PROPOSED BUILDING RENOVATION FOR:

HAWAIIAN BROS - STR: 43

COLUMBIA, MO

PROJECT CONTACTS (EXCEL)

OWNER INFORMATION:
MARK CRAMER
1220 WASHINGTON STREET
SUITE 200
KANSAS CITY MO 64105

PROJECT MANAGER:
JAY JOHNSON
Phone: (920)322-1690
E-mail: jay.johnson@excelengineer.com

ARCHITECTURAL:
ELLIOT PIEPER
Phone: (920)322-1576
E-mail: elliot.pieper@excelengineer.com

PLUMBING:
NICK STREETER
Phone: (920)322-1627
E-mail: nick.streeter@excelengineer.com

STRUCTURAL:
ANDREW HAHN
Phone: (920)322-1606
E-mail: andrew.hahn@excelengineer.com

ELECTRICAL:
TIM STOPPLEWORTH
Phone: (920)322-1748
E-mail: tim.stoppleworth@excelengineer.com

HVAC:
MICHAEL ZAGAR
Phone: (920)322-1727
E-mail: michael.zagar@excelengineer.com

AD1

PROJECT CONTACTS (DRAWINGS BY OTHERS)

FURNITURE/CASEWORK:
KATALYST
TRENT FERGUSON
Phone: (785)476-5244
E-mail: trent@katgroupinc.com

SIGNAGE:
COMET SIGNS
STEVEN MUNSON
Phone: (210) 812-2225
E-mail: steven.munson@cometsigns.com

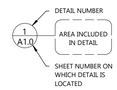
LOW VOLTAGE:
SHIELD SECURITY SYSTEMS
TONY THURMAN
Phone: (913) 660-0750
E-mail: tony@shieldkc.com

KITCHEN:
EDWARD DON & COMPANY
JESSE WILSON
Phone: (800) 777-4366
E-mail: jessewilson@don.com

AUDIO:
SOUND PRODUCTS
TONY THURMAN
Phone: (913)599-3666
E-mail: bscott@soundproductsinc.com

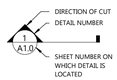
AD1

SYMBOLS LEGEND

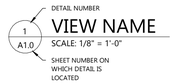


CALLOUT/DETAIL REFERENCE

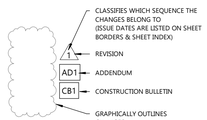
INTERIOR ELEVATION REFERENCE



SECTION/DETAIL REFERENCE



DRAWING/DETAIL IDENTIFICATION

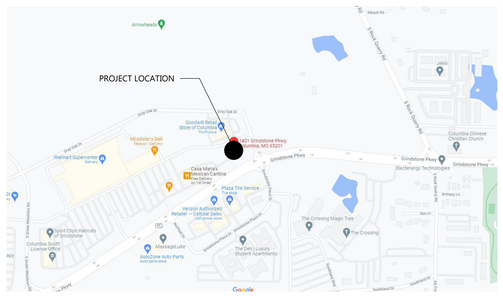


REVISION CLOUD

KEYED NOTE

ELEVATION MARKER

LOCATION MAP



ALTERNATES:

ALTERNATE 1: PROVIDE CEDAR IN LIEU OF SPECIFIED REDWOOD. CONTACT EXCEL ENGINEERING IF ALTERNATE ACCEPTED

SHEET INDEX

NUMBER	SHEET NAME / DESCRIPTION	SHEET ISSUE DATE	LATEST SHEET REVISION NUMBER	LATEST SHEET REVISION DATE
GENERAL				
T1.0	TITLE SHEET	OCT. 26, 2021	AD1	MAR. 7, 2022
T1.1	LIFE SAFETY PLAN	OCT. 26, 2021	AD1	MAR. 7, 2022
T1.2	RESPONSIBILITY MATRIX	OCT. 26, 2021	AD1	MAR. 7, 2022
CIVIL				
C0.1	COVER SHEET AND SPECIFICATIONS	OCT. 26, 2021		
C1.0	EXISTING SITE AND DEMOLITION PLAN	OCT. 26, 2021	AD1	MAR. 7, 2022
C1.1	SITE PLAN	OCT. 26, 2021	AD1	MAR. 7, 2022
C1.2	GRADING AND EROSION CONTROL PLAN	OCT. 26, 2021	AD1	MAR. 7, 2022
C1.3	UTILITY PLAN	OCT. 26, 2021	AD1	MAR. 7, 2022
C2.0	DETAILS	OCT. 26, 2021		
C3.1	SITE PHOTOMETRIC PLAN & DETAILS	OCT. 26, 2021		
C3.2	EXTERNAL PLUMBING CALCULATIOSN & DETAILS	OCT. 26, 2021		
L1	LANDSCAPING PLAN BY OTHERS	MAR. 2, 2022		
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A0.2	SPECIFICATIONS	OCT. 26, 2021		
A0.3	SPECIFICATIONS	OCT. 26, 2021		
A0.4	SPECIFICATIONS	OCT. 26, 2021	AD1	MAR. 7, 2022
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AD1.1S	SLAB DEMOLITION PLAN	OCT. 26, 2021		
AD1.2	ROOF DEMOLITION PLAN	OCT. 26, 2021	AD1	MAR. 7, 2022
AD2.0	EXTERIOR DEMOLITION ELEVATIONS	OCT. 26, 2021	AD1	MAR. 7, 2022
AD2.1	EXTERIOR DEMOLITION ELEVATIONS	OCT. 26, 2021	AD1	MAR. 7, 2022
AD7.1	FIRST FLOOR REFLECTED CEILING DEMOLITION PLAN	OCT. 26, 2021		
A1.1	FIRST FLOOR PLAN	OCT. 26, 2021	AD1	MAR. 7, 2022
A1.1S	SLAB PLAN	OCT. 26, 2021	AD1	MAR. 7, 2022
A1.2	ROOF PLAN	OCT. 26, 2021	AD1	MAR. 7, 2022
A1.3	ENLARGED ROOF PLANS	OCT. 26, 2021	AD1	MAR. 7, 2022
A1.4	MENU BOARD AND ORDER CANOPY	OCT. 26, 2021	AD1	MAR. 7, 2022
A1.5	MENU BOARD AND ORDER CANOPY	MAR. 4, 2022	AD1	MAR. 7, 2022
A1.6	DUMPSTER ENCLOSURE PLAN	OCT. 26, 2021	AD1	MAR. 7, 2022
A1.7	DUMPSTER ENCLOSURE PLAN	OCT. 26, 2021	AD1	MAR. 7, 2022
A2.0	EXTERIOR ELEVATIONS	OCT. 26, 2021	AD1	MAR. 7, 2022
A2.1	EXTERIOR ELEVATIONS	OCT. 26, 2021	AD1	MAR. 7, 2022
A3.0	BUILDING SECTIONS	OCT. 26, 2021	AD1	MAR. 7, 2022
A3.1	BUILDING SECTIONS	OCT. 26, 2021	AD1	MAR. 7, 2022
A3.2	BUILDING SECTIONS	OCT. 26, 2021	AD1	MAR. 7, 2022
A3.3	BUILDING SECTIONS	OCT. 26, 2021	AD1	MAR. 7, 2022
A3.4	BUILDING SECTIONS	OCT. 26, 2021	AD1	MAR. 7, 2022
A4.0	DETAILS	OCT. 26, 2021	AD1	MAR. 7, 2022
A4.1	DETAILS	OCT. 26, 2021	AD1	MAR. 7, 2022
A5.0	ENLARGED PLANS	OCT. 26, 2021		
A5.1	INTERIOR ELEVATIONS	OCT. 26, 2021	AD1	MAR. 7, 2022
A6.0	SCHEDULES	OCT. 26, 2021	AD1	MAR. 7, 2022
A6.1	DOOR SCHEDULE	OCT. 26, 2021	AD1	MAR. 7, 2022
A7.1	FIRST FLOOR REFLECTED CEILING PLAN	OCT. 26, 2021	AD1	MAR. 7, 2022
A8.1	FIRST FLOOR FINISH PLAN	OCT. 26, 2021	AD1	MAR. 7, 2022
A9.1	FIRST FLOOR FURNITURE PLAN	OCT. 26, 2021	AD1	MAR. 7, 2022
A10.0	INTERIOR WALL SECTIONS	OCT. 26, 2021	AD1	MAR. 7, 2022

NUMBER	SHEET NAME / DESCRIPTION	SHEET ISSUE DATE	LATEST SHEET REVISION NUMBER	LATEST SHEET REVISION DATE
STRUCTURAL				
S0.1	STRUCTURAL SPECIFICATIONS	OCT. 26, 2021		
S0.2	DESIGN CRITERIA	OCT. 26, 2021	AD1	MAR. 7, 2022
S1.0	FOUNDATION PLAN	OCT. 26, 2021	AD1	MAR. 7, 2022
S1.1	ROOF FRAMING PLAN	OCT. 26, 2021	AD1	MAR. 7, 2022
S1.2	DUMPSTER ENCLOSURE PLAN	OCT. 26, 2021	AD1	MAR. 7, 2022
S1.3	ORDER CANOPY PLANS	OCT. 26, 2021	AD1	MAR. 7, 2022
S2.0	FOUNDATION SCHEDULES & DETAILS	OCT. 26, 2021	AD1	MAR. 7, 2022
S3.0	FRAMING SCHEDULES	OCT. 26, 2021		
S3.1	FRAMING SCHEDULES	OCT. 26, 2021	AD1	MAR. 7, 2022
S3.2	FRAMING DETAILS	OCT. 26, 2021	AD1	MAR. 7, 2022
S3.3	FRAMING DETAILS	OCT. 26, 2021	AD1	MAR. 7, 2022
S3.4	FRAMING DETAILS	OCT. 26, 2021	AD1	MAR. 7, 2022
PLUMBING				
P0.1	LEGEND AND SPECIFICATIONS	OCT. 26, 2021		
PD1.U	UNDERGROUND PLAN - DEMOLITION	OCT. 26, 2021		
PD1.1	FIRST FLOOR PLAN - DEMOLITION	OCT. 26, 2021		
P1.U	UNDERGROUND PLAN	OCT. 26, 2021	AD1	MAR. 7, 2022
P1.1	FIRST FLOOR PLAN	OCT. 26, 2021	AD1	MAR. 7, 2022
P2.0	ISOMETRICS AND SCHEDULES	OCT. 26, 2021		
P3.0	DETAILS	OCT. 26, 2021		
P4.0	SCHEDULES	OCT. 26, 2021		
P4.1	SCHEDULES	OCT. 26, 2021		
HVAC				
H0.1	LEGEND AND SPECIFICATIONS	OCT. 26, 2021	AD1	MAR. 7, 2022
H0.2	SPECIFICATIONS	OCT. 26, 2021	AD1	MAR. 7, 2022
HD1.1	FIRST FLOOR DEMOLITION PLAN	OCT. 26, 2021		
HD1.2	ROOF DEMOLITION PLAN	OCT. 26, 2021		
H1.1	FIRST FLOOR PLAN	OCT. 26, 2021	AD1	MAR. 7, 2022
H1.2	ROOF PLAN	OCT. 26, 2021	AD1	MAR. 7, 2022
H3.0	DETAILS	OCT. 26, 2021	AD1	MAR. 7, 2022
H3.1	DETAILS	OCT. 26, 2021	AD1	MAR. 7, 2022
H4.0	SCHEDULES	OCT. 26, 2021	AD1	MAR. 7, 2022
ELECTRICAL				
E0.1	LEGEND AND SPECIFICATIONS	OCT. 26, 2021		
E0.2	SPECIFICATIONS	OCT. 26, 2021		
E0.3	SPECIFICATIONS	OCT. 26, 2021		
E1.0	SITE PLAN	OCT. 26, 2021	AD1	MAR. 7, 2022
E1.1L	FIRST FLOOR PLAN - LIGHTING	OCT. 26, 2021	AD1	MAR. 7, 2022
E1.1P	FIRST FLOOR PLAN - POWER	OCT. 26, 2021	AD1	MAR. 7, 2022
E1.1S	FIRST FLOOR PLAN - SYSTEMS	OCT. 26, 2021		
E1.2	ROOF PLAN	OCT. 26, 2021	AD1	MAR. 7, 2022
E1.3	FIRST FLOOR PLAN - DRIVE THRU	OCT. 26, 2021	AD1	MAR. 7, 2022
E3.0	DETAILS	OCT. 26, 2021	AD1	MAR. 7, 2022
E4.0	ONELINE DIAGRAMS & SCHEDULES	OCT. 26, 2021	AD1	MAR. 7, 2022
E4.1	PANEL SCHEDULES	OCT. 26, 2021	AD1	MAR. 7, 2022
DRAWINGS BY OTHERS FOR REFERENCE ONLY				
QF100-QF600	KITCHEN EQUIPMENT PLANS - EDWARD DON AND COMPANY	OCT. 19, 2021	R1	MAR. 4, 2022
1-3	HOOD DRAWINGS - CAPTIVE AIR	OCT. 19, 2021	R1	MAR. 1, 2022
1-25	SIGNAGE DRAWINGS - COMET SIGNS	OCT. 5, 2021	R6	MAR. 2, 2022

ARCHITECTURAL TITLE SHEET

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PROJECT INFORMATION

PROPOSED BUILDING RENOVATION
HAWAIIAN BROS - STR: 43
1401 GRINDSTONE PKWY • COLUMBIA, MO

PROFESSIONAL SEAL

SHEET DATES
SHEET ISSUE OCT. 26, 2021
REVISIONS
AD1 MAR. 7, 2022

JOB NUMBER
2164120

SHEET NUMBER
T1.0

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APPLICABLE BUILDING CODES

2018 INTERNATIONAL BUILDING CODE
2018 INTERNATIONAL EXISTING BUILDING CODE

BUILDING SIZE

EXISTING FLOOR PLAN	3,012 S.F.
ADDITION	547 S.F.
TOTAL AREA	3,559 S.F.

BUILDING HEIGHT = ±24'-8"

NUMBER OF STORIES

NUMBER OF STORIES= (1)

2018 IBC TABLE 504.4 MAX. (1) STORIES PER MOST RESTRICTIVE OCCUPANCY

TOTAL STORIES ALLOWED = (1)

CONSTRUCTION CLASSIFICATION

2018 IBC SECTION 602.5 TYPE V(B) CONSTRUCTION

ENTIRE BUILDING IS NOT EQUIPPED w/ AN AUTOMATIC SPRINKLER SYSTEM

OCCUPANCY CLASSIFICATIONS

NON-SEPARATED USES w/ MIXED OCCUPANCY
BUILDING IS DESIGNED FOR A-2 OCCUPANCY (MOST RESTRICTIVE)

OCCUPANCY CLASSIFICATIONS WITHIN BUILDING INCLUDE:
ASSEMBLY GROUP A-2 2018 IBC SECTION 303.3 - RESTAURANTS

MEANS OF EGRESS

2018 IBC TABLE 1017.2 200 FT. EXIT ACCESS TRAVEL DISTANCE (NON-SPRINKLERED)

2018 IBC SECTION 1005.3.2 EGRESS WIDTH PER OCCUPANT SERVED = 0.2" (NON-SPRINKLERED)
(81) TOTAL OCCUPANTS x 0.2" = 16.2" EGRESS WIDTH REQUIRED
PROVIDED EGRESS WIDTH = 108"

EXTERIOR WALL OPENINGS

2018 IBC TABLE 705.8 BUILDING PERMITTED TO HAVE UNLIMITED UNPROTECTED OPENINGS DUE TO FIRE SEPARATION DISTANCE TO PROPERTY LINE IS 25 TO 30 FT.

OCCUPANT LOADS

OCCUPANT LOADS BASED ON 2018 IBC TABLE 1004.1.2

ROOM OR SPACE DESIGNATION	CLASSIFICATION OF OCCUPANCY FOR USE	FLOOR AREA (S.F.)	DENSITY SF/PERSON	OCCUPANT LOAD BY CALCULATION	OCCUPANT LOAD BY ACTUAL NO.
RESTAURANT DINING ROOM	ASSEMBLY UNCONCENTRATED	772 S.F.	15 NET	-	58
RESTAURANT QUEUING	ASSEMBLY UNCONCENTRATED	184 S.F.	15 NET	13	-
KITCHEN RESTAURANT	KITCHEN, COMMERCIAL	1,331 S.F.	200 GROSS	7	-
OFFICE	BUSINESS AREAS	54 S.F.	100 GROSS	1	-
STORAGE ROOM/ MECH. ROOM	ACCESSORY STORAGE AREAS	349 S.F.	300 GROSS	2	-

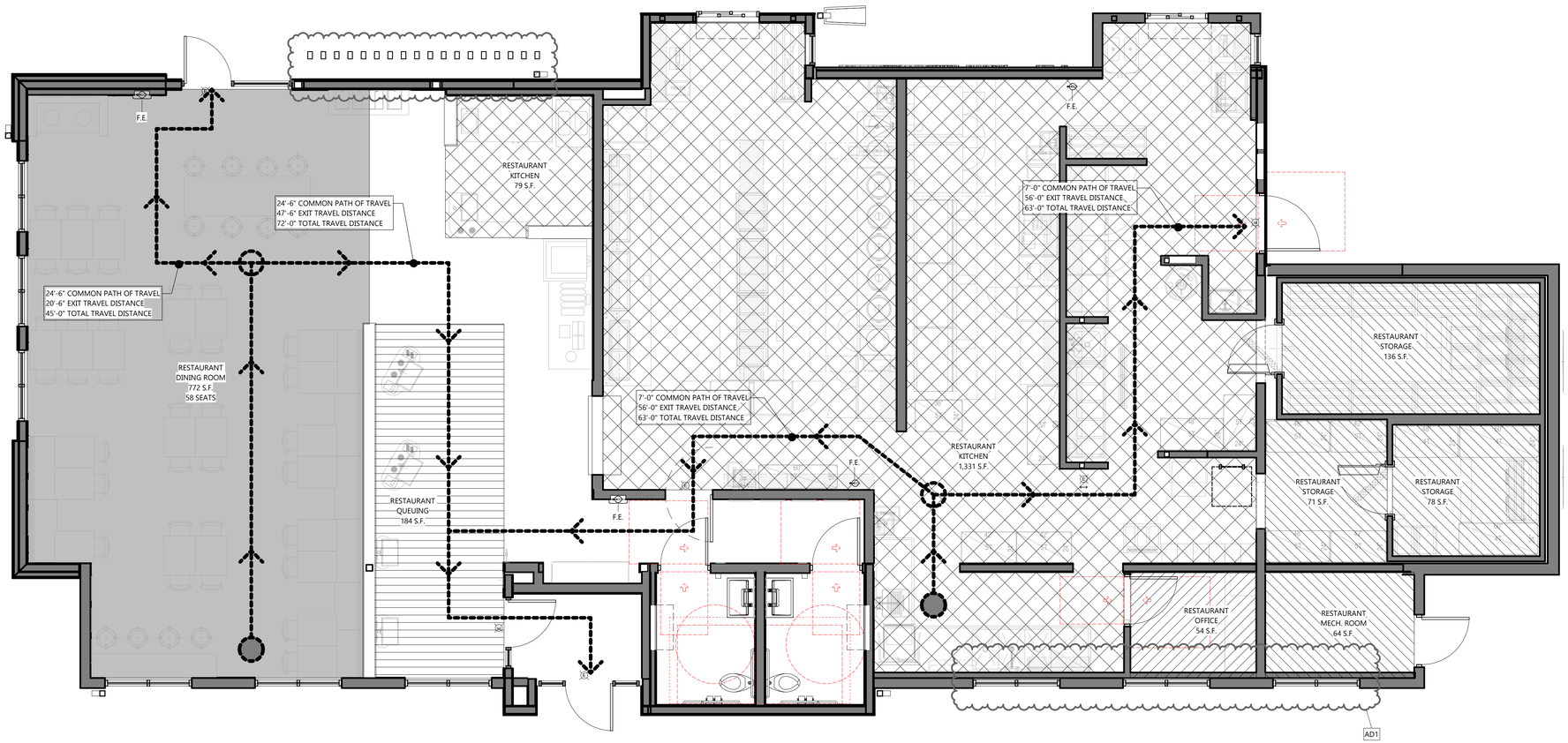
TOTAL OCCUPANT LOAD OF THE BUILDING = 81 OCCUPANTS

SANITARY FIXTURES

PLUMBING FIXTURE FACTORS BASED ON 2018 IBC TABLE 2902.1

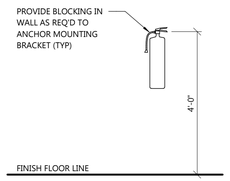
OCCUPANCY		WATER CLOSETS			LAVATORIES		DRINK FOUNTAINS	
TYPE	CAPACITY	FACTORS	# M. FIX.	# F. FIX.	FACTORS	# FIX.	FACTORS	# FIX.
A-2 GROUP (RESTAURANT)	81 PERSONS	1/75	.500	.500	1/200	.375	1/500	.150
TOTAL	81 PERSONS		.500	.500		.375		.150
PROVIDED FIXTURES			1 (WC) 1 (URINAL)	2		2		A

A. WATER PROVIDED AT SODA FOUNTAIN



SYMBOLS LEGEND

- EXIT SIGNAGE
- FIRE EXTINGUISHER -SEE T1.1 SHEET
- PATH OF TRAVEL
- START PATH OF TRAVEL
- COMMON PATH OF TRAVEL

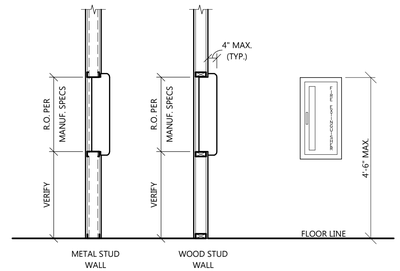


FIRE EXTINGUISHER SPECIFICATION:

MANUFACTURER: JL INDUSTRIES, INC.
PRODUCT: FIRE EXTINGUISHER:
- 'COSMIC' 10E
10 lb. CAPACITY ; 4A-80BC RATING
BRACKET:
- MARK 'MB846' WALL BRACKET

FIRE EXTINGUISHER

NOT TO SCALE



FIRE EXTINGUISHER / CABINET SPECIFICATION:

MANUFACTURER: JL INDUSTRIES, INC.
PRODUCT: FIRE EXTINGUISHER CABINET
-MODEL 'AMBASSADOR' 1017V10
-PROVIDE 'FIRE-FX' FIRE RATED TUB OPTION WHEN LOCATED IN RATED WALLS (1 & 2 HOUR-RATED)
-PROVIDE BLACK VERTICAL LETTERING SPELLING 'FIRE EXTINGUISHER' ON CABINET DOOR

FIRE EXTINGUISHER:
- 'COSMIC' 10E
10 lb. CAPACITY ; 4A-80BC RATING

MISC.: PAINT CABINET TO MATCH ADJACENT WALL FINISH

FIRE EXTINGUISHER CABINET

NOT TO SCALE

LIFE SAFETY PLAN

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

4' 0' 4' 8'

NOT ALL DETAILS MAY BE USED IN THIS PROJECT

LIFE SAFETY PLAN

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SHEET DATES

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REVISIONS
AD1 MAR. 7, 2022

JOB NUMBER
2164120

SHEET NUMBER
T1.1

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RESPONSIBILITY MATRIX

ITEM	ITEM		LANDLORD PROVIDED/ INSTALLED	HBROS PROVIDED HBROS INSTALLED	HBROS PROVIDED G.C. INSTALLED	VENDOR SUPPLIED VENDOR INSTALLED	VENDOR SUPPLIED G.C. INSTALLED	G.C. SUPPLIED G.C. INSTALLED	COMMENTS
SITE	SITE ACCESSABILITY TO...							X	
	PARKING LOT							X	
	SITE LIGHTING							X	
	LANDSCAPING							X	
	FLOOR SLAB	FLOOR SLAB						X	
		FLOOR SLAB SAWCUTTING						X	
	WALLS	EXTERIOR WALLS						X	
		INTERIOR ROOM WALLS						X	
		STOREFRONT GLAZING						X	
		PERIMETER WALL PATCHING						X	
	TOILET ROOMS	TOILET FIXTURES						X	
		WALL HUNG MIRROR					X		
		GRAB BARS						X	
		SOAP DISPENSER					X		
		ELECTRIC HAND DRYER					X		
		TOILET PAPER DISPENSER					X		
	OFFICE	SAFE			X				
		OFFICE EQUIPMENT		X					
	FIRE EXTINGUISHERS								
	ROOFING AND ROOF STURCTURE							X	
	DOORS	EXTERIOR...						X	
		INTERIOR...						X	
		OVERHEAD...						X	
		STOREFRONT...						X	
	CASEWORK	INTERIOR SEATING					X		
		EXTERIOR SEATING					X		
		SURF TABLE (SPECILITY SEATING)							
		SODA COUNTER				X			
		MERCHANDISE DISPLAY					X		
		ORDERING PODS					X		
		CABINETS/COUNTERTOP					X		
	KITCHEN EQUIPMENT	KITCHEN EQUIPMENT				X			
		WALK-IN COOLERS				X			
		SODA DISPENSOR				X			
		CO2 TANK				X			
		CO2 ALARM/SENSOR						X	
		PAPER TOWELS/SOAP					X		
	FOOD SERVING	TRAYS/SILVERWARE							
		FLOOR SCRUBER				X			
		CLEANING CHEMICALS				X			
	INTERIOR FINISHES	PAINTING						X	
		WALL TILE						X	
		WALL PANELING - WOOD						X	
		THIN BRICK VENEER						X	
		EPOXY FLOORING/BASE						X	
		DRYWALL						X	
		SUSPENDED CEILING						X	
		SUSPENDED CLOUD						X	
		EXPOSED STRUCTURE						X	
		DECORATIVE METAL PANELS					X		
		DECORATIVE METAL RAILING					X		
		WINDOW SILLS						X	
		ROLLER SHADES						X	
FIRE PROTECTION	FIRE PROTECTION	FIRE SPRINKLERS							
		FIRE ALARM							
PLUMBING	PLUMBING FIXTURE							X	
	ROOF DRAINAGE							X	
	WATER SERVICE		X						
	WATER METER		X						
	BACKFLOW PREVENTER							X	
	WATER SOFTENER SYSTEM							X	
	INTERIOR PLUMBING							X	
HVAC	GAS PIPING	GAS PIPING TO RTU						X	
		GAS PIPING TO KITCHEN...						X	
		GAS PIPING TO MISC EQUIPMENT						X	
	ELECTRIC WALL HEATERS							x	
	HVAC UNITS							X	
	HVAC DUCTWORK							X	
	EXHAUST	TOILET EXHAUST						X	
		KITCHEN EXHAUST						X	
ELECTRICAL	ELECTRIC METER							X	
	800 AMP ELECTRICAL SERVICE							X	
	INTERIOR ELECTRICAL	DUPLEX OUTLETS AT PERIMETER...						X	SPACED PER CODE, PER DWG'S
	ELECTRICAL PANEL	MAIN DISTRUBUTION...						X	
		BUILIDING SERVICE						X	
		EXTERIOR LIGHTING/SIGNAGE...						X	WITH TIME CLOCK & PHOTO CELL
	LIGHTING	INTERIOR LIGHTING						X	
		EXTERIOR LIGHTING						X	
		DECORATIVE LIGHTING						X	
		SITE LIGHTING						X	
	SIGNAGE	EXTERIOR SIGNAGE - POWER						X	
		INTERIOR SIGNAGE - POWER						X	
	EMERGENCY LIGHTING	EXIT SIGNS						X	
		EMERGENCY LIGHTS						X	
	LOW VOLTAGE	CONDUIT FOR CABLE TV						X	
		CONDUIT FOR TELEPHONE						X	
		TELEPHONE/EQUIPMENT						X	
		POS SYSTEM				X			
		SECURITY SYSTEM/CAMERAS				X			
		MUSIC/SPEAKER SYSTEM					X		
	IT CABINET	IT CABINET						X	
		IT CABINET INTERNAL...				X			
									N/A
SIGNAGE	EXTERIOR SIGNAGE	BUILDING SIGNAGE				X			
		SITE WAY FINDING SIGNAGE				X			
	INTERIOR SIGNAGE	ADA SIGNAGE					X		
		TOILET ROOM SIGNAGE					X		
		VINYL DOOR SIGNAGE				X			
		BRANDING SIGNAGE				X			

AD1

RESPONSIBILITY MATRIX

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SHEET ISSUE OCT. 26, 2021

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JOB NUMBER

2164120

SHEET NUMBER

T1.2

PROPOSED BUILDING RENOVATION FOR:
HAWAIIAN BROS
COLUMBIA, MISSOURI

LEGEND

- 000.00 — PROPOSED SPOT ELEVATIONS (FLOW LINE OF CURB UNLESS OTHERWISE SPECIFIED)
- 000.00 EG — EXISTING GRADE SPOT ELEVATIONS
- 000.00 BG / 000.00 FG — PROPOSED SPOT ELEVATIONS (REFERENCE R-WALL DETAIL) BG-FINISHED SURFACE GRADE AT BACK OF WALL FG-FINISHED SURFACE GRADE AT FRONT OF WALL
- 000.00 TC / 000.00 BC — PROPOSED SPOT ELEVATIONS (TOP OF CURB, BOTTOM OF CURB)
- 000.00 TW / 000.00 BW — PROPOSED SPOT ELEVATIONS (TOP OF WALK, BOTTOM OF WALK)
- EXISTING WATER VALVE IN BOX
- PROPOSED WATER VALVE IN BOX
- EXISTING WATER VALVE IN MANHOLE
- EXISTING WATER SERVICE VALVE
- EXISTING TELEPHONE MANHOLE
- EXISTING STORM CATCH BASIN
- PROPOSED STORM CATCH BASIN – ST CB
- PROPOSED STORM FIELD INLET – ST FI
- EXISTING SQUARE CATCH BASIN
- EXISTING STORM CURB INLET
- PROPOSED STORM CURB INLET – ST CI
- EXISTING UTILITY POLE
- EXISTING UTILITY POLE WITH GUY WIRE
- EXISTING STREET LIGHT
- EXISTING TELEPHONE PEDESTAL
- EXISTING ELECTRIC PEDESTAL
- EXISTING ELECTRIC BOX
- EXISTING CABLE TV PEDESTAL
- PROPOSED DRAINAGE FLOW
- 1-1/4" REBAR SET WEIGHING 4.30 LB/FT.
- 3/4" REBAR SET WEIGHING 1.50 LB/FT.
- 1-1/4" REBAR FOUND
- 3/4" REBAR FOUND
- 2" IRON PIPE FOUND
- 1" IRON PIPE FOUND
- EXISTING FLOOD LIGHT
- SECTION CORNER
- PROPOSED APRON END SECTION
- EXISTING MARSH AREA
- EXISTING DECIDUOUS TREE WITH TRUNK DIAMETER
- EROSION MATTING
- IP — PROPOSED INLET PROTECTION
- EXISTING CONIFEROUS TREE
- EXISTING SHRUB
- EXISTING STUMP
- SOIL BORING
- EXISTING WELL
- PROPOSED WELL
- EXISTING LIGHT POLE
- EXISTING SIGN
- CENTER LINE
- EXISTING HANDICAP PARKING STALL
- PROPOSED HANDICAP PARKING STALL
- EXISTING GAS VALVE
- EXISTING WOODED AREA
- EXISTING HEDGE
- EXISTING CHAINLINK FENCE
- EXISTING WOOD FENCE
- EXISTING BARBED WIRE FENCE
- PROPOSED PROPERTY LINE
- EXISTING GUARD RAIL
- ST — EXISTING STORM SEWER AND MANHOLE
- ST — PROPOSED STORM SEWER AND MANHOLE – ST MH
- SA — EXISTING SANITARY SEWER AND MANHOLE
- SA — PROPOSED SANITARY SEWER AND MANHOLE – SAN MH
- W — EXISTING WATER LINE AND HYDRANT
- W — PROPOSED WATER LINE AND HYDRANT
- OU — EXISTING OVERHEAD UTILITY LINE
- FO — EXISTING UNDERGROUND FIBER OPTIC LINE
- E — EXISTING UNDERGROUND ELECTRIC CABLE
- T — EXISTING UNDERGROUND TELEPHONE CABLE
- G — EXISTING UNDERGROUND GAS LINE
- PROPOSED CURB AND GUTTER
- EXISTING CURB AND GUTTER
- GRADING/SEEDING LIMITS
- RIGHT-OF-WAY LINE
- INTERIOR PROPERTY LINE
- RAILROAD TRACKS
- 800 — EXISTING GROUND CONTOUR
- 800 — PROPOSED GROUND CONTOUR

PLAN SPECIFICATIONS

DIVISION 31 EARTH WORK

31 10 00 SITE CLEARING (DEMOLITION)

A. CONTRACTOR SHALL CALL DIGGER'S HOT LINE AND CONDUCT A PRIVATE UTILITY LOCATE AS REQUIRED TO ENSURE THAT ALL UTILITIES HAVE BEEN LOCATED BEFORE STARTING SITE DEMOLITION. DESIGN ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES BETWEEN PLAN AND FIELD CONDITIONS PRIOR TO CONSTRUCTION.
B. DEMOLITION PLAN IS AN OVERVIEW OF DEMOLITION TO TAKE PLACE ON SITE. CONTRACTOR TO FIELD VERIFY EXISTING SITE CONDITIONS PRIOR TO BIDDING. CONTRACTOR SHALL REMOVE, REPLACE, OR DEMOLISH ALL ITEMS AS NEEDED DURING CONSTRUCTION.
C. CONTRACTOR TO PROTECT EXISTING IMPROVEMENTS THAT ARE SCHEDULED TO REMAIN. ANY DAMAGE TO EXISTING FACILITIES SHALL BE REPLACED AT CONTRACTORS EXPENSE.
D. ALL CONCRETE NOTED TO BE REMOVED SHALL BE REMOVED TO THE NEAREST CONTROL JOINT.

31 20 00 EARTH MOVING

A. CONTRACTOR SHALL CALL DIGGER'S HOT LINE AND CONDUCT A PRIVATE UTILITY LOCATE AS REQUIRED TO ENSURE THAT ALL UTILITIES HAVE BEEN LOCATED BEFORE STARTING EXCAVATION. DESIGN ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES BETWEEN PLAN AND FIELD CONDITIONS PRIOR TO CONSTRUCTION.
B. PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT FOR ALL EXCAVATION, GRADING, FILL AND BACKFILL WORK AS REQUIRED TO COMPLETE THE GENERAL CONSTRUCTION WORK. ALL EXCAVATION AND BACKFILL FOR ELECTRICALS AND MECHANICALS ARE THE RESPONSIBILITY OF THE RESPECTIVE CONTRACTOR UNLESS OTHERWISE SPECIFIED IN THE BID DOCUMENTS.
C. ALL ORGANIC TOPSOIL INSIDE THE BUILDING AREA, UNDER PAVED AREAS, AND AT SITE FILL AREAS SHALL BE REMOVED. PROOF ROLL SUBGRADES BEFORE PLACING FILL WITH HEAVY PNEUMATIC-TIRED EQUIPMENT, SUCH AS A FULLY-LOADED TANDEM AXLE DUMP TRUCK, TO IDENTIFY SOFT POCKETS AND AREAS OF EXCESS YIELDING. CONTRACTOR SHALL VERIFY TOPSOIL DEPTHS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL REVIEW AND FOLLOW THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT AND ACCOUNT FOR EXISTING CONDITIONS PRIOR TO SUBMITTING BID FOR THE PROJECT. EXCESS MATERIALS SHALL BE REMOVED FROM THE SITE UNLESS OTHERWISE DIRECTED IN THE PLANS OR BY LOCAL ZONING REQUIREMENTS.
D. PLACE AND COMPACT FILL MATERIAL IN LAYERS TO REQUIRED ELEVATIONS. UNIFORMLY MOISTEN OR AERATE SUBGRADE AND EACH SUBSEQUENT FILL OR BACKFILL LAYER BEFORE COMPACTION AS RECOMMENDED TO ACHIEVE SPECIFIED DRY DENSITY. REMOVE AND REPLACE, OR SCARIFY AND AIR DRY, OTHERWISE SATISFACTORY SOIL MATERIAL THAT IS TOO WET TO COMPACT TO SPECIFIED DRY DENSITY.
E. PLACE BACKFILL AND FILL MATERIALS IN LAYERS NOT MORE THAN 8" IN LOOSE DEPTH FOR MATERIAL COMPACTED BY HEAVY COMPACTION EQUIPMENT, AND NOT MORE THAN 4" IN LOOSE DEPTH FOR MATERIAL COMPACTED BY HAND-OPERATED TAMPERS.
F. COMPACT THE SOIL TO NOT LESS THAN THE FOLLOWING PERCENTAGES OF MAXIMUM DRY DENSITY ACCORDING TO ASTM D 698, STANDARD PROCTOR TEST. FILL MAY NOT BE PLACED ON FROZEN GROUND AND NO FROZEN MATERIALS MAY BE USED FOR BACK FILL. APPLY THE MORE STRINGENT REQUIREMENTS WHEN COMPARING BETWEEN THE FOLLOWING AND THE GEOTECHNICAL REPORT.
 1. UNDER FOUNDATIONS - SUBGRADE, AND EACH LAYER OF BACKFILL OR FILL MATERIAL, TO NOT LESS THAN 98 PERCENT.
 2. UNDER INTERIOR SLAB-ON-GRADE WHERE GROUNDWATER IS MORE THAN 3 FEET BELOW THE SLAB - PLACE A DRAINAGE COURSE LAYER OF 3/4" CRUSHED STONE, WITH 5% TO 12% FINES, PER THICKNESS INDICATED ON FOUNDATION PLANS ON PREPARED SUBGRADE. COMPACT THE SUBGRADE AND DRAINAGE COURSE TO NOT LESS THAN 95 PERCENT.
 3. UNDER INTERIOR SLAB-ON-GRADE WHERE GROUNDWATER IS WITHIN 3 FEET OF THE SLAB SURFACE- PLACE A DRAINAGE COURSE LAYER OF CLEAN 3/4" CRUSHED STONE, WITH NO MORE THAN 5% FINES, PER THICKNESS INDICATED ON FOUNDATION PLANS ON PREPARED SUBGRADE. COMPACT THE SUBGRADE AND DRAINAGE COURSE TO NOT LESS THAN 95 PERCENT.
 4. UNDER EXTERIOR CONCRETE AND ASPHALT PAVEMENTS - COMPACT THE SUBGRADE AND EACH LAYER OF BACKFILL OR FILL MATERIAL TO NOT LESS THAN 95 PERCENT.
 5. UNDER WALKWAYS - COMPACT SUBGRADE AND EACH LAYER OF BACKFILL OR FILL MATERIAL TO NOT LESS THAN 95 PERCENT.
 6. UNDER LAWN OR UNPAVED AREAS - COMPACT SUBGRADE AND EACH LAYER OF BACKFILL OR FILL MATERIAL, TO NOT LESS THAN 85 PERCENT.
G. CONTRACTOR SHALL ENGAGE A QUALIFIED INDEPENDENT TESTING AND INSPECTING AGENCY TO PERFORM FIELD TESTS AND INSPECTIONS. IT IS SUGGESTED THAT THE GEOTECHNICAL FIRM USED TO PERFORM THE SUBSURFACE SOIL INVESTIGATION BE ENGAGED FOR THE FIELD QUALITY CONTROL TESTS.
H. ALLOW THE TESTING AGENCY TO TEST AND INSPECT SUBGRADES AND EACH FILL OR BACKFILL LAYER. PROCEED WITH SUBSEQUENT EARTHWORK ONLY AFTER TEST RESULTS FOR PREVIOUSLY COMPLETED WORK COMPLY WITH REQUIREMENTS. PROVIDE ONE TEST FOR EVERY 2000 SQUARE FEET OF PAVED AREA OR BUILDING SLAB, ONE TEST FOR EACH SPREAD FOOTING, AND ONE TEST FOR EVERY 50 LINEAR FEET OF WALL STRIP FOOTING.
I. WHEN THE TESTING AGENCY REPORTS THAT SUBGRADES, FILLS, OR BACKFILLS HAVE NOT ACHIEVED DEGREE OF COMPACTION SPECIFIED, SCARIFY AND MOISTEN OR AERATE, OR REMOVE AND REPLACE SOIL TO DEPTH REQUIRED; RECOMPACT AND RETEST UNTIL SPECIFIED COMPACTION IS OBTAINED.
J. THE BUILDING SITE SHALL BE GRADED TO PROVIDE DRAINAGE AWAY FROM THE BUILDING AS INDICATED ON THE PLANS. SITE EARTHWORK SHALL BE GRADED TO WITHIN 0.10' OF REQUIRED EARTHWORK ELEVATIONS ASSUMING POSITIVE DRAINAGE IS MAINTAINED IN ACCORDANCE WITH THE GRADING PLAN.

31 30 00 EROSION CONTROL/STORMWATER MANAGEMENT

EROSION AND SEDIMENT CONTROL IMPLEMENTED DURING CONSTRUCTION SHALL STRICTLY COMPLY WITH THE STATE AND LOCAL GUIDELINES AND REQUIREMENTS. THE METHODS AND TYPES OF EROSION CONTROL WILL BE DEPENDENT ON THE LOCATION AND TYPE OF WORK INVOLVED. ALL SEDIMENT CONTROL MEASURES SHALL BE ADJUSTED TO MEET FIELD CONDITIONS AT THE TIME OF CONSTRUCTION, AND INSTALLED PRIOR TO ANY GRADING OR DISTURBANCE OF EXISTING SURFACE MATERIAL. BELOW IS A LIST OF EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES TO ACHIEVE THE PERFORMANCE STANDARDS REQUIRED.

1. SILT FENCE SHALL BE PLACED ON SITE AT LOCATIONS SHOWN ON THE EROSION CONTROL PLAN. SILT FENCE SHALL ALSO BE PROVIDED AROUND THE PERIMETER OF ALL SOIL STOCKPILES. FOLLOW THE CITY OF COLUMBIA/ MISSOURI DEPT OF NATURAL RESOURCES TEMPORARY SILT FENCE DETAIL (ESC-10).
2. SEDIMENT LOGS PLACED PRIOR TO DOWNSTREAM INLETS, FOLLOW THE CITY OF COLUMBIA / MISSOURI DEPT OF NATURAL RESOURCES DETAIL (ESC-16).
3. TEMPORARY CONSTRUCTION ENTRANCE SHALL BE PLACED AT ALL CONSTRUCTION SITE ENTRANCES AND SHALL BE INSTALLED PRIOR TO ANY TRAFFIC LEAVING THE CONSTRUCTION SITE. FOLLOW THE CITY OF COLUMBIA / MISSOURI DEPT OF NATURAL RESOURCES DETAIL (ESC-01).
4. STORM DRAIN INLET PROTECTION SHALL BE PROVIDED FOR ALL NEW AND DOWNSTREAM STORM CATCH BASINS AND CURB INLETS. FOLLOW THE CITY OF COLUMBIA / MISSOURI DEPT OF NATURAL RESOURCES INLET PROTECTION DETAIL (ESC-18&24)
5. DUST CONTROL MEASURES SHALL BE PROVIDED TO REDUCE OR PREVENT THE SURFACE AND AIR TRANSPORT OF DUST DURING CONSTRUCTION. CONTROL MEASURES INCLUDE APPLYING MULCH AND ESTABLISHING VEGETATION, WATER SPRAYING, SURFACE ROUGHENING, APPLYING POLYMERS, SPRAY-ON TACKIFIERS, CHLORIDES, AND BARRIERS. SOME SITES MAY REQUIRE AN APPROACH THAT UTILIZES A COMBINATION OF MEASURES FOR DUST CONTROL.
6. THE USE, STORAGE, AND DISPOSAL OF CHEMICALS, CEMENT, AND OTHER COMPOUNDS AND MATERIALS USED ON SITE SHALL BE MANAGED DURING THE CONSTRUCTION PERIOD TO PREVENT THEIR TRANSPORT BY RUNOFF INTO WATERS OF THE STATE.
7. CONTRACTOR SHALL PROVIDE AN OPEN AGGREGATE CONCRETE TRUCK WASHOUT AREA ON SITE. CONTRACTOR TO ENSURE THAT CONCRETE WASHOUT SHALL BE CONTAINED TO THIS DESIGNATED AREA AND NOT BE ALLOWED TO RUN INTO STORM INLETS OR INTO THE OVERLAND STORMWATER DRAINAGE SYSTEM. WASHOUT AREA SHALL BE REMOVED UPON COMPLETION OF CONSTRUCTION.
8. TEMPORARY SITE RESTORATION SHALL TAKE PLACE IN DISTURBED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE OR ON WHICH LAND DISTURBING ACTIVITIES WILL NOT BE PERFORMED FOR A PERIOD GREATER THAN 14 DAYS AND REQUIRES VEGETATIVE COVER FOR LESS THAN ONE YEAR. THIS TEMPORARY SITE RESTORATION REQUIREMENT ALSO APPLIES TO SOIL STOCKPILES. PERMANENT RESTORATION APPLIES TO AREAS WHERE PERENNIAL VEGETATIVE COVER IS NEEDED TO PERMANENTLY STABILIZE AREAS OF EXPOSED SOIL. PERMANENT STABILILIZATION SHALL OCCUR WITHIN 3 WORKING DAYS OF FINAL GRADING. TOPSOIL, SEED, AND MULCH SHALL BE IN GENERAL CONFORMANCE WITH STATE AND LOCAL STANDARDS AND SHALL MEET THE SPECIFICATIONS FOUND IN THE LANDSCAPING AND SITE STABILIZATION SECTION OF THIS CONSTRUCTION DOCUMENT. ANY SOIL EROSION THAT OCCURS AFTER FINAL GRADING AND/OR FINAL STABILIZATION MUST BE REPAIRED AND THE STABILIZATION WORK REDONE.
9. ALL OFF-SITE SEDIMENT DEPOSITS OCCURRING AS A RESULT OF CONSTRUCTION WORK OR A STORM EVENT SHALL BE CLEANED UP BY THE END OF EACH WORKING DAY. FLUSHING SHALL NOT BE ALLOWED.

G. EROSION CONTROL MEASURES SHALL NOT BE REMOVED UNTIL THE AREA(S) SERVED HAVE ESTABLISHED VEGETATIVE COVER.

H. AT THE COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL GIVE THE OWNER COPIES OF THE EROSION CONTROL AMENDMENTS TO PLANS, SUPPORTING PLAN DATA, AND CONSTRUCTION SITE EROSION CONTROL INSPECTION REPORTS.

I. ALL POST CONSTRUCTION STORMWATER MANAGEMENT BEST MANAGEMENT PRACTICES SHALL BE CONSTRUCTED BEFORE THE SITE HAS UNDERGONE FINAL STABILIZATION.

DIVISION 32 EXTERIOR IMPROVEMENTS

32 10 00 AGGREGATE BASE & ASPHALT PAVEMENT

A. CONTRACTOR TO PROVIDE COMPACTED AGGREGATE BASE AND HOT MIX ASPHALT PAVEMENT WHERE INDICATED ON THE PLANS. ALL AGGREGATE PROVIDED MUST COMPLY WITH ALL CITY OF COLUMBIA/STATE OF MISSOURI STANDARD SPECIFICATIONS CONSTRUCTION. PROVIDE HOT MIX ASPHALT MIXTURE TYPES PER CITY OF COLUMBIA/ APWA OR MODOT SPECIFICATIONS. CONTRACTOR TO PROVIDE AGGREGATE BASE AND HOT MIX ASPHALT PAVEMENT TYPES AND DEPTHS AS INDICATED BELOW UNLESS OTHERWISE SPECIFIED BY THE CITY OF COLUMBIA:

ASPHALT PAVING
1-1/2" SURFACE COURSE
2-1/2" BINDER COURSE
10" OF 3/4" CRUSHED AGGREGATE

B. CONTRACTOR TO COMPACT THE AGGREGATE BASE, ASPHALT BINDER COURSE, AND ASPHALT SURFACE COURSE TO AN AVERAGE DENSITY PER CITY OF COLUMBIA/ MISSOURI DEPT OF TRANSPORTATION (VERIFY W/ GEOTECH REPORT). ALL ASPHALT PAVEMENT AREAS SHALL BE PAVED TO WITHIN 0.10' OF DESIGN SURFACE GRADES WITH POSITIVE DRAINAGE BEING MAINTAINED IN ACCORDANCE WITH DESIGN PLANS. A MINIMUM OF 1% SLOPE SHALL BE MAINTAINED IN ALL ASPHALT PAVEMENT AREA.

C. HOT MIX ASPHALT CONSTRUCTION TO BE PROVIDED PER MORE STRINGENT REQUIREMENTS OF GEOTECHNICAL REPORT OR CONSTRUCTION DOCUMENTS.

D. D. CONTRACTOR TO PROVIDE 4" WIDE YELLOW PAINTED STRIPING FOR PARKING STALLS, TRAFFIC LANES, AND NO PARKING AREAS. YELLOW PAINT MARKINGS SHALL ALSO BE PROVIDED FOR H.C. ACCESSIBLE SYMBOLS, TRAFFIC ARROWS, AND TRAFFIC MESSAGES.

32 20 00 CONCRETE AND AGGREGATE BASE

A. CONTRACTOR TO PROVIDE CRUSHED AGGREGATE BASE AND CONCRETE WHERE INDICATED ON THE PLANS.
B. ALL AGGREGATE PROVIDED MUST COMPLY WITH CITY OF KANSAS CITY / MISSOURI DEPT OF TRANSPORTATION SPECIFICATIONS. ALL AGGREGATE PLACED MUST BE COMPACTED TO AN AVERAGE DENSITY PER MISSOURI STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION.
C. DESIGN AND CONSTRUCTION OF ALL CAST-IN-PLACE EXTERIOR CONCRETE FLAT WORK SHALL CONFORM TO ACI 330R-08 & ACI 318-08.
D. EXTERIOR CONCRETE FLAT WORK CONSTRUCTION TO BE PROVIDED PER MORE STRINGENT REQUIREMENTS OF THE GEOTECHNICAL REPORT OR THIS SPECIFICATION. CONCRETE FLAT WORK CONSTRUCTION IS AS FOLLOWS:
 1. SIDEWALK CONCRETE - 4" OF CONCRETE OVER 4" OF 3/4" CRUSHED AGGREGATE BASE. CONTRACTION JOINTS SHALL CONSIST OF 1/8" WIDE BY 1" DEEP TOOLED JOINT WHERE INDICATED ON THE PLANS.
 2. DUMPSTER PAD/APRON CONCRETE - 8" OF CONCRETE OVER 6" OF AGGREGATE BASE.
  a. CONCRETE SHALL BE STEEL REINFORCED WITH THE FOLLOWING AND PLACED IN THE UPPER 1/3 TO ½ OF THE SLAB:
   1). TIE BARS AT ALL CONTRACTION JOINTS OF THE CONCRETE. TIE BARS SHALL BE #4 REBAR 30" LONG PLACED AT 30" O.C.
  b. DUMPSTER PAD CONCRETE JOINTING SHALL BE AS FOLLOWS:
   1). CONTRACTION SAWCUT JOINT - CONTRACTOR SHALL PROVIDE A SAWCUT JOINT AT MAXIMUM SPACING OF 15' ON CENTER. SAWCUT SHALL BE 2" IN DEPTH.
   2). TYPICAL POUR CONTROL JOINT - POUR CONTROL JOINT SHALL BE PROVIDED WITH 1-1/4" DIAMETER BY 20" LONG SMOOTH DOWEL PLACED AT 12" O.C. ONE HALF OF THE DOWEL SHALL BE GREASED. GREENSTREAK 9" SPEED DOWEL TUBES SHALL BE USED.
   3). TYPICAL POUR CONTROL JOINT - POUR CONTROL JOINT SHALL BE PROVIDED WITH 1/4" X 4-1/2" X 4-1/4" DIAMOND SHAPED TAPERED PLATE DOWELS MANUFACTURED PER ASTM A36. INSTALL PER MANUFACTURERS SPECIFICATIONS.
E. DESIGN MIXES SHALL BE IN ACCORDANCE WITH ASTM C94
 1. STRENGTH TO BE MINIMUM OF 4,500 PSI AT 28 DAYS FOR EXTERIOR CONCRETE.
 2. MAXIMUM WATER/CEMENT RATIO SHALL BE 0.45.
 3. SLUMP SHALL NOT EXCEED 4" FOR EXTERIOR CONCRETE FLAT WORK
 4. SLUMP SHALL BE 2.5" OR LESS FOR SLIP-FORMED CURB AND GUTTER
 5. SLUMP SHALL BE BETWEEN 1.5" TO 3" FOR NON SLIP-FORMED CURB AND GUTTER.
 6. ALL EXTERIOR CONCRETE SHALL BE AIR ENTRAINED WITH 4% TO 7% AIR CONTENT. NO OTHER ADMIXTURES SHALL BE USED WITHOUT APPROVAL OF EXCEL ENGINEERING, INC. CALCIUM CHLORIDE SHALL NOT BE USED.
 7. MAXIMUM AGGREGATE SIZE FOR ALL EXTERIOR CONCRETE SHALL BE 0.75 INCHES.
F. VERIFY EQUIPMENT CONCRETE PAD SIZES WITH RESPECTIVE CONTRACTORS. PADS SHALL HAVE FIBERMESH 300 FIBERS AT A RATE OF 1.5 LBS/CU. YD. OR 6 X 6-W1.4 X W1.4 WELDED WIRE MESH WITH MINIMUM 1 INCH COVER. EQUIPMENT PADS SHALL BE 3.5 INCHES THICK WITH 1 INCH CHAMFER UNLESS SPECIFIED OTHERWISE. COORDINATE ADDITIONAL PAD REQUIREMENTS WITH RESPECTIVE CONTRACTOR.
G. ALL CONCRETE FLAT WORK SURFACES AND CONCRETE CURB FLOWLINES SHALL BE CONSTRUCTED TO WITHIN 0.05' OF DESIGN SURFACE AND FLOWLINE GRADES ASSUMING POSITIVE DRAINAGE IS MAINTAINED IN ACCORDANCE WITH THE DESIGN PLANS.
H. CONCRETE FLAT WORK SHALL HAVE CONSTRUCTION JOINTS OR SAW CUT JOINTS PLACED AS INDICATED ON THE PLANS OR PER THIS SPECIFICATION. SAWCUTS SHALL BE DONE AS SOON AS POSSIBLE, BUT NO LATER THAN 24 HOURS AFTER CONCRETE IS PLACED. CONCRETE CURB AND GUTTER JOINTING SHALL BE PLACED EVERY 10' OR CLOSER (6' MIN.). IF CONCRETE PAVEMENT IS ADJACENT TO CONCRETE CURB, JOINTING IN THE PAVEMENT AND CURB SHALL ALIGN. ALL EXTERIOR CONCRETE SHALL HAVE A LIGHT BROOM FINISH UNLESS NOTED OTHERWISE. A UNIFORM COAT OF A HIGH SOLIDS CURING COMPOUND MEETING ASTM C309 SHOULD BE APPLIED TO ALL EXPOSED CONCRETE SURFACES. ALL CONCRETE IS TO BE CURED FOR 7 DAYS. EXTERIOR CONCRETE SHALL BE SEPARATED FROM BUILDINGS WITH CONTINUOUS 0.5 INCH FIBER EXPANSION JOINT AND/OR 0.25 INCH FIBER EXPANSION JOINT AT DECORATIVE MASONRY UNITS.
I. ALL REINFORCING BARS SHALL BE ASTM A615 GRADE 60. THICKNESS OF CONCRETE COVER OVER REINFORCEMENT SHALL BE NOT LESS THAN 3" WHERE CONCRETE IS DEPOSITED AGAINST THE GROUND WITHOUT THE USE OF FORMS AND NOT LESS THAN 1.5" IN ALL OTHER LOCATIONS. ALL REINFORCING SHALL BE LAPPED 36 DIAMETERS FOR UP TO #6 BARS, 60 DIAMETERS FOR #7 TO #10 BARS OR AS NOTED ON THE DRAWINGS AND EXTENDED AROUND CORNERS WITH CORNER BARS. PLACING AND DETAILING OF STEEL REINFORCING AND REINFORCING SUPPORTS SHALL BE IN ACCORDANCE WITH CRSI AND ACI MANUAL AND STANDARD PRACTICES. THE REINFORCEMENT SHALL NOT BE PAINTED AND MUST BE FREE OF GREASE/OIL, DIRT OR DEEP RUST WHEN PLACED IN THE WORK. ALL WELDED WIRE FABRIC SHALL MEET THE REQUIREMENTS OF ASTM A 185. WELDED WIRE FABRIC SHALL BE PLACED 2" FROM TOP OF SLAB, UNLESS INDICATED OTHERWISE.
J. CONTRACTOR SHALL ENGAGE A QUALIFIED INDEPENDENT TESTING AND INSPECTING AGENCY TO SAMPLE MATERIALS, PERFORM TESTS, AND SUBMIT TEST REPORTS DURING CONCRETE PLACEMENT. TESTS WILL BE PERFORMED ACCORDING TO ACI 301. CAST AND LABORATORY CURE ONE SET OF FOUR STANDARD CYLINDERS FOR EACH COMPOSITE SAMPLE FOR EACH DAY'S POUR OF EACH CONCRETE MIX EXCEEDING 5 CU. YD., BUT LESS THAN 25 CU. YD., PLUS ONE SET FOR EACH ADDITIONAL 50 CU. YD. OR FRACTION THEREOF. PERFORM COMPRESSIVE-STRENGTH TESTS ACCORDING TO ASTM C 39. TEST TWO SPECIMENS AT 7 DAYS AND TWO SPECIMENS AT 28 DAYS. PERFORM SLUMP TESTING ACCORDING TO ASTM C 143. PROVIDE ONE TEST AT POINT OF PLACEMENT FOR EACH COMPOSITE SAMPLE, BUT NOT LESS THAN ONE TEST FOR EACH DAY'S POUR OF EACH CONCRETE MIX. PERFORM ADDITIONAL TESTS WHEN CONCRETE CONSISTENCY APPEARS TO CHANGE.
K. PROTECT FRESHLY PLACED CONCRETE FROM PREMATURE DRYING AND EXCESSIVE COLD OR HOT TEMPERATURES. IN HOT, DRY, AND WINDY WEATHER, APPLY AN EVAPORATION-CONTROL COMPOUND ACCORDING TO MANUFACTURER'S INSTRUCTIONS AFTER SCREEDING AND BULL FLOATING, BUT BEFORE POWER FLOATING AND TROWELLING.
L. LIMIT MAXIMUM WATER-CEMENTIOUS RATIO OF CONCRETE EXPOSED TO FREEZING, THAWING AND DEICING SALTS TO 0.45.
M. TEST RESULTS WILL BE REPORTED IN WRITING TO THE DESIGN ENGINEER, READY-MIX PRODUCER, AND CONTRACTOR WITHIN 24 HOURS AFTER TESTS. REPORTS OF COMPRESSIVE STRENGTH TESTS SHALL CONTAIN THE PROJECT IDENTIFICATION NAME AND NUMBER, DATE OF CONCRETE PLACEMENT, NAME OF CONCRETE TESTING SERVICE, CONCRETE TYPE AND CLASS, LOCATION OF CONCRETE BATCH IN STRUCTURE, DESIGN COMPRESSIVE STRENGTH AT 28 DAYS, CONCRETE MIX PROPORTIONS AND MATERIALS, COMPRESSIVE BREAKING STRENGTH, AND TYPE OF BREAK FOR BOTH 7-DAY TESTS AND 28-DAY TESTS.
N. CONTRACTOR TO PROVIDE 4" WIDE YELLOW PAINTED STRIPING FOR PARKING STALLS, TRAFFIC LANES, AND NO PARKING AREAS. YELLOW PAINT MARKINGS SHALL ALSO BE PROVIDED FOR H.C. ACCESSIBLE SYMBOLS, TRAFFIC ARROWS, AND TRAFFIC MESSAGES.

32 30 00 LANDSCAPING AND SITE STABILIZATION

A. TOPSOIL: CONTRACTOR TO PROVIDE A MINIMUM OF 6" OF TOPSOIL FOR ALL DISTURBED OPEN AREAS. REUSE SURFACE SOIL STOCKPILED ON SITE AND SUPPLEMENT WITH IMPORTED OR MANUFACTURED TOPSOIL FROM OFF SITE SOURCES WHEN QUANTITIES ARE INSUFFICIENT. EXCAVATOR SHALL BE RESPONSIBLE FOR ROUGH PLACEMENT OF TOPSOIL TO WITHIN 1" OF FINAL GRADE PRIOR TO LANDSCAPER FINAL GRADING. LANDSCAPER TO PROVIDE PULVERIZING AND FINAL GRADING OF TOPSOIL. PROVIDE SOIL ANALYSIS BY A QUALIFIED SOIL TESTING LABORATORY AS REQUIRED TO VERIFY THE SUITABILITY OF SOIL TO BE USED AS TOPSOIL AND TO DETERMINE THE NECESSARY SOIL AMENDMENTS. TEST SOIL FOR PRESENCE OF ATRAZINE AND INFORM EXCEL ENGINEERING, INC. IF PRESENT PRIOR TO BIDDING PROJECT. TOPSOIL SHALL HAVE A PH RANGE OF 5.5 TO 8, CONTAIN A MINIMUM OF 5 PERCENT ORGANIC MATERIAL CONTENT, AND SHALL BE FREE OF STONES 1 INCH OR LARGER IN DIAMETER. ALL MATERIALS HARMFUL TO PLANT GROWTH SHALL ALSO BE REMOVED.
TOPSOIL INSTALLATION: LOOSEN SUBGRADE TO A MINIMUM DEPTH OF 6 INCHES AND REMOVE STONES LARGER THAN 1" IN DIAMETER. ALSO REMOVE ANY STICKS, ROOTS, RUBBISH, AND OTHER EXTRANEOUS MATTER AND DISPOSE OF THEM OFF THE PROPERTY. SPREAD TOPSOIL TO A DEPTH OF 6" BUT NOT LESS THAN WHAT IS REQUIRED TO MEET FINISHED GRADES AFTER LIGHT ROLLING AND NATURAL SETTLEMENT. DO NOT SPREAD TOPSOIL IF SUBGRADE IS FROZEN, MUDDY, OR EXCESSIVELY WET. GRADE PLANTING AREAS TO A SMOOTH, UNIFORM SURFACE PLANE WITH LOOSE, UNIFORMLY FINE TEXTURE. GRADE TO WITHIN 0.05 FEET OF FINISHED GRADE ELEVATION.
B. SEEDED LAWNS:
 1. PERMANENT LAWN AREAS SHALL BE SEEDED WITH THE FOLLOWING MIXTURE: 65% KENTUCKY BLUEGRASS BLEND (2.0-2.6 LBS./1,000 S.F.), 20% PERENNIAL RYEGRASS (0.6-0.8 LBS./1,000 S.F.), 15% FINE FESCUE (0.4-0.6 LBS/1,000 S.F.). STRAW AND MULCH SHALL BE LAID AT 100LBS/1,000 S.F. FERTILIZE AS PER SOIL TEST OR APPLY 5-10-10 OR EQUIVALENT AT 5-6 LBS/1,000 S.F. SEE EROSION MATTING SPECIFICATIONS AS REQUIRED. ALL SITE DISTURBED AREAS NOT DESIGNATED FOR OTHER LANDSCAPING AND SITE STABILIZATION METHODS SHALL BE SEEDED AS PERMANENT LAWN. NO BARE TOPSOIL SHALL BE LEFT ONSITE. FOLLOW PROCEDURES FOUND IN MDNR TECHNICAL STANDARDS 1058 & 1059.
 2. ALL TEMPORARY SEEDING SHALL CONSIST OF THE FOLLOWING MIXTURE: 100% RYEGRASS AT 1.9 LBS./1,000 S.F. STRAW AND MULCH SHALL BE LAID AT 100 LBS./1,000 S.F. FERTILIZE AS PER SOIL TEST OR APPLY 5-10-10 OR EQUIVALENT AT 5-6 LBS./1,000 S.F. SEE EROSION MATTING SPECIFICATIONS AS REQUIRED. FOLLOW PROCEDURES FOUND IN MDNR TECHNICAL STANDARDS 1058 & 1059.
C. SEEDED LAWN MAINTENANCE: CONTRACTOR TO PROVIDE MAINTENANCE OF ALL LANDSCAPING FOR A PERIOD OF 90 DAYS FROM THE DATE OF INSTALLATION. AT THE END OF THE MAINTENANCE PERIOD, A HEALTHY, UNIFORM, CLOSE STAND OF GRASS SHOULD BE ESTABLISHED FREE OF WEEDS AND SURFACE IRREGULARITIES. LAWN COVERAGE SHOULD EXCEED 90% AND BARE SPOTS SHOULD NOT EXCEED 5"X5". CONTRACTOR SHOULD REESTABLISH LAWNS THAT DO NOT COMPLY WITH THESE REQUIREMENTS AND CONTINUE MAINTENANCE UNTIL LAWNS ARE SATISFACTORY.
D. EROSION MATTING:
 1. CONTRACTOR TO PROVIDE EROSION CONTROL MATTING (NORTH AMERICAN GREEN S150) OR EQUIVALENT ON ALL SLOPES THAT ARE 4:1 AND GREATER OUTSIDE OF STORMWATER CONVEYANCE SWALES.

DIVISION 33 UTILITIES

33 10 00 SITE UTILITIES

A. CONTRACTOR TO FIELD VERIFY ALL EXISTING UNDERGROUND UTILITIES ON SITE. CONTRACTOR TO VERIFY PIPE LOCATIONS, SIZES, AND DEPTHS AT POINT OF PROPOSED CONNECTIONS AND VERIFY PROPOSED UTILITY ROUTES ARE CLEAR (PER CODE) OF ALL EXISTING UTILITIES AND OTHER OBSTRUCTIONS PRIOR TO CONSTRUCTION. COSTS INCURRED FOR FAILURE TO DO SO SHALL BE THE CONTRACTORS RESPONSIBILITY.

B. CONTRACTOR TO FIELD TELEVISE ALL EXISTING SANITARY AND STORM LATERALS THAT ARE SCHEDULED TO BE RE-USED AND/OR CONNECTED TO ON SITE. THE TELEVISING SHALL BE COMPLETED TO ENSURE THE EXISTING LATERAL(S) ARE FREE OF OBSTRUCTIONS AND IN SOUND STRUCTURAL CONDITION. TELEVISING OF THESE LATERAL(S) SHOULD BE COMPLETED AT BEGINNING OF CONSTRUCTION AND DESIGN ENGINEER SHALL BE NOTIFIED OF ANY PIPE OBSTRUCTIONS AND/OR STRUCTURAL DEFICIENCIES IMMEDIATELY AFTER COMPLETION OF FIELD TELEVISING

C. ALL PROPOSED SANITARY PIPE SHALL BE SDR-35 PVC

D. CLEANOUTS SHALL BE PROVIDED FOR THE SANITARY SERVICE AT LOCATIONS INDICATED ON THE UTILITY PLAN. THE CLEANOUT SHALL CONSIST OF A COMBINATION WYE FITTING IN LINE WITH THE SANITARY SERVICE WITH THE CLEANOUT LEG OF THE COMBINATION WYE FACING STRAIGHT UP. THE CLEANOUT SHALL CONSIST OF A (4" OR 6") VERTICAL PVC PIPE WITH A WATER TIGHT REMOVABLE CLEANOUT PLUG. AN 8" PVC FROST SLEEVE SHALL BE PROVIDED. THE BOTTOM OF THE FROST SLEEVE SHALL TERMINATE 12" ABOVE THE TOP OF THE SANITARY LATERAL OR AT LEAST 6" BELOW THE PREDICTED FROST DEPTH, WHICHEVER IS SHALLOWER. THE CLEANOUT SHALL EXTEND JUST ABOVE THE SURFACE GRADE IN LAWN OR LANDSCAPE AREAS WITH THE FROST SLEEVE TERMINATING AT THE GRADE SURFACE. THE CLEANOUT SHALL EXTEND TO 4 INCHES BELOW SURFACE GRADE IN PAVED SURFACES WITH A ZURN (Z-1474-N) HEAVY DUTY CLEANOUT HOUSING PLACED OVER THE TOP OF THE CLEANOUT FLUSH WITH THE SURFACE GRADE. IN PAVED SURFACES, THE FROST SLEEVE SHALL TERMINATE IN A CONCRETE PAD AT LEAST 6" THICK AND EXTENDING AT LEAST 9" FROM THE SLEEVE ON ALL SIDES, SLOPING AWAY FROM THE SLEEVE. THE CLEANOUT HOUSING SHALL BE CONSTRUCTED PER MANUFACTURERS REQUIREMENTS.

E. ALL PROPOSED HDPE STORM PIPE SHALL BE IN ACCORDANCE WITH MATERIALS SPECIFIED IN TABLE A: ALLOWABLE PIPE MATERIAL SCHEDULE ON C0.1 OF THE PROPOSED PLANSET. ALL CONCRETE STORM PIPING SHALL BE IN ACCORDANCE WITH MATERIALS SPECIFIED IN TABLE A: ALLOWABLE PIPE MATERIAL SCHEDULE ON C0.1 OF THE PROPOSED PLANSET. ALL PROPOSED STORM PIPE BELOW BUILDINGS SHALL BE IN ACCORDANCE WITH MATERIALS SPECIFIED IN TABLE A: ALLOWABLE PIPE MATERIAL SCHEDULE ON C0.1 OF THE PROPOSED PLANSET. SEE UTILITY PLANS FOR ALL STORM PIPE MATERIAL TYPES TO BE USED. PIPE SHALL BE PLACED MIN. 8' HORIZONTALLY FROM FOUNDATION WALLS.

F. UTILITY PIPE INVERTS SHALL BE CONSTRUCTED WITHIN 0.10' OF DESIGN INVERT ELEVATIONS ASSUMING PIPE SLOPE AND SEPARATION IS MAINTAINED PER THE UTILITY DESIGN PLANS AND STATE REQUIREMENTS.

G. SITE UTILITY CONTRACTOR SHALL RUN SANITARY SERVICE TO A POINT WHICH IS A MINIMUM OF 5' FROM THE EXTERIOR WALL OF THE FOUNDATION. SITE UTILITY CONTRACTOR SHALL RUN WATER SERVICE TO A POINT WITHIN THE FOUNDATION SPECIFIED BY THE PLUMBING PLANS. CONTRACTOR TO CUT AND CAP WATER SERVICE 12" ABOVE FINISHED FLOOR ELEVATION.

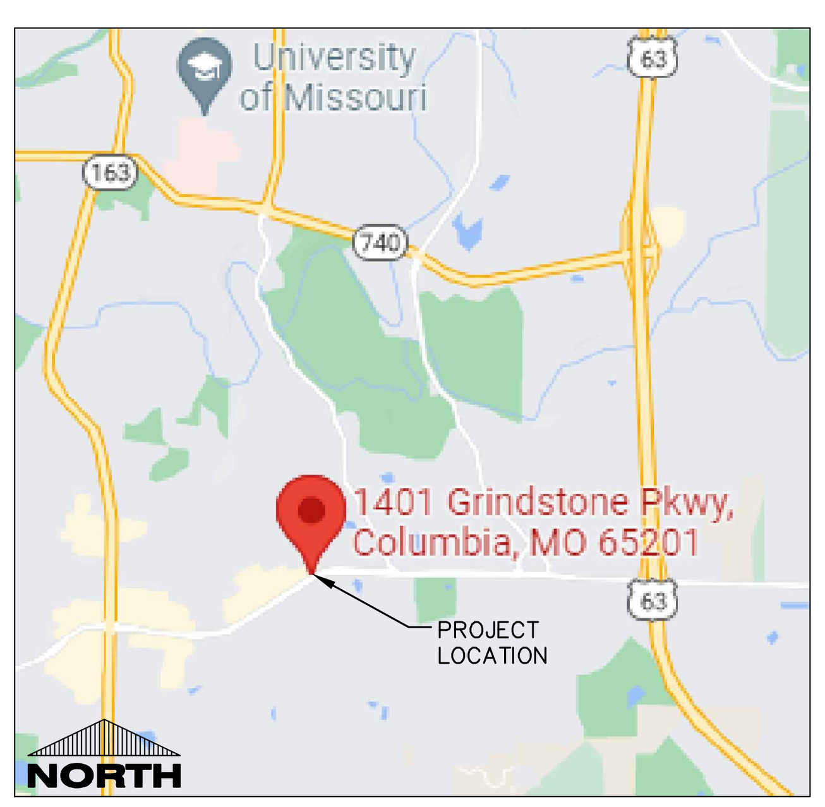
H. ALL UTILITIES SHALL BE INSTALLED WITH PLASTIC COATED TRACER WIRE (12 GAUGE SOLID COPPER, OR COPPER COATED STEEL WIRE W/ 60-mil UF INSULATION PER UTILITY (BLUE=H20, GREEN=SANITARY, PURPLE=IRRIGATION). PLASTIC WIRE MAY BE TAPED TO PLASTIC WATER OR SEWER PIPE. IF ATTACHED, THE TRACER WIRE SHALL BE SECURED EVERY 6 TO 20 FEET AND AT ALL BENDS. TRACER WIRE SHALL HAVE ACCESS POINTS AT LEAST EVERY 300 FEET. CONTRACTOR SHALL INSTALL 2" CAUTION TAPE IN UTILITY TRENCHES AS REQUIRED PER CITY OF COLUMBIA SPECIFICATIONS FOR CONSTRUCTION.

I. ALL UTILITIES SHALL BE INSTALLED PER STATE, LOCAL, AND INDUSTRY STANDARDS. THE DESIGN ENGINEER SHALL BE RESPONSIBLE FOR OBTAINING STATE PLUMBING REVIEW APPROVAL. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL OTHER PERMITS REQUIRED TO INSTALL WATER, SANITARY AND STORM SEWER.

J. SEE PLANS FOR ALL OTHER UTILITY SPECIFICATIONS AND DETAILS.

CIVIL SHEET INDEX

SHEET	SHEET TITLE
C0.1	CIVIL COVER AND SPECIFICATION SHEET
C1.0	EXISTING SITE AND DEMOLITION PLAN
C1.1	SITE PLAN
C1.2	GRADING AND EROSION CONTROL PLAN
C1.3	UTILITY PLAN
C2.0	DETAILS
C3.1	SITE PHOTOMETRIC PLAN & DETAILS
C3.2	EXTERNAL PLUMBING CALCULATIONS & DETAILS



PROJECT LOCATION MAP

SURVEY NOTE:

EXISTING CONDITIONS SURVEY WAS COMPLETED BY ANDERSON ENGINEERING (FILE #21KC20104) ON OCTOBER 13, 2021. **PRIOR TO CONSTRUCTION, CONTRACTOR SHALL FIELD VERIFY ALL SITE IMPROVEMENTS, UTILITY LOCATIONS, INVERTS, SIZES, ETC. NOTIFY ENGINEER OF DISCREPANCIES. ENGINEER TO NOTIFY SURVEYOR AS NEEDED. FAILURE TO NOTIFY ENGINEER SHALL BE THE CONTRACTOR'S RESPONSIBILITY FOR ANY DAMAGES AS A RESULT OF FAILURE TO FIELD VERIFY.**

GENERAL PROJECT NOTES

1. ALL DRIVEWAYS AND CURB CUTS TO BE CONSTRUCTED ACCORDING TO LOCAL ORDINANCES. CONTRACTOR TO OBTAIN ALL NECESSARY PERMITS.
2. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL WORK IN ROW PERMITS.

Table A: Allowable Pipe Material Schedule

Utility	Material	Pipe Code	Fitting Code	Joint Code
Sanitary Sewer	SDR 35 PVC	ASTM D1785, ASTM D2665, ASTM D3034, ASTM F891	ASTM F1336	Push On: ASTM D3212 for Tightness Elastomeric Gasket: ASTM F477
Storm Sewer	RRCP-Class III	ASTM C14, ASTM C76, AASHTO M170		ASTM C443 Rubber Gasket

TO OBTAIN LOCATION OF PARTICIPANTS' UNDERGROUND FACILITIES BEFORE YOU DIG IN MISSOURI

CALL MISSOURI ONE CALL (MOCS)
1-800-344-7483
TOLL FREE

MISSOURI STATUTE 319.026 REQUIRES MINIMUM OF 2 WORK DAYS NOTICE BEFORE YOU EXCAVATE

CONTACTS

OWNER
HAWAIIAN BROS ISLAND GRILL
1220 WASHINGTON STREET
SUITE 200
KANSAS CITY, MO 64105
CONTACT: MARK CRAMER
mcramer@hawaiianbros.com

CIVIL
EXCEL ENGINEERING
100 CAMELOT DRIVE
FOND DU LAC, WISCONSIN 54935
EOR: JEFF QUAST, P.E.
CONTACT: DEVIN WINTER
P: (920) 926-9800
F: (920) 926-9801
devin.w@excelengineer.com

AD1

CIVIL COVER AND SPECIFICATION SHEET

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PROJECT INFORMATION

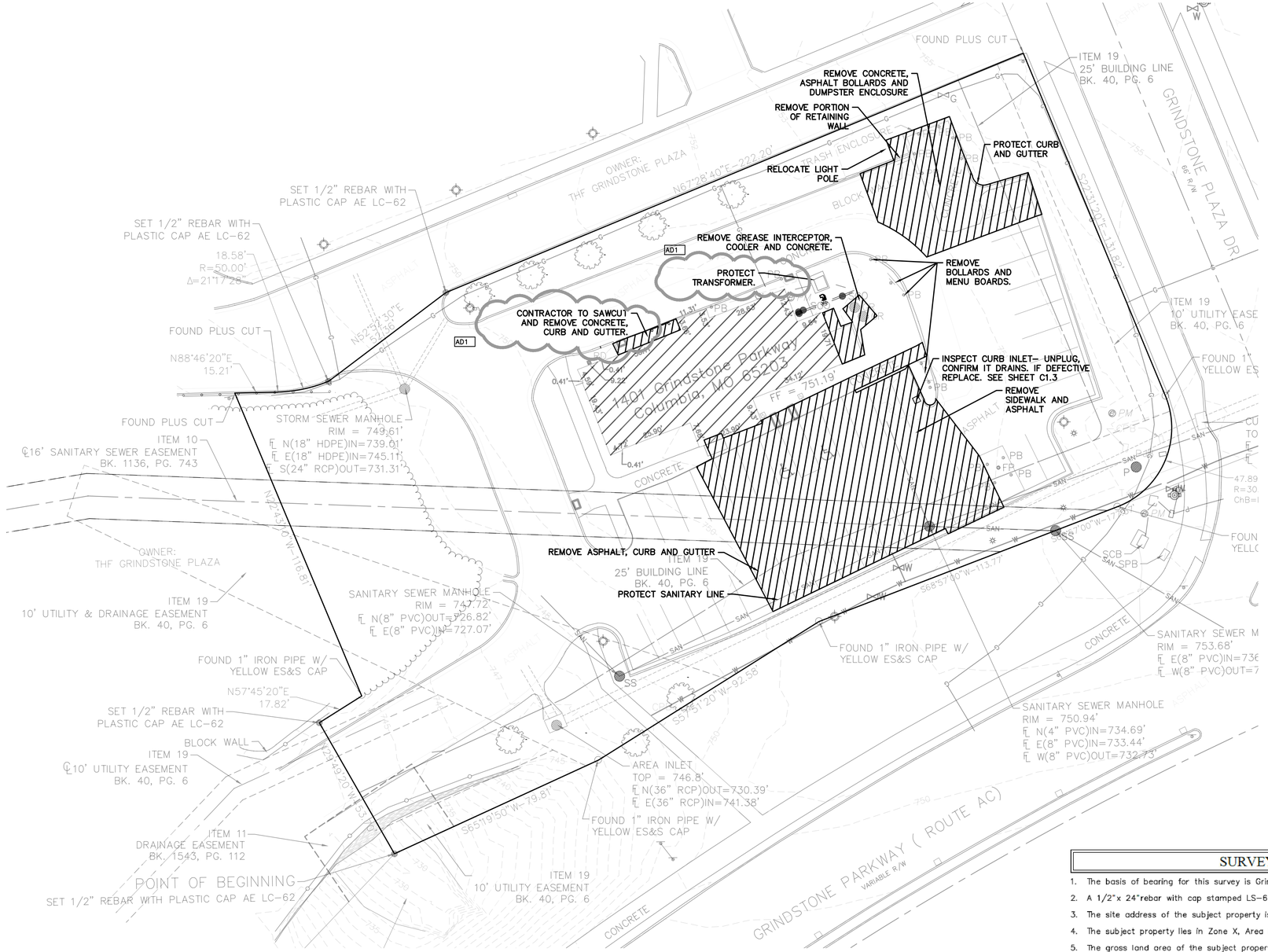
PROPOSED BUIDLING RENOVATION
HAWAIIAN BROS - STR: 43
1401 GRINDSTONE PKWY • COLUMBIA, MO 65201

PROFESSIONAL SEAL

SHEET DATES
SHEET ISSUE OCT. 26, 2021
REVISIONS
AD1 MAR. 7, 2022

JOB NUMBER
2164120

SHEET NUMBER
C0.1



SPECIFICATION NOTE:
SEE SHEET C0.1 FOR PLAN SPECIFICATIONS AND REQUIREMENTS

SURVEY NOTE:

EXISTING CONDITIONS SURVEY WAS COMPLETED BY ANDERSON ENGINEERING (FILE #21KC20104) ON OCTOBER 13, 2021. **PRIOR TO CONSTRUCTION, CONTRACTOR SHALL FIELD VERIFY ALL SITE IMPROVEMENTS, UTILITY LOCATIONS, INVERTS, SIZES, ETC. NOTIFY ENGINEER OF DISCREPANCIES. ENGINEER TO NOTIFY SURVEYOR AS NEEDED. FAILURE TO NOTIFY ENGINEER SHALL BE THE CONTRACTOR'S RESPONSIBILITY FOR ANY DAMAGES AS A RESULT OF FAILURE TO FIELD VERIFY.**

NOTE:

CONTRACTOR TO ADJUST ALL STRUCTURES IN DEVELOPMENT AREAS TO FINISHED GRADE. COORDINATE WITH UTILITY COMPANIES AS NECESSARY.

ANDERSON ENGINEERING LEGEND:

LEGEND

BM	= BENCHMARK
CPB	= COMMUNICATION PULL BOX
	= EXIST MONUMENT AS NOTED
FP	= FENCE POST
FO	= FIBER OPTIC MARKER
FF = 0.00'	= FINISH FLOOR
	= FIRE HYDRANT
G	= GAS METER
	= GAS VALVE
	= LIGHT POLE CONC. BASE
	= LIGHT POLE
	= METAL SIGN
PB	= PIPE BOLLARD
P	= POWER MANHOLE
PM	= POWER METER
RD	= ROOF DRAIN
SS	= SANITARY SEWER MANHOLE
SCO	= SEWER CLEAN OUT
	= SIGNAL CONTROL BOX
SPB	= SIGNAL PULL BOX
S	= SPRINKLER CONTROL VALVE
ST	= STORM MANHOLE
0" TREE	= TREE (SIZE/TYPE)
T	= TV PEDESTAL
UMH	= UNKNOWN MH
W	= WATER METER
W	= WATER VALVE
	= YARD LIGHT
SAN	= UNDERGROUND SANITARY SEWER PIPE
	= UNDERGROUND STORM SEWER PIPE
G	= UNDERGROUND NATURAL GAS LINE
W	= UNDERGROUND WATER LINE

GENERAL NOTES:

SURVEYOR'S GENERAL NOTES & TABLE A NOTES

1. The basis of bearing for this survey is Grindstone Plaza Subdivision, filed in Boone County, Missouri, book. 40, page 6.
2. A 1/2"x 24"rebar with cap stamped LS-62 to be set at all property corners unless otherwise noted.
3. The site address of the subject property is 1401 Grindstone Parkway as shown on the Boone County GIS.
4. The subject property lies in Zone X, Area fo Minimal Flood Hazard, as shown on Flood Insurance Rate Map 29019C0287E, Dated 04/19/2017
5. The gross land area of the subject property is 50,503.25 square feet, or 1.159 acres.
6. The title commitment did provide any zoning or setback information. The subject property is zoned PD -Planned Development, as shown on the City of Columbia, MO zoning map.
7. There is one, one story block building on the subject property. The building height at the southwest corner is 21.4 feet above the adjacent existing grade. The exterior footprint of the building contains 2,854 square feet.
8. All substantial visible improvements on the subject property have been shown on this survey.
9. The subject property has 37 regular car parking spaces and 2 handicap spaces for a total of 39 striped parking spaces.
10. The utility information shown on this survey has S.U.E. (Subsurface Utility Engineering) Level of C. Utility information shown on this survey was taken from utility maps provided to this surveyor by various utility companies and utility line locate markings provided by various utility locating companies per Missouri One Call or Kansas 811 utility Locate Ticket Number 212662006. This surveyor does not warrant or guarantee the location or size of any underground utility shown hereon. This surveyor does not warrant or guarantee that all utility lines, cables, pipes or wires (active or inactive) are shown on this survey.
11. The names of the adjoining owners have been taken from the City or County GIS.
12. Rectified orthophotography, photogrammetric mapping, remote sensing, airborne/mobile laser scanning and other similar products or technologies as the basis for showing the location of certain features where ground measurements are not otherwise necessary to locate those features to an appropriate and acceptable accuracy relative to a nearby boundary.
13. There is not evidence of earth moving work on the subject property.
14. The surveyor (is/is not) aware of any proposed changes in street right of way lines.
15. The easements, covenants, restrictions and entitlements shown on this survey were taken from the title commitment prepared by First American Title Insurance Company in File No. NCS-1089209-KCTY, dated 09/17/2021 at 8:00 a.m., and we have relied solely on said information.
16. Professional liability insurance policy obtained by the surveyor in the minimum amount of (dollar amount) to be in effect throughout the contract term

NORTH

1"= 20' SCALE 20' 0 20' 40' FEET

CIVIL EXISTING SITE AND DEMOLITION PLAN

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PROJECT INFORMATION

PROPOSED BUILDING RENOVATION
HAWAIIAN BROS - STR: 43
1401 GRINDSTONE PKWY • COLUMBIA, MO 65201

PROFESSIONAL SEAL

SHEET DATES

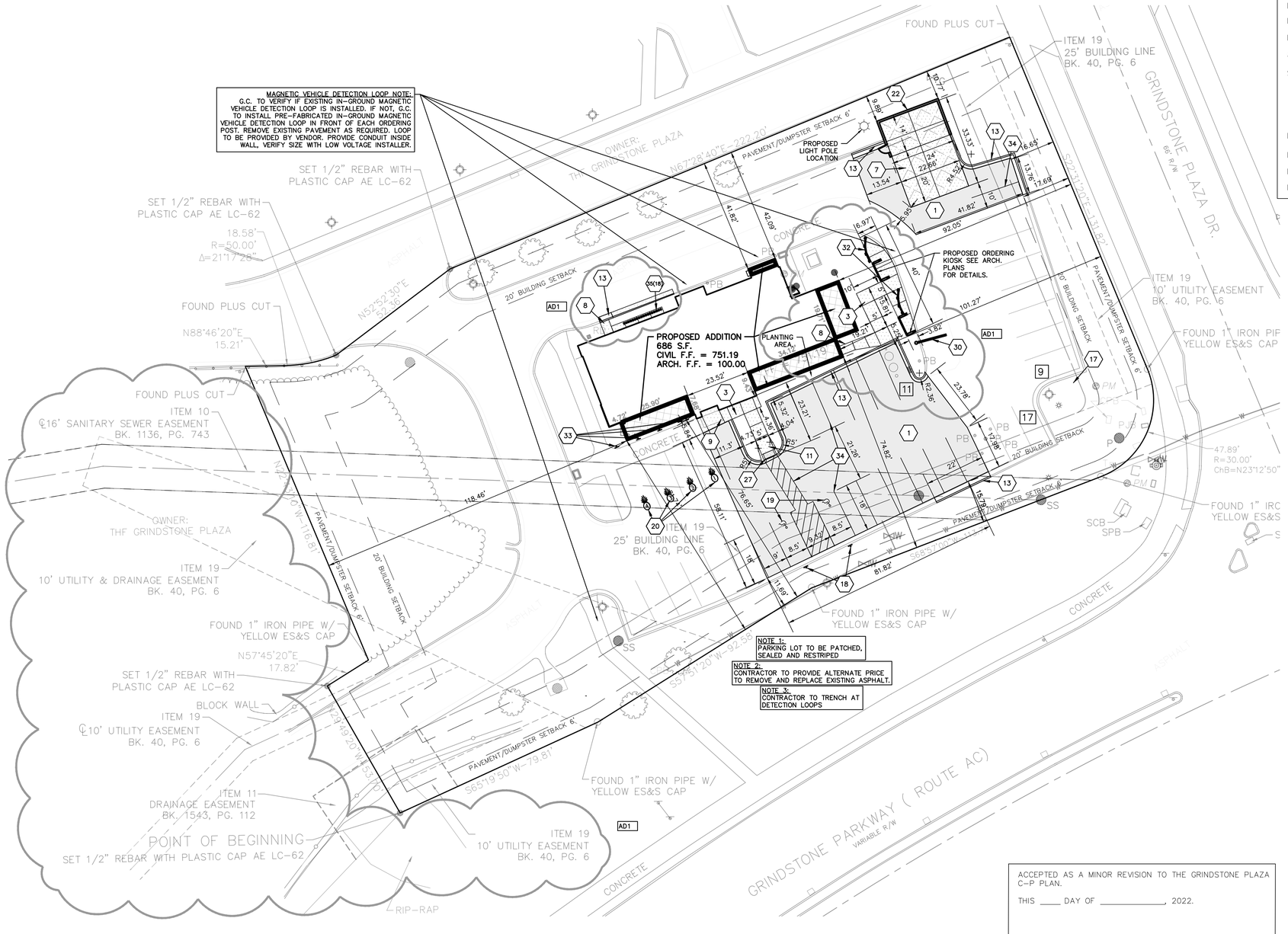
SHEET ISSUE	OCT. 26, 2021
REVISIONS	
AD1	MAR. 7, 2022

JOB NUMBER
2164120

SHEET NUMBER
C1.0

SPECIFICATION NOTE:
SEE SHEET C0.1 FOR PLAN SPECIFICATIONS AND REQUIREMENTS

MAGNETIC VEHICLE DETECTION LOOP NOTE:
G.C. TO VERIFY IF EXISTING IN-GROUND MAGNETIC VEHICLE DETECTION LOOP IS INSTALLED. IF NOT, G.C. TO INSTALL PRE-FABRICATED IN-GROUND MAGNETIC VEHICLE DETECTION LOOP IN FRONT OF EACH ORDERING POST. REMOVE EXISTING PAVEMENT AS REQUIRED. LOOP TO BE PROVIDED BY VENDOR. PROVIDE CONDUIT INSIDE WALL, VERIFY SIZE WITH LOW VOLTAGE INSTALLER.



ACCEPTED AS A MINOR REVISION TO THE GRINDSTONE PLAZA C-P PLAN.

THIS ____ DAY OF _____, 2022.

_____
TIMOTHY TEDDY – DIRECTOR OF COMMUNITY DEVELOPMENT

SITE INFORMATION:

LEGAL DESCRIPTION:	OUTPARCEL "E" A TRACT OF LAND LOCATED IN THE WEST HALF OF SECTION 30 T48N R12W, IN COLUMBIA, BOONE COUNTY, MISSOURI BEING PART OF LOT 1 GRINDSTONE PLAZA SUBDIVISION, RECORDED IN PLAT BOOK 40 PAGE 6, OF THE BOONE COUNTY RECORDS, ALSO BEING PART OF THE TRACT DESCRIBED BY A CORRECTIVE WARRANTY DEED RECORDED IN BOOK 2781, PAGE 157, OF THE BOONE COUNTY RECORDS.
PROPERTY AREA:	AREA = 50,503 S.F. (1.16 ACRES).
EXISTING ZONING:	PD-PLANNED DEVELOPMENT
PROPOSED ZONING:	PD-PLANNED DEVELOPMENT
PROPOSED USE:	HAWAIIAN BROS RESTAURANT
AREA OF SITE DISTURBANCE:	7,528 S.F.
SETBACKS: BUILDING:	FRONT = 20' SIDE = 20' REAR = 20'
PAVEMENT:	FRONT = 6' SIDE = 6' REAR = 6'
PROPOSED BUILDING HEIGHT:	24'8" (MAX. HEIGHT ALLOWED: 65')
PARKING REQUIRED:	1 SPACE PER 200 S.F. (19 SPACES REQ.)
PARKING PROVIDED:	37 SPACES (2 H.C. ACCESSIBLE)
HANDICAP STALLS REQUIRED:	2, HANDICAP STALLS PROVIDED: 2

SITE PLAN KEYNOTES

1	PROPOSED ASPHALT SECTION (TYP.)
3	CONCRETE SIDEWALK (TYP.)
7	DUMPSTER PAD/APRON CONCRETE (TYP)
8	CONCRETE STOOP (TYP.) SEE ARCH. PLANS FOR DETAILS.
9	RAISED WALK (TYP.)
11	CURB RAMP (TYP.)
12	6" CURB HEAD (TYP.)
13	18" CURB & GUTTER (TYP.)
17	CONCRETE TRANSFORMER PAD BY UTILITY SUPPLIER (CONTRACTOR TO VERIFY FINAL LOCATION & DESIGN PRIOR TO CONSTRUCTION)
18	HANDICAP SIGN (TYP.)
19	HANDICAP STALL & STRIPING PER STATE CODES.
20	HAWAIIAN BROS PICKUP PARKING PAVEMENT MARKINGS.
22	DUMPSTER ENCLOSURE (SEE ARCH PLANS FOR DETAILS)
27	DETECTABLE WARNING PLATE
30	PROPOSED CLEARANCE POLE. PROVIDED AND INSTALLED BY VENDOR.
32	PROPOSED MENU BOARD. PROVIDED AND INSTALLED BY VENDOR.
33	HAWAIIAN BROS PICKUP PARKING SIGNS (NUMBERED SIGNS PROVIDED BY VENDOR) VERIFY LOCATIONS WITH OWNER.
34	STRIPING (TYP)
35	CANOPY COLUMUNS (SEE ARCH. PLANS FOR DETAILS)

EXISTING SITE DATA

	AREA (AC)	AREA (SF)	RATIO
PROJECT SITE	1.16	50,503	
BUILDING FLOOR AREA	0.07	3,083	6.1%
PAVEMENT (ASP. & CONC.)	0.58	25,474	50.4%
TOTAL IMPERVIOUS	0.66	28,557	56.5%
LANDSCAPE/ OPEN SPACE	0.50	21,946	43.5%

PROPOSED SITE DATA

	AREA (AC)	AREA (SF)	RATIO
PROJECT SITE	1.16	50,503	
BUILDING FLOOR AREA	0.08	3,613	7.2%
PAVEMENT (ASP. & CONC.)	0.58	25,211	49.9%
TOTAL IMPERVIOUS	0.66	28,824	57.1%
LANDSCAPE/ OPEN SPACE	0.50	21,679	42.9%

PAVEMENT HATCH KEY:
- PROPOSED ASPHALT
- SIDEWALK CONCRETE
- DUMPSTER CONCRETE

NORTH

1"= 20' SCALE — 20' 0 20' 40' FEET

CIVIL SITE PLAN

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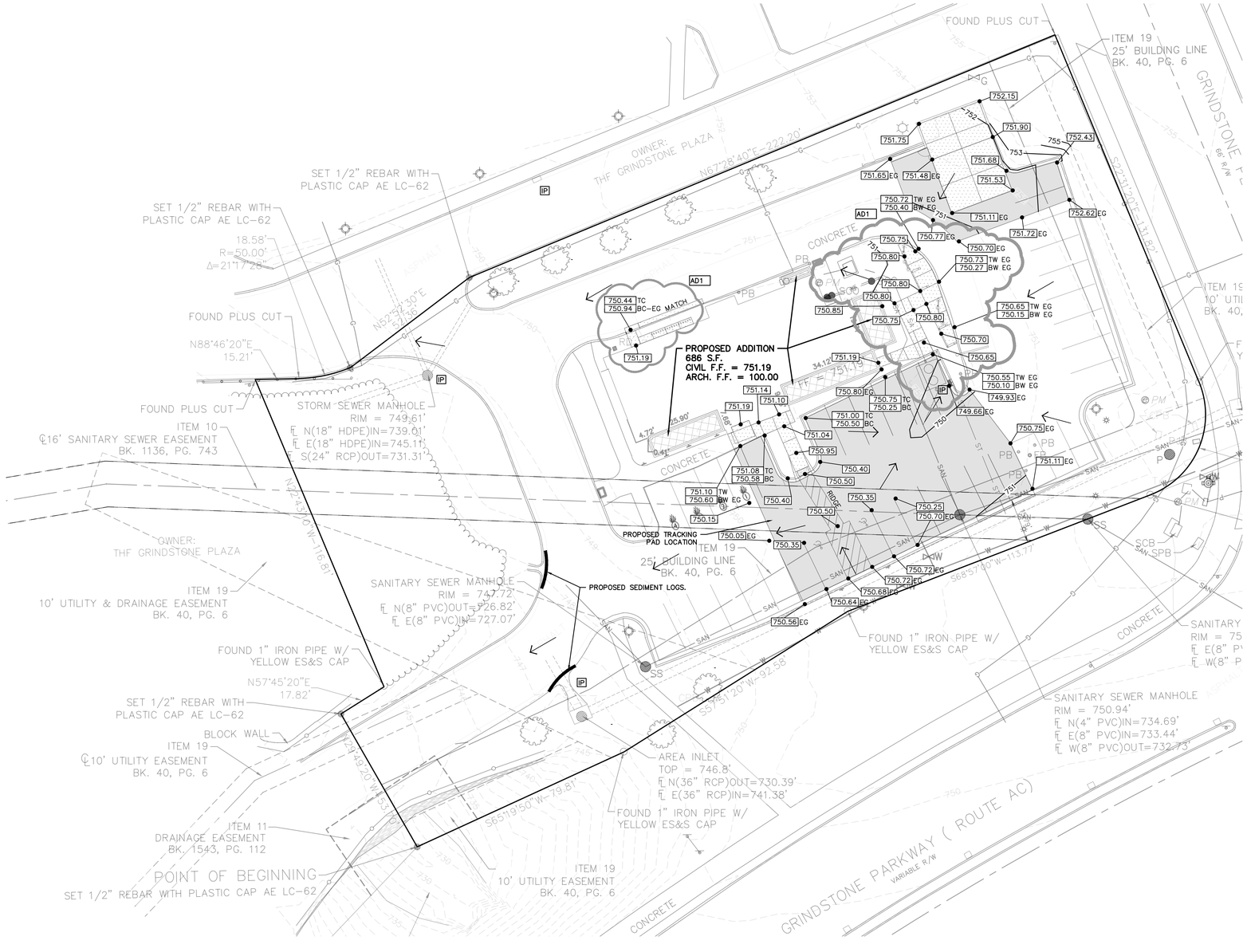

SPECIFICATION NOTE:
SEE SHEET C0.1 FOR PLAN SPECIFICATIONS AND REQUIREMENTS

NOTES:

1. HANDICAP STALL AND ACCESS AISLES SHALL NOT EXCEED A SLOPE OF 1.50% IN ANY DIRECTION. HANDICAP STALL & ACCESS AISLES SHALL CONFORM TO ADA REQUIREMENTS (CURRENT EDITION)
2. ALL SIDEWALKS SHALL NOT EXCEED A MAXIMUM CROSS SLOPE OF 1.50% AND RUNNING SLOPE OF 4.50% UNLESS OTHERWISE SPECIFIED.

