT LITHONIA CPX METALUX C03TS	WHITE	LED	RECESSED - GRID	3300	80	3500 K	0-10V, 10% DIM	LAMBERTIAN	30 W	120 V	N/A
S1	EXTERIOR WALL PACK, ALUMINUM CONSTRUCTION, UL WET LOCATION LISTED, MOUNT AT 14'-0" ABOVE GRADE UNLESS NOTED OTHERWISE	BEACON TRP2 LITHONIA WDG22 MCGRAW-EDISON IST	BLACK	LED	WALL	5700	70	4000 K	N/A	IESNA TYPE 4W	45 W	120 V	BATTERY

GENERAL ELECTRICAL SCHEDULE		
SYMBOL	DESCRIPTION	MANUFACTURER
⊕ ⊖	CONNECTION TO MECHANICAL EQUIPMENT	MOTOR/EQUIPMENT FURNISHED AND INSTALLED BY MECHANICAL OR PLUMBING CONTRACTOR
Ⓜ	ELECTRICAL CONNECTION TO MISC. EQUIPMENT	EQUIPMENT FURNISHED AND INSTALLED BY OTHERS
PANEL L	BRANCH CIRCUIT LOADCENTER, 120/240V, 1-PHASE, 3-WIRE, NEMA 1 HOUSING, SERVICE ENTRANCE RATED, REFER TO PANEL SCHEDULE FOR DETAILS	SQUARE D NQ EATON SIEMENS
SPD-1	SURGE PROTECTION DEVICE, EXTERNALLY MOUNTED, 120/240V, 1-PHASE, 3-WIRE + GRD SERVICE, 80 KAIC SURGE CURRENT RATING PER PHASE, 25K SCCR, SUITABLE FOR SERVICE ENTRANCE DOWNSTREAM OF SERVICE DISCONNECT	SQUARE D HEPD80 EATON SIEMENS
METER	300 AMP METER SOCKET, 120/240V, 1-PHASE, 4-TERMINAL, LEVER BYPASS, 10KA RATING MINIMUM. COORDINATE SELECTION WITH UTILITY COMPANY	MLBANK U1797-O-K3L-K2L-ALT SQUARE D EATON SIEMENS MIDWEST ELECTRIC PRODUCTS
DS-XXX A/B/C	DISCONNECT SWITCH, HEAVY DUTY, SIZE INDICATED ON PLANS (A/B/C) WHERE A = RATING IN AMPS, B = NUMBER OF POLES, C = NEMA RATING (E.G. 1 = NEMA 1), XXX = NAME OF LOAD SERVED	SQUARE D CLASS 3110 EATON SIEMENS
HH-1	HANDHOLE 18" X 24" X 18" DEEP STACKABLE ASSEMBLY. REFER TO DRAWING SHEET [XXX] FOR ADDITIONAL INFORMATION	QUAZITE BOX PG1824BA18 COVER PG1324CA00 OR APPROVED EQUAL
MGB-1	MAIN GROUND BAR, WALL MOUNTED	REFER TO SPECIFICATION 260526

ELECTRICAL CONNECTION SCHEDULE									
CALLOUT	LOAD CHARACTERISTICS				PANEL AND CIRCUIT INFORMATION				
	VOLTAGE	PHASE	VA	AMPS	LOAD CLASS	FED FROM	CIRCUIT	MOCF	CONDUIT & WIRE
(E)UJH	120 V	1	900 VA	7.5 A	Heating	L1	25	20/1	3/4"C, 1#12, #12N, #12G
CF-1	120 V	1	180 VA	1.5 A	HVAC	L1	34	20/1	3/4"C, 1#12, #12N, #12G
CF-1	120 V	1	180 VA	1.5 A	HVAC	L1	34	20/1	3/4"C, 1#12, #12N, #12G
CO DETECTOR	120 V	1	180 VA	1.5 A	Continuous	L1	20	20/1	3/4"C, 1#12, #12N, #12G
CO DETECTOR	120 V	1	180 VA	1.5 A	Continuous	L1	20	20/1	3/4"C, 1#12, #12N, #12G
EDC-1	240 V	1	1500 VA	6.3 A	HVAC	L1	12,14	20/2	3/4"C, 2#12, #12N, #12G
EF-1	120 V	1	1200 VA	10.0 A	HVAC	L1	9	20/1	3/4"C, 1#12, #12N, #12G
ERV-1	120 V	1	300 VA	2.5 A	HVAC	L1	22	15/1	3/4"C, 1#12, #12N, #12G
EUH-1	120 V	1	1500 VA	12.5 A	HVAC	L1	28	20/1	3/4"C, 1#10, #10N, #12G
IR-1	120 V	1	360 VA	3.0 A	Heating	L1	32	20/1	3/4"C, 1#12, #12N, #12G
IR-2	120 V	1	360 VA	3.0 A	Heating	L1	32	20/1	3/4"C, 1#12, #12N, #12G
MOD-1	120 V	1	180 VA	1.5 A	HVAC	L1	29	20/1	3/4"C, 1#12, #12N, #12G
OHD	120 V	1	1700 VA	14.2 A	Motor	L1	17	20/1	3/4"C, 1#12, #12N, #12G
OHD	120 V	1	1700 VA	14.2 A	Motor	L1	15	20/1	3/4"C, 1#12, #12N, #12G
OHD	120 V	1	1700 VA	14.2 A	Motor	L1	13	20/1	3/4"C, 1#12, #12N, #12G
UH-1	120 V	1	900 VA	7.5 A	Heating	L1	27	20/1	3/4"C, 1#12, #12N, #12G
WH-1	240 V	1	7200 VA	30.0 A	Non-Continuous	L1	24,26	40/2	3/4"C, 2#8, #8N, #10G

SWITCH SUBSCRIPT SCHEDULE		
SUBSCRIPT	DESCRIPTION	MODEL
I	OCCUPANCY SENSOR WALL SWITCH, PASSIVE INFRARED, 180 DEGREE COVERAGE, 120/277V	CURRENT NX WATTSTOPPER DLM ACUITY NLIGHT
L	DIGITAL LOW VOLTAGE WALL STATION, SINGLE ZONE ON/OFF MANUAL CONTROL, LED STATUS LIGHT	CURRENT NX WATTSTOPPER DLM ACUITY NLIGHT
LD	DIGITAL LOW VOLTAGE WALL STATION, SINGLE ZONE ON/OFF AND RAISE/LOWER MANUAL CONTROL, LED STATUS LIGHT	CURRENT NX WATTSTOPPER DLM ACUITY NLIGHT
NO SUBSCRIPT	SINGLE POLE SWITCH, COMMERCIAL GRADE, 20 AMP	COOPER HUBBELL LEVITON PASS & SEYMOUR

CEILING MOUNTED OCCUPANCY SENSOR SCHEDULE		
SUBSCRIPT	DESCRIPTION	MODEL
D1	DIGITAL OCCUPANCY SENSOR, DUAL SENSING TECHNOLOGIES (PASSIVE INFRARED AND ULTRASONIC OR MICROPHONIC), LOW VOLTAGE, CEILING MOUNT, 360 DEGREE COVERAGE, UP TO 1000 SF COVERAGE	CURRENT NX WATTSTOPPER DLM ACUITY NLIGHT

BRANCH PANELBOARD: L1											
LOCATION: GARAGE 100			VOLTAGE: 240/120 Single			MAIN DEVICE: MCB 225A					
MOUNTING: SURFACE			PHASE: 1			BUS RATING: 225					
ENCLOSURE: NEMA 1			WIRE: 3			NEUTRAL RATING: 100%					
FED FROM:			LUGS: Standard			A.I.C. RATING: 10,000					
CKT #	CKT BKR A/P	NOTES	CIRCUIT DESCRIPTION	KVA LOAD 'PHASE A'	KVA LOAD 'PHASE B'	CIRCUIT DESCRIPTION	NOTES	CKT BKR P/A	CKT #		
1	20 A	1	LIGHTING - GARAGE	0.9	0.2	RECEPTACLE		1	20 A	2	
3	20 A	1	LIGHTING - OFFICE/RR		0.2	RECEPTACLE		1	20 A	4	
5	20 A	1	LIGHTING - EXTERIOR	0.2	0.2	IT RACK		1	20 A	6	
7	20 A	1	RECEPTACLE		0.4	RECEPTACLE		1	20 A	8	
9	20 A	1	EF-1	1.2	1.5	AC-1		1	20 A	10	
11	20 A	1	RECEPTACLE		0.5	EDC-1		2	20 A	12	
13	20 A	1	OHD	1.7	0.8			1	20 A	14	
15	20 A	1	OHD		1.7	RECEPTACLE		1	20 A	16	
17	20 A	1	OHD	1.7	0.5	RECEPTACLE		1	20 A	18	
19	20 A	1	CORD REEL		0	CO DETECTOR		1	20 A	20	
21	20 A	1	CORD REEL	0	0.3	ERV-1		1	15 A	22	
23	20 A	1	CORD REEL		0	WH-1		2	40 A	24	
25	20 A	1	(E)UJH	0.9	3.6			1	20 A	28	
27	20 A	1	UH-1		0.9	EUH-1		1	20 A	28	
29	20 A	1	MOD-1	0.2	0.4	RECEPTACLE		1	20 A	30	
31	20 A	1	RECEPTACLE		0.5	IR-1, IR-2		1	20 A	32	
33	20 A	1	SPARE	0	0.4	CF-1		1	20 A	34	
35	20 A	1	SPARE		0	SPARE		1	20 A	36	
37	20 A	1	SPARE	0	0	SPARE		1	20 A	38	
39					0	SPD-1		2	20 A	40	
41	20 A	2	SPARE	0	0			2	20 A	42	
				TOTAL CONNECTED KVA BY PHASE		14.5 kVA		13.2 kVA			
				TOTAL CONNECTED AMPS BY PHASE		120.4 A		109.7 A			
LOAD CLASSIFICATION			CONNECTED LOAD	DEMAND FACTOR	CALCULATED LOAD	PANELBOARD TOTALS					
Continuous			360 VA	125.00%	450 VA						
HVAC			5040 VA	100.00%	5040 VA	TOTAL CONNECTED KVA 27.6 kVA					
Lighting - Exterior			225 VA	100.00%	225 VA	TOTAL CALCULATED KVA 28.4 kVA					
Motor			5100 VA	108.33%	5525 VA						
Receptacle			6150 VA	100.00%	6150 VA	TOTAL CONNECTED AMPS 115.0 A					
Power			0 VA	0.00%	0 VA	TOTAL CALCULATED AMPS 118.2 A					
Lighting - Interior			1122 VA	125.00%	1403 VA						
Heating			2520 VA	100.00%	2520 VA						
NOTES: SERVICE ENTRANCE RATED											