IP INLET PROTECTION NOTE:

CONTRACTOR SHALL PROVIDE TEMPORARY INLET PROTECTION FOR ALL CURB INLETS & CATCH BASINS ONSITE & OFFSITE IMMEDIATELY DOWNSTREAM OF THE PROJECT SITE PER LOCAL CODE.

STABILIZED CONSTRUCTION ENTRANCE NOTE:

CONTRACTOR SHALL PROVIDE STABILIZED CONSTRUCTION ENTRANCE AT CONSTRUCTION ENTRANCE FOR PROPOSED IMPROVEMENTS AS REQUIRED PER CODE.

NORTH

1"= 20' SCALE 20' 0 20' 40' FEET

CIVIL GRADING AND EROSION CONTROL PLAN

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AD1 MAR. 7, 2022

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2164120

SHEET NUMBER
C1.2

SPECIFICATION NOTE:
SEE SHEET C0.1 FOR PLAN SPECIFICATIONS AND REQUIREMENTS

DOWNSPOUT NOTE:

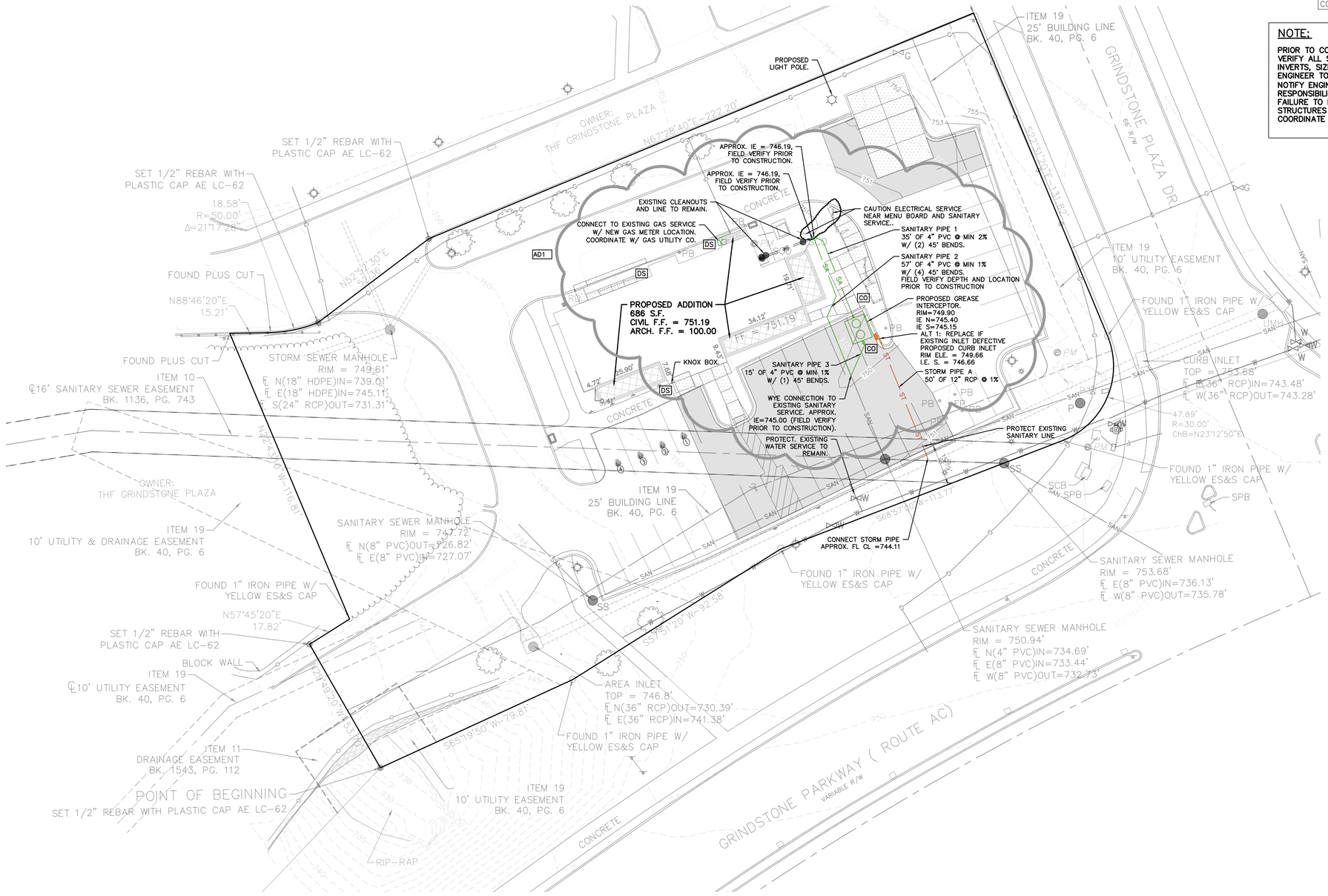
DS = DENOTES DOWNSPOUT TO GRADE LOCATIONS. PROVIDE SPLASH BLOCKS AT ALL DS TO GRADE LOCATIONS. SEE ARCH PLANS FOR FINAL LOCATIONS.

CLEANOUT NOTE:

CO = DENOTES LOCATIONS WHERE CONTRACTOR SHALL INSTALL CLEANOUTS, SEE C0.1 FOR SPECIFICATION.

NOTE:

PRIOR TO CONSTRUCTION, CONTRACTOR SHALL FIELD VERIFY ALL SITE IMPROVEMENTS, UTILITY LOCATIONS, INVERTS, SIZES, ETC. NOTIFY ENGINEER OF DISCREPANCIES. ENGINEER TO NOTIFY SURVEYOR AS NEEDED. FAILURE TO NOTIFY ENGINEER SHALL BE THE CONTRACTOR'S RESPONSIBILITY FOR ANY DAMAGES AS A RESULT OF FAILURE TO FIELD VERIFY. CONTRACTOR TO ADJUST ALL STRUCTURES IN DEVELOPMENT AREAS TO FINISHED GRADE. COORDINATE WITH UTILITY COMPANIES AS NECESSARY.



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CIVIL UTILITY PLAN

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PROFESSIONAL SEAL

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AD1 MAR. 7, 2022

JOB NUMBER
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SHEET NUMBER
C1.3

SPECIFICATION NOTE:
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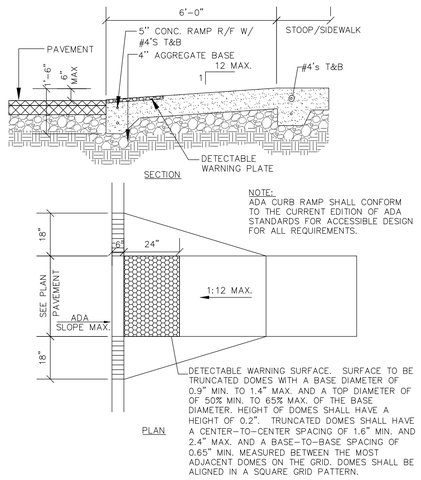
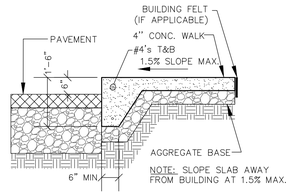
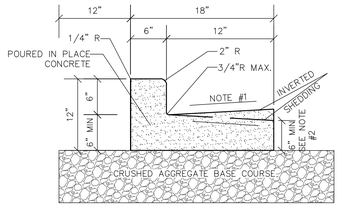


CURB RAMP DETAIL
NO SCALE

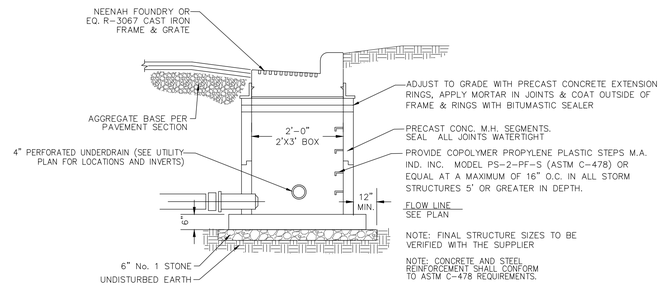


RAISED WALK DETAIL
NO SCALE

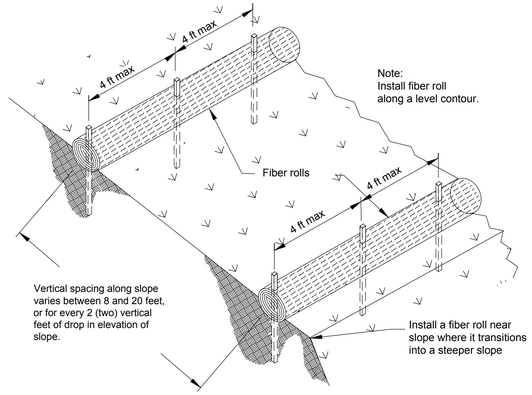


NOTE:
1. USE 4% GUTTER CROSS SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.
2. THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MIN. GUTTER THICKNESS IS MAINTAINED.
3. SEE SITE PLAN & GRADING PLAN FOR INVERTED & SHEDDING CURB LOCATIONS

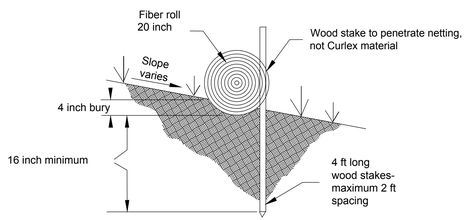
18" CONCRETE CURB & GUTTER DETAIL
NO SCALE



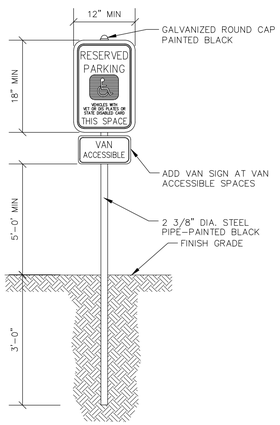
STORM CURB INLET DETAIL
NO SCALE



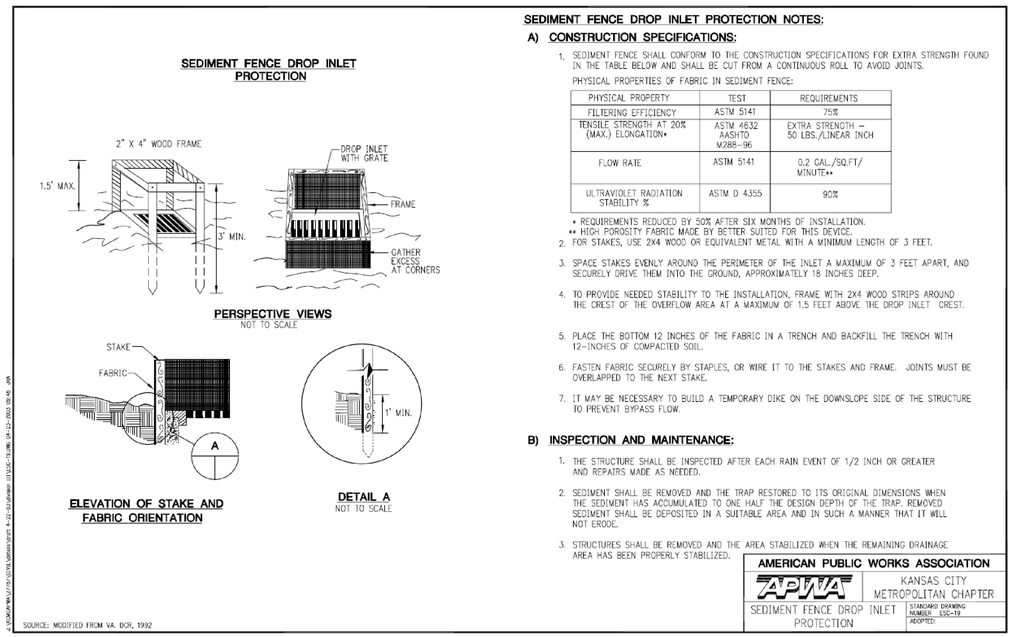
TYPICAL FIBER ROLL INSTALLATION
N.T.S.



SEDIMENT LOG INSTALLATION
NOT TO SCALE



HANDICAP SIGNAGE WITHOUT CONCRETE BASE DETAIL
NO SCALE



SEDIMENT FENCE DROP INLET PROTECTION NOTES:

A) CONSTRUCTION SPECIFICATIONS:

1. SEDIMENT FENCE SHALL CONFORM TO THE CONSTRUCTION SPECIFICATIONS FOR EXTRA STRENGTH FOUND IN THE TABLE BELOW AND SHALL BE CUT FROM A CONTINUOUS ROLL TO AVOID JOINTS.

   PHYSICAL PROPERTIES OF FABRIC IN SEDIMENT FENCE:

PHYSICAL PROPERTY	TEST	REQUIREMENTS
FILTERING EFFICIENCY	ASTM 5141	75%
TENSILE STRENGTH AT 20% (MAX.) ELONGATION*	ASTM 4632 AASHTO M288-96	EXTRA STRENGTH - 50 LBS./LINEAR INCH
FLOW RATE	ASTM 5141	0.2 GAL./SQ.FT/ MINUTE**
ULTRAVIOLET RADIATION STABILITY %	ASTM D 4355	90%

   * REQUIREMENTS REDUCED BY 50% AFTER SIX MONTHS OF INSTALLATION.
   ** HIGH POROSITY FABRIC MADE BY BETTER SUITED FOR THIS DEVICE.
2. FOR STAKES, USE 2X4 WOOD OR EQUIVALENT METAL WITH A MINIMUM LENGTH OF 3 FEET.
3. SPACE STAKES EVENLY AROUND THE PERIMETER OF THE INLET A MAXIMUM OF 3 FEET APART, AND SECURELY DRIVE THEM INTO THE GROUND, APPROXIMATELY 18 INCHES DEEP.
4. TO PROVIDE NEEDED STABILITY TO THE INSTALLATION, FRAME WITH 2X4 WOOD STRIPS AROUND THE CREST OF THE OVERFLOW AREA AT A MAXIMUM OF 1.5 FEET ABOVE THE DROP INLET CREST.
5. PLACE THE BOTTOM 12 INCHES OF THE FABRIC IN A TRENCH AND BACKFILL THE TRENCH WITH 12-INCHES OF COMPACTED SOIL.
6. FASTEN FABRIC SECURELY BY STAPLES, OR WIRE IT TO THE STAKES AND FRAME. JOINTS MUST BE OVERLAPPED TO THE NEXT STAKE.
7. IT MAY BE NECESSARY TO BUILD A TEMPORARY DIKE ON THE DOWNSLOPE SIDE OF THE STRUCTURE TO PREVENT BYPASS FLOW.

B) INSPECTION AND MAINTENANCE:

1. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN EVENT OF 1/2 INCH OR GREATER AND REPAIRS MADE AS NEEDED.
2. SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE HALF THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
3. STRUCTURES SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

AMERICAN PUBLIC WORKS ASSOCIATION	
APWA	KANSAS CITY METROPOLITAN CHAPTER
SEDIMENT FENCE DROP INLET PROTECTION	STANDARD DRAWING NUMBER: ESC-19 ADOPTED:

CIVIL DETAILS

EXCEL
ARCHITECTS • ENGINEERS • SURVEYORS
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100 Camelot Drive
Fond Du Lac, WI 54935
Phone: (920) 926-9800
www.EXCELENGINEER.com

PROJECT INFORMATION

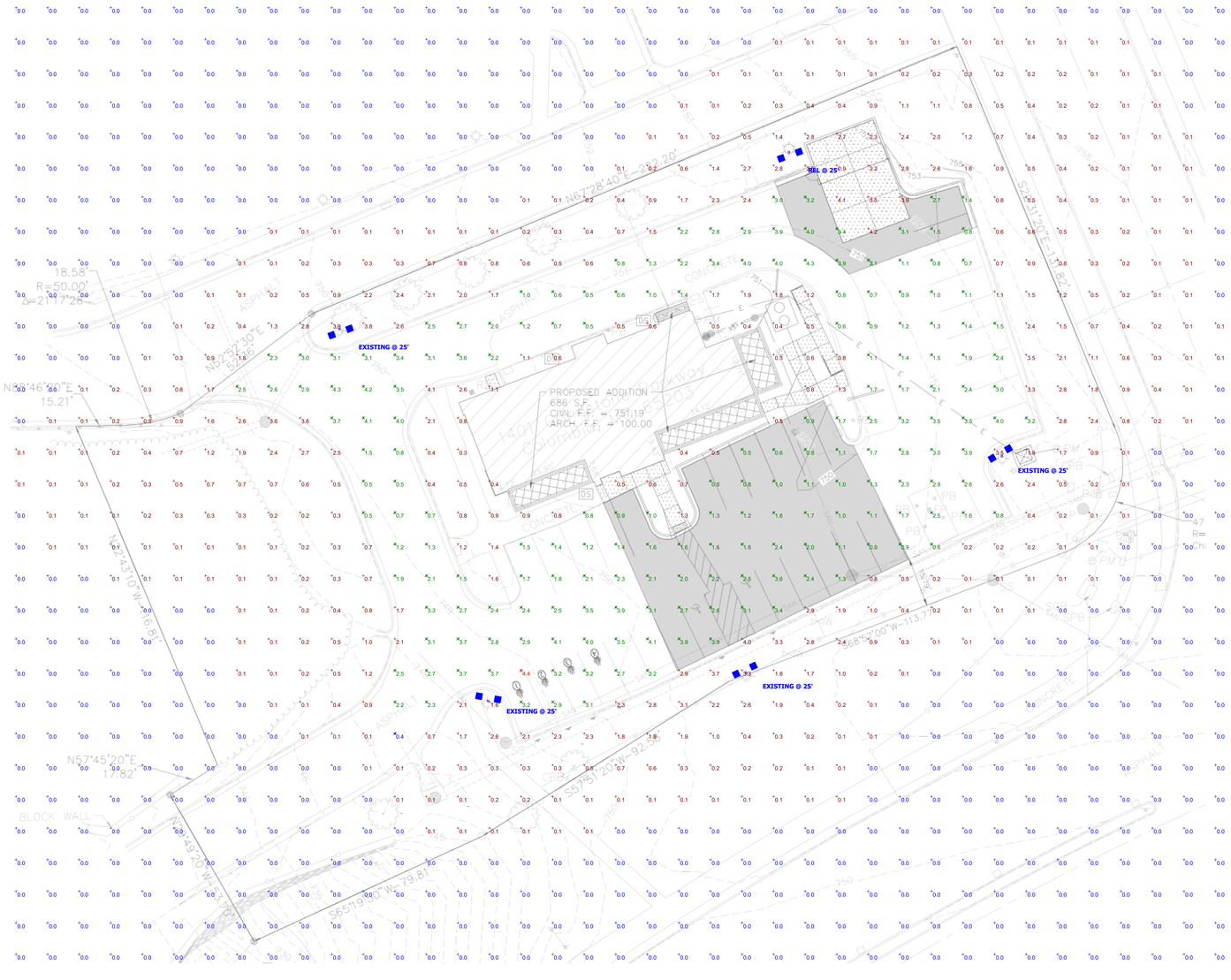
PROPOSED BUILDING RENOVATION
HAWAIIAN BROS - STR: 43
1401 GRINDSTONE PKWY • COLUMBIA, MO 65201

PROFESSIONAL SEAL

SHEET DATES
SHEET ISSUE OCT. 26, 2021
REVISIONS

JOB NUMBER
2164120

SHEET NUMBER
C2.0



Statistics						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Calc Zone #1	+	0.6 fc	4.4 fc	0.0 fc	N/A	N/A
PARKING LOT	x	2.2 fc	4.4 fc	0.4 fc	11.0:1	5.5:1

NORTH

1" = 20'

20' 0 20' 40'

SCALE FEET

CIVIL SITE PHOTOMETRIC PLAN & DETAILS

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PROJECT INFORMATION

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1401 GRINDSTONE PKWY • COLUMBIA, MO 65201

PROFESSIONAL SEAL

SHEET DATES

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2164120

SHEET NUMBER

C3.1

EXTERIOR GREASE INTERCEPTOR SCHEDULE (GI)

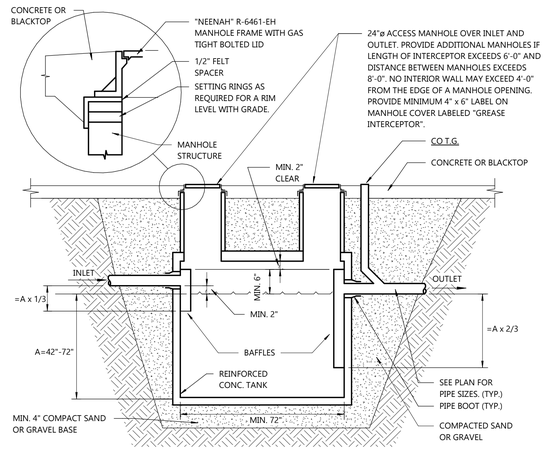
NO.	MAT'L	LENGTH (INCHES)	WIDTH (INCHES)	HEIGHT (INCHES)	LIQUID LEVEL (INCHES)	CAPACITY (GAL.)	INLET & OUTLET SIZE	MANHOLES	APPROX. COVER DEPTH	MODEL	REMARKS
1	PRECAST	110	93	70	51	1565	4"	(1)	12"	W1565GI	WEISER

- ACCEPTABLE MANUFACTURERS: WEISER OR EQUAL.

(1) SEE EXTERIOR GREASE INTERCEPTOR DETAIL FOR ADDITIONAL INFORMATION.

GREASE INTERCEPTOR CALCULATIONS

FIXTURE	COMPARTMENT NUMBER OF	LENGTH (INCHES)	WIDTH (INCH)	DEPTH (INCHES)	VOLUME (CU. IN.)	VOLUME (GALLONS)	0.75 x VOLUME (GPM)
3-COMP	3	18	18	12	11,664	50	38
PREP	3	20	20	12	14,400	62	47
HAND WASH	4	15.5	14	5	4,340	19	14
DOLE WHIP	1	10	18.5	5	925	4	3
SERVICE SINK	1	24	24	10	5,760	25	19
DISHWASHER	1	-	-	-	1.25	PER CYCLE	1.25
TOTAL (MINIMUM FLOW RATE)							122
MINIMUM GREASE HOLDING CAPACITY							243
DISHWASHER CYCLE TIME						97	SECONDS
30 MINUTE DISHWASHER CONSUMPTION						23.2	GALLONS
HOLDING CAPACITY OF SINKS						120	GALLONS
REQUIRED LIQUID HOLDING CAPACITY						144	GALLONS



GREASE INTERCEPTOR DETAIL AND SCHEUDLE

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Fond Du Lac, WI 54935
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PROJECT INFORMATION

PROPOSED BUILDING RENOVATION
HAWAIIAN BROS - STR: 43
1401 GRINDSTONE PKWY • COLUMBIA, MO 65201

PROFESSIONAL SEAL

SHEET DATES

SHEET ISSUE PRELIM

REVISIONS

JOB NUMBER
2164120

SHEET NUMBER
C3.2

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PLANT SCHEDULE

TREES	CODE	BOTANICAL / COMMON NAME	SIZE	QTY
	BA	Beccariophoenix alfredii / Artificial Palm	By Others	2
	HM2	Heptacodium miconioides / Seven Son Flower	7' Clump	2
	MV	Magnolia virginiana / Sweetbay Magnolia	7' Clump	1

SHRUBS	CODE	BOTANICAL / COMMON NAME	SIZE	QTY
	AL	Aronia melanocarpa 'UCONNAM165' TM / Low Scape Mound Black Chokeberry	#3	4
	BX	Buxus x 'Green Velvet' / Green Velvet Boxwood	#5	8
	CP	Chamaecyparis pisifera 'Golden Mop' / Golden Mop Threadleaf Sawara Cypress	#5	3
	HX3	Hemerocallis x 'Ruby Stella' / Ruby Stella Daylily	#1	19
	HS4	Hibiscus syriacus 'Blue Chiffon' / Blue Chiffon Rose of Sharon	#5	1
	HX5	Hibiscus x 'Fireball' / Fireball Hardy Hibiscus	#5	2
	HR	Hydrangea paniculata 'Renhy' / Vanilla Strawberry Hydrangea	#5	1
	JX	Juniperus x 'Grey Owl' / Grey Owl Juniper	#5	2
	LM3	Liriope muscari 'Big Blue' / Big Blue Lilyturf	#1	6
	MS	Miscanthus sinensis 'Adagio' / Adagio Eulalia Grass	#3	16
	PA	Pennisetum alopecuroides 'Hameln' / Hameln Fountain Grass	#3	4
	RT	Rhus typhina 'Bailtiger' TM / Tiger Eyes Staghorn Sumac	#5	3
	RX2	Rosa x 'Meigalpio' TM / Coral Drift Groundcover Rose	#3	27
	SX3	Spiraea x bumalda 'Goldflame' / Goldflame Spirea	#3	5
	TX	Taxus x media 'Hicksii' / Hicks Yew	#5	5
	YA	Yucca aloifolia / Golden Sword Yucca	#5	10

* ALL BEDS TO BE MULCHED WITH 2-3" COLORADO RAINBOW RIVER ROCK AND FABRIC AND TO BE STEEL EDGED WHERE NEEDED

LANDSCAPE INSTALATION NOTES:

1. THE EXACT LOCATION OF ALL UTILITIES, STRUCTURES, AND UNDERGROUND UTILITIES SHALL BE DETERMINED AND VERIFIED ON SITE BY THE LANDSCAPE CONTRACTOR PRIOR TO INSTALLATION OF THE MATERIALS. DAMAGE TO EXISTING UTILITIES AND OR STRUCTURES SHALL BE REPLACED TO THEIR ORIGINAL CONDITION BY THE LANDSCAPE CONTRACTOR AT NO COST TO THE OWNER.

2. NOTIFY OWNER REPRESENTATIVE OF ANY LAYOUT DISCREPANCIES.

3. LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS AND REQ'D INSPECTIONS BYLEGAL AUTHORITIES. THE LANDSCAPE CONTRACTOR SHALL UNCONDITIONALLY GUARANTEE ALL PLANT MATERIAL FOR ONE CALENDAR YEAR.

4. ANY SUBSTITUTIONS OR CHANGES SHALL BE REQUESTED IN WRITING BY THE CONTRACTOR FOR APPROVAL BY THE OWNER OR LANDSCAPE ARCHITECT.

5. THE INSTALLATION OF ALL PLANT MATERIALS SHALL BE IN COMPLIANCE WITH THE REQUIREMENTS OF THE CITY OF COLUMBIA MISSOURI.

6. 2-6" COLORADO COBBLE AND LANDSCAPE FABRIC SHALL BE USED AS TOP DRESSING IN ALL PLANT BEDS AND AROUND ALL TREES. SINGLE TREES OR SHRUBS SHALL BE MULCHED TO THE OUTSIDE EDGE OF SAUCER OR LANDSCAPE ISLAND. (SEE PLANTING DETAILS). ALL PLANT BEDS TO BE SEPARATED FROM LAWN AREAS WITH STEEL LANDSCAPE EDGE

7. ALL DISTURBED AREAS NOT DESIGNATED FOR OTHER PLANTING SHALL BE SODDED. SOD SHALL CONSIST OF 90% TURF TYPE TALL FESCUE 10% BLUEGRASS. CONTRACTOR IS RESPONSIBLE FOR WATERING ALL SOD UNTILL ROOTS HAVE KNITTED INTO SOIL AND OWNER HAS OCCUPIED THE BUILDING.

8. PROVIDE 'GATOR' BAGS ON ALL TREES. REFILL AS NECESSARY UNTIL OWNER OCCUPIES THE BUILDING. BAGS TO REMAIN FOR USE BY OWNER. IF LEANING OCCURS WITHIN ONE YEAR , TREES SHALL BE RESTAKED (SEE PLANTING DETAILS).

9. ALL PLANT MATERIAL SHALL BE FIRST CLASS REPRESENTATIVES OF SPECIFIED SPECIES, VARIETY OR CULTIVAR, IN HEALTHY CONDITION WITH NORMAL WELL DEVELOPED BRANCHES AND ROOT PATTERNS. PLANT MATERIAL MUST BE FREE OF OBJECTIONABLE

FEATURES. PLANTS SHALL COMPLY IN ALL APPLICABLE RESPECTS WITH PROPER MOST RECENT STANDARDS AS SET FORTH IN THE AMERICAN ASSOCIATION OF NURSERYMEN'S "AMERICAN STANDARD OF NURSERY STOCK", ANSI Z60.1.

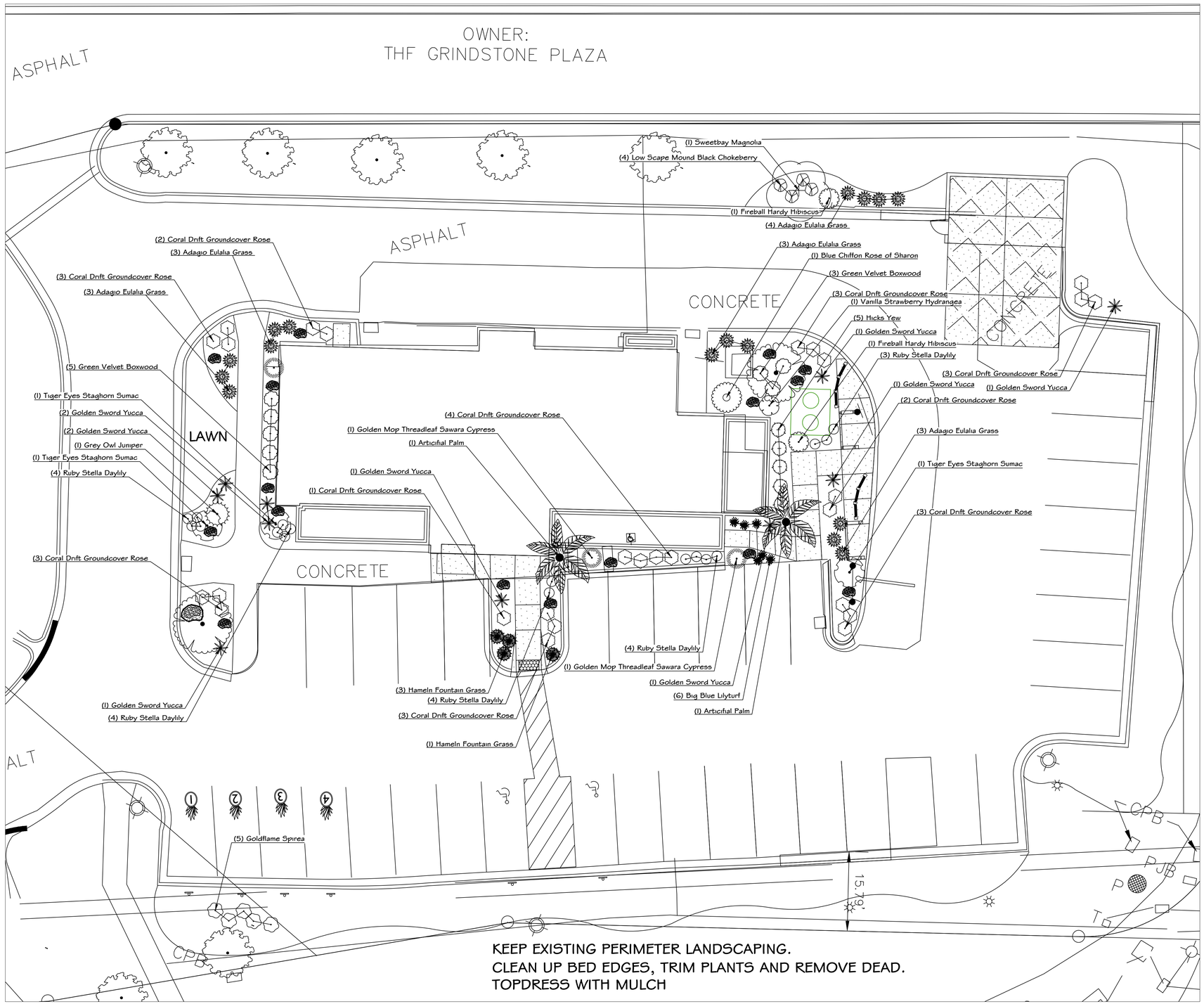
10. ORNAMENTALS AND SHRUBS SHALL BE CONTAINER GROWN AND WILL BE FREE OF DISEASE AND PESTS. ABSOLUTELY NO BARE ROOT MATERIALS. FERTILIZER OF 10-20-10: ONE PELLET OR 1-2 OZ. SHALL BE ADDED TO SOIL AT TIME OF PLANTING. ALL PLANT BEDS TO BE MULCHED TO A DEPTH OF 3" WITH HARDWOOD MULCH. PLANTING BEDS ARE TO BE FREE OF WEEDS AND GRASS. TREAT BEDS WITH A PRE-EMERGENT HERBICIDE PRIOR TO PLANTING AND MULCH PLACEMENT. APPLY IN ACCORDANCE WITH STANDARD TRADE PRACTICE. DO NOT APPLY HERBICIDE IN PERENNIAL AREAS.

11. ALL PLANT MATERIALS SHALL BE PROTECTED FROM THE DRYING ACTION OF THE SUN AND WIND AFTER BEING DUG, WHILE BEING TRANSPORTED, AND WHILE AWAITING PLANTING. BALLS OF PLANTS WHICH CANNOT BE PLANTED IMMEDIATELY SHALL BE PROTECTED FROM DRYING ACTION BY COVERING THEM WITH MOIST MULCH. PERIODICALLY, APPLY WATER TO MULCH-COVERED BALLS TO KEEP MOIST.

12. AFTER PLANTING IS COMPLETED, REPAIR INJURIES TO ALL PLANTS AS REQUIRED. LIMIT AMOUNT OF PRUNING TO A MINIMUM TO REMOVE DEAD OR INJURED TWIGS AND BRANCHES. PRUNE IN SUCH A MANNER AS NOT TO CHANGE THE NATURAL HABIT OR SHAPE OF THE PLANT. MAKE CUTS FLUSH, LEAVING NO STUBS. CUTS OF ONE INCH OR MORE TO BE PAINTED WITH TREE PAINT. CENTRAL LEADERS SHALL NOT BE REMOVED.

13. ALL LANDSCAPE AREAS TO BE FREE OF ALL BUILDING DEBRIS AND TRASH, BACK FILLED WITH CLEAN FILL SOIL AND TOP DRESSED WITH 6" OF TOPSOIL. TOPSOIL SHALL HAVE A pH RANGE OF 5.5 TO 7 AND A 4% ORGANIC MATERIAL MINIMUM, ASTM D5268.

14. REESTABLISH FINISH GRADES TO WITHIN ALLOWABLE TOLERANCES ALLOWING 1-1/2" FOR SOD AND 3" FOR MULCH IN PLANT BEDS. HAND RAKE ALL AREAS TO SMOOTH EVEN SURFACES FREE OF DEBRIS, CLODS, ROCKS, AND VEGETATIVE MATTER GREATER THAN 1". ALL SOD AREAS AND IRRIGATION DAMAGED SHALL BE REPAIRED.



KEEP EXISTING PERIMETER LANDSCAPING.
CLEAN UP BED EDGES, TRIM PLANTS AND REMOVE DEAD.
TOPDRESS WITH MULCH

NORTH

0 10 20 30 40 feet

1" = 10'

SHEET: 1 OF 1
DATE: 3/2/2022
DRAWN BY: AF
SCALE: 1"=10'

Hawaiian Bros
Columbia, MO

ROSEHILL GARDENS
Roots a Century Deep
816-941-4777 - 311 E. 135th Street - Kansas City, MO 64145 - www.RosehillGardens.com

ARCHITECTURAL SPECIFICATIONS

DIVISION 00 PROCUREMENT AND CONTRACTING

00 72 00 GENERAL CONDITIONS

A. THE AIA GENERAL CONDITIONS A201 LATEST EDITION IS A PART OF THESE DOCUMENTS. COPIES ARE On FILE AT THE OFFICE OF EXCEL ENGINEERING, INC.

00 73 16 INSURANCE REQUIREMENTS

A. PRIOR TO COMMENCEMENT OF WORK, THE CONTRACTOR SHALL SUBMIT TO THE OWNER CERTIFICATE OF INSURANCE FOR NOT LESS THAN THE FOLLOWING LIMITS:
  1. WORKER'S COMPENSATION AND EMPLOYERS LIABILITY:
    a. PER STATUTORY LIMITS
  2. COMMERCIAL GENERAL LIABILITY:
    a. GENERAL AGGREGATE: $2,000,000
    b. PRODUCTS AND COMPLETED OPERATIONS AGGREGATE: $2,000,000
    c. PERSONAL AND ADVERTISING INJURY: $1,000,000
    d. EACH OCCURRENCE: $1,000,000
    e. CONTRACTOR SHALL LIST EXCEL ENGINEERING, INC. AS ADDITIONAL INSURED.

DIVISION 01 GENERAL REQUIREMENTS

01 11 00 SUMMARY OF WORK

A. THE PLANS AND SPECIFICATIONS ARE INTENDED TO GIVE A DESCRIPTION OF THE WORK. NO DEVIATION FROM THE PLANS AND SPECIFICATIONS SHALL BE MADE WITHOUT THE WRITTEN CONSENT OF EXCEL ENGINEERING, INC. THE CONTRACTOR IS TO CLARIFY ANY DISCREPANCIES WITH EXCEL ENGINEERING, INC. PRIOR TO BIDDING. THE CONTRACTOR SHALL VISIT THE SITE TO VERIFY EXISTING CONDITIONS AND ACCESS TO THE WORK AREA.

B. REFERENCE TO “GENERAL CONTRACTOR” OR “GC” IN THE CONSTRUCTION DOCUMENTS IS INTENDED TO REPRESENT THE CONTRACTOR RESPONSIBLE FOR OVERALL CONSTRUCTION AND COORDINATION OF THE WORK. THE “GC” COULD BE A GENERAL CONTRACTOR, CONSTRUCTION MANAGER OR ANY OTHER CONTRACTOR RESPONSIBLE FOR THE OVERALL PROJECT. IT IS THE RESPONSIBILITY OF THE GC TO ASSIGN RESPONSIBILITY FOR ALL WORK.

C. THE FOLLOWING LIST IS INTENDED TO AID THE GC IN DIRECTING THE SUBCONTRACTORS REGARDING RESPONSIBILITY OF WORK. THE DRAWINGS MAY OR MAY NOT IDENTIFY RESPONSIBILITY FOR THESE SCOPES OF WORK. THE LIST IS INTENDED TO INCLUDE ITEMS WHICH HAVE TYPICALLY BEEN DETAILED TO BE “BY GC” OR “BY OTHERS”. THIS LIST IS INTENDED TO PROVIDE THE GC AN AID TO ASSIGN THIS WORK SO SCOPE OF WORK IS PROPERLY BID. THE LIST IS NOT INTENDED TO BE ALL INCLUSIVE AND IT REMAINS THE RESPONSIBILITY OF THE GC TO ENSURE ALL SCOPES OF WORK ARE ASSIGNED AND PROVIDED.
  1. TEMPORARY ELECTRIC SERVICE
  2. TEMPORARY HEATING
  3. TEMPORARY WATER
  4. TEMPORARY TOILETS
  5. PERMITS, CODES, ORDINANCES AND SALES TAX
  6. INTERIOR CONCRETE EQUIPMENT PADS
  7. EXTERIOR CONCRETE EQUIPMENT PADS AND POLE BASES
  8. OPENINGS IN EXISTING CONSTRUCTION
  9. LARGE OPENINGS IN METAL DECK
  10. SMALL OPENINGS IN METAL DECK
  11. PIPE SLEEVES IN MASONRY, POURED CONCRETE AND FOUNDATION WALLS
  12. BOX OUT OPENINGS IN POURED CONCRETE AND FOUNDATION WALLS.
  13. LARGE OPENINGS IN INSULATED METAL PANELS
  14. SMALL OPENINGS IN INSULATED METAL PANELS
  15. TRIM AROUND INSULATED METAL PANEL OPENINGS
  16. PATCHING OPENINGS IN WALLS AND ROOF
  17. SAWCUTTING AND REMOVAL OF FLOOR FOR UTILITIES
  18. CONCRETE FLOOR REPLACEMENT WHERE SAWCUT
  19. RADIANT FLOOR, SNOW MELT, FREEZER UNDERSLAB INSULATION
  20. LAY-IN CEILING TILE REMOVAL AND REPLACEMENT IN EXISTING AREAS
  21. LAY-IN CEILING GRID REMOVAL AND REPLACEMENT IN EXISTING AREAS
  22. INSTALLATION OF CEILING/WALL ACCESS PANELS
  23. INSTALLATION OF ROOF CURBS AND ASSOCIATED BLOCKING
  24. PAINTING
  25. SEALANTS
  26. INTERIOR AND EXTERIOR DRAIN TILES AND BLEEDERS
  27. TUB, SHOWERS, MOP SINK, FLOOR DRAIN SAFING.
  28. WATERPROOF MEMBRANES AT ABOVE GRADE FLOORS.

01 23 00 ALTERNATE BIDS

A. ALTERNATE BID A1: PROVIDE CEDAR IN LIEU OF SPECIFIED REDWOOD. CONTACT EXCEL ENGINEERING IF ALTERNATE IS SELECTED.

01 25 13 PRODUCT SUBSTITUTION PROCEDURES

A. REFERENCE TO MATERIALS OR SYSTEMS HEREIN BY NAME, MAKE OR CATALOG NUMBER IS INTENDED TO ESTABLISH A QUALITY STANDARD, AND NOT TO LIMIT COMPETITION. THE WORDS "OR APPROVED EQUIVALENT" ARE IMPLIED FOLLOWING EACH BRAND NAME/MODEL NUMBER UNLESS STATED OTHERWISE. "OR APPROVED EQUIVALENT" MATERIALS SHALL BE APPROVED BY EXCEL ENGINEERING, INC. PRIOR TO BIDS BEING ACCEPTED AND ACCEPTANCE FOR USE. PROVIDE A LETTER FROM THE MANUFACTURER CERTIFYING THAT THE PRODUCT MEETS OR EXCEEDS THE SPECIFIED PRODUCT.

01 31 00 PROJECT MANAGEMENT AND COORDINATION

A. THE CONTRACTOR HAS THE SOLE RESPONSIBILITY FOR AND SHALL HAVE CONTROL OF CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND SAFETY PRECAUTIONS AND PROCEDURES USED TO CONSTRUCT THE WORK.

B. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIAL (INCLUDING TAXES) AND EQUIPMENT AS NECESSARY TO COMPLETE THE WORK. PERMITS SHALL BE OBTAINED AND PAID FOR BY THE RESPECTIVE CONTRACTOR, INCLUDING TEMPORARY OCCUPANCY PERMIT IF REQUIRED.

C. AUTOCAD FILES OF CONSTRUCTION DOCUMENTS MAY BE OBTAINED BY CONTACTING EXCEL ENGINEERING, INC. REVIT FILES WILL NOT BE MADE AVAILABLE. AUTOCAD FILE REQUESTS SHALL BE EMAILED TO EXCEL PROJECT MANAGER AND PROJECT ASSISTANT AND SHALL INCLUDE THE FOLLOWING INFORMATION:
  1. EXCEL ENGINEERING PROJECT NAME
  2. EXCEL ENGINEERING PROJECT NUMBER
  3. SHEET NUMBERS REQUESTED

D. AUTOCAD FILES REQUEST SHALL BE MADE TO:
  1. PROJECT MANAGER: JAY JOHNSON AT jay.j@excelengineer.com
  2. PROJECT ASSISTANT: LYDIA GREENFIELD AT archretail@excelengineer.com

E. AUTOCAD FILES WILL BE SENT BY METHOD OF EXCEL ENGINEERING, INC. CHOOSING AS SOON AS POSSIBLE.

F. AUTOCAD FILES SHALL NOT BE USED FOR COMPONENT SUBMITTALS OR SHOP DRAWINGS. SUBMITTALS AND SHOP DRAWINGS USING EXCEL ENGINEERING, INC. CAD FILES WILL BE RETURNED REJECTED AND UN-REVIEWED.

G. ALL “REQUEST FOR INFORMATION” (RFI) SHALL BE MADE THROUGH THE GENERAL CONTRACTOR FOR LOGGING AND TRACKING PURPOSES. RFI’S SHALL BE SUBMITTED TO THE EXCEL ENGINEERING PROJECT ASSISTANT. RFI’S SHALL BE SUBMITTED ON AN ARCHITECT APPROVED FORM, NUMBER SEQUENCE AND INCLUDE THE FOLLOWING INFORMATION:
  1. EXCEL ENGINEERING PROJECT NAME
  2. EXCEL ENGINEERING PROJECT NUMBER
  3. DIVISION OF CONSTRUCTION REFERENCED
  4. POTENTIAL SCHEDULE IMPACTS
  5. POTENTIAL COST IMPACTS OF ANY SUGGESTED ALTERNATES FROM THE CONSTRUCTION DOCUMENTS

01 32 00 SCHEDULING OF WORK

A. THE CONTRACTOR SHALL OBTAIN THE OWNER'S APPROVAL OF THE CONSTRUCTION SCHEDULE PRIOR TO PROCEEDING WITH THE WORK.

01 33 23 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

A. SUBMIT FOR APPROVAL ARCHITECTURAL, CIVIL, STRUCTURAL, HVAC, PLUMBING, FIRE PROTECTION AND ELECTRICAL SHOP DRAWINGS, PRODUCT DATA, TEST RESULTS AND SAMPLES INDICATED IN THE CONSTRUCTION ADMINISTRATION SUBMITTAL LIST (CASL). SEE DISCIPLINE SPECIFICATIONS FOR DISCIPLINE SPECIFIC CASL.

B. SHOP DRAWING SUBMITTALS SHALL BE MADE TO EXCEL ENGINEERING, INC. FOR APPROVAL PRIOR TO FABRICATION AND INSTALLATION.

C. SUBMITTALS SHALL BE MADE BY ELECTRONIC SUBMISSION IN PORTABLE DOCUMENT FORMAT (PDF) UNLESS NOTED OTHERWISE. WHEN HARD COPY SUBMISSIONS ARE REQUIRED, COORDINATE WITH EXCEL ENGINEERING, INC. PRIOR TO SUBMISSION.

D. SUBMITTALS SHALL BE MADE TO THE EXCEL ENGINEERING, INC. PROJECT ASSISTANT.
  1. LYDIA GREENFIELD AT ARCHRETAIL@EXCELENGINEER.COM

E. SUBMITTAL SHALL BE MADE USING APPROVED SUBMITTAL FORM CONTAINING AT MINIMUM THE FOLLOWING INFORMATION:
  1. EXCEL ENGINEERING PROJECT NAME
  2. EXCEL ENGINEERING PROJECT NUMBER
  3. SUBMITTAL DIVISION OF CONSTRUCTION
  4. MATERIAL SUPPLIER / SUB CONTRACTOR
  5. SUBMITTAL DESCRIPTION (i.e. CONCRETE MIX DESIGN)

F. SUBMITTALS SHALL BE REVIEWED AND STAMPED BY THE CONTRACTOR PRIOR TO SUBMITTING FOR APPROVAL. CONTRACTOR SHALL COMPLETE ALL FIELD VERIFICATIONS PRIOR TO SUBMITTAL SUBMISSION.

G. SUBMITTALS MUST BE 100% COMPLETE AND IN ONE (1) PACKAGE FOR THE ITEM BEING SUBMITTED. NON-COMPLETE SUBMITTALS WILL BE RETURNED TO THE CONTRACTOR WITHOUT COMMENT AND STAMPED "REJECTED-RESUBMIT". CONTRACTORS WHO KNOWINGLY WANT TO SUBMIT NON-COMPLETE SUBMITTALS OR BREAK SINGLE SYSTEM SUBMITTALS INTO MULTIPLE SUBMITTALS WILL BE RESPONSIBLE TO ARRANGE WITH EXCEL ENGINEERING, PRIOR TO SUBMITTING THE SUBMITTAL(S), AND TO COMPENSATE EXCEL ENGINEERING FOR THE EXTRA WORK INVOLVED.

H. SHOP DRAWINGS SHALL CLEARLY INDICATE SPECIFIC MODEL BEING PROVIDED WHERE CUT SHEETS SHOW MULTIPLE MODELS.

I. FAILURE TO SUBMIT SHOP DRAWINGS SHALL NOT RELIEVE THE CONTRACTOR FROM PROVIDING THE SPECIFIED EQUIPMENT AND MATERIALS.

J. PHYSICAL SAMPLES FOR FINISHES ARE TO BE SUBMITTED TO EXCEL ENGINEERING, INC. FOR APPROVAL PRIOR TO INSTALLATION.

K. BUILDING COMPONENTS REQUIRING SUBMISSION “FOR RECORD” TO THE AUTHORITY HAVING JURISDICTION REQUIRE SEALED AND SIGN HARD COPIES, PROVIDE THREE (3) HARD COPIES WITH WET SEAL AND ORIGINAL SIGNATURE.

L. TEST RESULTS SHALL BE SUBMITTED FOR REVIEW WITHIN 24 HOURS OF COMPLETION OF TEST.

M. CONTRACTOR SHALL ALLOW 10 WORKING DAYS IN SCHEDULE FOR A/E TO REVIEW SUBMITTALS. IF SUBMITTALS REQUIRE AN EXPEDITED REVIEW PROCESS, CONTACT EXCEL ENGINEERING, INC. PRIOR TO SUBMITTING THE SUBMITTAL(S) TO MAKE THE APPROPRIATE ARRANGEMENT.

N. SUBMITTALS REQUIRING RESUBMISSION SHALL HAVE CHANGES MADE TO A PREVIOUSLY REVIEWED SUBMITTAL DENOTED WITH REVISION CLOUDS AND TAGS IDENTIFYING CHANGES.

O. ARCHITECTURAL CONSTRUCTION ADMINISTRATION SUBMITTAL LIST:
  1. ARCHITECTURAL PRECAST (304)
  2. UNIT MASONRY (404)
  3. MASONRY VENEER (404)
  4. BRICK (404)
  5. STONE VENEER (404)
  6. CAST STONE (404)
  7. MANUFACTURED STONE (404)
  8. ROUGH CARPENTRY MATERIALS (604)
  9. EXTERIOR FINISH CARPENTRY MATERIALS (604)
  10. INTERIOR FINISH CARPENTRY MATERIALS (604)
  11. WATERPROOFING (704)
  12. INSULATION (704)
  13. TEXTURED ACRYLIC FINISHES (TAFS) (704)
  14. EXTERIOR INSULATION AND FINISH SYSTEMS (EIFS) (704)
  15. WEATHER BARRIER (704)
  16. AIR AND MOISTURE BARRIERS (704)
  17. INSULATED METAL PANELS (704)
  18. MEMBRANE ROOFING SYSTEMS (704)
  19. ROOFING ACCESSORIES (704)
  20. PENETRATION FIRE STOPPING (704)
  21. SEALANTS (704)
  22. HOLLOW METAL DOORS AND FRAMES (804)
  23. STAINLESS STEEL DOORS AND FRAMES (804)
  24. FIBERGLASS DOORS AND FRAMES (804)
  25. FLUSH WOOD DOORS (804)
  26. OVERHEAD COILING DOORS (804)
  27. OVERHEAD SECTIONAL DOORS (804)
  28. HIGH SPEED COILING DOORS (804)
  29. IMPACT TRAFFIC DOORS (804)
  30. ALUMINUM FRAMED ENTRANCES AND STOREFRONTS (804)
  31. AUTOMATIC ENTRANCES (804)
  32. GLAZED ALUMINUM CURTAIN WALLS (804)
  33. DOOR HARDWARE (804)
  34. GLAZING (804)
  35. DRYWALL STUDS (904)
  36. GYPSUM BOARD (904)
  37. TILING (904)
  38. ACOUSTICAL PANEL CEILINGS (904)
  39. RESINOUS FLOORING (904)
  40. TILE CARPETING (904)
  41. SHEET CARPETING (904)
  42. WALL COVERING (904)
  43. FIXED SOUND ABSORPTIVE PANELS (904)
  44. PAINTING SYSTEMS (904)
  45. SIGNAGE (1004)
  46. FIRE EXTINGUISHERS (1004)
  47. TOILET ACCESSORIES (1004)
  48. TOILET PARTITIONS (1004)
  49. CABINET AND MILLWORK (1204)

P. STRUCTURAL AND ARCHITECTURAL PLANS SHOW DIMENSIONS AND ELEVATIONS TO SIGNIFICANT WORKING POINTS. SHOP DRAWING DETAILERS AND SUPPLIERS ARE RESPONSIBLE FOR THE DETERMINATION OF ALL DIMENSIONS, PITCHES, ELEVATIONS, ETC., BEYOND THOSE NOTED AS NECESSARY TO THOROUGHLY DETAIL / FABRICATE THEIR WORK. CONTACT A/E WITH ANY DISCREPANCIES FOUND.

Q. IN NO CASE SHALL CHANGES BE MADE TO WORK SHOWN OR PROCEDURE SPECIFIED ON STRUCTURAL PLANS UNLESS FIRST APPROVED IN WRITING BY A/E. REVIEW OF SHOP DRAWINGS BY A/E DOES NOT CONSTITUTE ACCEPTANCE OF A DESIGN CHANGE. PROPOSED CHANGES BY CONTRACTOR MUST BE SUBMITTED IN RFI FORMAT AND MUST BE APPROVED IN THE SAME MANNER. CONTRACTOR REQUESTING CHANGE MAY BE BILLED ON A TIME AND EXPENSE BASIS BY A/E FOR ALL REDESIGN WORK, FOR ALL NEW SKETCHES PREPARED, AND FOR ALL ADDITIONAL REVIEW TIME RELATED TO THE CHANGES.

01 40 00 QUALITY REQUIREMENTS

A. IN AS MUCH AS THE SPECIFICATIONS ARE BRIEF, THE CONTRACTOR SHALL PROVIDE WORKMANSHIP THAT IS NEAT, SECURE AND OF THE BEST QUALITY WITH THE BEST POSSIBLE APPEARANCE AND UTILITY MEETING ALL APPLICABLE STANDARDS. FAULTY WORK SHALL BE REPAIRED OR REPLACED AT NO COST TO THE OWNER. INDUSTRY STANDARDS SHALL BE USED AS THE GUIDE FOR QUALITY OF MATERIALS AND WORKMANSHIP.

01 41 00 REGULATORY REQUIREMENTS

A. ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES, ORDINANCES AND REGULATIONS, INCLUDING THE REQUIREMENTS OF THE AMERICAN WITH DISABILITIES ACT (A.D.A.) ARE MADE PART OF THESE SPECIFICATIONS AND SHALL BE COMPLIED WITH AS FAR AS THEY APPLY TO WORK UNDER THIS CONTRACT.

01 45 00 QUALITY CONTROL

A. THE CONTRACTOR SHALL CONTACT EXCEL ENGINEERING, INC. (2) WORKING DAYS PRIOR TO POURING CONCRETE FOOTINGS AND BEFORE THE STRUCTURAL SYSTEM HAS BEEN ENCLOSED. A FINAL INSPECTION WILL BE MADE BY EXCEL ENGINEERING, INC. UPON COMPLETION OF THE PROJECT.

B. NOTIFY ARCHITECT ONE WEEK IN ADVANCE TO SCHEDULE FINAL COMPLIANCE WALK-THRU. PRIOR TO THIS WALK THRU, PROVIDE THE ARCHITECT WITH THE FIRE PROTECTION SYSTEM TEST REPORT AND A COPY OF THE ELEVATOR INSPECTION REPORT AS APPLICABLE. ALL COMPONENT SUBMITTALS SHOULD BE FILED AND AVAILABLE FOR REVIEW AT THE WALK THRU. THE BUILDING SHALL BE COMPLETE AND ALL SYSTEMS OPERATIONAL AT THE TIME OF THE WALK THRU. IF THE ARCHITECT IS REQUIRED TO MAKE ADDITIONAL VISITS DUE TO NON-COMPLIANCE, THEY WILL BE CHARGED TO THE REQUESTING CONTRACTOR.

01 52 00 CONSTRUCTION FACILITIES

A. THE CONTRACTOR SHALL FURNISH TEMPORARY OFFICE, TOILET FACILITIES, WORKING TELEPHONE, ELECTRICITY, HEAT, WATER AND FIRE EXTINGUISHERS AS REQUIRED FOR COMPLETION OF THE WORK UNLESS THE OWNER HAS AGREED IN WRITING TO FURNISH OR WAIVE ANY OF THE ABOVE ITEMS.

01 53 00 TEMPORARY CONSTRUCTION

A. THE CONTRACTOR SHALL FURNISH TEMPORARY BRACING OF ALL BUILDING ELEMENTS DURING CONSTRUCTION. TEMPORARY BRACING SYSTEMS SHALL BE DESIGNED TO WITHSTAND CODE DESIGN LOADS. CONTRACTOR SHALL RETAIN SERVICES OF A PROFESSIONAL ENGINEER TO DESIGN AND SUPERVISE BRACING INSTALLATION IF THEY DO NOT HAVE THE EXPERTISE REQUIRED.

01 71 00 FIELD ENGINEERING

A. THE CONTRACTOR SHALL PROVIDE ALL LAYOUT AS REQUIRED, COMPETENT FULLTIME ON SITE SUPERVISION, AND BROOM CLEANING OF CONSTRUCTION SITE INCLUDING DUMPSTERS FOR REFUSE DISPOSAL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY ON SITE AND PROTECTION OF SITE PER LOCAL, STATE AND FEDERAL REQUIREMENTS.

01 78 00 CLOSEOUT SUBMITTALS

A. THE CONTRACTOR SHALL FURNISH "AS-BUILT" DRAWINGS REFLECTING ALL CHANGES DURING CONSTRUCTION. PROVIDE TWO (2) COPIES OF OPERATING AND MAINTENANCE MANUALS TO OWNER FOR ALL FURNISHED EQUIPMENT.

01 78 36 WARRANTIES

A. THE CONTRACTOR SHALL GUARANTEE ALL WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE YEAR AFTER SUBSTANTIAL COMPLETION OF THE PROJECT. FURNISH MANUFACTURER'S WRITTEN WARRANTIES FOR SPECIFIED EQUIPMENT STATING EFFECTIVE WARRANTY DATE.

DIVISION 02 EXISTING CONDITIONS

02 41 19 SELECTIVE DEMOLITION

A. CONDUCT DEMOLITION AND DEBRIS REMOVAL OPERATIONS TO INSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKS, AND OTHER ADJACENT OCCUPIED AND USED FACILITIES.

B. IT IS UNKNOWN WHETHER HAZARDOUS MATERIALS WILL BE ENCOUNTERED, DO NOT DISTURB, IMMEDIATELY NOTIFY ARCHITECT AND OWNER.

C. DEMOLISH AND REMOVE EXISTING CONSTRUCTION ONLY TO THE EXTENT REQUIRED BY NEW CONSTRUCTION AND AS SHOWN ON THE DEMOLITION PLANS. USE METHODS REQUIRED TO COMPLETE THE WORK WITHIN LIMITATIONS OF GOVERNING REGULATIONS.

D. EXCEPT FOR ITEMS OR MATERIALS INDICATED TO BE REUSED, SALVAGED, REINSTALLED OR TO REMAIN OWNER’S PROPERTY, REMOVE DEMOLISHED MATERIALS FROM PROJECT SITE AND LEGALLY DISPOSE OF THEM IN AN EPA APPROVED LANDFILL.

DIVISION 03 CONCRETE

03 30 00 CAST-IN-PLACE CONCRETE

A. SEE STRUCTURAL SPECIFICATIONS.

03 41 00 PRECAST CONCRETE

A. SEE STRUCTURAL SPECIFICATIONS.

03 60 00 GROUT

A. SEE STRUCTURAL PLANS.

DIVISION 04 MASONRY

04 05 19 MASONRY ANCHORS

A. MASONRY ANCHORS:
  1. ANCHORS TO MASONRY BACKUP: No 75: HECKMANN “POS-I-TIE” CONCRETE/ CMU SCREW WITH OVERSIZED HECKMANN 610 THERMAL GRIP INSULATION WASHERS.
  2. ANCHORS TO METAL STUD BACKUP: No 75: HECKMANN “POS-I-TIE” SELF-DRILLING SCREW WITH OVERSIZED HECKMANN 610 THERMAL GRIP INSULATION WASHERS.
  3. PROVIDE ANCHORS WITH HECKMANN No. 75-TC POS-I-TIE THERMAL CLIP TO CREATE A THERMAL BREAK BETWEEN THE WIRE TIE AND THE BARREL.
  4. PROVIDE ANCHORS WITH HECKMANN No. 282-N PINTLE WIRE TIES. PROVIDE TIES IN HOT-DIP GALVANIZED.
  5. PROVIDE MASONRY VENEER TIED TO MASONRY BACK-UP WITH HOHMANN & BARNARD, INC. LADDER TYPE #270 ADJUSTABLE EYE-WIRE REINFORCEMENT AT 16" ON CENTER VERTICALLY IF SHOWN ON PLANS.

B. INSTALL MASONRY ANCHOR PRODUCTS IN ACCORDANCE WITH MANUFACTURER’S INSTALLATION INSTRUCTIONS AND AS SHOWN ON PLANS.

C. MAXIMUM VERTICAL SPACING OF 18” AND MAXIMUM HORIZONTAL SPACING OF 24”, TO OTHER BACKUP MATERIALS OR AS NOTED ON DRAWINGS (MAX. 2 S.F. PER TIE).

04 20 00 UNIT MASONRY

A. SEE STRUCTURAL SPECIFICATIONS.

04 22 00 MASONRY VENEER

A. ALL MASONRY VENEER MATERIALS AND INSTALLATION SHALL COMPLY WITH LOCAL AND STATE CODES, AND SPECIFICATIONS OF THE NCMA. ALL MASONRY VENEER WORK SHALL BE LAID IN TYPE N CEMENT AND LIME MORTAR, WITH ALL MASONRY FACES FULL BEDDED IN PLACE HAVING BOTH VERTICAL AND HORIZONTAL JOINTS ON STRAIGHT LINES.

B. PROVIDE STANDARD GALVANIZED DURO-WALL DA3200 LADUR OR EQUAL LADDER TYPE REINFORCING AT 16” O.C. IN VENEER BED JOINTS.

C. PROVIDE A 3/8" CONTROL JOINT AT 20'-0" O.C. UNLESS SHOWN OTHERWISE ON PLANS.

D. INSTALL 2 5/8” X 3 1/2’’ X 1/2’’ “MORTAR NET” WEEP VENTS AT TOP AND BOTTOM COURSE OF EXTERIOR BLOCK, ABOVE LINTELS AND BOND BEAMS AT 32" ON CENTER OR AS INDICATED ON THE DRAWINGS. COLOR OF WEEP VENTS AND MESH TO MATCH GROUT

E. MATCH EXISTING MASONRY UNITS AS SELECTED UNLESS COLOR SCHEDULE SHOWN WITHIN PLANS. CONTRACTOR SHALL ALLOW FOR A MINIMUM OF 3 DIFFERENT COLOR CHOICES AND COLOR MATCH MORTAR UNLESS OTHERWISE DETAILED IN THE PLANS.

F. CONTROL JOINTS SHALL BE SPACED PER NCMA 10-4: CONTROL JOINTS FOR CONCRETE MASONRY WALLS — EMPIRICAL METHOD AND AS INDICATED ON PLANS. CONTROL JOINT CAULK COLOR TO MATCH COLOR OF THE FIELD MASONRY ADJACENT TO JOINT. CONTROL JOINTS TO ALIGN WITH EXPOSED CONCRETE FOUNDATION WALL JOINTS IF APPLICABLE.

04 31 13 BRICK

A. ALL BRICK MATERIALS AND INSTALLATION SHALL COMPLY WITH LOCAL AND STATE CODES, AND SPECIFICATIONS OF THE BRICK INSTITUTE OF AMERICA (BIA). ALL BRICK WORK SHALL BE LAID IN TYPE N CEMENT AND LIME MORTAR, WITH ALL BRICK FACES FULL BEDDED IN PLACE HAVING BOTH VERTICAL AND HORIZONTAL JOINTS ON STRAIGHT LINES. PROVIDE A 3/8" CONTROL JOINT AT 20'-0" O.C. UNLESS SHOWN OTHERWISE ON PLANS.

B. INSTALL WEEP VENTS AT TOP AND BOTTOM COURSE OF BRICK, AND ABOVE ALL OPENINGS IN EXTERIOR WALLS AT 32" ON CENTER OR AS INDICATED ON THE DRAWINGS.

C. CONTRACTOR SHALL ALLOW FOR COLOR MATCH MORTAR.

D. CONTROL JOINTS SHALL BE SPACED PER BIA TECHNICAL NOTE 18 — VOLUME CHANGES AND EFFECTS OF MOVEMENT, PART 1 AND BIA TECHNICAL NOTE 21B — BRICK MASONRY CAVITY WALL - DETAILING AND AS INDICATED ON PLANS. CONTROL JOINT CAULK COLOR TO MATCH COLOR OF THE FIELD BRICK ADJACENT TO JOINT. CONTROL JOINTS TO ALIGN WITH EXPOSED CONCRETE FOUNDATION WALL JOINTS IF APPLICABLE.

04 72 00 CAST STONE

A. ALL CAST STONE MATERIALS, INSTALLATION AND ANCHORING SHALL COMPLY WITH LOCAL AND STATE CODES, AND SPECIFICATIONS FROM THE CAST STONE INSTITUTE AND ASTM C1364 — STANDARD SPECIFICATION FOR ARCHITECTURAL CAST STONE.

B. SHOP DRAWINGS: INCLUDE DETAILS OF FABRICATION AND INSTALLATION, DIMENSIONS AND PROFILES OF STONE UNITS, AND LOCATIONS AND DETAILS OF ANCHORS.

04 73 00 MANUFACTURED STONE

A. ALL MANUFACTURED STONE MATERIALS AND INSTALLATION SHALL COMPLY WITH LOCAL AND STATE CODES.

B. SUBMIT THE FOLLOWING ITEMS:
  1. PRODUCT DATA: MANUFACTURED MASONRY AND APPLICATION MATERIALS INCLUDING MORTAR COLOR CHARTS.
  2. SAMPLES: PANEL CONTAINING FULL-SIZE SAMPLES OF SPECIFIED MANUFACTURED MASONRY SHOWING FULL RANGE OF COLORS AND TEXTURES COMPLETE WITH SPECIFIED MORTARS.
  3. QUALITY ASSURANCE/CONTROL SUBMITTALS: MANUFACTURER’S INSTALLATION INSTRUCTIONS.

C. FOLLOW MANUFACTURER’S INSTRUCTIONS ON PRODUCT STORAGE AND HANDLING.

D. STORE MOISTURE SENSITIVE MATERIALS IN WEATHER PROTECTED ENCLOSURES.

E. PROVIDE THE STYLE, COLOR, SHAPE AND TEXTURE OF MANUFACTURED STONE AS SHOWN ON THE PLANS. SEE ELEVATIONS.

F. INSTALL MANUFACTURED STONE PRODUCTS IN ACCORDANCE WITH MANUFACTURER’S INSTALLATION INSTRUCTIONS AND AS SHOWN ON PLANS.

G. CLEAN MANUFACTURED MASONRY IN ACCORDANCE WITH MANUFACTURER’S INSTALLATION INSTRUCTIONS.

H. PROTECT FINISHED WORK FROM RAIN DURING AND FOR 48 HOURS FOLLOWING INSTALLATION.

I. PROTECT FINISHED WORK FROM DAMAGE DURING REMAINDER OF CONSTRUCTION PERIOD.

DIVISION 05 METALS

05 12 00 STRUCTURAL STEEL FRAMING

A. SEE STRUCTURAL SPECIFICATIONS.

05 21 00 STEEL JOIST FRAMING

A. SEE STRUCTURAL SPECIFICATIONS.

05 31 00 STEEL DECKING

A. SEE STRUCTURAL SPECIFICATIONS.

05 40 00 LIGHT GAUGE LOAD-BEARING AND EXTERIOR WALL FRAMING

A. SEE STRUCTURAL SPECIFICATIONS.

DIVISION 06 WOOD, PLASTICS AND COMPOSITES

06 10 00 ROUGH CARPENTRY

A. SEE STRUCTURAL SPECIFICATIONS.

06 16 00 SHEATHING

A. WOOD
  1. PARAPET VERTICAL: MINIMUM 7/16” PLYWOOD DOC PS-1 OR 2, EXPOSURE 1 MINIMUM CLASSIFICATION.
  2. ROOF SHEATHING: PROVIDE H-CLIPS AT JOINTS CENTERED BETWEEN JOISTS/TRUSSES.
  3. COORDINATE SHEATHING INSTALLATION SO SHEATHING IS NOT DIRECTLY EXPOSED TO PRECIPITATION OR PROVIDE SHEATHING WARRANTED FOR THE EXPOSURE.
  4. EXPOSED INTERIOR WALL SHEATHING SHALL BE MINIMUM CDX GRADE.
  5. PROVIDE FIRE TREATED SHEATHING WHERE SPECIFIED ON PLANS.
  6. SEE STRUCTURAL SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

B. GLASS MAT SHEATHING
  1. INSTALL IN ACCORDANCE WITH MANUFACTURER INSTRUCTIONS.
  2. NONCOMBUSTIBLE AS TESTED IN ACCORDANCE WITH ASTM E136.
  3. MANUFACTURED TO MEET ASTM C1177.
  4. MOLD RESISTANCE PER ASTM D3273 OF 10.
  5. FLAME SPREAD AND SMOKE DEVELOP RATING OF 0/0 WHEN TESTED IN ACCORDANCE WITH ASTM E84.
  6. WALL
    a. PRODUCT: DENSGLASS GOLD EXTERIOR SHEATHING.
    b. TREATED, WATER-RESISTANT GYPSUM CORE SURFACED WITH FIBERGLASS MATS AND A PRIMER COATING.
    c. MIN. 1/2” THICK. MINIMUM SPAN RATING EQUAL TO SUPPORT SPACING.
    d. 1.9 LBS/SF, >23 PERMS, 0.56 R VALUE.
  7. ROOF
    a. VERTICAL
      i. PRODUCT: DENSDECK PRIME ROOF BOARD.
      j. FIBERGLASS MATS MECHANICALLY BONDED TO FRONT AND BACK OF HIGH DENSITY GYPSUM CORE WITH FACE MAT ENHANCEMENTS TO ALLOW UNIFORM ADHESIVE SPREADING.
      900 PSI COMPRESSIVE STRENGTH.
      iv. 2.0 LBS/SF, >35 PERMS, 0.56 R VALUE FOR 1/2” THICK.
      v. UL 790 CLASSIFIED FOR USE AS A FIRE BARRIER OVER COMBUSTIBLE AND NONCOMBUSTIBLE DECKS.
      vi. UL 1256 CLASSIFIED FOR INTERNAL (UNDER DECK) FIRE EXPOSURE.
      vii. FM CLASS 1 FIRE RATING.

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100 Camelot Drive
Fond Du Lac, WI 54935
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www.EXCELENGINEER.com

PROJECT INFORMATION

PROPOSED BUILDING RENOVATION
HAWAIIAN BROS - STR: 43
1401 GRINDSTONE PKWY • COLUMBIA, MO

PROFESSIONAL SEAL

SHEET DATES
SHEET ISSUE OCT. 26, 2021
REVISIONS

JOB NUMBER
2164120

SHEET NUMBER
A0.1

ARCHITECTURAL SPECIFICATIONS

ARCHITECTURAL SPECIFICATIONS (CONT)

- viii. MINIMUM SPAN RATING EQUAL TO SUPPORT SPACING.
- b. HORIZONTAL
  - i. PRODUCT: DENSDECK ROOF BOARD.
  - j. FIRE BARRIER, THERMAL BARRIER, COVERBOARD AND RECOVERY BOARD.
  - FIBERGLASS MATS MECHANICALLY BONDED TO FRONT AND BACK OF HIGH DENSITY GYPSUM CORE.
  - iv. 900 PSI COMPRESSIVE STRENGTH.
  - v. 2.0 LBS/SF, >35 PERMS, 0.56 R VALUE FOR 1/2” THICK.
  - vi. UL 790 CLASSIFIED FOR USE AS A FIRE BARRIER OVER COMBUSTIBLE AND NONCOMBUSTIBLE DECKS.
  - vii. UL 1256 CLASSIFIED FOR INTERNAL (UNDER DECK) FIRE EXPOSURE.
  - viii. FM CLASS 1 FIRE RATING.
  - ix. MINIMUM SPAN RATING EQUAL TO FLUTE SPACING.

06 17 53 WOOD TRUSSES

A. SEE STRUCTURAL SPECIFICATIONS.

06 20 13 EXTERIOR FINISH CARPENTRY

A. INSTALL EXTERIOR FINISH CARPENTRY LEVEL, PLUMB, TRUE, AND ALIGNED WITH ADJACENT MATERIALS.
B. SCRIBE AND CUT EXTERIOR FINISH CARPENTRY TO FIT ADJOINING WORK. REFINISH AND SEAL CUTS AS RECOMMENDED BY MANUFACTURER.
C. INSTALL TRIM WITH MINIMUM NUMBER OF JOINTS PRACTICAL, USING FULL LENGTH PIECES FROM MAXIMUM LENGTHS OF LUMBER AVAILABLE.
D. INSTALL EXTERIOR FINISH CARPENTRY TO COMPLY WITH MANUFACTURERS WRITTEN INSTRUCTIONS.
E. SEE PLANS FOR SIDING, TRIM/FACIA, SOFFIT, ETC MATERIAL TYPE AND LOCATION.

06 20 23 INTERIOR FINISH CARPENTRY

A. PREMIUM GRADE S4S HARDWOOD LUMBER, CLEAR, KILN DRIED SELECTED FOR COMPATIBLE GRAIN AND COLOR.
B. BEFORE INSTALLING INTERIOR FINISH CARPENTRY, CONDITION MATERIALS TO AVERAGE PREVAILING HUMIDITY IN INSTALLATION AREAS FOR A MINIMUM OF 24 HOURS.
C. INSTALL INTERIOR FINISH CARPENTRY LEVEL, PLUMB, TRUE, AND ALIGNED WITH ADJACENT MATERIALS.
D. INSTALL TRIM WITH MINIMUM NUMBER OF JOINTS PRACTICAL, USING FULL LENGTH PIECES FROM MAXIMUM LENGTHS OF LUMBER AVAILABLE. COPE AT RETURNS, MITER AT OUTSIDE CORNERS AND COPE AT INSIDE CORNERS TO PRODUCE TIGHT FITTING JOINTS. USE SCARF JOINTS FOR END TO END JOINTS.
E. IN STEEL STUD CONSTRUCTION, ATTACH WITH FINISH SCREWS - PREDRILL AND COUNTERSINK FASTENERS, FILL SURFACE FLUSH WITH FINISH COMPATIBLE FILLER AND SAND SMOOTH - PROVIDE SAMPLE TO OWNER/ INTERIOR DESIGNER.
F. SEE PLANS FOR INTERIOR TRIM AND CARPENTRY MATERIAL TYPE AND LOCATION.
G. SEE MATERIAL LEGEND FOR WOOD FINISH.

06 40 23 INTERIOR ARCHITECTURAL WOODWORK

A. BEFORE INSTALLATION, CONDITION WOODWORK TO AVERAGE PREVAILING HUMIDITY CONDITIONS IN INSTALLATION AREAS. EXAMINE SHOP-FABRICATED WORK FOR COMPLETION AND COMPLETE WORK AS REQUIRED.
B. INSTALL WOODWORK TO COMPLY WITH REQUIREMENTS FOR THE SAME GRADE SPECIFIED ON THE PLANS FOR FABRICATION OF TYPE OF WOODWORK INVOLVED.
C. INSTALL WOODWORK LEVEL, PLUMB, TRUE, AND STRAIGHT TO A TOLERANCE OF 1/8 INCH IN 96 INCHES. SHIM AS REQUIRED WITH CONCEALED SHIMS.
D. SCRIBE AND CUT WOODWORK TO FIT ADJOINING WORK, REFINISH CUT SURFACES AND REPAIR DAMAGED FINISH AT CUTS.
E. INSTALL CABINETS WITHOUT DISTORTION SO DOORS AND DRAWERS FIT OPENINGS PROPERLY AND ARE ACCURATELY ALIGNED. ADJUST HARDWARE TO CENTER DOORS AND DRAWERS IN OPENINGS AND TO PROVIDE UNENCUMBERED OPERATION.
F. ANCHOR COUNTERTOPS SECURELY THROUGH SUPPORTS INTO UNDERSIDE OF COUNTERTOP. CAULK SPACE BETWEEN BACKSPLASH AND WALL WITH SEALANT.
G. SEE PLAN FOR CABINETS, COUNTERTOPS, WINDOW SILLS, ETC., MATERIAL TYPE AND LOCATION.

DIVISION 07 THERMAL AND MOISTURE PROTECTION

07 14 16 WATERPROOFING

A. ALL WATERPROOFING MATERIALS AND INSTALLATION SHALL COMPLY WITH LOCAL AND STATE CODES.
B. SUBMIT THE FOLLOWING ITEMS.
   1. PRODUCT DATA: MANUFACTURER’S TECHNICAL BULLETINS.
C. FOLLOW MANUFACTURER’S INSTRUCTIONS ON PRODUCT STORAGE AND HANDLING.
D. STORE MOISTURE SENSITIVE MATERIALS IN WEATHER PROTECTED ENCLOSURES.
E. PROVIDE A COMPLETE WATERPROOFING SYSTEM USING A ONE-COMPONENT, MOISTURE-CURING, BITUMEN MODIFIED POLYURETHANE, ELASTOMERIC WATERPROOFING MEMBRANE FOR EXTERIOR BELOW GRADE APPLICATIONS.
   1. ACCEPTABLE PRODUCT: HLM 5000 S BY BASF BUILDING SYSTEMS.
F. INSTALL WATERPROOFING MEMBRANE IN ACCORDANCE WITH MANUFACTURER’S INSTALLATION INSTRUCTIONS AND AS SHOWN ON PLANS.
   1. ON VERTICAL APPLICATIONS, SPRAY APPLY AT A RATE OF 25 SQUARE FEET PER GALLON.
   2. VERIFY APPLIED THICKNESS WITH MIL GAUGE AS WORK PROGRESSES.
G. ALL SURROUNDING AREAS, WHERE THE WATERPROOFING MEMBRANE HAS BEEN INSTALLED, SHALL BE LEFT FREE OF DEBRIS AND FOREIGN SUBSTANCES RESULTING FROM THE WORK.
H. PROTECT WATERPROOFING MEMBRANE DURING BACKFILL WITH FOUNDATION DRAINAGE PANELS. PROVIDE THE INSULATION BOARD IN THE THICKNESS AS SHOWN ON THE PLANS.
I. PROTECT FINISHED WORK FROM DAMAGE DURING REMAINDER OF CONSTRUCTION PERIOD.

07 21 00 INSULATION

A. ALL INSULATION MATERIALS AND INSTALLATION SHALL COMPLY WITH LOCAL AND STATE CODES.
B. FIBERGLASS BATT INSULATION
   1. MANUFACTURER: CERTAINTEED OR OWENS CORNING.
   2. UNFACED FIBERGLASS BATT OR ROLL COMPLYING WITH ASTM C665 AND NONCOMBUSTIBLE PER ASTM E136.
   3. THICKNESS OR R VALUE AS INDICATED ON PLANS. IF THICKNESS IS NOT SHOWN ON PLANS, THICKNESS TO BE THE DEPTH OF THE WALL OR RAFTER SYSTEM.
   4. STRAP TO PREVENT SLUMPING IF GYPSUM BOARD NOT BEING INSTALLED.
C. VAPOR RETARDER
   1. WALL / UNDERSIDE OF ATTIC
      a. MANUFACTURER: CERTAINTEED “MEMBRAIN”
      b. MEMBRANE VAPOR RETARDER INSTALLED ON WARM SIDE (NORMALLY INSIDE) FACE OF THE INSULATION. MAX PERM 1.0 PER ASTM E-96.
   2. UNDER SLAB
      a. MANUFACTURER: W.R. MEADOWS “PERMINATOR”
      b. 10 MIL POLYOLEFIN-BASED RESIN. MAX PERM 0.02 PER ASTM E-96.
D. BLOWN IN FIBER GLASS INSULATION
   1. MANUFACTURER: CERTAINTEED “INSULSAFE SP”
   2. THICKNESS AS INDICATED ON PLANS.
E. BLOWN IN WALL INSULATION
   1. MANUFACTURER: CERTAINTEED “OPTIMA”
F. ACOUSTICAL WALL INSULATION
   1. MANUFACTURER: CERTAINTEED
   2. WOOD FRAME WALLS: NOISE REDUCER SOUND CONTROL BATTS
   3. METAL FRAMED WALLS: CERTASOUND SOUND ATTENUATION BATTS
   4. CEILINGS: CERTASOUND SOUND ATTENUATION BATTS
G. EXTERIOR MASONRY
   1. MANUFACTURER: TAILORED CHEMICAL PRODUCTS “CORE-FILL 500” FOAM-IN PLACE
   2. TWO COMPONENT THERMAL INSULATION PRODUCED BY COMBINING A PLASTIC RESIN AND CATALYST FOAMING AGENT SURFACTANT WHICH, WHEN PROPERLY RATIOED AND MIXED, TOGETHER WITH COMPRESSED AIR PRODUCE A COLD-SETTING FOAM INSULATION IN THE HOLLOW CORES OF HOLLOW UNIT MASONRY WALLS.
   3. THERMAL VALUE: "R" VALUE OF 4.91/INCH AT 32 DEGREES F MEAN; ASTM C-177.
H. FOUNDATION DRAINAGE PANELS
   1. MANUFACTURER: DOW STYROFOAM PERIMATE EXTRUDED POLYSTYRENE (XPS) INSULATION PANELS.
   2. 30 PSI MIN. VERTICAL COMPRESSIVE STRENGTH MEASURED AT 10% STRAIN DEFORMATION OR AT YIELD, WHICHEVER OCCURS FIRST.
   3. THERMAL VALUE “R” VALUE OF 5.0 PER 1.063 INCHES.
   4. 2.125 INCHES THICK, R=10.
I. PERIMETER FOUNDATION INSULATION
   1. MANUFACTURER: DOW STYROFOAM SQUARE EDGE EXTRUDED POLYSTYRENE (XPS) INSULATION PANELS, 25 PSI MIN. VERTICAL COMPRESSIVE STRENGTH MEASURED AT 10% STRAIN DEFORMATION OR AT YIELD, WHICHEVER OCCURS FIRST. THERMAL VALUE “R” VALUE OF 5.0 PER INCH. 2 INCHES THICK, R=10.
   2. MANUFACTURER: PLYMOUTH FOAM GOLD-GUARD FOUNDATION PERIMETER INSULATION EXPANDED POLYSTYRENE (EPS) INSULATION, 25 PSI MIN. VERTICAL COMPRESSIVE STRENGTH MEASURED AT 10% STRAIN DEFORMATION, THERMAL VALUE “R” VALUE OF 4.35 PER INCH. 2.3 INCHES THICK, R=10.
J. BELOW SLAB INSULATION
   1. MANUFACTURER: DOW STYROFOAM SQUARE EDGE EXTRUDED POLYSTYRENE (XPS) INSULATION PANELS, THERMAL VALUE “R” VALUE OF 5.0 PER INCH.
   2. 25 PSI MIN. VERTICAL COMPRESSIVE STRENGTH MEASURED AT 10% STRAIN DEFORMATION OR AT YIELD, WHICHEVER OCCURS FIRST, EXCEPT WHERE PLANS/DETAILS INDICATE HIGHER VALUE. STYROFOAM HIGHLOAD INSULATION WHERE HIGHER VERTICAL COMPRESSIVE STRENGTHS ARE REQUIRED (MIN. VERTICAL COMPRESSIVE STRENGTH MEASURED AT 5% STRAIN DEFORMATION OR AT YIELD, WHICHEVER OCCURS FIRST).
   3. THICKNESS AS INDICATED ON PLANS.
K. SPRAY POLYURETHANE FOAM INSULATION
   1. MANUFACTURER: BASF SPRAYTITE 81206 XF.
   2. SPRAYTITE 81206 XF FOR AMBIENT TEMPERATURE RANGE OF 29 TO 65 DEG F. SPRAYTITE 81206 F FOR AMBIENT TEMPERATURE RANGE OF 60 TO 120 DEG F.
   3. TWO COMPONENT CLOSED CELL SPRAY POLYURETHANE FOAM INSULATION TO MEET NFPA 285 AND ASTM E84 (CLASS 1) WITH FLAME SPREAD INDEX LESS THAN 25 AND SMOKE DEVELOPED LESS THAN 450. MINIMUM DENSITY OF 2.0 LB/ CU. FT.
   4. THERMAL VALUE: “R” VALUE OF 6.7 PER INCH
   5. “R” VALUE AS INDICATED ON THE PLAN.
L. THERMAL BARRIER / IGNITION BARRIER INTUMESCENT COATING
   1. MANUFACTURER: NO-BURN PLUS THB
   2. THICKNESS AS REQUIRED BY MANUFACTURER TO MEET CODE.
   3. COLOR SELECTED BY OWNER (WHITE, GRAY, DARK CHARCOAL).
M. ROOF INSULATION
   1. SEE ROOF PLAN.
N. RIGID CAVITY WALL INSULATION IN MASONRY CAVITY WALLS
   1. MANUFACTURER: DOW STYROFOAM CAVITYMATE OR PLYMOUTH FOAM
   2. EXTRUDED POLYSTYRENE INSULATION, 15 PSI COMPRESSIVE STRENGTH
   3. THERMAL VALUE: “R” VALUE OF 5 PER INCH
   4. THICKNESS AS SHOWN ON THE PLAN.
O. RIGID CAVITY WALL INSULATION IN WOOD STUD WALLS
   1. MANUFACTURER: DUPONTOW STYROFOAM CAVITYMATE
   2. EXTRUDED POLYSTYRENE INSULATION, 15 PSI COMPRESSIVE STRENGTH
   3. THERMAL VALUE: “R” VALUE OF 5 PER INCH
   4. THICKNESS AS SHOWN ON THE PLAN.
P. RIGID AIR AND MOISTURE BARRIER INSULATION
   1. MANUFACTURER: DUPONT THERMAX XARMOR CI (CONTINUOUS INSULATION)
   2. RIGID FOIL FACED POLYISOCYANURATE BOARD INSULATION, 25 PSI COMPRESSIVE STRENGTH, 4.0 MIL EMBOSSED ACRYLIC-COATED EXTERIOR FOIL FACER AND 1.25 MIL EMBOSSED ALUMINUM BACK INTERIOR FACER.
   3. THERMAL VALUE: “R” VALUE OF 6.5 PER INCH.
   4. THICKNESS AS INDICATED ON THE PLANS.
   5. FASTEN RIGID INSULATION BOARDS TO SUBSTRATE WITH THRUFAST THERMAL-GRIP OR OTHER DUPONT APPROVED FASTENERS PER MANUFACTURER GUIDELINES.
   6. SEAM TREATMENT:
      a. MANUFACTURER: DUPONT LIQUIDARMOR-CM, LIQUIDARMOR LT, LIQUIDARMOR QS AND LIQUIDARMOR RS. PROVIDE MANUFACTURER SPECIFIED THICKNESS AND WIDTH OF LIQUIDARMOR PRODUCT. MAKE LIQUIDARMOR PRODUCT AVAILABLE TO ALL TRADES MAKING PENETRATIONS IN THE EXTERIOR WALL.
      b. COORDINATE SEQUENCE OF FLASHING INSTALLATIONS WITH OTHER TRADES.
      c. COMPLETE WATER-RESISTIVE BARRIER BY SEALING ALL END AND EDGE JOINTS, THRU-WALL PENETRATIONS, WINDOW AND DOOR OPENINGS, PENETRATIONS AND TRANSITION FLASHINGS WITH MANUFACTURER’S FLASHING AND SEALANT PRODUCT.
   7. PRE-INSTALLATION MEETING: PRIOR TO APPLICATION OF WALL SYSTEM, CONTRACTOR SHALL REVIEW AND DOCUMENT METHODS AND PROCEDURES RELATED TO INSTALLATION WITH APPLICATOR AND MANUFACTURER REPRESENTATIVE AT MEETING.
   8. INSTALLATION REVIEW: PROVIDE INSTALLATION INSPECTION COMPLETED BY MANUFACTURER CERTIFIED REPRESENTATIVE. PROVIDE INSPECTION REPORT TO ARCHITECT. PROVIDE PHOTOS OF WALL BASE FLASHING, WINDOW OPENING PERIMETER AND EXAMPLE MECHANICAL PENETRATIONS THRU EXTERIOR WALL.
   9. THERMAX WALL SYSEM GOLD WARRANTY: CONTRACTOR SHALL COORDINATE AND COMPLETE APPICABLE FORMS AND PROVIDE OWNER FINAL WARRANTY CERTIFICATE AS PART OF THE CLOSEOUT SUBMITTALS.
Q. SILL SEAL
   1. MANUFACTURER: DUPONT STYROFOAM SILL SEAL FOAM GASKET.
R. FOLLOW MANUFACTURER’S INSTRUCTIONS ON PRODUCT STORAGE AND HANDLING.
S. INSTALL INSULATION IN ACCORDANCE WITH MANUFACTURER’S INSTALLATION INSTRUCTIONS AND AS SHOWN ON PLANS.

07 24 13 EXTERIOR INSULATION AND FINISH SYSTEM (EIFS)

A. ALL EIFS MATERIALS AND INSTALLATION SHALL COMPLY WITH LOCAL AND STATE CODES AND TO EIMA GUIDELINE SPECIFICATIONS FOR EXTERIOR INSULATION AND FINISH SYSTEMS, CLASS PB WITH MOISTURE DRAINAGE.
B. SUBMIT THE FOLLOWING ITEM:
   1. PRODUCT DATA: PRODUCT DATA SHEETS DESCRIBING PRODUCTS TO BE USED ON PROJECT.
   2. SAMPLES: SAMPLES FOR EACH FINISH, TEXTURE, AND COLOR TO BE USED ON PROJECT.
   3. QUALITY ASSURANCE/CONTROL SUBMITTALS: MANUFACTURER’S INSTALLATION INSTRUCTIONS.
C. FOLLOW MANUFACTURER’S INSTRUCTIONS ON PRODUCT STORAGE AND HANDLING.
D. STORE MOISTURE SENSITIVE MATERIALS IN WEATHER PROTECTED ENCLOSURES.
E. PROVIDE A COMPLETE EXTERIOR INSULATION AND FINISH SYSTEM, CLASS PB, WITH CAPACITY FOR MOISTURE DRAINAGE. SYSTEM CONSISTS OF, BUT NOT LIMITED TO, AN ADHESIVE, GROOVED EXPANDED POLYSTYRENE INSULATION BOARD, BASE COAT, REINFORCING MESH (ES) AND FINISH.
   1. MANUFACTURERS PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:
      a. DRYVIT-OUTSULATION LCMD SYSTEM 3
      b. STO-STOTHERM CI
F. INSTALL EIFS IN ACCORDANCE WITH MANUFACTURER’S INSTALLATION INSTRUCTIONS AND AS SHOWN ON PLANS.
G. INSULATION BOARD TO BE TYPE I EXPANDED POLYSTYRENE BOARD (ASTM 578), R-VALUE 4.0 PER INCH, 15 PSI COMPRESSIVE STRENGTH, 1 LB / CU. FT. DENSITY, THICKNESS AS SHOWN ON THE PLAN.
H. ALL SURROUNDING AREAS, WHERE THE EIFS HAS BEEN INSTALLED, SHALL BE LEFT FREE OF DEBRIS AND FOREIGN SUBSTANCES RESULTING FROM THE WORK.
I. PROTECT FINISHED WORK FROM INCLEMENT WEATHER UNTIL DRY AND PERMANENT PROTECTION IN THE FORM OF FLASHINGS, SEALANTS, ETC. ARE INSTALLED.
J. PROTECT FINISHED WORK FROM DAMAGE DURING REMAINDER OF CONSTRUCTION PERIOD.

07 27 26 AIR AND MOISTURE BARRIER

A. ALL AIR AND MOISTURE BARRIER MATERIALS AND INSTALLATION SHALL COMPLY WITH LOCAL AND STATE CODES.
B. SUBMIT THE FOLLOWING ITEMS:
   1. PRODUCT DATA: MANUFACTURER’S TECHNICAL BULLETINS.
C. FOLLOW MANUFACTURER’S INSTRUCTIONS ON PRODUCT STORAGE AND HANDLING.
D. CONDUCT ON-SITE PREINSTALLATION CONFERENCE WITH MANUFACTURER’S REPRESENTATIVE.
E. STORE MOISTURE SENSITIVE MATERIALS IN WEATHER PROTECTED ENCLOSURES.
F. INSTALL AIR AND MOISTURE BARRIER IN ACCORDANCE WITH MANUFACTURER’S INSTALLATION INSTRUCTIONS AND AS SHOWN ON PLANS.
G. PROVIDE INSTALLATION INSPECTION COMPLETED BY MANUFACTURER CERTIFIED REPRESENTATIVE. PROVIDE INSPECTION REPORT TO ARCHITECT.
H. SHEET APPLIED.
   1. MANUFACTURER: DUPONT
   2. COMMERCIAL BUILDING WRAP TO BE TYVEK COMMERCIAL WRAP D.
I. FLUID APPLIED
   1. PROVIDE A COMPLETE AIR AND MOISTURE BARRIER SYSTEM USING A FLUID APPLIED THREE-PART SYSTEM. THE SYSTEM CONSISTS OF ADHESIVE MESH TAPE AND LIQUID FILL AND SPRAY WRAP.
   2. ACCEPTABLE PRODUCT: PROSOCO R-GUARD MVP.
   3. APPLY R-GUARD TAPE OVER SHEATHING JOINTS AND SEAMS. FOLD AND APPLY R-GUARD TAPE TO ROUGH OPENINGS, INSIDE AND OUTSIDE CORNERS. USE A SEAM ROLLER OR OTHER BLUNT TOOL TO FIRMLY ADHERE TAPE TO SHEATHING.
   4. UNIFORMLY COVER TAPE AND ABOUT 4 INCHES OF SHEATHING ON EITHER SIDE OF THE TAPE WITH R-GUARD FILL USING A TROWEL OR TEXTURE SPRAYER. TROWEL SMOOTH. SPOT FILL FASTENERS AND SURFACE DEFECTS WITH R-GUARD FILL. LET DRY.
   5. SPRAY OR ROLLER APPLY R-GUARD SPRAY WRAP TO THE ENTIRE SURFACE-INCLUDING AREAS COVERED BY R-GUARD TAPE AND R-GUARD FILL TO A UNIFORM WET MIL THICKNESS (10 MILS). LET DRY. ON MASONRY CONSTRUCTION, WHEN SPRAY APPLYING, BACKROLL TO CLOSE PINHOLES AND ENSURE EVEN COVERAGE. APPLY NUMBER OF COATS AS REQUIRED BY MANUFACTURER’S SPECIFICATIONS.
J. SHEATHING
   1. PROVIDE A COMPLETE AIR AND MOISTURE BARRIER SHEATHING SYSTEM.
      a. ACCEPTABLE PRODUCT: ZIP SYSTEM WALL SHEATHING W/INTEGRAL AIR AND MOISTURE BARRIER.
   2. ORIENTED STRAND BOARD WOOD STRUCTURAL PANELS WITH BUILT-IN PROTECTIVE OVERLAYS TO MEET GRADE D WRB MOISTURE BARRIER AND 0.037 L/(S-M2) AIR BARRIER.
   3. MINIMUM 7/16” THICK.
   4. MINIMUM SPAN RATING EQUAL TO SUPPORT SPACING.
   5. DOC PS-2, EXPOSURE 1.
   6. APPLY BUTYL RUBBER SELF-SEALING, SELF-HEALING, FULLY ADHERED ZIP TAPE OVER SHEATHING JOINTS AND SEAMS, AROUND PENETRATIONS, GAPS, AND INTO OPENINGS.
   7. FOLD AND APPLY ZIP TAPE TO ROUGH OPENINGS, INSIDE AND OUTSIDE CORNERS.
   8. USE A SEAM ROLLER OR OTHER BLUNT TOOL TO FIRMLY ADHERE TAPE TO SHEATHING, OR SPRAY APPLY ZIP SYSTEM LIQUID FLASH.
K. ALL SURROUNDING AREAS, WHERE THE AIR AND MOISTURE BARRIER HAS BEEN INSTALLED, SHALL BE LEFT FREE OF DEBRIS AND FOREIGN SUBSTANCES RESULTING FROM THE WORK.
L. PROTECT FINISHED WORK FROM DAMAGE DURING REMAINDER OF CONSTRUCTION PERIOD.