MINIMUM BRANCH CIRCUIT FEEDER SIZE (RHW, THHW, THW, THWN, XHHW, XHWN, USE, Z) BASED ON NEC 2023 AT 75°C			
BREAKER SIZE	PHASE/NEUTRAL	GRD	CONDUIT
20A	#12	#12	3/4"
25A	#10	#10	3/4"
30A	#10	#10	3/4"
35A	#8	#10	1"
40A	#8	#10	1"
50A	#6	#10	1"
60A	#4	#10	1-1/4"
70A	#4	#8	1-1/4"
80A	#3	#8	1-1/2"
100A	#1	#8	2"

NEMA 5-20R RECEPTACLE SUBSCRIPT SCHEDULE		
SUBSCRIPT	DESCRIPTION	MODEL
W	DUPLEX GROUND FAULT TAMPER RESISTANT RECEPTACLE SPECIFICATION GRADE WITH DIE-CAST WEATHERPROOF COVER (WHILE IN USE), NEMA 5-20R	HUBBELL GFRTW20/WP26E LEVITON PASS & SEYMOUR COOPER
NO SUBSCRIPT	DOUBLE DUPLEX TAMPER RESISTANT RECEPTACLE, HEAVY DUTY SPECIFICATION GRADE, NEMA 5-20R	HUBBELL (2) HBL5362TR LEVITON PASS & SEYMOUR COOPER
NO SUBSCRIPT	DUPLEX TAMPER RESISTANT RECEPTACLE, HEAVY DUTY SPECIFICATION GRADE, NEMA 5-20R	HUBBELL HBL5362TR LEVITON PASS & SEYMOUR COOPER
NO SUBSCRIPT	SIMPLEX RECEPTACLE, HEAVY DUTY SPECIFICATION GRADE, NEMA 5-20R	HUBBELL HBL5361 LEVITON PASS & SEYMOUR COOPER
G	DUPLEX GROUND FAULT TAMPER RESISTANT RECEPTACLE, SPECIFICATION GRADE, NEMA 5-20R	HUBBELL GFRTR20 LEVITON PASS & SEYMOUR COOPER

POWER SWITCH SCHEDULE		
SUBSCRIPT	DESCRIPTION	MODEL
H	MANUAL MOTOR STARTER, SURFACE MOUNT, NEMA 1 ENCLOSURE, SINGLE POLE, 30A RATED, PADLOCK HASP	SQUARE D CLASS 2510 SIEMENS EATON
NO SUBSCRIPT	SINGLE POLE TOGGLE SWITCH, COMMERCIAL GRADE, 20 AMP	COOPER HUBBELL LEVITON PASS & SEYMOUR
OHD	OVERHEAD DOOR OPENER	PROVIDED BY MFR, WIRED BY E.C.

CORD DROP / CORD REEL SCHEDULE		
SUBSCRIPT	DESCRIPTION	MODEL
CR	CORD REEL, STEEL HOUSING AND CORD REEL, SPRING TENSION TYPE, 30-AMPERE RATED, SINGLE NEMA 5-20R RECEPTACLE OUTLET, MINIMUM 45' 12/3 CORD	REELCRAFT L-4545-123-3A OR APPROVED EQUAL

FIRE ALARM DEVICE SCHEDULE		
SYMBOL	DESCRIPTION	MODEL
Ⓢ	120V HARDWIRED CO DETECTOR, 9V BATTERY BACKUP, MOUNT AT 5'-6" TO CENTER OF DEVICE	KIDDE KN-COB-IC OR APPROVED EQUAL

ELECTRICAL ABBREVIATIONS			
1P	1 POLE (2P, 3P, 4P, ETC.)	LTNG	LIGHTNING
A	6" ABOVE COUNTER OR BACKSPLASH TO CENTERLINE OF DEVICE	LV	LOW VOLTAGE
A, AMP	AMPERE	M	INSTALL DEVICE IN MILLWORK
AC	ABOVE COUNTER, AIR CONDITIONING UNIT	MAX	MAXIMUM
ACLG	ABOVE CEILING	MAG S	MAGNETIC STARTER
AF	AMP FRAME	MOM	MOMENTARY CONTACT
AFF	ABOVE FINISHED FLOOR	MC	MECHANICAL CONTRACTOR
AFG	ABOVE FINISHED GRADE	MCB	MAIN CIRCUIT BREAKER
AFCI	ARC FAULT CIRCUIT INTERRUPTER	MCC	MOTOR CONTROL CENTER
AHU	AIR HANDLING UNIT	MDC	MAIN DISTRIBUTION CENTER
AL	ALUMINUM	MDP	MAIN DISTRIBUTION PANEL
ALT	ALTERNATE	MFR	MANUFACTURER
AMP	AMPERE	MFS	MAIN FUSED DISCONNECT SWITCH
AMPL	AMPLIFIER	MH	MANHOLE
ANNUN	ANNUNCIATOR	MIC	MICROPHONE
APPROX	APPROXIMATELY	MIN	MINIMUM
AQ-STAT	AQUASTAT	MISC	MISCELLANEOUS
ARCH	ARCHITECT, ARCHITECTURAL	MLO	MAIN LUGS ONLY
AS	AMP SWITCH	MMS	MANUAL MOTOR STARTER
AT	AMP TRIP	MOA	MULTIOUTLET ASSEMBLY
ATC	AUTOMATIC TEMPERATURE CONTROLS CONTRACTOR	MSP	MOTOR STARTER PANELBOARD
ATS	AUTOMATIC TRANSFER SWITCH	MSBD	MAIN SWITCHBOARD
AUTO	AUTOMATIC	N/A	NOT APPLICABLE
AUX	AUXILIARY	NFDS	NON-FUSED SAFETY DISCONNECT SWITCH
AV	AUDIO VISUAL	NIC	NOT IN CONTRACT
AWG	AMERICAN WIRE GAUGE	NL	NIGHT LIGHT
B	BLACK DEVICE COLOR WITH BLACK UNBREAKABLE THERMOPLASTIC COVER	N.O.	NORMALLY OPEN
		NPF	NORMAL POWER FACTOR
		NTS	NOT TO SCALE
		OC	ON CENTER
		OH	OVERHEAD
BAS	BUILDING AUTOMATION SYSTEM	OL	OVERLOADS
BATT	BATTERY	PA	PUBLIC ADDRESS
BD	BOARD	PB	PULL BOX OR PUSHBUTTON
BLDG	BUILDING	PC	PLUMBING CONTRACTOR
BMS	BUILDING MANAGEMENT SYSTEM	PE	PNEUMATIC ELECTRIC
C	CONDUIT	PED	PEDESTAL
CAB	CABINET	PF	POWER FACTOR
CAT	CATALOG	PH	PHASE
CATV	CABLE TELEVISION	PIV	POST INDICATING VALVE
CB	CIRCUIT BREAKER	PNL	PANEL
CCTV	CLOSED CIRCUIT TELEVISION	PP	POWER POLE
CKT	CIRCUIT	PR	PAIR
CLG	CEILING	PR1	PRIMARY
CM	CONSTRUCTION MANAGER	PROJ	PROJECTION
COMB	COMBINATION	PRV	POWER ROOF VENTILATOR
CMPR	COMPRESSOR	PT	POTENTIAL TRANSFORMER
CONN	CONNECTION	PVC	POLYVINYL CHLORIDE (CONDUIT)
CONST	CONSTRUCTION	PWR	POWER
CONT	CONTINUATION OR CONTINUOUS	QTY	QUANTITY
CONTR	CONTRACTOR	RAC	RIGID ALUMINUM CONDUIT
CP	CIRCULATING PUMP	RCPT	RECEPTACLE
CRT	CATHODE-RAY TUBE	REQD	REQUIRED