07 53 23 ETHYLENE-PROPYLENE-DIENE-MONOMER (EPDM) ROOFING

A. INSTALLER SHALL BE APPROVED, AUTHORIZED OR LICENSED BY A MINIMUM OF TWO OF APPROVED SYSTEM MANUFACTURERS, FOR MINIMUM OF 5 CONSECUTIVE YEARS, TO INSTALL MANUFACTURER’S PRODUCTS AND IS ELIGIBLE TO RECEIVE MANUFACTURER’S WARRANTIES.
B. PROVIDE FM APPROVALS ROOFNAV LISTING FOR CLASS 1 OR NONCOMBUSTIBLE CONSTRUCTION WITH SYSTEM SUBMITTALS.
C. FASTENING SYSTEM SHALL BE CAPABLE OF WITHSTANDING WIND UPLIFT REQUIREMENTS INDICATED ON THE STRUCTURAL PLANS.
D. CONDUCT ON-SITE PREINSTALLATION CONFERENCE WITH ALL TRADES INTERFACING OR ADJACENT TO THE ROOFING SYSTEM. INCLUDE MANUFACTURER’S REPRESENTATIVE.
E. ALL COMPONENTS OF THE ROOFING SYSTEM SHALL BE PROVIDED FROM A SINGLE SOURCE, INCLUDING ALL AUXILIARY AND ACCESSORIES MATERIALS FOR A COMPLETE INSTALLATION.
F. COORDINATE INSTALLING MEMBRANE ROOFING SYSTEM COMPONENTS SO INSULATION IS NOT EXPOSED TO PRECIPITATION OR LEFT EXPOSED AT THE END OF THE WORKDAY.
G. COMPLY WITH MEMBRANE ROOFING SYSTEM AND INSULATION MANUFACTURER'S WRITTEN INSTRUCTIONS AND DETAILS FOR INSTALLING ROOF INSULATION.
H. FILL ALL GAPS EXCEEDING 1/4” IN WIDTH WITH INSULATION.
I. INSTALL MEMBRANE ROOFING OVER AREA TO RECEIVE ROOFING ACCORDING TO MEMBRANE ROOFING SYSTEM MANUFACTURER'S WRITTEN INSTRUCTIONS
J. SEAM MEMBRANE ROOFING ACCORDING TO MANUFACTURER’S WRITTEN INSTRUCTIONS TO ENSURE A WATERTIGHT SEAM INSTALLATION.
K. INSTALL SHEET FLASHINGS AND PREFORMED FLASHING ACCESSORIES AND ADHERE TO SUBSTRATES ACCORDING TO MEMBRANE ROOFING SYSTEM MANUFACTURER'S WRITTEN INSTRUCTIONS.
L. PROTECT ROOFING SYSTEM FOR DURATION OF CONSTRUCTION FROM DAMAGE FROM CONSTRUCTION ACTIVITIES. PROTECT AT ALL LOCATIONS WHERE CUTTING, GRINDING OR OTHER HOT WORK IS BEING COMPLETED.
M. CONDUCT ROUTINE ROOF DEBRIS CLEANING AND INSPECTION DURING THE DURATION OF CONSTRUCTION ACTIVITIES.
N. CLEAN OVERSPRAY OR SPILLAGE FROM ADJACENT CONSTRUCTION USING CLEANING AGENTS AND PROCEDURES RECOMMENDED BY MANUFACTURER OF AFFECTED CONSTRUCTION.
O. SEE PLANS FOR SYSTEMS REQUIREMENTS INCLUDING WARRANTY, MATERIAL TYPE AND LOCATION OF USE.
P. INCLUDE COPY OF MANUFACTURER’S FINAL INSTALLATION INSPECTION ACCEPTANCE REPORT AND WARRANTY UPON INSTALLATION COMPLETION.

07 54 23 THERMOPLASTIC POLYOLEFIN (TPO) ROOFING

A. INSTALLER SHALL BE APPROVED, AUTHORIZED OR LICENSED BY A MINIMUM OF TWO OF APPROVED SYSTEM MANUFACTURERS FOR MINIMUM OF 5 CONSECUTIVE YEARS TO INSTALL MANUFACTURER’S PRODUCTS AND IS ELIGIBLE TO RECEIVE MANUFACTURER’S WARRANTIES.
B. FASTENING SYSTEM SHALL BE CAPABLE OF WITHSTANDING WIND UPLIFT REQUIREMENTS INDICATED ON THE STRUCTURAL PLANS.
C. CONDUCT ON-SITE PREINSTALLATION CONFERENCE WITH ALL TRADES INTERFACING OR ADJACENT TO THE ROOFING SYSTEM. INCLUDE MANUFACTURER’S REPRESENTATIVE.
D. ALL COMPONENTS OF THE ROOFING SYSTEM SHALL BE PROVIDED FROM A SINGLE SOURCE INCLUDING ALL AUXILIARY AND ACCESSORIES MATERIALS FOR A COMPLETE INSTALLATION.
E. COORDINATE INSTALLING MEMBRANE ROOFING SYSTEM COMPONENTS SO INSULATION IS NOT EXPOSED TO PRECIPITATION OR LEFT EXPOSED AT THE END OF THE WORKDAY.
F. COMPLY WITH MEMBRANE ROOFING SYSTEM AND INSULATION MANUFACTURER'S WRITTEN INSTRUCTIONS AND DETAILS FOR INSTALLING ROOF INSULATION.
G. FILL ALL GAPS EXCEEDING 1/4” IN WIDTH WITH INSULATION.
H. INSTALL MEMBRANE ROOFING OVER AREA TO RECEIVE ROOFING ACCORDING TO MEMBRANE ROOFING SYSTEM MANUFACTURER'S WRITTEN INSTRUCTIONS.
I. SEAM MEMBRANE ROOFING ACCORDING TO MANUFACTURER’S WRITTEN INSTRUCTIONS TO ENSURE A WATERTIGHT SEAM INSTALLATION.
J. INSTALL SHEET FLASHINGS AND PREFORMED FLASHING ACCESSORIES AND ADHERE TO SUBSTRATES ACCORDING TO MEMBRANE ROOFING SYSTEM MANUFACTURER'S WRITTEN INSTRUCTIONS.
K. PROTECT ROOFING SYSTEM FOR DURATION OF CONSTRUCTION FROM DAMAGE FROM CONSTRUCTION ACTIVITIES. PROTECT AT ALL LOCATIONS WHERE CUTTING, GRINDING OR OTHER HOT WORK IS BEING COMPLETED.
L. CONDUCT ROUTINE ROOF DEBRIS CLEANING AND INSPECTION DURING THE DURATION OF CONSTRUCTION ACTIVITIES.
M. CLEAN OVERSPRAY OR SPILLAGE FROM ADJACENT CONSTRUCTION USING CLEANING AGENTS AND PROCEDURES RECOMMENDED BY MANUFACTURER OF AFFECTED CONSTRUCTION.
N. SEE PLANS FOR SYSTEMS REQUIREMENTS INCLUDING WARRANTY, MATERIAL TYPE AND LOCATION OF USE.
O. INCLUDE COPY OF MANUFACTURER’S FINAL INSTALLATION INSPECTION ACCEPTANCE REPORT AND WARRANTY UPON INSTALLATION COMPLETION.

07 54 19 POLYVINYL CHLORIDE (PVC) ROOFING

A. INSTALLER SHALL BE APPROVED, AUTHORIZED OR LICENSED BY A MINIMUM OF TWO OF APPROVED SYSTEM MANUFACTURER’S FOR MINIMUM OF 5 CONSECUTIVE YEARS TO INSTALL MANUFACTURER’S PRODUCTS AND IS ELIGIBLE TO RECEIVE MANUFACTURER’S WARRANTIES.
B. FASTENING SYSTEM SHALL BE CAPABLE OF WITHSTANDING WIND UPLIFT REQUIREMENTS INDICATED ON THE STRUCTURAL PLANS.
C. CONDUCT ON-SITE PREINSTALLATION CONFERENCE WITH ALL TRADES INTERFACING OR ADJACENT TO THE ROOFING SYSTEM. INCLUDE MANUFACTURER’S REPRESENTATIVE.
D. ALL COMPONENTS OF THE ROOFING SYSTEM SHALL BE PROVIDED FROM A SINGLE SOURCE, INCLUDING ALL AUXILIARY AND ACCESSORIES MATERIALS FOR A COMPLETE INSTALLATION.
E. COORDINATE INSTALLING MEMBRANE ROOFING SYSTEM COMPONENTS SO INSULATION IS NOT EXPOSED TO PRECIPITATION OR LEFT EXPOSED AT THE END OF THE WORKDAY.
F. COMPLY WITH MEMBRANE ROOFING SYSTEM AND INSULATION MANUFACTURER'S WRITTEN INSTRUCTIONS AND DETAILS FOR INSTALLING ROOF INSULATION.
G. FILL ALL GAPS EXCEEDING 1/4” IN WIDTH WITH INSULATION.
H. INSTALL MEMBRANE ROOFING OVER AREA TO RECEIVE ROOFING ACCORDING TO MEMBRANE ROOFING SYSTEM MANUFACTURER'S WRITTEN INSTRUCTIONS.
I. SEAM MEMBRANE ROOFING ACCORDING TO MANUFACTURER’S WRITTEN INSTRUCTIONS TO ENSURE A WATERTIGHT SEAM INSTALLATION.
J. INSTALL SHEET FLASHINGS AND PREFORMED FLASHING ACCESSORIES AND ADHERE TO SUBSTRATES ACCORDING TO MEMBRANE ROOFING SYSTEM MANUFACTURER'S WRITTEN INSTRUCTIONS.
K. PROTECT ROOFING SYSTEM FOR DURATION OF CONSTRUCTION FROM DAMAGE FROM CONSTRUCTION ACTIVITIES. PROTECT AT ALL LOCATIONS WHERE CUTTING, GRINDING OR OTHER HOT WORK IS BEING COMPLETED.
L. CONDUCT ROUTINE ROOF DEBRIS CLEANING AND INSPECTION DURING THE DURATION OF CONSTRUCTION ACTIVITIES.
M. CLEAN OVERSPRAY OR SPILLAGE FROM ADJACENT CONSTRUCTION USING CLEANING AGENTS AND PROCEDURES RECOMMENDED BY MANUFACTURER OF AFFECTED CONSTRUCTION.
N. SEE PLANS FOR SYSTEMS REQUIREMENTS INCLUDING WARRANTY, MATERIAL TYPE AND LOCATION OF USE.
O. INCLUDE COPY OF MANUFACTURER’S FINAL INSTALLATION INSPECTION ACCEPTANCE REPORT AND WARRANTY UPON INSTALLATION COMPLETION.

07 84 13 PENETRATION FIRESTOPPING

A. PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
   1. HILTI, INC.
   2. JOHNS MANVILLE
   3. 3M FIRE PROTECTION PRODUCTS
   4. TREMCO, INC. - TREMCO FIRE PROTECTION SYSTEMS GROUP
   5. USG CORPORATION
   6. RECTORSEAL — METACAULK FIRESTOPPING PRODUCTS
B. PROVIDE PENETRATION FIRESTOPPING THAT IS PRODUCED AND INSTALLED TO RESIST SPREAD OF FIRE ACCORDING TO INDICATED REQUIREMENTS, RESIST PASSAGE OF SMOKE AND OTHER GASES AND MAINTAIN ORIGINAL FIRE-RESISTANCE RATING OF CONSTRUCTION PENETRATED. PENETRATION FIRESTOPPING SYSTEMS SHALL BE COMPATIBLE WITH ONE ANOTHER, WITH THE SUBSTRATES FORMING OPENINGS, AND WITH ANY PENETRATING ITEMS.
C. PENETRATIONS IN FIRE-RESISTANCE-RATED WALLS:
   1. RATINGS DETERMINED PER ASTM E 814 OR UL 1479.
   2. F-RATING NOT LESS THAN THE FIRE-RESISTANCE RATING OF CONSTRUCTIONS PENETRATED.
D. PENETRATIONS IN HORIZONTAL ASSEMBLIES:
   1. RATINGS DETERMINED PER ASTM E 814 OR UL 1479.
   2. F-RATING AT LEAST 1 HOUR, BUT NOT LESS THAN THE FIRE-RESISTANCE RATING OF CONSTRUCTIONS PENETRATED.
   3. T-RATING AT LEAST 1 HOUR, BUT NOT LESS THAN THE FIRE-RESISTANCE RATING OF CONSTRUCTIONS PENETRATED EXCEPT FOR FLOOR PENETRATIONS WITHIN THE CAVITY OF A WALL.
E. PENETRATIONS IN SMOKE BARRIERS:
   1. PROVIDE PENETRATION FIRESTOPPING WITH RATINGS DETERMINED PER UL 1479.
   2. L-RATING NOT EXCEEDING 5.0 CFM/SF OF PENETRATION OPENING AT BOTH AMBIENT AND ELEVATED TEMPERATURES.
F. EXPOSED PENETRATION FIRESTOPPING: PROVIDE PRODUCTS WITH FLAME-SPREAD AND SMOKE-DEVELOPED INDEXES OF LESS THAN 25 AND 450, RESPECTIVELY, AS DETERMINED PER ASTM E 84.
G. ACCESSORIES: PROVIDE COMPONENTS FOR EACH PENETRATION FIRESTOPPING SYSTEM THAT ARE NEEDED TO INSTALL FILL MATERIALS AND TO MAINTAIN REQUIRED RATINGS. USE ONLY THOSE COMPONENTS SPECIFIED BY PENETRATION FIRE STOPPING MANUFACTURER AND APPROVED BY QUALIFIED TESTING AND INSPECTING AGENCY FOR FIRESTOPPING INDICATED.
H. EXAMINE SUBSTRATES AND CONDITIONS FOR COMPLIANCE WITH REQUIREMENTS FOR OPENING CONFIGURATIONS, PENETRATING ITEMS, SUBSTRATES, AND OTHER CONDITIONS AFFECTING PERFORMANCE OF THE WORK.
I. SUBMIT FIRE STOPPING SUBMITTAL PACKAGE WITH DETAILS OF ALL PENETRATIONS AND FIRESTOPPING TO BE USED ON THE PROJECT TO AHJ 30 DAYS PRIOR TO INSTALLATION.
J. INSTALL PENETRATION FIRE STOPPING TO COMPLY WITH MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS AND PUBLISHED DRAWINGS FOR PRODUCTS AND INDICATED APPLICATIONS.
K. INSTALL FORMING MATERIALS AND OTHER ACCESSORIES OF TYPES REQUIRED TO SUPPORT FILL MATERIALS DURING THEIR APPLICATION AND IN THE POSITION NEEDED TO PRODUCE CROSS-SECTIONAL SHAPES AND DEPTHS REQUIRED TO ACHIEVE FIRE RATINGS INDICATED.
   1. AFTER INSTALLING FILL MATERIALS AND ALLOWING THEM TO FULLY CURE, REMOVE COMBUSTIBLE FORMING MATERIALS AND OTHER ACCESSORIES NOT INDICATED AS PERMANENT COMPONENTS OF FIRESTOPPING.
L. INSTALL FILL MATERIALS FOR FIRESTOPPING BY PROVEN TECHNIQUES TO PRODUCE THE FOLLOWING RESULTS:
   1. FILL VOIDS AND CAVITIES FORMED BY OPENINGS, FORMING MATERIALS, ACCESSORIES, AND PENETRATING ITEMS AS REQUIRED TO ACHIEVE FIRE-RESISTANCE RATINGS INDICATED.
   2. APPLY MATERIALS SO THEY CONTACT AND ADHERE TO SUBSTRATES FORMED BY OPENINGS AND PENETRATING ITEMS.
   3. FINISH FILL MATERIALS THAT WILL REMAIN EXPOSED AFTER COMPLETING THE WORK TO PRODUCE SMOOTH, UNIFORM SURFACES THAT ARE FLUSH WITH ADJOINING FINISHES.

07 84 46 - FIRE-RESISTIVE JOINT SYSTEMS

A. WHERE REQUIRED, PROVIDE FIRE-RESISTIVE JOINT SYSTEMS THAT ARE PRODUCED AND INSTALLED TO RESIST SPREAD OF FIRE ACCORDING TO REQUIREMENTS INDICATED, RESIST PASSAGE OF SMOKE AND OTHER GASES, AND MAINTAIN ORIGINAL FIRE-RESISTANCE RATING OF ASSEMBLIES IN OR BETWEEN WHICH FIRE-RESISTIVE JOINT SYSTEMS ARE INSTALLED. FIRE-RESISTIVE JOINT SYSTEMS SHALL ACCOMMODATE BUILDING MOVEMENTS WITHOUT IMPAIRING THEIR ABILITY TO RESIST THE PASSAGE OF FIRE AND HOT GASES.
B. PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
   1. HILTI, INC.
   2. JOHNS MANVILLE
   3. 3M FIRE PROTECTION PRODUCTS
   4. THERMAFIBER, INC.
   5. TREMCO, INC. - TREMCO FIRE PROTECTION SYSTEM GROUP
   6. USG CORPORATION
   7. RECTORSEAL — METACAULK FIRESTOPPING PRODUCTS

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PROJECT INFORMATION

PROPOSED BUILDING RENOVATION
HAWAIIAN BROS - STR: 43
1401 GRINDSTONE PKWY ● COLUMBIA, MO

PROFESSIONAL SEAL

SHEET DATES
SHEET ISSUE OCT. 26, 2021
REVISIONS

JOB NUMBER
2164120

SHEET NUMBER
A0.2

ARCHITECTURAL SPECIFICATIONS

C. JOINTS IN OR BETWEEN FIRE-RESISTANCE-RATED CONSTRUCTION:
   1. RATINGS DETERMINED PER ASTM E 1966 OR UL 2079.
   2. FIRE-RESISTANCE RATING EQUAL TO OR EXCEEDING THE FIRE-RESISTANCE RATING OF CONSTRUCTION THEY WILL JOIN.
D. JOINTS AT EXTERIOR CURTAIN-WALL/FLOOR INTERSECTIONS:
   1. RATING DETERMINED BY ASTM E 119 OR ASTM E 2307.
   2. FIRE-RESISTANCE RATING EQUAL TO OR EXCEEDING THE FIRE-RESISTANCE RATING OF THE FLOOR ASSEMBLY.
E. JOINTS IN SMOKE BARRIERS:
   1. RATINGS DETERMINED PER UL 2079.
   2. L-RATING NOT EXCEEDING 5.0 CFM/FT OF JOINT AT BOTH AMBIENT AND ELEVATED TEMPERATURES.
F. EXPOSED FIRE-RESISTIVE JOINT SYSTEMS: PROVIDE PRODUCTS WITH FLAME-SPREAD AND SMOKE-DEVELOPED INDEXES OF LESS THAN 25 AND 450, RESPECTIVELY, AS DETERMINED PER ASTM E 84.
G. ACCESSORIES: PROVIDE COMPONENTS OF FIRE-RESISTIVE JOINT SYSTEMS, INCLUDING PRIMERS AND FORMING MATERIALS, THAT ARE NEEDED TO INSTALL FILL MATERIALS AND TO MAINTAIN REQUIRED RATINGS. USE ONLY COMPONENTS SPECIFIED BY FIRE-RESISTIVE JOINT SYSTEM MANUFACTURER AND APPROVED BY THE QUALIFIED TESTING AGENCY FOR SYSTEMS INDICATED.
H. EXAMINE SUBSTRATES AND CONDITIONS FOR COMPLIANCE WITH REQUIREMENTS FOR JOINT CONFIGURATIONS, SUBSTRATES AND OTHER CONDITIONS AFFECTING PERFORMANCE OF THE WORK.
I. INSTALL FIRE-RESISTIVE JOINT SYSTEMS TO COMPLY WITH MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS AND PUBLISHED DRAWINGS FOR PRODUCTS AND APPLICATIONS.
J. INSTALL FORMING MATERIALS AND OTHER ACCESSORIES OF TYPES REQUIRED TO SUPPORT FILL MATERIALS DURING THEIR APPLICATION AND IN POSITION NEEDED TO PRODUCE CROSS-SECTIONAL SHAPES AND DEPTHS REQUIRED TO ACHIEVE INDICATED FIRE RATINGS.
   1. AFTER INSTALLING FILL MATERIALS AND ALLOWING THEM TO FULLY CURE, REMOVE COMBUSTIBLE FORMING MATERIALS AND OTHER ACCESSORIES NOT INDICATED AS PERMANENT COMPONENTS OF FIRE-RESISTIVE JOINT SYSTEM.
K. INSTALL FILL MATERIALS FOR FIRE-RESISTIVE JOINT SYSTEMS BY PROVEN TECHNIQUES TO PRODUCE THE FOLLOWING RESULTS:
   1. FILL VOIDS AND CAVITIES FORMED BY JOINTS AND FORMING MATERIALS AS REQUIRED TO ACHIEVE INDICATED FIRE RESISTANCE RATINGS.
   2. APPLY FILL MATERIALS SO THEY CONTACT AND ADHERE TO SUBSTRATES FORMED BY JOINTS.
   3. FINISH FILL MATERIALS THAT WILL REMAIN EXPOSED AFTER COMPLETING THE WORK TO PRODUCE SMOOTH, UNIFORM SURFACES THAT ARE FLUSH WITH ADJOINING FINISHES.

07 92 00 SEALANTS

A. GENERAL:
   1. IT IS THE INTENTION OF THIS SPECIFICATION THAT ALL JOINTS ARE TO RECEIVE SEALANT.
   2. APPLY SEALANT IN ALL INDICATED LOCATIONS ACCORDING TO THE MANUFACTURER'S WRITTEN INSTRUCTIONS, INCLUDING BUT NOT LIMITED TO; JOINT WIDTH, SURFACE PREPARATION, PRIMERS, APPLICATION TEMPERATURE AND MATERIAL STORAGE.
   3. APPLY SEALANT AFTER FINISH OPERATIONS ARE COMPLETE.
   4. PROVIDE APPROPRIATE SIZED BACKER RODS AND BOND BREAK AT ALL JOINTS UNLESS OTHERWISE NOTED IN THE MANUFACTURER'S INSTRUCTIONS.
B. SEE SCHEDULE ON PLANS.

DIVISION 08 OPENINGS

08 11 13 HOLLOW METAL DOORS AND FRAMES

A. HOLLOW METAL FRAMES: COMPLY WITH ANSI/SDI A250.11.
   1. SET FRAMES ACCURATELY IN POSITION, PLUMBED, ALIGNED, AND BRACED SECURELY UNTIL PERMANENT ANCHORS ARE SET. AFTER WALL CONSTRUCTION IS COMPLETE, REMOVE TEMPORARY BRACES, LEAVING SURFACES SMOOTH AND UNDAMAGED.
   2. AT FIRE-PROTECTION-RATED OPENINGS, INSTALL FRAMES ACCORDING TO NFPA 80.
B. HOLLOW METAL DOORS: FIT HOLLOW METAL DOORS ACCURATELY IN FRAMES, WITHIN CLEARANCES. SHIM AS NECESSARY TO ACHIEVE CLEARANCES INDICATED.
   1. FIRE-RATED DOORS: INSTALL DOORS WITH CLEARANCES ACCORDING TO NFPA 80.
   2. SMOKE-CONTROL DOORS: INSTALL DOORS ACCORDING TO NFPA 105.
C. SEE PLAN FOR PRODUCT SPECIFICATION AND LOCATION. FURNISH AND INSTALL ALL DOORS AND FRAMES AS INDICATED ON THE PLANS.

08 14 16 FLUSH WOOD DOORS

A. INSTALL DOORS TO COMPLY WITH MANUFACTURER'S WRITTEN INSTRUCTIONS AND THE REFERENCED QUALITY STANDARD, AND AS INDICATED.
   1. INSTALL FIRE-RATED DOORS IN CORRESPONDING FIRE-RATED FRAMES ACCORDING TO NFPA 80.
B. ALIGN IN FRAMES FOR UNIFORM CLEARANCE AT EACH EDGE.
C. SEE PLAN FOR PRODUCT SPECIFICATION AND LOCATION. FURNISH AND INSTALL ALL DOORS AS INDICATED ON THE PLANS.

08 15 10 PLASTIC LAMINATE FACED DOORS

A. HOLLOW METAL FRAMES: COMPLY WITH ANSI/SDI A250.11.
   1. SET FRAMES ACCURATELY IN POSITION, PLUMBED, ALIGNED, AND BRACED SECURELY UNTIL PERMANENT ANCHORS ARE SET. AFTER WALL CONSTRUCTION IS COMPLETE, REMOVE TEMPORARY BRACES, LEAVING SURFACES SMOOTH AND UNDAMAGED.
   2. AT FIRE-PROTECTION-RATED OPENINGS, INSTALL FRAMES ACCORDING TO NFPA 80.
B. PLASTIC LAMINATE FACED DOORS: FIT DOORS ACCURATELY IN FRAMES, WITHIN CLEARANCES. SHIM AS NECESSARY TO ACHIEVE CLEARANCES INDICATED.
   1. FIRE-RATED DOORS: INSTALL DOORS WITH CLEARANCES ACCORDING TO NFPA 80.
   2. SMOKE-CONTROL DOORS: INSTALL DOORS ACCORDING TO NFPA 105.
C. SEE PLAN FOR PRODUCT SPECIFICATION AND LOCATION. FURNISH AND INSTALL ALL DOORS AND FRAMES AS INDICATED ON THE PLANS.

08 41 13 ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

A. INSTALLATION:
   1. COMPLY WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
   2. DO NOT INSTALL DAMAGED COMPONENTS.
   3. FIT JOINTS TO PRODUCE HAIRLINE JOINTS FREE OF BURRS AND DISTORTION.
   4. RIGIDLY SECURE NONMOVEMENT JOINTS.
   5. INSTALL ANCHORS WITH SEPARATORS AND ISOLATORS TO PREVENT METAL CORROSION AND ELECTROLYTIC DETERIORATION.
   6. SEAL JOINTS WATERTIGHT UNLESS OTHERWISE INDICATED.
B. INSTALL COMPONENTS TO DRAIN WATER PASSING JOINTS, CONDENSATION OCCURRING WITHIN FRAMING MEMBERS, AND MOISTURE MIGRATING WITHIN THE SYSTEM TO EXTERIOR.
C. INSTALL COMPONENTS PLUMB AND TRUE IN ALIGNMENT WITH ESTABLISHED LINES AND GRADES, AND WITHOUT WARP OR RACK.
D. ENTRANCE DOORS: INSTALL DOORS TO PRODUCE SMOOTH OPERATION AND TIGHT FIT AT CONTACT POINTS.
E. SEE PLAN FOR PRODUCT SPECIFICATION AND LOCATION. FURNISH AND INSTALL ALL ENTRANCES AND STOREFRONTS AS INDICATED ON THE PLANS.

08 42 29 AUTOMATIC ENTRANCES

A. FIT FRAME JOINTS TO PRODUCE HAIRLINE JOINTS FREE OF BURRS AND DISTORTION. RIGIDLY SECURE NONMOVEMENT JOINTS. SEAL JOINTS WATERTIGHT.
B. ENTRANCES: INSTALL AUTOMATIC ENTRANCES PLUMB AND TRUE IN ALIGNMENT WITH ESTABLISHED LINES AND GRADES WITHOUT WARP OR RACK OF FRAMING MEMBERS AND DOORS. ANCHOR SECURELY IN PLACE.
C. DOOR OPERATORS: CONNECT DOOR OPERATORS TO ELECTRICAL POWER DISTRIBUTION SYSTEM.
D. ACCESS-CONTROL DEVICES: CONNECT ACCESS-CONTROL DEVICES TO ACCESS-CONTROL SYSTEM AS SPECIFIED.
E. ACTIVATION AND SAFETY DEVICES: INSTALL AND ADJUST DEVICES TO PROVIDE DETECTION FIELD AND FUNCTIONS INDICATED.
F. GUIDE RAILS: INSTALL RAILS ACCORDING TO BHMA A156.10 INCLUDING APPENDIX A AND MANUFACTURER'S WRITTEN INSTRUCTIONS UNLESS OTHERWISE INDICATED.
G. SIGNAGE: APPLY SIGNAGE ON BOTH SIDES OF EACH DOOR AS REQUIRED.
H. WIRING WITHIN AUTOMATIC ENTRANCE ENCLOSURES: BUNDLE, LACE, AND TRAIN CONDUCTORS TO TERMINAL POINTS WITH NO EXCESS AND WITHOUT EXCEEDING MANUFACTURER'S WRITTEN LIMITATIONS ON BENDING RADII. PROVIDE AND USE LACING BARS AND DISTRIBUTION SPOOLS.
I. SEE PLAN FOR PRODUCT SPECIFICATION AND LOCATION. FURNISH AND INSTALL ALL AUTOMATIC ENTRANCES AS INDICATED ON THE PLAN.

08 44 13 GLAZED ALUMINUM CURTAIN WALLS

A. INSTALLATION:
   1. COMPLY WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
   2. DO NOT INSTALL DAMAGED COMPONENTS.
   3. FIT JOINTS TO PRODUCE HAIRLINE JOINTS FREE OF BURRS AND DISTORTION.
   4. RIGIDLY SECURE NONMOVEMENT JOINTS.
   5. INSTALL ANCHORS WITH SEPARATORS AND ISOLATORS TO PREVENT METAL CORROSION AND ELECTROLYTIC DETERIORATION AND TO PREVENT IMPEDING MOVEMENT OF MOVING JOINTS.
   6. SEAL JOINTS WATERTIGHT UNLESS OTHERWISE INDICATED.
B. INSTALL COMPONENTS TO DRAIN WATER PASSING JOINTS, CONDENSATION OCCURRING WITHIN FRAMING MEMBERS, AND MOISTURE MIGRATING WITHIN GLAZED ALUMINUM CURTAIN WALL TO EXTERIOR.
C. INSTALL COMPONENTS PLUMB AND TRUE IN ALIGNMENT WITH ESTABLISHED LINES AND GRADES.
D. SEE PLAN FOR PRODUCT SPECIFICATION AND LOCATION. FURNISH AND INSTALL ALL GLAZED ALUMINUM CURTAIN WALLS AS INDICATED ON THE PLAN.

08 71 00 HARDWARE

A. REQUIREMENTS:
   1. ALL LOCKSETS SHALL BE LEVER TYPE AS REQUIRED TO MEET REQUIREMENTS OF A.D.A.
   2. ALL OTHER HARDWARE SHALL CONFORM TO THE REQUIREMENTS OF A.D.A.
   3. ALL EXIT DOORS SHALL BE EQUIPPED WITH LEVER TYPE OR PANIC TYPE EXIT HARDWARE OPENABLE FROM THE INSIDE WITHOUT THE USE OF A LATCH, KEY OR BOLT.
   4. CONTRACTOR TO COORDINATE KEYING SCHEDULE WITH OWNER.
B. MOUNTING HEIGHTS: MOUNT DOOR HARDWARE UNITS AT HEIGHTS REQUIRED TO COMPLY WITH GOVERNING REGULATIONS.
C. INSTALL EACH DOOR HARDWARE ITEM TO COMPLY WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
D. THRESHOLDS: SET THRESHOLDS FOR EXTERIOR AND ACOUSTICAL DOORS IN FULL BED OF SEALANT.
E. ADJUSTMENT: ADJUST AND CHECK EACH OPERATING ITEM OF DOOR HARDWARE AND EACH DOOR TO ENSURE PROPER OPERATION OR FUNCTION OF EVERY UNIT. REPLACE UNITS THAT CANNOT BE ADJUSTED TO OPERATE AS INTENDED. ADJUST DOOR CONTROL DEVICES TO COMPENSATE FOR FINAL OPERATION OF HEATING AND VENTILATING EQUIPMENT AND TO COMPLY WITH REFERENCED ACCESSIBILITY REQUIREMENTS.
F. SEE PLAN FOR PRODUCT SPECIFICATION AND LOCATION. FURNISH AND INSTALL ALL HARDWARE AS INDICATED ON THE PLAN.

08 80 00 GLAZING

A. COMPLY WITH COMBINED WRITTEN INSTRUCTIONS OF MANUFACTURERS OF GLASS, SEALANTS, GASKETS, AND OTHER GLAZING MATERIALS, UNLESS MORE STRINGENT REQUIREMENTS ARE INDICATED, INCLUDING THOSE IN REFERENCED GLAZING PUBLICATIONS.
B. PROTECT GLASS EDGES FROM DAMAGE DURING HANDLING AND INSTALLATION. REMOVE DAMAGED GLASS FROM PROJECT SITE AND LEGALLY DISPOSE OF OFF PROJECT SITE. DAMAGED GLASS IS GLASS WITH EDGE DAMAGE OR OTHER IMPERFECTIONS THAT, WHEN INSTALLED, COULD WEAKEN GLASS AND IMPAIR PERFORMANCE AND APPEARANCE.
C. PROVIDE SAFETY GLASS IN ALL GLAZING AS LISTED BELOW UNLESS NOTED OTHERWISE:
   1. WHERE REQUIRED BY FEDERAL, STATE AND LOCAL CODES.
D. SAFETY GLASS REQUIREMENTS:
   1. SAFETY GLASS SHALL BE, BUT NOT LIMITED TO
      a. TEMPERED GLASS
      b. LAMINATED GLASS
      c. SAFETY PLASTIC
      d. SAFETY INSULATING UNITS WHICH MEET THE TEST REQUIREMENTS OF ANSI Z97.1, AND WHICH ARE CONSTRUCTED, TREATED, OR COMBINED WITH OTHER MATERIALS SO AS TO MINIMIZE THE LIKELIHOOD OF CUTTING AND PIERCING INJURIES RESULTING FROM HUMAN IMPACT WITH THE GLAZING MATERIAL.
   2. ALL SAFETY GLAZING MATERIAL SHALL BE LABELED PER LOCAL, STATE, AND FEDERAL REQUIREMENTS.
E. SEE PLAN FOR PRODUCT SPECIFICATION AND LOCATION. FURNISH AND INSTALL THE GLAZING AS INDICATED ON THE PLAN.

DIVISION 09 FINISHES

09 01 00 FINISHES

A. REQUIREMENTS:
   1. PROVIDE AND INSTALL ALL FINISHES AS INDICATED ON PLANS.
   2. INSTALL ALL MATERIALS PER MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS.
   3. "FINISH" INSTALLER INSPECT SUBSURFACE AND PREPARE AS PER MANUFACTURER'S SPECIFICATIONS PRIOR TO INSTALLATION OF PRODUCT.
   4. ALL FINISHES TO MEET ALL CODE REQUIREMENTS AND REGULATIONS INCLUDING FLAME SPREAD AND SMOKE DEVELOPMENT.
B. EXTRA MATERIAL:
   1. PROVIDE NEW, EXTRA MATERIAL OF EACH FINISH TYPE AND COLOR TO BE TURNED OVER TO OWNER AT JOB COMPLETION FOR THE FOLLOWING ITEMS:
      a. PAINT: PROVIDE 1 GALLON FOR FIELD COLORS AND 1 QUART FOR ACCENT COLORS APPLIED.
      b. RESILIENT TILE FLOORING: PROVIDE 1 BOX FOR EVERY 50 BOXES OR FRACTION THEREOF INSTALLED. FURNISH MINIMUM 10 LINEAR FEET FOR EACH 500 LINEAR FEET OR FRACTION THEREOF OF EACH TYPE OF RESLIENT ACCESSORY SUPPLIED.
      c. ACOUSTICAL CEILING TILE: PROVIDE FULL-SIZE UNITS EQUAL TO 2% OF QUANTITY INSTALLED, BUT NOT LESS THAN 1 BOX OF EACH TYPE OF CEILING TILE SUPPLIED.
      d. WOOD FLOORING: PROVIDE FULL-SIZE UNITS EQUAL TO 3% OF QUANTITY INSTALLED, BUT NOT LESS THAN 50 S.F.
      e. LAMINATE FLOORING: PROVIDE FULL-SIZE UNITS EQUAL TO 3% OF QUANTITY INSTALLED, BUT NOT LESS THAN 50 S.F.
      f. RESILIENT SHEET FLOORING: PROVIDE NOT LESS THAN 10 LINEAR FEET FOR EACH 500 LINEAR FEET OR FRACTION THEREOF INSTALLED.
      g. WALL COVERING MATERIAL: PROVIDE FULL-SIZE UNITS EQUAL TO 5 PERCENT INSTALLED.
      h. TILE CARPET: PROVIDE FULL-SIZE UNITS EQUAL TO 5 PERCENT OF THE AMOUNT INSTALLED, BUT NOT LESS THAN 10 SQ. YD.
      i. SHEET CARPET: PROVIDE FULL-WIDTH ROLLS EQUAL TO 5 PERCENT OF THE AMOUNT INSTALLED, BUT NOT LESS THAN 10 SQ. YD.
      j. CERAMIC, QUARRY AND PORCELAIN TILE: PROVIDE FULL-SIZE UNITS EQUAL TO 3% OF QUANTITY INSTALLED, BUT NOT LESS THAN 50 S.F.

09 22 16 DRYWALL STUDS (INTERIOR NON-BEARING)

A. REQUIREMENTS:
   1. STUDS SHALL BE SECURED TO TOP AND BOTTOM TRACK WITH (1) #8ML SCREW IN EACH FLANGE (UNLESS A SLIP TRACK IS REQUIRED AT THE TOP OF THE WALL).
   2. PROVIDE SLIP TRACK AT TOP OF FULL HEIGHT PARTITIONS.
   3. STUDS SHALL BE INSTALLED PER "GYPSUM CONSTRUCTION HANDBOOK" AS PUBLISHED BY UNITED STATES GYPSUM COMPANY LATEST EDITION.
   4. DRYWALL STUDS SHALL BE ACCORDING TO THE LIST BELOW OR AS INDICATED ON THE PLANS (THESE HEIGHTS ARE BASED ON THE STUDS HAVING (1) LAYER OF DRYWALL EACH FACE).
   5. STUD SIZE — GAUGE — LIMITING HEIGHT WITH STUD SPACING
      a. 3 5/8" — 25 GA. — 13'-6" AT 16" O.C. — 11'-9" AT 24" O.C.
      b. 3 5/8" — 22 GA. — 15'-3" AT 16" O.C. — 13'-4" AT 24" O.C.
      c. 3 5/8" — 20 GA. — 15'-11" AT 16" O.C. — 13'-11" AT 24" O.C.
      d. 6" — 25 GA. — 20'-0" AT 16" O.C. — 17'-6" AT 24" O.C.
      e. 6" — 22 GA. — 22'-9" AT 16" O.C. — 19'-11" AT 24" O.C.
      f. 6" — 20 GA. — 23'-9" AT 16" O.C. — 20'-9" AT 24" O.C.

09 29 00 GYPSUM BOARD (GYP)

A. DRYWALL SHALL BE INSTALLED PER THE LATEST EDITIONS OF "RECOMMENDED SPECIFICATIONS FOR THE APPLICATION AND FINISHING OF GYPSUM BOARD" GA-216 AS PUBLISHED BY THE GYPSUM ASSOCIATION AND THE "GYPSUM CONSTRUCTION HANDBOOK" AS PUBLISHED BY UNITED STATES GYPSUM COMPANY.
   1. PROVIDE CONTROL JOINTS PER THESE REQUIREMENTS.
B. COMPLY WITH ASTM C36 OR ASTM C 1396 AS APPLICABLE TO THE TYPE OF GYPSUM BOARD INDICATED.
C. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURES OFFERING PRODUCTS THAT MAY BE INCORPORATED INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:
   1. AMERICAN GYPSUM CO.
   2. BPB AMERICAN INC.
   3. G-P GYPSUM
   4. LAFARGE NORTH AMERICA INC.
   5. NATIONAL GYPSUM COMPANY
   6. USG CORPORATION
D. AT ALL TOILET ROOMS, LOCKERS ROOMS, COOLER/FREEZER ROOMS, UNDER FRP PANELS OR OTHER DAMP/WET LOCATIONS PROVIDE:
   1. GOLD BOND XP GYPSUM BOARD BY NATIONAL GYPSUM OR EQUAL.
E. UNDER CERAMIC AND PORCELAIN TILE IN TOILET ROOMS, LOCKER ROOMS OR OTHER DAMP/WET LOCATIONS PROVIDE:
   1. FIBEROCK AQUA-TOUGH TILE BACKER BOARD BY USG CORPORATION OR EQUAL.
F. UNDER CERAMIC AND PORCELAIN TILE IN SHOWERS, TUBS, KITCHEN WASH DOWN AREAS OR OTHER HIGH-MOISTURE AREAS PROVIDE:
   1. DUROCK CEMENT BOARD BY USG CORPORATION OR EQUAL
G. DRYWALL FINISHES SHALL BE INSTALLED PER THE LATEST EDITION OF "RECOMMENDED LEVELS OF GYPSUM BOARD FINISH" GA-214 AS PUBLISHED BY THE AWCI, PAINTING AND DECORATING CONTRACTORS OF AMERICA, GYPSUM ASSOCIATION AND CISCA.
H. LEVELS OF FINISH:
   1. SEE PLANS FOR FINISH LOCATIONS.
   2. LEVEL 0 — NO TAPING, FINISHING OR ACCESSORIES REQUIRED.
   3. LEVEL 1 — JOINTS AND INTERIOR ANGLES HAVE TAPE SET IN JOINT COMPOUND; SURFACE IS FREE OF EXCESS JOINT COMPOUND; TOOL MARKS AND RIDGES ARE ACCEPTABLE; TAPE AND FASTENERS ARE NOT COVERED WITH JOINT COMPOUND.
   4. LEVEL 2 — JOINTS AND INTERIOR ANGLES HAVE TAPE EMBEDDED IN JOINT COMPOUND AND HAVE A THIN COAT OF JOINT COMPOUND OVER JOINTS AND INTERIOR ANGLES; FASTENER HEADS AND ACCESSORIES ARE COVERED WITH JOINT COMPOUND; SURFACE IS FREE OF EXCESS JOINT COMPOUND; TOOL MARKS AND RIDGES ARE ACCEPTABLE.
   5. LEVEL 3 — JOINTS AND INTERIOR ANGLES HAVE TAPE EMBEDDED IN JOINT COMPOUND AND ONE ADDITIONAL COAT OF JOINT COMPOUND OVER ALL JOINTS AND INTERIOR ANGLES; FASTENER HEADS AND ACCESSORIES COVERED WITH TWO (2) COATS OF JOINT COMPOUND; NO TOOL MARKS OR RIDGES.
   6. LEVEL 4 — JOINTS AND INTERIOR ANGLES HAVE TAPE EMBEDDED IN JOINT COMPOUND AND TWO SEPARATE COATS OF JOINT COMPOUND APPLIED OVER ALL FLAT JOINTS AND ONE SEPARATE COAT APPLIED OVER INTERIOR ANGLES; FASTENER HEADS AND ACCESSORIES ARE COVERED WITH THREE (3) SEPARATE COATS OF JOINT COMPOUND; NO TOOL MARKS OR RIDGES.
   7. LEVEL 5 — IN ADDITION TO REQUIREMENTS OF LEVEL 4, A THIN SKIM COAT OF JOINT COMPOUND OR EQUAL SHALL BE APPLIED TO THE ENTIRE SURFACE: NO TOOL MARKS OR RIDGES ON THIS SURFACE.

09 30 00 PORCELAIN TILE (PT) (PWT) / CERAMIC TILE (CT) (CWT) / QUARRY TILE (QT) / GLASS TILE (GWT)

A. COMPLY WITH TCNA "HANDBOOK FOR CERAMIC TILE INSTALLATION" FOR TCNA INSTALLATION METHODS SPECIFIED IN TILE INSTALLATION SCHEDULES.
B. LOCATE JOINTS IN TILE SURFACE DIRECTLY ABOVE JOINTS IN CONCRETE SUBSTRATES. BRIDGE CRACKS OR JOINTS IN CONCRETE SLABS WITH 'NOBLESEAL CIS' COMPOSITE SHEET MEMBRANE. INSTALL JOINT BRIDGING MATERIAL PER MFR SPECS AND DETAILS.
C. PROVIDE MANUFACTURER'S STANDARD TILE AS SPECIFIED COMPLYING WITH STANDARD GRADE REQUIREMENTS OF ANSI A137.1 STATIC COEFFICIENT OF FRICTION TO BE 0.60 MIN AND A DYNAMIC COEFFICIENT OF FRICTION OF 0.42 MIN.
D. PROVIDE COLORED CEMENTITIOUS GROUT AT ALL INTERIOR TILE SURFACES -COLOR TO BE SELECTED BY ARCHITECT/OWNER.
E. EXTEND TILE WORK INTO RECESSES AND UNDER OR BEHIND EQUIPMENT AND FIXTURES TO FORM COMPLETE COVERING WITHOUT INTERRUPTIONS UNLESS OTHERWISE INDICATED. TERMINATE WORK NEATLY AT OBSTRUCTIONS, EDGES AND CORNERS WITHOUT DISRUPTING PATTERN OR JOINT ALIGNMENTS.
F. ACCURATELY FORM INTERSECTIONS AND RETURNS. PERFORM CUTTING AND DRILLING OF TILE WITHOUT MARRING VISIBLE SURFACES. CAREFULLY GRIND CUT EDGES OF TILE ABUTTING TRIM, FINISH OR BUILT-IN ITEMS FOR STRAIGHT ALIGNED JOINTS. FIT TILE CLOSELY TO ELECTRICAL OUTLETS, PIPING, FIXTURES AND OTHER PENETRATIONS SO PLATES, COLLARS OR COVERS OVERLAP TILE.
G. JOINTING PATTERN: LAY TILE IN GRID PATTERN UNLESS OTHERWISE INDICATED. LAY OUT TILE WORK AND CENTER TILE FIELDS IN BOTH DIRECTIONS IN EACH SPACE OR ON EACH WALL AREA. LAY OUT TILE WORK TO MINIMIZE THE USE OF PIECES THAT ARE LESS THAN HALF OF A TILE. PROVIDE UNIFORM JOINT WIDTHS UNLESS OTHERWISE INDICATED. TILE BASE TO LINE UP WITH FLOOR TILE JOINTS.
H. METAL EDGE STRIPS: INSTALL WHERE EXPOSED EDGE OF TILE FLOORING MEETS CARPET, WOOD OR OTHER FLOORING THAT FINISHES FLUSH WITH OR BELOW TOP OF TILE AND NO THRESHOLD IS INDICATED. SEE PLAN FOR PRODUCT SPECIFICATION AND LOCATION.

09 51 13 ACOUSTICAL CEILINGS (ACT/ VCGB)

A. PANELS
   1. PROVIDE MANUFACTURER'S STANDARD CEILING TILE AS SCHEDULED COMPLYING WITH ASTM 1264 CLASSIFICATIONS.
   2. INSTALL PANELS WITH UNDAMAGED EDGES AND FIT ACCURATELY INTO SUSPENSION SYSTEM RUNNERS AND EDGE MOLDINGS. SCRIBE AND CUT PANELS AT BORDERS AND PENETRATIONS TO PROVIDE A NEAT, PRECISE FIT.
   3. PROVIDE HOLD-DOWN CLIPS AT ENTRY VESTIBULE(S) AND FOR FIRST 12' OF CORRIDOR(S) IN FRONT OF EACH EXTERIOR DOOR.
   4. PROVIDE APPROVED FIRE RATED GRID SYSTEM FOR FIRE RATED CEILINGS.
   5. SEE PLAN FOR PRODUCT SPECIFICATION AND LOCATION.
B. GRID
   1. COMPLY WITH ASTM C636 (STANDARD PRACTICE FOR INSTALLATION OF METAL CEILING SUSPENSION SYSTEMS FOR ACOUSTICAL TILE AND LAY-IN PANELS), ASTM C635 (STANDARD SPECIFICATION FOR THE MANUFACTURE, PERFORMANCE AND TESTING OF METAL SUSPENSION SYSTEMS FOR ACOUSTICAL TILE AND LAY-IN PANEL CEILINGS) AND SEISMIC DESIGN REQUIREMENTS INDICATED, PER MANUFACTURER'S WRITTEN INSTRUCTIONS AND CISCA'S "CEILING SYSTEMS HANDBOOK".
   2. SUSPEND CEILING HANGERS FROM BUILDING'S STRUCTURAL MEMBERS, PLUMB AND FREE FROM CONTACT WITH INSULATION OR OTHER OBJECTS WITHIN CEILING PLENUM. SPLAY HANGERS ONLY WHERE REQUIRED AND, IF PERMITTED WITH FIRE-RESISTANCE-RATED CEILINGS, TO MISS OBSTRUCTIONS, OFFSET RESULTING HORIZONTAL FORCES BY BRACING, COUNTER SPLAYING, OR OTHER EQUALLY EFFECTIVE MEANS. WHERE WIDTH OF DUCTS AND OTHER CONSTRUCTION WITHIN CEILING PLENUM PRODUCES HANGER SPACING THAT INTERFERE WITH LOCATION OF HANGERS, USE TRAPEZES OR EQUIVALENT DEVICES. WHEN STEEL FRAMING DOES NOT PERMIT INSTALLATION OF HANGER WIRES AT SPACING REQUIRED, INSTALL CARRYING CHANNELS OR OTHER SUPPLEMENTAL SUPPORT FOR ATTACHMENT OF HANGER WIRES.
   3. WIRE HANGERS TO BE ZINC-COATED CARBON STEEL WIRE COMPLYING WITH ASTM A641 STANDARDS, SIZED TO WITHSTAND 5X THE HANGER DESIGN LOAD BUT NOT LESS THAN 0.106" IN DIAMETER.
   4. INSTALL EDGE MOLDINGS AND TRIM AT PERIMETER OF ACOUSTICAL CEILING AREA AND WHERE NECESSARY TO CONCEAL EDGES OF ACOUSTICAL PANELS. SCREW ATTACH MOLDINGS TO SUBSTRATE, LEVELING WITH CEILING SUSPENSION SYSTEM. MITER CORNERS ACCURATELY AND CONNECT SECURELY.
   5. INSTALL SUSPENSION SYSTEM RUNNERS SO THEY ARE SQUARE AND SECURELY INTERLOCKED WITH ONE ANOTHER. REMOVE AND REPLACE DENTED, BENT, OR KINKED MEMBERS. SUSPENSION SYSTEM AS REQUIRED FOR THE SPECIFIED TILE-INTERMEDIATE DUTY CLASSIFICATION.
   6. PROVIDE CORROSION RESISTANT GRID IN SHOWER AND EXTREME ENVIRONMENT AREAS.

09 66 31 RESINOUS FLOORING — EPOXY (EPX)

A. 1/4" EPOXY FLOORING.
B. PREPARE CONCRETE FLOOR BY MECHANICAL MEANS BY USE OF SCABBLER, SCARIFIER OR SHOT BLASTING. KEY CHASE ALL EDGES WHICH DO NOT ABUT A VERTICAL SURFACE (I.E. DOOR THRESHOLDS AND DRAINS).
C. HEAT WORK AREA TO 65 TO 90 DEG F FOR A MINIMUM 3 DAYS PRIOR TO AND 2 DAYS AFTER INSTALLATION.
D. PERFORM A MOISTURE TEST ON THE CONCRETE SLAB TO CONFIRM CONDITIONS MEET MFR'S REQUIREMENTS PRIOR TO INSTALLING THE FLOOR.
E. INSTALL TWO COMPONENT EPOXY PRIMER, THREE COMPONENT MORTAR CONSISTING OF EPOXY RESIN, CURING AGENTS AND GRADED AGGREGATES AND A TWO COMPONENT 100% SOLIDS GENERAL SURFACE EPOXY COATING WITH TEXTURE AS SELECTED BY OWNER.
F. CUT IN EXPANSION AND CONTROL JOINTS IN EPOXY AT SAME LOCATION AS CONCRETE FLOOR JOINTS. FILL WITH FLEXIBLE POLYURETHANE SEALANT.
G. SUBMIT COLOR AND TEXTURE SAMPLES AND MANUFACTURER'S TECHNICAL DATA FOR APPROVAL (MATCH EXISTING FINISH AND COLOR). OBTAIN ALL MATERIALS FROM A SINGLE MANUFACTURER WITH NOT LESS THAN 10 YEARS OF EXPERIENCE. THE CONTRACTOR SHALL HAVE COMPLETED AT LEAST 5 PROJECTS OF SIMILAR SIZE IN PRIOR 2 YEARS.
H. FURNISH A NON-PRORATED WARRANTY COVERING MATERIALS AND WORKMANSHIP FOR A 2 YEAR PERIOD FROM DATE OF INSTALLATION.
I. EPOXY BASE (EPX)
   1. MATCH PREPARATION, MATERIALS, AND CONSTRUCTION OF FLOOR SYSTEM.

09 66 53 RESINOUS FLOORING — HEAVY DUTY EPOXY (HDE)

A. PROVIDE A HEAVY DUTY EPOXY FLOORING MATERIAL AS SPECIFIED ON THE PLANS.
B. PREPARE SUBSTRATE IN ACCORDANCE WITH MANUFACTURER'S PRINTED INSTRUCTIONS.
C. MOVEMENT JOINTS IN SLAB, EXPANSION, CONTROL, AND CONSTRUCTION SHALL EXTEND THROUGH THE FLOORING SYSTEM AND HAVE SEALANT APPROVED BY THE FLOORING MANUFACTURER APPLIED.
D. BASE -RESINOUS FLOORING — HEAVY DUTY EPOXY (HDE):
   1. MATCH PREPARATION, MATERIALS, AND CONSTRUCTION OF FLOOR SYSTEM.

09 66 73 RESINOUS FLOORING — MEDIUM DUTY EPOXY (MDE)

A. PROVIDE A MEDIUM DUTY EPOXY FLOORING SYSTEMS DESCRIBED IN THE FINISH SCHEDULE.
B. PREPARE SUBSTRATE IN ACCORDANCE WITH MANUFACTURER'S PRINTED INSTRUCTIONS.
C. MOVEMENT JOINTS IN SLAB, EXPANSION, CONTROL, AND CONSTRUCTION SHALL EXTEND THROUGH THE FLOORING SYSTEM AND HAVE SEALANT APPROVED BY THE FLOORING MANUFACTURER APPLIED.
D. BASE- RESINOUS FLOORING — MEDIUM DUTY EPOXY (MDE):
   1. MATCH PREPARATION, MATERIALS, AND CONSTRUCTION OF FLOOR SYSTEM.

09 72 00 VINYL WALL COVERING (VWC)

A. CLEAN SUBSTRATES OF SUBSTANCES THAT COULD IMPAIR BOND OF WALL COVERING, INCLUDING DIRT, OIL, GREASE, MOLD, MILDEW, AND INCOMPATIBLE PRIMERS.
B. PREPARE SUBSTRATES TO ACHIEVE A SMOOTH, DRY, CLEAN, STRUCTURALLY SOUND SURFACE FREE OF FLAKING, UNSOUND COATINGS, CRACKS, AND DEFECTS.
C. ACCLIMATIZE WALL-COVERING MATERIALS BY REMOVING THEM FROM PACKAGING IN THE INSTALLATION AREAS NOT LESS THAN 24 HOURS BEFORE INSTALLATION.
D. CUT WALL-COVERING STRIPS IN ROLL NUMBER SEQUENCE. CHANGE ROLL NUMBERS AT PARTITION BREAKS AND CORNERS.
E. INSTALL WALL COVERING WITH NO GAPS OR OVERLAPS, NO LIFTED OR CURLING EDGES, AND NO VISIBLE SHRINKAGE.
F. MATCH PATTERN AT 72" ABOVE FINISHED FLOOR.
G. EXTEND WALL COVERING A MINIMUM OF 6" BEHIND PERMANENT CASEWORK AND EQUIPMENT. EXTEND WALL COVERING A MIN. OF 6" BEHIND PERMANENT CASEWORK AND EQUIPMENT.
H. INSTALL SEAMS VERTICAL AND PLUMB AT LEAST 6 INCHES (150 MM) FROM OUTSIDE CORNERS AND 3 INCHES (75 MM) FROM INSIDE CORNERS UNLESS A CHANGE OF PATTERN OR COLOR EXISTS AT CORNER. NO HORIZONTAL SEAMS ARE PERMITTED.
I. FULLY BOND WALL COVERING TO SUBSTRATE. REMOVE AIR BUBBLES, WRINKLES, BLISTERS, AND OTHER DEFECTS.
J. REMOVE EXCESS ADHESIVE AT FINISHED SEAMS, PERIMETER EDGES, AND ADJACENT SURFACES.
K. ADHESIVE TO BE MILDEW RESISTANT, NON-STAINING AS RECOMMENDED BY THE WALL COVERING MANUFACTURER.
L. SEE PLAN FOR PRODUCT SPECIFICATION AND LOCATION.

09 84 13 ACOUSTIC WALL PANEL (AWP)

A. INSTALL ACOUSTICAL WALL PANELS IN LOCATIONS INDICATED WITH VERTICAL SURFACES AND EDGES PLUMB, TOP EDGES LEVEL AND IN ALIGNMENT WITH OTHER PANELS, FACES FLUSH, AND SCRIBED TO FIT ADJOINING WORK ACCURATELY AT BORDERS AND AT PENETRATIONS.
B. ANCHOR PANELS SECURELY TO SUPPORTING SUBSTRATE.
C. MATCH AND LEVEL FABRIC PATTERN AND GRAIN AMONG ADJACENT PANELS.
D. CLIP LOOSE THREADS; REMOVE PILLS AND EXTRANEOUS MATERIALS.
E. CLEAN PANELS WITH FABRIC FACING, ON COMPLETION OF INSTALLATION, TO REMOVE DUST AND OTHER FOREIGN MATERIALS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.
F. SEE PLAN FOR PRODUCT SPECIFICATION AND LOCATION.

09 91 00 PAINTING

A. FURNISH ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND SCAFFOLDING REQUIRED FOR COMPLETING SURFACE PREPARATION, PAINTING, FINISHING AND RELATED ITEMS.
B. SEAL TOPS, BOTTOMS AND CUTOUTS OF UNPRIMED WOOD DOORS WITH A HEAVY COAT OF SEALER IMMEDIATELY UPON DELIVERY TO THE PROJECT.
C. PREPARATION
   2. REMOVE AND/OR PROTECT ALL HARDWARE, HARDWARE ACCESSORIES, MACHINED SURFACES, PLATES, LIGHTING FIXTURES, SPRINKLER HEADS AND SIMILAR ITEMS THAT ARE NOT TO BE PAINTED, BUT REQUIRE PROTECTION FROM THE PAINTING PROCESS. RE-INSTALL SAME AFTER COMPLETION OF PAINTING. MASK OFF ALL NAMEPLATES, EQUIPMENT IDENTIFICATION AND SIMILAR ITEMS. REMOVAL AND REINSTALL OF ITEMS IS TO BE DONE BY CONTRACTOR SKILLED IN SUCH WORK.
   3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER PREPARATION OF ALL SURFACES PRIOR TO THE PAINTING INSTALLATION.
   4. REVIEW CLEANING SOLVENTS AND PROTOCOLS WITH COATING MANUFACTURER TO DETERMINE TEMPERATURE AND CHEMICAL RESISTANCE.
   5. MILD STEEL
      a. PREPARE TO SSPC SP-10 NEAR WHITE METAL BLAST CLEANING.
      b. APPLY PRIMER WITHIN 8 HOURS OF PREPARATION.
      c. PREPARE ALL FIELD WELDED LOCATIONS PER THE REQUIREMENTS SET FORTH IN THIS SECTION.
      d. VERIFY FINISH COAT COLORS WITH OWNER.
   6. GALVANIZED METAL
      a. CLEAN PER SSPC-SP1 USING DETERGENT AND WATER OR A DEGREASING CLEANER TO REMOVE GREASES AND OILS.
      b. APPLY A TEST AREA, PRIMING AS REQUIRED. ALLOW THE COATING TO DRY AT LEAST ONE WEEK BEFORE TESTING.
      c. IF ADHESION IS POOR, BRUSH BLAST PER SSPC-SP16 IS NECESSARY TO REMOVE THESE TREATMENTS.
   7. CONCRETE BLOCK (CMU)
      a. PREPARE ALL CMU SURFACES PER COATING MANUFACTURER'S RECOMMENDATIONS RELATED TO CLEANLINESS, DRYNESS AND SURFACE PROFILE.
      b. FILL ALL CMU SURFACES TO REMOVE VOIDS AND PROVIDE A SURFACE PROFILE CONSISTENT WITH REQUIREMENTS FOR INTERMEDIATE AND/OR FINISH COATING APPLICATIONS.

SPECIFICATIONS

EXCEL
ARCHITECTS ● ENGINEERS ● SURVEYORS
Always a Better Plan
100 Camelot Drive
Fond Du Lac, WI 54935
Phone: (920) 926-9800
www.EXCELENGINEER.com

PROJECT INFORMATION

PROPOSED BUILDING RENOVATION
HAWAIIAN BROS - STR: 43
1401 GRINDSTONE PKWY ● COLUMBIA, MO

PROFESSIONAL SEAL

SHEET DATES
SHEET ISSUE OCT. 26, 2021
REVISIONS

JOB NUMBER
2164120

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c. VERIFY FINISH COAT COLORS WITH OWNER.
8. PRECAST CONCRETE
   a. PREPARE PRECAST SURFACES PER SSPC SP-13
   b. IF REQUIRED BY THE COATING MANUFACTURER, ACHIEVE THE APPROPRIATE CONCRETE SURFACE PROFILE (CSP) AS DEFINED BY ICRI GUIDELINES 310.2R-2013.

D. CONTRACTOR TO VERIFY THAT PAINT IS COMPATIBLE WITH PRIMER OF SHOP PRIMED SURFACES. NOTIFY EXCEL ENGINEERING IF THERE ARE ANY COMPATIBILITY ISSUES.
E. ALL PAINT COLORS, STAIN COLORS, AND VARNISH TO BE SELECTED BY ARCHITECT/OWNER FROM A FULL RANGE OF AVAILABLE COLORS UNLESS NOTED OTHERWISE.
F. THE FINISH PRODUCT SHALL HAVE A CONSISTENT, SMOOTH APPEARANCE OF THE SPECIFIED LUSTER.
G. APPLY PAINT PER MANUFACTURER'S TEMPERATURE AND HUMIDITY REQUIREMENTS.
H. COMPLETED WORK SHALL BE FREE FROM DEFECTS AND FLAWS.
I. THE CONTRACTOR SHALL KEEP EMPTY CONTAINERS ON THE PROJECT SITE UNTIL ALL PRODUCTS ARE VERIFIED AS TO COLOR AND/OR SHEEN. THE CONTRACTOR SHALL LEAVE WITH THE OWNER ALL OPENED PAINT CONTAINERS.
J. DISPOSE OF EXCESS MATERIALS, CONTAINERS AND OTHER ITEMS NECESSARY FOR THE COMPLETION OF THE WORK IN A MANNER THAT MEETS OR EXCEEDS THE STRICTEST LAWS GOVERNING THE PROJECT'S MUNICIPALITY AND/OR STATE. THE PAINTING CONTRACTOR IS RESPONSIBLE FOR COMPLETE ADHERENCE TO ALL DISPOSAL REGULATIONS.
K. COATING MAINTENANCE MANUAL
   1. UPON CONCLUSION OF THE PROJECT, THE CONTRACTOR OR PAINT MANUFACTURER/SUPPLIER SHALL FURNISH A COATING MAINTENANCE MANUAL, SUCH AS SHERWIN WILLIAMS "CUSTODIAN PROJECT COLOR AND PRODUCT INFORMATION" REPORT OR EQUAL. MANUAL SHALL INCLUDE AN AREA SUMMARY WITH FINISH SCHEDULE, AREA DETAIL DESIGNATING WHERE EACH PRODUCT/COLOR/FINISH WAS USED, PRODUCT DATA PAGES, MATERIAL SAFETY DATA SHEETS, CARE AND CLEANING INSTRUCTIONS, TOUCH-UP PROCEDURES, AND COLOR SAMPLES OF EACH COLOR AND FINISH USED.
L. EXPOSED MECHANICAL PIPING SYSTEM SHALL BE PAINTED PER APPROPRIATE METAL TYPE SPECIFICATION AND AS FOLLOWS:
   2. GAS PIPING — YELLOW
   3. FIRE PROTECTION — RED
M. PAINT ALL EXPOSED MISCELLANEOUS ITEMS, FINISHED OR UNFINISHED (INCLUDING H.V.A.C. RETURN AIR GRILLES, CONDUIT, ETC.) TO MATCH ADJOINING WALL SURFACES.
N. PAINT CEILING ACCESS PANELS TO MATCH ADJACENT CEILING FINISH.
O. ALL EXPOSED EXTERIOR & INTERIOR METAL SURFACES SHALL BE PAINTED, U.N.O.
P. ALL EXPOSED MISCELLANEOUS ITEM IN FOOD PROCESS ROOMS SHALL REMAIN UNPAINTED UNLESS NOTED OTHERWISE. PROTECT ALL SUCH SYSTEM DURING THE PAINTING PROCESSES WITHIN THE ROOMS.
Q. EXTERIOR ITEMS:
   1. FERROUS METAL:
      a. ACRYLIC - MISCELLANEOUS IRON, HANDRAILS, HOLLOW METAL DOORS AND FRAMES, ROOF STRUCTURE, EXPOSED ROOF PIPING, ETC.:
         i. ALKYD SHOP PRIMER ON METAL (REFER TO DIVISION 5) OR 1 COAT S-W KEM BOND HS UNIVERSAL METAL PRIMER B50 SERIES
         j. 2 COATS S-W PRO INDUSTRIAL ACRYLIC SEMI GLOSS, B66-650 @ 2.5-4.0 MILS DFT/COAT.
      b. EPOXY URETHANE
         i. 1 COAT (REFER TO DIVISION 5): S-W MACROPOXY 646 FAST CURE EPOXY, B65-600 SERIES @ 5.0 MILS DFT
         j. 2 COATS S-W WATERBASED ACROLON 100, B65-720 @ 2. 0 MILS DFT/COAT.
   2. GALVANIZED, ALUMINUM, ZINC-COATED AND NON FERROUS METALS:
      a. ACRYLIC
         i. 1 COAT S-W PRO INDUSTRIAL PRO-CRYL UNIVERSAL PRIMER (refer to Division 5), B66-1310 SERIES, @ 2.0-4.0 MILS DFT.
         j. 2 COATS S-W PRO INDUSTRIAL ACRYLIC SEMI GLOSS, B66-650 @ 2.5-4.0 MILS DFT/COAT.
      b. EPOXY URETHANE:
         i. 1 COAT (REFER TO DIVISION 5): S-W MACROPOXY 646 FAST CURE EPOXY, B65-600 SERIES @ 5.0 MILS DFT
         j. 2 COATS S-W WATERBASED ACROLON 100, B65-720 @ 2. 0 MILS DFT/COAT.
   3. CONCRETE (CEMENTITIOUS SIDING, STUCCO, PRECAST, AND POURED IN PLACE CONCRETE):
      a. ACRYLIC WATER BASED SYSTEM — NON WATER PENETRATION RESISTANT
         i. 1 COAT S-W LOXON CONCRETE MASONRY PRIMER LX02 @ 2.0-3.5 MILS DFT.
         j. 2 COAT S-W A-100 EXTERIOR LATEX SATIN A82 SERIES @ 1.5-2.0 MILS DFT/COAT.
      b. HIGH BUILD WATER BASED SYSTEM — WATER PENETRATION RESISTANT (DESCRIBE TYPICAL LOCATION)
         i. 1 COAT S-W LOXON CONCRETE MASONRY PRIMER LX02 @ 2.0-3.5 MILS DFT.
         j. 2 COAT S-W LOXON XP, LX11 SERIES @ 6.5-8.4 MILS DFT/COAT.
      c. ACRYLIC SELF CLEANING SYSTEM — SHEDS DIRT WHEN CONTACTED BY WATER (DESCRIBE TYPICAL LOCATION)
         i. 1 COAT S-W LOXON CONCRETE MASONRY PRIMER LX02 @ 2.0-3.5 MILS DFT.
         j. 2 COAT S-W LOXON SELF CLEANING ACRYLIC LX13 SERIES @ 2.1-2.9 MILS DFT/COAT.
      d. SOLID WATERBORNE STAIN FINISH
         i. 1 COAT S-W LOXON VERTICAL CONCRETE STAIN, LX31 SERIES.
         j. 2 COAT S-W LOXON VERTICAL CONCRETE STAIN, LX31 SERIES.
   4. CONCRETE (CONCRETE MASONRY UNITS, CINDER or CONCRETE BLOCK):
      a. ACRYLIC WATER BASED SYSTEM — NON WATER PENETRATION RESISTANT
         i. 1 COAT S-W LOXON ACRYLIC BLOCK SURFACER, LX01 SERIES (50-100 sf/gal).
         j. 2 COAT S-W A-100 EXTERIOR LATEX SATIN A82 SERIES @ 1.5-2.0 MILS DFT/COAT.
      b. HIGH BUILD WATER BASED SYSTEM — WATER PENETRATION RESISTANT
         i. 1 COAT S-W LOXON ACRYLIC BLOCK SURFACER, L01 SERIES (50-100 sf/gal).
         j. 2 COAT S-W LOXON XP, LX11 SERIES @ 6.5-8.4 MILS DFT/COAT.
      c. ACRYLIC SELF CLEANING SYSTEM — SHEDS DIRT WHEN CONTACTED BY WATER
         i. 1 COAT S-W LOXON ACRYLIC BLOCK SURFACER, L01 SERIES (50-100 sf/gal).
         j. 2 COAT S-W LOXON SELF CLEANING ACRYLIC LX13 SERIES @ 2.1-2.9 MILS DFT/COAT.
      d. SOLID WATERBORNE STAIN FINISH
         i. 1 COAT S-W LOXON VERTICAL CONCRETE STAIN, LX31 SERIES.
         j. 2 COAT S-W LOXON VERTICAL CONCRETE STAIN, LX31 SERIES.

R. INTERIOR ITEMS:
   1. GYPSUM DRYWALL (PA):
      a. ACRYLIC EG-SHEL
         i. 1 COAT S-W PROMAR 200 ZERO VOC INTERIOR LATEX PRIMER B28W2600 @ 1.0 MILS DFT.
         j. 2 COATS S-W PROMAR 200 ZERO VOC INTERIOR LATEX EG-SHEL B20-2600 @ 1.7 MILS DFT/COAT.
      b. ACRYLIC FLAT
         i. 1 COAT S-W PROMAR 200 ZERO VOC INTERIOR LATEX PRIMER B28W2600 @ 1.2-1.5 MILS DFT.
         j. 2 COATS S-W PROMAR 200 ZERO VOC INTERIOR LATEX FLAT B30-2600 @ 1.4 MILS DFT/COAT.
   c. ACRYLIC SEMI-GLOSS
      i. 1 COAT S-W PROMAR 200 ZERO VOC INTERIOR LATEX PRIMER B28W2600 @ 1.2-1.5 MILS DFT.
      j. 2 COATS S-W PROMAR 200 ZERO VOC INTERIOR LATEX SEMI-GLOSS B31-2600 @ 1.5 MILS DFT/COAT.
   2. WOOD:
      a. STAINED:
         i. 1 COAT S-W MINWAX PERFORMANCE SERIES TINTABLE WOOD STAIN 250.
         j. 2 COAT S-W MINWAX WATERBASED OIL MODIFIED POLYURETHANE: SATIN/SEMI-GLOSS/GLOSS.
      b. PAINTED ACRYLIC SEMI-GLOSS
         i. 1 COAT S-W PREMIUM WALL AND WOOD PRIMER B28W8111 @ 1.8-2.1 MILS DFT.
         j. 2 COATS S-W PRO INDUSTRIAL ACRYLIC SEMI GLOSS B66-660 @ 2.5-4.0 MILS DFT/COAT.
   3. FERROUS METAL
      a. DOORS, FRAMES, HANDRAILS, MISC. METALS, ETC., (PRIMER, BRUSH/ROLLER)
         i. ACRYLIC: STANDARD:
            (A). 1 COAT S-W PRO INDUSTRIAL PRO-CRYL UNIVERSAL PRIMER B66-1310 @ 2.0-4.0 MILS DFT.
            (B). 2 COATS S-W PRO INDUSTRIAL ACRYLIC SEMI GLOSS B-66-650 @ 2.5 — 4 MILS DFT/COAT.
         ii. ALKYD (WATERBASED URETHANE MODIFIED ALKYD): HIGH TRAFFIC AREA:
            (A). 1 COAT S-W PRO INDUSTRIAL PRO-CRYL UNIVERSAL PRIMER B66-1310 @ 2.0-4.0 MILS DFT.
            (B). 2 COATS S-W PRO INDUSTRIAL WATER BASED ALKYD URETHANE ENAMEL SEMI GLOSS B53-1150 @ 1.4 — 1.7 MILS DFT/COAT.
      b. EXPOSED STRUCTURAL STEEL AND EXPOSED MECHANICAL/ELECTRICAL ITEMS (PRIMER, SPRAYED):
         i. ACRYLIC (NON CORROSIVE, NON MOISTURE) NORMAL EXPOSURE (PA):
            (A). CONFIRM COMPATIBILITY WITH SHOP APPLIED PRIMERS.
            (B). SPOT PRIME AS NEEDED: S-W PRO INDUSTRIAL PRO-CRYL UNIVERSAL PRIMER b66-1310 @ 2.0-4.0 MILS DFT.
            (C). 2 COATS S-W PRO INDUSTRIAL WATERBORNE ACRYLIC DRY FALL, EG-SHEL, B42-82 @ 2.0-3.0 MILS DFT.
               (1). CONTRACTOR SHALL MAINTAIN A DAILY LOG OF TEMPERATURE AND RELATIVE HUMIDITY.
               (2). AMBIENT TEMPERATURE AND SUBSTRATE TEMPERATURE SHALL BE 50 DEGREES F TO 110 DEGREES F.
               (3). RELATIVE HUMIDITY SHALL NOT EXCEED 75%.
         ii. ALKYD (NON CORROSIVE, NON- MOISTURE) (PA):
            (A). CONFIRM COMPATIBILITY WITH SHOP APPLIED PRIMERS.
            (B). SPOT PRIME AS NEEDED: S-W KEM BOND HS UNIVERSAL METAL PRIMER B50 SERIES @ 2.0-5.0 MILS DFT.
            (C). FINISH COAT S-W SUPER SAVE-LITE HI-TEC DRY FALL, EG-SHEL B48 SERIES @ 3.0-3.5 MILS DFT.
   4. GALVANIZED INTERIOR CEILING DECKING (PA):
      a. ACRYLIC (NON CORROSIVE, NON MOISTURE) (SPRAYED):
         i. 2 COATS S-W PRO INDUSTRIAL WATERBORNE DRY FALL, EG-SHEL, B42-82 @ 2.0-3.0 MILS DFT.
   5. ALUMINUM, ZINC-COATED AND NON FERROUS METALS:
      a. ACRYLIC
         i. 1 COAT S-W PRO INDUSTRIAL PRO-CRYL UNIVERSAL PRIMER B66-1310 @ 2.0 — 4.0 MILS DFT.
         j. 2 COATS S-W PRO INDUSTRIAL SEMI GLOSS B66-650 @ 2.5-4.0 MILS DFT/COAT.
   6. CONCRETE MASONRY UNITS (PA):
      a. ACRYLIC FLAT
         i. 1 COAT S-W PREPRITE BLOCK FILLER B25W25- WHITE.
         j. 2 COATS S-W PROMAR 200 ZERO VOC INTERIOR LATEX FLAT B30-2600 @ 1.4 MILS DFT/COAT.
      b. ACRYLIC SEMI-GLOSS
         i. 1 COAT S-W PREPRITE BLOCK FILLER B25W25- WHITE.
         j. 2 COATS S-W PROMAR 200 ZERO VOC INTERIOR LATEX SEMI-GLOSS B31-2600 @ 1.5 MILS DFT/COAT.

DIVISION 10 SPECIALTIES

10 14 00 SIGNAGE

A. REQUIREMENTS:
   1. CONTRACTOR TO FURNISH AND INSTALL SIGNAGE PER LOCAL, STATE, AND FEDERAL CODES AND PER ADDITIONAL DETAILS ON PLANS.
   2. COORDINATE STYLE AND COLOR WITH OWNER UNLESS SPECIFICALLY INDICATED ON PLANS.
   3. ALL SIGNAGE SHALL MEET THE REQUIREMENTS OF THE A.D.A. AND ANSI.
   4. WHERE PERMANENT IDENTIFICATION IS PROVIDED FOR ROOMS AND SPACES, SIGNS SHALL BE INSTALLED ON THE WALL ADJACENT TO THE LATCH SIDE OF THE DOOR. WHERE THERE IS NO WALL SPACE TO THE LATCH SIDE OF THE DOOR, INCLUDING AT DOUBLE LEAF DOORS, SIGNS SHALL BE PLACED ON THE NEAREST ADJACENT WALL.
   5. MOUNTING HEIGHT SHALL BE 60" ABOVE FINISH FLOOR TO THE CENTERLINE OF THE SIGN UNLESS INDICATED OTHERWISE.
   6. PROVIDE HANDICAP PARKING SIGNS AS INDICATED ON PLANS AND AS REQUIRED BY LOCAL, STATE, AND FEDERAL CODES.

10 44 00 FIRE EXTINGUISHERS

A. REQUIREMENTS
   1. FURNISH AND INSTALL EXTINGUISHERS PER LOCAL, STATE, AND FEDERAL CODES, AND N.F.P.A. NO.10-1978.
   2. MOUNT FIRE EXTINGUISHER NOT HIGHER THAN 48" ABOVE FINISH FLOOR UNLESS LOCAL REGULATIONS REQUIRE DIFFERENT HEIGHT.
   3. ALL FIRE EXTINGUISHERS AND CABINETS TO MEET THE REQUIREMENTS OF THE A.D.A. AND ANSI A117.1.

DIVISION 22 PLUMBING

22 05 00 PLUMBING WORK

A. SEE PLUMBING PLANS FOR SPECIFICATIONS

DIVISION 23 HEATING AND VENTILATING AND AIR CONDITIONING

23 05 00 HEATING AND VENTILATION WORK

A. SEE HVAC PLANS FOR SPECIFICATIONS.

DIVISION 26 ELECTRICAL

26 05 00 ELECTRICAL WORK

A. SEE ELECTRICAL PLANS FOR SPECIFICATIONS.

DIVISION 31 EARTH WORK

31 10 00 SITE CLEARING

A. SEE CIVIL PLANS FOR SPECIFICATIONS.

31 20 00 EARTH MOVING

A. SEE CIVIL PLANS FOR SPECIFICATIONS.

31 30 00 EROSION CONTROL

A. SEE CIVIL PLANS FOR SPECIFICATIONS.

DIVISION 32 EXTERIOR IMPROVEMENTS

32 10 00 GRANULAR BASE AND ASPHALT PAVEMENT

A. SEE CIVIL PLANS FOR SPECIFICATIONS.

32 20 00 CONCRETE AND AGGREGATE BASE

A. SEE CIVIL PLANS FOR SPECIFICATIONS.

32 30 00 LANDSCAPING AND SITE STABILIZATION

A. SEE CIVIL PLANS FOR SPECIFICATIONS.

DIVISION 33 UTILITIES

33 10 00 SITE UTILITIES

AD1
A. SEE CIVIL PLANS FOR SPECIFICATIONS.

ABBREVIATIONS

ADD.	ADDITION	DISP.	DISPENSER	I.D.	IDENTIFICATION	R.D.	ROOF DRAIN
&	AND	D.W.	DRYWALL	INSUL.	INSULATED	REF.	REFERENCE
ACOUS.	ACOUSTICAL	EA.	EACH	INST.	INSTALL	R.F.E.	REGIONAL FLOODPLAIN
A/C	AIR CONDITIONING	E.I.F.S.	EXTERIOR INSULATION	INT.	INTERIOR		ELEVATION
A.F.F.	ABOVE FINISH FLOOR		FINISH SYSTEM	INV.	INVERT	SAN.	SANITARY SEWER
ALUM.	ALUMINUM	E.J.	EXPANSION JOINT	JST.	JOIST	SCHED.	SCHEDULE
ALT.	ALTERNATE	EL.	ELEVATION	JT.	JOINT	SEC.	SECTION
APPROX.	APPROXIMATELY	ELEC. / E	ELECTRICAL	JAN.	JANITOR	SERV.	SERVICE
ARCH.	ARCHITECT	ELEV.	ELEVATOR	KIT.	KITCHEN	SFRS.	SEISMIC FORCE
ASPH.	ASPHALT	ENCL.	ENCLOSED	LOUV.	LOUVER		RESISTING SYSTEM
A.B.	ANCHOR BOLT	ENG.	ENGINEER	LAM.	LAMINATED	SHT.	SHEET
ADJ.	ADJUSTABLE	E.W.	EACH WAY	LAV.	LAVATORY	SHT'G.	SHEATHING
APT.	APARTMENT	E.W.C.	ELECTRIC WATER COOLER	Lb.	POUND	SID'G.	SIDING
@	AT	EQ.	EQUAL	LT.	LIGHT	ST.	STORM SEWER
AVE.	AVENUE	EQUIP.	EQUIPMENT	MACH.	MACHINE	STM.	STEAM
AGGR.	AGGREGATE	EXCAV.	EXCAVATE	MAX.	MAXIMUM	SIM.	SIMILAR
AUTO.	AUTOMATIC	EXIST.	EXISTING	MAINT.	MAINTENANCE	SPKLR.	SPRINKLER
B.F.	BARRIER FREE	EXT.	EXTERIOR	MIN.	MINIMUM	SPEC.	SPECIFICATION
BD.	BOARD	EXP.	EXPANSION	MECH.	MECHANICAL	SQ.	SQUARE
BLDG.	BUILDING	EMER.	EMERGENCY	MTL.	METAL	STD.	STANDARD
B.L.	BUILDING LINE	EXPO.	EXPOSED	MFR.	MANUFACTURE	SECUR.	SECURITY
BLK.	BLOCK	F.D.	FLOOR DRAIN	M.H.	MAN HOLE	STL.	STEEL
BLK'G	BLOCKING	FOUND.	FOUNDATION	MISC.	MISCELLANEOUS	STOR.	STORAGE
B.O.J.	BOTTOM OF JOIST	FEX.	FIRE EXTINGUISHER	M.S.	MACHINE SCREW	STR.	STAIR
BOT.	BOTTOM	FEC.	FIRE EXTINGUISHER CABINET	M.B.	MACHINE BOLT	STRUC.	STRUCTURAL
B.W.	BOTH WAY	F/R	FIRE RESISTANT	MR	MOISTURE RESISTANT	SYS.	SYSTEM
B.M.	BENCH MARK	F.F.	FINISH FLOOR	MTD.	MOUNTED	SS	SERVICE SINK
BM.	BEAM	FG.	FINISH GRADE	MAT'L	MATERIAL	S.C.	SOLID CORE
BRG.	BEARING	FIN.	FINISH	MEMB	MEMBRANE	SH.	SHELF
BRK	BRICK	FLR.	FLOOR	MEZZ.	MEZZANINE	S.S.	STAINLESS STEEL
B.T.U.	BRITISH THERMAL UNITS	FLSH.	FLASHING	M.C.	MISCELLANEOUS CHANNEL	SUSP.	SUSPENDED
B.O.W.	BOTTOM OF WALL	FLUOR.	FLUORESCENT	MWFRS.	MAIN WIND FORCE	T.	TREAD
B.O.C.	BOTTOM OF CURB	FT.	FOOT/FEET		RESISTING SYSTEM	T.O.S.	TOP OF STUD
CA	CARPET	FTG.	FOOTING	N.I.C.	NOT IN CONTRACT	T.O.B.	TOP OF BEARING
CAB.	CABINET	FRM'G	FRAMING	NO. /#	NUMBER	T.O.W.	TOP OF WALL
CLKG.	CAULKING	FR.	FRAME	N.T.S.	NOT TO SCALE	T.O.P.	TOP OF PIER
C.I.	CAST IRON	FURN.	FURNACE	NOM.	NOMINAL	T.O.F.	TOP OF FOOTING
CLG.	CEILING	FAB.	FABRICATED	NAT.	NATURAL	T&B.	TOP & BOTTOM
CEM.	CEMENT	FIX.	FIXTURE	OF/CI	OWNER FURNISHED	T.C.	TOP OF CURB
CTR.	CENTER	F.R.	FIRE RATED	-	CONTRACTOR INSTALLED	TEL.	TELEPHONE
C/C	CENTER TO CENTER	F.O.S.	FACE OF STUD	OF/OI	OWNER FURNISHED	T&G.	TONGUE & GROOVE
C.J.	CONSTRUCTION JOINT/	F.O.B.	FACE OF BRICK	-	OWNER INSTALLED	THK.	THICK
	CONTROL JOINT	F.C.O.	FLOOR CLEAN OUT	O/O	OUT TO OUT	T.O. STL.	TOP OF STEEL
CL.	CENTER LINE	F.B.	FLAT BAR	OF.	OVERFLOW	T.P.	TOP PLATE
C.T.	CERAMIC TILE	F.O.C.	FACE OF CONCRETE	O.F.S.	OUTSIDE FACE OF STUD	T.S.	TUBE STEEL
C.O.	CLEAN OUT	F.O. CMU	FACE OF CMU	O.F.SH.	OUTSIDE FACE OF SHEATHING	TYP.	TYPICAL
CLR.	CLEAR	FRPR.	FIRE-PROOFING	OA.	OVERALL	TEMP.	TEMPERED
CLO.	CLOSET	FURR.	FURRING	OPP.	OPPOSITE	TOT.	TOTAL
COL.	COLUMN	F.V.	FIELD VERIFY	O.C.	ON CENTER	U.N.O.	UNLESS NOTED OTHERWISE
COMP.	COMPOSITION/COMPACT	G	GAS	O.H.	OVERHEAD	UNFIN.	UNFINISHED
CMU	CONCRETE MASONRY UNIT	GA.	GAUGE	O.F.C.	OUTSIDE FACE OF CONCRETE	UTIL.	UTILITIES
CONC.	CONCRETE	G.C.	GENERAL CONTRACTOR	OPN'G	OPENING	VERT.	VERTICAL
CONT.	CONTINUOUS	G.I.	GALVANIZED IRON	PA.	PAINT	VEST.	VESTIBULE
CONTR.	CONTRACTOR	GL.	GLASS	P.D.F.	POWER DRIVEN FASTENER	V.C.T.	VINYL COMPOSITION TILE
C.B.	CATCH BASIN	G.M.	GAS METER	P.L.	PLASTIC LAMINATE	V.I.F.	VERIFY IN FIELD
CONN.	CONNECTION	GYP.	GYPSUM	PL.	PLATE	V	VALVE
CTSK.	COUNTER-SINK	G.B.	GYPSUM BOARD	PLAS.	PLASTER	V.T.R.	VENT THOUGH ROOF
CORR.	CORRUGATED	GALV.	GALVANIZED	PLYWD.	PLYWOOD	VT.	VENT PIPE
C.W.	COLD WATER	GR.	GRADE	PR.	PAIR	VENT.	VENTILATION
DBL.	DOUBLE	HC.	HANDICAPPED	PREH.	PREHUNG	VOL.	VOLUME
DEG.	DEGREE	HD.	HEAD	P.T.	PRESSURE TREATED	W	WATER
DET.	DETAIL	HDR.	HEADER	PF.	PREFINISHED	W/	WITH
DIAG.	DIAGONAL	HTR.	HEATER	PC.	PIECE	W.C.	WATER CLOSET
DIA. / ∅	DIAMETER	HGT.	HEIGHT	PLB.	PLUMBING	W.C.O.	WALL CLEAN OUT
DIM.	DIMENSION	HOR.	HORIZONTAL	PREFAB.	PREFABRICATED	WD.	WOOD
do.	DITTO	H.W.	HOT WATER	R.	RISER	W.H.	WATER HEATER
DIV.	DIVISION	H.C.	HOLLOW CORE	R.O.	ROUGH OPENING	W.S.	WEATHER STRIPPING
DR.	DOOR	HB	HOSE BIB	REQ'D.	REQUIRED	WDW.	WINDOW
DN.	DOWN	HDWD.	HARDWOOD	RM.	ROOM	W.I.	WROUGHT IRON
DS.	DOWNSPOUT	HDWR.	HARDWARE	REV.	REVISION	W.R.	WEATHER RESISTANT
DWG.	DRAWING	H.M.	HOLLOW METAL	REG.	REGISTER	W.C.	WATER COOLER
DEPT.	DEPARTMENT	HR.	HOUR	REINF. /	REINFORCING	WC	WALL COVERING
D.F.	DRINKING FOUNTAIN	HVAC	HEATING, VENTILATING	R/F		W.P.	WATER PROOF
			& AIR CONDITIONING	RS	RELIEF SCUPPER	W.W.F.	WELDED WIRE FABRIC
				RAD.	RADIUS	YD.	YARD

(ABBREVIATIONS PERTAIN TO CIVIL, ARCHITECTURAL, & STRUCTURAL DRAWINGS ONLY)

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SHEET DATES

SHEET ISSUE OCT. 26, 2021

REVISIONS

AD1 MAR. 7, 2022

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SHEET NUMBER

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ARCHITECTURAL SPECIFICATIONS

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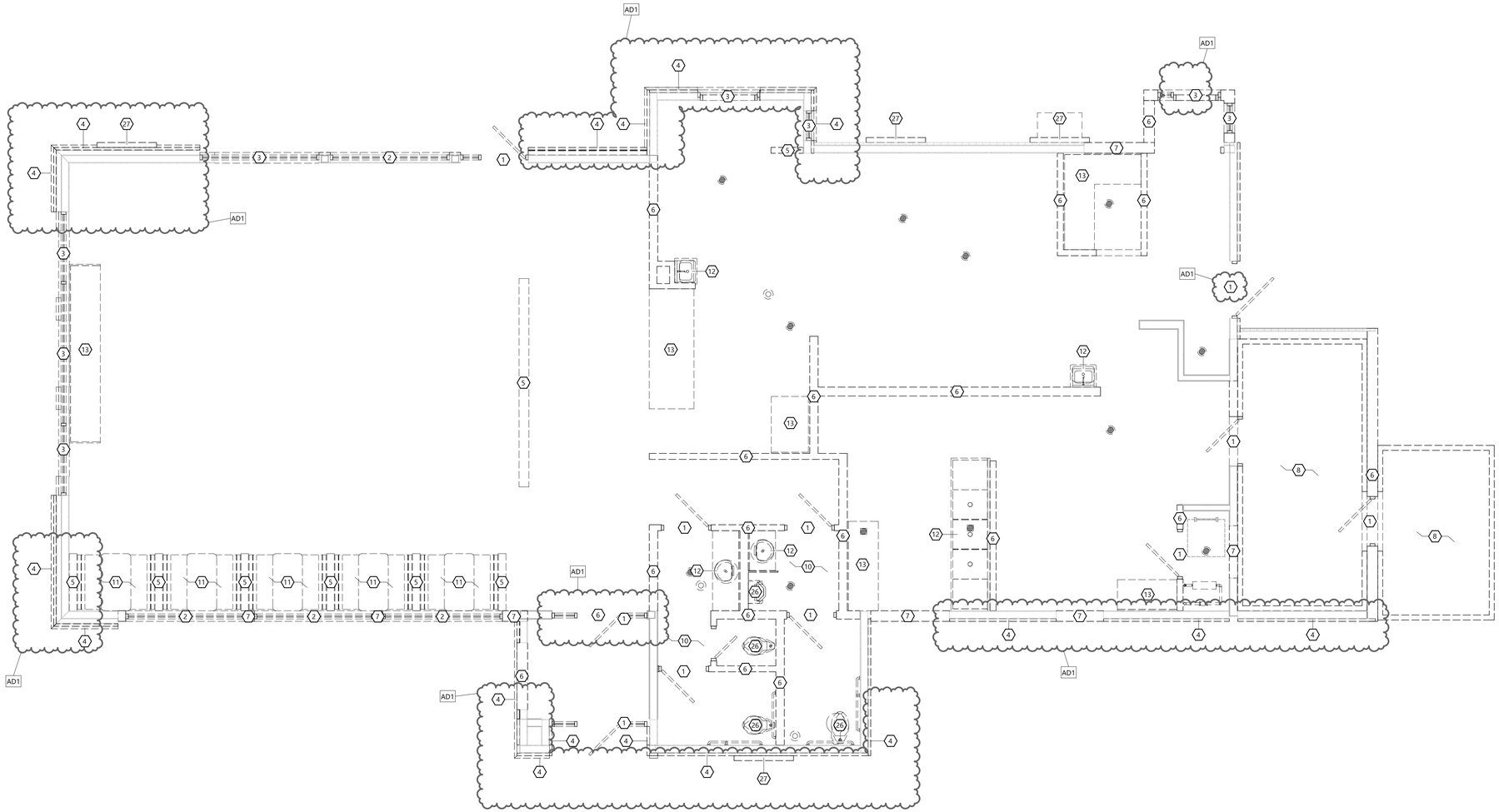

DEMO FIRST FLOOR

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ARCHITECTURAL FIRST FLOOR DEMOLITION PLAN

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SHEET ISSUE OCT. 26, 2021

REVISIONS

AD1 MAR. 7, 2022

JOB NUMBER

2164120

SHEET NUMBER

AD1.1

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NORTH
NORTH

DEMO SLAB PLAN
SCALE: 1/4" = 1'-0"
4' 0' 4' 8'

ARCHITECTURAL SLAB DEMOLITION PLAN

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REVISIONS

JOB NUMBER
2164120

SHEET NUMBER
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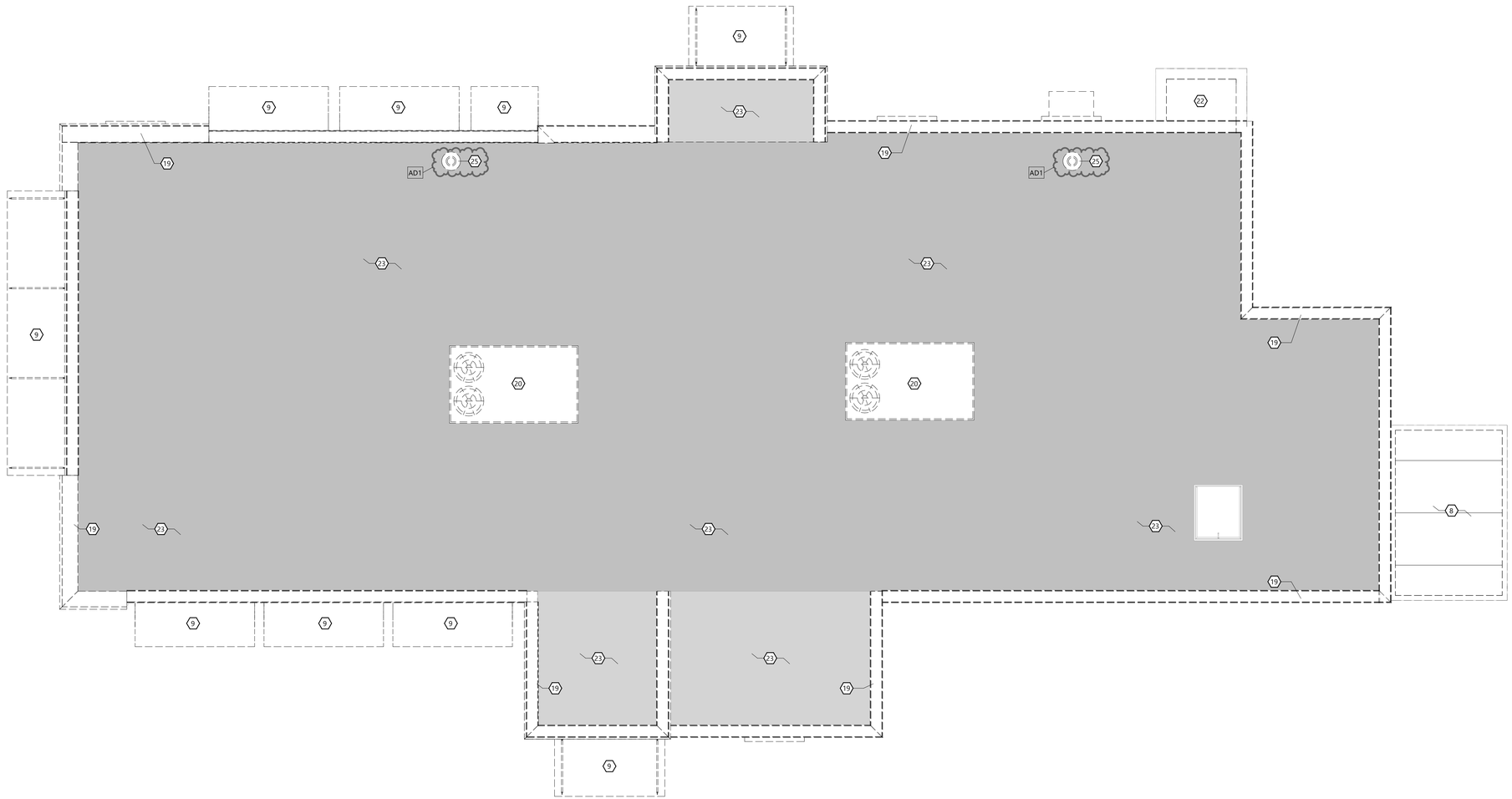

DEMO ROOF PLAN

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AD1 MAR. 7, 2022

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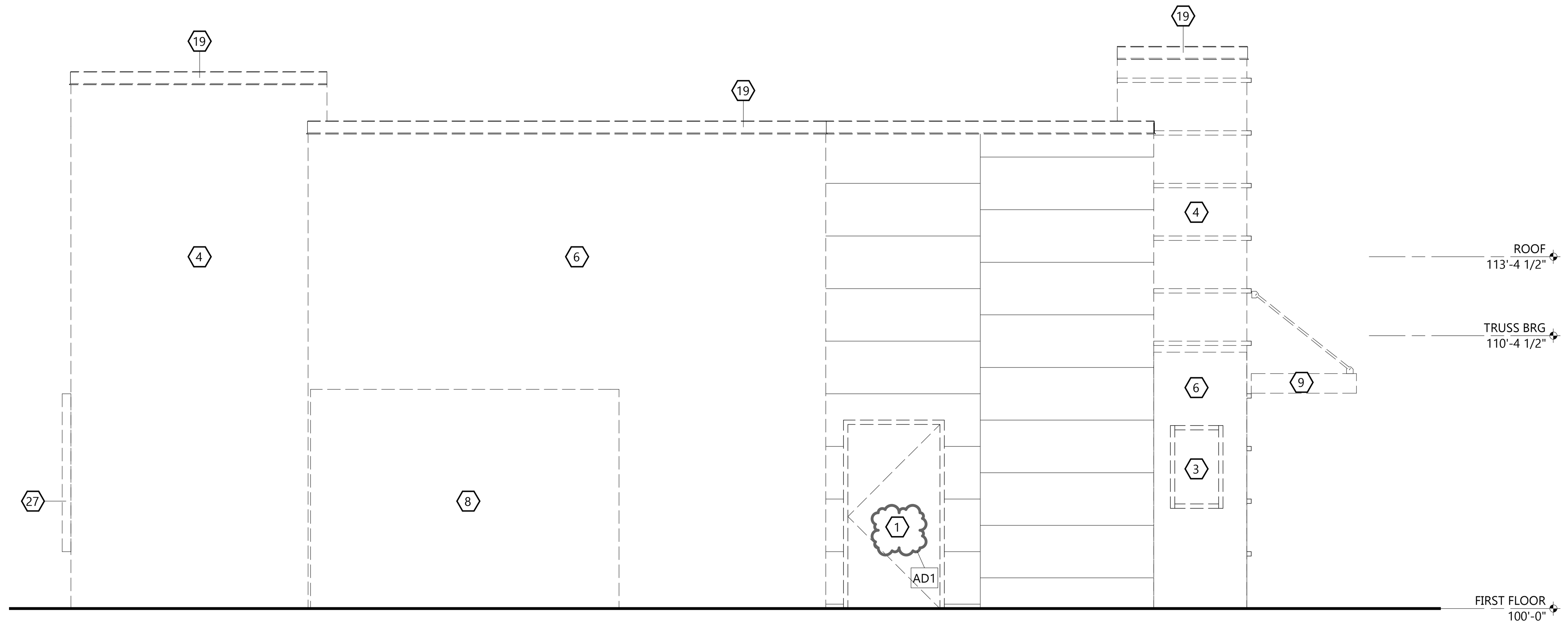
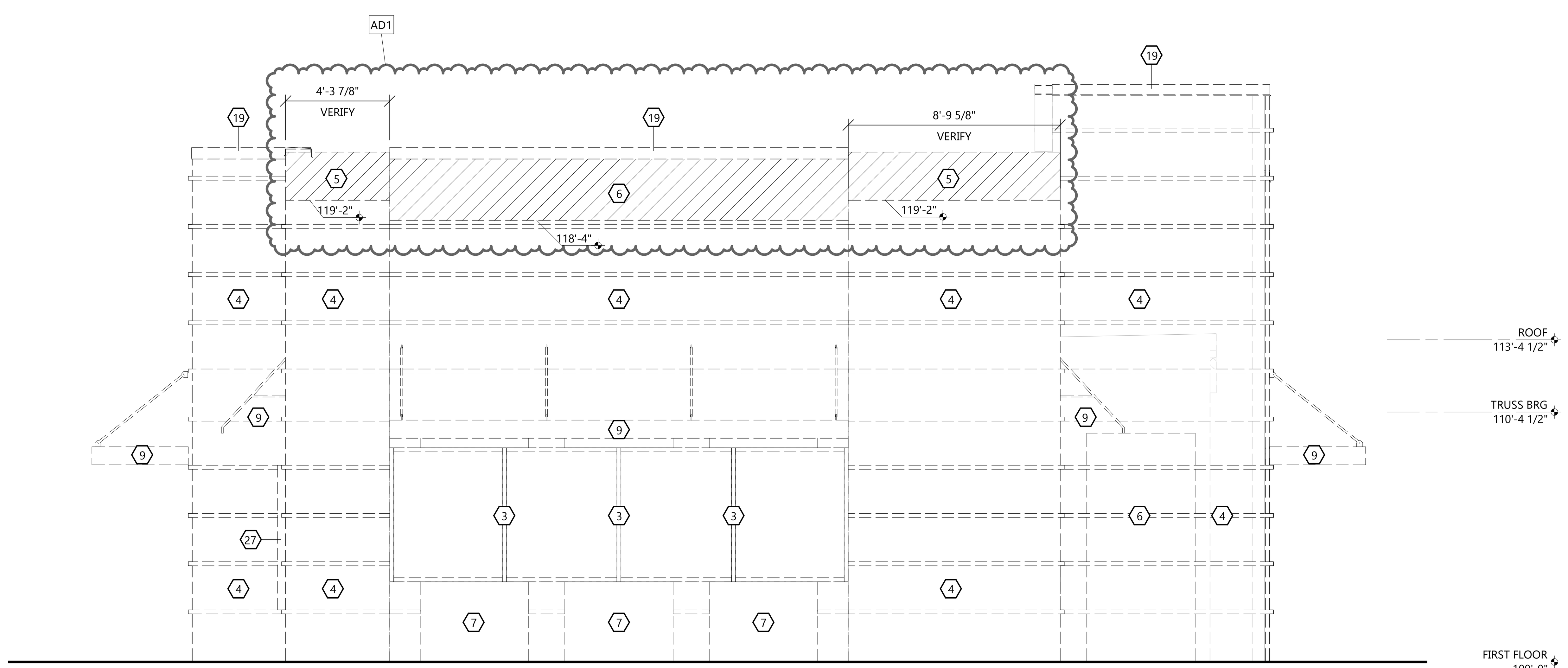


EAST ELEVATION

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



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6	REMOVE EXISTING WALL IN ITS ENTIRETY. PRIOR TO REMOVAL, DETERMINE IF WALL IS BEARING. IF BEARING, NOTIFY EXCEL ENGINEERING PRIOR TO REMOVAL.
7	REMOVE EXISTING WALL AS REQUIRED FOR NEW OPENING AND LINTEL. PROVIDE ALL SHORING AND BRACING AS REQUIRED TO SUPPORT EXISTING STRUCTURE UNTIL NEW STRUCTURAL SUPPORT IS INSTALLED. SEE STRUCTURAL PLAN FOR LINTEL REQUIREMENTS. PATCH FLOOR, WALL, AND CEILING AS REQUIRED TO MATCH ADJACENT SURFACES OR TO RECEIVE NEW FINISH AS SHOWN IN THE ROOM FINISH SCHEDULE.
8	REMOVE EXISTING COOLER IN ITS ENTIRETY INCLUDING WALLS, DOORS, FLOORS, CEILINGS AND ALL ASSOCIATED MECHANICAL EQUIPMENT INCLUDING ROOF TOP EQUIPMENT
9	REMOVE EXISTING ROOF CANOPY AND SUPPORTING STRUCTURE. PATCH EXISTING STUCCO AND PREP FOR NEW PAINT.
10	REMOVE EXISTING BATHROOM ACCESSORIES AND FINISHES
11	REMOVE EXISTING FURNITURE IN ITS ENTIRETY. PATCH AND REPLACE FLOOR/WALL AS REQUIRED.
12	REMOVE EXISTING SINK AND ALL ASSOCIATED CONTROLS.
13	REMOVE EXISTING CABINETRY AND COUNTERTOP IN THEIR ENTIRETY. PATCH FLOOR AND WALL AS REQUIRED TO MATCH ADJACENT SURFACES OR TO RECEIVE NEW FINISH AS SHOWN IN THE ROOM FINISH SCHEDULE.
14	REMOVE EXISTING CEILING TILE AND METAL GRID IN ITS ENTIRETY AND PREPARE AREA FOR NEW CEILING AS SHOWN IN THE ROOM FINISH SCHEDULE.
15	REMOVE EXISTING GYPSUM BOARD CEILING/SOFFIT IN ITS ENTIRETY AND PREPARE FOR NEW CEILING AS SHOWN IN THE ROOM FINISH SCHEDULE.
16	REMOVE EXISTING MISC KITCHEN EQUIPMENT. VERIFY EQUIPMENT TO REMAIN.
17	REMOVE EXISTING FLOOR FINISH IN ITS ENTIRETY DOWN TO BARE, CLEAN SUBSTRATE. PATCH AND REPAIR SUBSTRATE AS REQUIRED. SEE ROOM FINISH SCHEDULE FOR NEW FLOOR FINISHES.
18	REMOVE EXISTING CONCRETE FLOOR SLAB AS REQUIRED. VERIFY EXTENTS WITH PLUMBING AND ELECTRICAL CONTRACTORS.
19	REMOVE EXISTING WALL COPING. RELOCATE/REPLACE WITH NEW AS REQUIRED.
20	REMOVE MECHANICAL ROOF TOP EQUIPMENT. INFILL OPENING TO MATCH ADJACENT CONSTRUCTION. PATCH ROOF PER MEMBRANE MANUFACTURERS SPECS AND INSTRUCTIONS.
21	NOT USED
22	REMOVE EXISTING ROOF IN ITS ENTIRETY.
23	REMOVE EXISTING ROOF MEMBRANE DOWN TO INSULATION. INSPECT EXISTING INSULATION AND REPLACE WITH NEW INSULATION AS REQUIRED.
24	REMOVE EXISTING ROOF CRICKET IN ITS ENTIRETY. PREP FOR INSTALLATION OF NEW CRICKET.
25	REMOVE EXISTING BI-FUNCTIONAL ROOF DRAINS. REPLACE WITH NEW AS REQUIRED.
26	REMOVE EXISTING PLUMBING FIXTURES IN ITS ENTIRETY. VERITY WITH OWNER IF ANY IS TO BE SALVAGED.
27	REMOVE EXISTING EXTERIOR DECORATIVE BOARDS.