CT	CURRENT TRANSFORMER	RM	ROOM
CTR	CENTER	RMC	RIGID METALLIC CONDUIT
CJ	COPPER	RTU	ROOF TOP UNIT
DEPT	DEPARTMENT	SC	SURFACE CONDUIT
DET	DETAIL	SEC	SECONDARY
DIA	DIAMETER	SHT	SHEET
DISC	DISCONNECT	SIM	SIMILAR
DIST	DISTRIBUTION	SLD	SINGLE-LINE DIAGRAM
DN	DOWN	SN	SOLID NEUTRAL
DO	AUTOMATIC DOOR OPENER	SPEC	SPECIFICATION
DPR	DAMPER	SPKR	SPEAKER
DS	SAFETY DISCONNECT SWITCH	SP	SPARE
DT	DOUBLE THROW	SPP	SINGLE-POINT POWER
DIWG	DRAWING	SR	SURFACE RACEWAY
EC	ELECTRICAL CONTRACTOR	SS	STAINLESS STEEL
ECB	ENCLOSED CIRCUIT BREAKER	SSW	SELECTOR SWITCH
ELEC	ELECTRIC, ELECTRICAL	SSS	STOP/START PUSHBUTTONS
ELEV	ELEVATOR	STA	STATION
ELU	EMERGENCY LIGHTING UNIT	STD	STANDARD
EM	EMERGENCY	SURF	SURFACE MOUNTED
EMS	ENERGY MANAGEMENT SYSTEM	SW	SWITCH
EMT	ELECTRICAL METALLIC TUBING	SWBD	SWITCHBOARD
EP	ELECTRIC PNEUMATIC	SYM	SYMMETRICAL
EPO	EMERGENCY POWER OFF	SYS	SYSTEM
EQUIP	EQUIPMENT	TEL	TELEPHONE
EWC	ELECTRIC WATER COOLER	TERM	TERMINAL
EXIST	EXISTING	T	TAMPER RESISTANT
EXH	EXHAUST	TL	TWIST LOCK
EXP	EXPLOSION PROOF	TSTAT	THERMOSTAT
FA	FIRE ALARM	TTC	TELEPHONE TERMINAL CABINET
FABP	FIRE ALARM BOOSTER POWER SUPPLY PANEL	TV	TELEVISION
		TVTC	TELEVISION TERMINAL CABINET
FACP	FIRE ALARM CONTROL PANEL	TYP	TYPICAL
FCU	FAN COIL UNIT	UC	UNDER COUNTER
FKT	FIXTURE	UE	UNDERGROUND ELECTRICAL
FLR	FLOOR	UG	UNDERGROUND
FLUOR	FLUORESCENT	UH	UNIT HEATER
FPC	FIRE PROTECTION CONTRACTOR	UT	UNDERGROUND TELEPHONE
FU	FUSE	UTIL	UTILITY
FUDS	FUSED SAFETY DISCONNECT SWITCH	UV	ULTRAVIOLET
GA	GAUGE	V	VOLT
GAL	GALLON	VA	VOLT-AMPERES
GALV	GALVANIZED	VDI	VIDEO DISPLAY TERMINAL
GC	GENERAL CONTRACTOR	VERT	VERTICAL
GEN	GENERATOR	VFD	VARIABLE FREQUENCY DRIVE
GFI	GROUND FAULT CIRCUIT INTERRUPTER	VOL	VOLUME
GFP	GROUND FAULT PROTECTOR	W	WATT
GND	GROUND	W/	WITH
GYP BD	GYPSTUM BOARD	WG	WIRE GUARD
HWC-#	DOMESTIC WATER CIRCULATING PUMP	WH	WATER HEATER
HOA	HANDS-OFF-AUTOMATIC SWITCH	W/O	WITHOUT
H	INSTALL DEVICE HORIZONTALLY	WP	WEATHERPROOF
HH	HANDHOLE	XFMR	TRANSFORMER
HP	HORSEPOWER	XFR	TRANSFER
HPF	HIGH POWER FACTOR	#"	LOCATION-SPECIFIC MOUNTING HEIGHT ABOVE FINISHED FLOOR TO CENTERLINE OF DEVICE
HT	HEIGHT		
HTG	HEATING		
HTR	HEATER		
HV	HIGH VOLTAGE	∠	ANGLE
HVAC	HEATING, VENTILATING AND AIR CONDITIONING	@	AT
IC	INTERRUPTING CAPACITY	▲	DELTA
IG	ISOLATED GROUND	'	FEET
IMC	INTERMEDIATE METAL CONDUIT	"	INCHES
INCAND	INCANDESCENT	#	NUMBER
IR	INFRARED	Ø	PHASE
IW	INTERLOCK WITH	C	CENTER LINE
J-BOX	JUNCTION BOX	P	PLATE
K.E.C.	KITCHEN EQUIPMENT CONTRACTOR		
KV	KILOVOLT		
KVA	KILOVOLT-AMPERE		
KVAR	KILOVOLT-AMPERE REACTIVE		
KW	KILOWATT		
KWH	KILOWATT HOUR		
LT	LIGHT		
LTG	LIGHTING		

GENERAL PLAN SYMBOLS	
MARK	SCHEDULED EQUIPMENT (UNDERLINED)
MARK	NONSCHEDULED EQUIPMENT
(E) MARK	EXISTING EQUIPMENT - (E) PREFIX (HALFTONE)
(R) MARK	EXISTING RELOCATED EQUIPMENT - (R) PREFIX
	SECTION VIEW, TOP REPRESENTS DETAIL NUMBER, BOTTOM REPRESENTS SHEET NUMBER
	ENLARGED VIEW, TOP REPRESENTS VIEW NUMBER, BOTTOM REPRESENTS SHEET NUMBER
	NEW WORK BY THE EC (DARK SOLID LINE)
	NEW UNDERGROUND WORK BY THE EC (DARK DASHED LINE)
	WORK BY OTHERS AND/OR EXISTING (LIGHT SOLID LINE)
	DEMO WORK BY THE EC (DARK DASHED LINE)
	MATCHLINE
	KEYED NOTE

ACCESS CONTROL SYMBOLS	
SYMBOL	DESCRIPTION
	ALARM SWITCH
	DOOR CONTACT
	CARD READER
	FLUSH MOUNTED JUNCTION BOX
	ACCESS CONTROL PANEL
	ELECTRIC STRIKE
	GLASS BREAK SENSOR
	KEYPAD
	MAGNETIC LOCK
	MONEY CLIP
	MOTION DETECTOR
OPTURN-#	OPTICAL TURNSTILE
	REQUEST TO EXIT
	BIOMETRIC READER
	DOOR SWITCH

CELLULAR SYMBOLS	
SYMBOL	DESCRIPTION
	INDOOR CELLULAR ENHANCEMENT ANTENNA
	OUTDOOR CELLULAR ENHANCEMENT ANTENNA
	INCOMING SERVICE CELLULAR ENHANCEMENT ANTENNA

AV SYMBOLS	
SYMBOL	DESCRIPTION
	AV CABINET
	CONFERENCE CAMERA
	CEILING MOUNTED MICROPHONE
	CEILING MOUNTED AUDIO SPEAKER
	JUNCTION BOX
	LECTURN
	WALL MOUNTED AUDIO SPEAKER
	TABLETOP MICROPHONE
	MEDIA PRESENTATION CONTROLLER
	MEDIA PRESENTATION WALL PLATE
	PROJECTOR SCREEN OVERRIDE SWITCH
	PROJECTOR SCREEN
	PROJECTOR
	TELEVISION
	AV RACK BACKBOX
	PROJECTOR LIFT

SOUND MASKING SYMBOLS	
SYMBOL	DESCRIPTION
	DIRECT FIRE SOUND MASKING SPEAKER
	SOUND MASKING SPEAKER
	VOLUME CONTROL
	SOUND MASKING AMPLIFIER

NURSE CALL SYMBOLS	
	REFER TO SUBSCRIPT SCHEDULE FOR MORE INFORMATION
	REFER TO SUBSCRIPT SCHEDULE FOR MORE INFORMATION

CABLE TV SYMBOLS	
SYMBOL	DESCRIPTION
	CABLE TV COAX JACK
	CABLE TV COAX JACK - CEILING MOUNTED
	DISTRIBUTION AMPLIFIER

CCTV SYMBOLS	
SYMBOL	DESCRIPTION
	SECURITY CAMERA ROUGH-IN ONLY - CEILING MOUNTED
	SECURITY CAMERA ROUGH-IN ONLY - WALL MOUNTED
	SECURITY CAMERA
	SECURITY MONITOR
	NETWORK VIDEO RECORDER

INTERCOM SYMBOLS	
SYMBOL	DESCRIPTION
	INTERCOM COLOR DOOR STATION
	EMERGENCY VANDAL RESISTANT PHONE TOWER
	INTERCOM MASTER STATION
	INTERCOM DOOR STATION
	INTERCOM AREA OF RESCUE CALL BUTTON
	INTERCOM AREA OF RESCUE MASTER STATION

PAGING SYMBOLS	
SYMBOL	DESCRIPTION
	TELEPHONE PAGING AMPLIFIER
	HORN SPEAKER - WALL MOUNTED
	HORN SPEAKER - CEILING MOUNTED
	PAGING SPEAKER OR DROP IN CEILING GRID SPEAKER
	VOLUME CONTROL

CLOCK SYMBOLS	
SYMBOL	DESCRIPTION
	ELAPSED TIME CLOCK CONTROL
	WIRELESS ANALOG CLOCK DUAL FACE
	DIGITAL WIRELESS CLOCK
	DIGITAL ELAPSED TIME CLOCK
	WIRELESS ANALOG CLOCK SINGLE FACE
	ALARM BELL