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HAWAIIAN BROS - STR: 43
1401 GRINDSTONE PKWY • COLUMBIA, MO

PROFESSIONAL SEAL

SHEET DATES

SHEET ISSUE OCT. 26, 2021

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AD1 MAR. 7, 2022

JOB NUMBER

2164120

SHEET NUMBER

AD2.0

ARCHITECTURAL EXTERIOR DEMOLITION ELEVATIONS

GENERAL NOTES

ALL DEMOLITION BY GENERAL CONTRACTOR UNLESS NOTED OTHERWISE.

GENERAL CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS. LOCATIONS OF WALLS, DOORS AND OTHER ITEMS HAVE BEEN FIELD MEASURED FOR GENERAL LAYOUT ONLY. REPORT ANY DISCREPANCIES TO EXCEL ENGINEERING FOR CLARIFICATION PRIOR TO THE START OF WORK.

WHERE REMOVAL OF PIPES, CONDUIT, DUCTWORK, ETC. HAS LEFT AN OPENING, FILL AND PATCH OPENING TO MATCH THE ADJACENT CONSTRUCTION AND FINISH AS REQUIRED.

PATCH ALL WORK AT REMOVAL AND NEW CONNECTION POINTS AS REQUIRED TO MATCH ADJACENT NEW OR EXISTING FINISHES.

BEFORE COMMENCING WITH DEMOLITION WORK, REVIEW WITH THE OWNER WHICH ITEMS ARE TO BE SALVAGED AND TURNED OVER TO THE OWNER, IN ADDITION TO THOSE LISTED ON THE PLAN. ANY ITEM NOT WANTED BY THE OWNER SHALL BE REMOVED FROM THE JOB SITE BY THE GENERAL CONTRACTOR AND DISPOSED OF IN THE PROPER AND LEGAL MANNER.

SEE MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS FOR DESCRIPTION OF REQUIRED ASSOCIATED DEMOLITION.

NOT ALL DEMOLITION KEYED NOTES WILL BE USED ON ALL SHEETS.

DEMOLITION KEYED NOTES

1. REMOVE EXISTING DOOR AND FRAME, INCLUDING ALL HARDWARE AND ACCESSORIES.
2. REMOVE EXISTING WINDOW IN ITS ENTIRETY, INCLUDING ALL SILLS AND ACCESSORIES. INFILL OPENING AS REQUIRED TO MATCH EXISTING WALL CONSTRUCTION AND ADJACENT SURFACES.
3. REMOVE WINDOW IN ITS ENTIRETY, INCLUDING ALL SILLS AND ACCESSORIES. PREP FOR INSTALLATION OF NEW WINDOW. SEE SHEET A6.0
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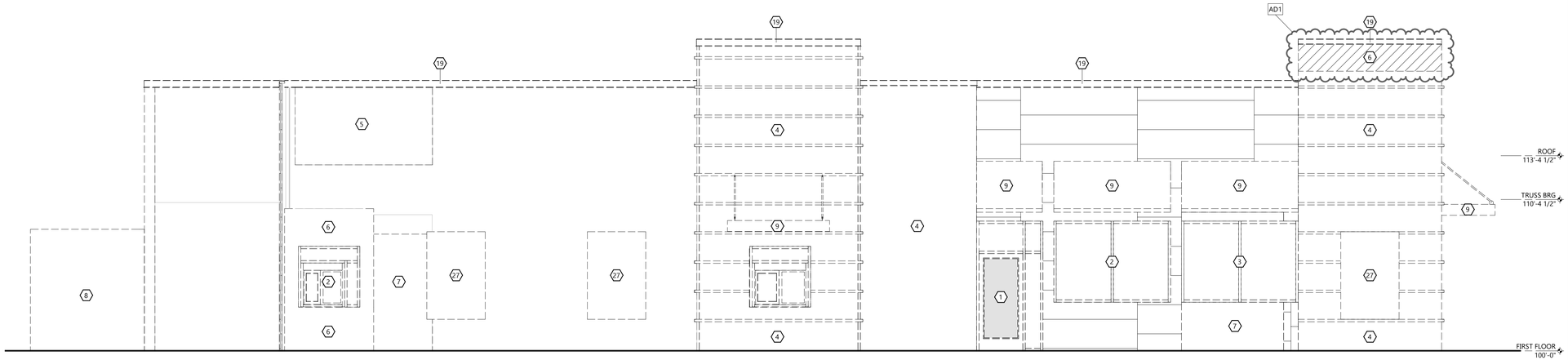
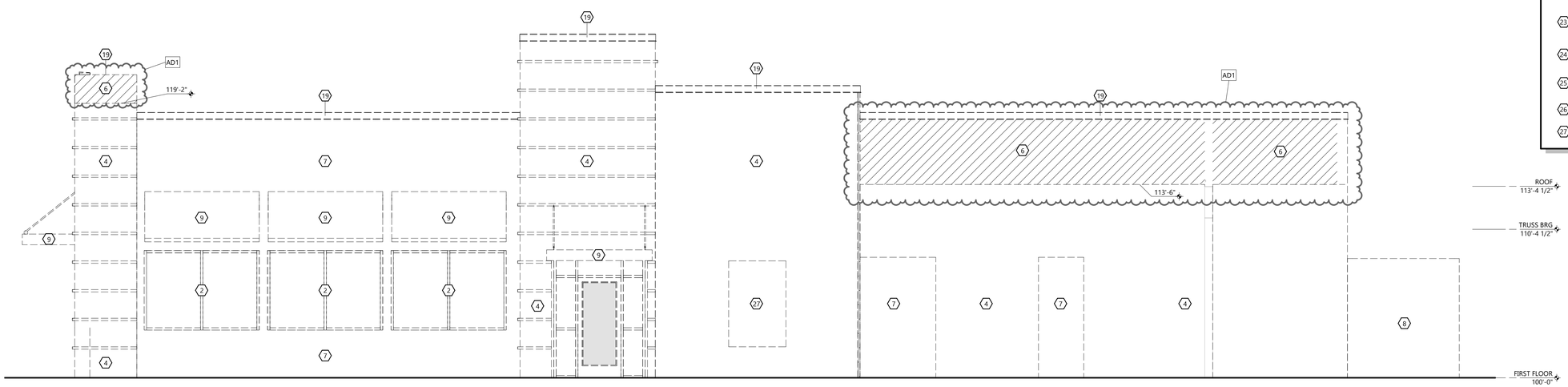


NORTH ELEVATION

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



SOUTH ELEVATION

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ARCHITECTURAL EXTERIOR DEMOLITION ELEVATIONS

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SHEET NUMBER

AD2.1

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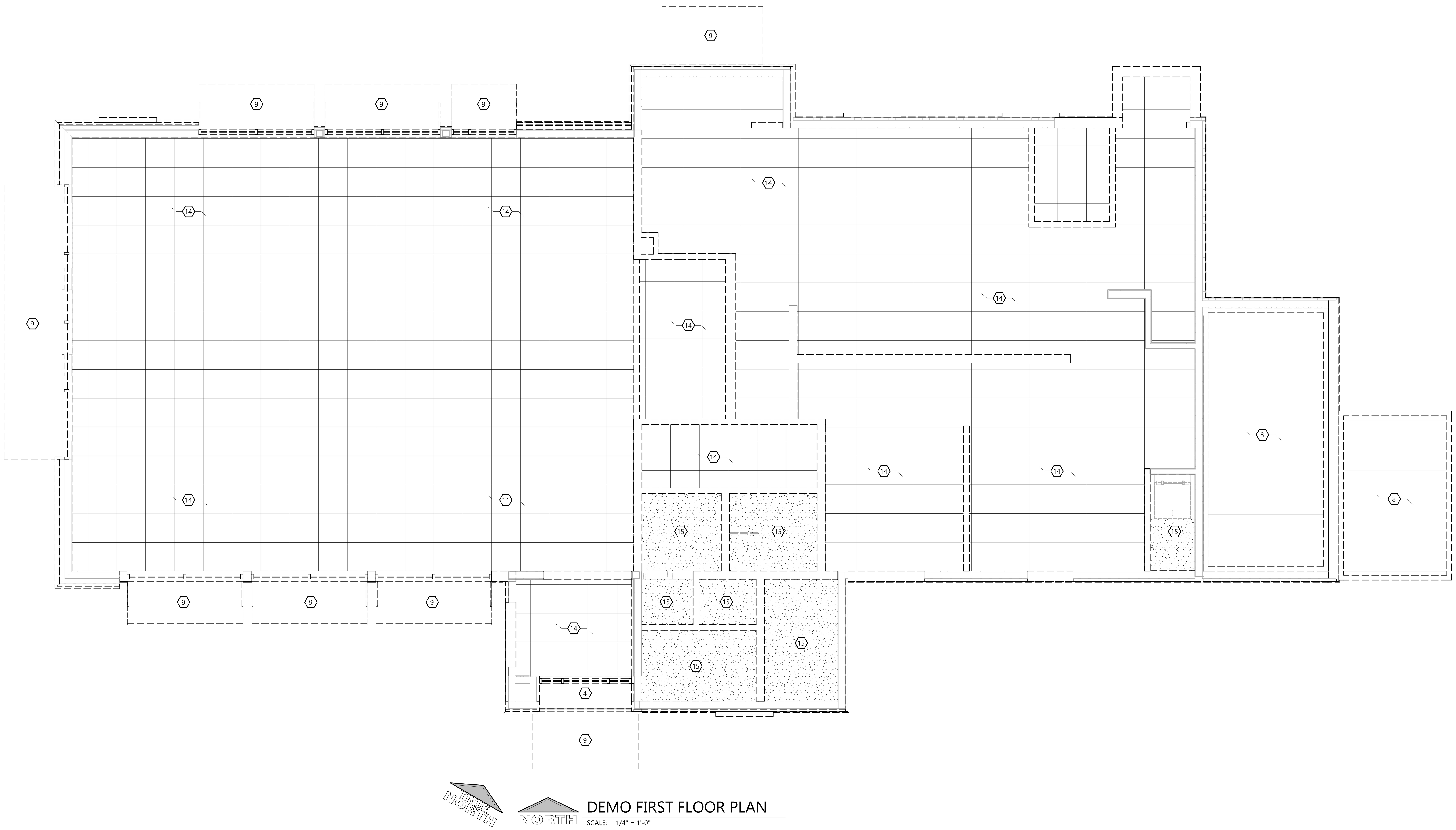

DEMO FIRST FLOOR PLAN

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

4' 0' 4' 8'

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PROJECT INFORMATION

PROPOSED BUILDING RENOVATION

HAWAIIAN BROS - STR: 43

1401 GRINDSTONE PKWY • COLUMBIA, MO

PROFESSIONAL SEAL

SHEET DATES

SHEET ISSUE OCT. 26, 2021

REVISIONS

JOB NUMBER

2164120

SHEET NUMBER

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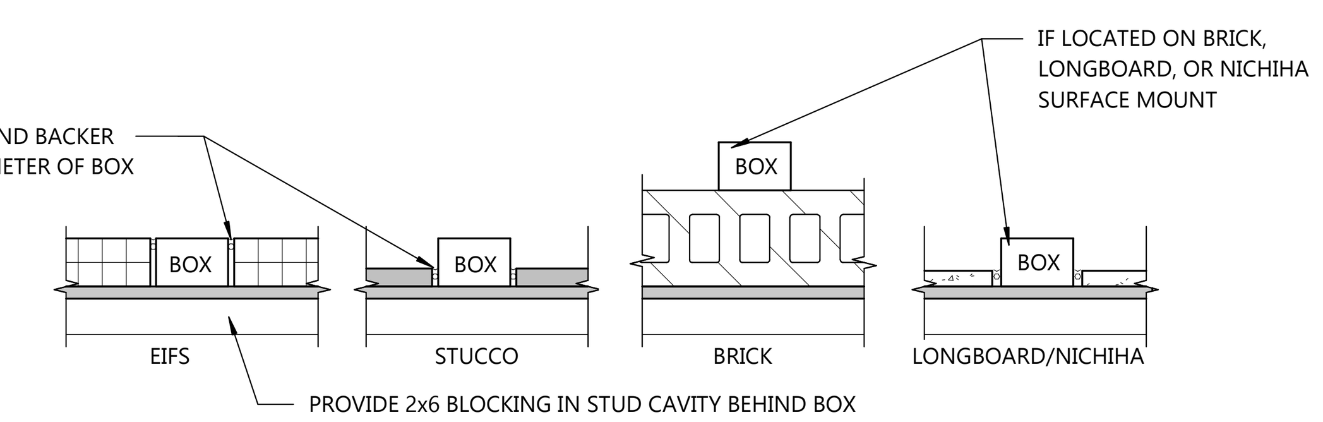
ARCHITECTURAL FIRST FLOOR REFLECTED CEILING DEMOLITION PLAN



G.C. TO PROVIDE AND INSTALL NU-SET KEY STORAGE BOX 2085-3 ON EXTERIOR OF BUILDING AT 48" MAX TOP OF BOX. PLACE AT RIGHT OR LEFT OF DOOR (PREFERRED LOCATION TO BE ON LATCH SIDE OF DOOR)

1 / A1.1 LOCKBOX MOUNTING

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

SALES & SERVICE COUNTERS

IN RETAIL STORES WHERE COUNTERS HAVE CASH REGISTERS AND ARE PROVIDED FOR SALES OR DISTRIBUTION OF GOODS OR SERVICES TO THE PUBLIC, AT LEAST ONE OF EACH TYPE SHALL HAVE A PORTION OF THE COUNTER WHICH IS AT LEAST 36" IN LENGTH WITH A MAXIMUM HEIGHT OF 36" ABOVE THE FINISH FLOOR. COUNTER SHALL BE ON AN ACCESSIBLE ROUTE COMPLYING WITH A.D.A. GUIDELINE 4.3.

FLOOR PLAN KEYNOTES

1. PROVIDE CARBON DIOXIDE METER ABOVE CO2 TANK. SEE DRAWINGS FROM KITCHEN SUPPLIER FOR FINAL CO2 LOCATION. PROVIDE HELGET GAS RAD-0102-06 REMOTE CO2 STORAGE SAFETY ALARM WITH LCD DISPLAY, AUDIBLE ALARM.
2. COOLER BY KITCHEN SUPPLIER. G.C. TO COORDINATE INSTALLATION AND ENCLOSURE TO ADJACENT WALLS.
3. EASI-WASH HOOK UP ON EXTERIOR WALL. PROVIDE CONTROL BOX (ON/WARM/SOAP), SS WALL PLATE, BALL VALVE AND QUICK DISCONNECT. COORDINATION WITH EASI-WASH SUPPLIER. CONTACT: dave@easiwash.com
4. G.C. TO PROVIDE AND MOUNT NU-SET KEY STORAGE BOX 2085-3 ON EXTERIOR OF BUILDING AT 48" MAX TOP OF BOX. PLACE AT RIGHT OR LEFT OF DOOR. (PREFERRED LOCATION ON LATCH SIDE OF DOOR. SEE DETAIL ON SHEET.
5. NEW FLOOR SLAB. SEE STRUCTURAL DRAWINGS FOR DETAILS
6. CONTRACTER TO INSPECT EXISTING ROOF LADDER AND HATCH. IF ROOF LADDER AND HATCH NEEDS TO BE REPLACED, CONTACT EXCEL ENGINEERING.
7. PROVIDE KNOX-BOX AT FRONT ENTRANCE PER FIRE DEPEPARMENT REQUIREMENTS. SEE DETAIL ON THIS SHEET. VERIFY LOCATION AND MOUNTING REQUIREMENTS WITH FIRE DEPARTMENT.

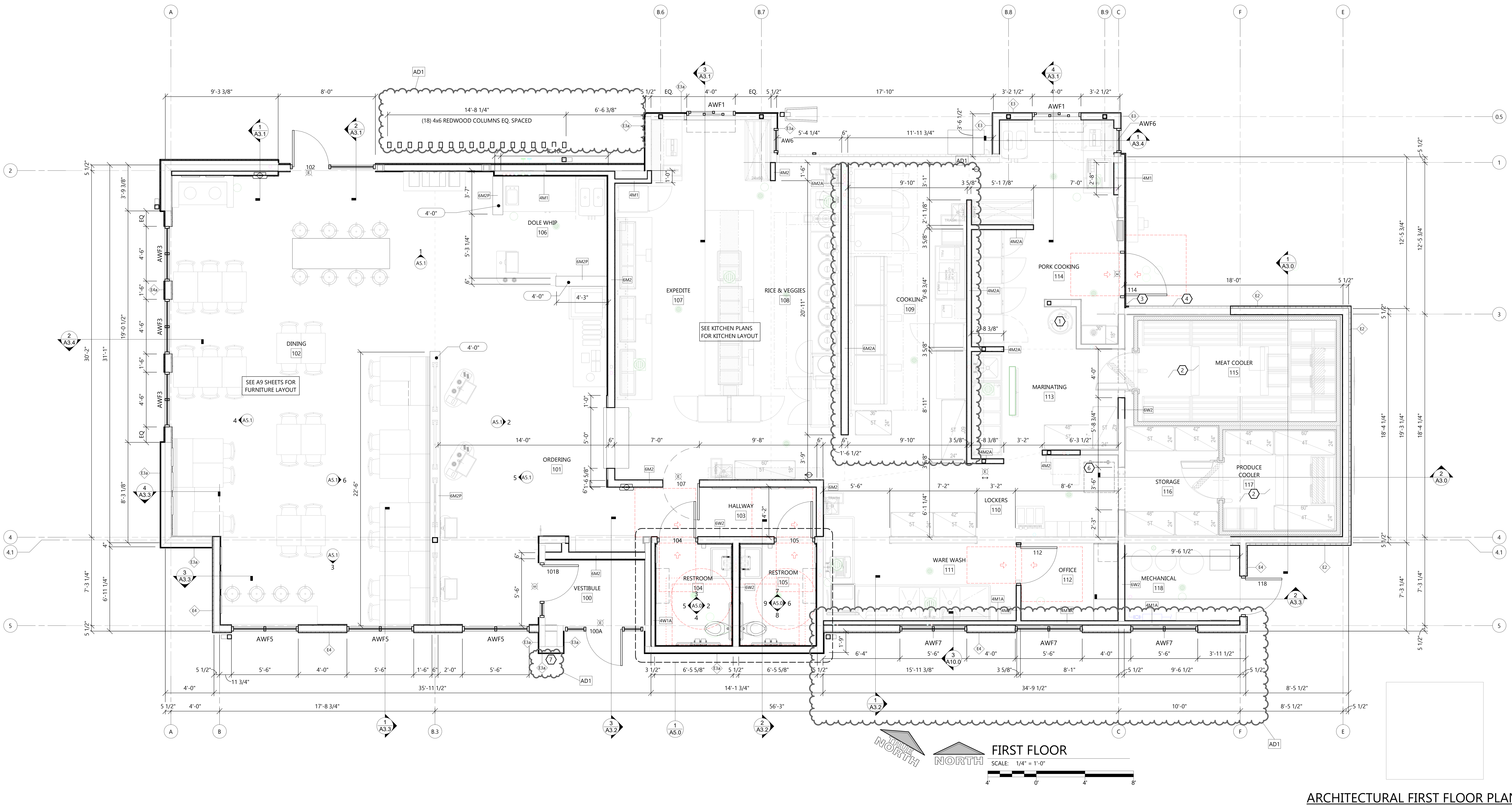
AD1

GENERAL NOTES

- ALL INTERIOR DIMS. ARE FROM FACE-OF-STUD TO FACE OF-STUD.
- PROVIDE SOUND BATT INSULATION AROUND PERIMETER OF TOILET ROOM AND KITCHEN WALLS.
- MISCELLANEOUS HARDWARE INCLUDED: HANDICAP HARDWARE.
- PROVIDE WOOD BLOCKING FOR ANY FURNISHINGS BY OWNER/FURNITURE SUPPLIER/KITCHEN SUPPLIER. (VERIFY LOCATIONS)
- ALL EXTERIOR WINDOWS TO HAVE ALUMINUM FLASHING RETURNS AT HEAD, JAMBS, AND SILL OF ALL WINDOWS.
- FOOD PREP AREA TO BE VERIFIED W/ OWNER. PROVIDE SHOP DRAWINGS ON EQUIPMENT.

SYMBOLS LEGEND

Symbol	Description
12B1	SEE SHEET A10.0 FOR INT. WALL TYPES
E1a	SEE SHEET A2.0 FOR EXT. WALL TYPES
E	EXIT SIGNAGE
	FIRE EXTINGUISHER -SEE T1.1 SHEET
	EXISTING WALL TO REMAIN
	EXISTING WALL TO BE DEMOLISHED
	STUD WALL
	SEE PLAN FOR ALL WALL WIDTHS
	EXISTING DOOR TO REMAIN
	EXISTING DOOR TO BE DEMOLISHED
	NEW DOOR



FIRST FLOOR

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

ARCHITECTURAL FIRST FLOOR PLAN

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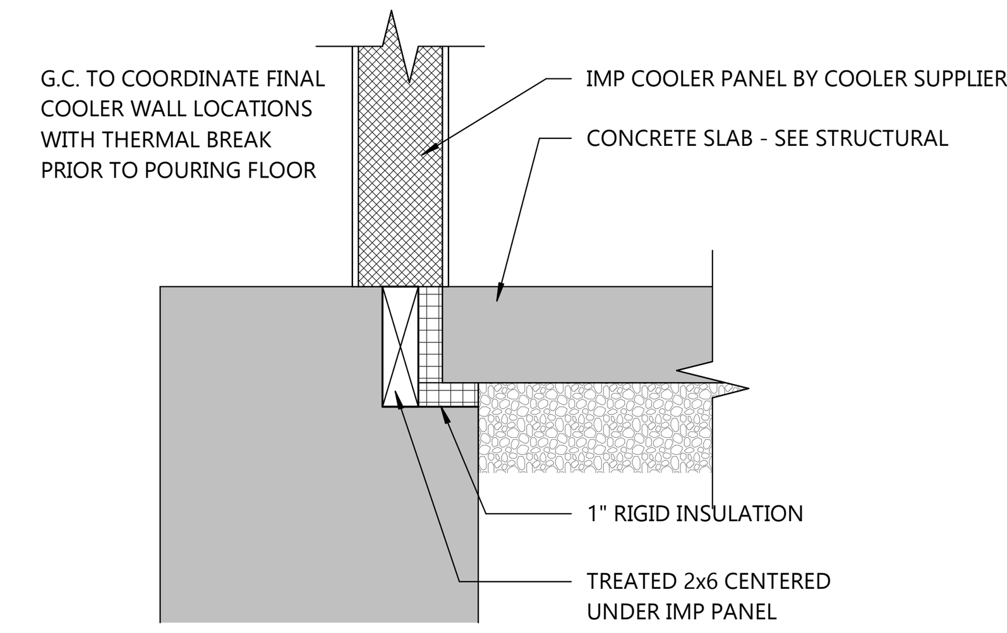
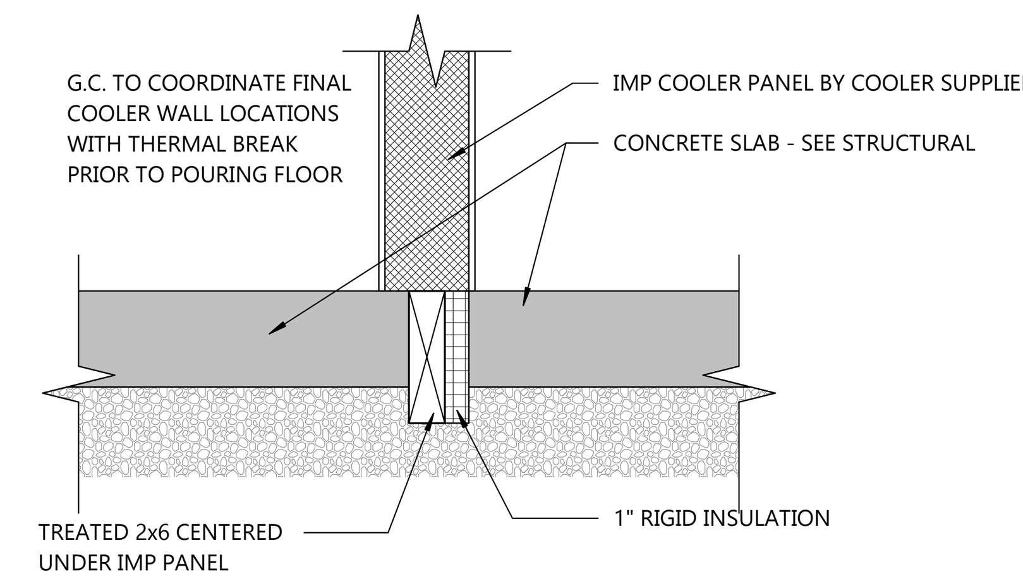


2 A1.1S THERMAL BREAK
SCALE: 1 1/2" = 1'-0"



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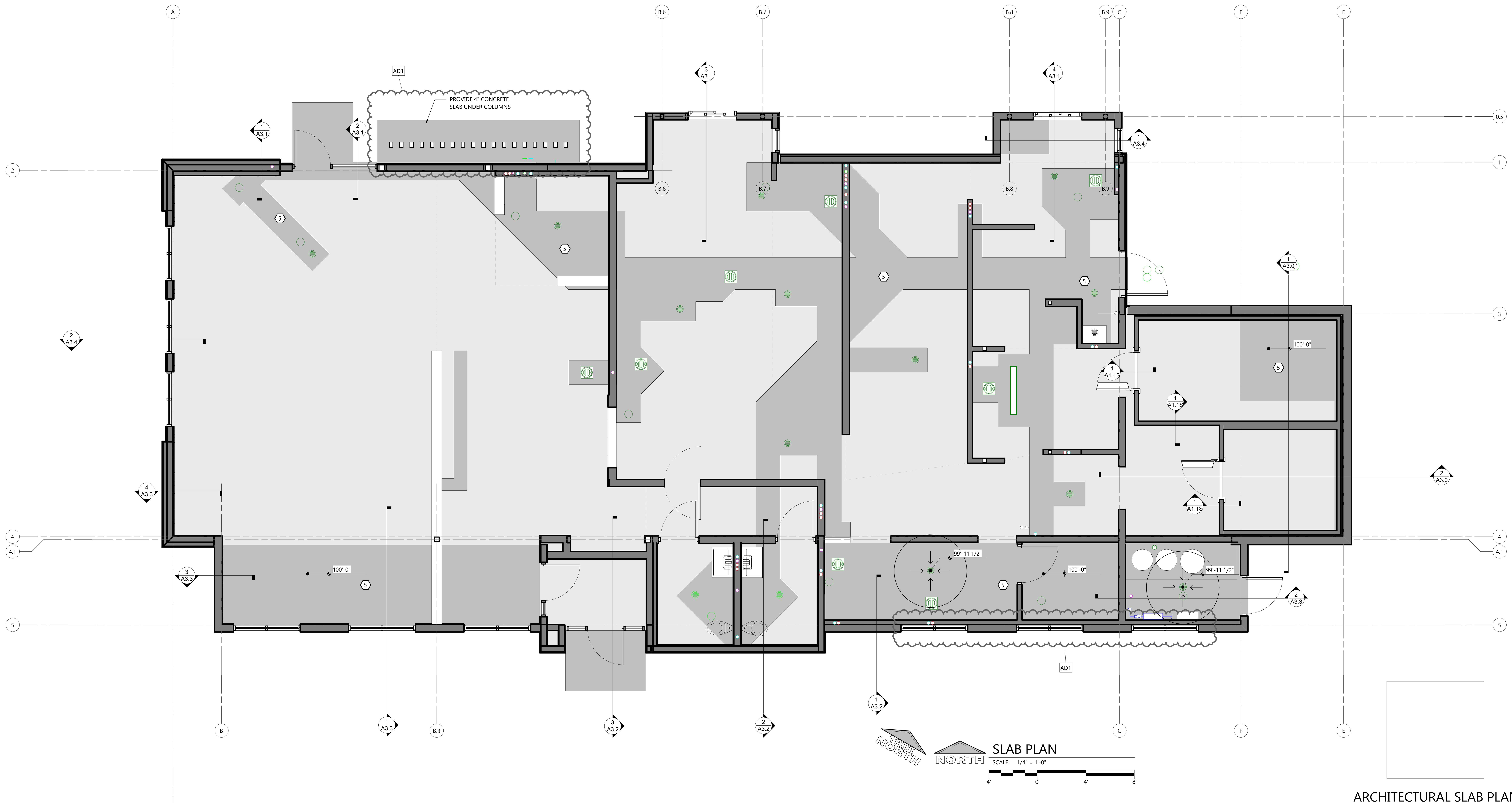
SCALE: 1 1/2" = 1'-0"

SYMBOLS LEGEND

XXX'-X" SLAB ELEVATION

XXX'-X" DRAIN LOCATION AND ELEVATION



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

ARCHITECTURAL SLAB PLAN

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ADHERED ROOFING MEMBRANE SPEC.:

NOTE:
THIS IS TYPICAL ROOF CONSTRUCTIONS SPEC. NEW ROOF CONSTRUCTION TO MATCH EXISTING WHEN NEW ROOF TIES INTO EXISTING ROOF.

PRODUCT: FIRESTONE RUBBERGARD EPDM FULLY ADHERED ROOFING SYSTEM OR CARLISE SURE-SEAL DESIGN 'A' EPDM FULLY ADHERED ROOFING SYSTEM

MATERIALS:60 MIL. FLEXIBLE SHEET EPDM COMPLYING W/ ASTM D4637, TYPE I

*ACCEPTED ALTERNATE ROOF - 60 MIL. TPO

POLYISOCYANURATE BOARD INSULATION COMPLYING W/ ASTM C 1289, TYPE II, FELT OF GLASS FIBER, MAT FACER ON BOTH MAJOR SURFACES

GENERAL: EXTERIOR FIRE TEST EXPOSURE CLASS A; ASTM108 FOR APPLICATION AND SLOPES INDICATED.

WARRANTY: 10 YEAR TOTAL SYSTEM, NO DOLLAR LIMIT, MANUF. WARRANTY W/ FULL ROOF REPLACEMENT AND LABOR

INSTALL ROOFING OVER 1/2" PROTECTION BOARD(IF REQ'D BY ROOF MANUFACTURER) OVER MIN. LAYER(S) OF RIGID POLYISOCYANURATE INSULATION (**R = 25 TOTAL, MINIMUM**) OVER ROOF DECKING. PROVIDE TAPERED RIGID INSULATION OF TYPES SUITABLE FOR THE APPLICATION AS REQUIRED AND AS SHOWN ON ROOF PLAN (HATCHED AREAS). SEE GENERAL ROOFING NOTES.

ROOF PAVERS:

- PROVIDE WALK PAD LAYOUT FROM ROOF ACCESS TO ALL MECHANICAL UNITS. ROOFING CONTRACTOR TO COORDINATE WITH HVAC CONTRACTOR FOR UNIT MAINTENANCE SIDE/ACCESS REQUIREMENTS. SUBMIT PAD LAYOUT AS SHOP DWG. FOR ARCHITECT REVIEW PRIOR TO INSTALL.
- PROVIDE SLIP RESISTANT 24"x24" CONTINUOUS RUBBER WALK PADS TO ALL MECHANICAL EQUIPMENT AND VALVE STATIONS. INSTALL PER STANDARD MANUFACTURER DETAILS AND SPECS. PATH TO BE VERIFIED. PROVIDE COST PER LINEAL FOOT.

EXISTING INSULATION:

G.C. TO INSPECT EXISTING INSULATION UNDER ROOF MEMBRANE TO BE REMOVED. REMOVE AND REPLACE EXISTING DAMAGED INSULATION AS REQUIRED.

KEYNOTES:

1. CURB MOUNTED MECHANICAL EQUIPMENT. SEE "ROOF CURB DETAIL"
2. NOT USED.
3. INSTALL NEW CRICKET AT HIGH SIDE OF NEW EQUIPMENT. TIE INTO EXISTING ROOF PER ROOF MANUFACTURERS SPECS AND INSTRUCTIONS TO MAINTAIN ROOF WARRANTY.
4. NEW WINDOW/DOOR CANOPY. SEE ELEVATIONS AND DETAILS FOR ADDITIONAL INFORMATION.
5. NOT USED.
6. CONTRACTER TO INSPECT EXISTING ROOF LADDER AND HATCH. IF ROOF LADDER AND HATCH NEEDS TO BE REPLACED, CONTACT EXCEL ENGINEERING.

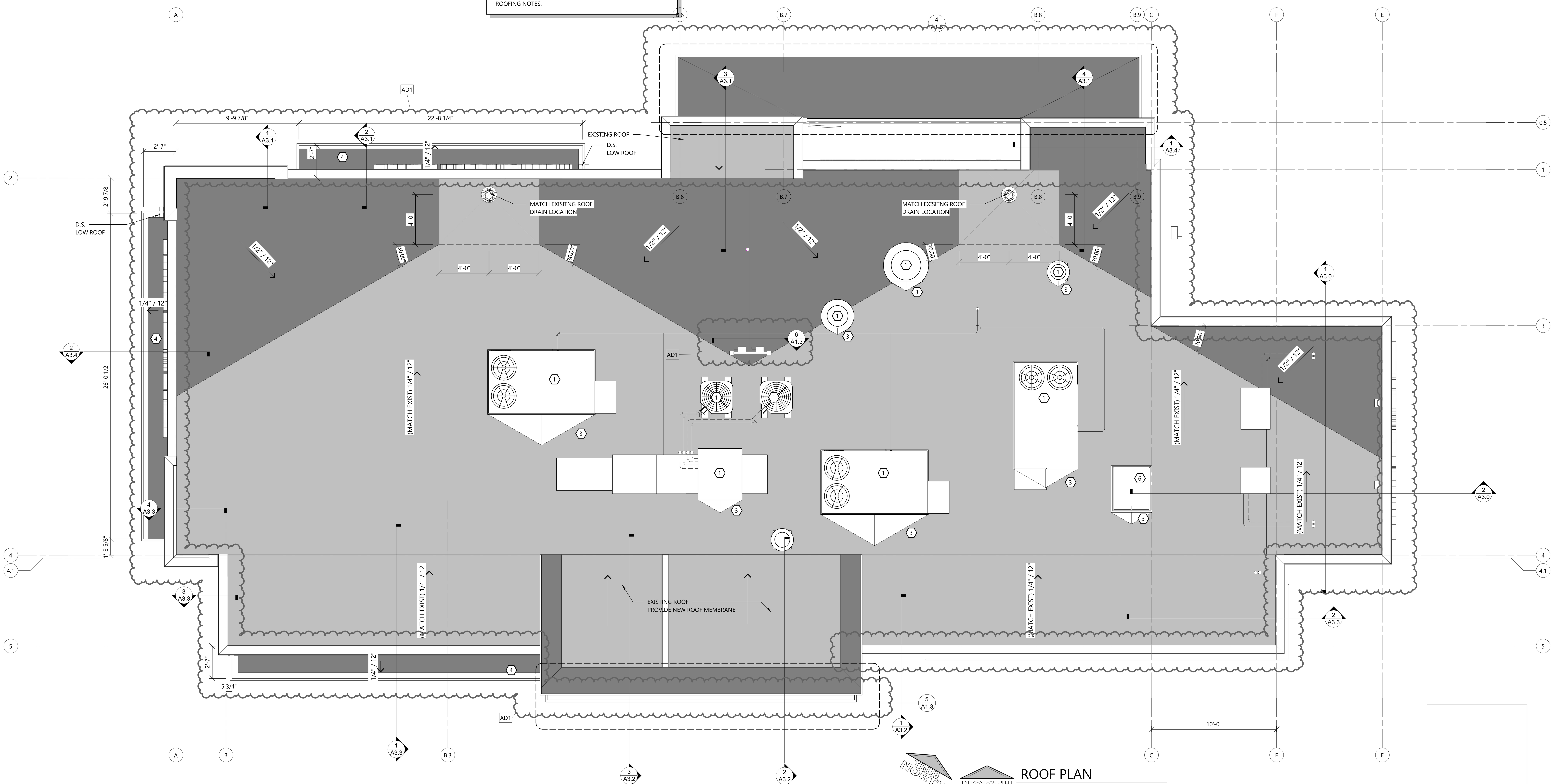
AD1

GENERAL ROOF NOTES:

- ROOFING CONTRACTOR SHALL PROVIDE MEMBRANE FORM FLASHING FOR ALL ROOF PENETRATIONS PER ROOF MEMBRANE MANUFACTURER'S REQUIREMENTS.
- SEE MECHANICAL DRAWINGS FOR LOCATION AND SIZE OF ALL ROOF PENETRATIONS AND CURBS REQUIRED FOR MECHANICAL EQUIPMENT.
- PIPE STANDS NOT INSTALLED ON CURBS SHALL BE INSTALLED ON SLEEPERS OR CONCRETE PADS 6" LARGER THAN EQUIPMENT.
- PROVIDE SINGLE PLY ROOFING MEMBRANE NOT ADHERED TO ROOF UNDER ALL FREE STANDING PIPE AND EQUIPMENT STANDS 6" LARGER THAN STANDS.
- PROVIDE ROOF PATCH AT ALL REMOVED EQUIPMENT/STRUCTURES. PATCH PER MANUFACTURERS SPECS/INSTRUCTIONS TO MAINTAIN ROOF WARRANTY.

ROOF LEGEND

RD	ROOF DRAIN
OFD	OVERFLOW DRAIN
D.S.	DOWN SPOUT
BRD	BI-FUNCTIONAL ROOF DRAIN
→	ROOF SLOPE DIRECTION
(light hatch)	ROOF STRUCTURE IS PITCHED TO ACHIEVE SLOPE
(dark hatch)	TAPERED INSULATION AT MIN. 1/4" PER FOOT SLOPE UNLESS INDICATED OTHERWISE
△	CRICKET ON HIGH SIDE OF ROOF EQUIPMENT



ROOF PLAN

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

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PROJECT INFORMATION

PROPOSED BUILDING RENOVATION
HAWAIIAN BROS - STR: 43
1401 GRINDSTONE PKWY ● COLUMBIA, MO

PROFESSIONAL SEAL

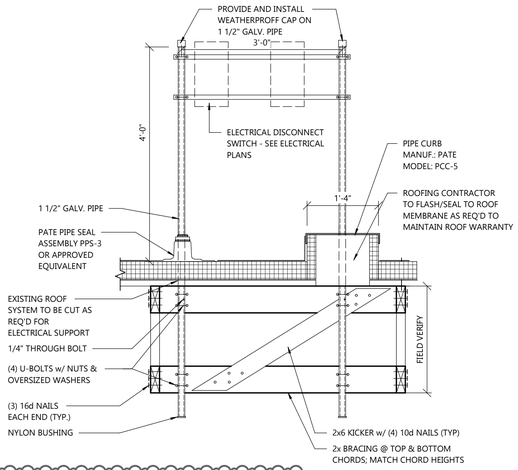
SHEET DATES

SHEET ISSUE	OCT. 26, 2021
REVISIONS	
AD1	MAR. 7, 2022

JOB NUMBER
2164120

SHEET NUMBER
A1.2

ARCHITECTURAL ROOF PLAN



6 A1.3 ELECTRICAL SUPPORT DETAIL
SCALE: 3/4" = 1'-0"
AD1

ADHERED ROOFING MEMBRANE SPEC.:

NOTE:
THIS IS TYPICAL ROOF CONSTRUCTIONS SPEC. NEW ROOF CONSTRUCTION TO MATCH EXISTING WHEN NEW ROOF TIES INTO EXISTING ROOF.

PRODUCT: FIRESTONE RUBBERGARD EPDM FULLY ADHERED ROOFING SYSTEM OR CARLISE SURE-SEAL DESIGN 'A' EPDM FULLY ADHERED ROOFING SYSTEM

MATERIALS:60 MIL. FLEXIBLE SHEET EPDM COMPLYING W/ ASTM D4637, TYPE I

*ACCEPTED ALTERNATE ROOF - 60 MIL. TPO

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AD1

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ROOF LEGEND

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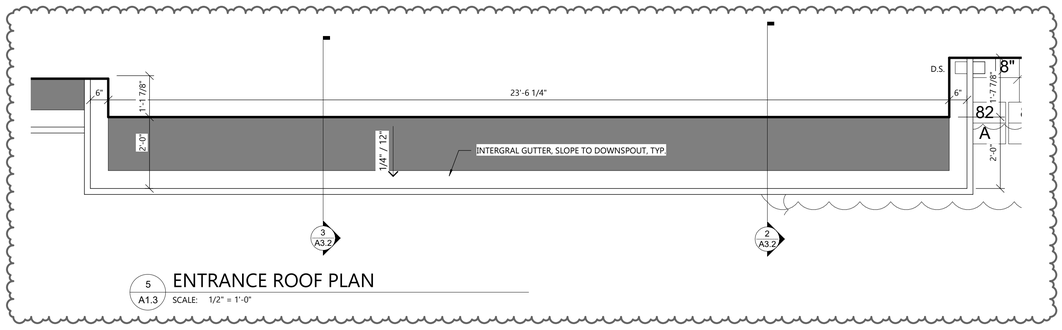
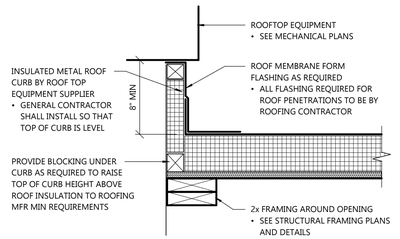
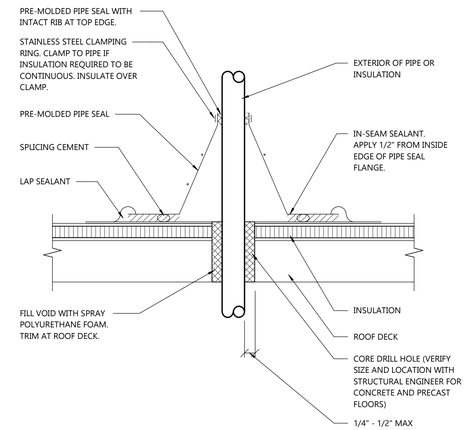
OFD	OVERFLOW DRAIN
D.S.	DOWN SPOUT
BRD	BI-FUNCTIONAL ROOF DRAIN
→	ROOF SLOPE DIRECTION
	ROOF STRUCTURE IS PITCHED TO ACHIEVE SLOPE
	TAPERED INSULATION AT MIN. 1/4" PER FOOT SLOPE UNLESS INDICATED OTHERWISE
	CRICKET ON HIGH SIDE OF ROOF EQUIPMENT



5 A1.3 ENTRANCE ROOF PLAN
SCALE: 1/2" = 1'-0"



2 A1.3 ROOF TOP EQUIPMENT CURB DETAIL
SCALE: 1 1/2" = 1'-0"



1 A1.3 ROOF PIPE PENETRATION DETAIL
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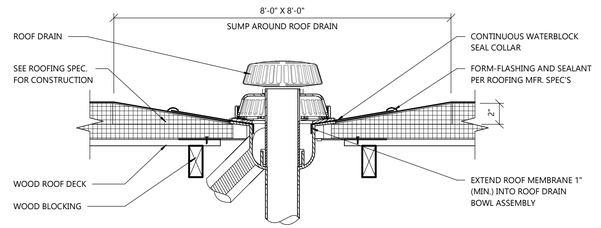
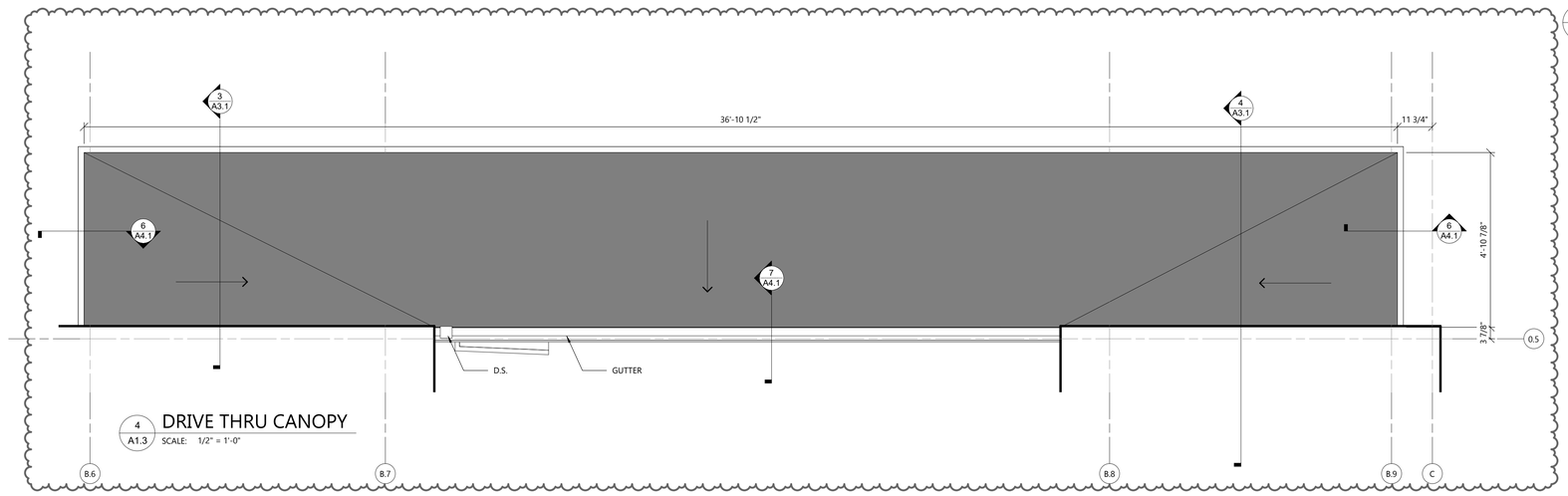


3 A1.3 BI-FUNCTIONAL ROOF DRAIN - WOOD DECK
SCALE: 1 1/2" = 1'-0"



4 A1.3 DRIVE THRU CANOPY
SCALE: 1/2" = 1'-0"

ARCHITECTURAL ENLARGED ROOF PLANS

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SHEET ISSUE OCT. 26, 2021
REVISIONS
AD1 MAR. 7, 2022

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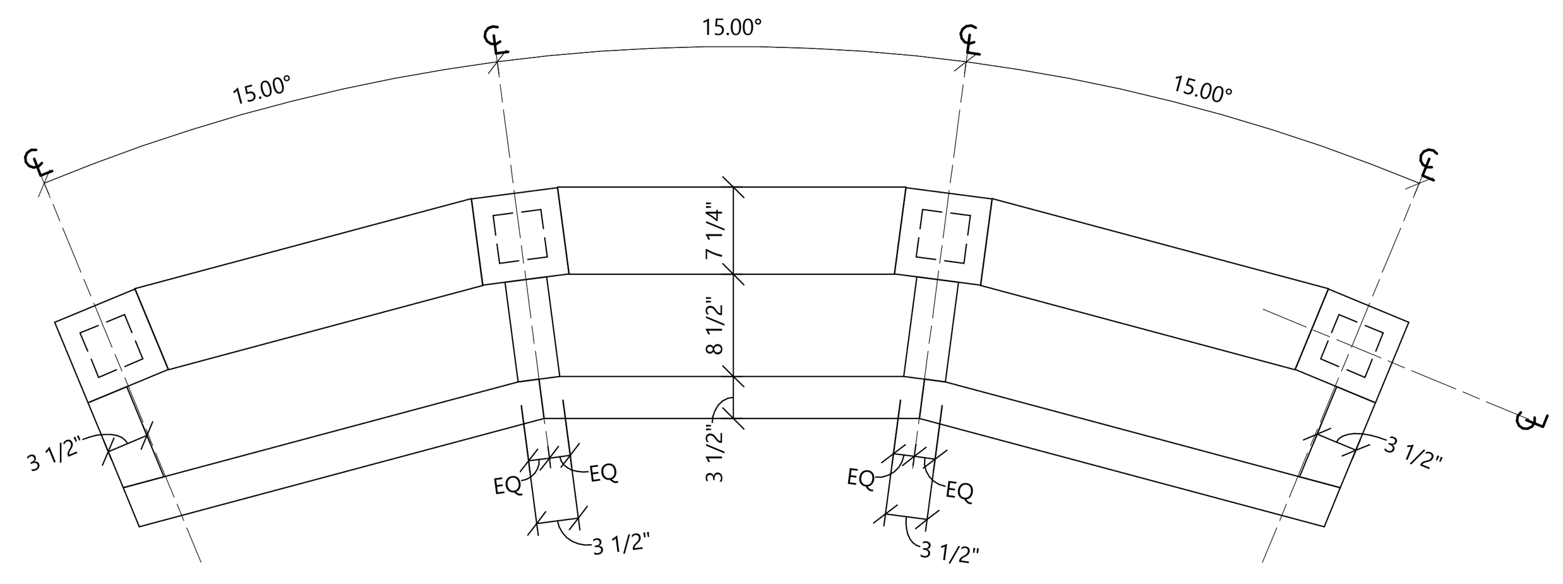
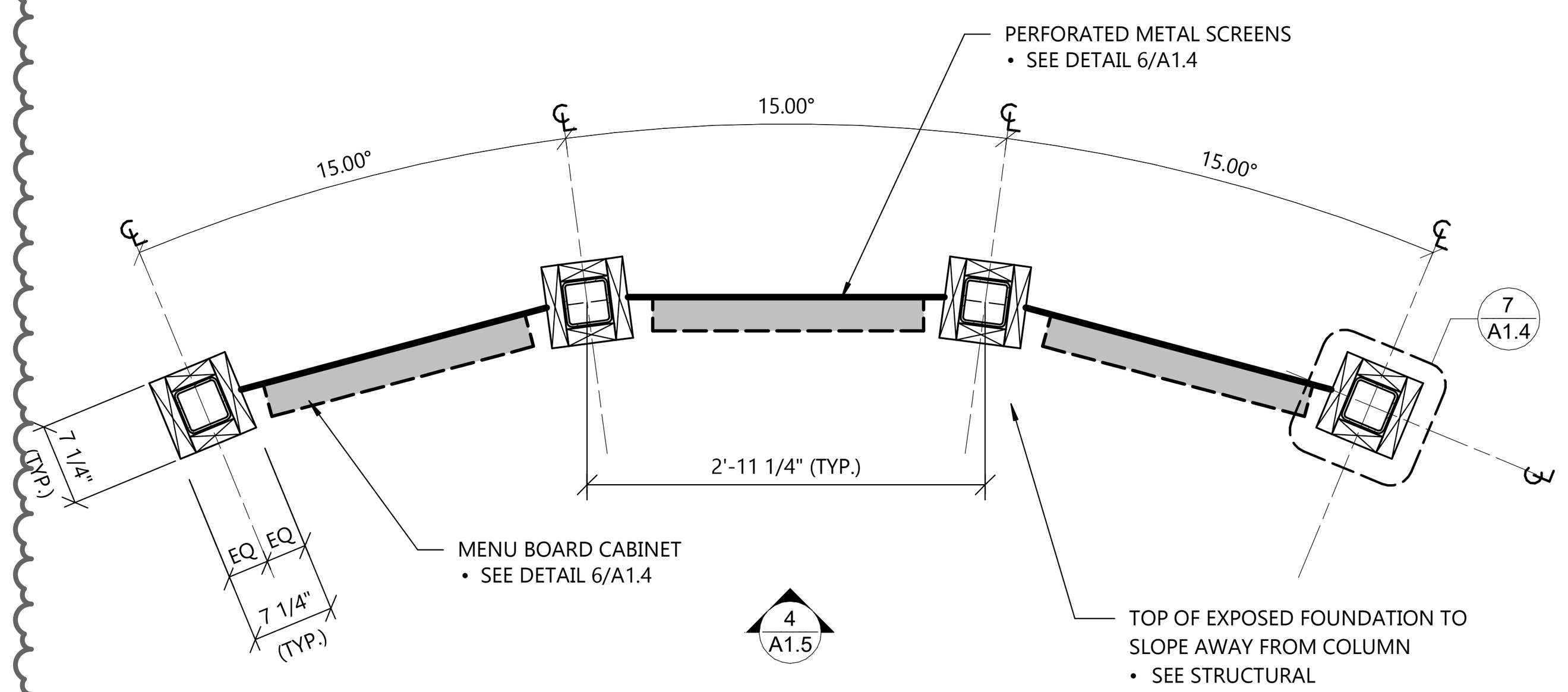
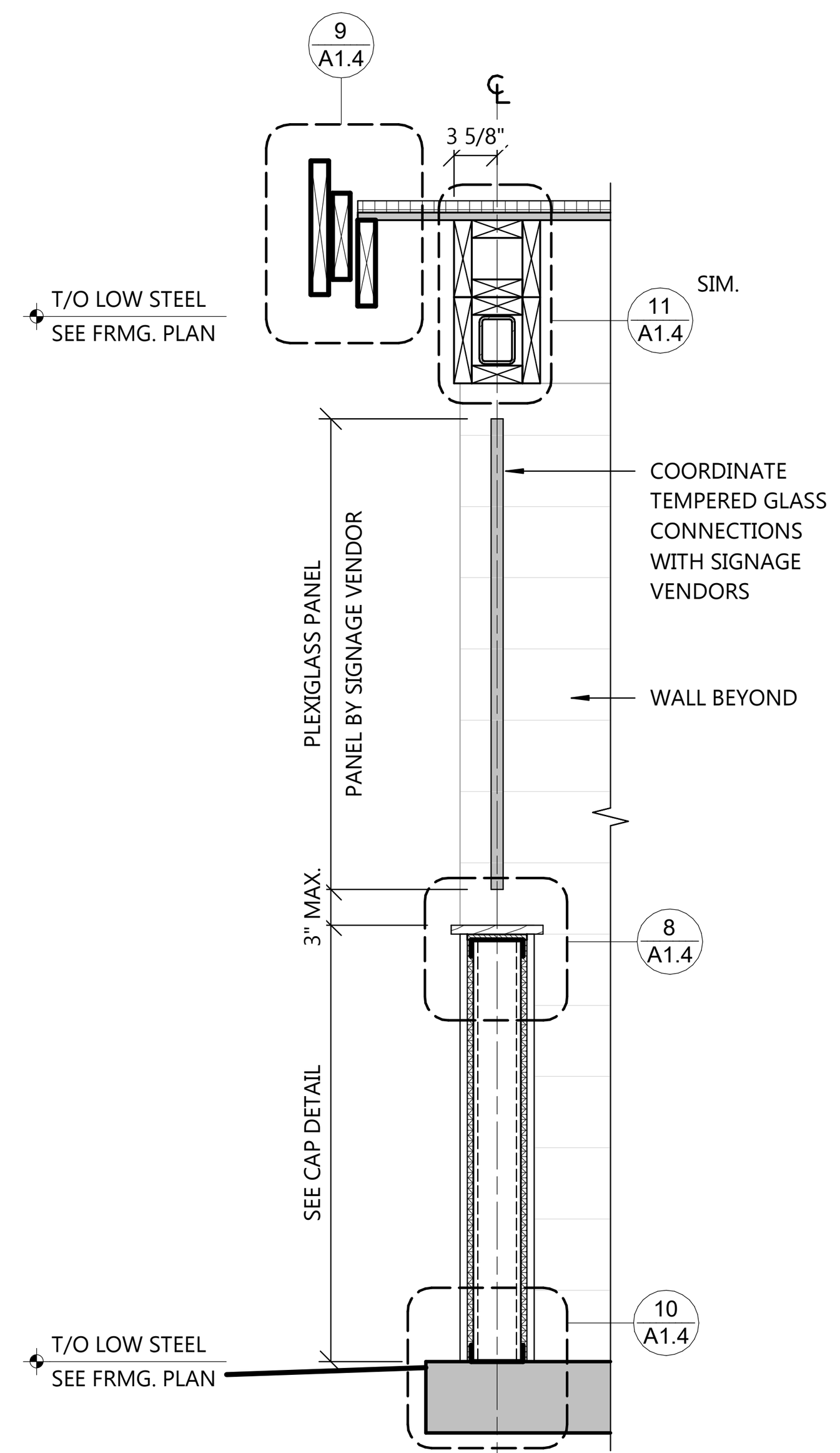
SHEET NUMBER
A1.3



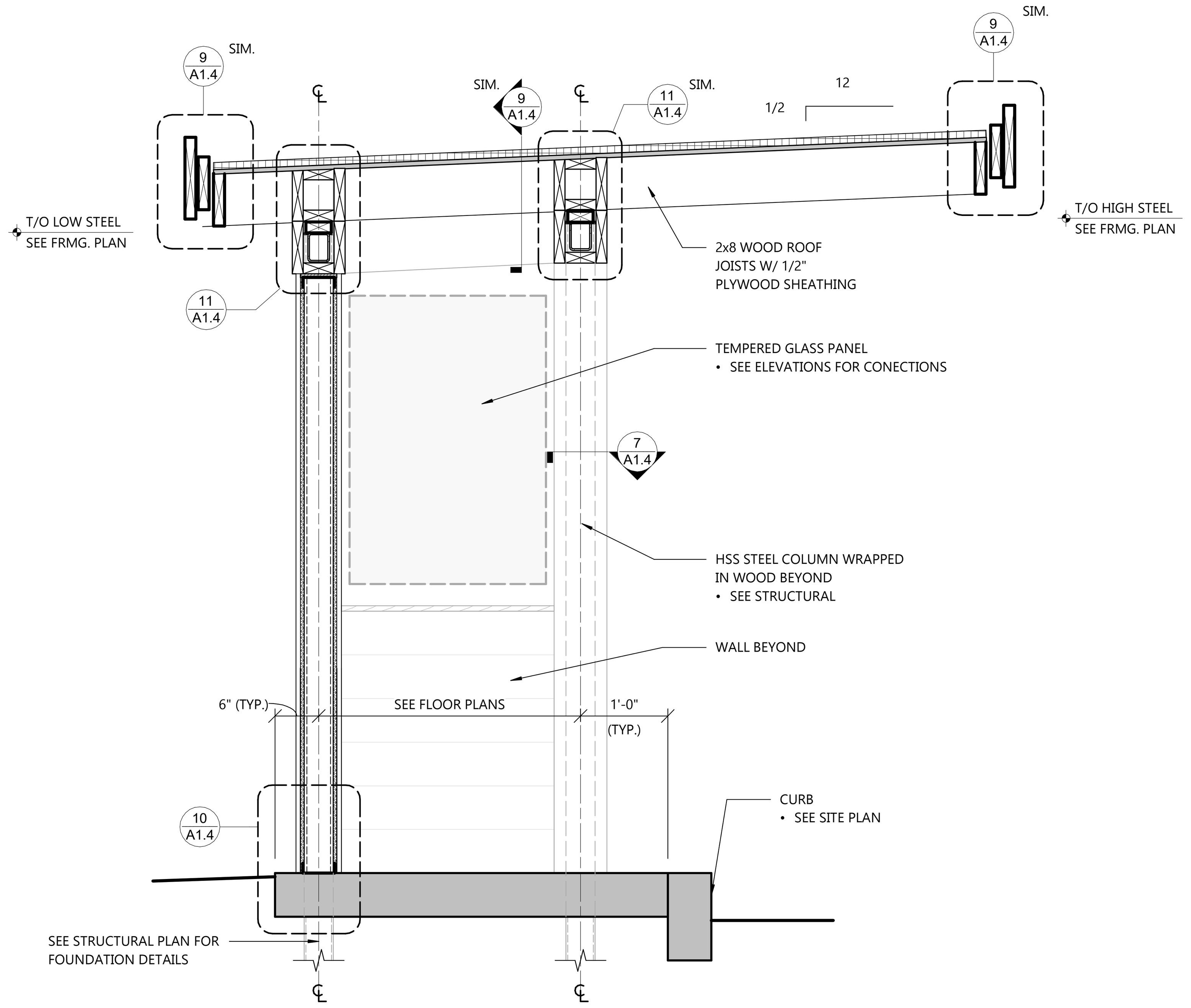
4 A1.4 MENU BOARD CANOPY
SCALE: 3/4" = 1'-0"



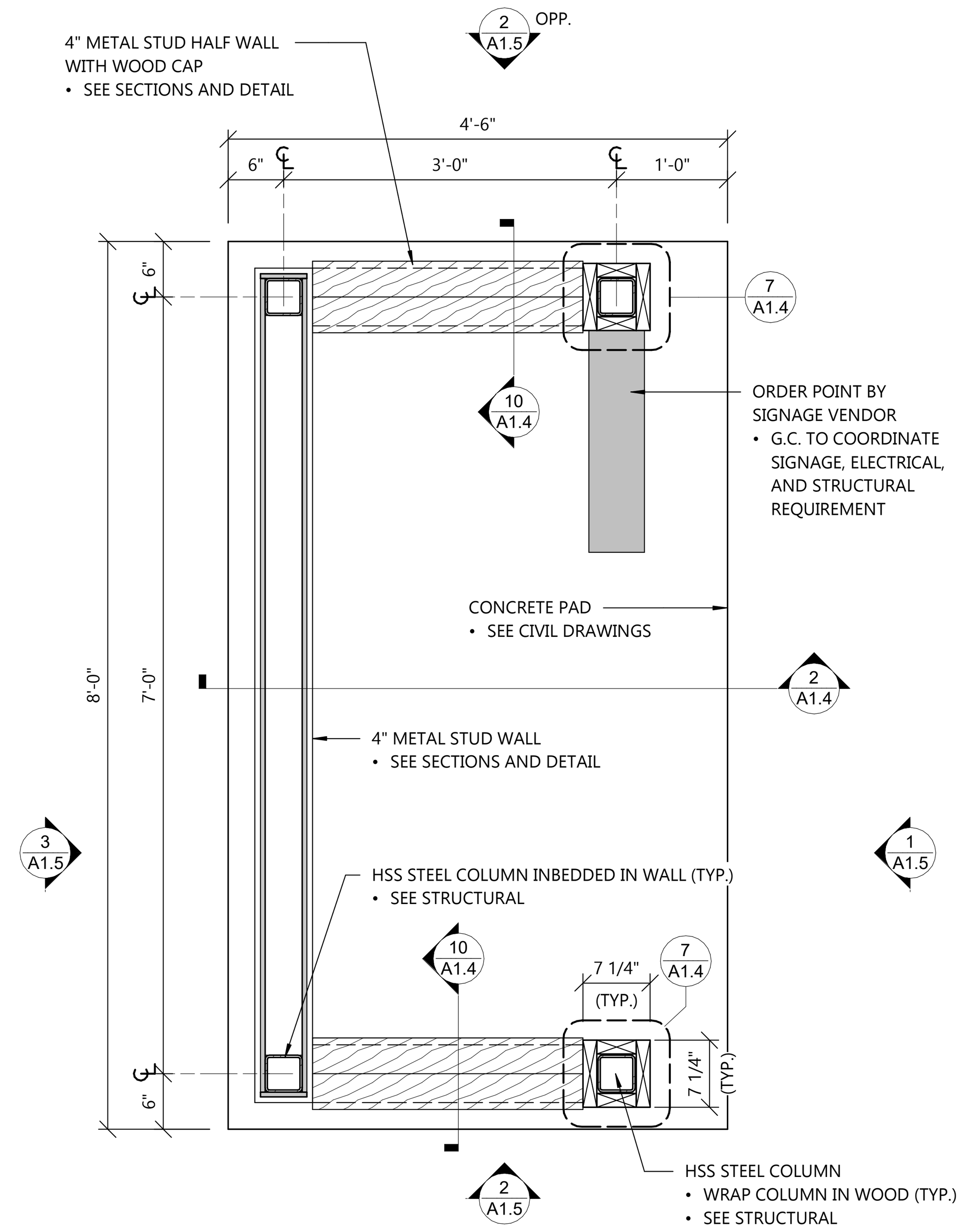
5 A1.4 MENU BOARD
SCALE: 3/4" = 1'-0"



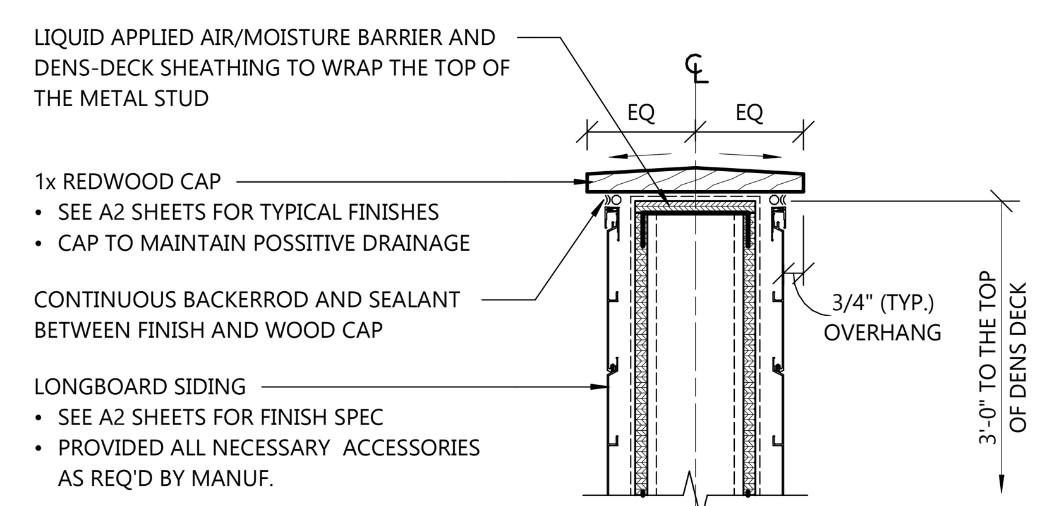
3 A1.4 ORDER CANOPY SECTION
SCALE: 3/4" = 1'-0"



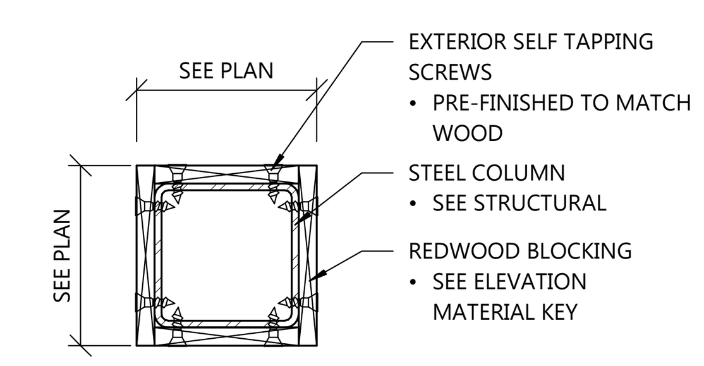
2 A1.4 ORDER CANOPY SECTION
SCALE: 3/4" = 1'-0"



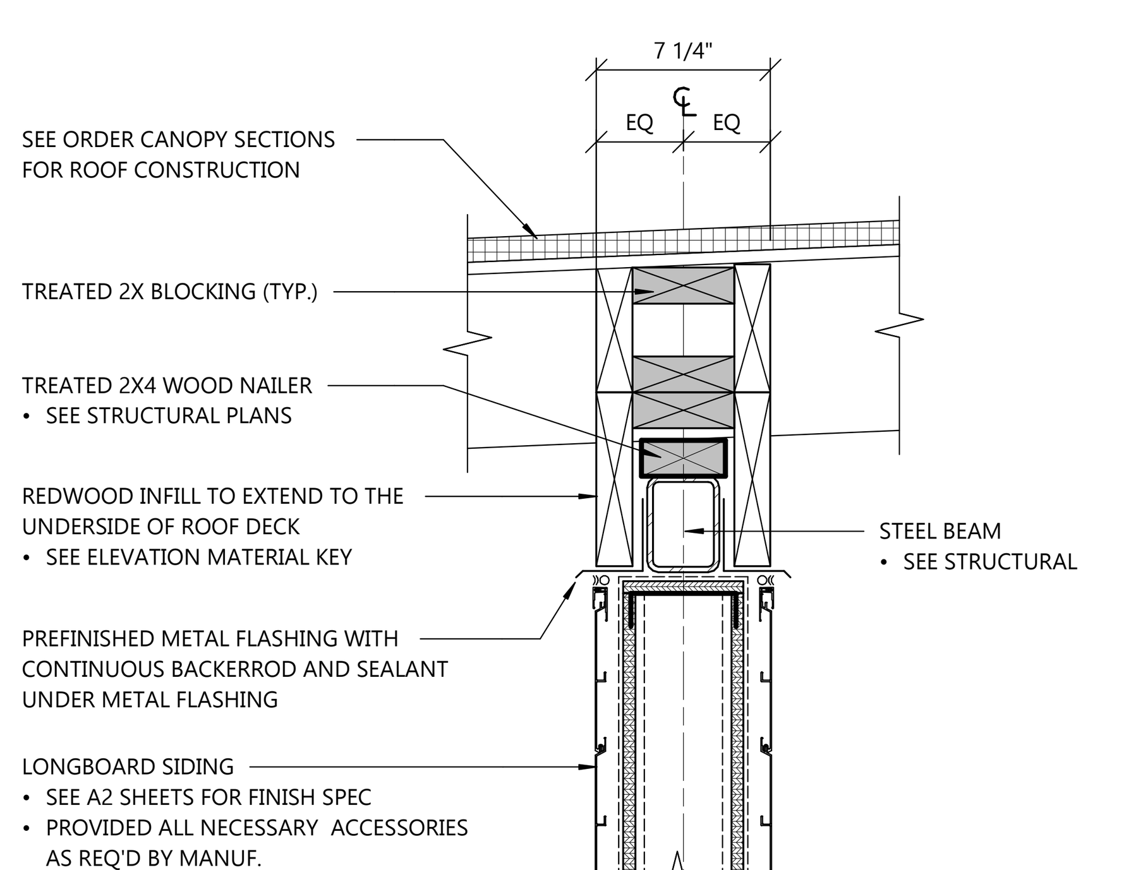
1 A1.4 ORDER CANOPY
SCALE: 3/4" = 1'-0"



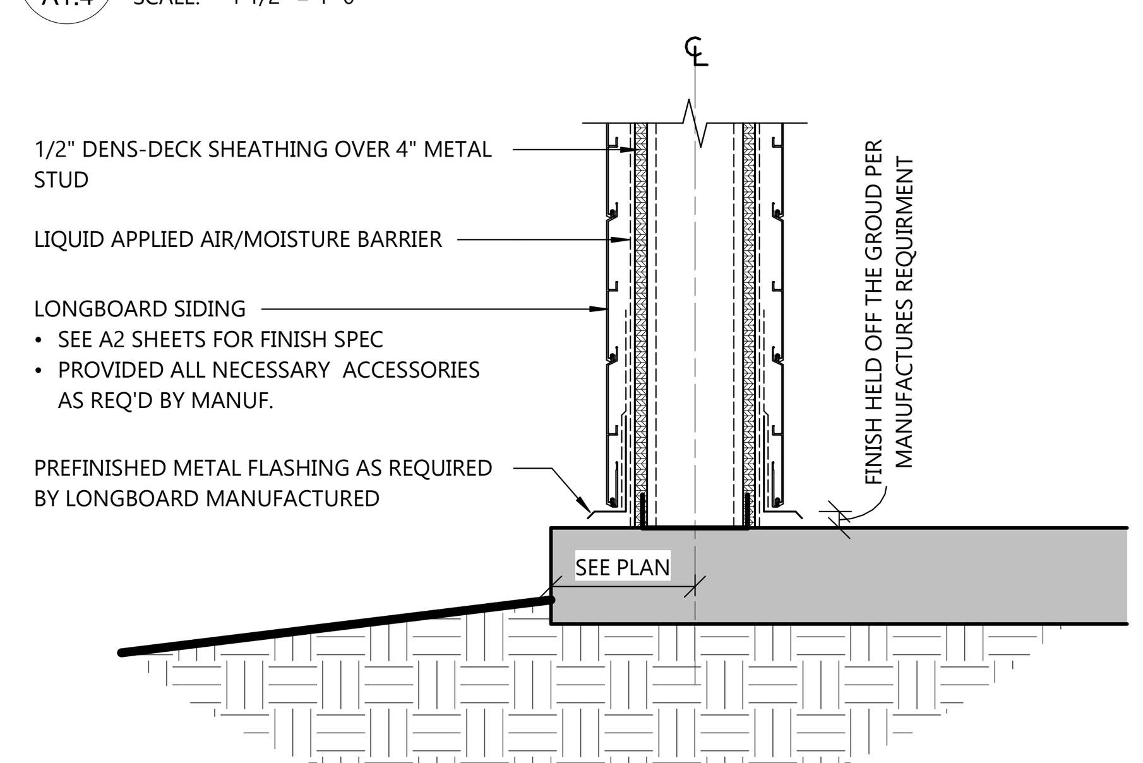
8 A1.4 CAP DETAIL
SCALE: 1 1/2" = 1'-0"



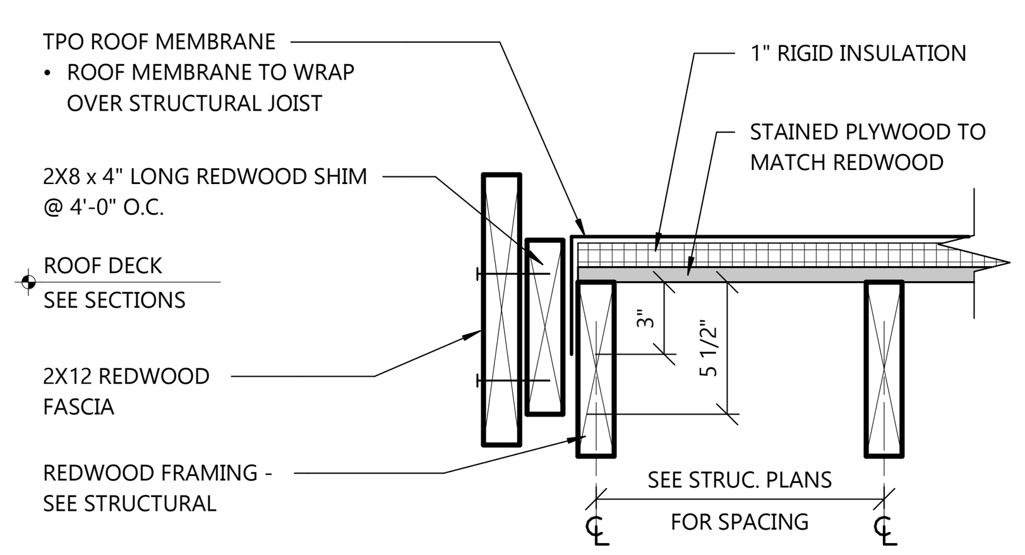
7 A1.4 CANOPY DETAIL
SCALE: 1 1/2" = 1'-0"



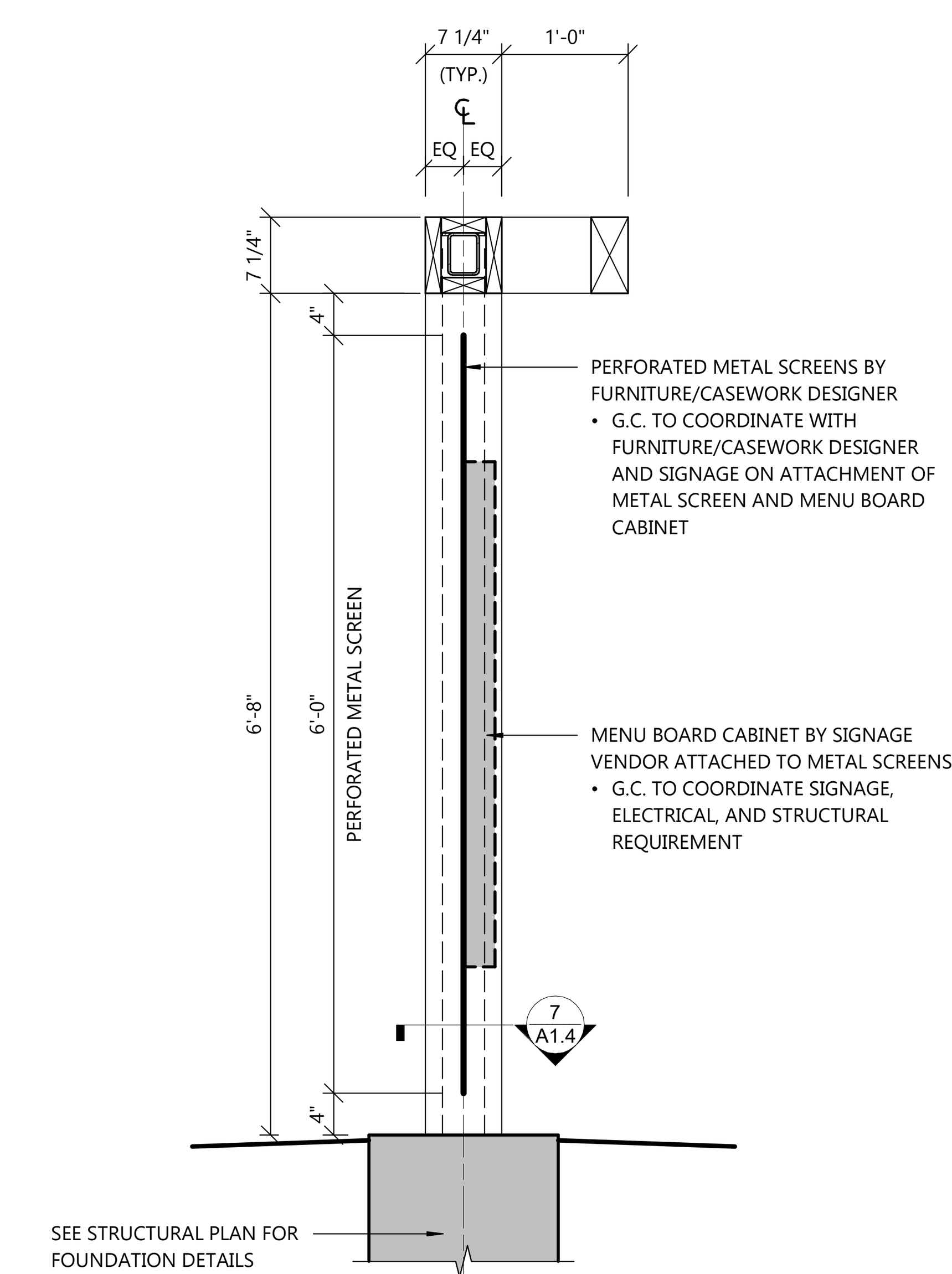
11 A1.4 TOP OF WALL DETAIL
SCALE: 1 1/2" = 1'-0"



10 A1.4 BASE DETAIL
SCALE: 1 1/2" = 1'-0"



9 A1.4 CANOPY ROOF DETAIL
SCALE: 1 1/2" = 1'-0"



6 A1.4 MENU BOARD SECTION
SCALE: 3/4" = 1'-0"

AD1

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PROJECT INFORMATION

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1401 GRINDSTONE PKWY • COLUMBIA, MO

PROFESSIONAL SEAL

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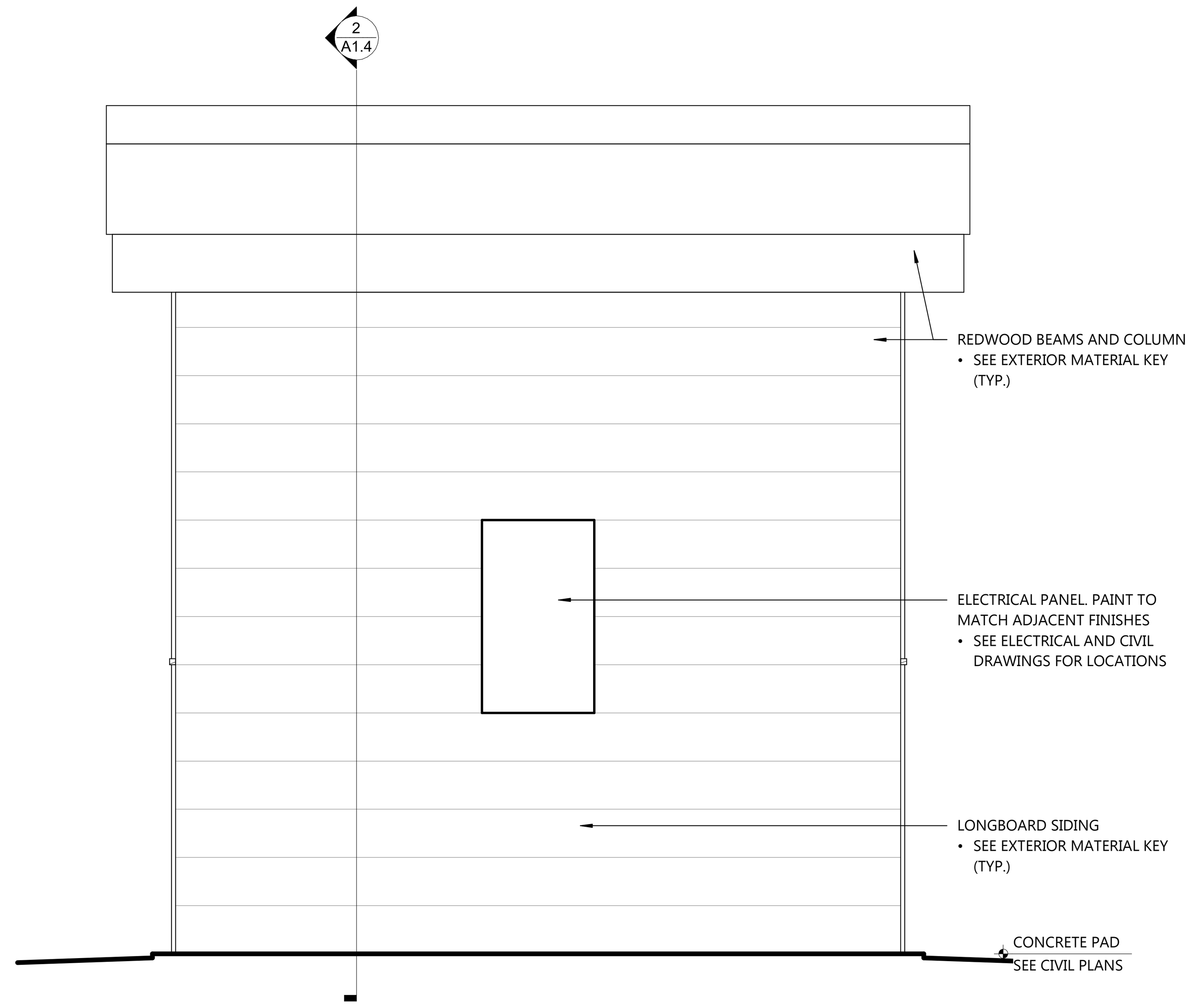
AD1	MAR. 7, 2022

JOB NUMBER
2164120

SHEET NUMBER
A1.4

ARCHITECTURAL MENU BOARD AND ORDER CANOPY



3 A1.5 ORDER CANOPY SECTION
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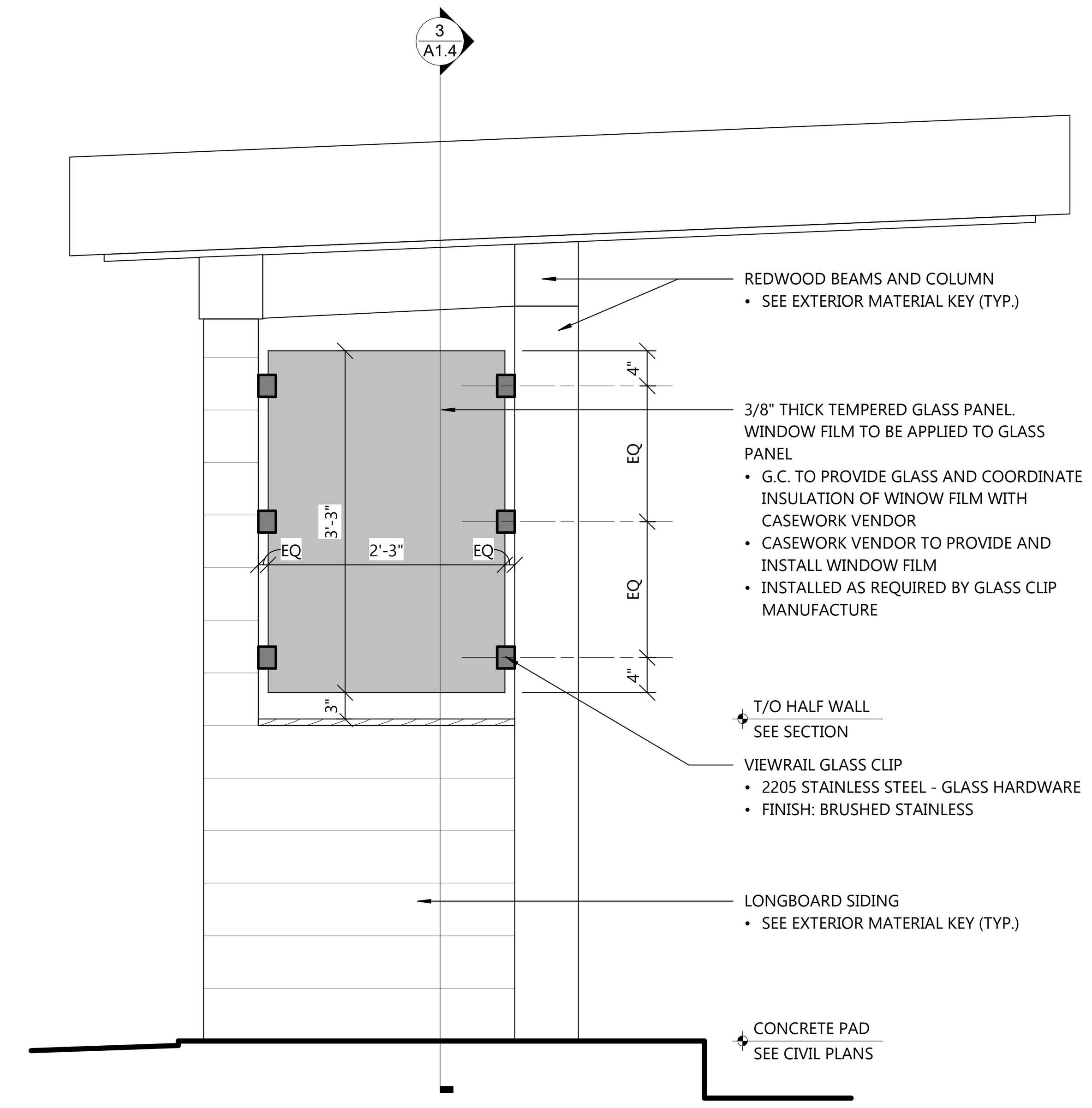

2 A1.5 ORDER CANOPY SECTION
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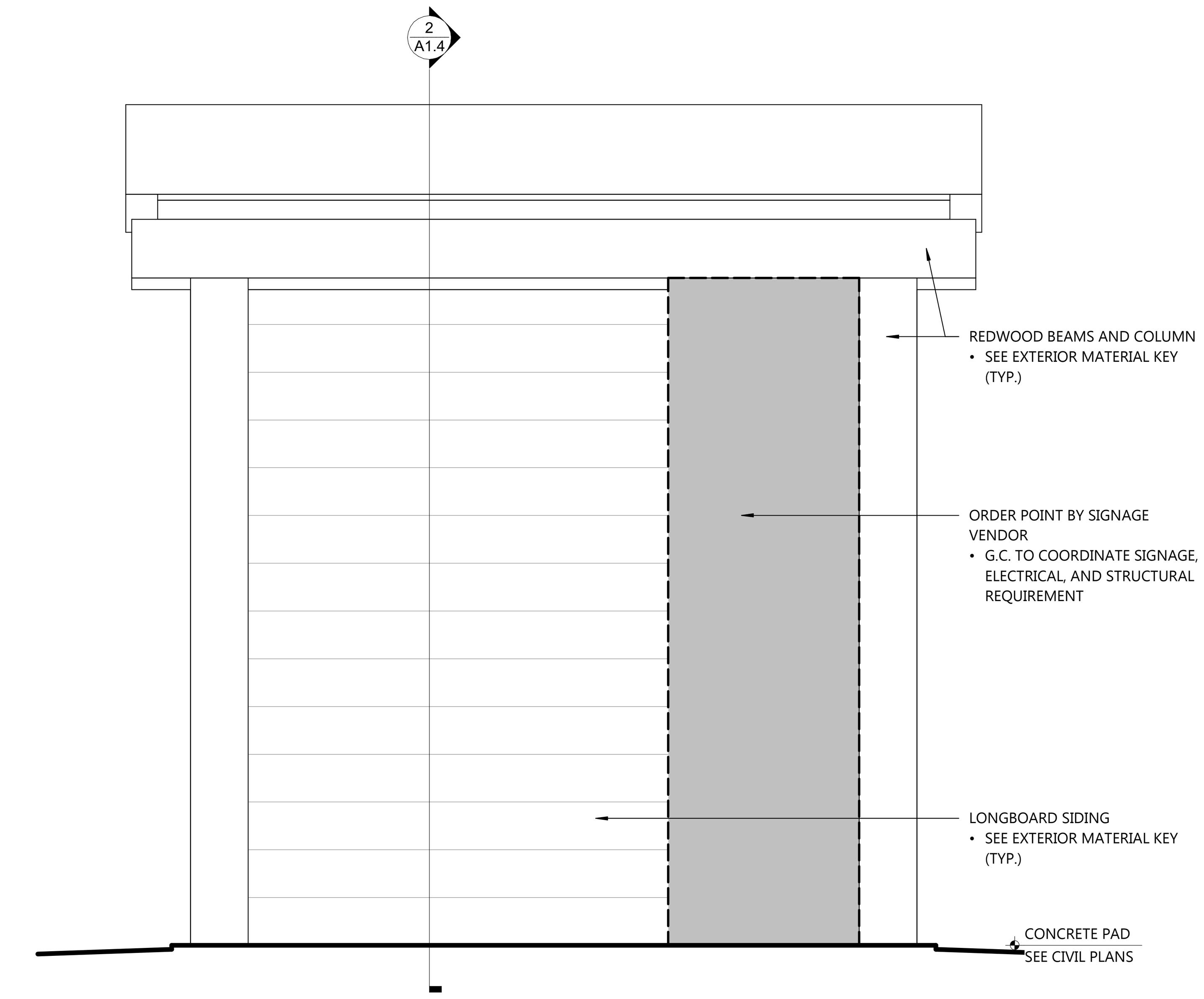
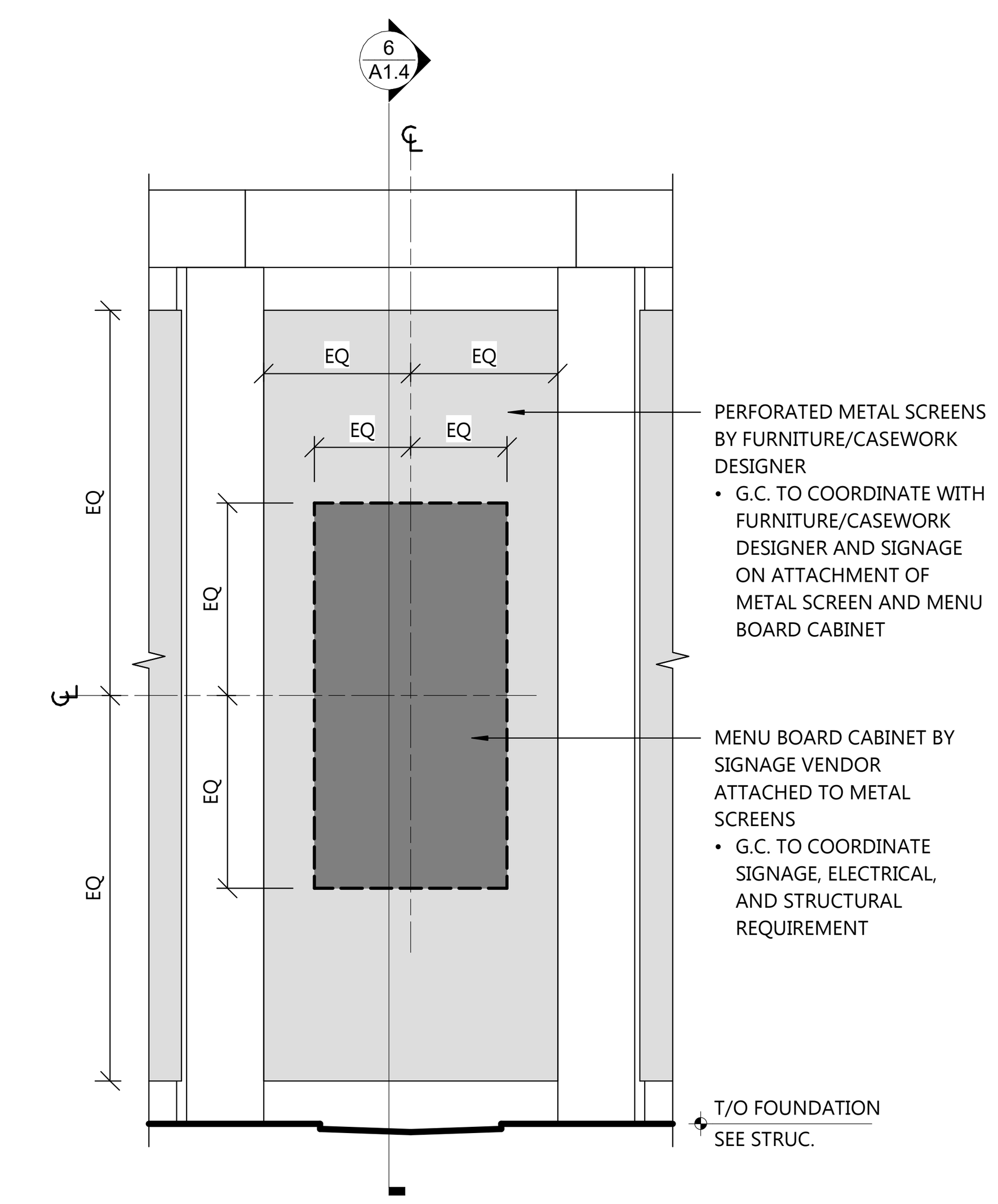


1 A1.5 ORDER CANOPY SECTION
SCALE: 3/4" = 1'-0"



4 A1.5 MENU BOARD ELEVATION
SCALE: 3/4" = 1'-0"

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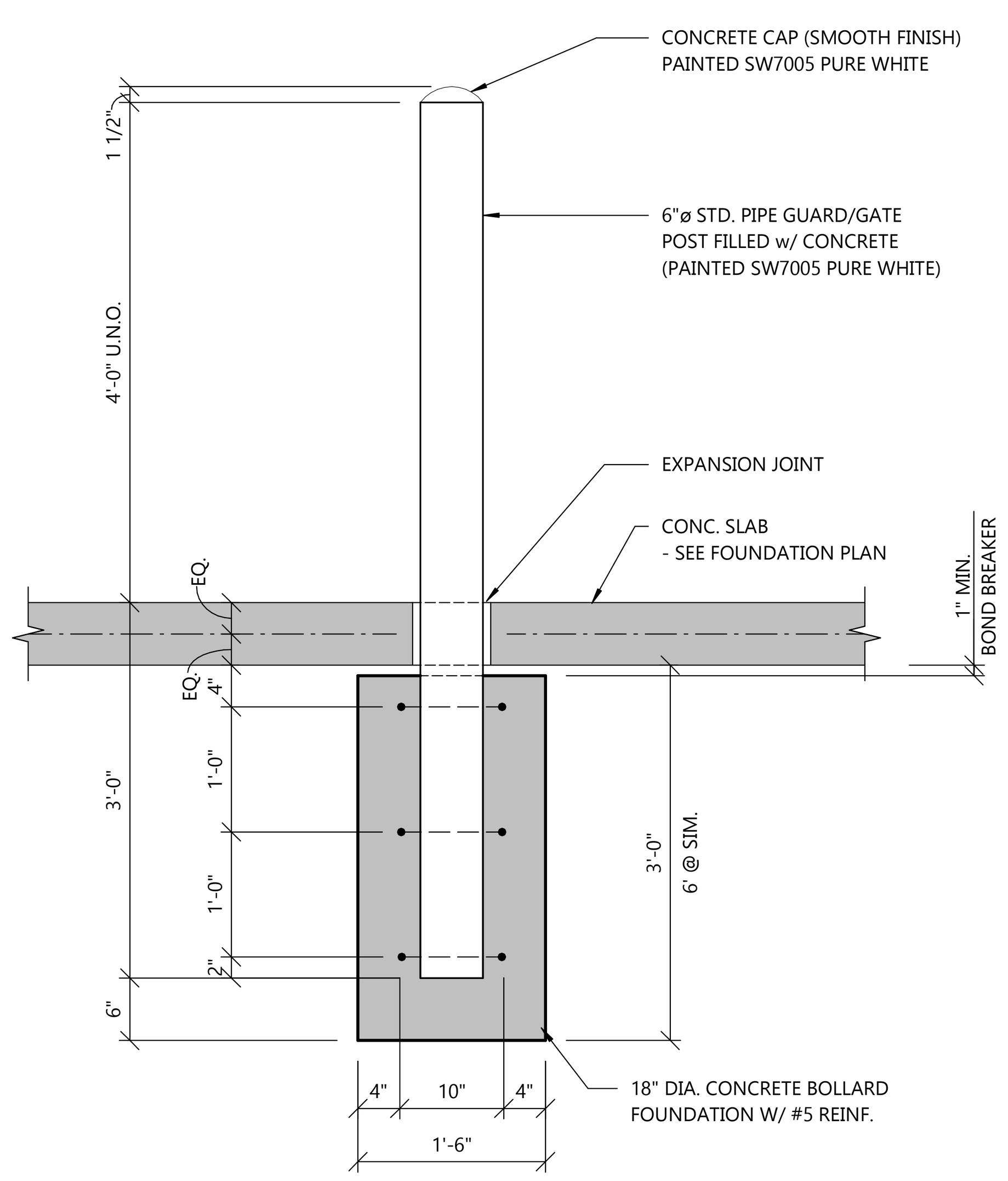
SHEET DATES

SHEET ISSUE	MAR. 4, 2022
REVISIONS	
AD1	MAR. 7, 2022

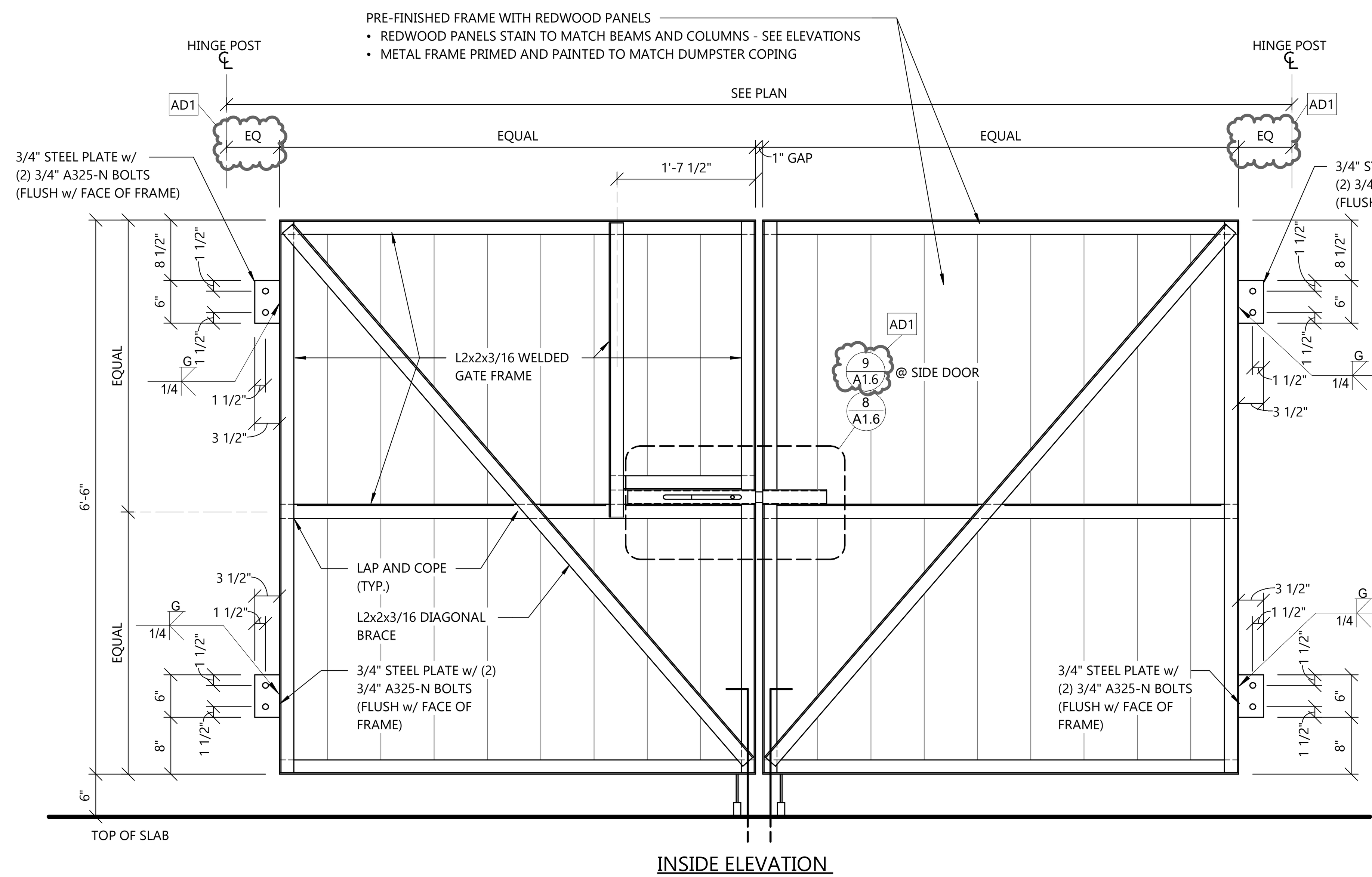
JOB NUMBER
2164120

SHEET NUMBER
A1.5

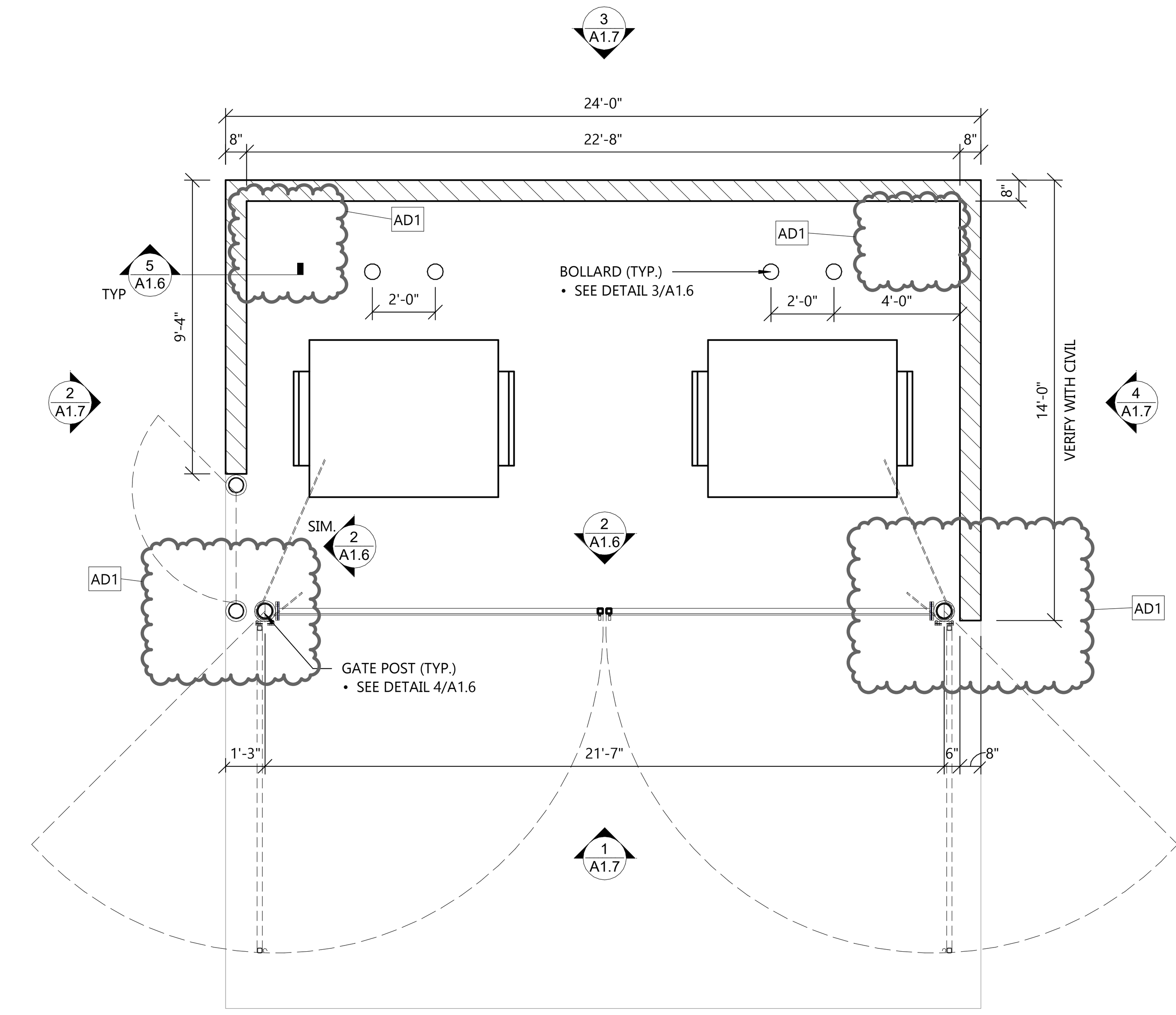
MENU BOARD AND ORDER CANOPY



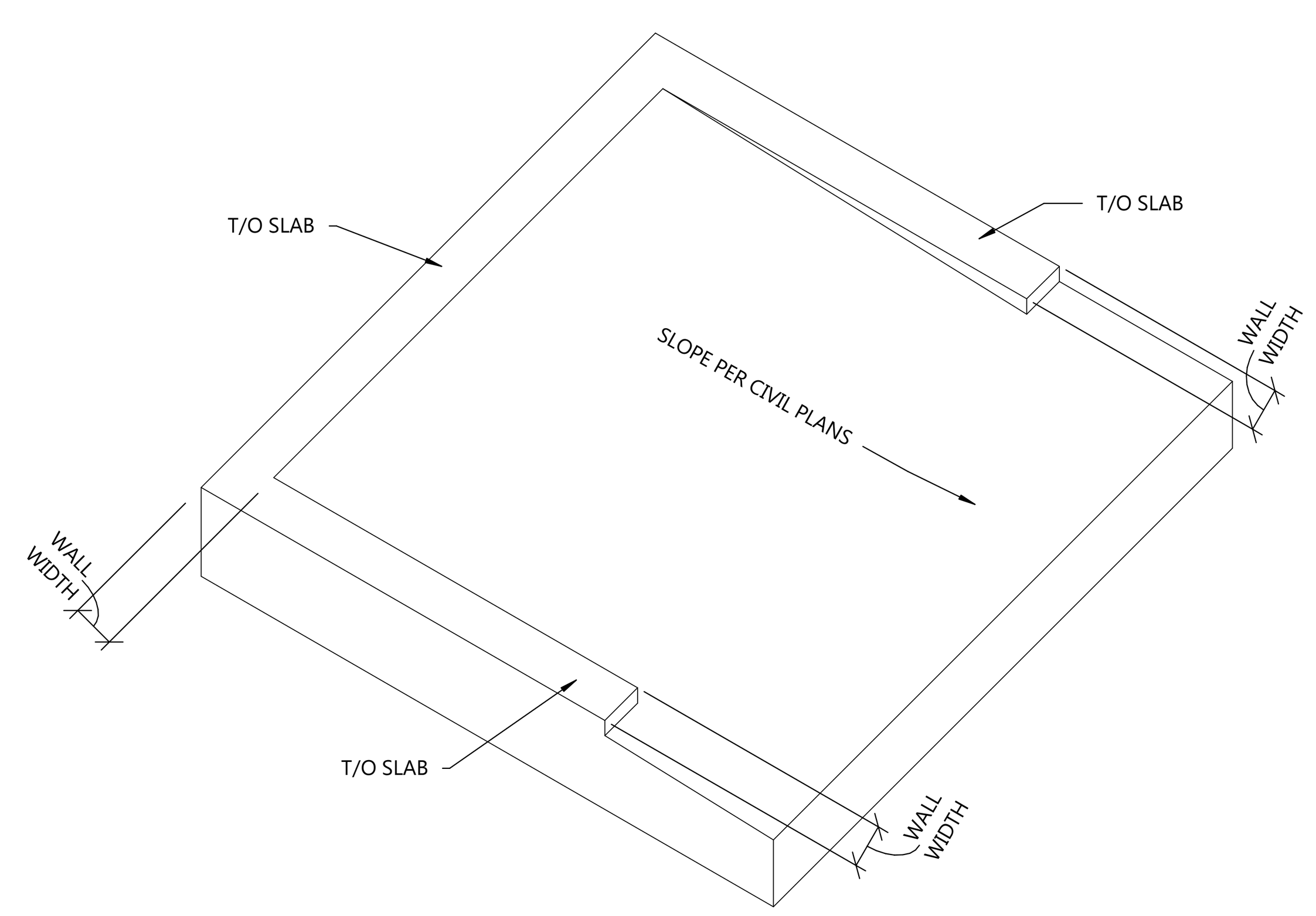
3 A1.6 BOLLARD DETAIL
SCALE: 3/4" = 1'-0"



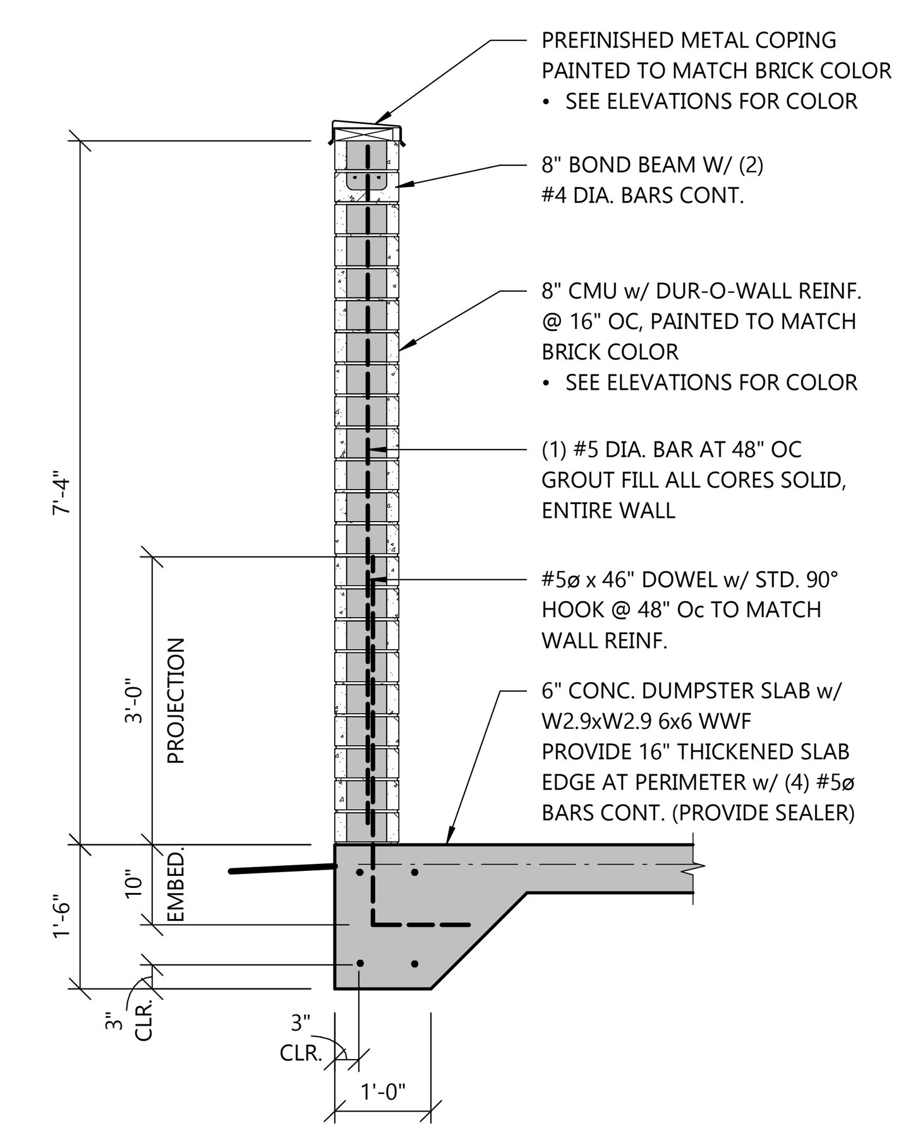
2 A1.6 DUMPSTER GATE ELEVATION
SCALE: 3/4" = 1'-0"



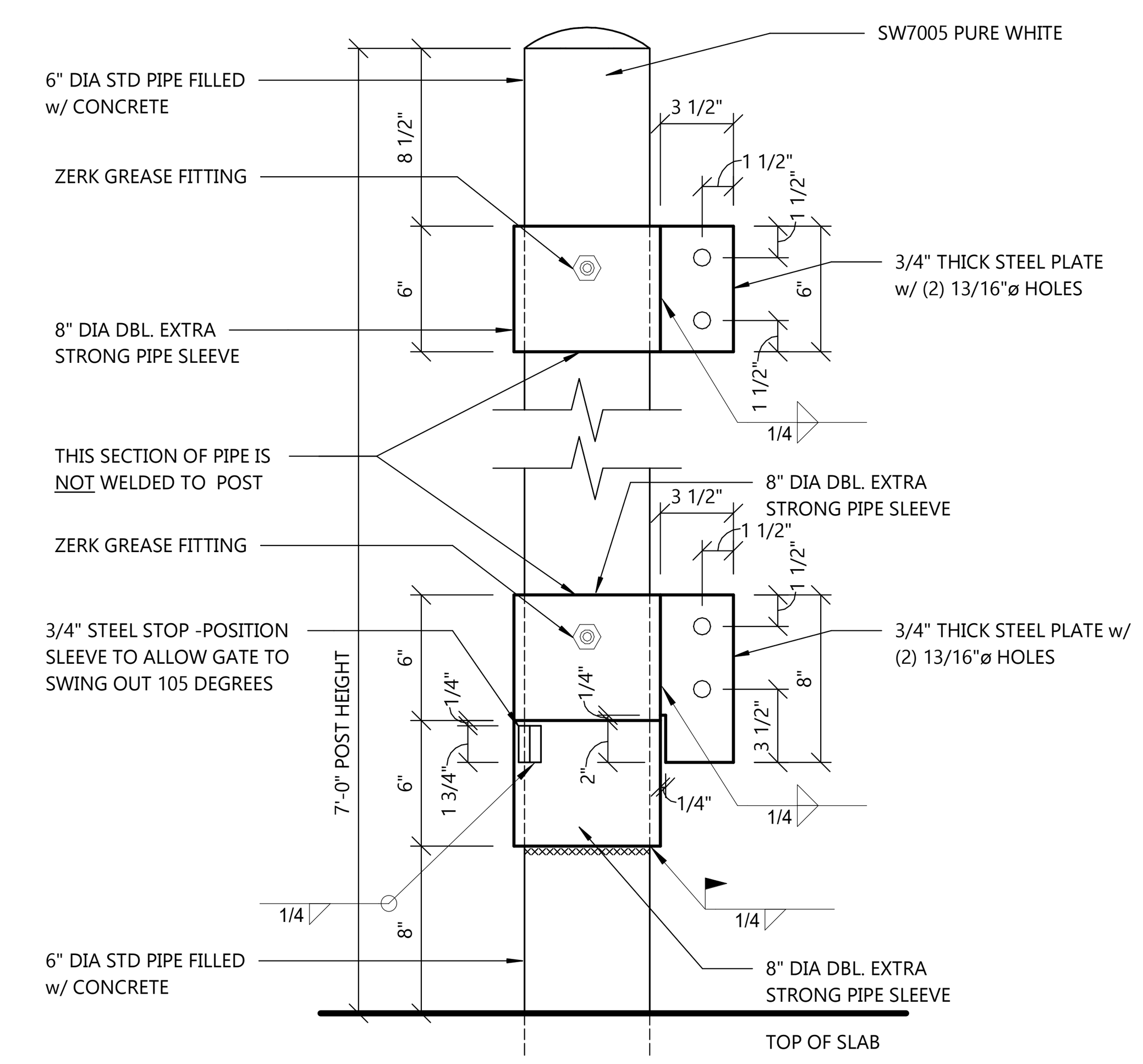
1 A1.6 DUMPSTER PLAN
SCALE: 1/4" = 1'-0"



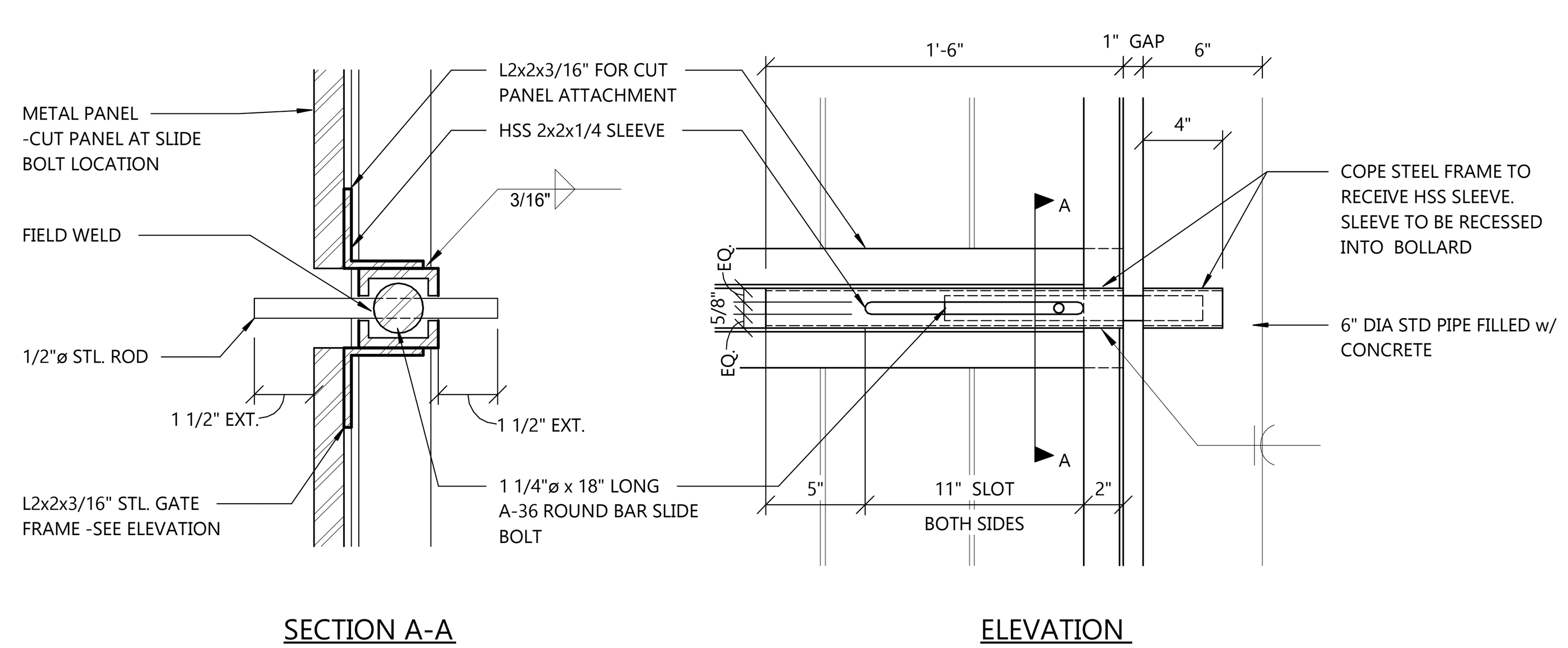
6 A1.6 DUMPSTER PAD DETAIL
SCALE: 1/2" = 1'-0"



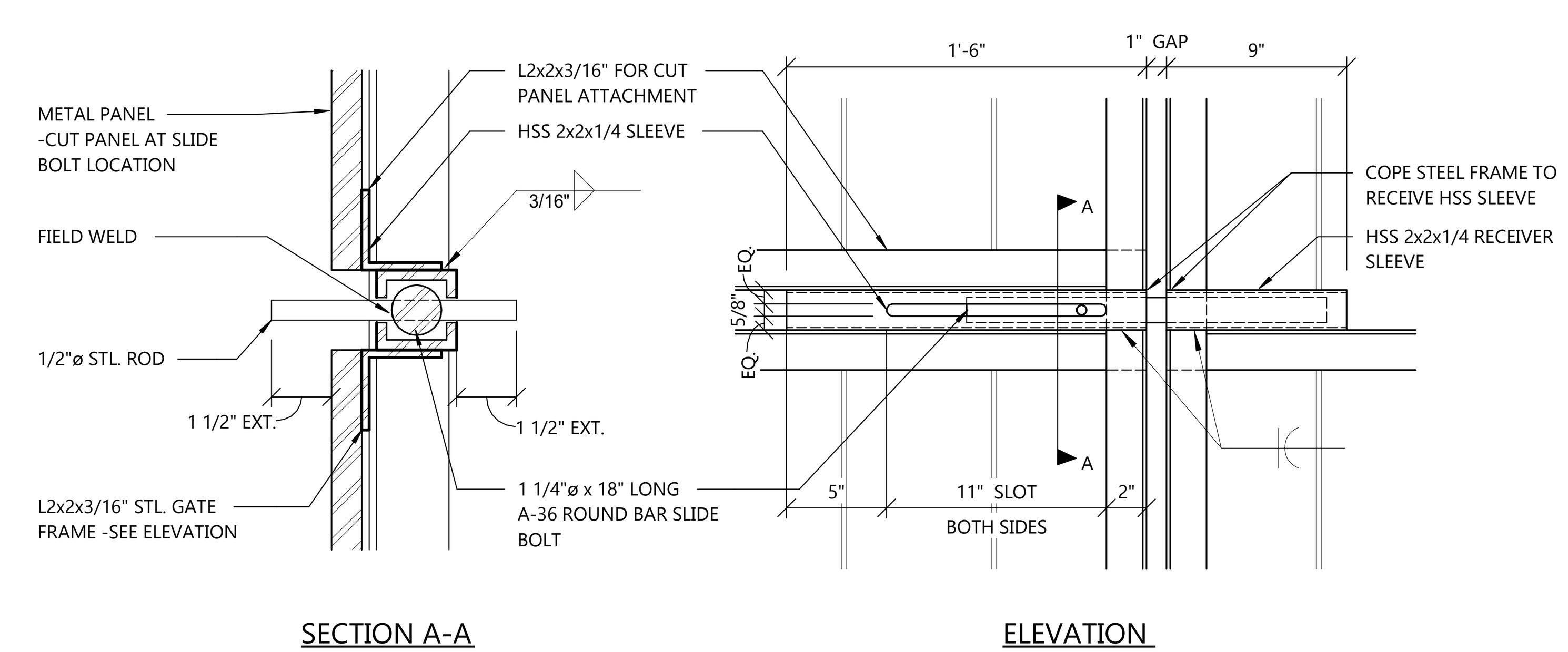
5 A1.6 DUMPSTER WALL SECTION
SCALE: 1/2" = 1'-0"



4 A1.6 GATE HINGE DETAIL
SCALE: 1 1/2" = 1'-0"



9 A1.6 SIDE GATE LATCH
SCALE: 1 1/2" = 1'-0"



8 A1.6 GATE SLIDE BOLT
SCALE: 1 1/2" = 1'-0"

ARCHITECTURAL DUMPSTER ENCLOSURE PLAN

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1401 GRINDSTONE PKWY • COLUMBIA, MO

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SHEET ISSUE OCT. 26, 2021
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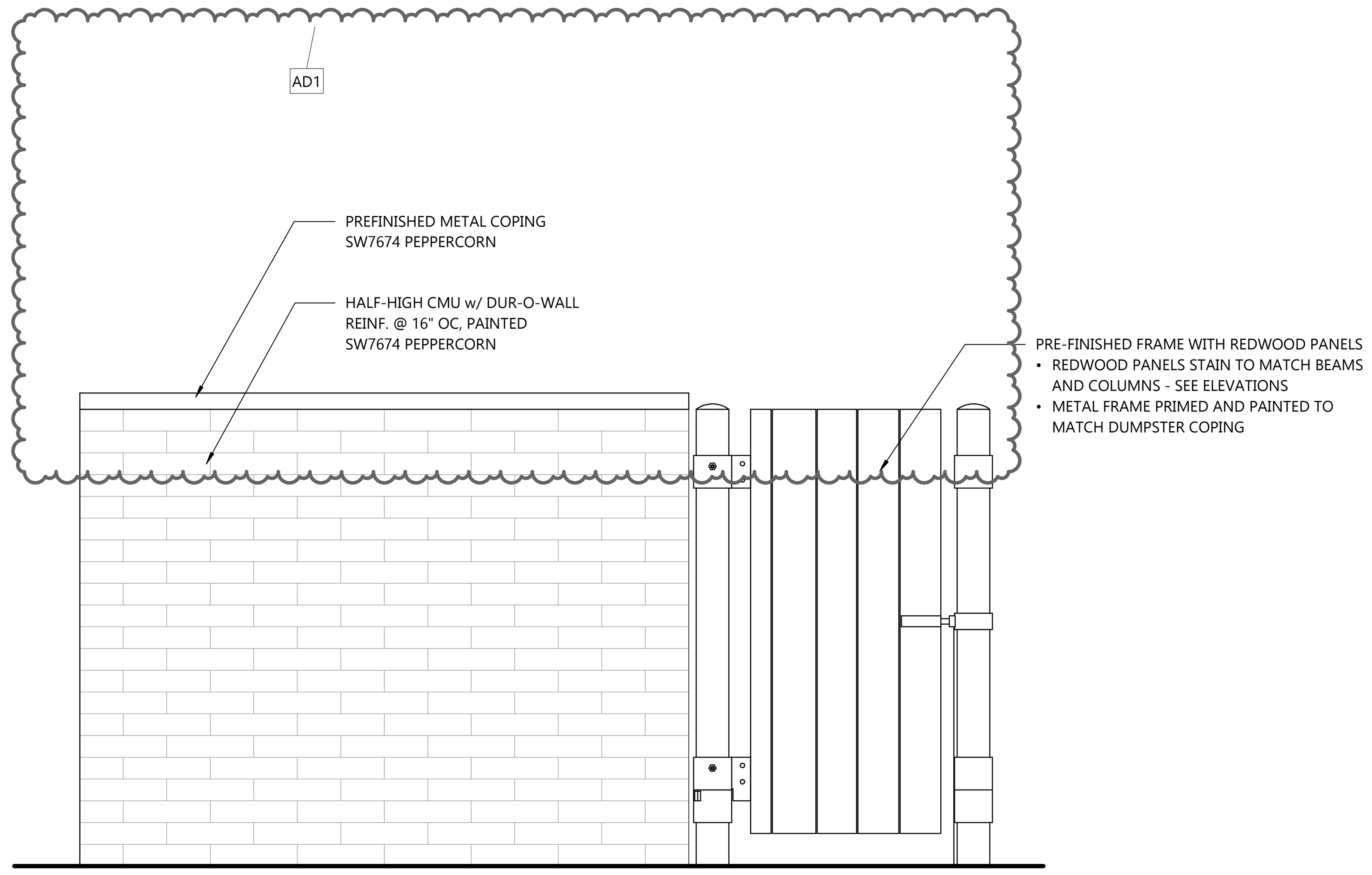
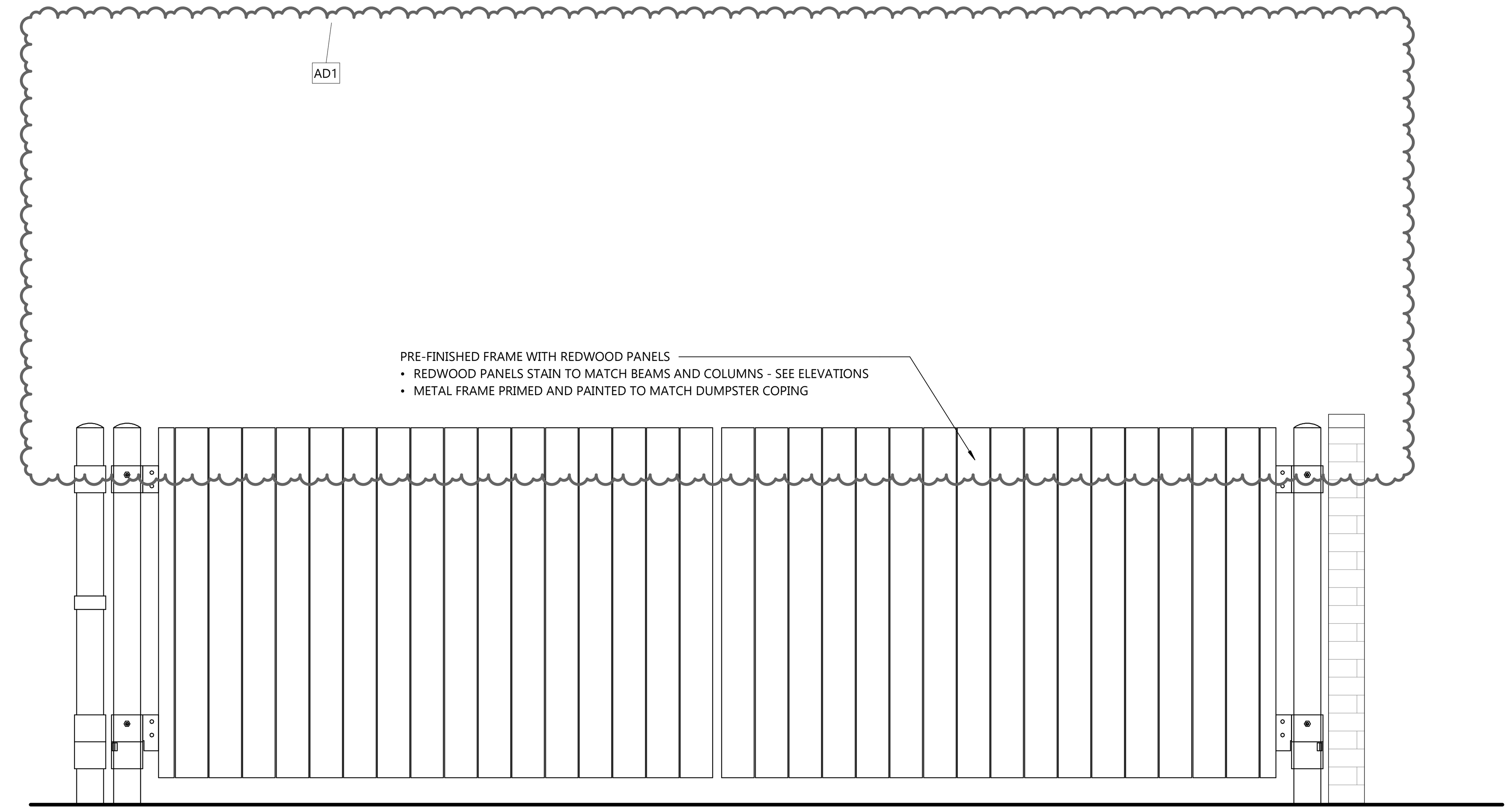
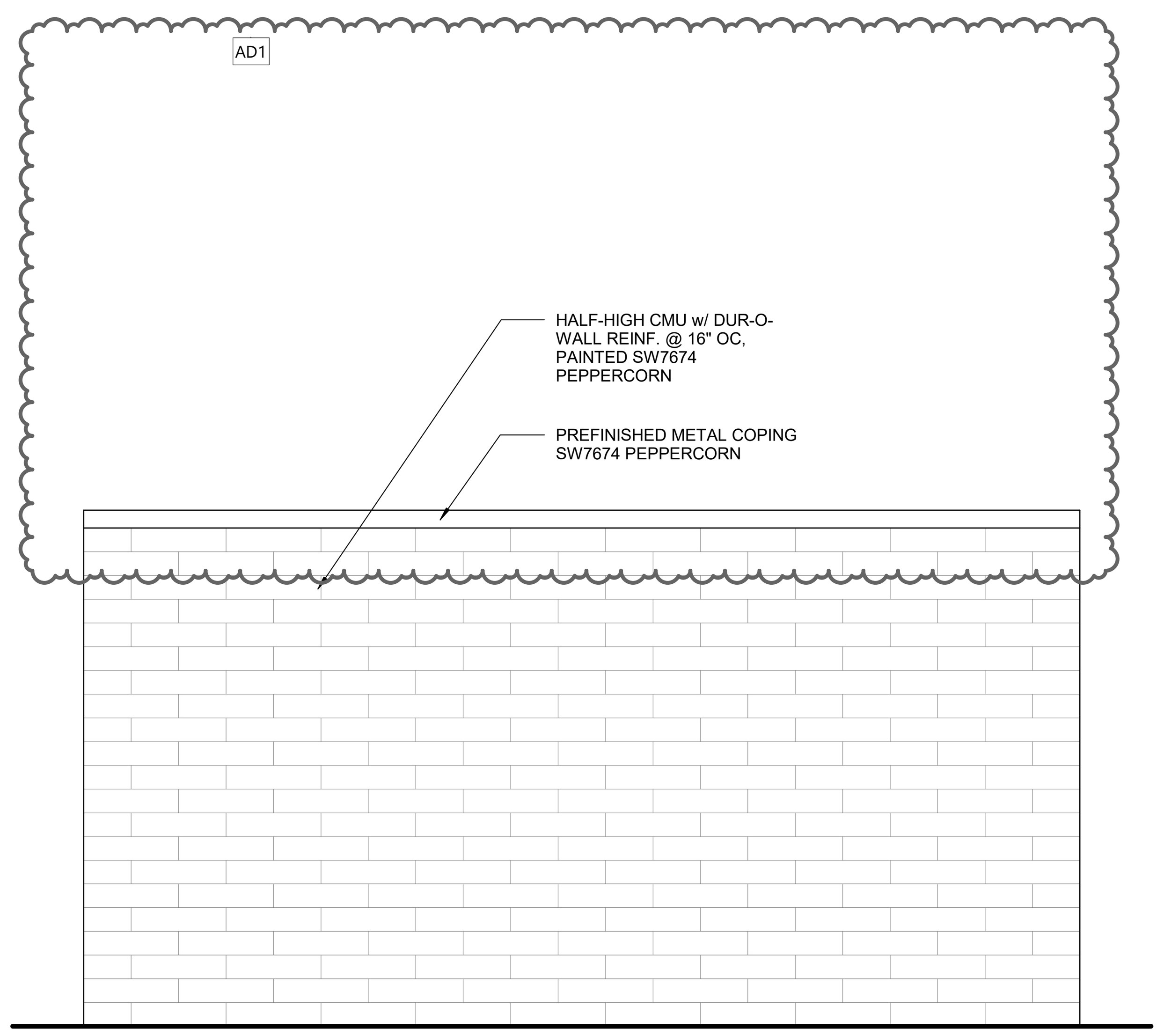


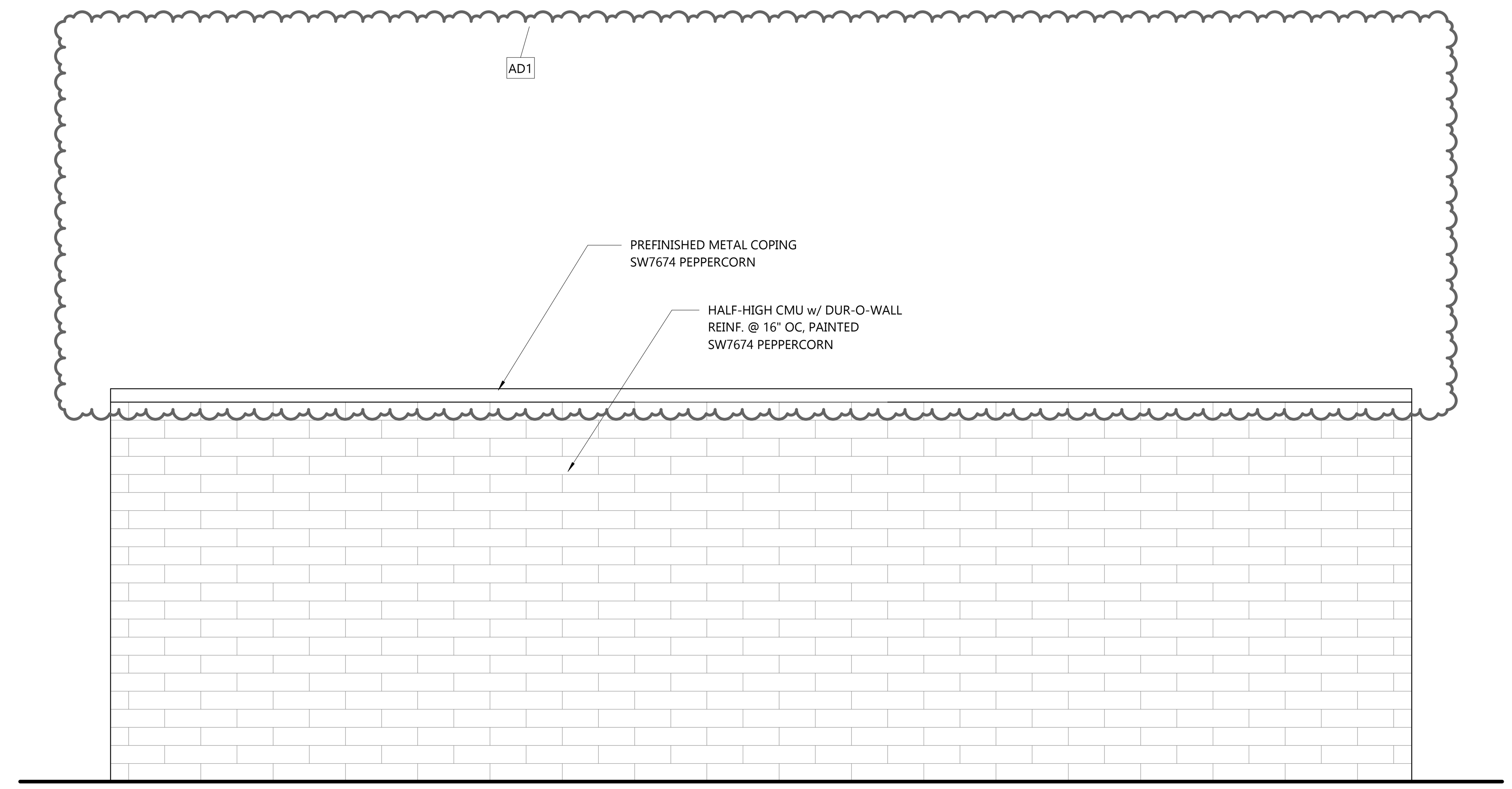
2 / A1.7 LEFT ELEVATION
SCALE: 1/2" = 1'-0"



1 / A1.7 FRONT ELEVATIONS
SCALE: 1/2" = 1'-0"



4 / A1.7 RIGHT ELEVATION
SCALE: 1/2" = 1'-0"



3 / A1.7 BACK ELEVATION
SCALE: 1/2" = 1'-0"

ARCHITECTURAL DUMPSTER ENCLOSURE PLAN

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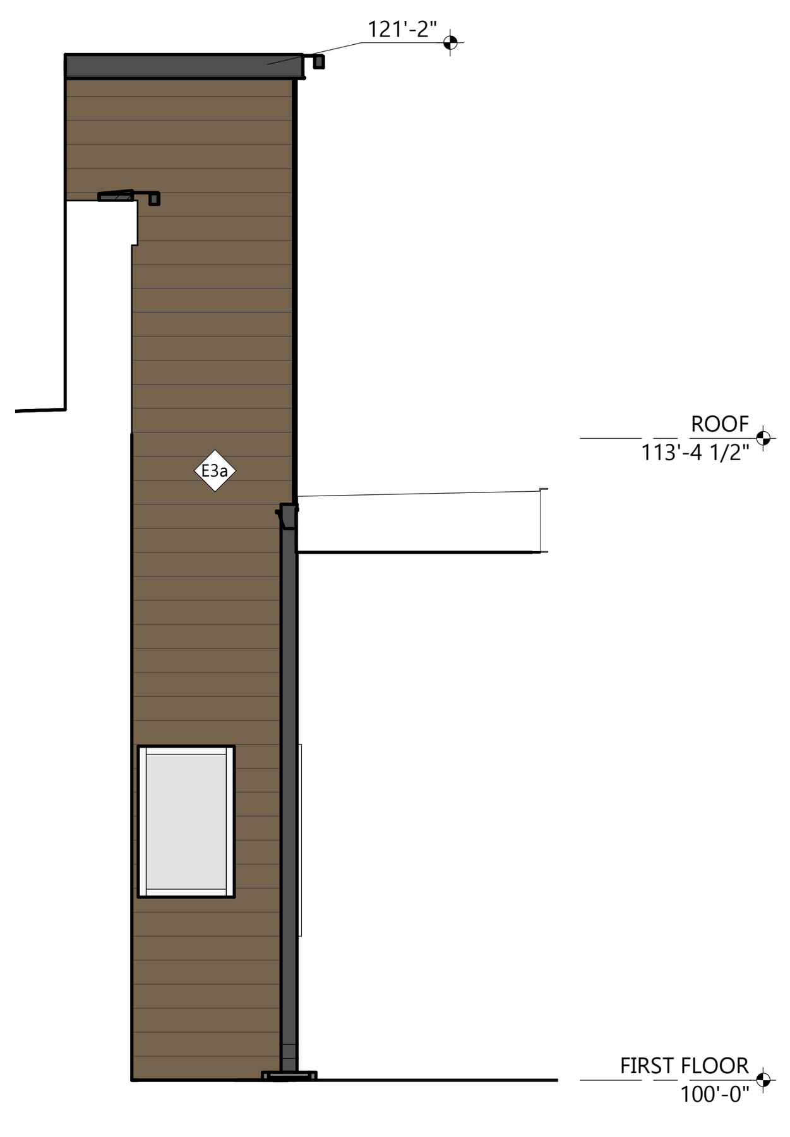
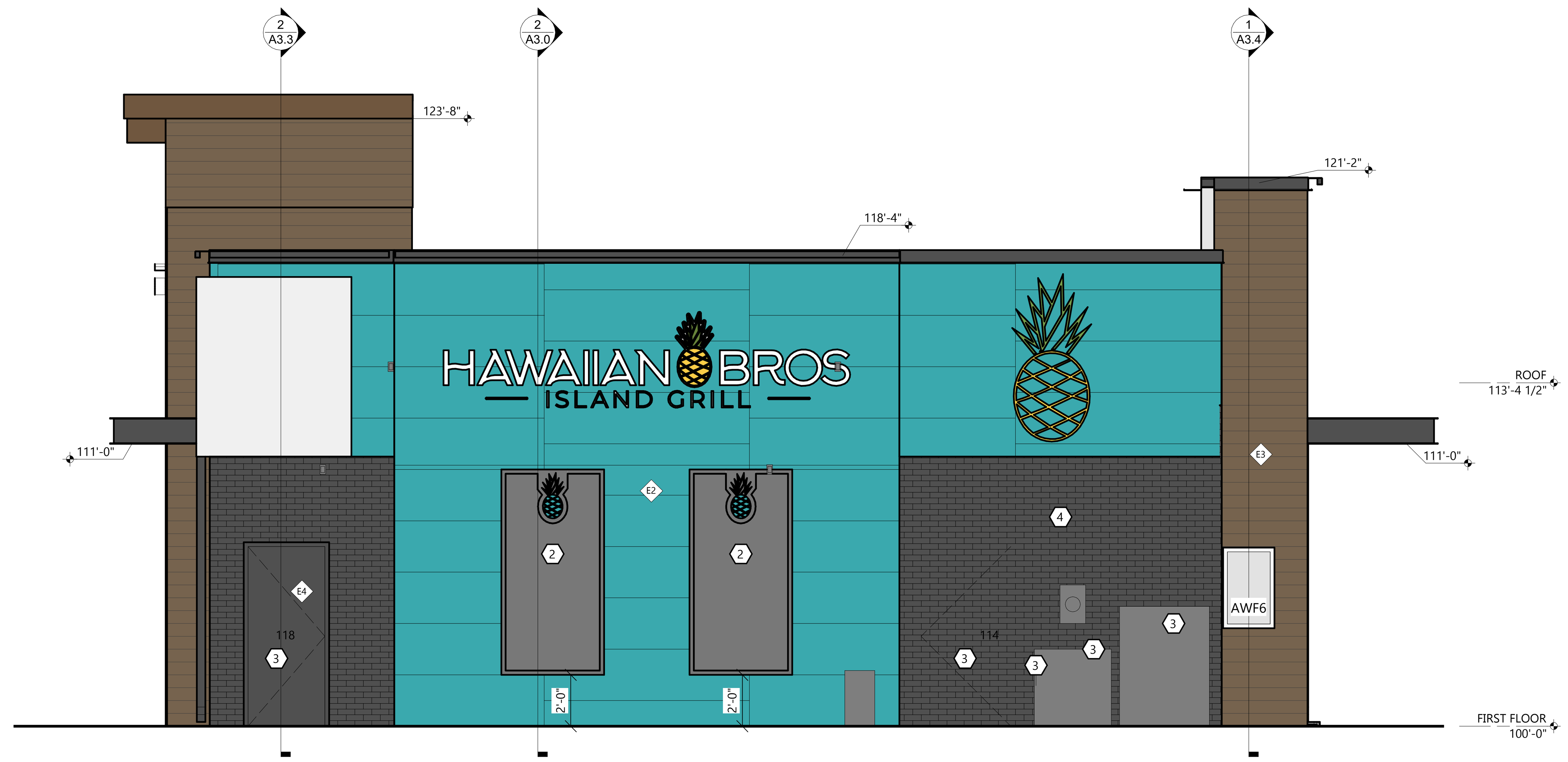
SHEET NUMBER
A1.7



DRIVE THRU - EAST

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

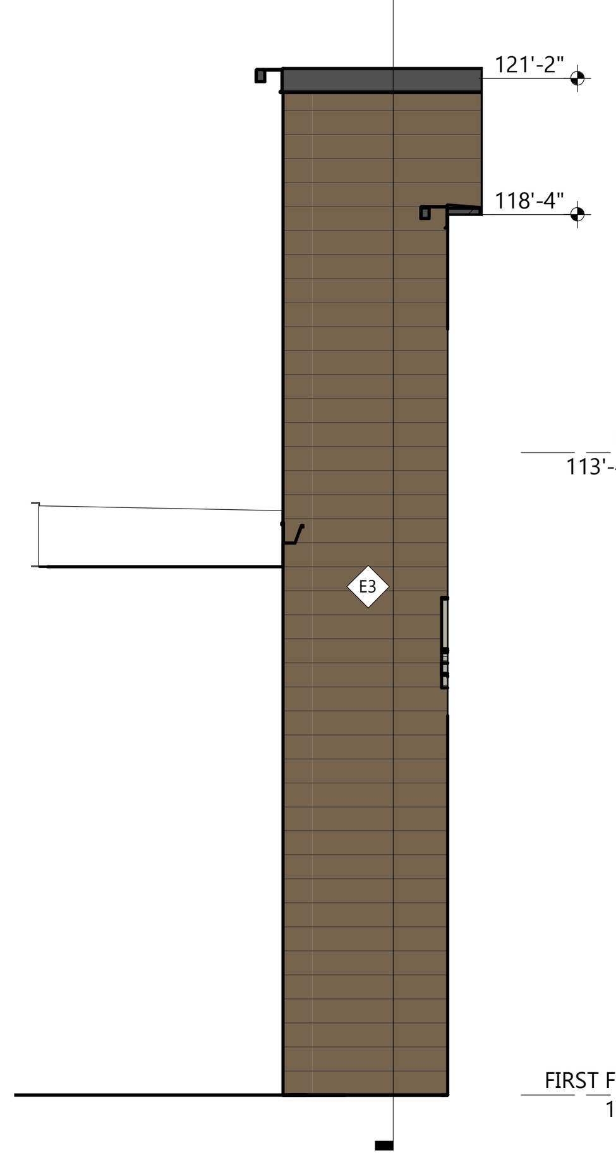


GRINDSTONE PLAZA DRIVE

EAST ELEVATION

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

AD1



DRIVE THRU - WEST

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

WEST ELEVATION

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

AD1

EXTERIOR WALL TYPE LEGEND

EXTERIOR WALL TYPE — E1a — ADDITIONAL MODIFIER

GENERAL NOTES

- SEE EXTERIOR MATERIAL KEY FOR ALL EXTERIOR FINISHES
- SEE INTERIOR FINISH SCHEDULE FOR ALL INTERIOR FINISH
- NOT ALL WALL TYPES WILL BE USED ON ALL PROJECTS
- WHEN A NEW EIFS WALL (E2) INFILL IS PLACE INTO EXITING WALL, THE NEW EIFS THICKNESS IS TO MATCH ADJACENT EXISTING EIFS THICKNESS

E1 NOT USED

E2 EIFS (TYP. WOOD STUD CONSTRUCTION)

- EIFS INSTALLED PER MFR SPECIFICATIONS *
- 1" RIGID INSUL. (U.N.O.) AND INTEG. DRAINAGE PLANE * IF ADJACENT EIFS THICKNESS FROM 1" MATCH ADJECENT THICKNESS
- LIQUID APPLIED AIR/MOISTURE BARRIER *
- WOOD SHEATHING
- 2X6 WOOD STUD (U.N.O.) @ 16" O.C. W/ R -21 BATT INSUL.
- 5/8" GYPSUM BOARD

E2a EXTERIOR FINISH (*) TO BE APPLIED OVER EXISTING SHEATHING AND STUDS

E3 LONGBOARD (TYP. WOOD STUD CONST.)

- LONGBOARD 6" V-GROOVE SIDING PANEL *
- LIQUID APPLIED AIR/MOISTURE BARRIER *
- WOOD SHEATHING
- 2X6 WOOD STUD (U.N.O.) @ 16" O.C. W/ R -21 BATT INSUL.
- 5/8" GYPSUM BOARD

E3a EXTERIOR FINISH (*) TO BE APPLIED OVER EXISTING SHEATHING AND STUDS

E4 THIN BRICK (TYP. WOOD STUD CONST.)

- THIN BRICK VENEER *
- SCRATCH COAT *
- LIQUID APPLIED AIR/MOISTURE BARRIER *
- WOOD SHEATHING
- 2X6 WOOD STUD (U.N.O.) @ 16" O.C. W/ R -21 BATT INSUL.
- 5/8" GYPSUM BOARD

E4a EXTERIOR FINISH (*) TO BE APPLIED OVER EXISTING SHEATHING AND STUDS

AD1

EXTERIOR MATERIAL KEY

PAINTED THIN BRICK
MFR: GLEN-GERY
STYLE: EXTRUDED
TEXTURE: SMOOTH
COLOR: SW7674 PEPPERCORN (PAINTED)

WOOD LOOK ALUMINUM SIDING & SOFFIT (LONGBOARD)
PRODUCT: LONGBOARD 6" - V-GROOVE SIDING PANEL
MATERIAL: HEAVY GAUGE ALUMINUM
COLOR: LIGHT NATIONAL WALNUT

EIFS
MFR: DRYVIT
TEXTURE: SANDBLAST
COLOR: SW6767 AQUARIUM (PAINTED)

METAL COPING
MATERIAL: PAC CLAD 24 GAUGE STEEL
COLOR: SW7674 PEPPERCORN

ARCHITECTURAL C-CHANNEL FASCIA
DEPTH VARIES - SEE ELEVATIONS AND DETAILS
COLOR: SW7674 PEPPERCORN

METAL SCREENS
PATTERN: TBD
COLOR: DARK GRAY (TBD BY OWNER)
SEE A9 SHEET

WALL GRAPHIC
MOUNTED ON FRAME
BY SIGNAGE VENDOR

WOOD COLUMN, BEAM, AND FASCIA
WOOD TYPE: REDWOOD
COLOR: STAINED TO MATCH LONGBOARD SIDING

GENERAL EXT. NOTES

- SIGNAGE SHOWN FOR REFERENCE ONLY. COORDINATE SIGNAGE LOCATIONS WITH SIGNAGE SUPPLIER AND PROVIDE BLOCKING AS REQUIRED.

1. WALL MOUNTED SURFBOARD: SURFBOARD PROVIDED BY SIGNAGE VENDOR. CONNECTIONS BY SIGNAGE VENDOR.
2. WALL MOUNTED METAL SCREEN. PROVIDE 1" STAND OFF FROM WALL FINISH. FINAL CONNECTION REQUIREMENTS BY SUPPLIER.
3. PAINT DOWNSPOUT, SCUPPER, DOORS, FIXTURE, AND EQUIPMENT TO MATCH FINISH MATERIAL BEHIND DOWNSPOUT, SCUPPER, DOORS, FIXTURE, AND EQUIPMENT.
4. EXISTING EIFS TO BE SCORED AND PAINTED. SEE EXTERIOR MATERIAL KEY.

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SHEET NUMBER
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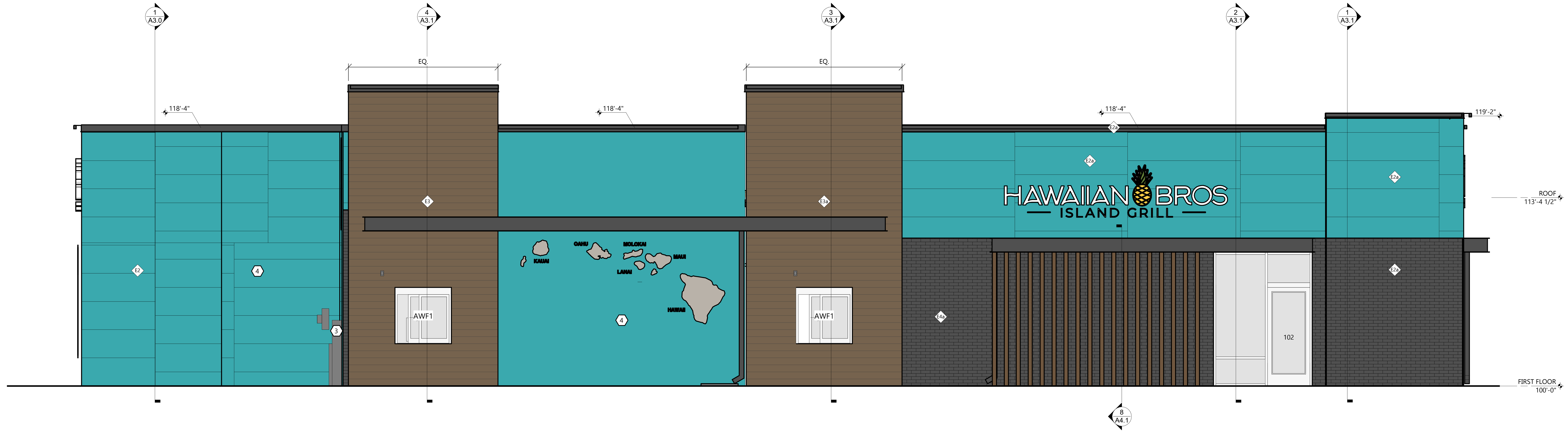
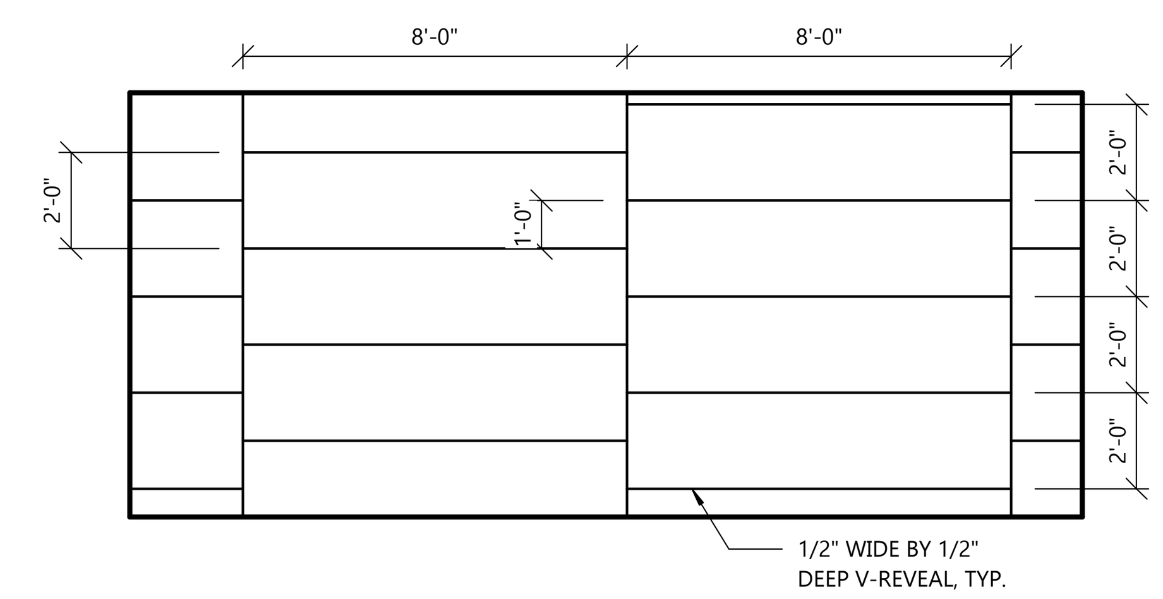
ARCHITECTURAL EXTERIOR ELEVATIONS



NORTH ELEVATION

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



1 A2.1 EIFS PATTERN

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

AD1

GRINDSTONE PARKWAY
SOUTH ELEVATION

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

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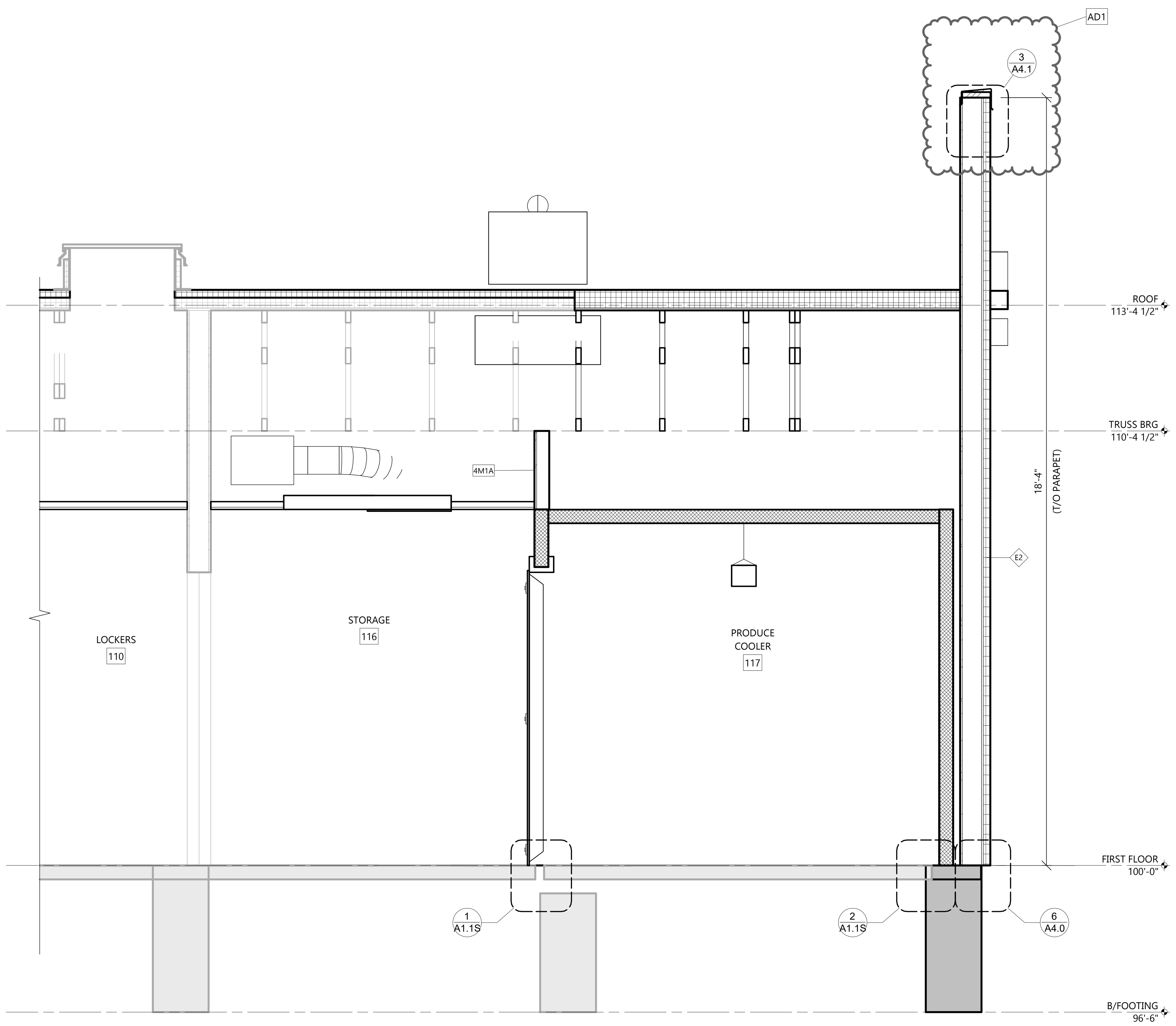
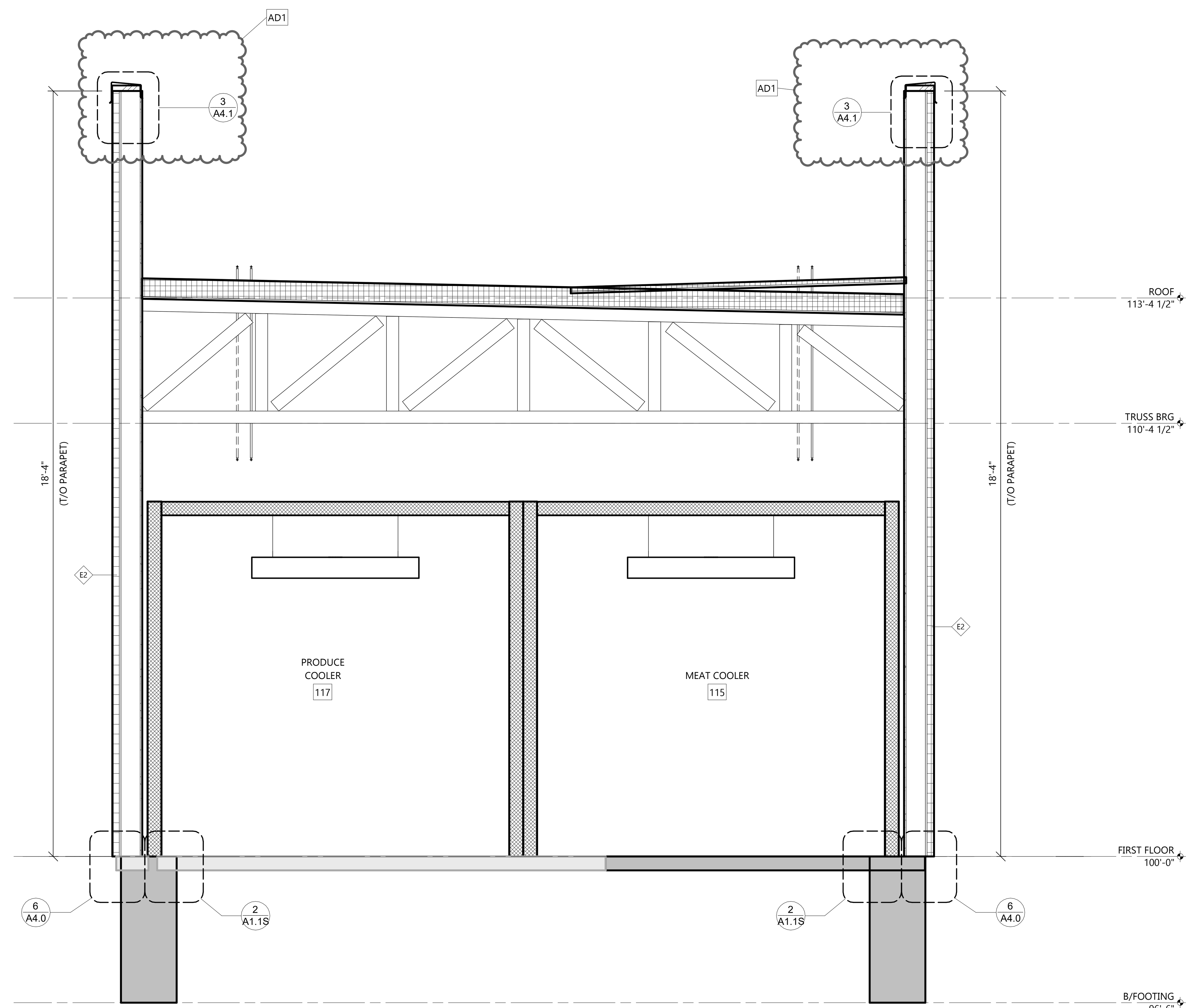
A2.1

ARCHITECTURAL EXTERIOR ELEVATIONS



2 A3.0 BUILDING SECTION
SCALE: 1/2" = 1'-0"



1 A3.0 BUILDING SECTION
SCALE: 1/2" = 1'-0"

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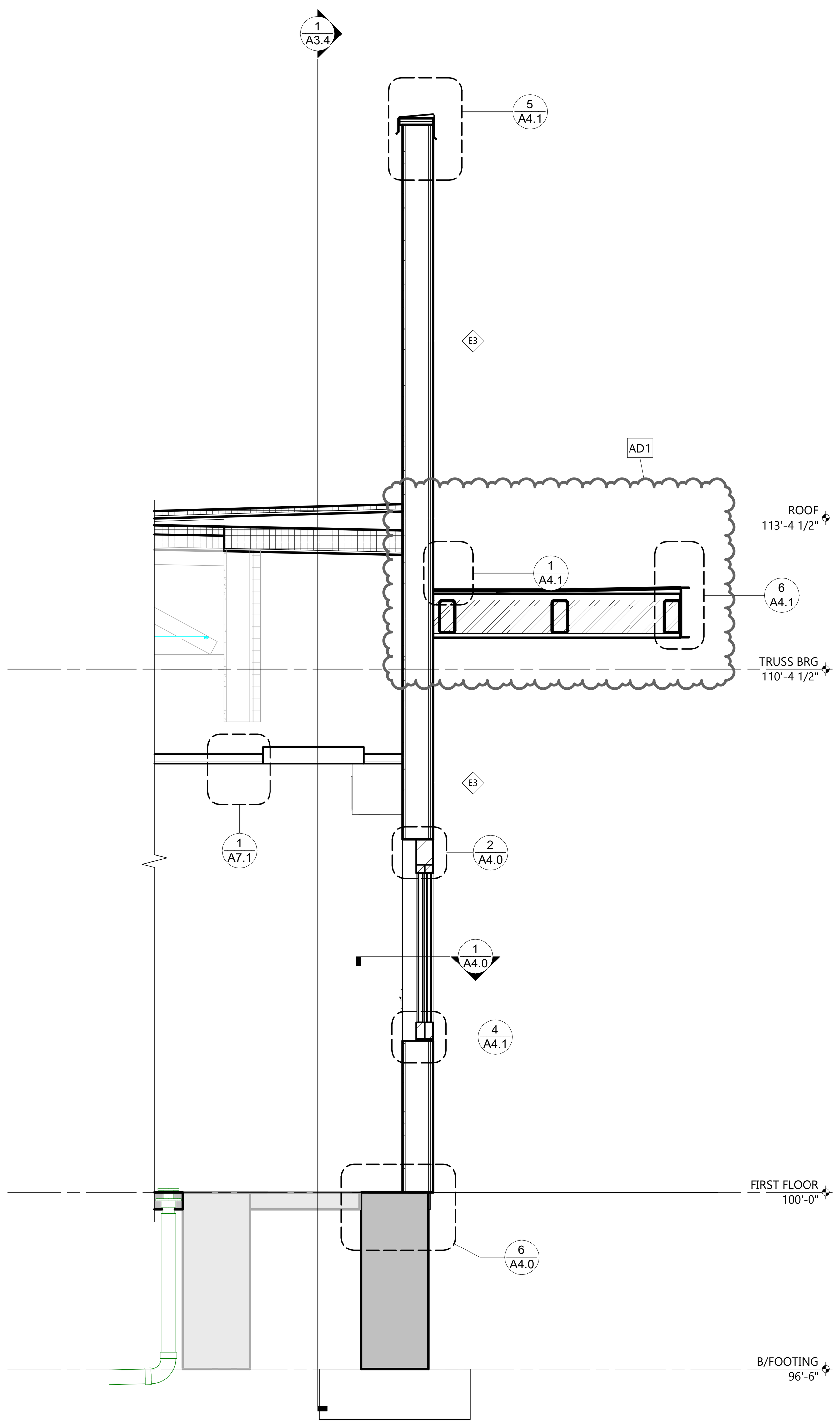
ARCHITECTURAL BUILDING SECTIONS



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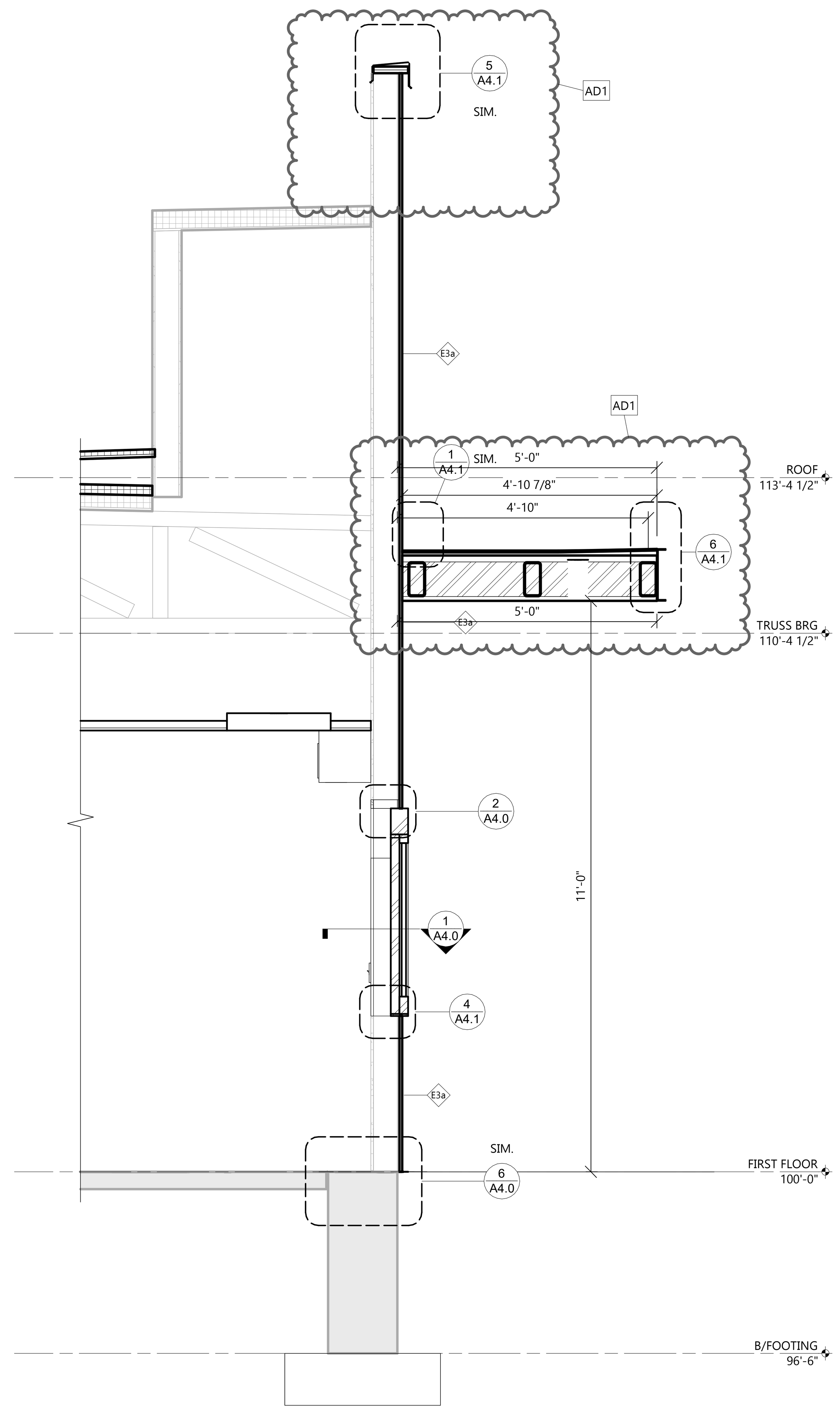

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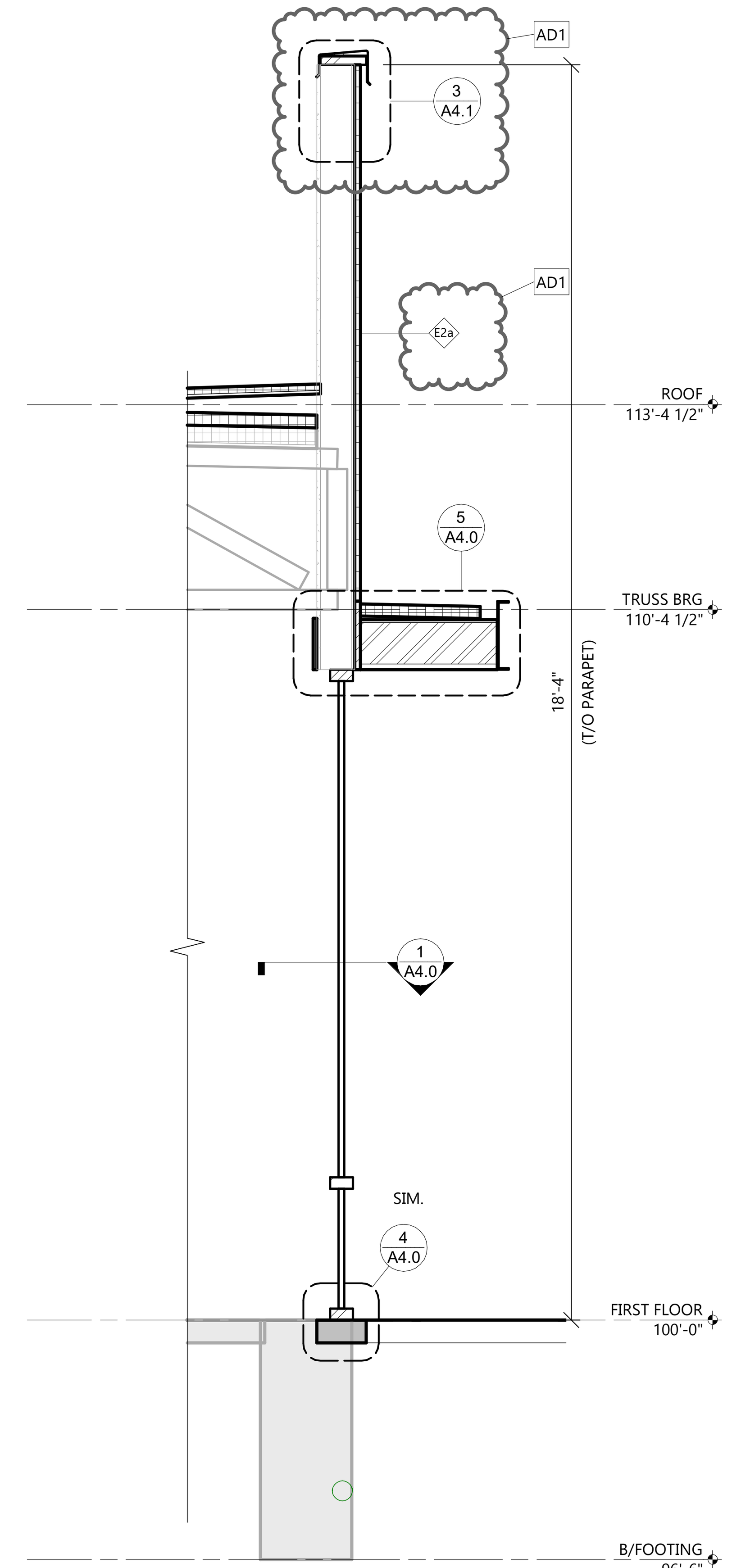

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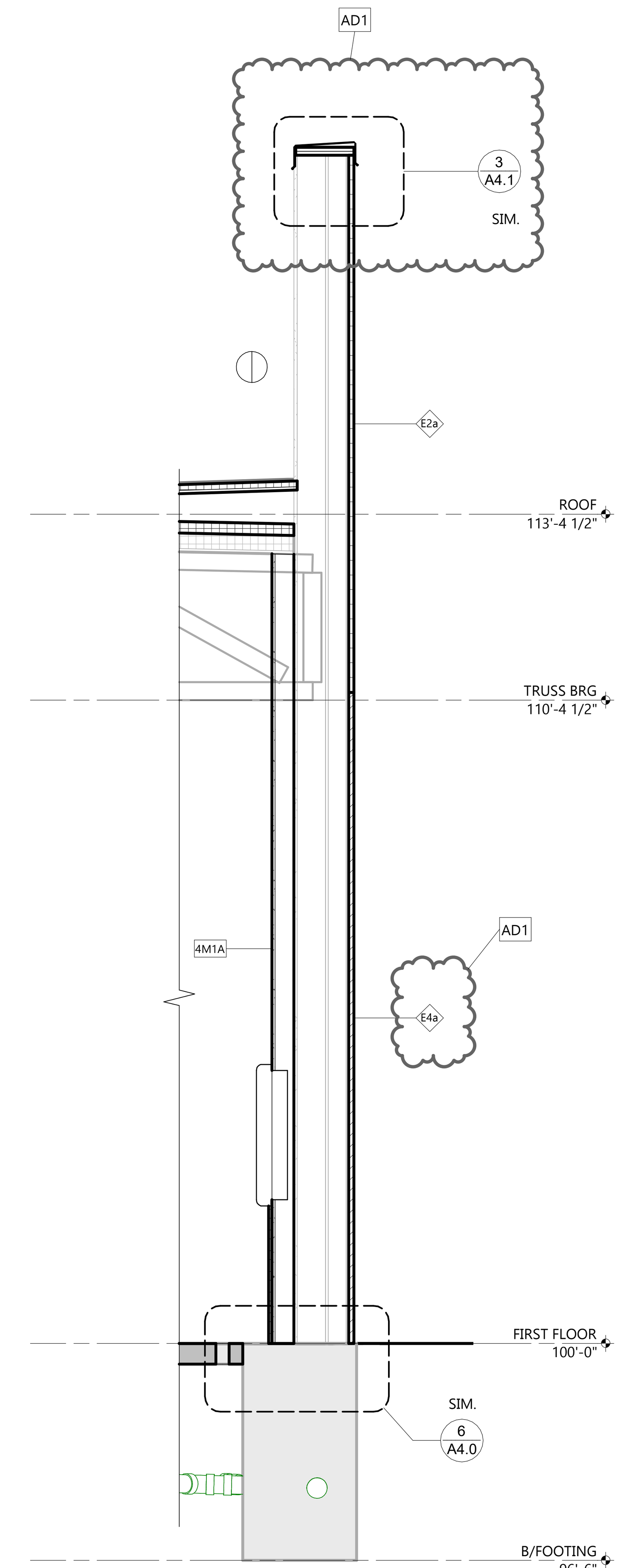

1 A3.1 BUILDING SECTION
SCALE: 1/2" = 1'-0"

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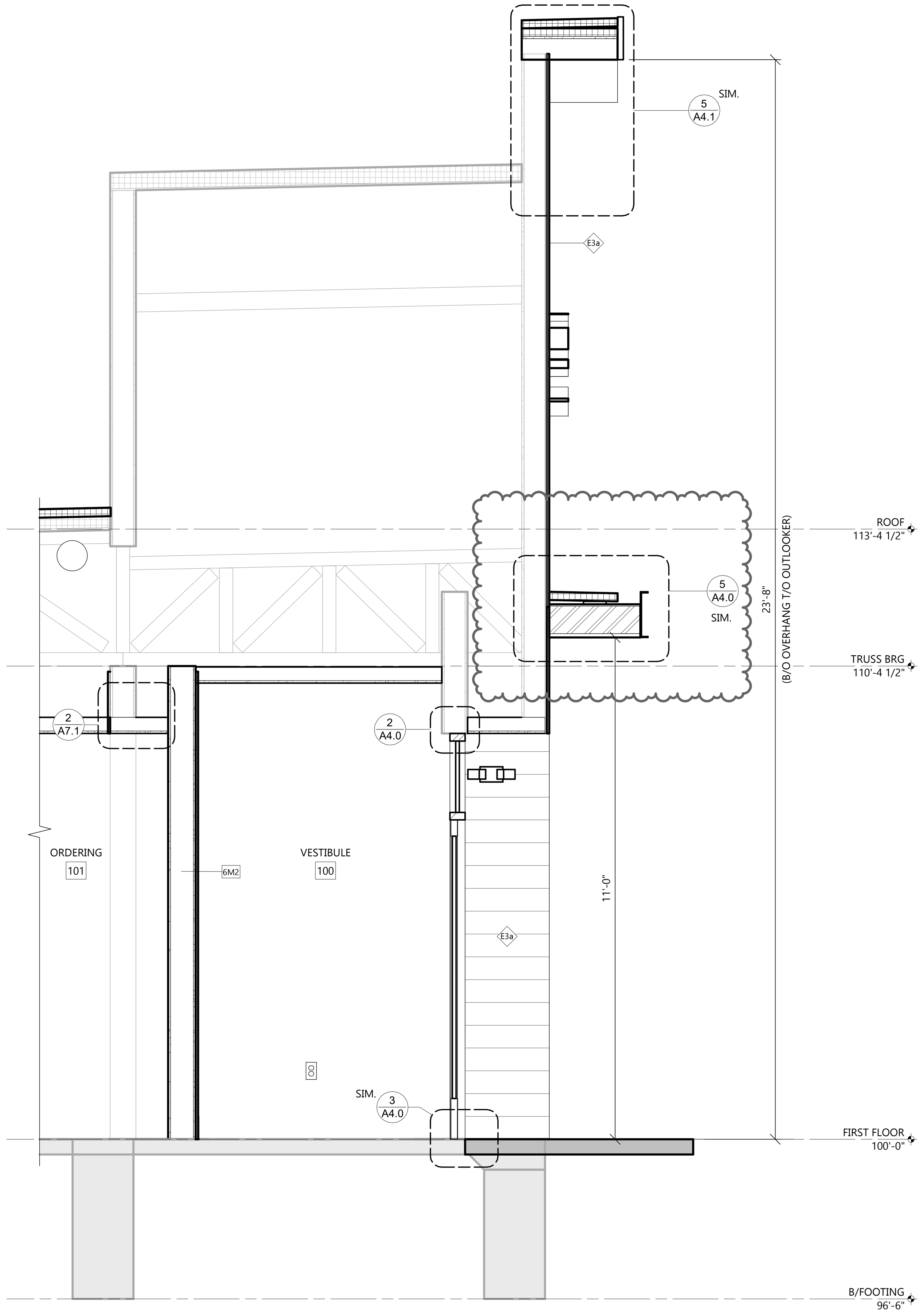

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A3.2
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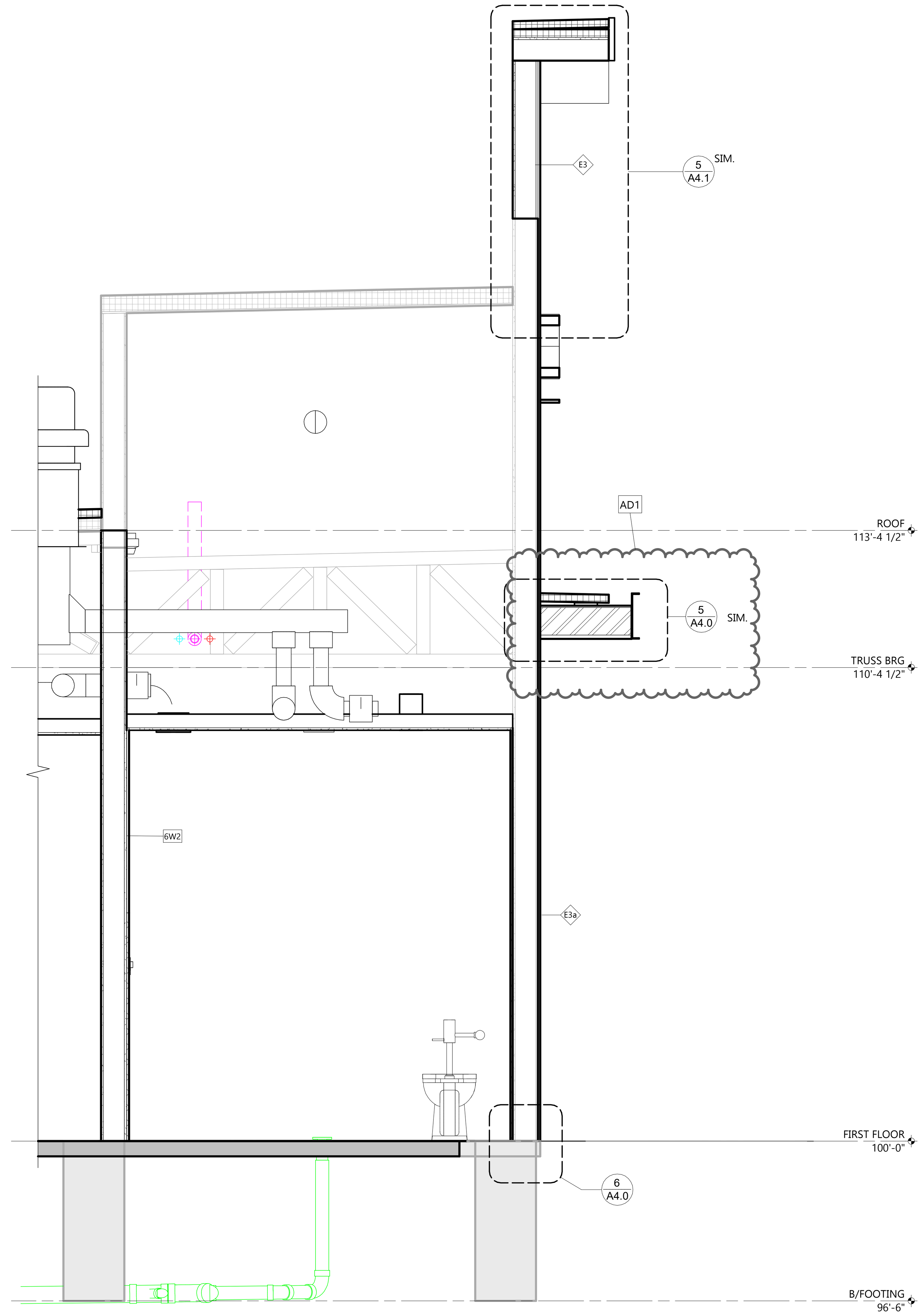