NETWORK SYMBOLS	
SYMBOL	DESCRIPTION
	CABLE TRAY
	JUNCTION CEILING MOUNTED DOUBLE GANG
	EQUIPMENT RACK
	GROUND BAR
	INFORMATION OUTLET
	INFORMATION OUTLET MOUNTED IN CEILING
	INFORMATION OUTLET MOUNTED IN FLOORBOX
	LADDER RACK
	MODULAR PATCH PANEL
	TELECOMMUNICATION TERMINAL BOARD
	VERTICAL WIRE MANAGEMENT
	INFORMATION OUTLET FOR WIRELESS ACCESS POINT

TECHNOLOGY SHEET LIST	
T000	TECHNOLOGY TITLE SHEET
T101	TECHNOLOGY PLAN
T501	TECHNOLOGY DETAILS



LAKES REGIONAL HEALTHCARE
PRE-ENGINEERED BUILDING

2323 US-71 SPIRIT LAKE, IA 25006



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HEDI WILLIS
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BID DOCUMENTS
6/1/2026

REVISIONS: DATE:

PROJECT NO: 26022

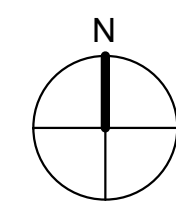
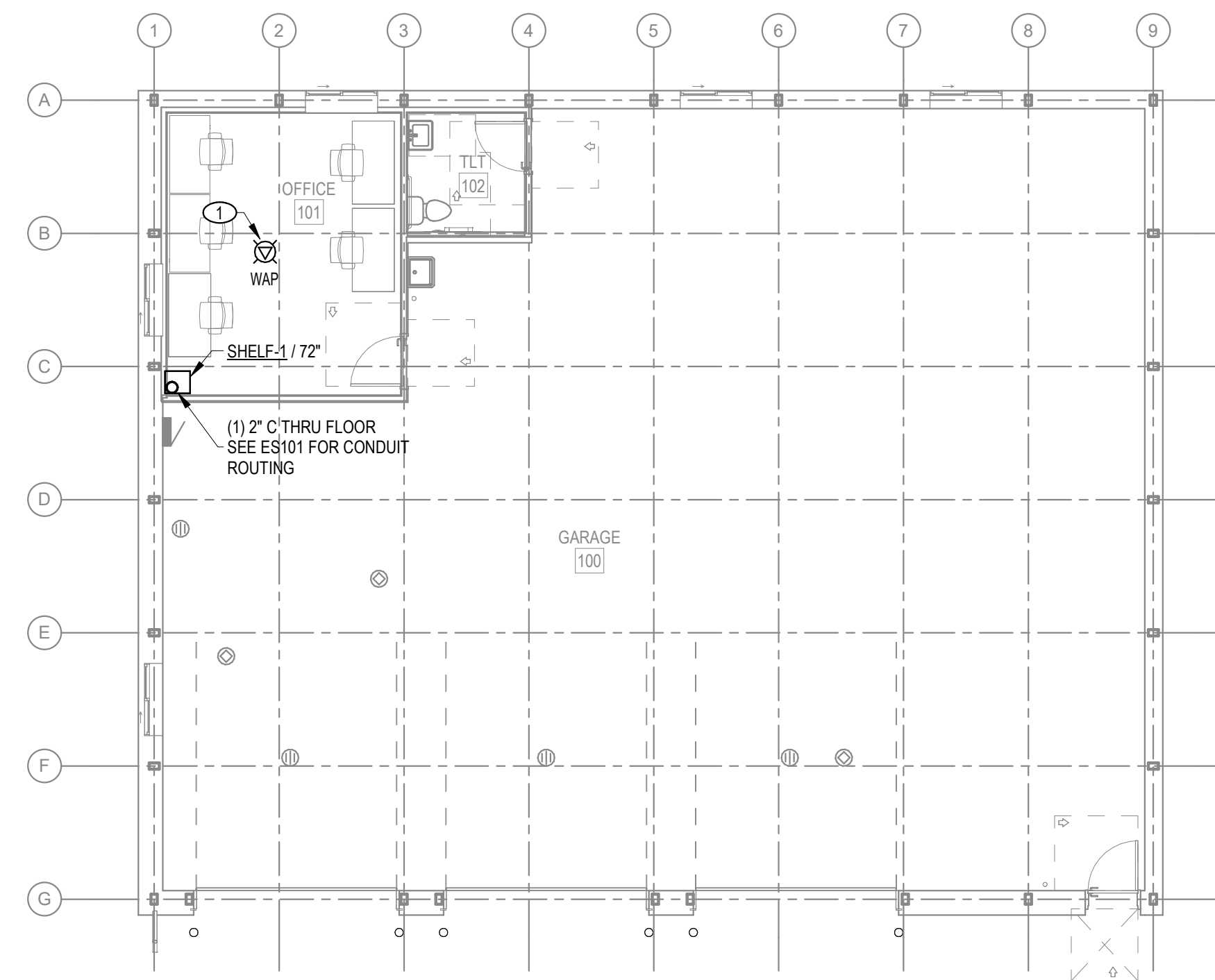
TECHNOLOGY TITLE SHEET