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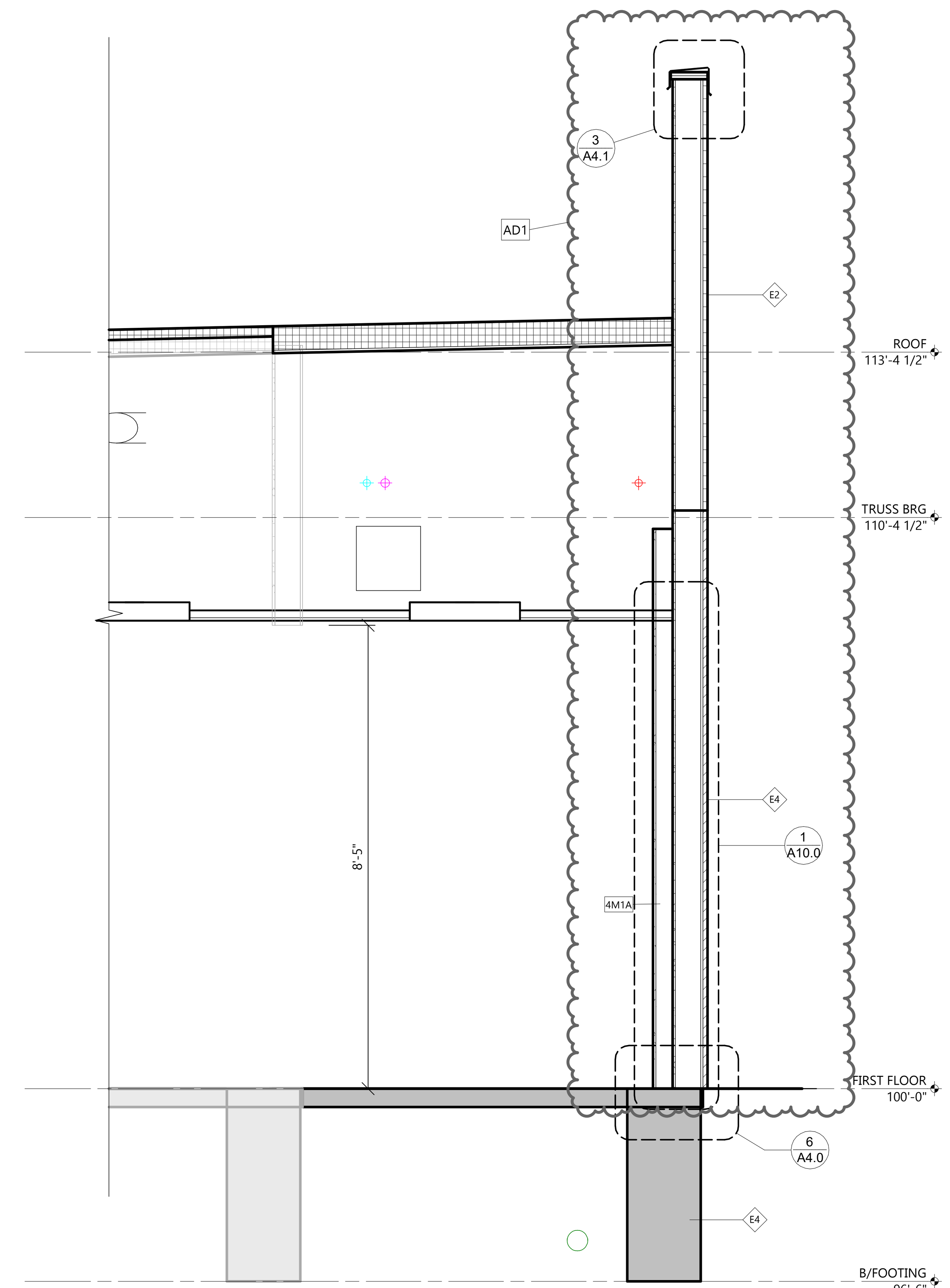

1
A3.2
BUILDING SECTION
SCALE: 1/2" = 1'-0"

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SHEET NUMBER
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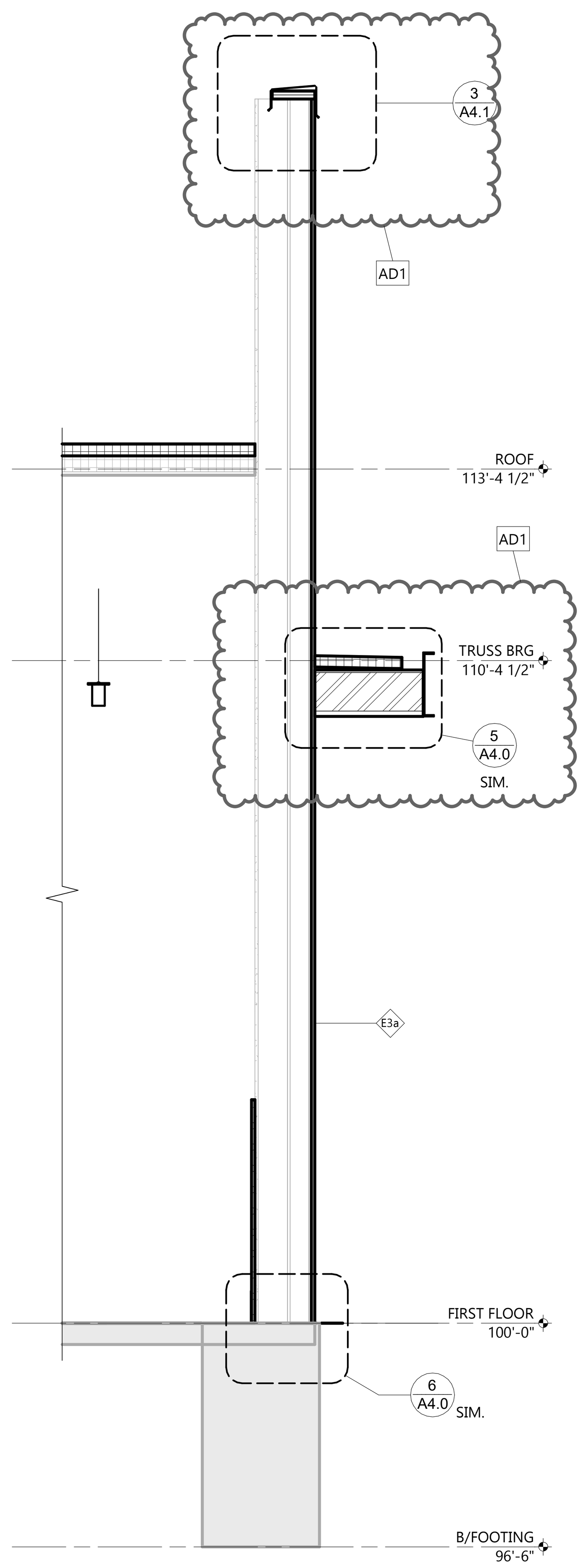

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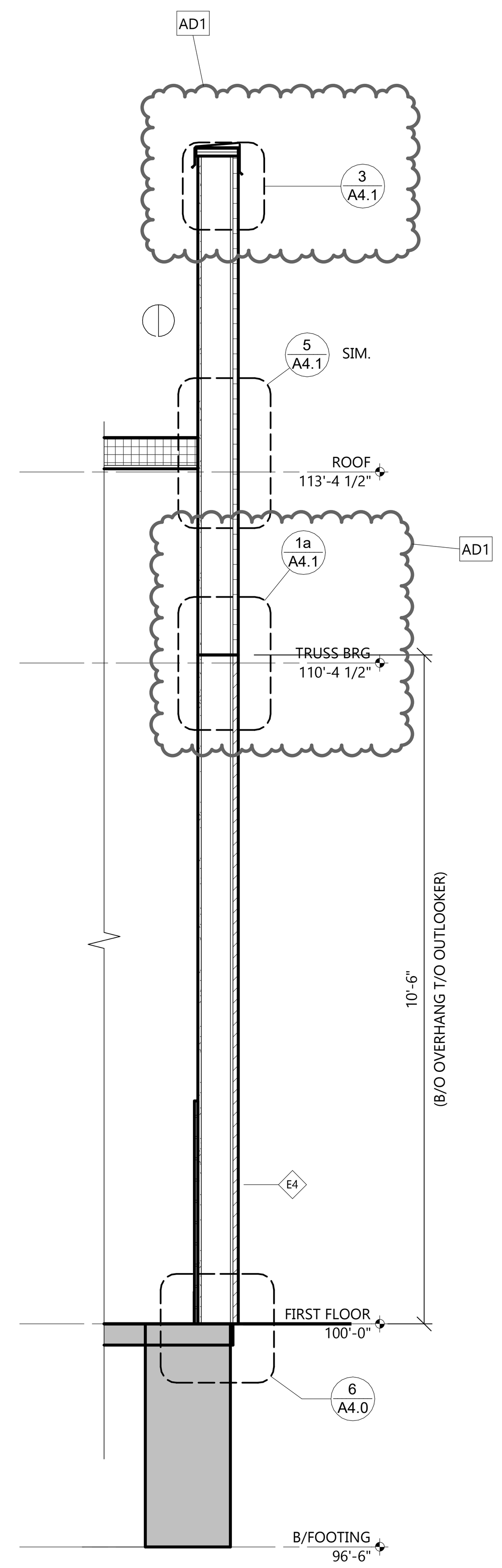

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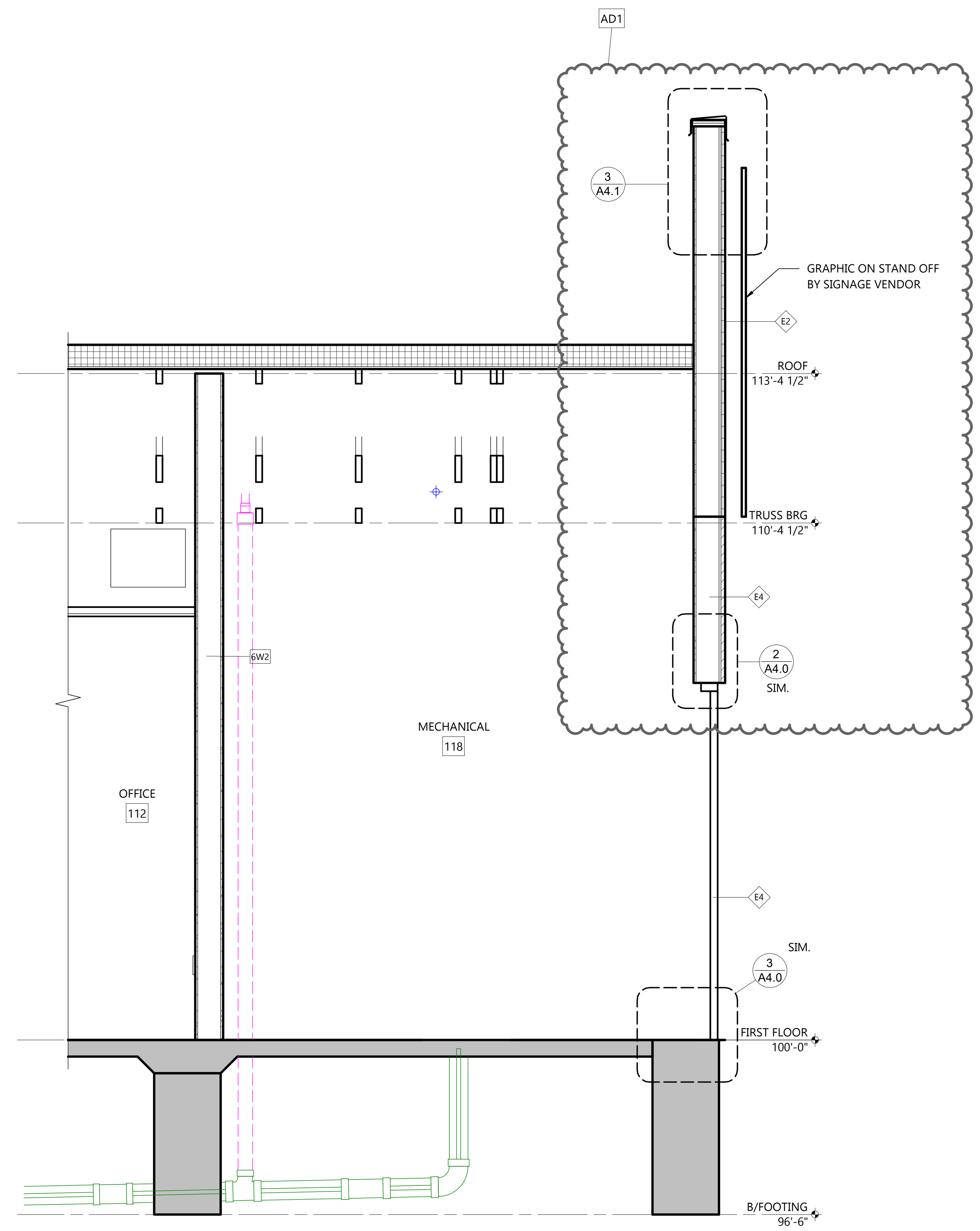

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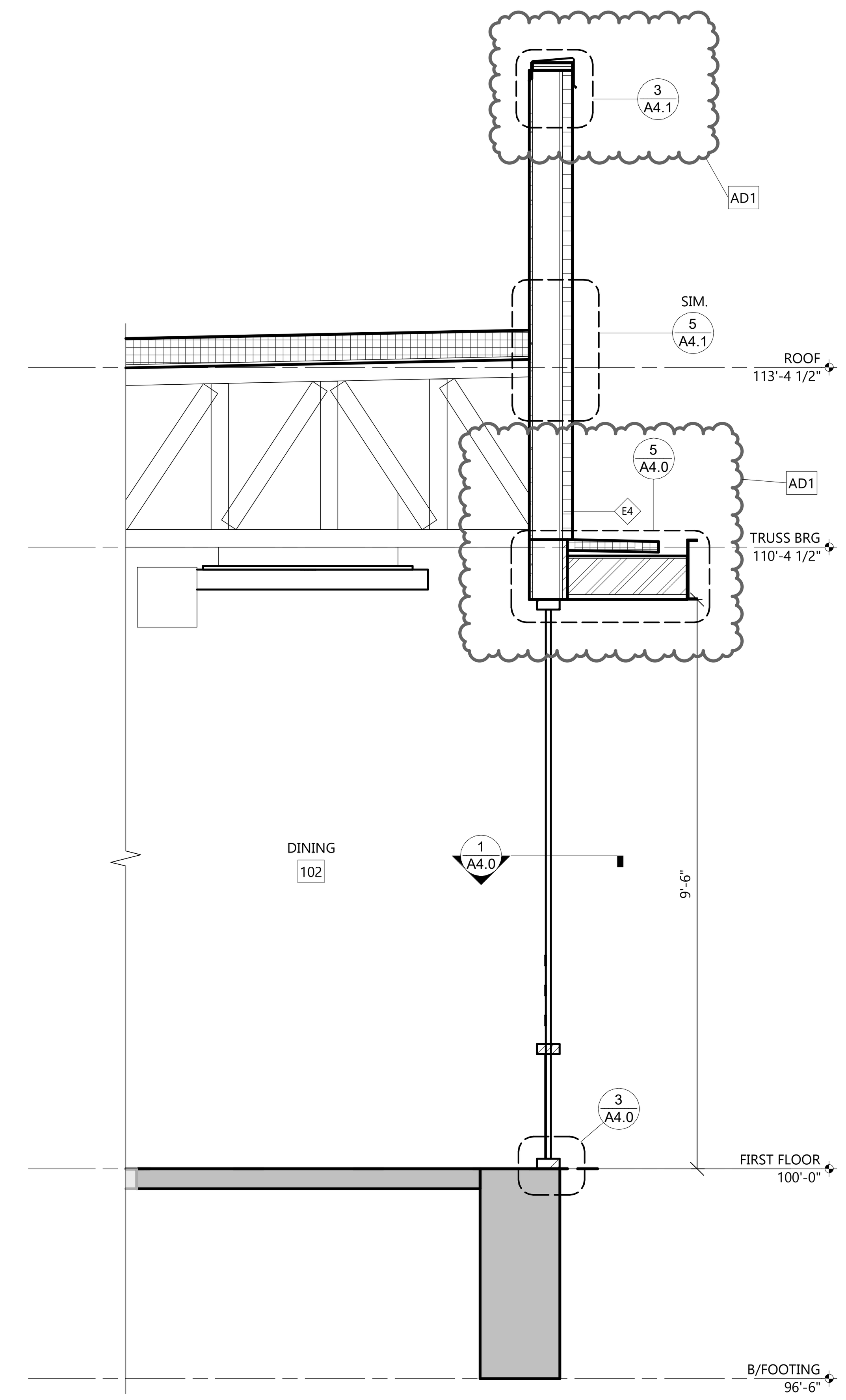

1 A3.3 BUILDING SECTION
SCALE: 1/2" = 1'-0"

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A3.3

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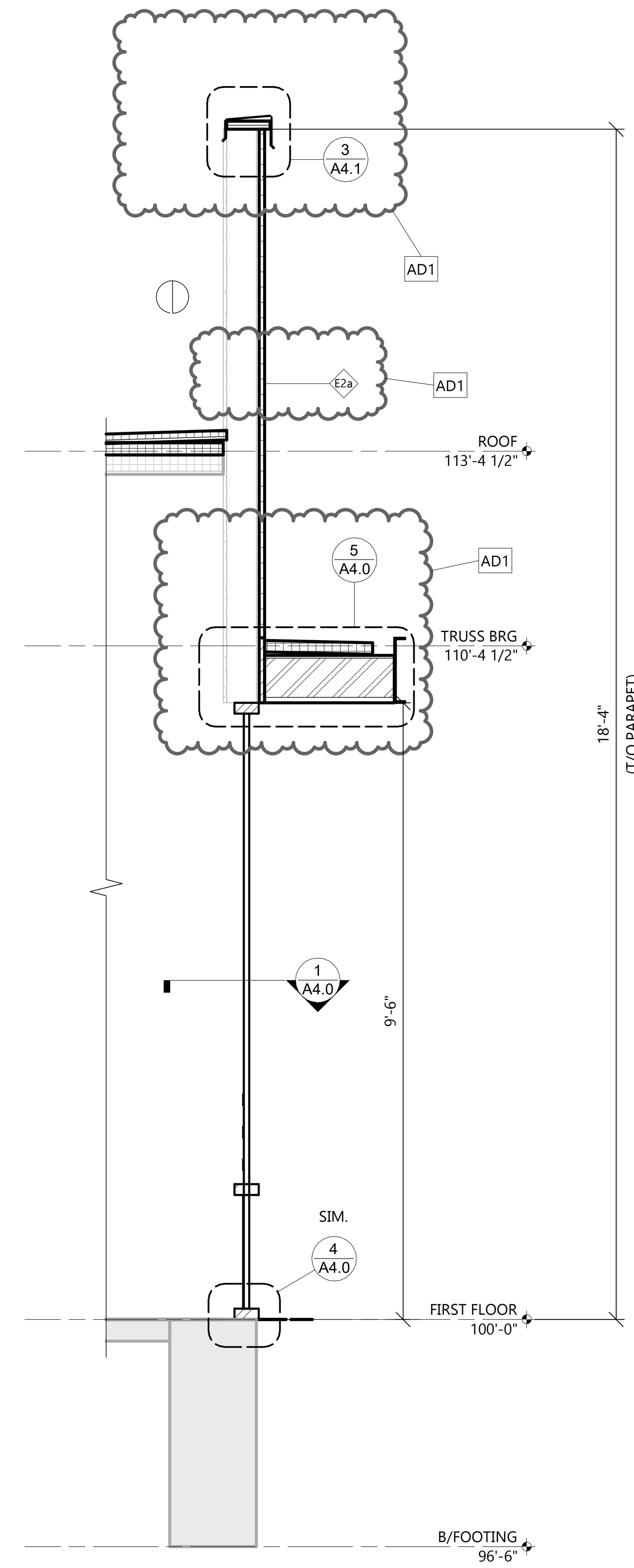

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A3.4
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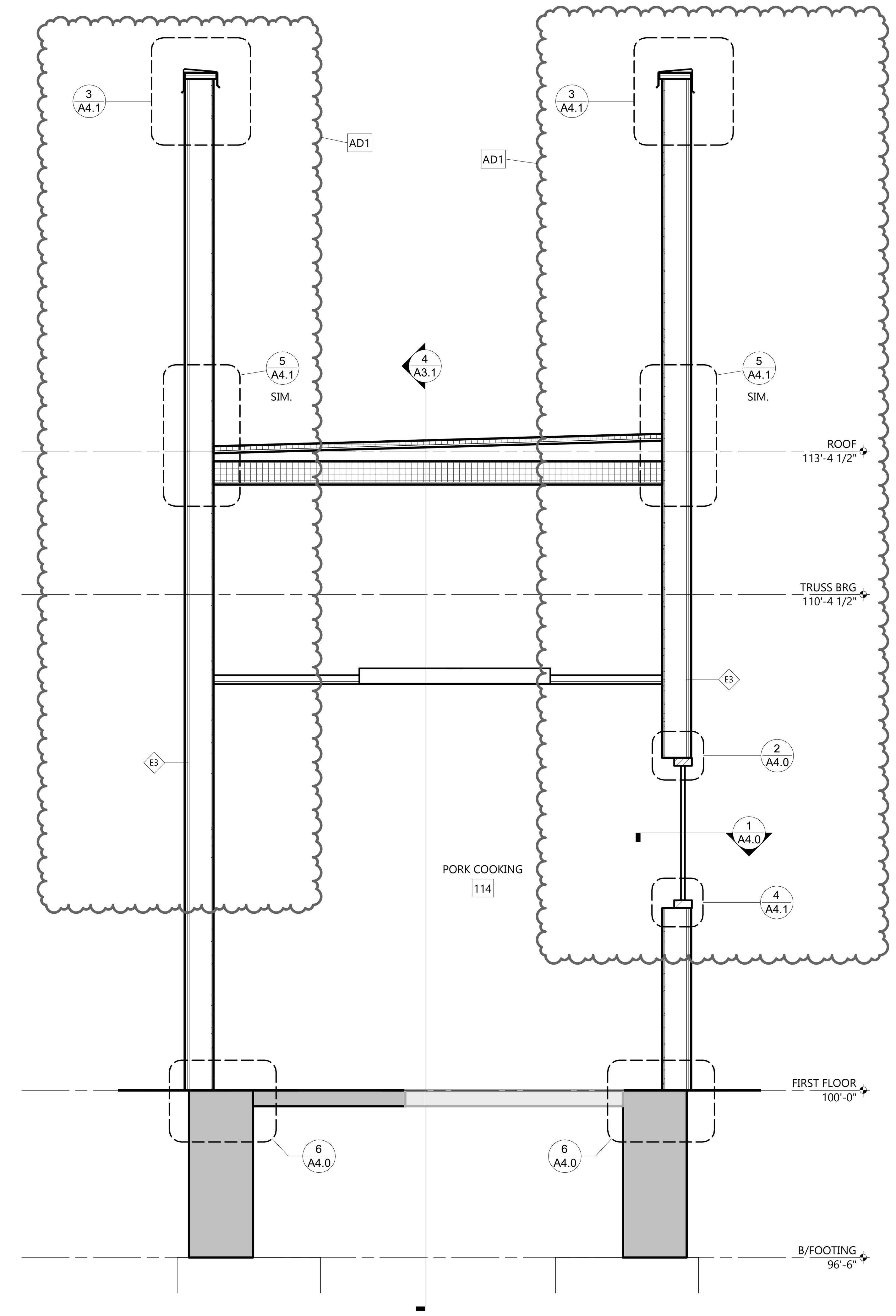

1
A3.4
BUILDING SECTION
SCALE: 1/2" = 1'-0"

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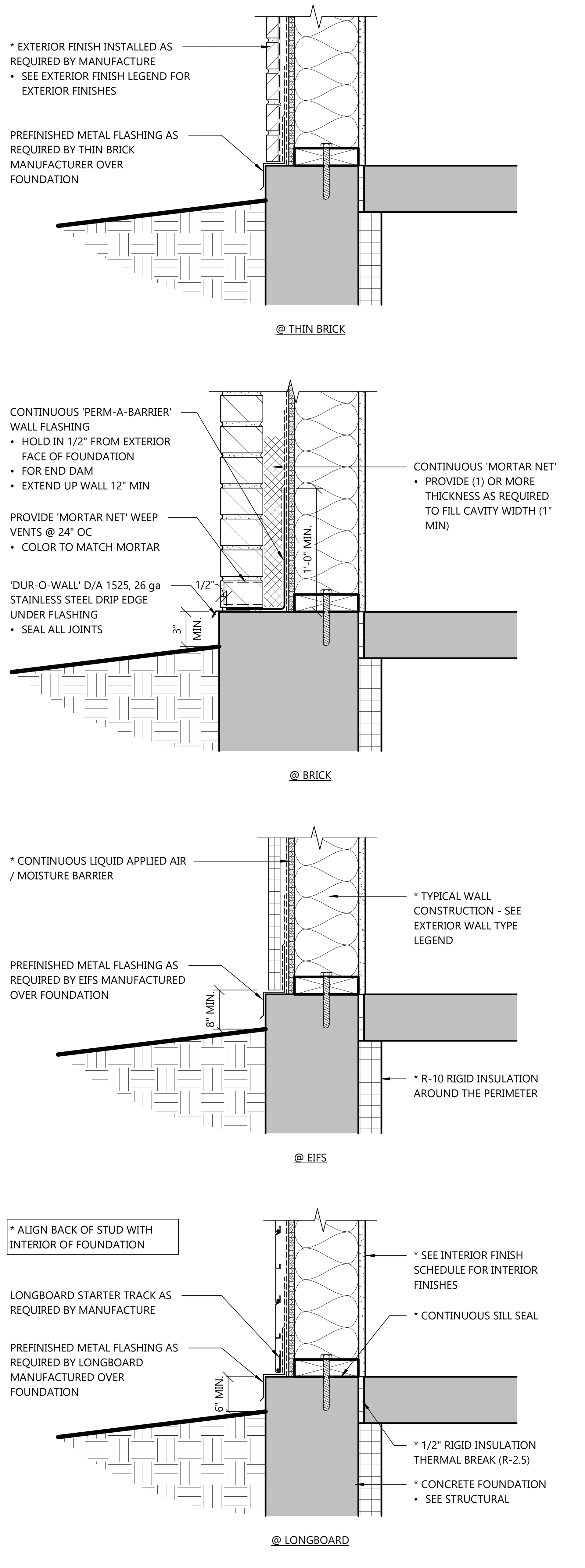
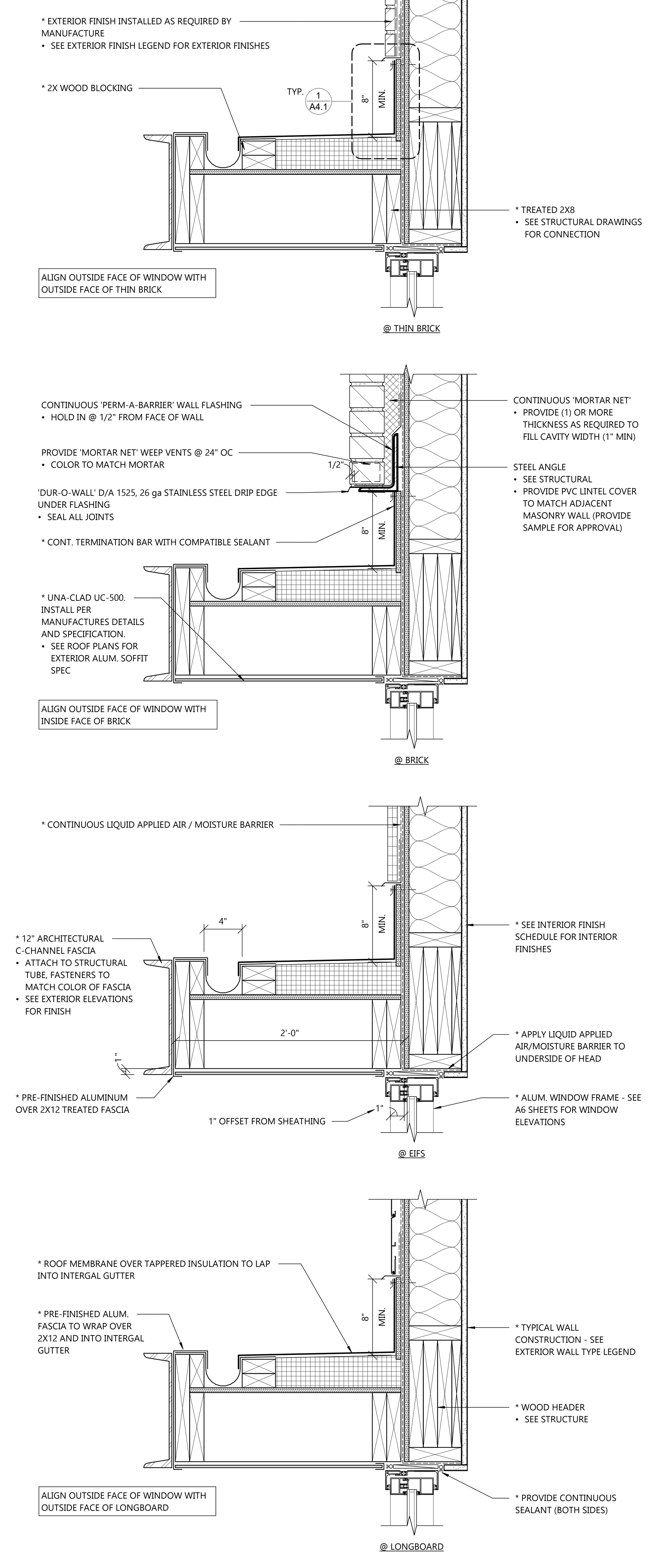
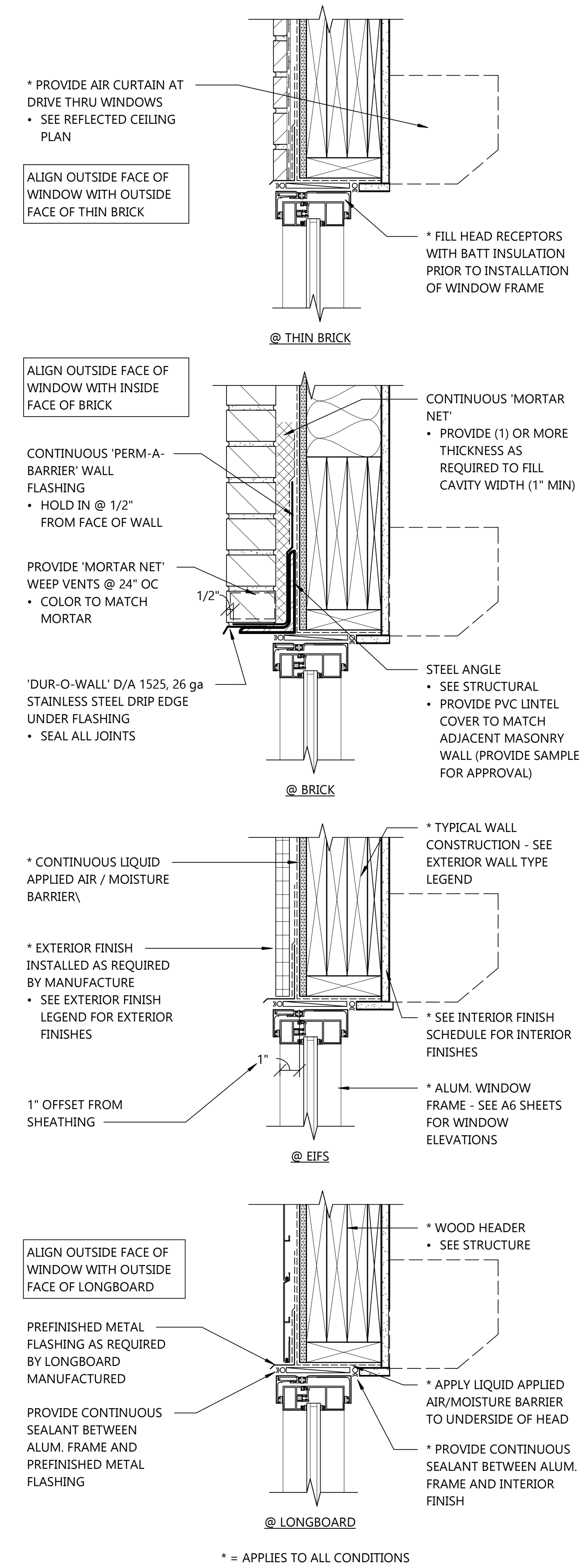


6 BASE DETAIL
A4.0 SCALE: 1 1/2" = 1'-0"

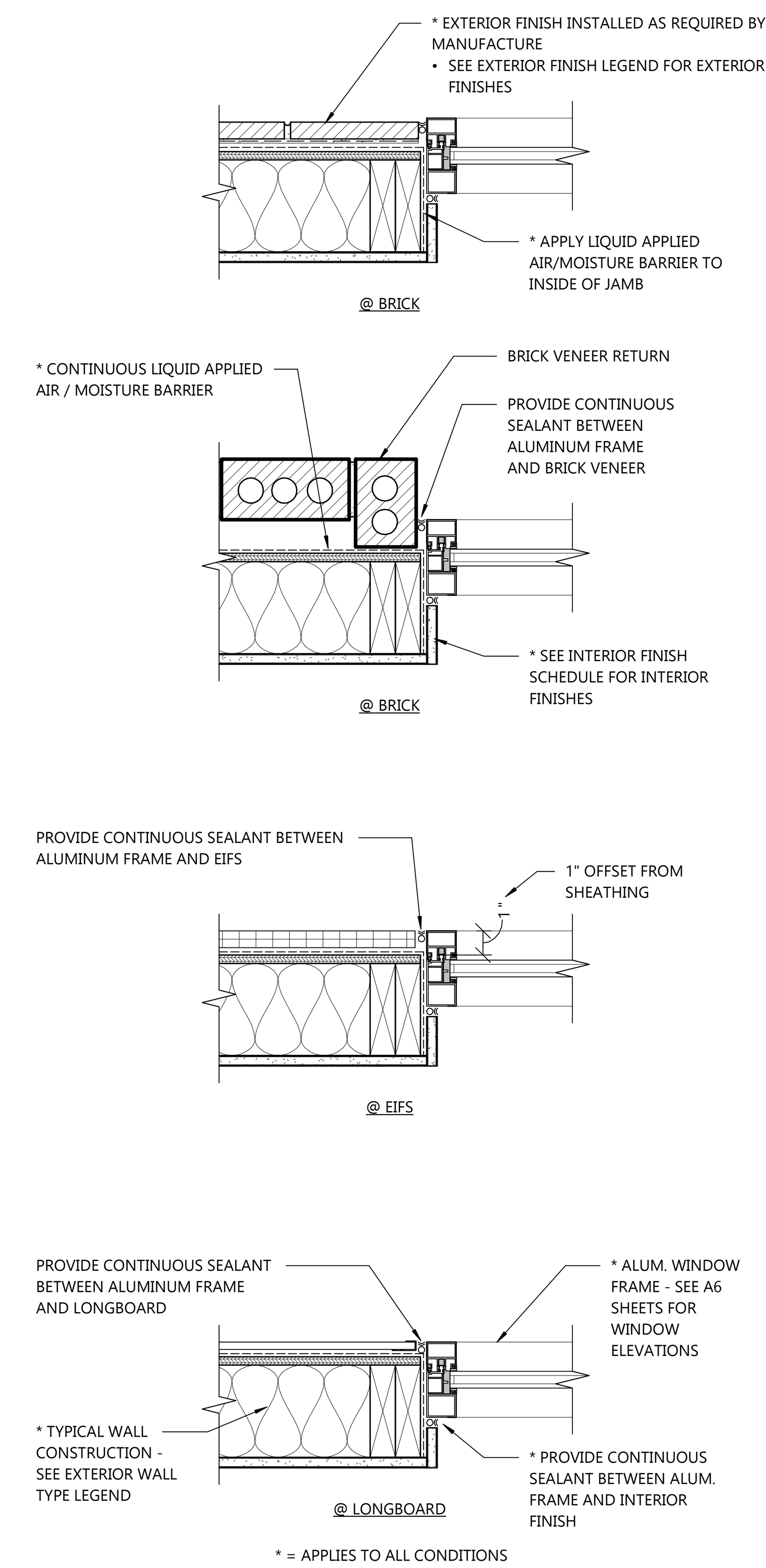


5 STOREFRONT HEAD (CANOPY)
A4.0 SCALE: 1 1/2" = 1'-0"

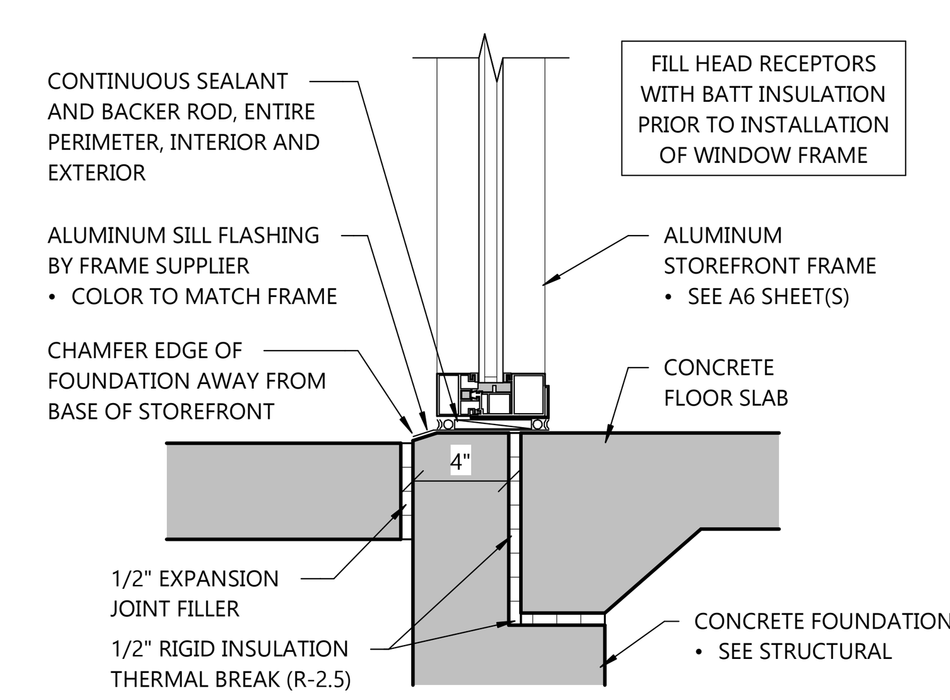
AD1



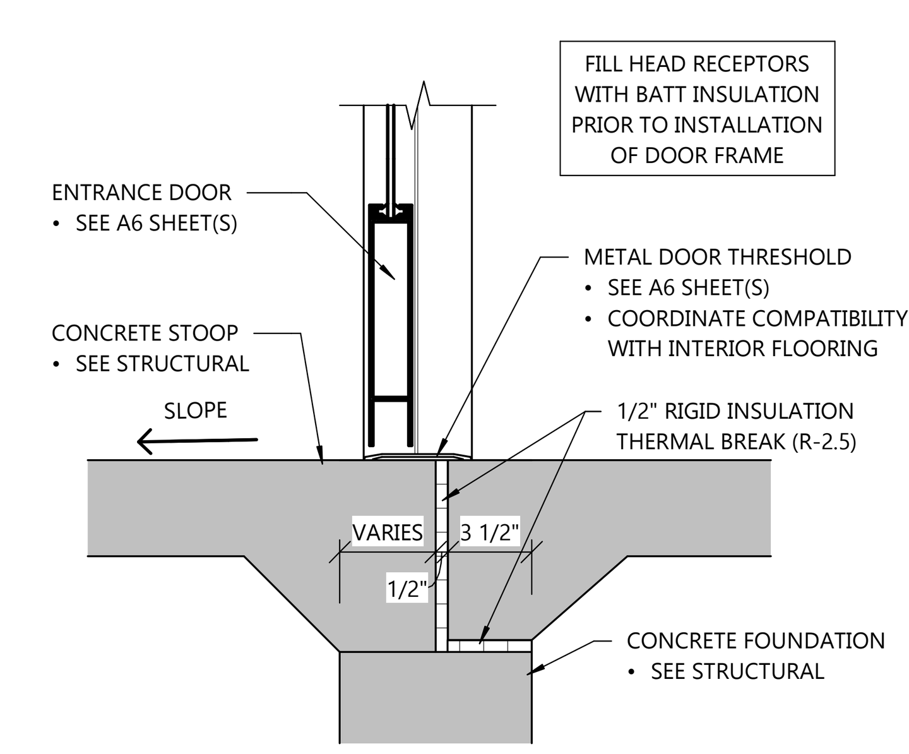
2 STOREFRONT HEAD
A4.0 SCALE: 1 1/2" = 1'-0"



1 STOREFRONT JAMB
A4.0 SCALE: 1 1/2" = 1'-0"



4 STOREFRONT BASE
A4.0 SCALE: 1 1/2" = 1'-0"



3 ALUMINUM DOOR BASE
A4.0 SCALE: 1 1/2" = 1'-0"

NOT ALL DETAILS MAY BE USED IN THIS PROJECT

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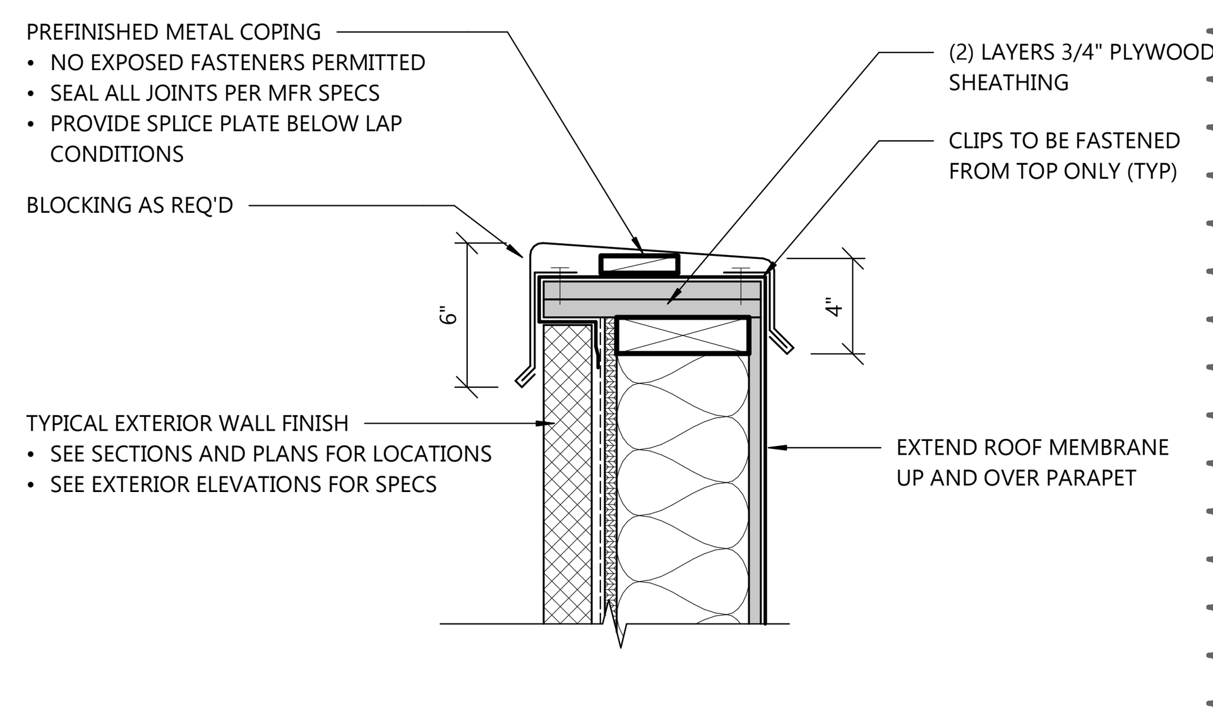
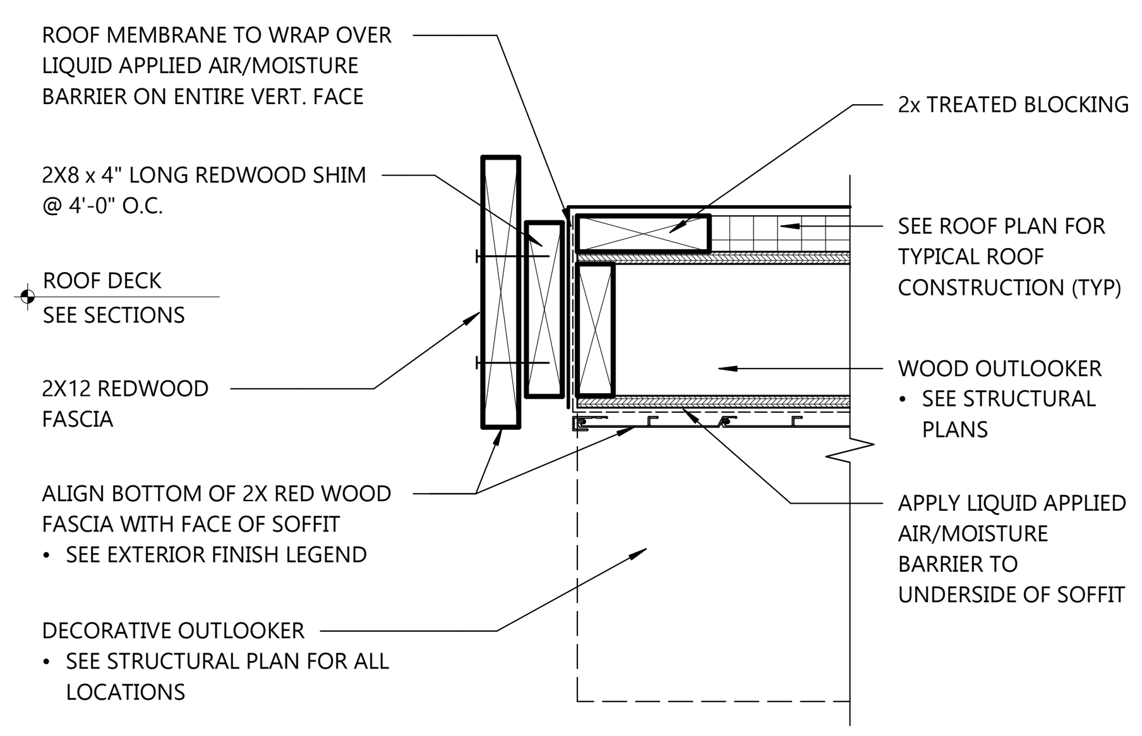
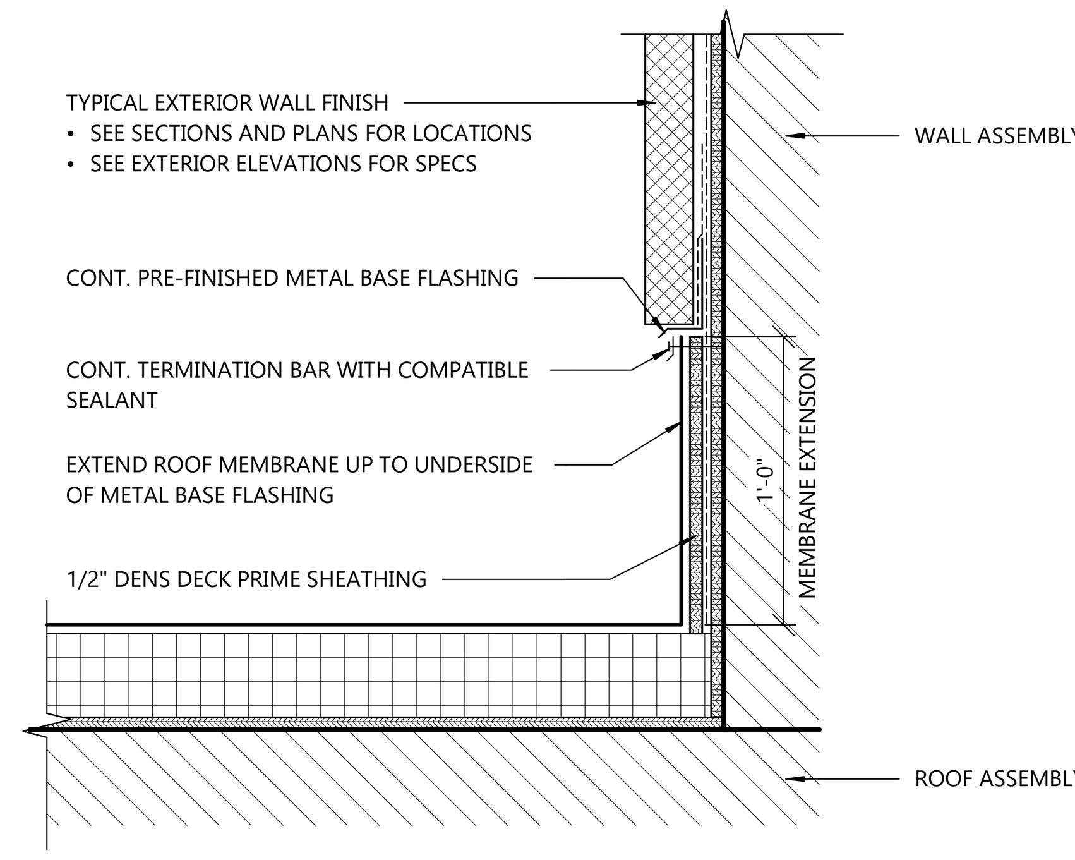


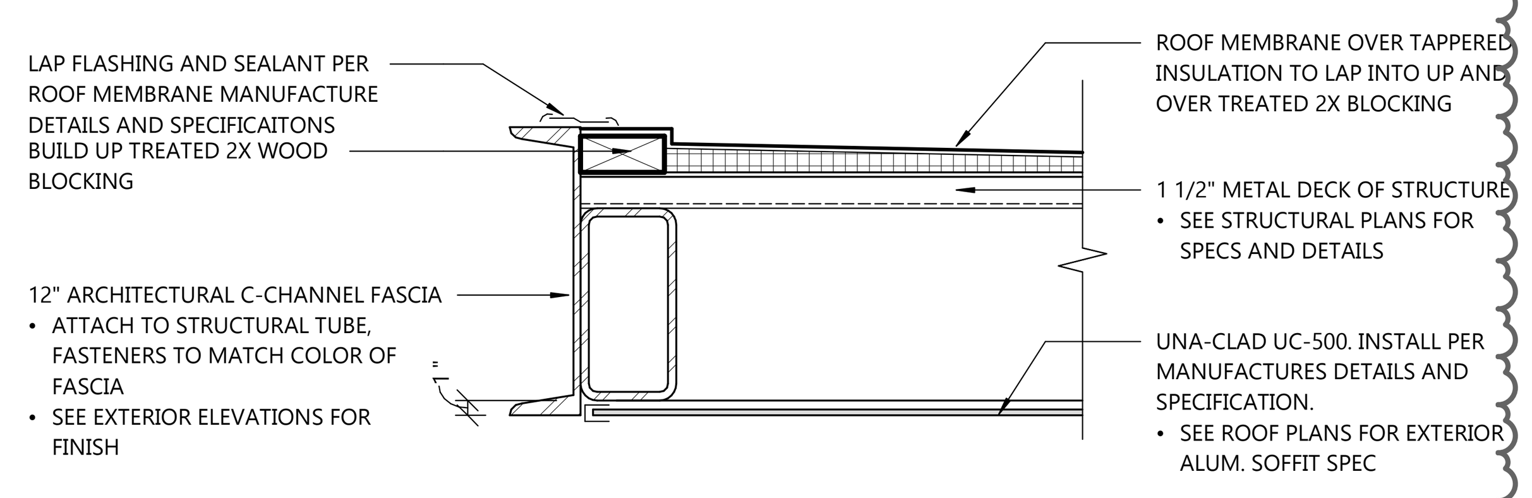
3 A4.1 COPING
SCALE: 1 1/2" = 1'-0"



2 A4.1 FASCIA DETAIL
SCALE: 1 1/2" = 1'-0"

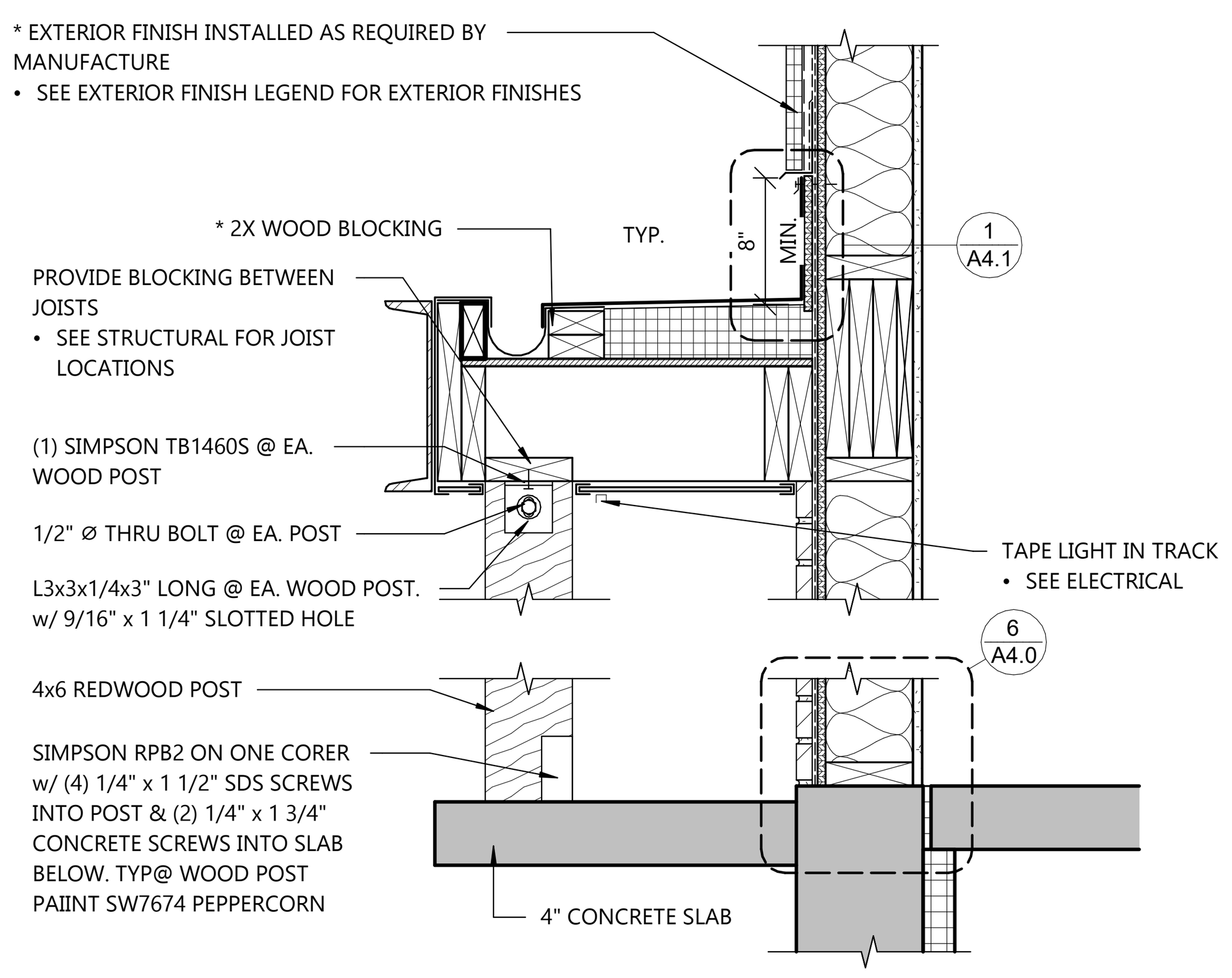


1 A4.1 ROOF TO WALL FLASHING DETAIL
SCALE: 1 1/2" = 1'-0"

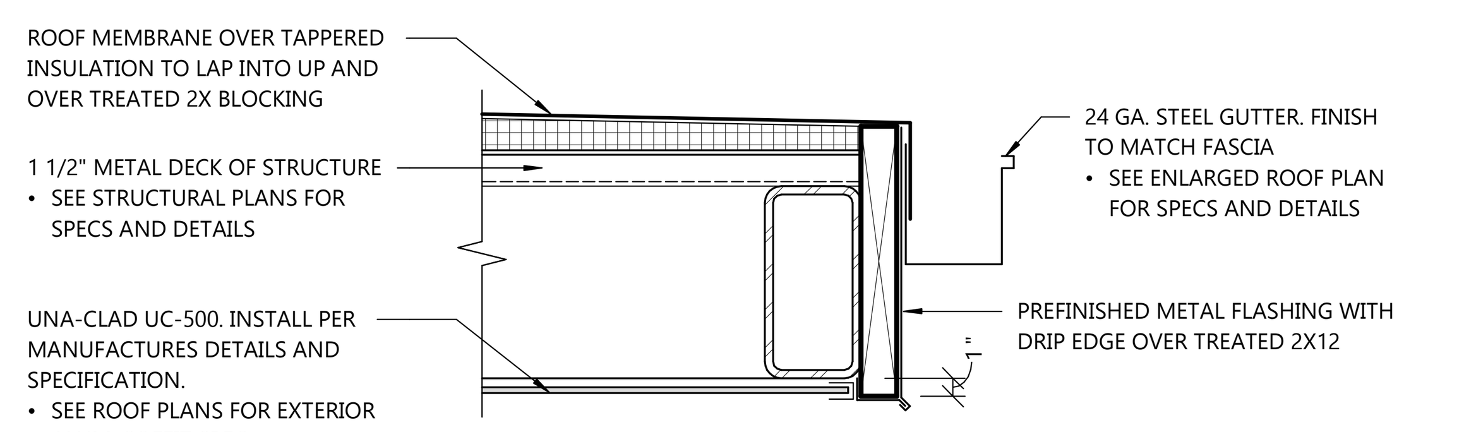


6 A4.1 FASCIA DETAIL
SCALE: 1 1/2" = 1'-0"

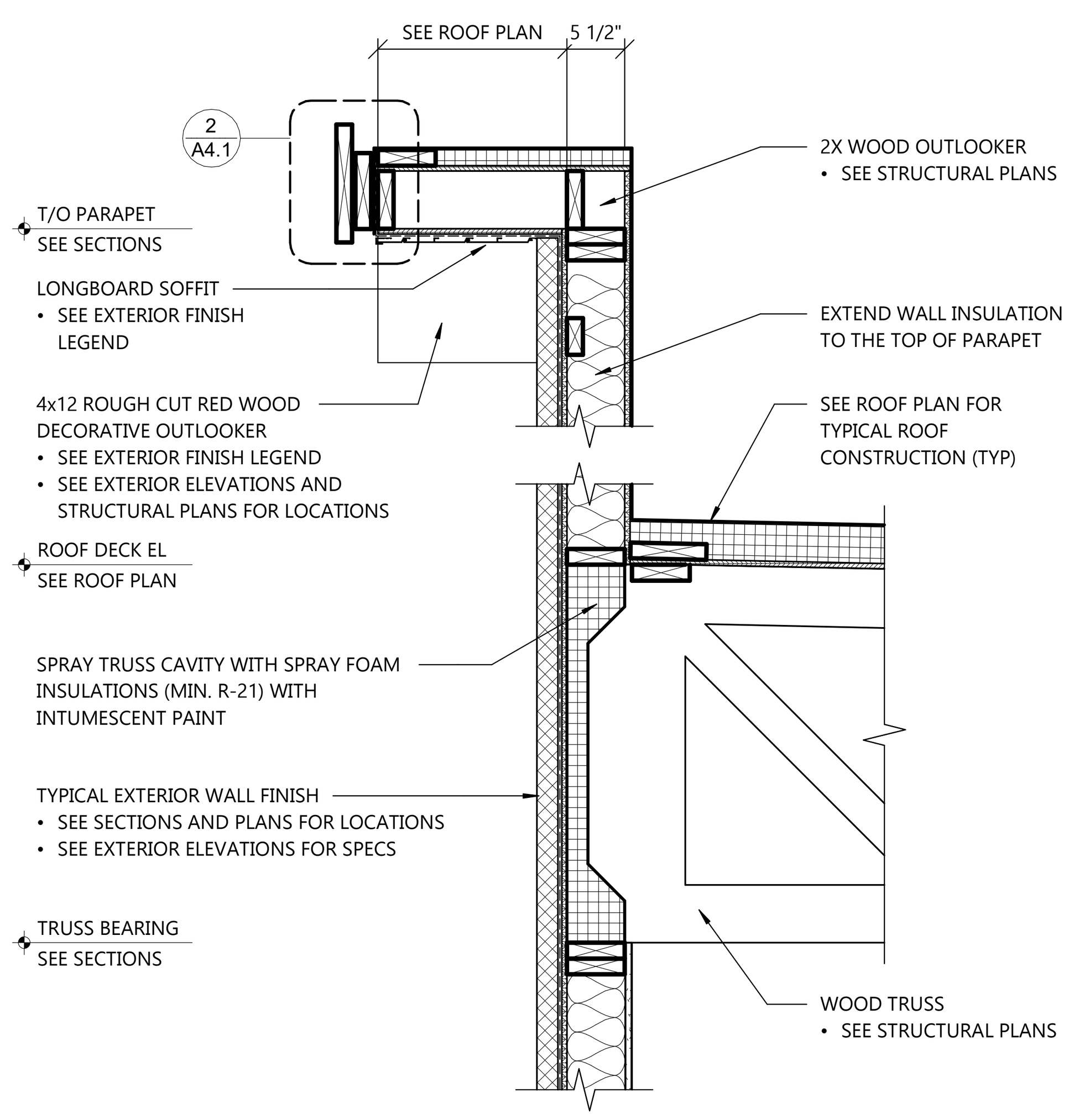
AD1



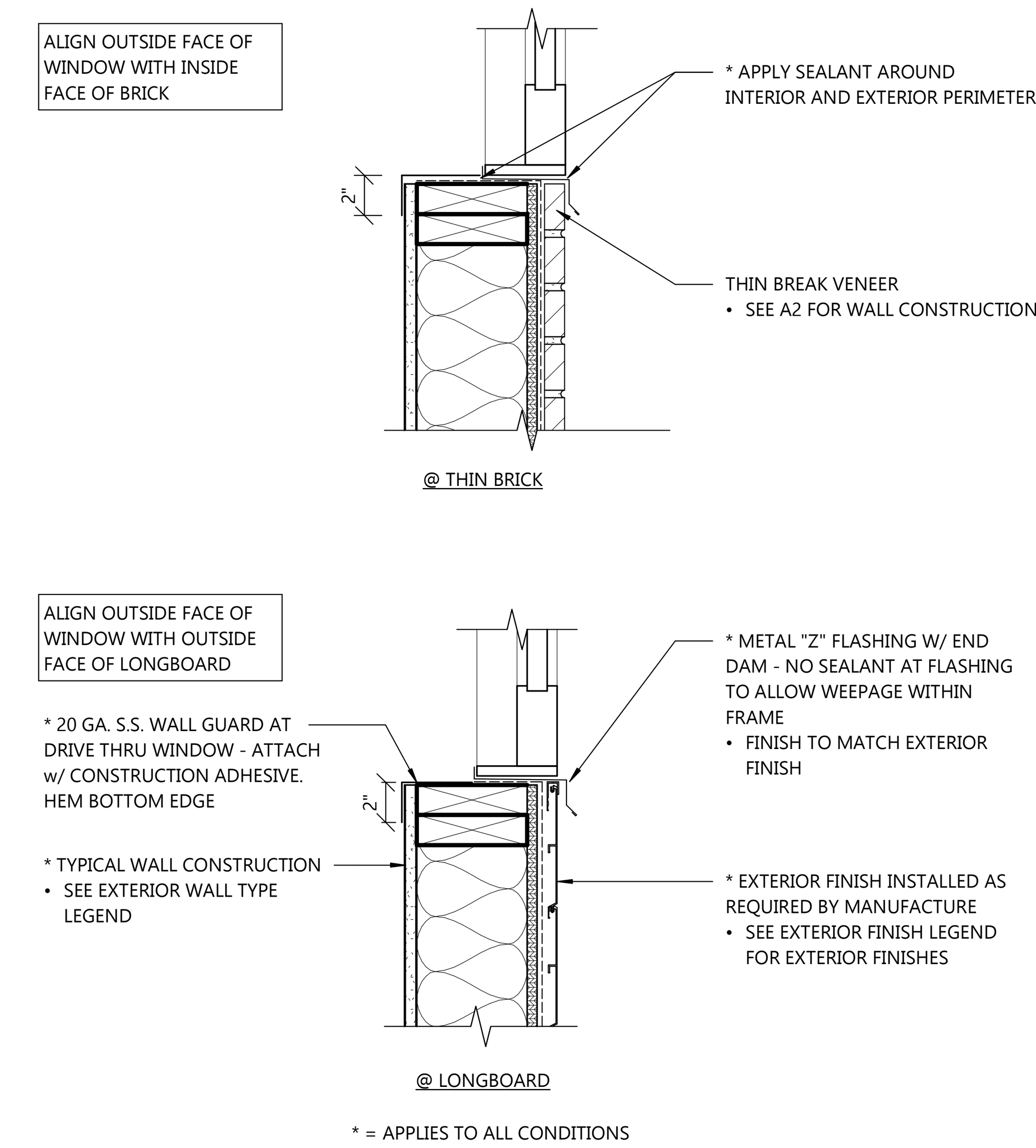
8 A4.1 WOOD COLUMNS @ AWNING
SCALE: 1" = 1'-0"



7 A4.1 FASCIA DETAIL
SCALE: 1 1/2" = 1'-0"



5 A4.1 PARAPET DETAIL
SCALE: 3/4" = 1'-0"



4 A4.1 WINDOW SILL DETAIL
SCALE: 1 1/2" = 1'-0"

AD1

GUTTER & DOWNSPOUT SPEC:

GUTTERS:

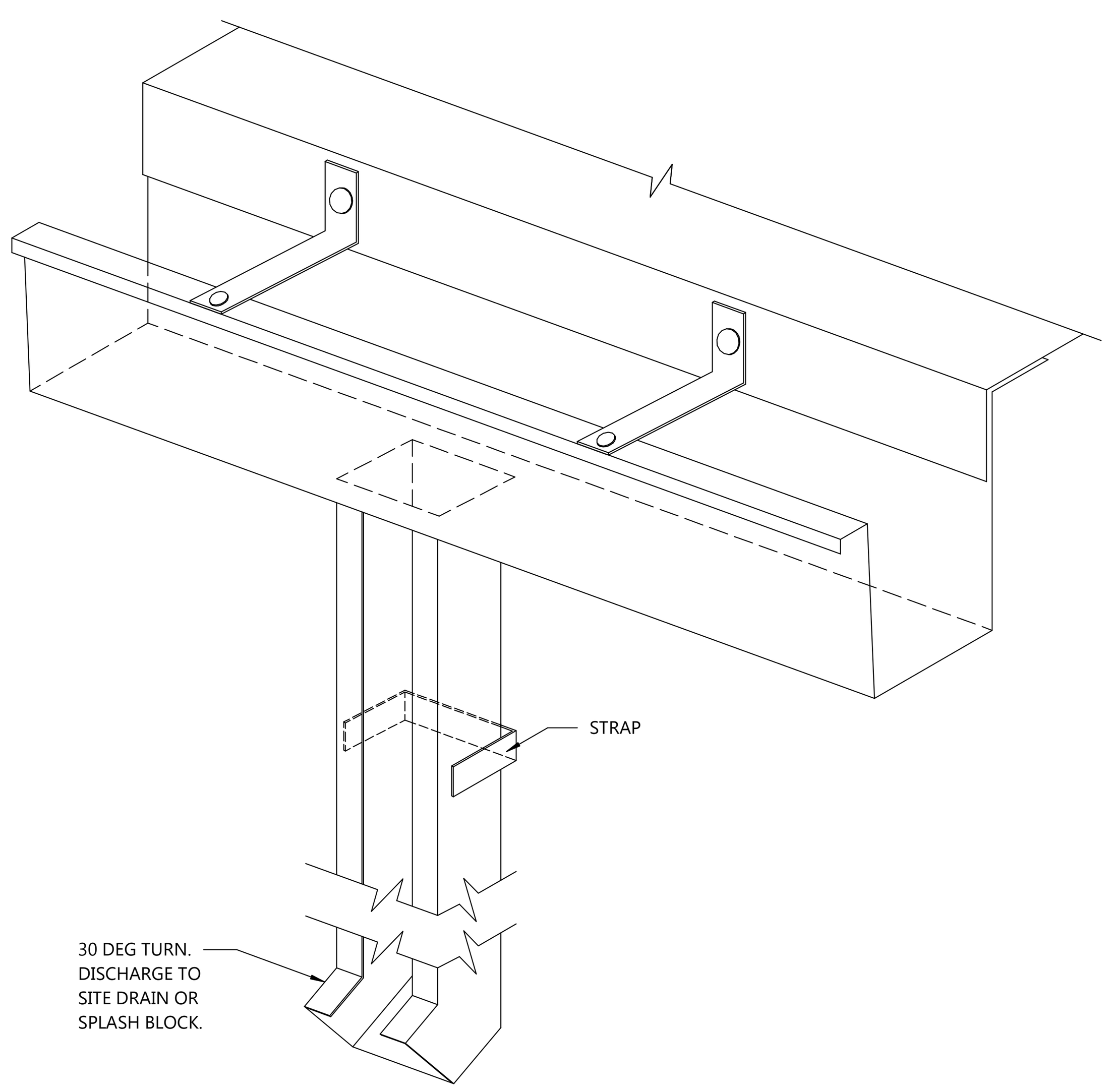
- SEAMLESS LENGTHS, WITH MATCHING CORNER UNITS, ENDS, OUTLET TUBES, AND OTHER ACCESSORIES. ELEVATE BACK EDGE AT LEAST 1" (25MM) ABOVE FRONT EDGE. FURNISH FLAT-STOCK GUTTER STRAPS, GUTTER BRACKETS, EXPANSION JOINTS, AND EXPANSION-JOINT COVERS FABRICATED FROM SAME METAL AS GUTTERS.
- ALUMINUM SHEET: 0.032" (0.81 MM) THICK
- GUTTER PROFILE: STYLE K ACCORDING TO SMACNA'S "ARCHITECTURE SHEET METAL MANUAL"
- SIZE: 5"X5"
- CORNERS: FACTORY MITERED AND MECHANICALLY CLINCHED AND SEALED WATERTIGHT.
- GUTTER SUPPORTS: GUTTER BRACKETS WITH FINISH MATCHING THE GUTTERS.
- COLOR AS SELECTED BY ARCHITECT/OWNER

DOWNSPOUTS:

- PLAIN RECTANGULAR COMPLETE WITH MITERED ELBOWS, MANUFACTURED FROM THE FOLLOWING EXPOSED METAL. FURNISH WITH METAL HANGERS, FROM SAME MATERIAL AS DOWNSPOUTS, AND ANCHORS.
- FORMED ALUMINUM: 0.032" (0.81 MM) THICK
- SIZE: 4"X4"
- COLOR: SW7674 PEPPERCORN

GUTTER GUARD:

- PLY GEM LEAF RELIEF WITH CONTINUOUS HANGING SYSTEM



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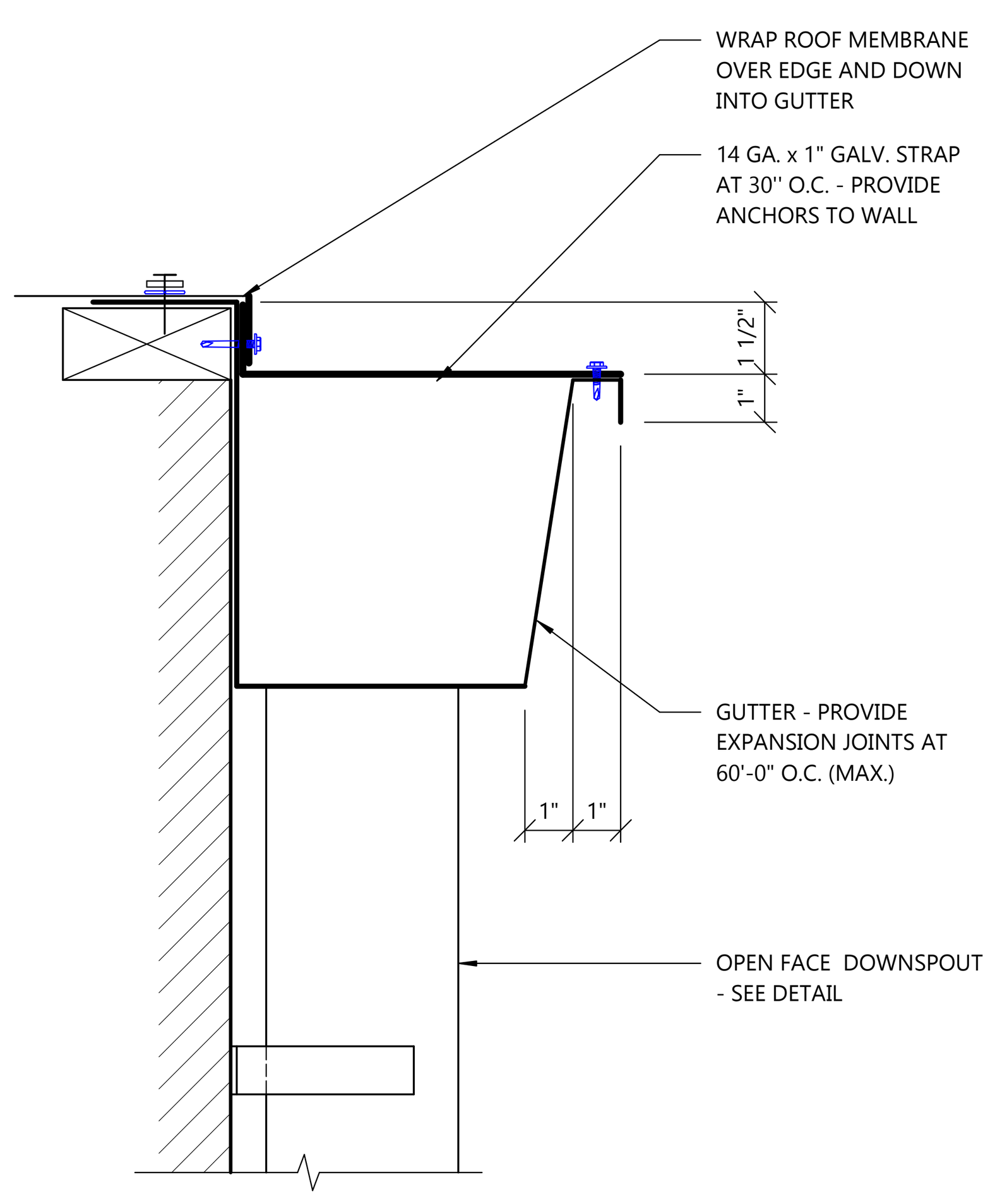
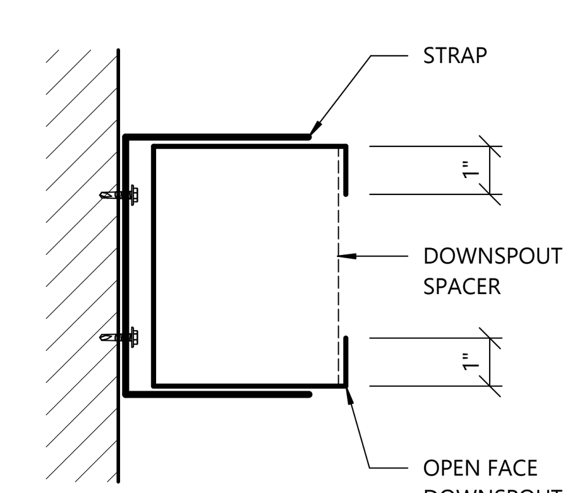


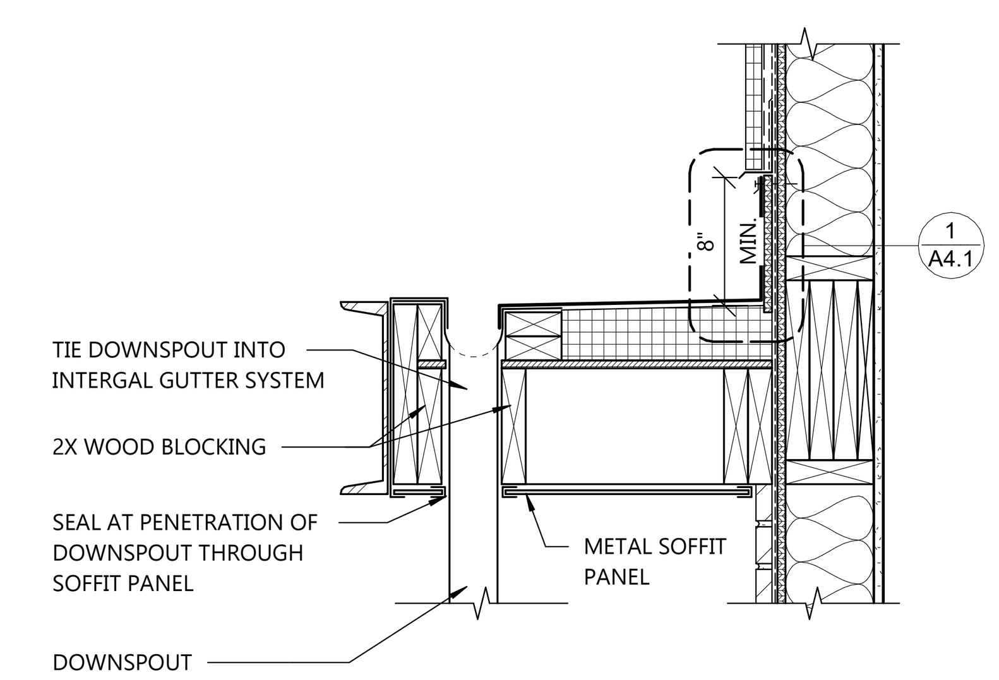
GUTTER SECTION



DOWNSPOUT SECTION

10 A4.1 GUTTER AND DOWNSPOUT DETAIL
NOT TO SCALE

AD1



9 A4.1 AWNING DOWNSPOUTS
SCALE: 1" = 1'-0"

NOT ALL DETAILS MAY BE USED IN THIS PROJECT

ARCHITECTURAL DETAILS

EXCEL
ARCHITECTS ● ENGINEERS ● SURVEYORS
Always a Better Plan
100 Camelot Drive
Fond Du Lac, WI 54935
Phone: (920) 926-9800
www.EXCELENGINEER.com

PROJECT INFORMATION

PROPOSED BUILDING RENOVATION
HAWAIIAN BROS - STR: 43
1401 GRINDSTONE PKWY ● COLUMBIA, MO

PROFESSIONAL SEAL

SHEET DATES

SHEET ISSUE	OCT. 26, 2021
REVISIONS	
AD1	MAR. 7, 2022

JOB NUMBER
2164120

SHEET NUMBER
A4.1

KEYED TOILET ROOM ACCESSORY LEGEND

(1) 1 1/2"ø GRAB BAR
MFGR: BOBRICK
MODEL: B-6806
FINISH: SATIN STAINLESS STEEL
MOUNT FLUSH CONTROL ON OPEN SIDE OF WATER CLOSET

(2) 1 1/2"ø GRAB BAR
MFGR: BOBRICK
MODEL: B-6806
FINISH: SATIN STAINLESS STEEL

(3) FLOOR MOUNTED FLUSH VALVE
FINISH: WHITE
SEE PLUMBING PLANS
FOR SPECIFICATIONS

(4) VERGE WITH WASHBAR
MFGR: BRADLEY
FINISH: ANTARCTICA & BRUSHED STAINLESS
SEE PLUMBING PLANS FOR FULL SPECS.

(5) HEAVY DUTY CLOTHES
HOOK w/ CONCEALED
MOUNTING
-BOBRICK B-2116

(6) HORIZONTAL RECESSED BABY
CHANGING STATION
MFGR: BRADLEY
MODEL: 926
FINISH: STAINLESS STEEL

(7) TOILET PAPER DISPENSER
BY OWNER
FINISH: STAINLESS

(8) CUSTOM MIRROR
BY OWNER
MFGR: KATALYST

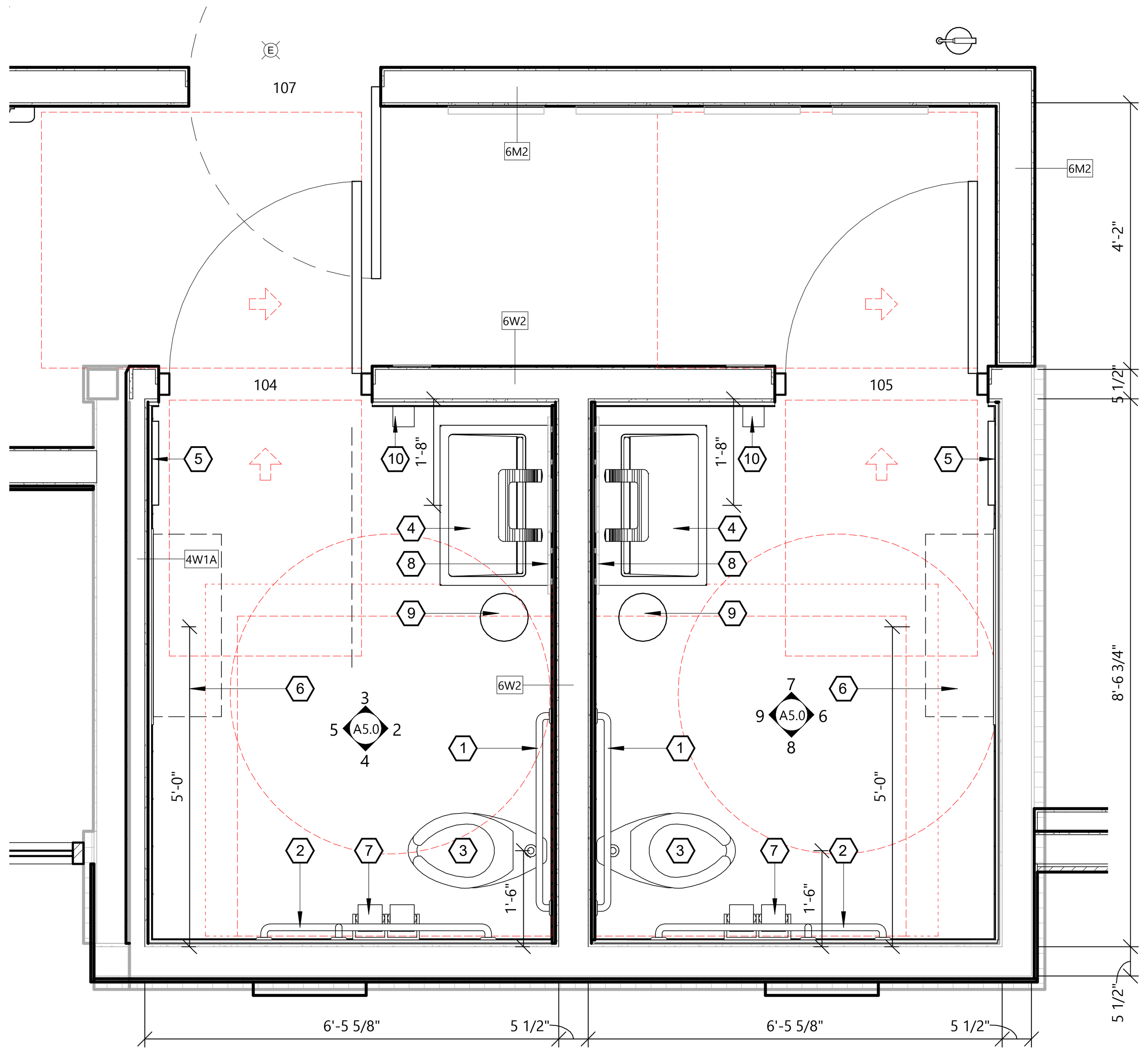
(9) PERSONAL TRASH
BY OWNER
FINISH: STAINLESS STEEL

(10) AIR FRESHENER
BY OWNER
FINISH: STAINLESS

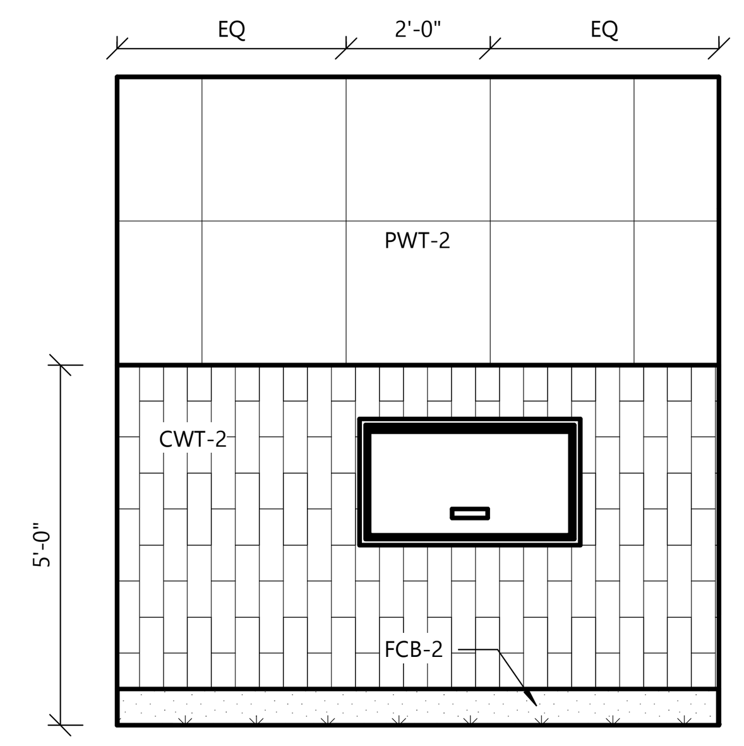
TOILET ROOM ACCESSORY SPECIFICATIONS:

GENERAL NOTES:

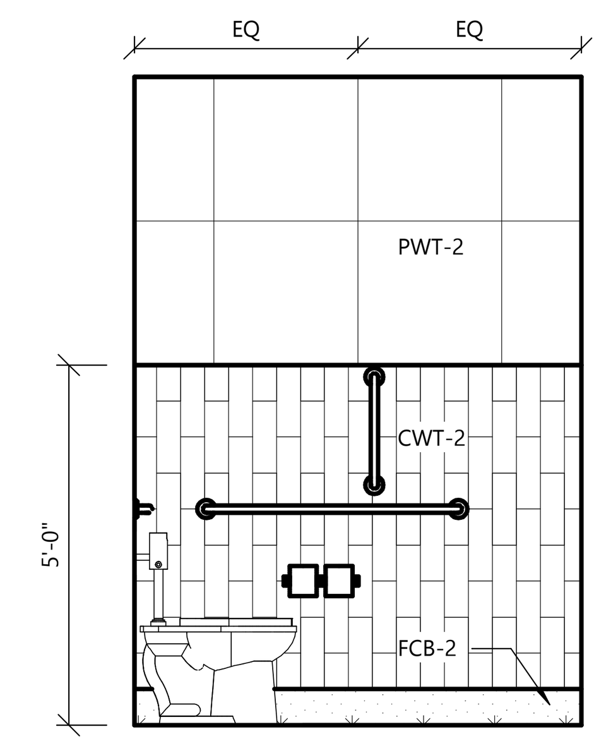
- SEE KEYED TOILET ROOM ACCESSORY LEGEND FOR MODEL NUMBERS, FINISH, AND COLORS
- GENERAL CONTRACTOR SHALL PROVIDE BLOCKING AS REQ'D AT ALL ACCESSORY LOCATIONS
- GENERAL CONTRACTOR SHALL VERIFY ROUGH OPENING REQ'S FOR ALL RECESSED EQUIPMENT/ACCESSORIES
- SEE MATERIAL LEGEND ON A6.0 FOR WALL FINISHES



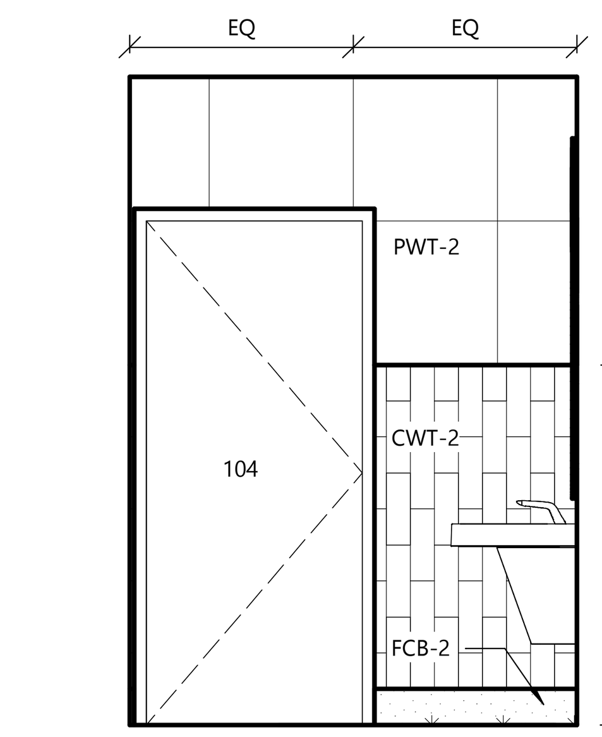
1 / A5.0 ENLARGED BATHROOM PLANS
SCALE: 1/2" = 1'-0"



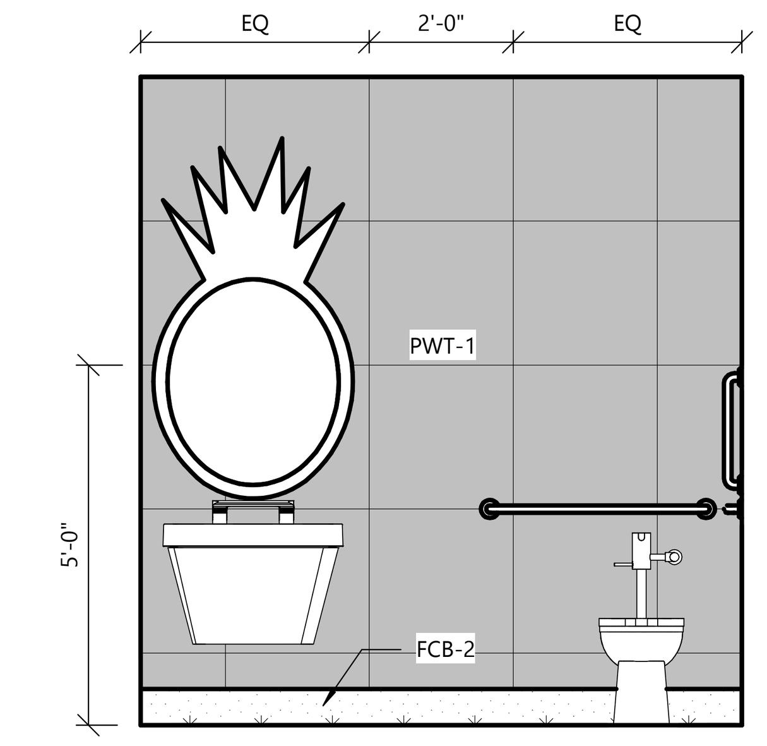
5 / A5.0 UNISEX (A) - WEST ELEVATION
SCALE: 3/8" = 1'-0"



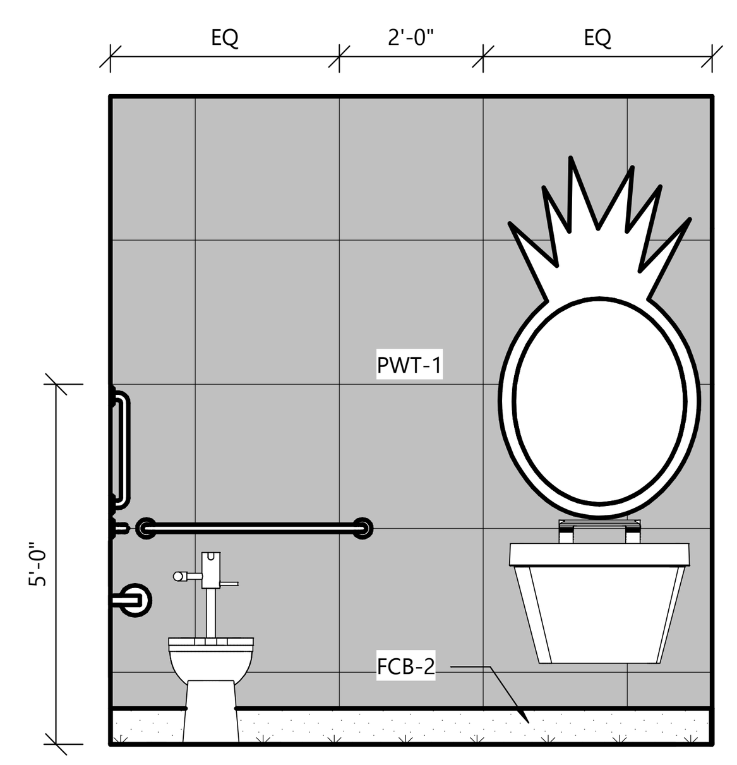
4 / A5.0 UNISEX (A) - SOUTH ELEVATION
SCALE: 3/8" = 1'-0"



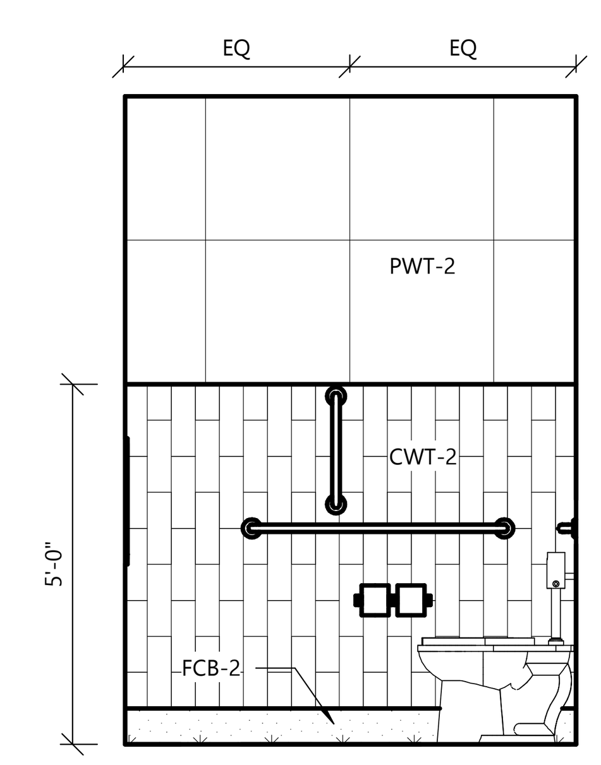
3 / A5.0 UNISEX (A) - NORTH ELEVATION
SCALE: 3/8" = 1'-0"



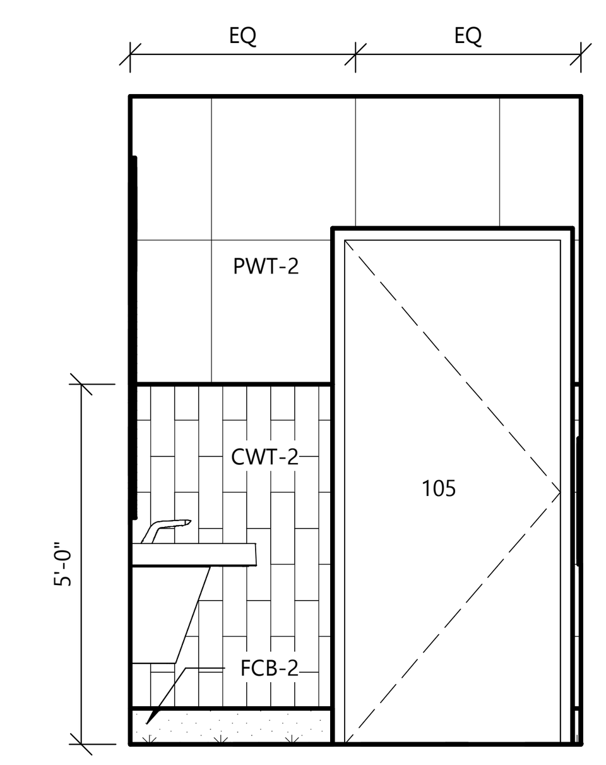
2 / A5.0 UNISEX (A) - EAST ELEVATION
SCALE: 3/8" = 1'-0"



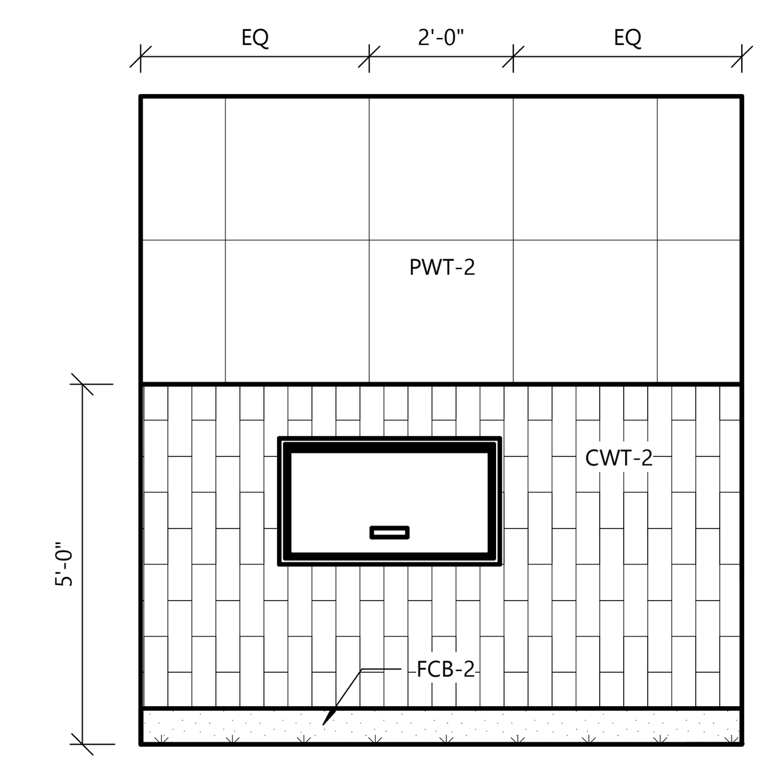
9 / A5.0 UNISEX (B) - WEST ELEVATION
SCALE: 3/8" = 1'-0"



8 / A5.0 UNISEX (B) - SOUTH ELEVATION
SCALE: 3/8" = 1'-0"



7 / A5.0 UNISEX (B) - NORTH ELEVATION
SCALE: 3/8" = 1'-0"



6 / A5.0 UNISEX (B) - EAST ELEVATION
SCALE: 3/8" = 1'-0"

ARCHITECTURAL ENLARGED PLANS

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A5.0

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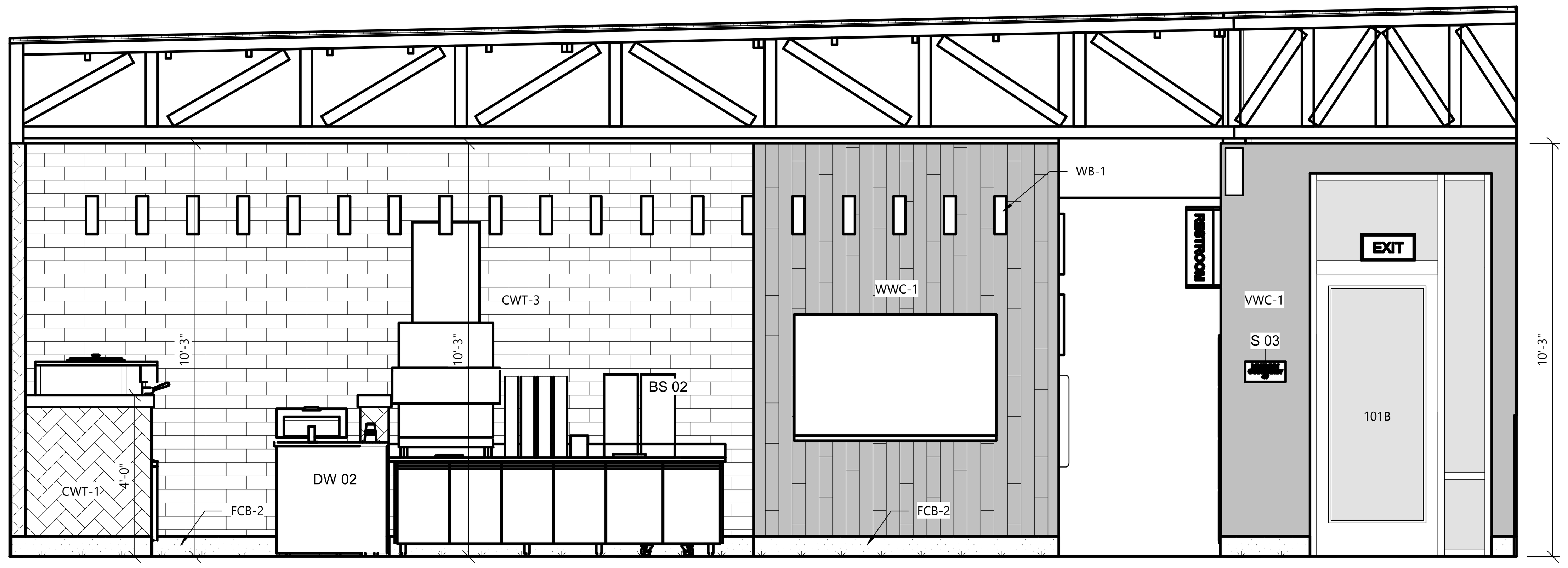
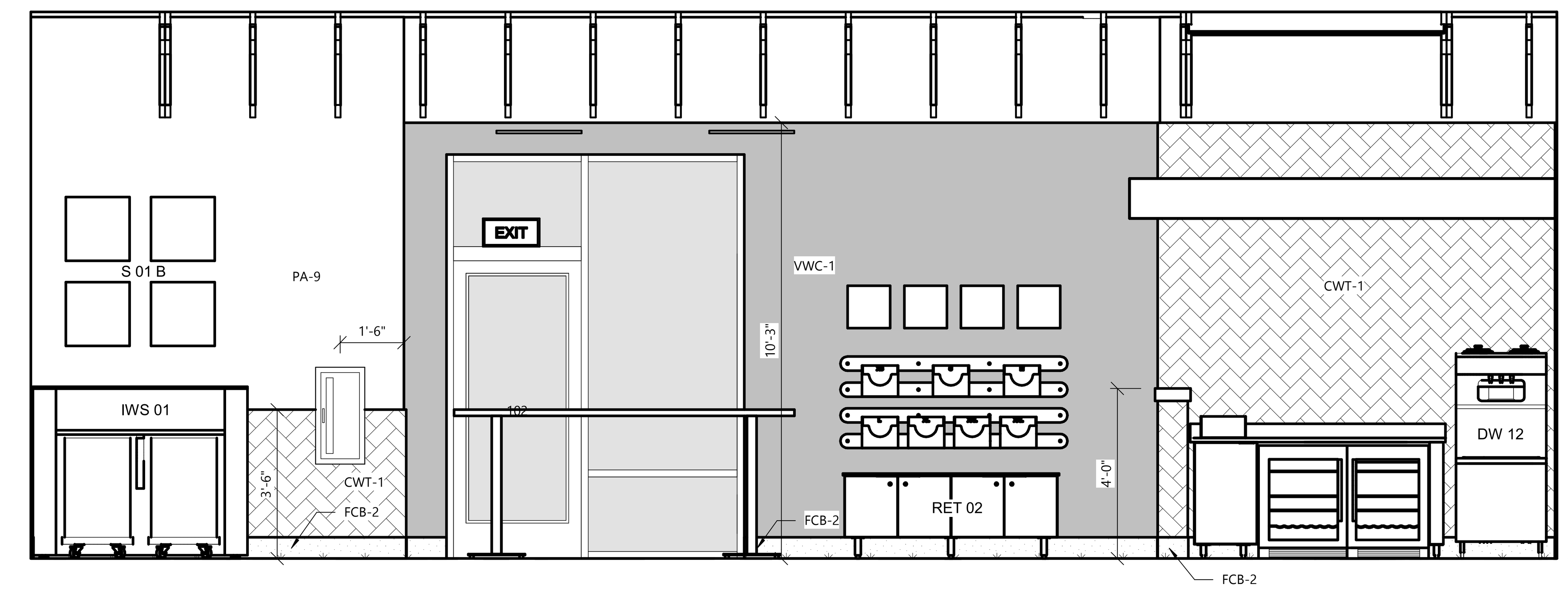
11/5/2021 12:31:06 PM



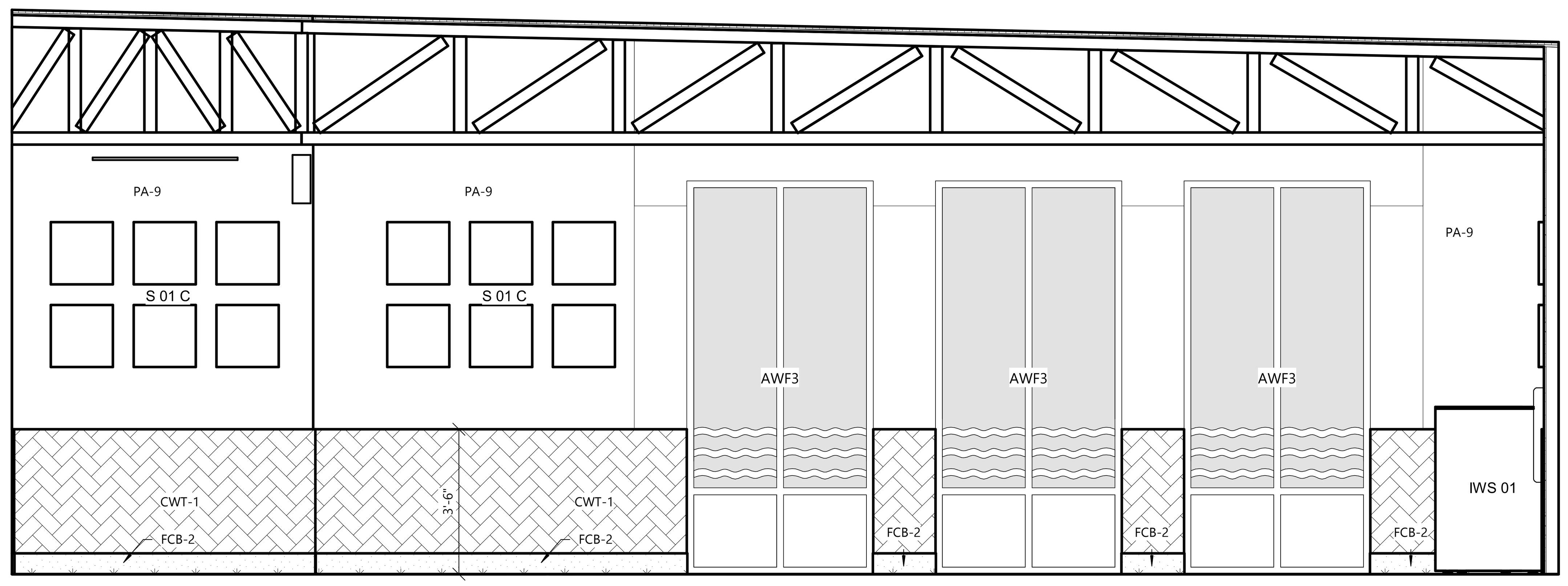
AD1

2 A5.1 FOH - EAST ELEVATION
SCALE: 3/8" = 1'-0"

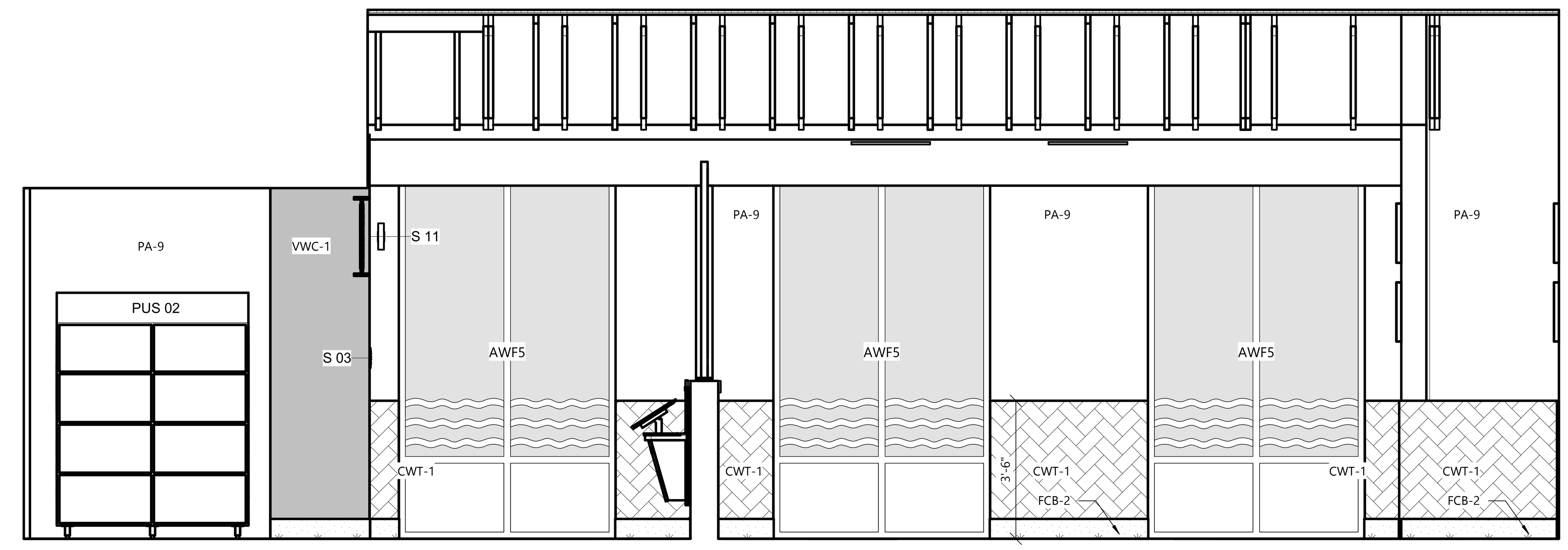


AD1

1 A5.1 FOH - NORTH ELEVATION
SCALE: 3/8" = 1'-0"

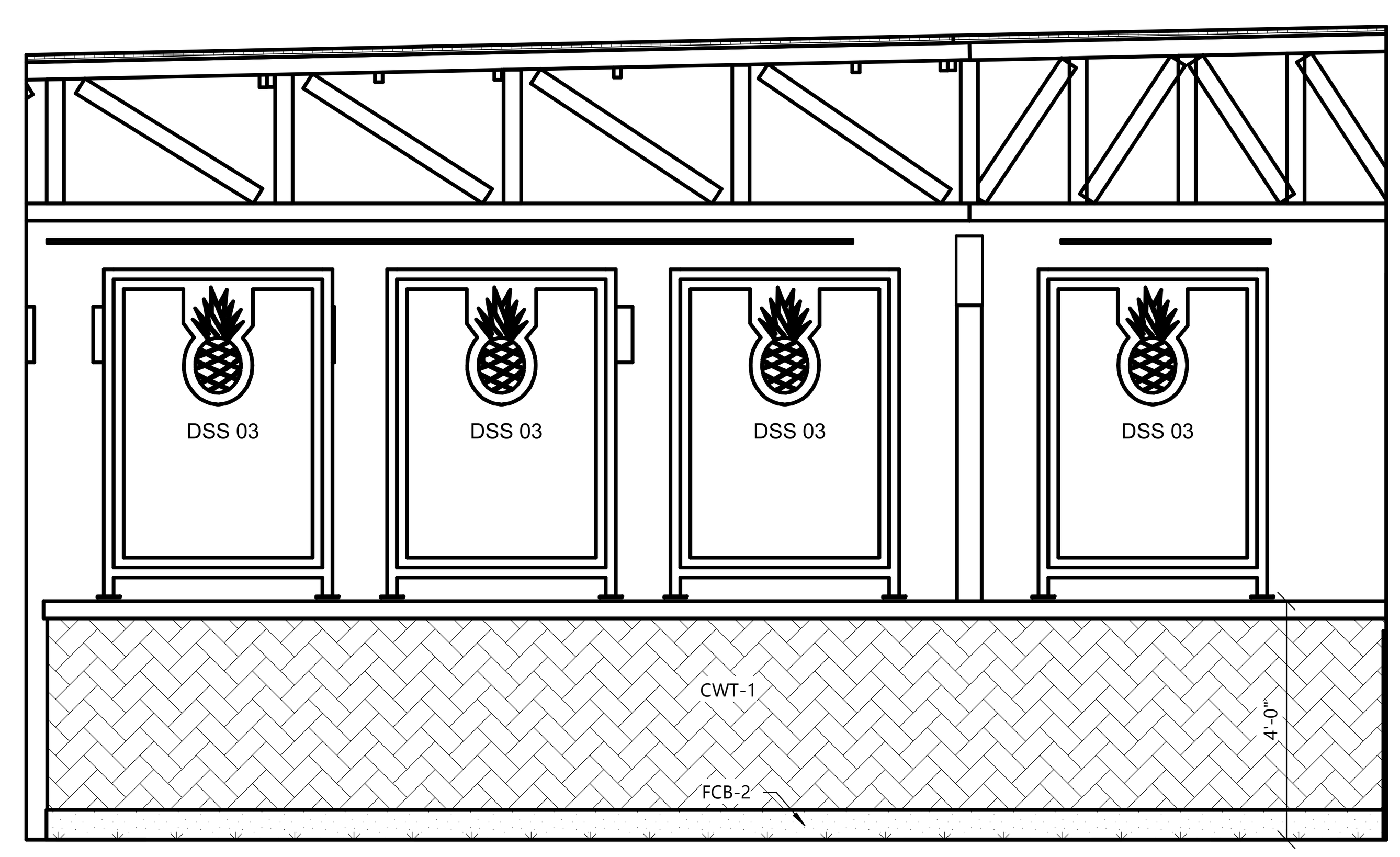


4 A5.1 FOH - WEST ELEVATION
SCALE: 3/8" = 1'-0"

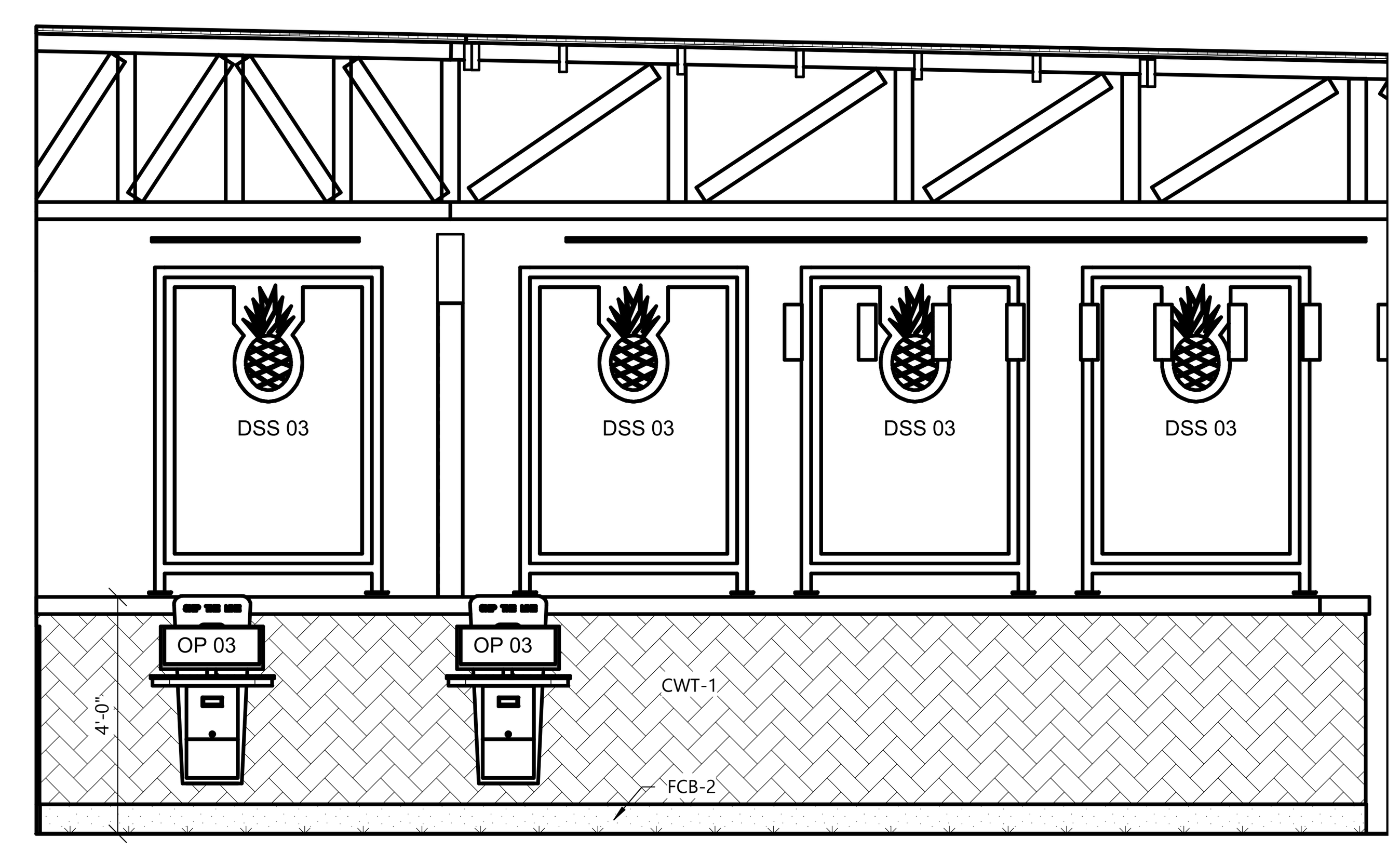


AD1

3 A5.1 FOH - SOUTH ELEVATION
SCALE: 3/8" = 1'-0"



6 A5.1 FOH - HALF WALL EAST
SCALE: 3/8" = 1'-0"



AD1

5 A5.1 FOH - HALF WALL WEST
SCALE: 3/8" = 1'-0"

ARCHITECTURAL INTERIOR ELEVATIONS

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MATERIAL LEGEND							
CODE	FINISH GROUP	MANUFACTURER	STYLE	COLOR	SIZE	NOTES	CONTACT
FLOOR FINSHES							
EPX-1	EPOXY	DUR-A-FLEX	POLY-CRETE SLB - SOLID COLOR	DARK GRAY	--	--	DAVE HADDON312-339-2191 DAVEH@DUR-A-FLEX.COM
EPX-2	EPOXY	DUR-A-FLEX	HYBRI-FLEX-EC SPECIAL ARMOR TOP SATIN W/ #54 ALUMINUM OXIDE & DUR-A-GRIT	FLINT	--	BLEND ALL TRANSITIONS APPROX. 2" 'SAND' PORTION OF FLOOR DESIGN - INTERIOR	DAVE HADDON312-339-2191 DAVEH@DUR-A-FLEX.COM
FCB-1	FLASH COVE BASE	DUR-A-FLEX	POLY-CRETE SLB - SOLID COLOR	DARK GRAY	6"H	--	DAVE HADDON312-339-2191 DAVEH@DUR-A-FLEX.COM
FCB-2	FLASH COVE BASE	DUR-A-FLEX	HYBRI-FLEX-EC SPECIAL ARMOR TOP SATIN W/ #54 ALUMINUM OXIDE & DUR-A-GRIT	FLINT	6"H		
WALL FINISHES							
AWP-1	ACOUSTIC WALL PANEL	MDC-ZINTRA	TEXTURE PAUME	GREIGE	4' x 9' x 1/2"-1" CUT TO 4'-6"W x 4'H	HORIZONTAL INSTALLATION WITH LEAVES FACING UP	ELLEN SWEENEY 608-239-7030 ESWEENEY@MDCWALL.COM
AWP-2	ACOUSTIC WALL PANEL	ATAS INTERNATIONAL	GATEN SERIES PERFORATED METAL PANEL - A15	ASCOT WHITE 10	--	COILS TO RUN VERTICIALLY. USE MATTE BLACK LANDSCAPE FABRIC BEHIND PANELS-SEE DETAIL	--
CWT-1	CERAMIC WALL TILE	DALTILE	COLOR WHEEL	ARTIC WHITE	4"x12"	USE GR-2, DIAGONAL HERRINGBONE	HILLARY BUSS 317-910-2527 Hillary.buss@daltile.com
CWT-2	CERAMIC WALL TILE	CERAMIC TILE WORKS	FRAGMENTS	WHITE	3"x8"	USE GR-2, VERTICAL 1/3 OFFSET	LIZ NELSON 414-412-0828 liz@ceramictileworksmn.com
CWT-3	CERAMIC WALL TILE	TILE BAR	CASTLE	BLUE DENIM	3"x12"	USE GR-1, HORIZONTAL 1/2 OFFSET	INFO@TILEBAR.COM 818-541-3840
FRP-1	FIBERGLASS REINFORCED PLASTIC	PANOLAM FRP	GENERAL PURPOSE EMBOSSED FINISH	WHITE	4' x 8', 9', 10', 12'	USE MFGR RECOMMENDED ADHESIVE & TRIM PIECES, USE APPROPRIATE SIZE FOR CEILING HEIGHT OF ROOM	INSTALL PLYWOOD BEHIND FRP IN LIEU OF GYP BD SO NO BLOCKING IS NEEDED
PA-3	PAINT	SHERWIN WILLIAMS	SEMI-GLOSS FINISH	SW 7069 IRON ORE	--	USE APPROPRIATE PAINT TYPE FOR SUBSTRATE	--
PA-4	PAINT	SHERWIN WILLIAMS	SEMI-GLOSS FINISH	SW 6767 AQUARIUM	--	USE APPROPRIATE PAINT TYPE FOR SUBSTRATE	--
PA-5	PAINT	SHERWIN WILLIAMS	SEMI-GLOSS FINISH	SW 6103 TEA CHEST	--	USE APPROPRIATE PAINT TYPE FOR SUBSTRATE	--
PA-6	PAINT	SHERWIN WILLIAMS	SEMI-GLOSS FINISH	SW 7005 PURE WHITE	--	USE APPROPRIATE PAINT TYPE FOR SUBSTRATE	--
PA-7	PAINT	SHERWIN WILLIAMS	EG-SHEL FINISH	SW 6767 AQUARIUM	--	USE APPROPRIATE PAINT TYPE FOR SUBSTRATE	--
PA-8	PAINT	SHERWIN WILLIAMS	EG-SHEL FINISH	SW 7068 GRIZZLE GRAY	--	USE APPROPRIATE PAINT TYPE FOR SUBSTRATE	--
PA-9	PAINT	SHERWIN WILLIAMS	EG-SHEL FINISH	SW 7015 REPOSE GRAY	--	USE APPROPRIATE PAINT TYPE FOR SUBSTRATE	--
PWT-1	PORCELAIN WALL TILE	21ST CENTURY TILE - EVERSTONE	DURASTONE 3D RELIEF LEAF, NATURAL FINISH	CHARCOAL	24" x 24"	USE GR-1 2MM GROUT JOINT, STRAIGHT INSTALLATION PATTERN-LEAF PRINT TO RUN VERTICAL	JASON KIRSCH 262-818-207 JASONK@21STCENTURYTILE.COM
PWT-2	PORCELAIN WALL TILE	PLATFORM SURFACES - ORNAMENTA	JUNGLE - THREE PATTERNS	FLORA EQUATORIALE	24" x 24"	USE GR-1 2MM GROUT JOINT, STRAIGHT INSTALLATION PATTERN-LEAF PRINT TO ALIGN	FRANK PALUMO 312-860-1904 FPALUMO@PLATFORMSURFACES.COM
VG-1	VINYL GRAPHIC	KATALYST	PRINTED VINYL GRAPHIC ON INTERIOR BRICK	CUSTOM STAMP	SEE ELEVATIONS	--	TRENT FURGESON 785-476-5244 trent@katgroupinc.com
VWC-1	VINYL GRAPHIC	KATALYST	PRINTED VINYL GRAPHIC ON INTERIOR DRYWALL	CUSTOM MURAL	SEE ELEVATIONS	--	TRENT FURGESON 785-476-5244 trent@katgroupinc.com
WWC-1	WOOD WALL CLADDING	RESAWN TIMBER CO	TODDY EUROPEAN WHITE OAK, ORIGINAL CUT, CHARACTER GRADE, PREFINISHED W/MATTE POLYURETHANE, VOIDS FILLED, TONGUE & GROOVE, ENDMATCHED, MICROBEVELED EDGES & ENDS	--	ENGINEERED 5/8" x 7" x 2'-10'	4MM WEAR LAYER, PROVIDE TRIM TO MATCH AT EXPOSED EDGES	BILL STEVENS 215-534-3077 BSTEVENS@RESAWNTIMBERCO.COM
WWC-2	WOOD WALL CLADDING	RESAWN TIMBER CO	CHEEKY EUROPEAN WHITE OAK, ORIGINAL CUT, CHARACTER GRADE	-	ENGINEERED 5/8" x 7" x 2'-10'	4MM WEAR LAYER, PROVIDE TRIM TO MATCH AT EXPOSED EDGES	BILL STEVENS 215-534-3077 BSTEVENS@RESAWNTIMBERCO.COM
CEILING FINISHES							
ACT-1	ACOUSTIC CEILING TILE	ARMSTRONG	KITCHEN ZONE SQUARE LAY-IN - 673	WHITE	24" x 24" x 5/8"	USE WITH 15/16" G PRELUDE GRID IN WHITE	EDAN KIRCHIRO 414-299-8702 EFKIRCHIRO@ARMSTRONGCEILINGS.COM
ACT-2	ACOUSTIC CEILING TILE	ARMSTRONG	TECTUM SQUARE LAY-IN - 8183T10	WHITE	24" x 24"-96 x 11/2"	SUSPEND FROM DECK WITH 12GA WIRE & 15/16 PRELIDE TEE IN WHITE. JOIN SECTION LENGTHS TOGETHER	EDAN KIRCHIRO 414-299-8702 EFKIRCHIRO@ARMSTRONGCEILINGS.COM
ES-1	EXPOSED STRUCTURE	--	--	PA-1/PA-2	--	--	--
PA-1	PAINT	SHERWIN WILLIAMS	FLAT FINISH	SW 7005 PURE WHITE	--	USE APPROPRIATE PAINT TYPE FOR SUBSTRATE	--
PA-2	PAINT	SHERWIN WILLIAMS	FLAT FINISH	SW 6767 AQUARIUM	--	USE APPROPRIATE PAINT TYPE FOR SUBSTRATE	--
CASEWORK, COUNTERTOPS & SILLS							
PLAM-1	PLASTIC LAMINATE	WILSONART	STANDARD LAMINATE, FINE VELVET FINISH	PRESSED LINEN 4997-38	--	SQUARE EDGE	--
PLAM-2	PLASTIC LAMINATE	WILSONART	STANDARD LAMINATE, SOFT GRANE FINISH	BEIGEWOOD 7850-12	--	GRAIN TO RUN VERTICAL	--
QZ-1	QUARTZ	MSI	GLOSS FINISH	FROST WHITE	3CM	ADHESIVE/SEALANT TO MATCH	--
SINK-1	QUARTZ FORMED SINK	BRADLEY	VERGE SINGLE WASH BASIN W/ WASHBAR	GEO SERIES - ANTARCTICA	--	SINGLE SINK UNIT - SEE PLUMBING SPECIFICATION	CJ ERICKSON 262-309-3154 CJ.ERICKSON@BRADLEYCORP.COM
SSC-1	STAINLESS STEEL COUNTER					BY KITCHEN SUPPLIER	
OTHER							
CAP-1	WOOD WALL CAP	G.C.	MAPLE WOOD SPECIES	MATCH DR-1	--	G.C. TO PROVIDE AND INSTALL	--
CG-1	CORNER GUARD	INPRO CORP	SURFACE MOUNTED STAINLESS STEEL CONRER GUARD / END WALL PROTECTOR - 16 GUAGE	STAINLESS STEEL	4'H x 3.5" WING x 1/4" RAD.	INSTALL WITH PL PREMIUM HEAVY DUTY ADHESIVE, INSTALL ABOVE BASE	
DR-1	WOOD DOOR	VT INDUSTRIES	WHITE MAPLE WOOD SPECIES	RIVERSTONE RI15	--	--	--
FILM-1	VINYL FILM	KATALYST	MACTAC BFREE	FROSTED	--	--	TRENT FURGESON 785-476-5244 trent@katgroupinc.com
FILM-2	VINYL FILM	KATALYST	MACTAC BFREE - CUSTOM WAVE	FROSTED	--	--	TRENT FURGESON 785-476-5244 trent@katgroupinc.com
GR-1	GROUT	BOSTIK	TRUCOLOR PREMIXED	FRENCH GRAY H142	--	--	--
GR-2	GROUT	BOSTIK	HYDROMENT VIVID	STORM H198	--	--	--
MS-1	METAL SCREEN	KATALYST	STEEL SHEET CUSTOM LASER CUT PINEAPPLE DESIGN - INTERIOR	POWDERCOAT TO MATCH PA-8	1/4" THICK, SEE ELEVATIONS	SEE ADDITIONAL SPECS & DETAIL FOR INSTALLATION	TRENT FURGESON 785-476-5244 trent@katgroupinc.com
MS-2	METAL SCREEN	KATALYST	STEEL SHEET CUSTOM LASER CUT PINEAPPLE DESIGN - EXTERIOR	POWDERCOAT TO MATCH PA-8	1/4" THICK, SEE ELEVATIONS	SEE ADDITIONAL SPECS & DETAIL FOR INSTALLATION	TRENT FURGESON 785-476-5244 trent@katgroupinc.com
TR-1	TRIM	SCHLUTER	JOLLY	SATIN ANODIZED ALUMINUM AE	--	USE AT THE EDGE OF EXPOSED WALL TILE	--
WB-1	WOOD BEAM	G.C.	MAPLE WOOD SPECIES	STAINED TO MATCH WWC-1	4"X6"XVARIES	G.C. TO PROVIDE AND INSTALL	--

AD1

ROOM FINISH SCHEDULE					
ROOM #	ROOM NAME	AD1 FLOOR	BASE	CEILING FINISH	REMARKS
100	VESTIBULE	EPX-2	FCB-2	ES-1	1, 2, 5
101	ORDERING	EPX-2	FCB-2	ES-1	1, 2, 4, 5
102	DINING	EPX-2	FCB-2	ES-1	1, 2, 4, 5
103	HALLWAY	EPX-2	FCB-2	ES-1	1, 2, 5
104	RESTROOM	EPX-2	FCB-2	PA-1	1, 2, 4
105	RESTROOM	EPX-2	FCB-2	PA-1	1, 2, 4
106	DOLE WHIP	EPX-2	FCB-2	WC-1, ES-1	1, 2, 4, 5
107	EXPEDITE	EPX-1	FCB-1	ACT-1	3, 4
108	RICE & VEGGIES	EPX-1	FCB-1	ACT-1	3, 4
109	COOKLINE	EPX-1	FCB-1	ACT-1	3, 4
110	LOCKERS	EPX-1	FCB-1	ACT-1	3, 4
111	WARE WASH	EPX-1	FCB-1	ACT-1	3, 4
112	OFFICE	EPX-1	FCB-1	ACT-1	4
113	MARINATING	EPX-1	FCB-1	ACT-1	3, 4
114	PORK COOKING	EPX-1	FCB-1	ACT-1	3, 4
115	MEAT COOLER	EPX-1	FCB-1	-	6
116	STORAGE	EPX-1	FCB-1	ACT-1	4
117	PRODUCE COOLER	EPX-1	FCB-1	-	6
118	MECHANICAL	-	-	ES-1	4

GENERAL NOTES:

- ALL BIDDING EPOXY CONTRACTORS SHOULD PROVIDE A SAMPLE SHOWING THEIR CAPABILITIES OF DESIGN AND BLENDING FOR OWNER REVIEW PRIOR TO THE JOB BEING AWARDED OR INSTALLED.
- REFER TO FINISH PLAN FOR COLOR OF HOLLOW METAL FRAMES & DOORS
- ELEC. SWITCHES/OUTLETS/DEVICES TO BE WHITE (SEE ELEC. DWGS)
- WALL RETURN GRILLS TO BE PAINTED TO MATCH ADJACENT WALL COLOR.
- ALL SIGNAGE, CASEWORK, & KIOSKS PROVIDED BY KATALYST, OWNER TO REVIEW & MAKE FINAL SELECTIONS
- ALL PAINT TO CURE FOR A MIN. OF 20 DAYS BEFORE APPLICATION OF ANY GRAPHIC. ANY GRAPHIC TO BE APPLIED TO WALL AND FINISHED A MIN. OF 7 DAY BEFORE CERTIFICATE OF OCCUPANCY IS ISSUED. PROVIDE LOW VOC PAINT BEHIND VINYL WALL GRAPHIC.
- SEE REFLECTED CEILING FOR ADDITIONAL INFORMATION IN REGARDS TO CEILINGS FINISHES

REMARKS:

1. SEE A8.1 FOR EPOXY FLOORING LAYOUT
2. SEE INTERIOR ELEVATIONS FOR ADDITIONAL WALL FINISH NOTES
3. SEE KITCHEN PLANS FOR LOCATIONS OF STAINLESS STEEL PANELS
4. PREP EXISTING WALL SUBSTRATE FOR NEW WALL FINISH. ENSURE EXISTING SUBSTRATE IS APPROVED FOR NEW FINISH. REPLACE AS REQUIRED
5. PAINT EXPOSED JOIST/TRUSSES, UNDERSIDE OF ROOF SHEATHING, EXPOSED MECHANICAL DUCTWORK AND EQUIPMENT, AND EXPOSED PLUMING PIPES PA-1
6. SEE KITCHEN PLAN FOR FINISH/CONSTRUCTIONS OF COOLERS

ROOM FINISH NOTES

* REFERENCES TO PRODUCTS OR SYSTEMS HEREIN BY NAME, MAKE, OR CATALOG NUMBER IS INTENDED TO ESTABLISH A MIN. STANDARD QUALITY, AND IS NOT MEANT TO LIMIT COMPETITION IN ANY FASHION. APPROVED EQUIVALENTS SHALL BE ACCEPTED AFTER ARCHITECT APPROVAL

* CONTRACTORS SHALL PROVIDE PRODUCTS COMPLETE w/ ALL ACCESSORIES, TRIM, FINISH, FASTENERS, AND OTHER REQ'D ITEMS NEEDED FOR A COMPLETE INSTALLATION AS INDICATED

TRIMS

- HOLLOW METAL FRAMES SHOULD RECEIVE 1 COAT PRIMER & 2 COATS FINISH PAINT
- ALL WOOD TRIM TO BE PLAIN SAWN RED MAPLE (STAIN & VARNISH) - PROVIDE SAMPLE FOR ARCHITECTS APPROVAL

FLOORS

- FLOORING CONTRACTOR SHALL PREPARE FLOOR SURFACES RECEIVING NEW FINISHES AS REQ'D FOR A SMOOTH AND LEVEL SURFACE PRIOR TO INSTALLING NEW FINISHES
- USE MFR RECOMMENDED FLOORING PREP AND ADHESIVE
- FLOORING CONTRACTOR TO PROVIDE TRANSITION STRIPS AND EDGING AT ALL MATERIAL TRANSITIONS - SEE MATERIAL LEGEND AND SUBMIT STYLES TO BE APPROVED BY DESIGNER.
- PITCH EPOXY FLOORS TO FLOOR DRAINS

WALLS & CEILINGS

- ALL GYPSUM BOARD SHALL BE INSTALLED IN ACCORDANCE W/ THE GYPSUM CONSTRUCTION HANDBOOK. LEVEL OF FINISH AS PER GA-214 ARE AS FOLLOWS:
  - LEVEL 1: INTERIOR AND EXTERIOR WALL: CONCEALED AND ABOVE CEILINGS
  - LEVEL 3: ALL EXPOSED BELOW CEILING AREAS WITH HEAVY OR MEDIUM TEXTURE.
  - LEVEL 4: ALL EXPOSED BELOW CEILING ARES WITH FLAT PAINT, SMOOTH OR LIGHT TEXTURE OR WALL COVERINGS UNLESS OTHERWISE NOTED.
  - LEVEL 5: WHERE NOTED
- USE APPROPRIATE PRIMER FOR SUBSTRATE
- VACANT CONSTRUCTION WITH CEILING SURFACES RECEIVING DRYWALL PAINT SHOULD RECEIVE 2 SOLVENT BASED FINISH COATS
- ALL GYPSUM BOARD BULKHEADS SHALL BE PAINTED PA-1
- WHERE PORCELAIN TILE IS APPLIED, SURFACE SHOULD BE 5/8" DENS-SHIELD TILE BACKER BOARD AS REQUIRED

SEALANT SCHEDULE

LOCATION	MFR	PRODUCT	DESCRIPTION
EXTERIOR			
WINDOW, DOOR, LOUVER OPENINGS	TREMCO	DYNOMIC FC	ONE PART HIGH PERFORMANCE POLYURETHANE SEALANT
DIFFERENT MATERIALS MEET	TREMCO	DYNOMIC FC	ONE PART HIGH PERFORMANCE POLYURETHANE SEALANT
ROOF OPENINGS	TREMCO	GUTTER SEAL	SYNTHETIC RUBBER AND RESIN SEALANT
EAVES AND SOFFITS	TREMCO	GUTTER SEAL	SYNTHETIC RUBBER AND RESIN SEALANT
THRESHOLDS TO SUBSTRATE	TREMCO	BUTYL SEALANT	MULTI-COMPONENT SEALANT
CMU CONTROL JOINTS	TREMCO	DYNOMIC FC	ONE PART HIGH PERFORMANCE POLYURETHANE SEALANT
PRE-CAST CONCRETE PANEL JOINTS	TREMCO	DYNOMIC FC	ONE PART HIGH PERFORMANCE POLYURETHANE SEALANT
PRE-CAST TO MASONRY JOINTS	TREMCO	DYNOMIC FC	ONE PART HIGH PERFORMANCE POLYURETHANE SEALANT
PRE-CAST TO CAST-IN-PLACE CONCRETE JOINTS	TREMCO	DYNOMIC FC	ONE PART HIGH PERFORMANCE POLYURETHANE SEALANT
INSULATED METAL PANEL BASE CHANNEL TO FOUNDATION	TREMCO	BUTYL SEALANT	MULTI-COMPONENT SEALANT
	TREMCO	440 TAPE	BUTYL SEALANT TAPE
INSULATED METAL PANEL TO BASE CHANNELS	SIKA	SIKALASTOMER - 511	NON-SKINNING BUTYL SEALANT
INSULATED METAL PANEL TO PANEL JOINTS	SIKA	SIKALASTOMER - 511	NON-SKINNING BUTYL SEALANT
INSULATED METAL PANEL FACE JOINTS WHERE INDICATED	TREMCO	SPECTREM 2	ONE PART SILICONE SEALANT
TRAFFIC SURFACE JOINTS (I.E. CONCRETE PAVEMENT, SIDEWALKS & PADS)	TREMCO	VULKEM 45 SSL	ONE PART POURABLE SELF-LEVELING POLYURETHANE SEALANT
JOINTS IN TRAFFIC SURFACES SLOPING IN EXCESS OF 1/2" PER FOOT	TREMCO	DYNOMIC FC	ONE PART HIGH PERFORMANCE POLYURETHANE SEALANT
INTERIOR			
COUNTERTOP AND BACKSLASH	TREMCO	TREMSIL 200	
PLUMBING FIXTURE PERIMETER	TREMCO	TREMSIL 200	
UNDER DRYWALL PARTITION BASE TRACK	DAP	ALEX PLUS	PAINTABLE ACRYLIC LATEX - SILICONIZED SEALANT
INTERIOR DOOR AND WINDOW FRAMES	DAP	ALEX PLUS	PAINTABLE ACRYLIC LATEX - SILICONIZED SEALANT
WALL ANGLE AT SUSPENDED CEILINGS	DAP	ALEX PLUS	PAINTABLE ACRYLIC LATEX - SILICONIZED SEALANT
CMU CONTROL JOINTS	TREMCO	DYNOMIC FC	ONE PART HIGH PERFORMANCE POLYURETHANE SEALANT
EXPOSED CONCRETE SLAB JOINTS	VERSA-FLEX	SL/85	TWO PART SELF-LEVELING POLYUREA SEALANT
PRE-CAST CONCRETE PANEL JOINTS	TREMCO	DYNOMIC FC	ONE PART HIGH PERFORMANCE POLYURETHANE SEALANT
PRE-CAST TO MASONRY JOINTS	TREMCO	DYNOMIC FC	ONE PART HIGH PERFORMANCE POLYURETHANE SEALANT
PRE-CAST TO CAST-IN-PLACE CONCRETE JOINTS	TREMCO	DYNOMIC FC	ONE PART HIGH PERFORMANCE POLYURETHANE SEALANT
INSULATED METAL PANEL AND TOP OF CONCRETE CURB JOINT	TREMCO	DYMERIC 240FC	MULTI-COMPONENT CHEMICALLY CURING POLYURETHANE SEALANT
INSULATED METAL PANEL AND TRIM ELEMENTS JOINT	TREMCO	SPECTREM 2	ONE PART SILICONE SEALANT
COOLER AND FREEZER FLOOR JOINTS	M&M	SPAL-PRO RSF	TWO COMPONENT POLYUREA JOINT FILLER
JOINTS IN ROOMS WITH "STRANLOK" FINISH	TREMCO	DYNOMIC FC	ONE PART HIGH PERFORMANCE POLYURETHANE SEALANT

ARCHITECTURAL SCHEDULES

EXCEL
ARCHITECTS ● ENGINEERS ● SURVEYORS
Always a Better Plan
100 Camelot Drive
Fond Du Lac, WI 54935
Phone: (920) 926-9800
www.EXCELENGINEER.com

PROJECT INFORMATION

PROPOSED BUILDING RENOVATION
HAWAIIAN BROS - STR: 43
1401 GRINDSTONE PKWY ● COLUMBIA, MO

PROFESSIONAL SEAL

SHEET DATES
SHEET ISSUE OCT. 26, 2021
REVISIONS
AD1 MAR. 7, 2022

JOB NUMBER
2164120

SHEET NUMBER
A6.0

GENERAL DOOR AND FRAME NOTES:

- ALL DOORS SHALL MEET A.D.A. REQUIREMENTS
- ALL DOOR THRESHOLDS SHALL NOT EXCEED 1/2" IN HEIGHT
- VERIFY FRAME DEPTHS W/ WALL THICKNESS. PROVIDE WRAP AROUND FRAMES AT STUD WALLS
- PROVIDE SEALANT BOTH SIDES OF DOOR FRAMES, WHERE DIFFERENT MATERIALS MEET AND FOR WEATHER TIGHTNESS
- GENERAL CONTRACTOR TO VERIFY SIZE OF ALL EQUIPMENT (ELECTRICAL, MECHANICAL, KITCHEN, LAUNDRY, ETC.) SELECTED FOR THE PROJECT TO DETERMINE THAT ALL DOORS (INCLUDING PATH OF TRAVEL) ARE OF ADEQUATE SIZE TO ACCOMMODATE INSTALLATION AND REPLACEMENT
- VERIFY ALL ROUGH OPENING REQUIREMENTS WITH MANUFACTURERS DRAWINGS
- SEE SHEET A0.1 FOR GENERAL BUILDING SPECIFICATIONS
- DOOR, FRAME AND HARDWARE SCHEDULE TO BE PROVIDED BY HARDWARE SUPPLIER FOR A/E REVIEW - NUMBERING SYSTEM AND NOMENCLATURE SHALL MATCH THOSE FOUND IN CONSTRUCTION DOCUMENTS
- HARDWARE SUPPLIER IS RESPONSIBLE FOR COORDINATING KEYING REQUIREMENTS WITH OWNER
- ALUMINUM SUPPLIER SHALL FURNISH AND INSTALL ALL HARDWARE FOR ALUMINUM DOORS AS NOTED ON PLANS - THE SAME MANUFACTURERS AND MODELS SHALL BE USED FOR BOTH ALUMINUM AND OTHER DOOR HARDWARE
- CONTRACTOR TO PROVIDE PRODUCTS AND SYSTEMS COMPLETE WITH ALL ACCESSORIES, TRIM, FINISH, FASTENERS AND OTHER ITEMS NEEDED FOR A COMPLETE INSTALLATION AND INTENDED USE AND EFFECT
- DOOR UNDERCUTS, WHERE NOTED, SHALL BE 1" FROM FINISHED FLOOR (TYP.)
- SEE A8.1 FINISH SCHEDULE FOR DOOR AND FRAME PAINT COLORS

EXTERIOR ALUM. STOREFRONT SPECIFICATIONS:

MANUFACTURER:
- KAWNEER

PRODUCT:
- TRIFAB VG 451T THERMALLY BROKEN FRAMING SYSTEM

CONSTRUCTION:
- 2" x 4 1/2" DEEP FRAMING MEMBERS. ASTM B 221; 6063-T5 ALLOY AND TEMPER
- CENTER GLAZING SYSTEM
- SUPPLIER TO VERIFY ALL WIND LOAD AND DEFLECTION CRITERIA AND PROVIDE ALL ACCESSORIES AND REINFORCEMENT AS REQ'D BY APPLICABLE CODES AND FOR A COMPLETE INSTALLATION
- SUPPLIER TO PROVIDE AND INSTALL ANY REQ'D BRAKE METAL PANELS AS REQ'D TO COVER ANY STRUCTURE, FRAMING, OR ADJACENT / INTERVENING CONSTRUCTION
- PROVIDE CONT. EXTRUDED SILL FLASHING AT EACH EXT. FRAMING UNIT
- PROVIDE CONT. EXTRUDED, THERMALLY BROKEN HEAD RECEPTOR AT EACH FRAMING UNIT
- PROVIDE CONT. EXTRUDED, THERMAL FLAT FILLER TO JAMB MEMBERS
- WHERE ALUMINUM WILL CONTACT DISSIMILAR METALS, PROTECT AGAINST GALVANIC REACTIONS BY PAINTING CONTACT SURFACES WITH PRIMER OR BY APPLYING SEALANT OR TAPE PER MANUF. SPEC'S

CLEAR ANODIZED

FINISH TO BE KAWNEER PERMANODIC AA-M12C22A31, AAMA 611,
ARCHITECTURAL CLASS II CLEAR ANODIC COATING
COLOR TO BE #17 CLEAR

HOLLOW METAL DOOR & FRAME SPECIFICATIONS:

MANUFACTURER:
- CURRIES (APPROVED EQUIVALENT: STEELCRAFT)

CONSTRUCTION:
- DOORS
  - 707 N SERIES
  - MIN. 18 ga. w/ POLYSTYRENE CORE @ INTERIOR DOORS, R VALUE = 7.25
  - MIN. 16 ga. w/ POLYURETHANE CORE AND FLUSH TOP CAP @ EXTERIOR DOORS, R VALUE = 10
- FRAMES
  - 'M' PROFILE w/ CONT. WELD FACE SEAMS AT FULL WIDTH OF JAMB
  - MIN. 16 ga. @ INTERIOR FRAMES
  - MIN. 14 ga. @ EXTERIOR FRAMES w/ URETHANE FOAM INSUL.
- GENERAL REQUIREMENTS
  - ALL EXTERIOR DOORS AND FRAMES TO BE GALVANIZED
  - ALL DOORS & FRAMES TO HAVE BAKED ON PRIMER FINISH
  - ALL DOORS & FRAMES TO BE REINFORCED AND PREPARED FOR HARDWARE
  - ALL REINFORCEMENT TO BE MIN. 12 ga.
  - PROVIDE WELDED-IN BASE ANCHORS
  - PROVIDE (3) SILENCERS PER JAMB @ ALL METAL DOOR FRAMES
  - PROVIDE BITUMINOUS COATING ON INT. FACE OF FRAMES IN MASONRY WALLS
  - PROVIDE METAL FRAME FOR LITES & GRILLES
  - PAINT LITE FRAMES TO MATCH DOOR FRAMES

SOLID CORE WOOD DOOR SPECIFICATIONS:

MANUFACTURER:
- MARSHFIELD DOOR SYSTEMS, INC.

CONSTRUCTION:
- 5 PLY CONSTRUCTION w/ STILES AND RAILS BONDED TO CORE
- PARTICLE BOARD CORE OR STRUCTURAL COMPOSITE LUMBER CORE PER MANUFACTURER RECOMMENDATIONS w/ HARDWOOD EDGES TO MATCH FACE SPECIES AS REQ'D FOR CUTOUTS
- MINERAL CORE w/ HARDWOOD EDGES TO MATCH FACE SPECIES AS REQ'D FOR FIRE RATED DOORS
- RED OAK, PLAIN SLICED WDMA CUSTOM GRADE w/ GRADE A FACES STANDARD DUTY DOOR UNLESS NOTED OTHERWISE
- VENEER LEAVES TO BE BOOK MATCH, RUNNING MATCH PAIR AND SET MATCH @ DOORS IN SAME OPENING OR FRAME
- FACTORY FINISHED w/ STAIN AND TR-6 PREMIUM FINISH, CUSTOM STAIN COLOR AS SELECTED BY ARCHITECT/OWNER
- PROVIDE BLOCKING AS REQ'D TO ELIMINATE THROUGH BOLTING OF ALL HARDWARE
- PROVIDE MANUF. STANDARD FLUSH WOOD BEAD AT LITES & GRILLES (WDMA OPTION: M1)
- ALL RATED DOORS ARE TO BE CATEGORY A, POSITIVE PRESSURE, UL10C

WARRANTY:
- LIFETIME

INTERIOR ALUM. STOREFRONT SPECIFICATIONS:

MANUFACTURER:
- KAWNEER

PRODUCT:
- TRIFAB VG 451 FRAMING SYSTEM

CONSTRUCTION:
- 2" x 4 1/2" DEEP FRAMING MEMBERS. ASTM B 221; 6063-T5 ALLOY AND TEMPER
- [FRONT, CENTER, BACK, or MULTI-PANE] GLAZING SYSTEM
- SUPPLIER TO VERIFY ALL WIND LOAD AND DEFLECTION CRITERIA AND PROVIDE ALL ACCESSORIES AND REINFORCEMENT AS REQ'D BY APPLICABLE CODES AND FOR A COMPLETE INSTALLATION
- SUPPLIER TO PROVIDE AND INSTALL ANY REQ'D BRAKE METAL PANELS AS REQ'D TO COVER ANY STRUCTURE, FRAMING, OR ADJACENT / INTERVENING CONSTRUCTION
- WHERE ALUMINUM WILL CONTACT DISSIMILAR METALS, PROTECT AGAINST GALVANIC REACTIONS BY PAINTING CONTACT SURFACES WITH PRIMER OR BY APPLYING SEALANT OR TAPE PER MANUF. SPEC'S

CLEAR ANODIZED

FINISH TO BE KAWNEER PERMANODIC AA-M12C22A31, AAMA 611,
ARCHITECTURAL CLASS II CLEAR ANODIC COATING
COLOR TO BE #17 CLEAR

DOOR HARDWARE KEY

HINGES

	DESCRIPTION / FINISH	Ives	Hager	McKinney	Stanley
H1	STANDARD (626)	5BB1	BB1279	TA2714	FBB179
H2	HEAVY (626)	5BB1HW	BB1168	T4A3786	FBB168
H3	STANDARD (630)	5BB1 SS	BB1191	TA2314	FBB191
H4	HEAVY (630)	5BB1HW SS	BB1199	T4A3386	FBB199

CONTINUOUS HINGES

	DESCRIPTION / FINISH	Roton (Hager)	McKinney	Select	Pemko
H5	AL. GEAR TYPE (MATCH)	780-112HD	MCK-12HD	SL-11HD	CFMHD
H6	AL. GEAR TYPE (630)	780-224HD	MCK-25HD	SL-24HD	CFMHD
H7	SS PIN/BARREL (630)	790-900	MCK-FM300	SL-300	SPDFM

LOCKSETS

	DESCRIPTION / FINISH	Schlage ND Series (RHO)	Sargent 10-Line (LL)	Best 93K (15D)	Sargent 8200 (L)
L1	ENTRANCE (626)	ND53PD	10G05	93K AB	-
L2	CLASSROOM (626)	ND70PD	10G37	93K R	-
L3	PRIVACY (626)	ND40S	10U65	93K L	-
L4	STOREROOM (626)	ND80PD	10G04	93K D	-
L5	RIM CYLINDER (626)	20-022	34 SERIES	1E-72	-
L6	INSTITUTION (626)	ND82PD	10G17	93K W	-
L7	MORTISE CYLINDER (626)	20-001	40 SERIES	1E-74	-
L8	DEADLOCK (626)	B660P	480 SERIES	83T SERIES	-
L9	PASSAGE (626)	ND10S	10U15	93K N	-
L10	EXIT ONLY (626)	ND25	10G13	93K Y	-
L11	DUMMY TRIM (626)	ND170	10U93	93K 1DT	-
L12	PRIVACY (626)	-	-	-	65 w/ 45 OCC IND

AD1

STOPS

	DESCRIPTION / FINISH	Ives	Hager	Rockwood
S1	FLOOR MTD. (626)	FS436	241F	441
S2	WALL MTD. (626)	WS407CCV	236W	409

OVERHEAD STOPS

	DESCRIPTION / FINISH	Glynn-Johnson	Sargent	Rixson
S3	HD SURFACE MTD. (630)	90 Series	590	9 Series
S4	HD CONCEALED (630)	100 Series	690	1 Series
S5	STD. CONCEALED (630)	410 Series	1530	2 Series
S6	STD. SURFACE MTD. (630)	450 Series	1540	10 Series

CLOSERS

	DESCRIPTION / FINISH	LCN	Sargent	Norton
C1	PULL SIDE REG. (689)	4040 XP REG	351 O	7501
C2	PULL SIDE HOLD-OPEN (689)	4040XP H	351 H	7501H
C3	PUSH SIDE REG. (689)	4040XP EDA	351 P10	PR7501
C4	PUSH SIDE w/ STOP (689)	4040XP CUSH	351 PS	CLP7501
C5	PUSH SIDE HOLD-OPEN (689)	4040XP HCUSH	351 PSH	CLP7501H
C6	PUSH SIDE EXT. DOORS (689)	4040XP SCUSH	351 CPS	UNI7501
C7	DROP PLATE (689)	4040XP-18PA	351-D	7788

EXIT DEVICES

		VonDuprin		Sargent	
	DESCRIPTION / FINISH	Med./Wide Stile	Narrow Stile	Med./Wide Stile	Narrow Stile
E1	RIM - EXIT ONLY (626)	98/99EO	33EO	8810	8400 Series
E2	RIM - LEVER (626)	98/99Lx996L	33Lx360L	8813 ETL	
E3	SURF. RODS - LEVER (626)	98/9927Lx996L	3327Lx360L	8713 ETL	
E4	CON. RODS - LEVER (626)	98/9947Lx996L	3347Lx360L	8613 ETL	
E5	RIM - EXIT ONLY (630)	98EO		8810	
E6	RIM - LEVER (630)	98Lx996L		8813 ETL	
E7	SURF. RODS - LEVER (630)	9827Lx996L		8713 ETL	

When a cylinder lockset is scheduled with an exit device, trim w/ cylinder should be provided. If no cylinder lockset is scheduled, trim shall be blank escutcheon (unless specified otherwise)

PUSH-PULL / KICKPLATES

	DESCRIPTION / FINISH	Rockwood	Hager	Ives
PP1	PUSH PLATE (630)	70C	30S	8200 4"x16"
PP2	PULL w/ PLATE (630)	106x70C	33E	8302
PP3	PUSH-PULL BAR (630)	BF15847	160D	9190-12
K1	KICKPLATE 8"x2"LDW (630)	K1050-B4E	190S	8400

WEATHERSTRIP, SWEEPS, & THRESHOLDS

	DESCRIPTION	National Guard	Reese	Pemko
T1	THRESHOLD	8424	S282A	252x2 FG
T2	SS SADDLE THRESHOLD	-	2125	154SS
T3	SS THERMAL THRESHOLD	-	-	252-3SSFG
SW1	SWEEP	200NA	772	315N
WS1	WEATHERSTRIP	160VA	DS106C	294AV
WS2	SMOKE SEAL	5050B	797B	S88

MISC. HARDWARE

	DESCRIPTION	Ives	Rockwood	KAWNEER
CO1	COORDINATOR (626 Chrome)	COR Series	2600 Series	
CO2	COORDINATOR (Painted Black)	COR Series	2600 Series	
FB1	AUTO - METAL (626)	FB31P	2842	
FB2	AUTO - WOOD (626)	FB41P	2948	
FB3	MANUAL - METAL (626)	FB458	555	
FB4	MANUAL - WOOD (626)	FB358	557	
FB5	AUTO - SS (630)	-	2848	
B1	SURFACE BOLT - SS (630)	-	580 - 12" (24" at doors > 7')	
RL1	ROLLERLATCH (630)	RL32	592	
LP1	LATCH PADDLE DEVICE (630)			AR4590
		VonDuprin	**HES**	**Securitron**
ES1	AT RIM EXIT DEVICE (630)	6300	9500/9600 Series	N/A
ES2	AT STD. LOCKSET (630)	6211	1006 Series	UNL
		VonDuprin	**Sargent**	
RM1	REMOVABLE MULLION (626)	KR4954	L980	
		Pemko	**Zero International**	
AS1	'T' ASTRAGAL	355CS	-	
AS2	SECURITY ASTRAGAL	-	#43SP	
AS3	SECURITY ASTRAGAL (630)	-	#43STST	

MOTORIZED DOOR OPTIONS

	OPERATION DESCRIPTION		
RC	RADIO CONTROLLED		
3B	3 PUSH BUTTON		
CW	COUNTERWEIGHT OPERATING SYSTEM		
M	MANUAL		
	LIFT DESCRIPTION		
MFV	MAX FULL VERTICAL		
HLV	HIGH LIFT PARTIAL VERTICAL		
STD	STANDARD		
LHR	LOW HEAD-ROOM		

GLAZING SCHEDULE

GLAZING SHALL MEET THE FOLLOWING STANDARDS AND GUIDELINES
AS APPLICABLE FOR EACH TYPE:
- ASTM E 1300, ASTM C 1036, ASTM C 1048, ASTM E 774
- GANA GLAZING MANUAL
- SIGMA TM-3000 VERTICAL GLAZING GUIDELINES
- PER SECTION 2406 OF THE IBC, PROVIDE TEMPERED GLAZING AS REQUIRED.

IG-1: LOW-E INSULATED GLAZING

- PRODUCT:
  PPG INDUSTRIES, INC.
  'SOLARBAN' 60(3), 'Gray'

U-VALUE		SHADING COEFFICIENT	SOLAR HEAT GAIN COEFFICIENT
WINTER (NIGHT)	SUMMER (DAY)		
0.29	0.27	0.32	0.28

1" UNIT w/ 1/2" AIRSPACE AND (2) 1/4" LITES
LOW-EMISSIVITY COATING ON THIRD SURFACE

- INDOOR LITE: TYPE I, CLASS I, QUALITY Q3
  FLOAT GLASS, KIND HS (HEAT STRENGTHENED),
  CONDITION A
- OUTDOOR LITE: TYPE I, CLASS II, QUALITY Q3
  FLOAT GLASS, KIND HS (HEAT STRENGTHENED),
  CONDITION A

IG-2: LOW-E INSULATED TEMPERED GLAZING

- PRODUCT:
  PPG INDUSTRIES, INC.
  'SOLARBAN' 60(3), 'Gray'

U-VALUE		SHADING COEFFICIENT	SOLAR HEAT GAIN COEFFICIENT
WINTER (NIGHT)	SUMMER (DAY)		
0.29	0.27	0.32	0.28

1" UNIT w/ 1/2" AIRSPACE AND (2) 1/4" LITES
LOW-EMISSIVITY COATING ON THIRD SURFACE

- INDOOR LITE: TYPE I, CLASS I, QUALITY Q3
  FLOAT GLASS, KIND FT (FULLY TEMPERED),
  CONDITION A
- OUTDOOR LITE: TYPE I, CLASS II, QUALITY Q3
  FLOAT GLASS, KIND FT (FULLY TEMPERED),
  CONDITION A
- LOW-EMISSIVITY COATING ON THIRD SURFACE

IG-3: INSULATED SPANDREL GLAZING

AD1

- PRODUCT:
  PPG INDUSTRIES, INC.
  'SOLARBAN' 60(2), 'Clear'

U-VALUE		SHADING COEFFICIENT	SOLAR HEAT GAIN COEFFICIENT
WINTER (NIGHT)	SUMMER (DAY)		
0.29	0.27	0.44	0.38

1" UNIT w/ 1/2" AIRSPACE AND (2) 1/4" LITES
LOW-EMISSIVITY COATING ON SECOND SURFACE

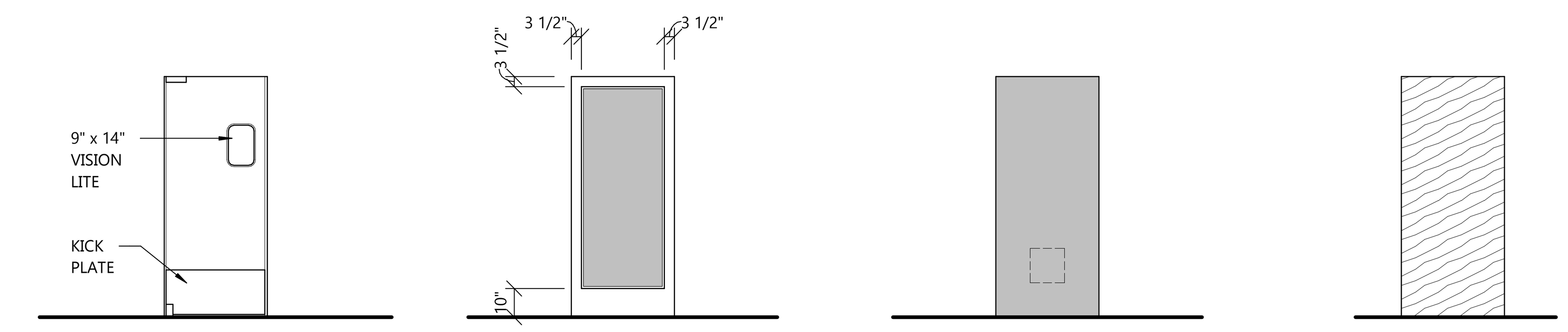
- INDOOR LITE: TYPE I, CLASS I, QUALITY Q3
  FLOAT GLASS, KIND FT (FULLY TEMPERED),
  CONDITION B
- OUTDOOR LITE: TYPE I, CLASS II, QUALITY Q3
  FLOAT GLASS, KIND FT (FULLY TEMPERED),
  CONDITION A
- CERAMIC FRIT ON FOURTH SURFACE
  COLOR TO BE SELECTED BY ARCHITECT

GL-1: CLEAR FLOAT GLASS

- LITE: TYPE I, CLASS I, QUALITY Q3
  FLOAT GLASS, KIND HS (HEAT STRENGTHENED),
  CONDITION A, 1/4" THICK

DOOR SCHEDULE

DOOR NO.	DOOR SIZE: WIDTH	DOOR SIZE: HEIGHT	DOOR SIZE: THICKNESS	DOOR TYPE	FRAME TYPE	DOOR HARDWARE: HINGE	LOCKSET	STOPS	CLOSER	EXIT DEVICE	PUSH-PULL / KICK	MISC.	W.S., SWEEP, THRESHOLD	REMARKS
100A	3'-0"	7'-0"	1 3/4"	AD5	ADF1	H5	L5	-	C6, C7	-	PP3	-	T1, SW1, WS1	
101B	3'-0"	7'-0"	1 3/4"	AD5	ADF3	H5	-	-	C1	-	PP3	-	-	
102	3'-0"	7'-0"	1 3/4"	AD5	ADF2	H5	-	-	C6, C7	E1	-	-	T1, SW1, WS1	
104	3'-0"	7'-0"	1 3/4"	WD1	HM1	H1	L12	-	C5	-	K1	-	-	
105	3'-0"	7'-0"	1 3/4"	WD1	HM1	H1	L12	-	C5	-	K1	-	-	
107	3'-0"	7'-0"	1 3/4"	ID1	IF1	-	-	-	-	-	-	-	-	
112	3'-0"	7'-0"	1 3/4"	MD1	HM1	H1	L2,	S1	-	-	-	-	-	
114	3'-6"	7'-0"	1 3/4"	MD1	HM1	H2	L1	-	C6, C7	E7	K1	-	T1, SW1, WS1	
118	3'-0"	7'-0"	1 3/4"	MD1	HM1	H2	L5, L9	-	C6, C7	-	-	-	T1, SW1, WS1	



ID1
STAINLESS STEEL IMPACT TRAFFIC DOOR
ELIASON CORP SCG-3
(PEDESTRIAN TRAFFIC)

AD5
350 MEDIUM STILE ALUMINUM DOOR
EXTERIOR GLAZING: IG-2
CLEAR ANODIZED ALUMINUM

MD1
HOLLOW METAL DOOR
PAINTED - SEE FINISH SCHEDULE

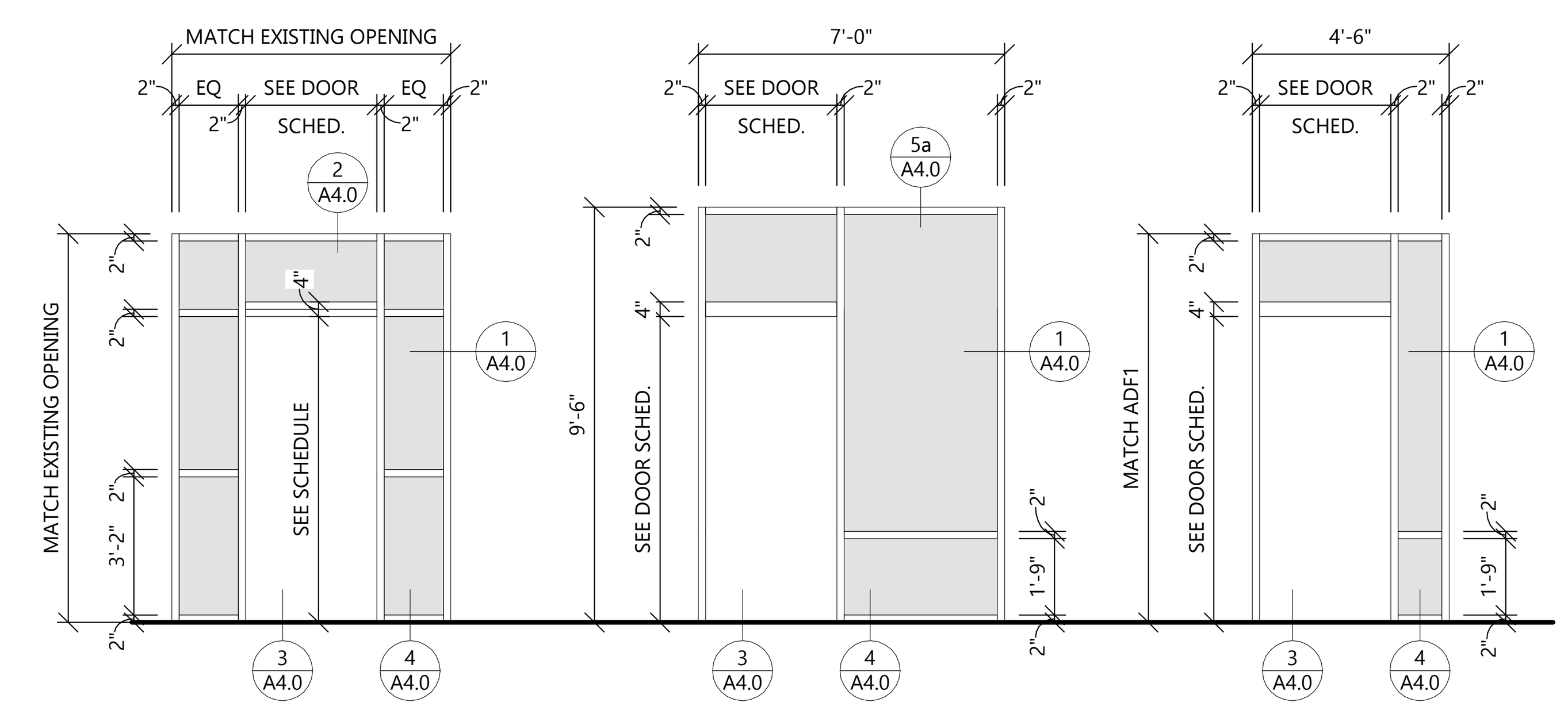
WD1
SOLID CORE WOOD DOOR

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

ALUM. DOOR ELEV.
SCALE: 1/4" = 1'-0"

METAL DOOR ELEV.
SCALE: 1/4" = 1'-0"

WOOD DOOR ELEV.
SCALE: 1/4" = 1'-0"

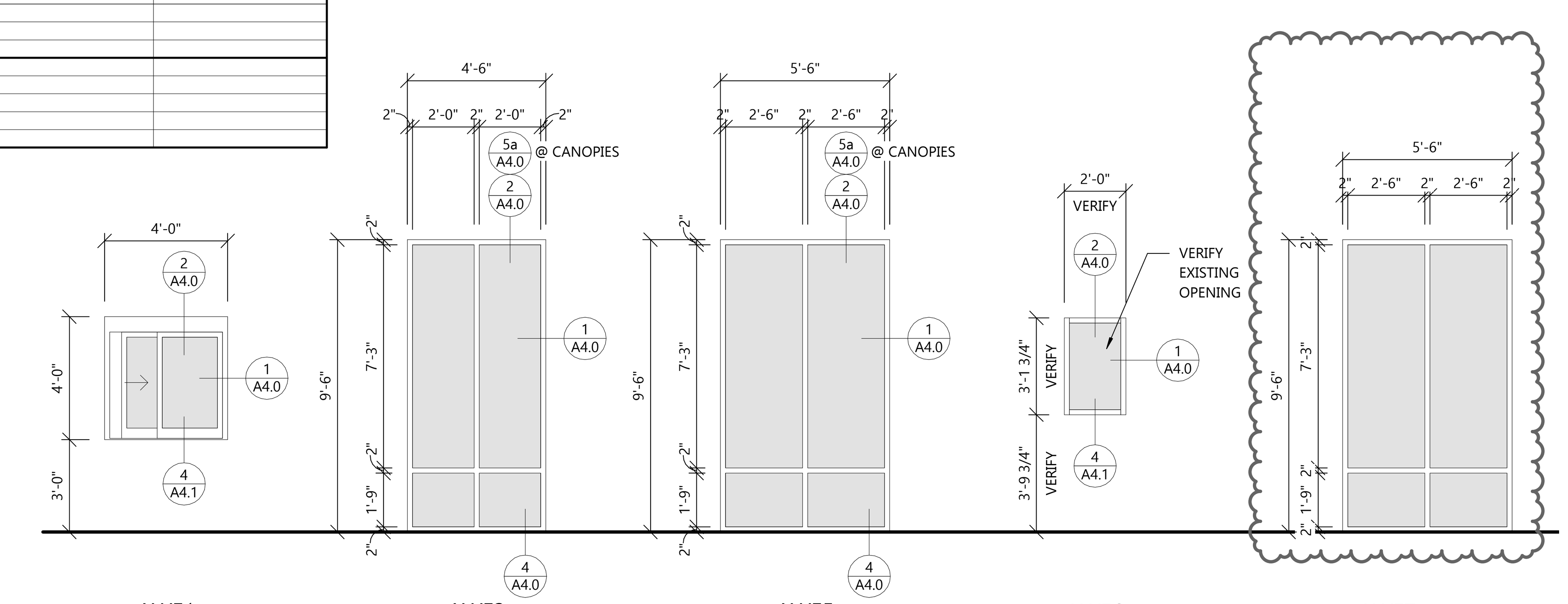


ADF1
KAWNEER 451T
CLEAR ANODIZED ALUMINUM
IG-1

ADF2
KAWNEER 451T
CLEAR ANODIZED ALUMINUM
IG-1

ADF3
KAWNEER 451T
CLEAR ANODIZED ALUMINUM
IG-1

ALUMINUM DOOR FRAMES
SCALE: 1/4" = 1'-0"



AWF1
QUICK SER IFSC-400
CLEAR ANODIZED ALUMINUM
SEE FOOR PLAN FOR OPENING DIRECTION
VERIFY WITH OWNER

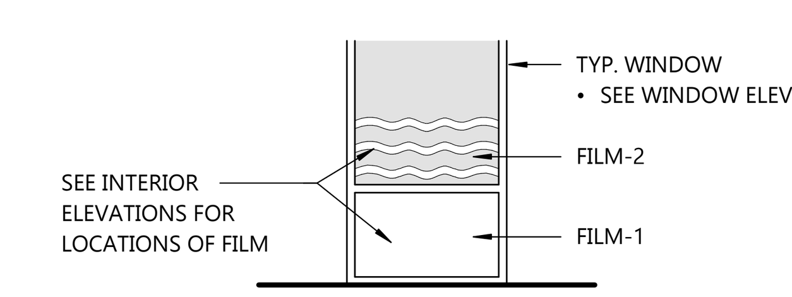
AWF3
KAWNEER 451T
CLEAR ANODIZED ALUMINUM
GLAZING: IG-1

AWF5
KAWNEER 451T
CLEAR ANODIZED ALUMINUM
GLAZING: IG-1

AWF6
KAWNEER 451T
CLEAR ANODIZED ALUMINUM
GLAZING: IG-1

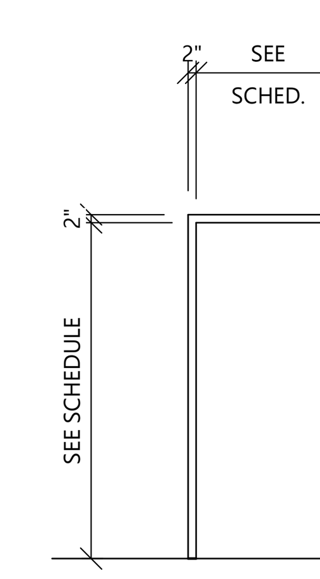
AWF7
KAWNEER 451T
CLEAR ANODIZED ALUMINUM
GLAZING: IG-3

ALUMINUM WINDOW FRAMES
SCALE: 1/4" = 1'-0"



FILM TO BE APPLIED ON THE INTERIOR FACE SIDE OF GLAZING

TYP. FILM DETAIL
NOT TO SCALE



HM1
HOLLOW METAL FRAME
PAINTED - SEE FINISH SCHEDULE

HOLLOW METAL FRAME ELEVATIONS
SCALE: 1/4" = 1'-0"

ARCHITECTURAL DOOR SCHEDULE

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PROJECT INFORMATION

PROPOSED BUILDING RENOVATION
HAWAIIAN BROS - STR: 43
1401 GRINDSTONE PKWY • COLUMBIA, MO

PROFESSIONAL SEAL

SHEET DATES

SHEET ISSUE: OCT. 26, 2021

REVISIONS

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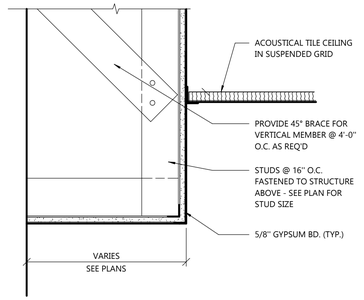
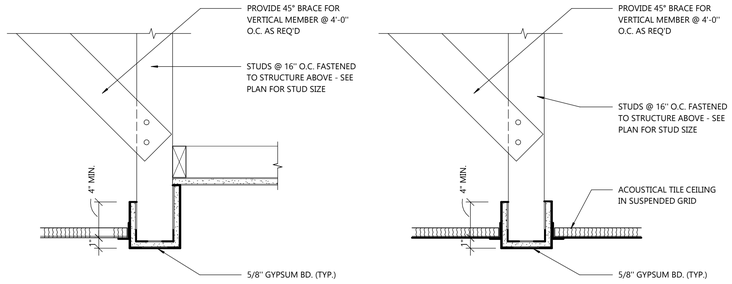


2 A7.1 SOFFIT DETAIL

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



1 A7.1 BULKHEAD DETAIL

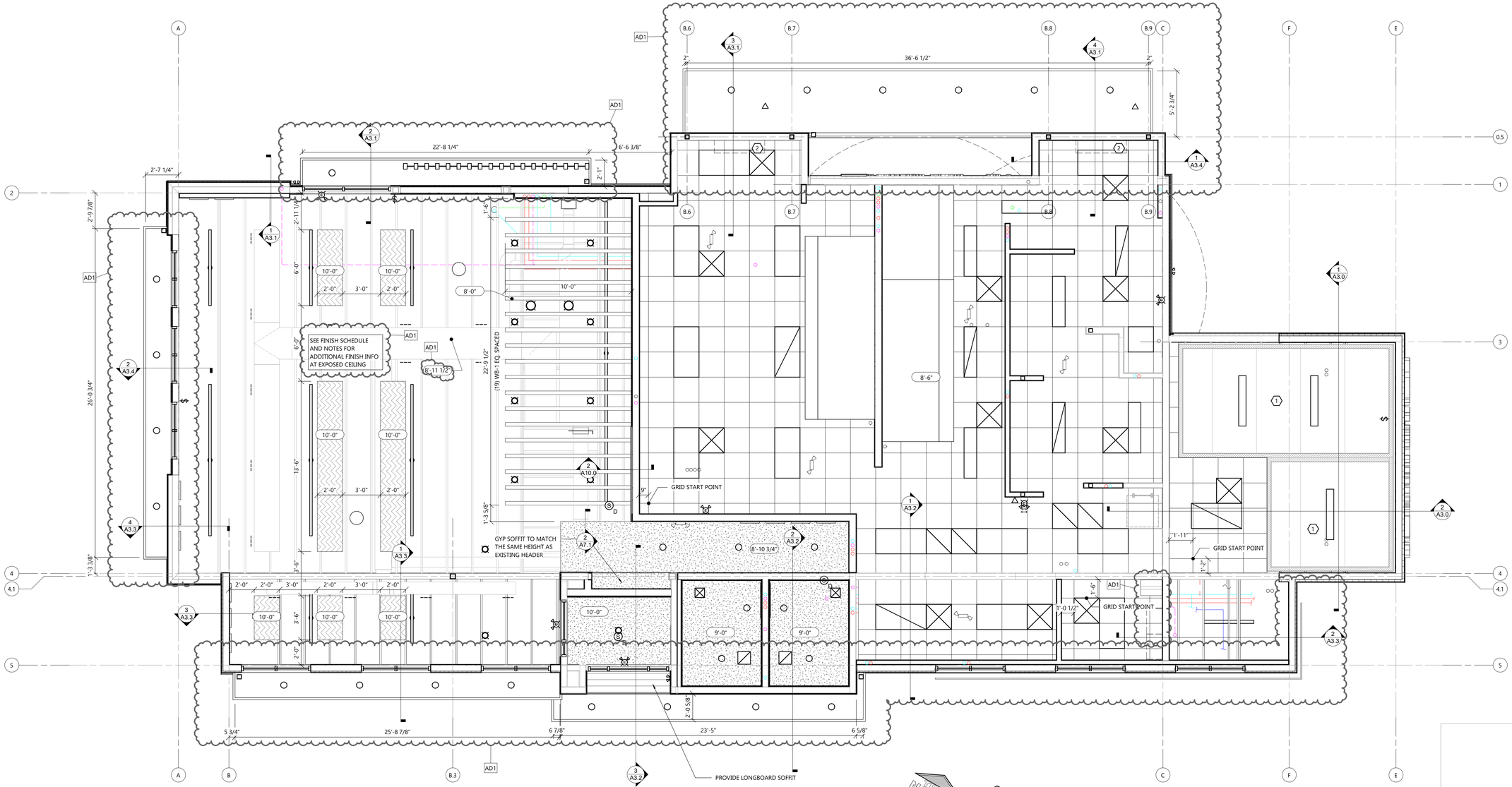
SCALE: 1 1/2" = 1'-0"

SYMBOLS LEGEND

- ACOUSTICAL TILE CEILING PANELS -SEE ROOM FINISH SCHEDULE FOR TYPE
- GYPSUM BOARD CEILING -SEE ROOM FINISH SCHEDULE
- WOOD CLOUD -SEE ROOM FINISH SCHEDULE
- LIGHT FIXTURE - SEE ELECTRICAL PLANS
- LIGHT FIXTURE - SEE ELECTRICAL PLANS
- LIGHT FIXTURE - SEE ELECTRICAL PLANS
- CEILING SUPPLY GRILLE - SEE HVAC PLANS
- CEILING RETURN, TRANSFER OR EXHAUST GRILLE - SEE HVAC PLANS
- CEILING SLOT DIFFUSER -SEE HVAC PLANS
- X'-X" DESIGNATES CEILING/BULKHEAD HEIGHT A.F.F.
- E EXIT LIGHT
- OCCUPANCY SENSOR
- C CEILING MOUNTED SPEAKER
- FIRE ALARM SPEAKER UNIT
- H HEAT DETECTOR
- S SMOKE DETECTOR
- ES ELEVATOR SMOKE DETECTOR
- EXTERIOR EMERGENCY LIGHTING
- RECESSED EMERGENCY LIGHT

KEYNOTES NOTES

1. IMP CEILING PROVIDED BY FREEZER/COOLER SUPPLIER. G.C. TO COORDINATE INSTALLATION.
2. PROVIDE AIR CURTAIN: MARS LOPRO SERIES 2 AIR CURTAIN MODEL: LPV242-UD-OB



NORTH

FIRST FLOOR

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

4' 0' 4' 8'

ARCHITECTURAL FIRST FLOOR REFLECTED CEILING PLAN

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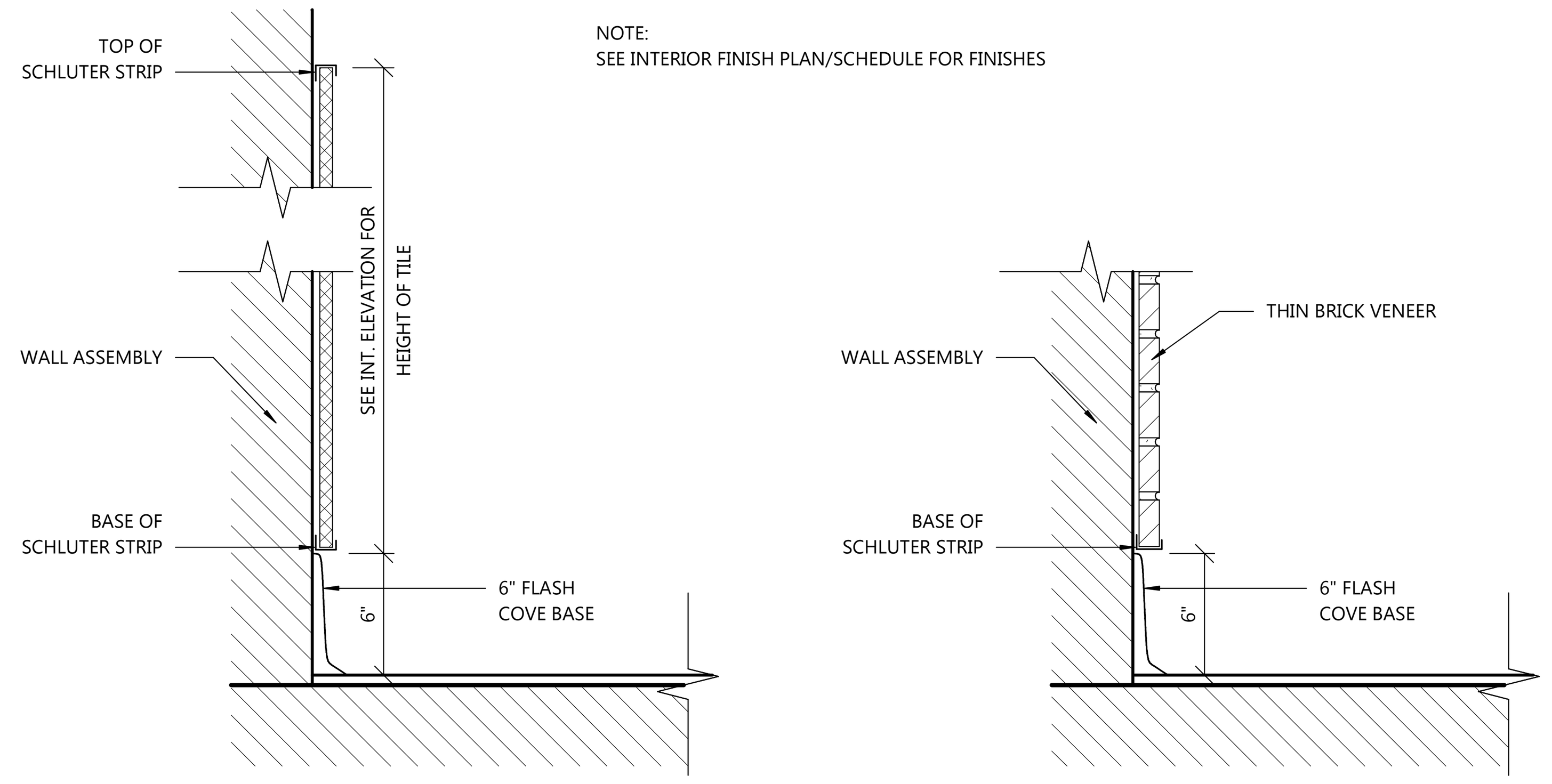


1 A8.1 BASE TRIM DETAIL
SCALE: 1 1/2" = 1'-0"

ROOM FINISH NOTES

* REFERENCES TO PRODUCTS OR SYSTEMS HEREIN BY NAME, MAKE, OR CATALOG NUMBER IS INTENDED TO ESTABLISH A MIN. STANDARD QUALITY, AND IS NOT MEANT TO LIMIT COMPETITION IN ANY FASHION. APPROVED EQUIVALENTS SHALL BE ACCEPTED AFTER ARCHITECT APPROVAL

* CONTRACTORS SHALL PROVIDE PRODUCTS COMPLETE w/ ALL ACCESSORIES, TRIM, FINISH, FASTENERS, AND OTHER REQ'D ITEMS NEEDED FOR A COMPLETE INSTALLATION AS INDICATED

TRIMS

- HOLLOW METAL FRAMES SHOULD RECEIVE 1 COAT PRIMER & 2 COATS FINISH PAINT
- ALL WOOD TRIM TO BE PLAIN SAWN RED MAPLE (STAIN & VARNISH) - PROVIDE SAMPLE FOR ARCHITECTS APPROVAL

FLOORS

- FLOORING CONTRACTOR SHALL PREPARE FLOOR SURFACES RECEIVING NEW FINISHES AS REQ'D FOR A SMOOTH AND LEVEL SURFACE PRIOR TO INSTALLING NEW FINISHES
- USE MFR RECOMMENDED FLOORING PREP AND ADHESIVE
- FLOORING CONTRACTOR TO PROVIDE TRANSITION STRIPS AND EDGING AT ALL MATERIAL TRANSITIONS - SEE MATERIAL LEGEND AND SUBMIT STYLES TO BE APPROVED BY DESIGNER.
- PITCH EPOXY FLOORS TO FLOOR DRAINS

WALLS & CEILINGS

- ALL GYPSUM BOARD SHALL BE INSTALLED IN ACCORDANCE W/ THE GYPSUM CONSTRUCTION HANDBOOK. LEVEL OF FINISH AS PER GA-214 ARE AS FOLLOWS:
  - LEVEL 1: INTERIOR AND EXTERIOR WALL: CONCEALED AND ABOVE CEILINGS
  - LEVEL 3: ALL EXPOSED BELOW CEILING AREAS WITH HEAVY OR MEDIUM TEXTURE.
  - LEVEL 4: ALL EXPOSED BELOW CEILING ARES WITH FLAT PAINT, SMOOTH OR LIGHT TEXTURE OR WALL COVERINGS UNLESS OTHERWISE NOTED.
  - LEVEL 5: WHERE NOTED
- USE APPROPRIATE PRIMER FOR SUBSTRATE
- VACANT CONSTRUCTION WITH CEILING SURFACES RECEIVING DRYWALL PAINT SHOULD RECEIVE 2 SOLVENT BASED FINISH COATS
- ALL GYPSUM BOARD BULKHEADS SHALL BE PAINTED PA-1
- WHERE PORCELAIN TILE IS APPLIED, SURFACE SHOULD BE 5/8" DENS-SHIELD TILE BACKER BOARD AS REQUIRED

GENERAL NOTES

ALL FURNITURE IS TO BE PURCHASED AND INSTALLED BY OWNER. FURNITURE SHOWN ON PLAN IS FOR REFERENCE ONLY.

ARTWORK AND ACCESSORIES PURCHASED AND INSTALLED BY OWNER.

WINDOW TREATMENTS PURCHASED AND INSTALLED BY OWNER.

SIGNAGE PURCHASED AND INSTALLED BY OWNER.

PAINTING CONTRACTOR IS TO PAINT ANY EXPOSED WALL MOUNTED GRILLES THE COLOR OF THE ADJACENT WALL.

SEE INTERIOR ELEVATIONS FOR HEIGHTS OF WALL FINISHES.

FLOORING LEGEND

EPX-1 EPOXY (GRAY)

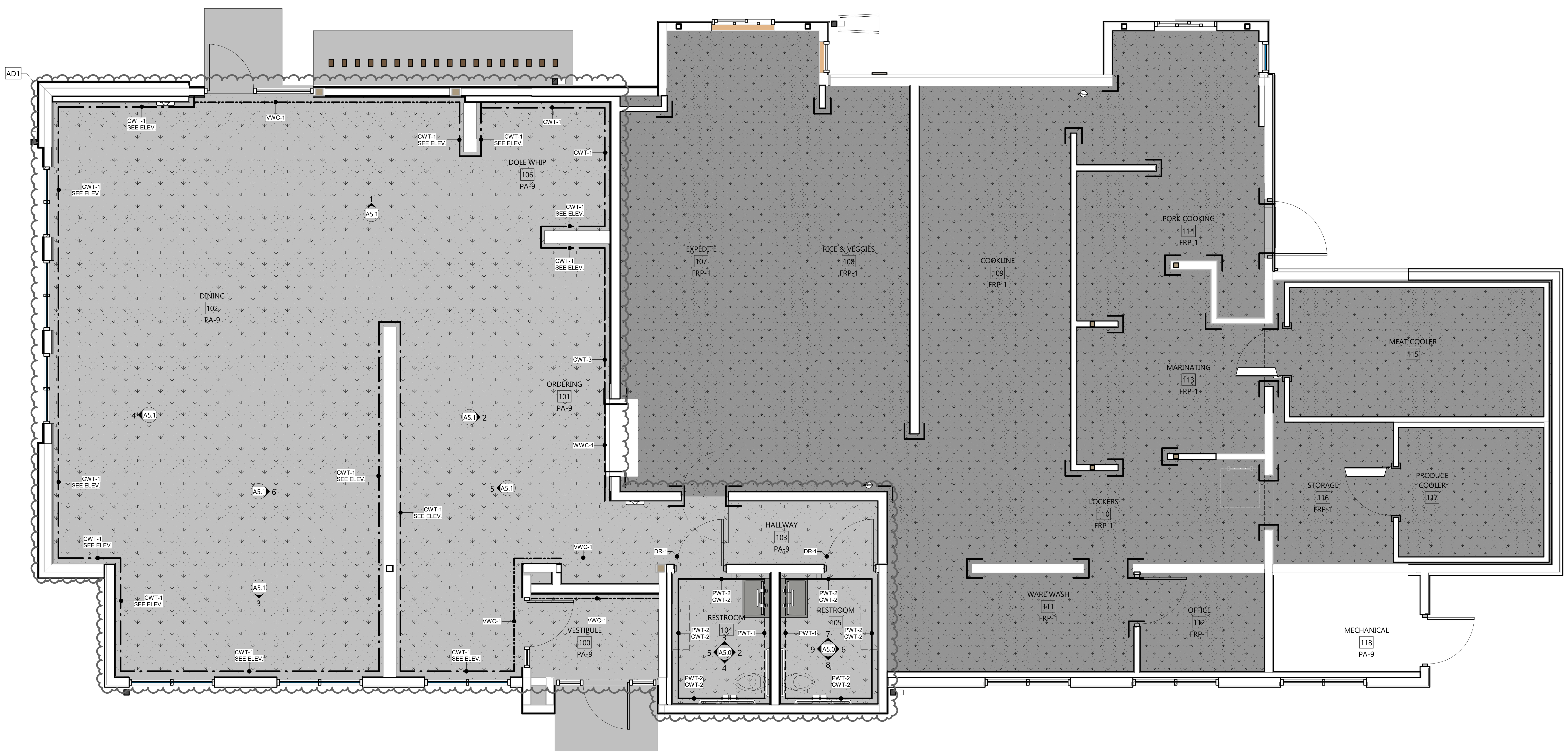
EPX-2 EPOXY (FLINT)

SYMBOL LEGEND

XX-X — ACCENT WALL MATERIAL - SEE FLOOR & ELEVATIONS PLAN FOR START/STOP LOCATION

CORNER GUARD - SEE FLOOR PLAN FOR LOCATIONS

AD1



FIRST FLOOR FINISH PLAN
SCALE: 1/4" = 1'-0"

4' 0' 4' 8'

ARCHITECTURAL FIRST FLOOR FINISH PLAN

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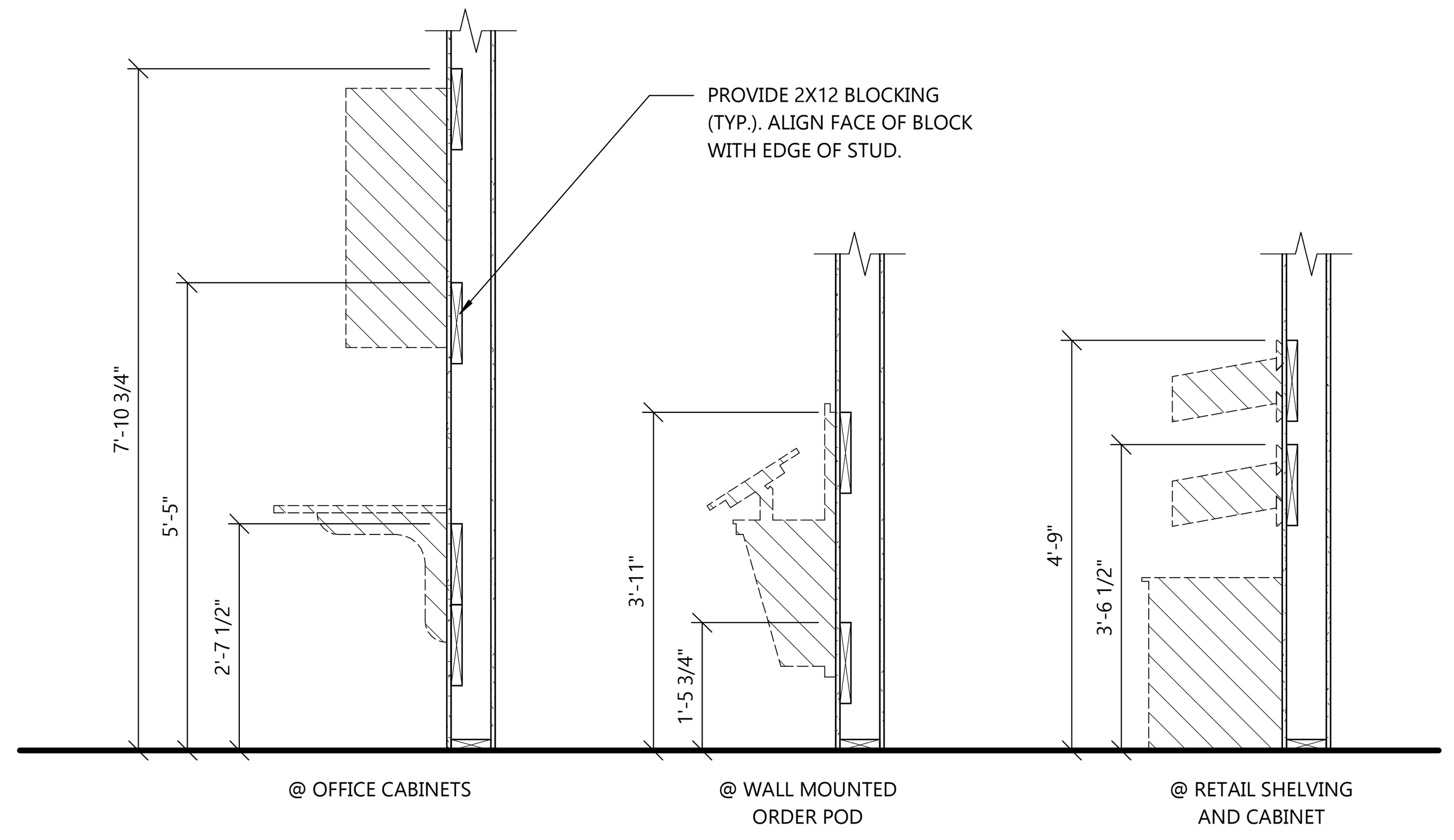


NOTE:
VERIFY ALL BLOCKING REQUIREMENT WITH FURNITURE/CABINET SUPPLIER

1 A9.1 FURNITURE BLOCKING

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

GENERAL NOTES

ALL FURNITURE IS TO BE PURCHASED AND INSTALLED BY OWNER. FURNITURE SHOWN ON PLAN IS FOR REFERENCE ONLY. COORDINATE ALL BLOCKING REQUIREMENTS WITH SUPPLIER

ARTWORK AND ACCESSORIES PURCHASED AND INSTALLED BY OWNER.