T000

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KEYED NOTES

1. REFER TO 2/T501 FOR WIRELESS ACCESS POINT DETAIL.



1 FIRST FLOOR - TECHNOLOGY PLAN
1/8" = 1'-0"



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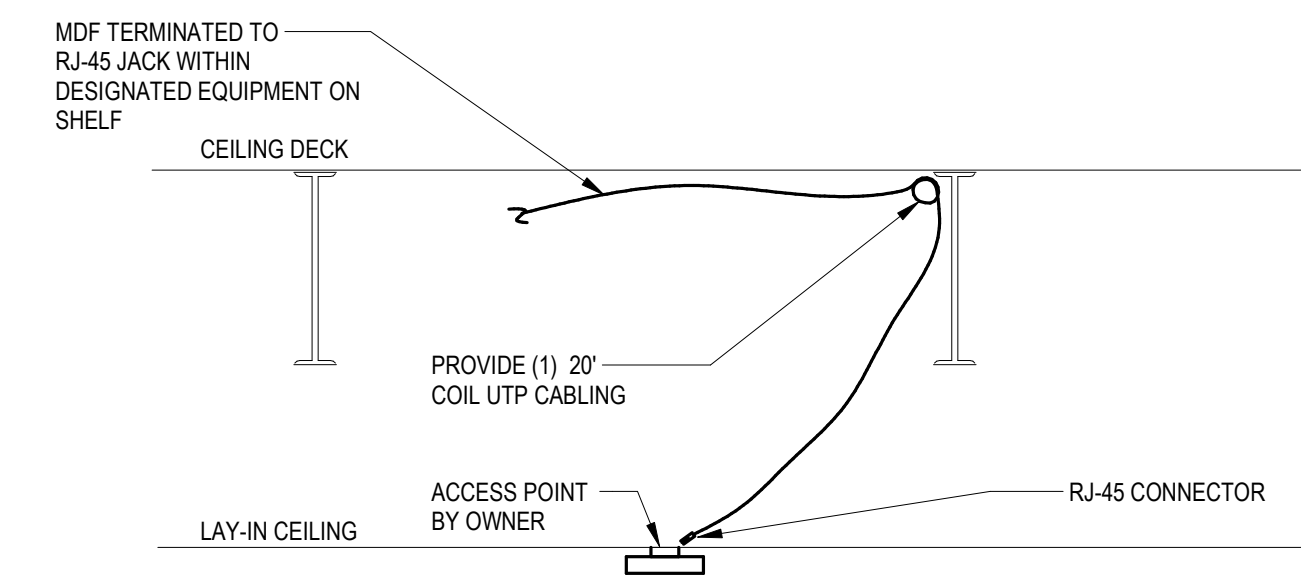
TECHNOLOGY PLAN

T101

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NETWORK SCHEDULE		
LABEL	DESCRIPTION	MODEL
SHELF-1	WALL MOUNT EQUIPMENT SHELF 18"W X 16"D	QUAM QM-AS18X16



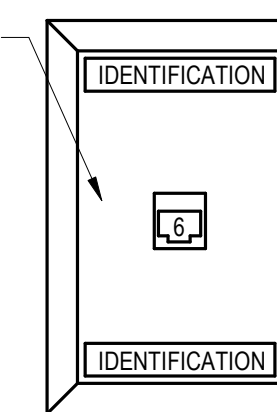
2 WIRELESS ACCESS POINT DETAIL

N.T.S.



NOTES:

1. WIRELESS ACCESS POINTS ARE PROVIDED BY THE OWNER. T.C. SHALL INSTALL THE WIRELESS ACCESS POINTS.

REFER TO SPECIFICATIONS FOR REQUIREMENTS (TYPICAL)



WAP

INFORMATION OUTLET JACK LEGEND		
SYMBOL	DESCRIPTION	MODEL #
	CAT6 RJ-45 JACK # = QUANTITY OF DATA ALL ARE DATA UNLESS NOTED OTHERWISE	PANDUIT CJ688TGWH
	CEILING WIRELESS ACCESS POINT. (1) CEILING SURFACE MOUNTED BOX SHALL BE SECURELY SUPPORTED ABOVE CEILING.	SURFACE MOUNT BOX: PANDUIT CBXQ2WH-A

1 INFORMATION OUTLET DETAIL

N.T.S.

NOTES:

1. WIRELESS ACCESS POINTS DATA CABLING. REFER TO 2/T501 FOR WIRELESS ACCESS POINT ROUGH-IN DETAIL.

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TECHNOLOGY DETAILS

T501

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