WINDOW TREATMENTS PURCHASED AND INSTALLED BY OWNER.

SIGNAGE PURCHASED AND INSTALLED BY OWNER.

PAINTING CONTRACTOR IS TO PAINT ANY EXPOSED WALL MOUNTED GRILLES THE COLOR OF THE ADJACENT WALL.

FOR ALL BLOCKING DETAILS

GENERAL COMMENTS

- VERIFY BLOCKING REQUIREMENTS WITH FURNITURE SUPPLIER
- PROVIDE 2% ACCESSIBLE SEATING

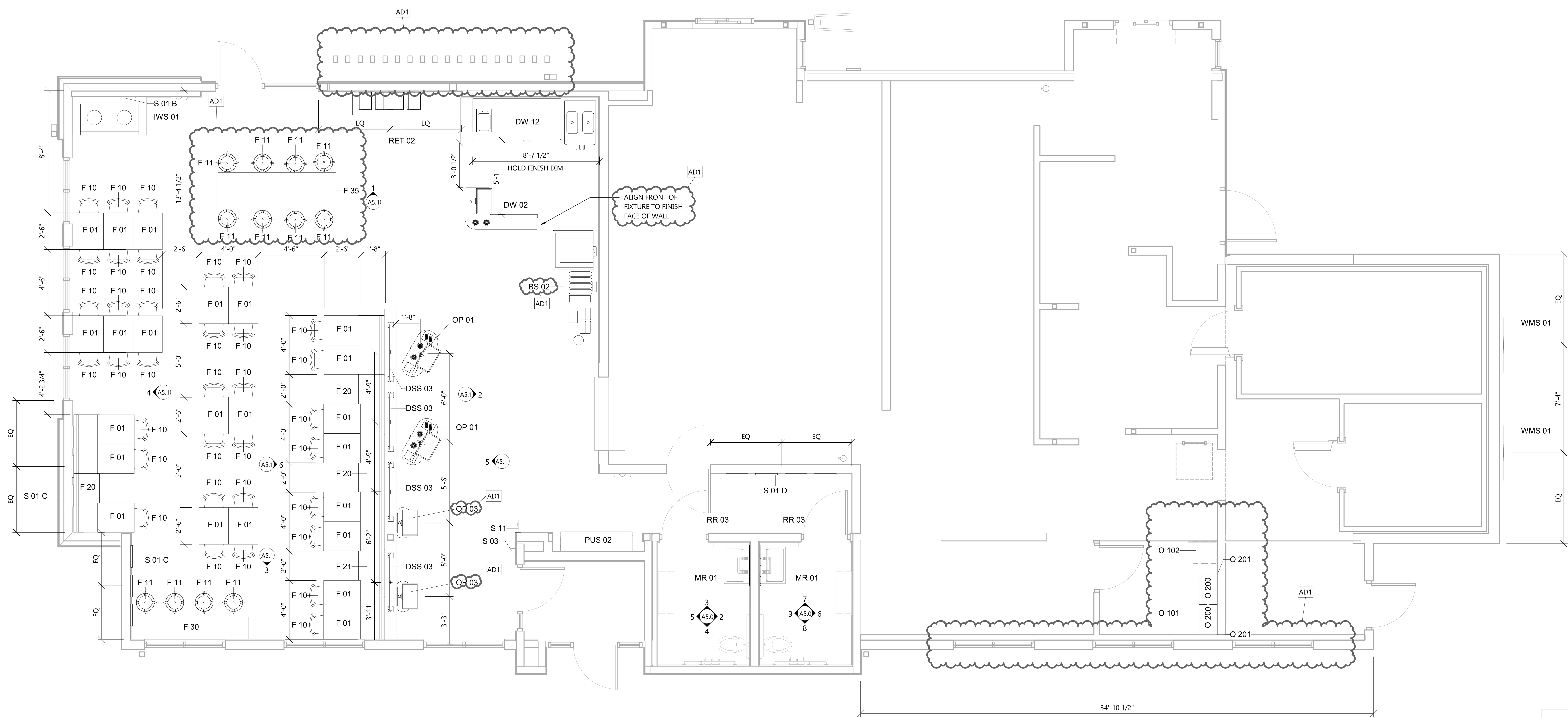
REMARKS

1. SEE PLUMBING DRAWINGS FOR PLUMBING REQUIREMENTS
2. SEE ELECTRICAL DRAWINGS FOR ELECTRICAL REQUIREMENTS

AD1

FURNITURE SCHEDULE

QUANTITY	FIXTURE CODE	MODEL NUMBER	DESCRIPTION	PROVIDED BY	REMARKS
1	BS 02	HBROS-BS-ADA-0000-00	Beverage Station ADA Fountain (Right)	KATALYST	1, 2
4	DSS 03	HBROS-DSS-SINGLE	Dole Soft Serve Screen (Single)	KATALYST	
1	DW 02	HBROS-DW-FCR-0000-00	Dole Soft Serve Front Counter (Right)	KATALYST	2
1	DW 12	HBROS-DW-BCR2-0000-00	Dole Soft Serve Back Counter (Right)	KATALYST	1, 2
23	F 01		24" x 30" Dining Table	EDWARD DON/ELITE BOOTH	
35	F 10		Dining Chair	EDWARD DON/ELITE BOOTH	
12	F 11		Barstool	EDWARD DON/ELITE BOOTH	
3	F 20		96" Booth	EDWARD DON/ELITE BOOTH	
1	F 21		72" Booth	EDWARD DON/ELITE BOOTH	
1	F 30		96" High Top Table	EDWARD DON/ELITE BOOTH	
1	F 35		96" x 30" Dining Table	EDWARD DON/ELITE BOOTH	
1	IWS 01	HBROS-IT-0000-00	Interior Waste Station	KATALYST	
2	MR 01	HBROS-MR-0000-00	Restroom Mirror	KATALYST	
1	O 101	HBROS-O-0101-00	Office Counter	KATALYST	
1	O 102	HBROS-O-102-00	Office Cabinet	KATALYST	
2	O 200	HBROS-O-0200-00	Office Upper Cabinet	KATALYST	
2	O 201	HBROS-O-0201-00	Office Upper Cabinet - End Panel	KATALYST	
2	OP 01	HBROS-OP-0100-00	Freestanding Order Pod	KATALYST	2
2	OP 03	HBROS-OP-0200-00	Wall Mounted Order Pod	KATALYST	2
1	PUS 02	HBROS-PUS-0000-00	Online Order Pick-Up Shelf (Single)	KATALYST	
1	RET 02	HBROS-RETAIL	Retail Shelving and Cabinet (Large)	KATALYST	
2	RR 03	HBROS-RR-ADA-UNISEX	Restroom Sign - ADA Unisex	KATALYST	
1	S 01 B	HBROS-CANVAS - SET OF 4	(4) Canvas Prints 18" x 18"	KATALYST	
2	S 01 C	HBROS-CANVAS - SET OF 6	(6) Canvas Prints 18" x 18"	KATALYST	
1	S 01 D	HBROS-CANVAS - SET OF 8	(8) Canvas Prints 18" x 18"	KATALYST	
1	S 03	HBROS-INTOCC	Vinyl - Int. Occupancy Sign	KATALYST	
1	S 11	HBROS-BLADE-RESTROOM	Blade Sign - Restroom (2'-0" tall)	KATALYST	
2	WMS 01		4'-0" x 8'-0" Metal screen	KATALYST	



NORTH

FIRST FLOOR FURNITURE

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

ARCHITECTURAL FIRST FLOOR FURNITURE PLAN

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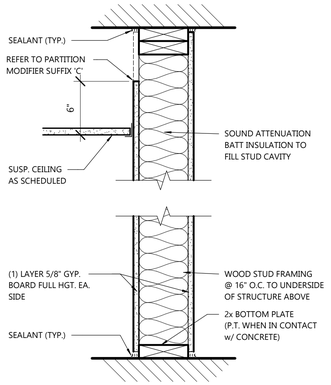


6W2 2x6 WOOD STUD (1) LAYER GYPSUM BOARD ON (1) SIDE

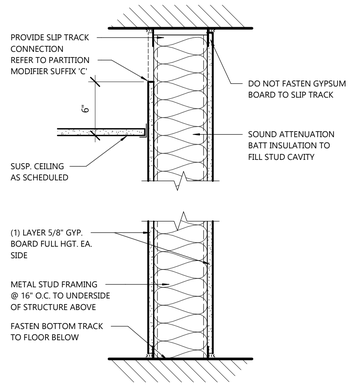
6W2A SIM. TO '6W2' BUT NO ACOUSTICAL INSULATION

6W2C SIM. TO '6W2' BUT GYPSUM BOARD SHALL ONLY EXTEND 6" ABOVE SCHED. CEILING (1) SIDE ONLY

6W2R SIM. TO '6W2' GYPSUM BOARD SHALL BE ABUSE RESISTANT ON CORRIDOR SIDE OF WALL

INTERIOR WALL TYPE - 6W2

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



6M2 6" METAL STUD (1) LAYER GYPSUM BOARD ON (2) SIDES

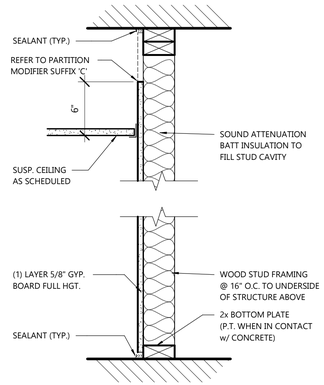
6M2A SIM. TO '6M2' BUT NO ACOUSTICAL INSULATION

6M2C SIM. TO '6M2' BUT GYPSUM BOARD SHALL ONLY EXTEND 6" ABOVE SCHED. CEILING (1) SIDE ONLY

6M2R SIM. TO '6M2' GYPSUM BOARD SHALL BE ABUSE RESISTANT ON CORRIDOR SIDE OF WALL

INTERIOR WALL TYPE - 6M2

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



4W1 2x4 WOOD STUD (1) LAYER GYPSUM BOARD ON (1) SIDE

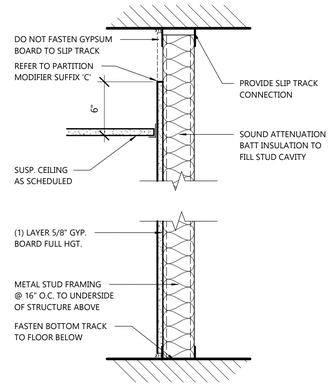
4W1A SIM. TO '4W1' BUT NO ACOUSTICAL INSULATION

4W1C SIM. TO '4W1' BUT GYPSUM BOARD SHALL ONLY EXTEND 6" ABOVE SCHED. CEILING (1) SIDE ONLY

4W1R SIM. TO '4W1' GYPSUM BOARD SHALL BE ABUSE RESISTANT ON CORRIDOR SIDE OF WALL

INTERIOR WALL TYPE - 4W1

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



4M1 3 5/8" METAL STUD (1) LAYER GYPSUM BOARD ON (1) SIDE

4M1A SIM. TO '4M1' BUT NO ACOUSTICAL INSULATION

4M1C SIM. TO '4M1' BUT GYPSUM BOARD SHALL ONLY EXTEND 6" ABOVE SCHED. CEILING (1) SIDE ONLY

4M1R SIM. TO '4M1' GYPSUM BOARD SHALL BE ABUSE RESISTANT ON CORRIDOR SIDE OF WALL

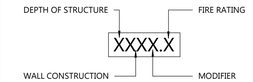
INTERIOR WALL TYPE - 4M1

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

GENERAL NOTES

- ALLOW FOR DEFLECTION AT TOP OF WALL IN NON-LOAD BEARING APPLICATIONS.
- ERECT ALL PARTITIONS FULL HEIGHT TO STRUCTURAL SLAB ABOVE UNLESS OTHERWISE NOTED.
- CONSTRUCT PARTITIONS WITH APPROPRIATE STUD GAUGE BASED ON LIMITING HEIGHT.
- HOLD GWB OFF FLOOR 5/8" TO PREVENT WICKING. PROVIDE CONTINUOUS NON-HARDENING ACOUSTICAL CAULKING BEADS ON EACH SIDE OF THE BOTTOM STUD RUNNER AT THE THREE-WAY INTERSECTION BETWEEN THE RUNNER, FLOOR AND DRYWALL.
- MULTIPLE LAYER OF GYPSUM BOARD ARE TO BE APPLIED WITH STAGGERED JOINTS.
- LABEL ALL FIRE RATED PARTITIONS ACCORDING TO THEIR RATING WITH STENCILED RED LETTERS. 4" HIGH MIN. AND 1/2" STROKE. LABEL FIRE RATING JUST ABOVE THE FINISHED CEILING, OR AT 10'-0" AFF FOR SPACES WITHOUT FINISHED CEILING AT INTERVALS OF NOT MORE THAN 10'-0" APART AND AT LEAST TWICE ON EACH PARTITION.
- SEAL ALL VOIDS AND PENETRATIONS IN FIRE RATED PARTITIONS AS REQUIRED TO MAINTAIN CONTINUOUS FIRE RATING.
- COORDINATE WALL CLADDING TYPE AND LOCATION WITH FINISH PLANS AND INTERIOR ELEVATIONS. VERIFY CLADDING THICKNESS APPROPRIATE DETAIL.
- PROVIDE BLOCKING AS REQUIRED AT ALL MILLWORK, WALL MOUNTED TELEVISIONS, BATHROOM GRAB BARS, ETC. TYPICAL OF ALL PARTITION TYPES.

INTERIOR PARTITION TAG KEY



DEPTH OF WALL STRUCTURE

TAG VALUE	BLOCK/CMU	METAL STUD	WOOD STUD
1	-	7/8"	3/4"
2	-	1 5/8"	1 1/2"
3	-	2 1/2"	-
4	3 5/8"	3 5/8"	3 1/2"
6	5 5/8"	6"	5 1/2"
8	7 5/8"	8"	7 1/4"
10	9 5/8"	-	-
12	11 5/8"	-	-

WALL CONSTRUCTION

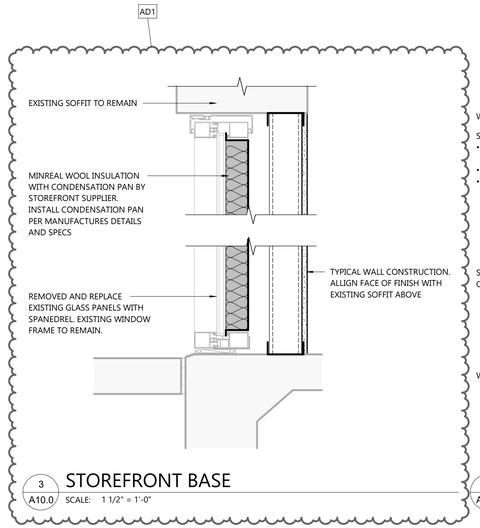
TAG VALUE	DESCRIPTION
B	BLOCK / CMU
D	INSULATED METAL PANEL
M1	METAL STUD (1) LAYER GYPSUM BOARD ON (1) SIDE
M2	METAL STUD (1) LAYER GYPSUM BOARD EACH SIDE
M4	METAL STUD (2) LAYERS GYPSUM BOARD EACH SIDE
W1	WOOD STUD (1) LAYER GYPSUM BOARD ON (1) SIDE
W2	WOOD STUD (1) LAYER GYPSUM BOARD EACH SIDE
W4	WOOD STUD (2) LAYERS GYPSUM BOARD EACH SIDE

TAG MODIFIERS

MODIFIER	DESCRIPTION
A	NO ACOUSTICAL INSULATION REQUIRED
B	WALL DOES NOT EXTEND TO STRUCTURE - BRACE TOP OF WALL
C	GYPSUM BOARD SHALL ONLY EXTENDS 6" ABOVE SCHED. CEILING (1) SIDE ONLY
P	PARTIAL HEIGHT WALL - SEE PLANS FOR WALL HEIGHT
R	ABUSE RESISTANCE GYPSUM BOARD REQ'D ON CORRIDOR SIZE OF WALL
S	SECURITY WALL - GYPSUM BOARD OVER 1/2" PLYWOOD (1) SIDE ONLY

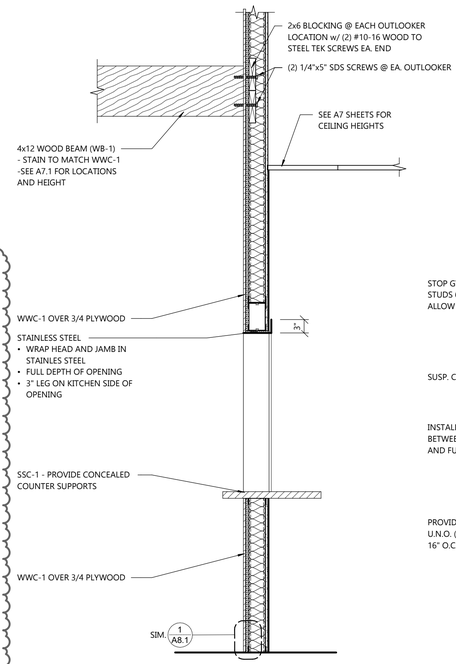
FIRE RATING

TAG VALUE	DESCRIPTION
.1	1 HR. RATED
.2	2 HR. RATED
.3	3 HR. RATED
.4	4 HR. RATED



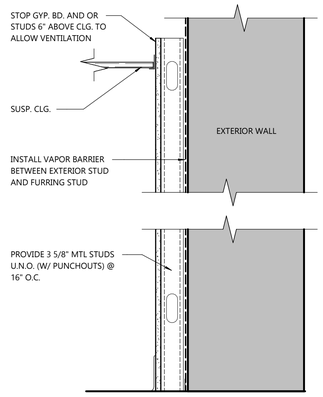
3 A10.0 STOREFRONT BASE

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



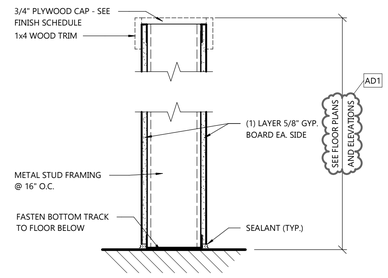
2 A10.0 EXPO SECTION

SCALE: 3/4" = 1'-0"



1 A10.0 PLUMBING FURRING DETAIL

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



6M2P 6" METAL STUD (1) LAYER GYPSUM BOARD ON (2) SIDES; WALL DOES NOT EXTEND UP TO STRUCTURE - SEE PLANS FOR WALL HEIGHT

INTERIOR WALL TYPE - 6M2P

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

ARCHITECTURAL INTERIOR WALL SECTIONS

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STRUCTURAL SPECIFICATIONS

STRUCTURAL SPECIFICATIONS

BASIC REQUIREMENTS

A. SEE DIVISION 00 PROCUREMENT AND CONTRACTING AND DIVISION 01 GENERAL REQUIREMENT FOR ADDITIONAL REQUIREMENTS.
B. SUBSTITUTIONS
   1. SEE DIVISION 01 25 13 PRODUCT SUBSTITUTION PROCEDURES FOR ADDITIONAL REQUIREMENTS.
   2. CONTRACTOR SHALL PROVIDE ALL SUPPORTING DATA AND ASSUME THE BURDEN OF PROOF THAT ANY SUBSTITUTE IS EQUIVALENT AS TO APPEARANCE, CONSTRUCTION, CAPACITY, AND PERFORMANCE. THE JUDGMENT OF EQUIVALENCY SHALL BE MADE BY THE ENGINEER AT THE TIME OF SHOP DRAWING REVIEW, NOT DURING BIDDING.
C. SHOP DRAWINGS, PRODUCT DATA, TEST RESULTS, PROJECT CLOSEOUT DOCUMENTS:
   1. SEE DIVISION 01 33 23 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES FOR ADDITIONAL REQUIREMENTS
   2. CONSTRUCTION ADMINISTRATION SUBMITTAL LIST:
      a. GEOTECHNICAL REPORT (3104)
      b. SOIL COMPACTION TEST REPORTS (3104)
      c. CONCRETE MIX DESIGNS (304)
      d. CONCRETE TEST REPORTS FOR SLUMP, AIR ENTRAINMENT AND COMPRESSIVE STRENGTH (304)
      e. CONCRETE FOUNDATION POUR SCHEDULE, INCLUDING YARDS TO BE PLACED (304)
      f. SLAB ON GRADE POUR SCHEDULE, INCLUDING YARDS TO BE PLACED (304)
      g. SLAB ON GRADE JOINT LAYOUT PLAN (304)
      h. CONCRETE REINFORCEMENT (304)
      i. CONCRETE MASONRY UNITS (404)
      j. SUBMITTALS) (304)
      k. COLUMN ANCHOR BOLTS (304)
      l. POST INSTALLED ANCHORS (304)
      m. STRUCTURAL STEEL (504)
      n. MISC. STEEL FABRICATIONS (504)
      o. WOOD FLOOR TRUSSES (604)
      p. WOOD ROOF TRUSSES (604)
      q. WOOD FLOOR / ROOF I JOIST (604)
      r. LIGHT GAGE FRAMING SYSTEMS (704)
D. FINISHING AND PAINTING
   1. SEE DIVISION 09 91 00 FINISH AND PAINTING FOR ADDITIONAL REQUIREMENTS.

DIVISION 03 CONCRETE

03 30 00 CAST-IN-PLACE CONCRETE

A. DESIGN AND CONSTRUCTION OF ALL CAST-IN-PLACE CONCRETE WORK SHALL CONFORM TO ACI 318 BUILDING CODE AND CRSI MANUAL OF STANDARD PRACTICE.
B. PREPARATION OF THE SUBGRADE AND BASE COURSE/DRAINAGE LAYER FOR CONCRETE SLAB ON GRADE CONSTRUCTION TO BE PROVIDED PER MORE STRINGENT REQUIREMENTS OF GEOTECHNICAL REPORT OR CONSTRUCTION DOCUMENTS.
C. DESIGN MIXES SHALL BE IN ACCORDANCE WITH ASTM C94.
   1. SEE SPECIFICATIONS ON CIVIL PLANS FOR DESIGN MIXES ASSOCIATED WITH EXTERIOR CONCRETE FLATWORK SHOWN ON THE CIVIL PLANS.
   2. GROUP A — FOOTINGS, GRADE BEAMS, AND TIE BEAMS.
      a. EXPOSURE CLASS: ACI 318 (F0)
      b. MINIMUM COMPRESSIVE STRENGTH: 3000 PSI AT 28 DAYS
      c. MAXIMUM WATER/CEMENT RATIO: NONE
      d. MAXIMUM AGGREGATE SIZE: 1 1/2"
      e. AIR CONTENT: N/A
   3. GROUP B — INTERIOR SLABS ON GRADE AND HOUSEKEEPING PADS (6" THICKNESS OR LESS).
      a. EXPOSURE CLASS: ACI 318 (F0)
      b. MINIMUM COMPRESSIVE STRENGTH: 3500 PSI AT 28 DAYS
      c. MAXIMUM WATER/CEMENT RATIO: NONE
      d. MAXIMUM AGGREGATE SIZE: 3/4"
      e. AIR CONTENT: N/A
   4. GROUP C — INTERIOR SLABS ON GRADE AND HOUSEKEEPING PADS (GREATER THAN 6" THICKNESS).
      a. EXPOSURE CLASS: ACI 318 (F0)
      b. MINIMUM COMPRESSIVE STRENGTH: 4000 PSI AT 28 DAYS
      c. MAXIMUM WATER/CEMENT RATIO: NONE
      d. MAXIMUM AGGREGATE SIZE: 1 1/2"
      e. AIR CONTENT: N/A
   5. GROUP D — INTERIOR WALLS, PIERS, COLUMNS, BEAMS, AND STRUCTURAL SLABS.
      a. EXPOSURE CLASS: ACI 318 (F0)
      b. MINIMUM COMPRESSIVE STRENGTH: 4000 PSI AT 28 DAYS
      c. MAXIMUM WATER/CEMENT RATIO: NONE
      d. MAXIMUM AGGREGATE SIZE: 3/4"
      e. AIR CONTENT: N/A
   6. GROUP E — INTERIOR CONCRETE FILLED METAL DECK AND PRECAST TOPPINGS.
      a. EXPOSURE CLASS: ACI 318 (F0)
      b. MINIMUM COMPRESSIVE STRENGTH: 4000 PSI AT 28 DAYS
      c. MAXIMUM WATER/CEMENT RATIO: NONE
      d. MAXIMUM AGGREGATE SIZE: 3/4"
      e. AIR CONTENT: N/A
   7. GROUP F — INTERIOR CONCRETE FILLED METAL PAN STAIRS AND LANDINGS.
      a. EXPOSURE CLASS: ACI 318 (F0)
      b. MINIMUM COMPRESSIVE STRENGTH: 4000 PSI AT 28 DAYS
      c. MAXIMUM WATER/CEMENT RATIO: NONE
      d. MAXIMUM AGGREGATE SIZE: 1/2"
      e. AIR CONTENT: N/A
   8. GROUP G — EXTERIOR WALLS, PIERS, COLUMNS, BEAMS, AND STRUCTURAL SLABS
      a. EXPOSURE CLASS: ACI 318 (F2)
      b. MINIMUM COMPRESSIVE STRENGTH: 4500 PSI AT 28 DAYS
      c. MAXIMUM WATER/CEMENT RATIO: 0.45
      d. MAXIMUM AGGREGATE SIZE: 3/4"
      e. AIR CONTENT: 6.0% (+/-1.5%) AT POINT OF DELIVERY
   9. GROUP H — ALL EXTERIOR CONCRETE EXPOSED TO FREEZING, THAWING, AND DEICING SALTS (I.E. EXPOSED WALLS, PIERS, ETC. THAT IS ABUTTED UP TO PAVED SURFACES WHERE DEICING SALTS MAY BE USED)
      a. EXPOSURE CLASS: ACI 318 (F3)
      b. MINIMUM COMPRESSIVE STRENGTH: 5000 PSI AT 28 DAYS
      c. MAXIMUM WATER/CEMENT RATIO: 0.40
      d. MAXIMUM AGGREGATE SIZE: 3/4"
      e. AIR CONTENT: 6.0% (+/-1.5%) AT POINT OF DELIVERY
   10. SLUMP LIMIT SHALL BE 4" (+/- 1").
   11. SLUMP LIMIT SHALL BE 8" (+/- 1") FOR CONCRETE WITH VERIFIED SLUMP OF 2" TO 4" BEFORE ADDING HIGH-RANGE WATER-REDUCING ADMIXTURE OR PLASTICIZING ADMIXTURE.
   12. ALL CONCRETE EXPOSED TO WEATHER SHALL BE AIR-ENTRAINED WITH AIR CONTENT SPECIFIED IN DESIGN MIX GROUPS ABOVE. NO OTHER ADMIXTURES SHALL BE USED WITHOUT APPROVAL OF EXCEL ENGINEERING, INC. CALCIUM CHLORIDE SHALL NOT BE USED.
   13. CEMENTITIOUS MATERIALS: LIMIT PERCENTAGE, BY WEIGHT, OF CEMENTITIOUS MATERIALS OTHER THAN PORTLAND CEMENT IN CONCRETE WITH EXPOSURE CLASS (F3) AS FOLLOWS:
      a. FLY ASH OR OTHER POZZOLANS: 25 PERCENT BY MASS
      b. SLAG CEMENT: 50 PERCENT BY MASS
      c. TOTAL OF FLY ASH OR OTHER POZZOLANS, SLAG CEMENT: 50 PERCENT BY MASS, WITH FLYASH OR POZZOLANS NOT EXCEEDING 25 PERCENT BY MASS
      d. TOTAL OF FLY ASH OR OTHER POZZOLANS: 35 PERCENT BY MASS WITH FLY ASH OR POZZOLANS NOT EXCEEDING 25 PERCENT BY MASS
D. PLACE SLABS ON GRADE WITH CONSTRUCTION JOINT OR SAW JOINT AS INDICATED ON THE PLANS. SAW CUT TO BE DONE AS SOON AS POSSIBLE, BUT NO LATER THAN 24 HOURS AFTER CONCRETE IS PLACED. ALL INTERIOR SLABS TO HAVE A TROWEL FINISH AND ALL EXTERIOR SLABS TO HAVE A LIGHT BROOM FINISH UNLESS NOTED OTHERWISE. MAINTAIN FLOOR LEVEL AT WALLS AND PITCH SURFACES UNIFORMLY TO DRAINS. ALL CONCRETE IS TO BE CURED FOR 7 DAYS. FLOORS TO BE STAINED, TO RECEIVE AN ASHFORD SEALER, OR TO RECEIVE ANOTHER FINISH THAT IS NOT COMPATIBLE WITH CURING COMPOUNDS ARE TO BE WET CURED OR CURED WITH AN ARMORLON TRANSGUARD 4000 WET CURE COVER PER MANUFACTURER'S SPECIFICATION. EXTERIOR SLABS SHALL BE SEPARATED FROM BUILDINGS WITH CONTINUOUS 1/2" FIBER EXPANSION JOINT AND/OR 1/4" FIBER EXPANSION JOINT AT DECORATIVE MASONRY UNITS. INTERIOR SLABS SHALL BE SEPARATED FROM FOUNDATION WALLS AND PIERS WITH FORM RELEASE AGENT, 15 LB. FELT OR AS DETAILED ON PLANS.
E. THE SLAB-ON-GRADE FLOOR FLATNESS/LEVELNESS SHALL MEET TO THE FOLLOWING CRITERIA:
   1. TOP OF FLOOR ELEVATION SHALL BE WITHIN 3/4" OF DESIGN ELEVATION IN ACCORDANCE TO ACI 117 TOLERANCES.
   2. THE SPECIFIED OVERALL VALUE FOR THE FLOOR FLATNESS/LEVELNESS PER ACI 117 AND ASTM E1155 IS AS FOLLOWS:
      a. NONCRITICAL MECHANICAL ROOMS, NONPUBLIC AREAS, AND PARKING - FF20 / FL15.
      b. CARPETED AREAS IN COMMERCIAL OFFICE, INDUSTRIAL BUILDING - FF25 / FL20.
      c. THIN-SET FLOORING, WAREHOUSE, POLISHED CONCRETE - FF35 / FL25.
      d. WAREHOUSE WITH AIR-PALLET USE, ICE RINKS - FF45 / FL35.
      e. CRITICAL AREAS AS INDICATED ON PLAN - >FF50 / >FL50.
   3. THE MINIMUM LOCAL VALUE FOR THE FLOOR FLATNESS/LEVELNESS SHALL NOT BE LESS THAN 67% OF THE SPECIFIED OVERALL VALUE.
   4. THE GENERAL CONTRACTOR SHALL PROVIDE A WRITTEN REPORT AT CONTRACTOR'S EXPENSE TO OWNER'S REPRESENTATIVE WITHIN 48 HOURS OF COMPLETION OF EACH POUR.
   5. CONTRACTOR SHALL REPLACE AREAS THAT DO NOT MEET THESE CRITERIA.
F. FOUNDATION WALLS EXPOSED 2 FEET OR MORE, RETAINING WALLS, AND BASEMENT WALLS SHALL HAVE CONTROL JOINTS AS DETAILED ON PLANS. WALLS WITH MASONRY OR BRICK CONSTRUCTION ABOVE SHALL HAVE CONTROL JOINTS ALIGNED WITH MASONRY / BRICK JOINTS. ALL EXPOSED FOUNDATION WALLS TO HAVE TIES AND FINS REMOVED PER ACI 301-99, 5.3.3.3.B "SMOOTH —FORM FINISH." AND BE HAND RUBBED PER ACI 301-99, 5.3.3.4.A "SMOOTH-RUBBED FINISH" AND HAVE TWO (2) COATS WHITE OR GRAY THOROSEAL APPLIED PER LOCATIONS INDICATED ON THE PLANS.
G. BACKFILLING OF FOUNDATIONS:
   1. BACKFILLING OF OPPOSITE SIDES OF UNBRACED FOUNDATION WALLS SHALL MAINTAIN A MAXIMUM 2 FOOT DIFFERENTIAL IN ELEVATION PRIOR TO ACHIEVING FINAL SPECIFIED GRADE.
   2. TEMPORARY CONSTRUCTION BRACING DURING BACKFILLING.
      a. FOUNDATION WALLS WITH PERMANENT TOP LATERAL SUPPORTS SHALL BE TEMPORARILY BRACED UNTIL TOP SUPPORT SYSTEMS ARE INSTALLED. TEMPORARY CONSTRUCTION BRACING SHALL BE DESIGNED AND INSTALLED BY THE CONTRACTOR.
      b. THE BOTTOM OF THE BASEMENT WALLS SHALL BE TEMPORARILY BRACED UNTIL THE BASEMENT FLOOR SLAB IS IN PLACE. TEMPORARY CONSTRUCTION BRACING SHALL BE DESIGNED AND INSTALLED BY THE CONTRACTOR.
H. ALL REINFORCING BARS SHALL BE ASTM A615 GRADE 60. THICKNESS OF CONCRETE COVER OVER REINFORCEMENT SHALL BE NOT LESS THAN 3" WHERE CONCRETE IS DEPOSITED AGAINST THE GROUND WITHOUT THE USE OF FORMS AND NOT LESS THAN 1 1/2" FOR UP TO #6, 2" FOR #7 TO #10 IN ALL OTHER LOCATIONS. ALL REINFORCING SHALL BE LAPPED 48 DIAMETERS FOR UP TO #6 BARS, 62 DIAMETERS FOR #7 TO #9 BARS, 68 DIAMETERS FOR #10 BARS OR AS NOTED ON THE DRAWINGS AND EXTENDED AROUND CORNERS WITH CORNER BARS. PLACING AND DETAILING OF STEEL REINFORCING AND REINFORCING SUPPORTS SHALL BE IN ACCORDANCE WITH CRSI AND ACI MANUAL AND STANDARD PRACTICES. THE REINFORCEMENT SHALL NOT BE PAINTED AND MUST BE FREE OF GREASE/OIL, DIRT OR DEEP RUST WHEN PLACED IN THE WORK. ALL WELDED WIRE FABRIC SHALL MEET THE REQUIREMENTS OF ASTM A1064. WELDED WIRE FABRIC SHALL BE PLACED 2" FROM TOP OF SLAB, UNLESS INDICATED OTHERWISE.
I. CONTRACTOR SHALL ENGAGE A QUALIFIED INDEPENDENT TESTING AND INSPECTING AGENCY TO SAMPLE MATERIALS, PERFORM TESTS, AND SUBMIT TEST REPORTS DURING CONCRETE PLACEMENT. TESTS WILL BE PERFORMED ACCORDING TO ACI 301. CAST AND LABORATORY CURE ONE SET OF FOUR STANDARD CYLINDERS FOR EACH COMPOSITE SAMPLE FOR EACH DAY'S POUR OF EACH CONCRETE MIX EXCEEDING 5 CU. YD., BUT LESS THAN 25 CU. YD., PLUS ONE SET FOR EACH ADDITIONAL 50 CU. YD. OR FRACTION THEREOF. PERFORM COMPRESSIVE-STRENGTH TESTS ACCORDING TO ASTM C 39. TEST TWO SPECIMENS AT 7 DAYS AND TWO SPECIMENS AT 28 DAYS. PERFORM SLUMP TESTING ACCORDING TO ASTM C 143. PROVIDE ONE TEST AT POINT OF PLACEMENT FOR EACH COMPOSITE SAMPLE, BUT NOT LESS THAN ONE TEST FOR EACH DAY'S POUR OF EACH CONCRETE MIX. PERFORM ADDITIONAL TESTS WHEN CONCRETE CONSISTENCY APPEARS TO CHANGE.
J. (DESIGN OF MEP BY EXCEL) VERIFY INTERIOR EQUIPMENT CONCRETE PAD SIZES WITH RESPECTIVE CONTRACTORS. PADS SHALL HAVE FIBERMESH 300 FIBERS AT A RATE OF 1.5 LBS/CU. YD. OR 6 X 6-W1.4 X W1.4 WELDED WIRE MESH WITH MINIMUM 1 INCH COVER. EQUIPMENT PADS SHALL BE 3.5 INCHES THICK (TOP OF PAD SHALL BE LEVEL IF POURED ON SLOPED FLOOR, THICKNESS SHALL BE AT HIGHEST FLOOR ELEVATION) WITH 1 INCH CHAMFER UNLESS SPECIFIED OTHERWISE AND SHALL BE PLACED AFTER PRECAST TOPPING HAS BEEN POURED.
K. REINFORCMENT IN CONCRETE TOPPINGS ON PRECAST CONCRETE SHALL BE FIBERMESH 300 FIBERS AT A RATE OF 1.5 LBS/CU. YD. AND 6 X 6-W1.4 X W1.4 WELDED WIRE MESH UNLESS NOTED OTHERWISE.
L. REINFORCEMENT IN CONCRETE TOPPINGS ON METAL DECK SHALL BE FIBERMESH 300 FIBERS AT A RATE OF 1.5 LBS/CU. YD. AND 6 X 6-W2.1 X W2.1 WELDED WIRE MESH UNLESS NOTED OTHERWISE.
M. PROTECT FRESHLY PLACED CONCRETE FROM PREMATURE DRYING AND EXCESSIVE COLD OR HOT TEMPERATURES. IN HOT, DRY, AND WINDY WEATHER, APPLY AN EVAPORATION-CONTROL COMPOUND ACCORDING TO MANUFACTURER'S INSTRUCTIONS AFTER SCREEDING AND BULL FLOATING, BUT BEFORE POWER FLOATING AND TROWELING.
N. APPLY TROWEL FINISH TO MONOLITHIC SLAB SURFACES TO BE EXPOSED TO VIEW AND SLAB SURFACES TO BE COVERED WITH RESILIENT FLOORING, CARPET, PAINT, OR OTHER THIN FILM-FINISH COATING SYSTEM. APPLY NONSLIP BROOM FINISH TO EXTERIOR CONCRETE PLATFORMS, STEPS, AND RAMPS, AND ELSEWHERE AS INDICATED.
O. TEST RESULTS WILL BE REPORTED IN WRITING TO ARCHITECT, READY-MIX PRODUCER, AND CONTRACTOR WITHIN 24 HOURS AFTER TESTS. REPORTS OF COMPRESSIVE STRENGTH TESTS SHALL CONTAIN THE PROJECT IDENTIFICATION NAME AND NUMBER, DATE OF CONCRETE PLACEMENT, NAME OF CONCRETE TESTING SERVICE, CONCRETE TYPE AND CLASS, LOCATION OF CONCRETE BATCH IN STRUCTURE, DESIGN COMPRESSIVE STRENGTH AT 28 DAYS, CONCRETE MIX PROPORTIONS AND MATERIALS, COMPRESSIVE BREAKING STRENGTH, AND TYPE OF BREAK FOR BOTH 7-DAY TESTS AND 28-DAY TESTS.

03 60 00 GROUT

A. NONMETALLIC, SHRINKAGE-RESISTANT GROUT SHALL BE ASTM C1107/C1107M, FACTORY-PACKAGED, NONMETALLIC AGGREGATE GROUT, NONCORROSIVE AND NONSTAINING, MIXED WITH WATER TO A CONSISTENCY SUITABLE FOR APPLICATION.
B. GROUT TO BE USED UNDER BEARING PLATES AND COLUMN BASE PLATES. PACK GROUT SOLIDLY BETWEEN BEARING SURFACES AND PLATES SO NO VOIDS REMAIN. NEATLY FINISH EXPOSED SURFACES, PROTECT GROUT AND ALLOW TO CURE. COMPLY WITH MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS FOR GROUTING.
C. MINIMUM COMPRESSIVE STRENGTH: 8000 PSI AT 28 DAYS.
D. FOR GROUT USED TO FILL MASONRY CORES SEE DIVISION 04 MASONRY.

DIVISION 04 MASONRY

04 20 00 UNIT MASONRY

A. MASONRY CONSTRUCTION AND MATERIALS SHALL COMPLY WITH LOCAL AND STATE CODE REQUIREMENTS, SPECIFICATIONS OF NCMA, MASONRY STANDARDS JOINT COMMITTEE'S SPECIFICATIONS FOR MASONRY STRUCTURES (ACI 530.1-99/ASCE 6-99/TMS 602-99) AND THE FOLLOWING:
   1. UNITS SHALL BE FLUSH FACED AND/OR ARCHITECTURAL FACED AS SHOWN ON THE DRAWINGS.
   2. UNIT DIMENSIONS SHALL BE EQUAL TO STANDARD UNIT CMU AS MANUFACTURED BY NORTHFIELD BLOCK COMPANY. CHIPPED, CRACKED AND BROKEN UNITS SHALL NOT BE USED.
   3. UNIT PROPERTIES SHALL MEET THE NORMAL WEIGHT-ASTM C90 SPECIFICATION WITH A MINIMUM UNIT COMPRESSIVE STRENGTH OF 3,275 PSI. EXTERIOR MASONRY SHALL BE MADE WITH INTEGRAL WATER REPELLENT UNITS (ADMIXTURE TO BE FROM SAME MANUFACTURER AS THE MORTAR).
   4. UNITS SHALL BE LAID IN RUNNING AND STACKED BOND. SINGLE WYTHE OR BACKUP WYTHE WALLS SHALL HAVE STANDARD GALVANIZED "DUR-O-WAL" OR EQUAL LADDER TYPE REINFORCING AT 16" ON CENTER. PROVIDE CONTINUITY AT WALL INTERSECTIONS BY USING PREFABRICATED T-SHAPED LADDER TYPE REINFORCING. PROVIDE CONTINUITY AT ALL CORNERS BY USING PREFABRICATED L-SHAPED LADDER TYPE REINFORCING. LAP ALL REINFORCEMENT 6". VERTICAL AND HORIZONTAL REINFORCING BARS SHALL BE ASTM A615 GRADE 60.
   5. MORTAR SHALL BE TYPE M OR S PORTLAND-CEMENT LIME MIX WITH INTEGRAL WATER REPELLENT ADMIXTURE (ADMIXTURE TO BE FROM THE SAME MANUFACTURER AS THE MASONRY UNITS) PER MANUFACTURERS RECOMMENDATIONS ON EXTERIOR MASONRY. USE TYPE M BELOW GRADE.
   6. UNITS SHALL HAVE CONCAVE TOOL JOINTS FOR WEATHER TIGHTNESS. JOINTS SHALL BE CLEAN, STRAIGHT, PLUMB, LEVEL AND UNIFORM.
   7. ALL MASONRY WORK SHALL BE PERFORMED BY SKILLED WORKMEN IN A COMPETENT MANNER AND SHALL BE PROPERLY INSPECTED.
   8. PROVIDE WRITTEN PLANT CERTIFICATION TO EXCEL ENGINEERING PRIOR TO START OF CONSTRUCTION THAT INTEGRAL WATER REPELLANT ADMIXTURE HAS BEEN INCLUDED IN THE MASONRY AND MORTAR PRODUCTS USED FOR THIS PROJECT. CERTIFICATION TO SPECIFICALLY NAME THIS PROJECT.
B. POUR BOND BEAMS FULL WITH 2,500 PSI, GROUT PER ASTM C476 AND REINFORCE WITH MINIMUM 1 #4 DEFORMED REINFORCING BAR PER 4" THICKNESS OR AS DETAILED ON THE DRAWINGS. LAP LENGTHS OF HORIZONTAL BARS TO BE 48 BAR DIAMETERS. STRUCTURAL BOND BEAM LINTELS SHALL HAVE NO LAPPED SPLICES.
C. WHERE PRECAST OR POURED IN PLACE REINFORCED MASONRY LINTELS ARE PROVIDED, MAINTAIN MINIMUM 8" SOLID BEARING ON EACH SIDE OF OPENING BY FILLING CORES WITH GROUT (3) COURSES BELOW BEARING OR AS INDICATED ON PLANS.
D. WHERE DRAWINGS CALL FOR CORE OR CORES OF BLOCK TO BE REINFORCED VERTICALLY, TAKE CARE THAT SAID CORE(S) ARE KEPT CLEAR AND FREE OF MORTAR WHILE LAYING OF CMU. WHEN (2) BARS ARE TO BE PLACED IN ONE CORE, PROVIDE BAR POSITIONERS TO INSURE PROPER PLACEMENT OF REINFORCING. FILL CORE OR CORES OF CMU WITH 2,500 PSI GROUT PER ASTM C476 WITH A SLUMP BETWEEN 8 AND 11 AND CONSOLIDATE BY PUDDLING OR VIBRATING. VIBRATING REQUIRED ON MASONRY LESS THAN 12" IN WIDTH, AND FOR LIFTS GREATER THAN 12" IN HEIGHT. VERTICAL LIFTS SHALL NOT BE MORE THAN 5'-0". VERTICAL REINFORCING BARS SHALL HAVE LAP LENGTHS OF 48 BAR DIAMETERS.
E. PROVIDE 3/8" DIAMETER X 8" ANCHOR BOLTS AT 4'-0" ON CENTER FOR ALL PRESSURE TREATED ROUGH WOOD AT TOP OF MASONRY WALLS UNLESS NOTED OTHERWISE ON DRAWINGS.
F. INSTALL 2 5/8" X 3 1/2'' X 1/2'' "MORTAR NET" WEEP VENTS AT TOP AND BOTTOM COURSE OF EXTERIOR BLOCK, ABOVE LINTELS AND BOND BEAMS AT 32" ON CENTER OR AS INDICATED ON THE DRAWINGS. COLOR OF WEEP VENTS AND MESH TO MATCH GROUT. INSTALL CONTINUOUS "BLOCKFLASH" FLASHING PANS PER MANUFACTURERS RECOMMENDATIONS AT BASE AND TOP OF LINTEL OF SINGLE WYTHE EXTERIOR WALLS.
G. ALL EXTERIOR CONCRETE MASONRY SURFACES SHALL BE SEALED WITH (1) COAT "PROSOCO-SURE KLEAN BLOK-GUARD AND GRAFFITI CONTROL" UNLESS A PREMIUM COLOR IS USED OR SPECIFIED ON THE DRAWINGS TO BE PAINTED. PREMIUM COLORS SHALL BE SEALED WITH (2) COATS "PROSOCO-SURE KLEAN BLOK-GUARD AND GRAFFITI CONTROL". INSTALL PER MANUFACTURERS RECOMMENDATIONS.
H. CONTROL JOINTS SHALL BE SPACED PER NCMA 10-2B: CONTROL JOINTS FOR CONCRETE MASONRY WALLS — EMPIRICAL METHOD AND AS INDICATED ON PLANS. CONTROL JOINT CAULK COLOR TO MATCH COLOR OF THE FIELD MASONRY ADJACENT TO JOINT. CONTROL JOINTS TO ALIGN WITH EXPOSED CONCRETE FOUNDATION WALL JOINTS IF APPLICABLE.

DIVISION 05 METALS

05 12 00 STRUCTURAL STEEL FRAMING

A. STRUCTURAL STEEL FRAMING SHALL BE OF MATERIAL AS LISTED BELOW AND SHALL BE DETAILED, FABRICATED AND ERECTED TO COMPLY WITH A.I.S.C. MANUAL, CURRENT EDITION. PROVIDE ALL HOLES, ANCHOR BOLTS, BEARING PLATES, LINTELS, STIFFENERS, CLIP ANGLES, WELD PLATES, EMBEDMENTS, STAIRS, ETC. AS REQUIRED FOR STEEL STRUCTURE FABRICATION AS SHOWN ON THE DRAWINGS. ALL WELDING SHALL BE PERFORMED BY A LOCAL AND STATE CERTIFIED WELDER USING E70XX ELECTRODE. ALL BOLTS, NUTS AND WASHERS SHALL CONFORM TO REQUIREMENTS OF ASTM F3125 GRADE A325-N, INSTALLED IN SNUG-TIGHT CONDITION, U.N.O. ALL WORK PER THE A.I.S.C.'S CODE OF STANDARD PRACTICE IN ACCORDANCE WITH LOCAL AND STATE CODES.
B. STEEL GRADES SHALL BE AS LISTED BELOW UNLESS INDICATED OTHERWISE:
   1. STEEL WIDE FLANGE BEAMS: ASTM A992 OR ASTM A572, MIN. 50 KSI YIELD.
   2. STEEL WIDE FLANGE COLUMNS: ASTM A992 OR ASTM A572, MIN. 50 KSI YIELD.
   3. STEEL CHANNELS, ANGLES, PLATES, EMBEDMENTS, STAIRS, S-SHAPES, ETC.: ASTM A36.
   4. STEEL PIPE: ASTM A53 TYPE E OR S GRADE B.
   5. STEEL TUBES: ASTM A500 GRADE B.
C. STEEL FINISHES:
   1. ALL STEEL SHALL BE PREFINISHED WITH ONE COAT OF PRIMER UNLESS INDICATED OTHERWISE.
   2. ALL FIELD WELDS TO BE CLEANED AND PRIMED.
   3. SEE HIGH PERFORMANCE PAINT SPECIFICATION FOR FOOD PROCESSING AREAS.

DIVISION 6 WOOD, PLASTICS AND COMPOSITES

06 10 00 ROUGH CARPENTRY

A. LUMBER SHALL BE GRADED AND STAMPED WITH MINIMUM STRUCTURAL DESIGN VALUES AS LISTED BELOW.
   1. #1/#2 DOUG FIR — 850 PSI FB, 180 PSI FV, 1,600 KSI E (BEAMS, LINTELS & HEADERS, UNLESS NOTED).
   2. #1/#2 S.P.F. — 875 PSI FB, 1,150 PSI FC, 1,400 KSI E (ALL STUDS & PLATES, UNLESS NOTED)
   3. LVL @ 1,800 KSI E OR MICRO-LAM @ 1,900 KSI E — 2600 PSI FB, 285 PSI FV (OR AS NOTED ON THE PLANS).
   4. WOOD HEADER MATERIAL SHALL BE FREE OF ALL SPLITS, SHAKES AND CHECKS.
B. (THE FOLLOWING APPLIES WHEN PARTS OF WOOD STRUCTURE ARE DESIGNED EMPIRICALLY ACCORDING TO IBC SECTION 2308). SEE PLANS FOR PORTIONS OF STRUCTURE DESIGNED IN ACCORDANCE WITH IBC SECTION 2308, CONVENTIONAL LIGHT-FRAMED CONSTRUCTION.
C. MISCELLANEOUS LUMBER: PROVIDE NO. 3 OR STANDARD GRADE LUMBER OF ANY SPECIES FOR SUPPORT OR ATTACHMENT OF OTHER CONSTRUCTION, INCLUDING ROOFTOP EQUIPMENT CURBS AND SUPPORT BASES, CANT STRIPS, BUCKS, NAILERS, BLOCKING, AND SIMILAR MEMBERS.
D. PROTECTION AGAINST DECAY WITH PRESERVATIVE-TREATED WOOD. PRESSURE TREATED WOOD SHALL BE REQUIRED IN THE FOLLOWING AREAS:
   1. ALL WOOD SILL PLATES, FRAMING, AND FURRING STRIPS ATTACHED TO EXTERIOR BELOW GRADE MASONRY AND CONCRETE WALLS.
   2. ALL WOOD PLATES, BLOCKING, FRAMING AND FURRING STRIPS ATTACHED TO EXTERIOR, SINGLE-WYTHE MASONRY WALLS.
   3. ALL WOOD CAP FLASHING BLOCKING ATTACHED TO MASONRY OR CONCRETE PARAPETS.
   4. ALL WOOD SLEEPERS AND SILL PLATES ON CONCRETE SLABS IN DIRECT CONTACT WITH EARTH.
   5. EXCEPTION: WOOD SILL PLATES ON CONCRETE SLABS SEPARATED FROM DIRECT CONTACT TO THE EARTH WITH A 10 MIL POLYETHYLENE VAPOR RETARDANT WILL NOT REQUIRE PRESERVATIVE-TREATMENT.
   6. ALL WOOD IN CONTACT WITH GROUND OR EXPOSED TO THE WEATHER.
E. FINISHES FOR FASTENERS AND HARDWARE IN CONTACT WITH PRESERVATIVE-TREATED WOOD ARE BASED ON THE FOLLOWING ASSUMPTIONS:
   1. ALL INTERIOR TREATED WOOD SHALL USE AN ACQ-C, ACQ-D (CARBONATE), CBA-A, OR CA-B TREATMENT WITH RETENTION LEVELS LESS THAN OR EQUAL TO 0.40 PCF, 0.40 PCF, 0.41 PCF, AND 0.21 PCF RESPECTIVELY.
   2. ALL CONNECTION HARDWARE AND FASTENERS IN DIRECT CONTACT WITH INTERIOR TREATED WOOD SHALL BE HOT-DIPPED GALVANIZED, MECHANICALLY GALVANIZED, OR STAINLESS STEEL.
   3. ALL CONNECTION HARDWARE AND FASTENERS IN DIRECT CONTACT WITH EXPOSED EXTERIOR TREATED WOOD OR UNKNOWN TREATMENTS SHALL BE STAINLESS STEEL.
   4. USE TAPCON "CLIMASEAL" FASTENERS TO CONNECT ACQ-TREATED WOOD BLOCKING TO MASONRY OR CONCRETE PARAPETS.
F. SHOP DRAWINGS FOR PRESERVATIVE-TREATED WOOD, HARDWARE, AND FASTENERS:
   1. THE CONTRACTOR SHALL FURNISH MATERIAL CERTIFICATES FOR ALL PRESERVATIVE-TREATED WOOD TYPES, SPECIFYING THE NAME OF THE TREATING COMPANY, THE PRESERVATIVE USED, THE LEVEL OF TREATMENT (0.10, 0.25, 0.40, ETC.), THE INTENDED USE (ABOVE GROUND, GROUND CONTACT, ETC.), AND A REFERENCE TO THE APPROPRIATE AWPA STANDARD.
   2. THE CONTRACTOR SHALL FURNISH MATERIAL DATA SHEETS FOR HARDWARE AND FASTENERS IN CONTACT WITH PRESERVATIVE-TREATED WOOD.

06 16 00 SHEATHING

A. WOOD
   1. ALL SHEATHING TO BE APA RATED PS-1 OR PS-2.
   2. SEE STRUCTURAL PLANS FOR EXPOSURE RATING.
   3. PLYWOOD / OSB THICKNESS & REQUIRED SPAN RATING
      a. 7/16", 15/32", & 1/2" THICK PANELS ARE INTERCHANGEABLE EXCEPT @ SHEARWALLS. 7/16 — 1/2" SHEATHING ARE REQUIRED TO HAVE A MINIMUM SPAN RATING OF 24/16.
      b. 19/32" & 5/8" SHEATHING ARE INTERCHANGEABLE. 19/32" & 5/8" SHEATHING ARE REQUIRED TO HAVE A MINIMUM SPAN RATING OF 40/20.
      c. 23/32" & 3/4" THICK PANELS ARE INTERCHANGEABLE. 23/32" & 3/4" SHEATHING ARE REQUIRED TO HAVE A MINIMUM SPAN RATING OF 48/24
   4. EXTERIOR WALL: SEE STRUCTURAL PLANS.
   5. SUBFLOOR: SEE STRUCTURAL PLANS.
   6. ROOF: SEE STRUCTURAL PLANS.
   7. PROVIDE MINIMUM 1/8" GAP BETWEEN ALL ROOF & WALL PANEL EDGES.
   8. SEE ARCHITECTURAL SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

06 17 53 WOOD TRUSSES

A. WOOD TRUSSES SHALL BE DESIGNED FOR ALL LOADS AND OTHER REQUIREMENTS AS INDICATED IN "DESIGN LOADS" SECTION. TRUSS MANUFACTURER SHALL LOCATE ALL REQUIRED TRUSS BRACING. BRACING SHALL BE PROVIDED BY CONTRACTOR.
B. SHOP DRAWINGS:
   1. DRAWINGS SHALL BE COMPLETE AND INCLUDE FRAMING PLANS, TRUSS PROFILES, AND DESIGN LOAD INFORMATION FOR ALL COMPONENTS AND ACCESSORIES TO BE FURNISHED BY THE TRUSS SUPPLIER.
   2. APPROVAL OF SHOP DRAWINGS IS AN APPROVAL OF GENERAL DESIGN ONLY AND DOES NOT RELIEVE THE TRUSS SUPPLIER FROM THE NECESSITY OF MAKING, WITHOUT COST, CHANGES OR CORRECTIONS DUE TO ERRORS IN FABRICATION, OR RESULTING FROM ERRORS IN SHOP DRAWING DIMENSIONS.

GENERAL CONTRACTOR TO VERIFY ALL DIMENSIONS AND ANY OTHER LOAD REQUIREMENTS WITH TRUSS SUPPLIER.

STRUCTURAL STRUCTURAL SPECIFICATIONS

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100 Camelot Drive
Fond Du Lac, WI 54935
Phone: (920) 926-9800
www.EXCELENGINEER.com

PROJECT INFORMATION

PROPOSED BUILDING RENOVATION
HAWAIIAN BROS - STR: 43
1401 GRINDSTONE PKWY ● COLUMBIA, MO

PROFESSIONAL SEAL

SHEET DATES
SHEET ISSUE OCT. 26, 2021
REVISIONS

JOB NUMBER
2164120

SHEET NUMBER
S0.1

TABLE 2304.10.1 WOOD CONNECTION FASTENING SCHEDULE		
CONNECTION	FASTENING (A) (M)	LOCATION
ROOF		
1. BLOCKING BETWEEN CEILING JOISTS, RAFTERS OR TRUSSES TO TOP PLATE OR OTHER FRAMING BELOW	3 - 8d COMMON 3 - 10d BOX 3 - 3" X 0.131" NAILS 3 - 3" X 14 GAGE STAPLES	EACH END, TOENAIL
BLOCKING BETWEEN RAFTERS OR TRUSS NOT AT THE WALL TOP PLATE, TO RAFTER OR TRUSS	2 - 8d COMMON 2 - 3" X 0.131" NAILS 2 - 3" X 14 GAGE STAPLES	EACH END, TOENAIL
	2 - 16d COMMON 3 - 3" X 0.131" NAILS 3 - 3" X 14 GAGE STAPLES	END NAIL
FLAT BLOCKING TO TRUSS AND WEB FILLER	16d COMMON @ 6" O.C. 3" X 0.131" NAILS @ 6" O.C. 3" X 14 GAGE STAPLES @ 6" O.C.	FACE NAIL
2. CEILING JOISTS TO TOP PLATE	3 - 8d COMMON 3 - 10d BOX 3 - 3" X 0.131" NAILS 3 - 3" X 14 GAGE STAPLES	EACH JOIST, TOENAIL
3. CEILING JOIST NOT ATTACHED TO PARALLEL RAFTER, LAPS OVER PARTITIONS (NO THRUST) (SEE SECTION 2308.7.3.1, TABLE 2308.7.3.1)	3 - 16d COMMON 4 - 10d BOX 4 - 3" X 0.131" NAILS 4 - 3" X 14 GAGE STAPLES	FACE NAIL
4. CEILING JOIST ATTACHED TO PARALLEL RAFTER (HEEL JOINT) (SEE SECTION 2308.7.3.1, TABLE 2308.7.3.1)	PER TABLE 2308.7.3.1	FACE NAIL
5. COLLAR TIE TO RAFTER	3 - 10d COMMON 4 - 10d BOX 4 - 3" X 0.131" NAILS 4 - 3" X 14 GAGE STAPLES	FACE NAIL
6. RAFTER OR ROOF TRUSS TO TOP PLATE (SEE SECTION 2308.7.5, TABLE 2308.7.5)	3 - 10d COMMON 3 - 16d BOX 4 - 10d BOX 4 - 3" X 0.131" NAILS 4 - 3" X 14 GAGE STAPLES	TOENAIL [c]
7. ROOF RAFTERS TO RIDGE VALLEY OR HIP RAFTERS; OR ROOF RAFTER TO 2-INCH RIDGE BEAM	2 - 16d COMMON 3 - 10d BOX 3 - 3" X 0.131" NAILS 3 - 3" X 14 GAGE STAPLES	END NAIL
	3 - 10d COMMON 3 - 16d BOX 4 - 10d BOX 4 - 3" X 0.131" NAILS 4 - 3" X 14 GAGE STAPLES	TOENAIL
WALL		
8. STUD TO STUD (NOT AT BRACED WALL PANELS)	16d COMMON	24" O.C. FACE NAIL
	10d BOX 3" X 0.131" NAILS 3 - 3" X 14 GAGE STAPLES	16" O.C. FACE NAIL
9. STUD TO STUD AND ABUTTING STUDS AT INTERSECTING WALL CORNERS (AT BRACED WALL PANELS)	16d COMMON	16" O.C. FACE NAIL
	16d BOX	12" O.C. FACE NAIL
	3" X 0.131" NAILS 3 - 3" X 14 GAGE STAPLES	12 O.C. FACE NAIL
10. BUILT-UP HEADER (2" TO 2" HEADER)	16d COMMON	16" O.C. EACH EDGE, FACE NAIL
	16d BOX	12" O.C. EACH EDGE, FACE NAIL
11. CONTINUOUS HEADER TO STUD	4 - 8d COMMON 4 - 10d BOX	TOENAIL
12. TOP PLATE TO TOP PLATE	16d COMMON	16" O.C. FACE NAIL
	10d BOX 3" X 0.131" NAILS 3" X 14 GAGE STAPLES	12" O.C. FACE NAIL
13. TOP PLATE TO TOP PLATE, AT END JOINTS	8 - 16d COMMON 12 - 10d BOX 12 - 3" X 0.131" NAILS 12 - 3" X 14 GAGE STAPLES	EACH SIDE OF END JOINT, FACE NAIL (MINIMUM 24" LAP SPLICE LENGTH AT EACH SIDE OF END JOINT)
14. BOTTOM PLATE TO JOIST, RIM JOIST, BAND JOIST, OR BLOCKING (NOT AT BRACED WALL PANELS)	16d COMMON	16" O.C. FACE NAIL
	16d BOX 3" X 0.131" NAILS 3" X 14 GAGE STAPLES	12" O.C. FACE NAIL
15. BOTTOM PLATE TO JOIST, RIM JOIST, BAND JOIST, OR BLOCKING AT BRACED WALL PANELS	2 - 16d COMMON 3 - 16d BOX 4 - 3" X 0.131" NAILS 4 - 3" X 14 GAGE STAPLES	16" O.C. FACE NAIL
16. STUD TO TOP OR BOTTOM PLATE	4 - 8d COMMON 4 - 10d BOX 4 - 3" X 0.131" NAILS 4 - 3" X 14 GAGE STAPLES	TOENAIL
	2 - 16d COMMON 3 - 10d BOX 3 - 3" X 0.131" NAILS 3 - 3" X 14 GAGE STAPLES	END NAIL
17. TOP OR BOTTOM PLATE TO STUD	2 - 16d COMMON 3 - 10d BOX 3 - 3" X 0.131" NAILS 3 - 3" X 14 GAGE STAPLES	END NAIL
18. TOP PLATES, LAPS AT CORNERS AND INTERSECTIONS	2 - 16d COMMON 3 - 10d BOX 3 - 3" X 0.131" NAILS 3 - 3" X 14 GAGE STAPLES	FACE NAIL
19. 1" BRACE TO EACH STUD AND PLATE	2 - 8d COMMON 2 - 10d BOX 2 - 3" X 0.131" NAILS 2 - 3" X 14 GAGE STAPLES	FACE NAIL
20. 1" X 6" SHEATHING TO EACH BEARING	2 -8d COMMON 2 - 10d BOX	FACE NAIL
21. 1" X 8" AND WIDER SHEATHING TO EACH BEARING	3 - 8d COMMON 3 - 10d BOX	FACE NAIL
FLOOR		
22. JOIST TO SILL, TOP PLATE, OR GIRDER	3 - 8d COMMON 3 - 10d BOX 3 - 3" X 0.131" NAILS 3 - 3" X 14 GAGE STAPLES	TOENAIL
23. RIM JOIST, BAND JOIST, OR BLOCKING TO TOP PLATE, SILL OR OTHER FRAMING BELOW	8d COMMON 10d BOX 3" X 0.131" NAILS 3" X 14 GAGE STAPLES	6" O.C., TOENAIL
24. 1" X 6" SUBFLOOR OR LESS TO EACH JOIST	2 - 8d COMMON 2 - 10d BOX	FACE NAIL
25. 2" SUBFLOOR TO JOIST OR GIRDER	2 - 16d COMMON	FACE NAIL
26. 2" PLANKS (PLANK & BEAM - FLOOR & ROOF)	2 - 16d COMMON	EACH BEARING, FACE NAIL
27. BUILT-UP GIRDERS AND BEAMS 2" LUMBER LAYERS	20d COMMON	32" O.C., FACE NAIL AT TOP AND BOTTOM STAGGERED ON OPPOSITE SIDES
	10d BOX 3" X 0.131" NAILS 3" X 14 GAGE STAPLES	24" O.C., FACE NAIL AT TOP AND BOTTOM STAGGERED ON OPPOSITE SIDES
	AND: 2 - 20d COMMON 3 - 10d BOX 3 - 3" X 0.131" NAILS 3 - 3" X 14 GAGE STAPLES	ENDS AND AT EACH SPLICE, FACE NAIL
28. LEDGER STRIP SUPPORTING JOISTS OR RAFTERS	3 - 16d COMMON 4 - 10d BOX 4 - 3" X 0.131" NAILS 4 - 3" X 14 GAGE STAPLES	EACH JOIST OR RAFTER, FACE NAIL
29. JOIST TO BAND JOIST OR RIM JOIST	3 - 16d COMMON 4 - 10d BOX 4 - 3" X 0.131" NAILS 4 - 3" X 14 GAGE STAPLES	END NAIL
30. BRIDGING OR BLOCKING TO JOIST, RAFTER, OR TRUSS	2 - 8d COMMON 2 - 10d BOX 2 - 3" X 0.131" NAILS 2 - 3" X 14 GAGE STAPLES	EACH END, TOENAIL

TABLE 2304.10.1 WOOD CONNECTION FASTENING SCHEDULE (CONT.)			
WOOD STRUCTURAL PANELS (WSP), SUBFLOOR, ROOF AND INTERIOR WALL SHEATHING TO FRAMING AND PARTICLEBOARD WALL SHEATHING TO FRAMING (a)			
		EDGES (INCHES)	INTERMEDIATE SUPPORTS (INCHES)
31. 3/8" -- 1/2"	6d COMMON OR DEFORMED (SUBFLOOR AND WALL)	6	12
	8d BOX OR DEFORMED (ROOF)	6	12
	2 3/8" X 0.113" NAILS (SUBFLOOR AND WALL)	6	12
	1 3/4" X 16 GAGE STAPLES (SUBFLOOR AND WALL)	4	8
	2 3/8" X 0.113" NAILS (ROOF)	4	8
	1 3/4" X 16 GAGE STAPLES (ROOF)	3	6
32. 19/32" -- 3/4"	8d COMMON 6d DEFORMED	6	12
	2 3/8" X 0.113" NAILS (ROOF) 2" X 16 GAGE STAPLES	4	8
33. 7/8" -- 1 1/4"	10d COMMON 8d DEFORMED	6	12
OTHER EXTERIOR WALL SHEATHING			
34. 1/2" FIBERBOARD SHEATHING (b)	1 1/2" GALVANIZED ROOFING NAIL (7/16" HEAD DIAMETER) 1 1/4" X 16 GAGE STAPLES	3	6
35. 25/32" FIBERBOARD SHEATHING (b)	1 3/4" GALVANIZED ROOFING NAIL (7/16" HEAD DIAMETER) 1 1/2" X 16 GAGE STAPLES	3	6
WOOD STRUCTURAL PANELS, COMBINATION SUBFLOOR UNDERLAYMENT TO FRAMING			
36. 3/4" OR LESS	8d COMMON 6d DEFORMED	6	12
37. 7/8" -- 1"	8d COMMON 8d DEFORMED	6	12
38. 1 1/8" -- 1 1/4"	10d COMMON 8d DEFORMED	6	12
PANEL SIDING TO FRAMING			
39. 1/2" OR LESS	6d CORROSION-RESISTANT SIDING (1 7/8" X 0.106") 6d CORROSION-RESISTANT CASING (2" X 0.099")	6	12
40. 5/8"	8d CORROSION-RESISTANT SIDING (2 3/8" X 0.128") 8d CORROSION-RESISTANT CASING (2 1/2" X 0.113")	6	12
INTERIOR PANELING			
41. 1/4"	4d CASING (1 1/2" X 0.080") 4d FINISH (1 1/2" X 0.072")	6	12
42. 3/8"	6d CASING (2" X 0.099") 6d FINISH (PANEL SUPPORTS AT 24 INCHES)	6	12

a. NAILS SPACED AT 6 INCHES AT INTERMEDIATE SUPPORTS WHERE SPANS ARE 48 INCHES OR MORE. FOR NAILING OF WOOD STRUCTURAL PANEL AND PARTICLEBOARD DIAPHRAGMS AND SHEAR WALLS, REFER TO SECTION 2305. NAILS FOR WALL SHEATHING ARE PERMITTED TO BE COMMON, BOX, OR CASING.

b. SPACING SHALL BE 6 INCHES ON CENTER ON THE EDGES AND 12 INCHES ON CENTER AT INTERMEDIATE SUPPORTS FOR NONSTRUCTURAL APPLICATIONS. PANEL SUPPORTS AT 16" (20 INCHES IF STRENGTH AXIS IN THE LONG DIRECTION OF THE PANEL, UNLESS OTHERWISE MARKED).

c. WHERE A RAFTER IS FASTENED TO AN ADJACENT PARALLEL CEILING JOIST IN ACORDANCE WITH THIS SCHEDULE AND THE CEILING JOIST IS FASTENED TO THE TOP PLATE IN ACCORDANCE WITH THIS SCHEDULE, THE NUMBER OF TOENAILS IN THE RAFTER SHALL BE PERMITTED TO BE REDUCED BY ONE NAIL.

STRUCTURAL DESIGN CRITERIA

GOVERNING CODES:

COLUMBIA, MO BUILDING CODES W/ 2018 INTERNATIONAL BUILDING CODE (USING ASCE 7-16)
ALL LOADS SHOWN ON PLANS ARE UNFACTORED FOR ALLOWABLE STRESS DESIGN (ASD) LOAD COMBINATIONS
LOAD COMBINATION UTILIZED ARE FROM ASCE 7-16

ROOF SNOW LOAD (PER SECTION 1608 AND ASCE 7-16 SECTION 7)

GROUND SNOW LOAD (Pg) (PER FIGURE 1608.2)	20 PSF
FLAT ROOF SNOW LOAD (Pf)	20 PSF
SLOPED ROOF SNOW LOAD (Ps)	20 PSF
SNOW EXPOSURE FACTOR (Ce)	1.0
SNOW IMPORTANCE FACTOR (Is)	1.0 (RISK CATEGORY II)
THERMAL FACTOR (Ct)	1.0
UNBALANCED SNOW LOADING PER ASCE 7-16 (SECTION 7.6)	
SNOW DRIFT PER ASCE 7-16, (SECTIONS 7.7 AND 7.8)	SEE DRIFTED SNOW PLAN
SLIDING SNOW LOADING PER ASCE 7-16, (SECTION 7.9)	

ROOF LIVE LOAD

MINIMUM ROOF LIVE LOAD PER SECTION 1607.13	20 PSF

ROOF DEAD LOADS AND DEFLECTION REQUIREMENTS

WOOD TRUSS	DEAD LOAD - TOP CHORD	10 PSF
	DEAD LOAD - BOT. CHORD - INCLUDES COLLATERAL LOAD	10 PSF (3 PSF COLLATERAL)
	R.T.U. LOADS PER FRAMING PLANS/SPECIAL TRUSS DIAGRAMS ON STRUCTURAL SHEETS	
	DEFL. REQ. DUE TO GRAVITY LOADS	L/240 LL L/180 TL
	DEFL. REQ. DUE TO WIND AT TRUSS VERT.	L/240

LATERAL

WIND LOADS	DIRECTIONAL PROCEDURE PER ASCE 7-16 SECTION 27	
	BASIC WIND SPEED = 107 MPH (RISK CATEGORY II)	
	WIND EXPOSURE = "B"	
	INTERNAL PRESSURE COEFFICIENT = + OR - 0.18	
	COMPONENT AND CLADDING PRESSURES/SUCTIONS FOR EFFECTIVE AREAS <= 10 S.F. AS FOLLOWS:	
	WALL EDGE STRIP (A) = 3.83 FT	
	ROOF EDGE STRIP (0.6h) = 13.50 FT	
	ROOF CORNER STRIP (0.2h) = 4.50 FT	
	ROOF ZONE 1' PRESSURE= 16.0 PSF, SUCTION= -18.9 PSF	
	ROOF ZONE 1 PRESSURE= 16.0 PSF, SUCTION= -32.8 PSF	
	ROOF ZONE 2 PRESSURE= 16.0 PSF, SUCTION= -43.3 PSF	
	ROOF ZONE 3 PRESSURE= 16.0 PSF, SUCTION= -59.0 PSF	
	WALL ZONE 4 PRESSURE= 18.9 PSF, SUCTION= -20.4 PSF	
	WALL ZONE 5 PRESSURE= 18.9 PSF, SUCTION= -25.1 PSF	
	PRESSURES/SUCTIONS MAY BE REDUCED FOR AREAS > 10 S.F. PER ASCE 7-16	
	MINIMUM WIND LOADS PER ASCE 7-16	
	MWFRS: 16.0 PSF ON HORIZONTAL AND VERTICAL PROJECTION	
	COMPONENT AND CLADDING: + OR - 16.0 PSF NORMAL TO SURFACE.	
EARTHQUAKE DESIGN DATA	SEISMIC IMPORTANCE FACTOR = 1.00 (RISK CATEGORY = II)	
	SPECTRAL RESPONSE COEFFICIENT	S(DS) = 0.175 S(D1) = 0.152
	SITE CLASS = D (VERIFIED PER EXISTING DRAWINGS)	
	SEISMIC DESIGN CATEGORY = C	
	SEISMIC FORCE RESISTING SYSTEM = LIGHT FRAMED WALLS SHEATHED W/ WOOD STRUCTURAL PANELS (R=6.5)	
	DESIGN BASE SHEAR (V) = 3,700 LBS.	
	ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PER ASCE 7-16 SECTION 12.8	
STABILITY LOADS	INTERIOR PARTITIONS 5 PSF	

MISCELLANEOUS IMPACT AND/OR CONCENTRATED LOADS

*****SEE PLAN******* FOR SPECIAL LOADING CONDITIONS

ALLOWABLE SOIL BEARING PRESSURE

FOUNDATIONS SHALL NOT BE PLACED PRIOR TO CONFIRMATION OF SOIL TYPE BELOW THE BOTTOM OF THE FOOTING. THE CONTRACTOR SHALL ADVISE EXCEL ENGINEERING, INC. OF ANY DEVIATION FROM SOIL CLASS PRIOR TO POURING FOOTINGS. THE PRESUMED SOIL BEARING CAPACITY IS 2,500 PSF.

THE PRESUMED SOIL CLASSIFICATION PER SECTION 1806, TABLE 1806.2 IS (4) SAND, SILTY SAND, CLAYEY SAND, SILTY GRAVEL, AND CLAYEY GRAVEL. EXISTING DRAWINGS LIST DESIGN SOIL BEARING PRESSURE TO BE 2,500 PSF.

GENERAL STRUCTURAL NOTES

MISCELLANEOUS STRUCTURAL NOTES:

IN THE FOLLOWING NOTES, THE TERM ''CONTRACTOR'' REFERS TO ALL CONTRACTORS, SUBCONTRACTORS, AND SUPPLIERS ENGAGED IN THE EXECUTION OF WORK SHOWN ON THESE PLANS. THE TERM "A/E" REFERS TO EXCEL ENGINEERING, INC.

CONTRACTOR SHALL CROSS CHECK WITH ARCHITECTURAL, HVAC AND PLUMBING PLANS FOR ADDITIONAL DETAILS, DIMENSIONS, ELEVATIONS, OPENINGS, INSERTS, BRICK LEDGES, ETC. NOTIFY A/E OF ANY CONFLICTS BEFORE BEGINNING WORK.

IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE IN ORDER TO INSURE THE SAFETY OF THE BUILDING, WORKMEN, AND OCCUPANTS DURING CONSTRUCTION (MEANS & METHODS OF CONSTRUCTION). THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF SHORING, UNDERPINNING, AND TEMPORARY BRACING, AS NECESSARY. A/E MAY BILL CONTRACTOR ON A TIME AND EXPENSE BASIS FOR ADDITIONAL WORK, FOR ALL NEW SKETCHES, AND FOR ALL ADDITIONAL REVIEW TIME RELATED TO MEANS & METHODS.

WHERE DETAILS ARE CALLED FOR IN ONE AREA OF THE BUILDING THEY SHALL BE DUPLICATED AT SIMILAR CONDITIONS, UNLESS SHOWN OTHERWISE.

IN THE EVENT OF ANY CONFLICT BETWEEN PLANS, DETAILS, STRUCTURAL NOTES, STRUCTURAL AND ARCHITECTURAL DRAWINGS, AND SPECIFICATIONS, CONTRACTOR SHALL BRING THE CONFLICT TO THE A/E'S ATTENTION. CONTRACTOR SHALL BID THE MOST EXPENSIVE INSTALLATION CALLED OUT.

CONTRACTOR SHALL SURVEY THE EXISTING BUILDING FOR ALL DIMENSIONS, ELEVATIONS, AND CONDITIONS NEEDED TO PERFORM THE WORK SHOWN ON THESE PLANS. THIS INCLUDES VERIFYING DIMENSIONS, ELEVATIONS, & CONDITIONS SHOWN ON THE CONSTRUCTION DOCUMENTS. CONTRACTOR SHALL REPORT ANY NON-CONFORMANCE WITH DESIGN DRAWINGS TO THE A/E IMMEDIATELY.

ALL MEMBERS/WORK SHOWN ARE NEW UNLESS SPECIFICALLY NOTED "EXISTING"

REMOVE AND REPLACE AND/OR MODIFY ALL EXISTING CONSTRUCTION (ELECTRICAL, MECHANICAL, HVAC, STRUCTURAL, ARCHITECTURAL) AS REQUIRED IN ORDER TO PLACE NEW STRUCTURAL WORK SHOWN ON THESE DRAWINGS.

THESE STRUCTURAL PLANS DEPICT A STRUCTURAL FRAMING SYSTEM AND THE MAJOR COMPONENTS OF THAT SYSTEM. MINOR ITEMS SUCH AS POURSTOPS, DECK SUPPORT ANGLES AT COLUMNS, FRAMES AT FLOOR AND ROOF DECK OPENINGS, ETC, SHALL BE SUPPLIED BY THE CONTRACTOR AS NEEDED TO PROVIDE A COMPLETE SYSTEM.

PROVIDE OVERFLOW DRAINS AND/OR SCUPPERS SUFFICIENT TO LIMIT DEPTH OF STANDING WATER TO 2" AT DRAINS, IN THE EVENT THAT THE PRIMARY ROOF DRAINS ARE NOT FUNCTIONING. IN NO CASE SHALL BOTTOM OF SCUPPER BE LOCATED MORE THAN 1/2" ABOVE MAIN ROOF MEMBRANE ELEVATION (NOT CANT) AT EXTERIOR WALL OF BUILDING.

BOTTOM OF FOUNDATION ELEVATION SHALL MATCH EXISTING FOUNDATION BOTTOM OF FOOTING ELEVATION BELOW ADJACENT EXTERIOR GRADE. BOTTOM OF EXISTING FOUNDATION ELEVATION TO BE FIELD VERIFIED. CONTACT EXCEL ENGINEERING, INC. IF DIFFERENT THAN SHOWN.

FOUNDATION SHORING AND/OR UNDERPINNING SHALL BE DESIGNED BY THE CONTRACTOR TO LIMIT HORIZONTAL AND VERTICAL MOVEMENT OF EXISTING CONSTRUCTION TO 3/16''.

POST-INSTALLED ANCHORS:

CONTRACTOR SHALL PROVIDE EXCEL ENGINEERING WITH SPECIFICATIONS AND DESIGN INFORMATION FOR ALL ALTERNATE ANCHORS. CONTRACTOR SHALL MAKE ARRANGEMENTS TO COMPENSATE EXCEL ENGINEERING FOR THE EXTRA WORK INVOLVED.

CLEAN SURFACES THOROUGHLY PRIOR TO INSTALLATION. PREPARE SURFACES USING THE METHODS RECOMMENDED BY THE MANUFACTURER FOR ACHIEVING THE BEST RESULTS FOR THE SUBSTRATE UNDER THE PROJECT CONDITIONS.

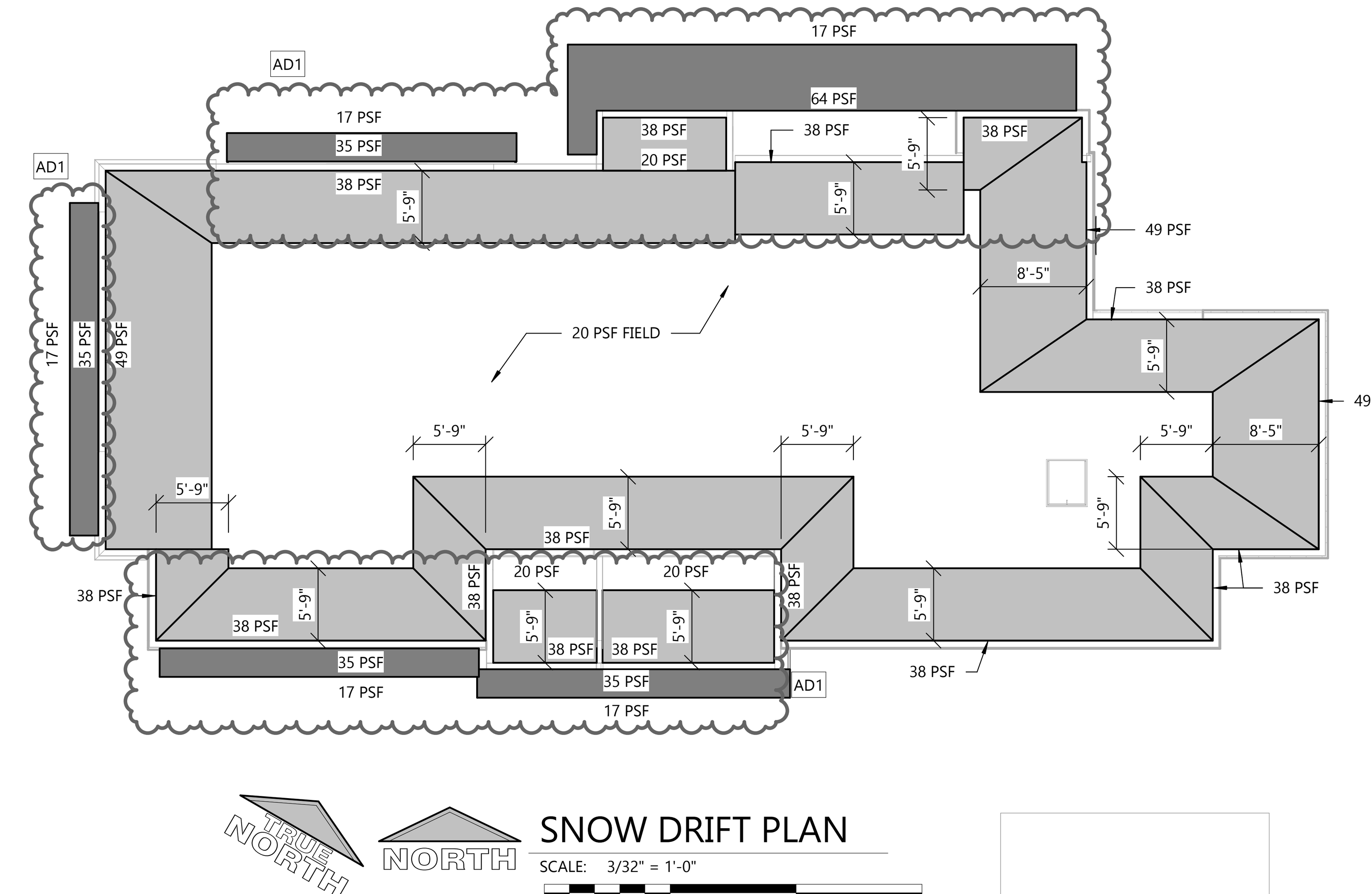
DO NOT BEGIN INSTALLATION UNTIL SUBSTRATES HAVE BEEN PROPERLY PREPARED. IF SUBSTRATE PREPARATION IS THE RESPONSIBILITY OF ANOTHER INSTALLER, NOTIFY CONTRACTOR OF UNSATISFACTORY PREPARATION BEFORE PROCEEDING.

INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS AND AS REQUIRED BY APPLICABLE CODE.

APPLY ANCHOR ITEMS NEATLY, WITH ANCHORS MOUNTED PLUMB AND LEVEL UNLESS OTHERWISE INDICATED.

EXCEL ENGINEERING RESERVES THE RIGHT TO REQUIRE THE ANCHOR MANUFACTURER'S REPRESENTATIVE TO DEMONSTRATE PROPER INSTALLATION PROCEDURES FOR POST-INSTALLED ANCHORS AND TO OBSERVE CONTRACTOR'S INSTALLATION PROCEDURES, AT NO EXTRA COST TO OWNER.

EXCEL ENGINEERING RESERVES THE RIGHT TO REQUIRE PULLOUT OR SHEAR TESTS TO DETERMINE ADEQUACY OF ANCHORS, AT NO EXTRA COST TO OWNER.



SNOW DRIFT PLAN
SCALE: 3/32" = 1'-0"

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100 Camelot Drive
Fond Du Lac, WI 54935
Phone: (920) 926-9800
www.EXCELENGINEER.com

PROJECT INFORMATION

PROPOSED BUILDING RENOVATION
HAWAIIAN BROS - STR: 43
1401 GRINDSTONE PKWY • COLUMBIA, MO

PROFESSIONAL SEAL

SHEET DATES

SHEET ISSUE OCT. 26, 2021

REVISIONS

AD1 MAR. 7, 2022

JOB NUMBER

2164120

SHEET NUMBER

S0.2

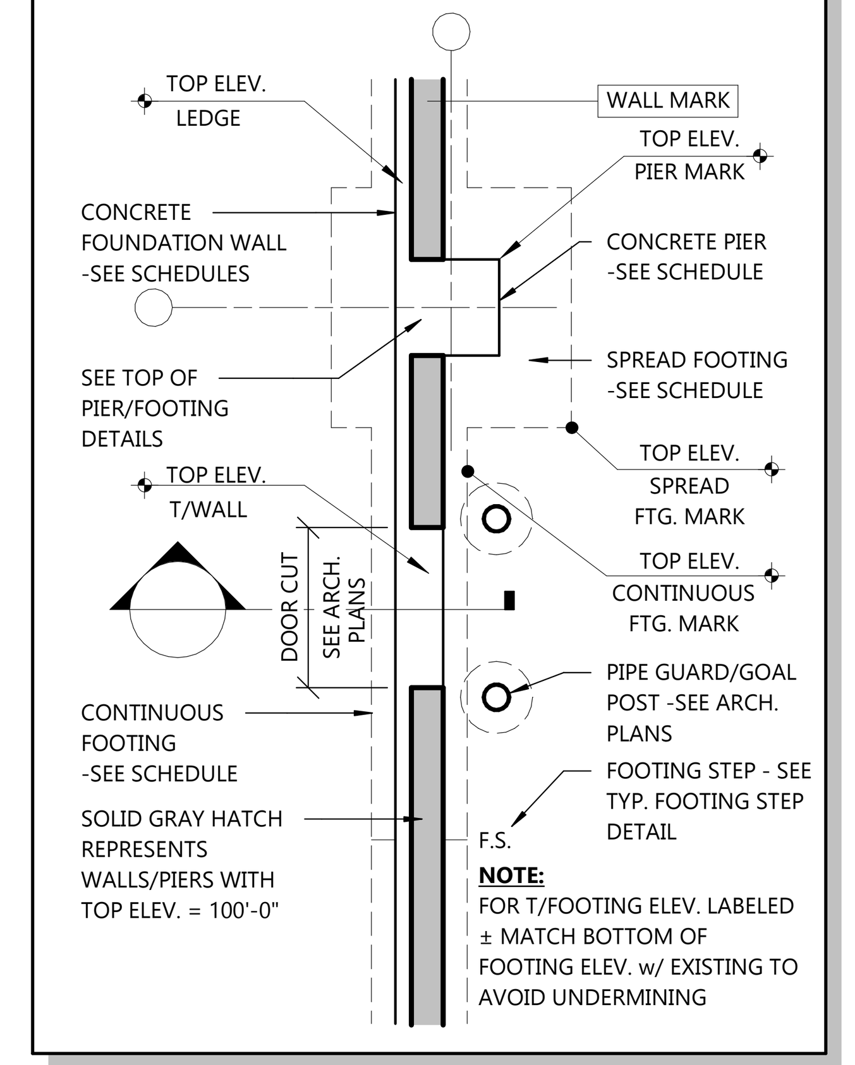
STRUCTURAL DESIGN CRITERIA

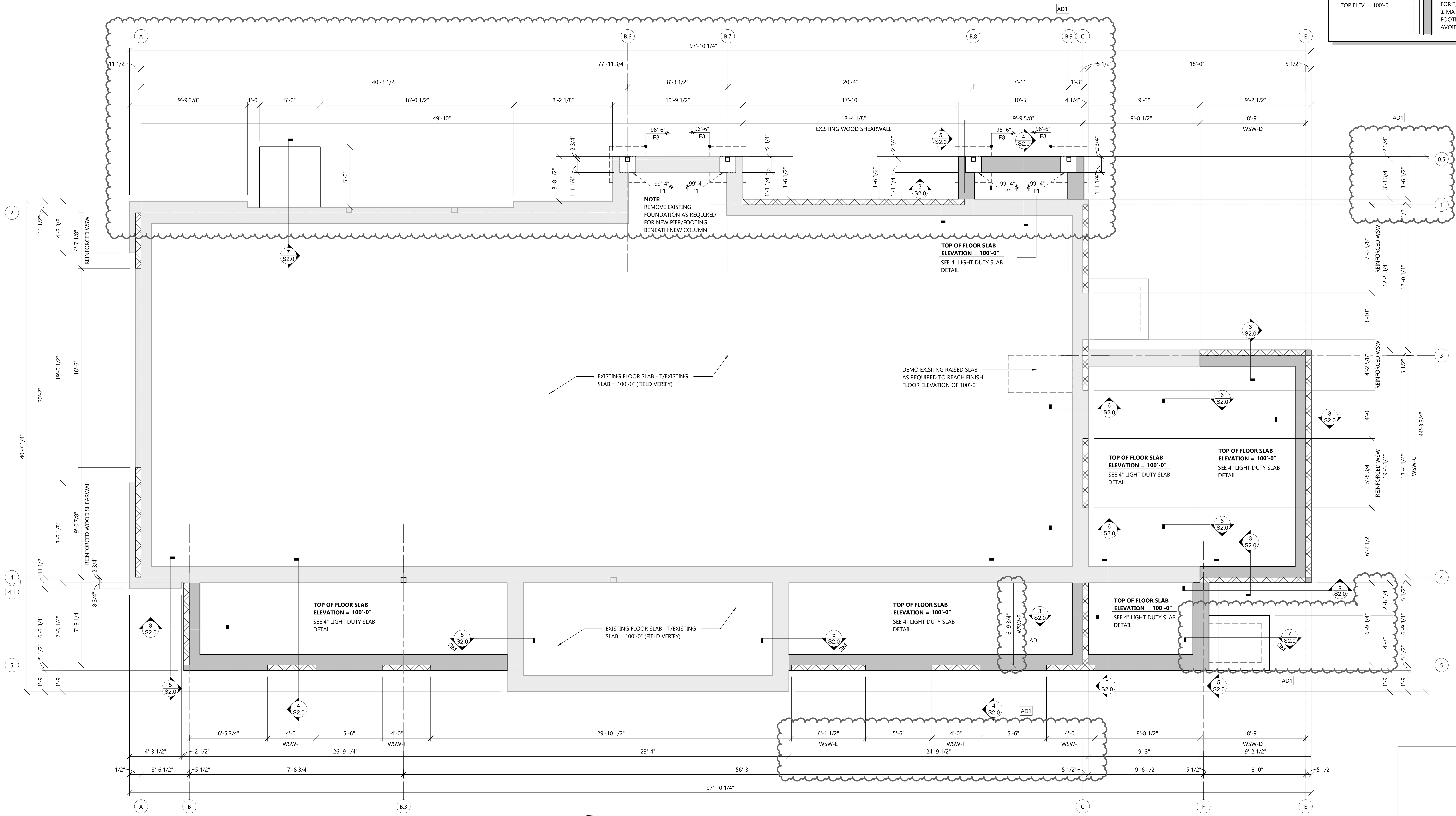
3/7/2022 11:43:38 AM

FOUNDATION NOTES

- SEE DESIGN LOADS ON S0 SHEETS FOR ALL DESIGN LOADS NOT SHOWN ON PLANS.
- SEE GENERAL BUILDING SPECIFICATIONS AND GENERAL STRUCTURAL NOTES ON S0 SHEETS FOR ADDITIONAL MATERIAL SPECIFICATIONS.
- SEE S2 SHEETS FOR ADDITIONAL FOUNDATION DETAILS NOT REFERENCED ON FOUNDATION PLANS.
- SEE SPECIFICATIONS FOR PERIMETER FOUNDATION INSULATION AND FOUNDATION DRAINAGE PANEL THICKNESS.
- COORDINATE AND VERIFY ALL UNDERGROUND WORK PRIOR TO POURING CONCRETE FLOOR SLAB.
- SEE CIVIL PLANS AND SPECIFICATIONS ON CIVIL PLANS FOR ALL EXTERIOR CONCRETE FLATWORK NOT SPECIFICALLY SHOWN/DETAILED ON THE STRUCTURAL PLANS.
- SEE S2 SHEETS FOR SLAB TYPES
- VERIFY EXISTING FOUNDATIONS AND INFORM EXCEL ENGINEERING IF DIFFERENT THAN SHOWN.
- PROVIDE DOWELS WHERE NEW FOOTING/FOUNDATION INTERSECTS EXISTING FOOTING/FOUNDATION. SEE STANDARD DETAILS ON S2 SHEETS.
- SEE ARCHITECTURAL FLOOR PLANS FOR TAGS OF ALL GUARDPOSTS & GOALPOSTS. GUARDPOST & GOALPOST SCHEDULE & DETAILS LOCATED ON ARCH. SHEETS.

FOUNDATION PLAN SYMBOLS





FOUNDATION PLAN

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

STRUCTURAL FOUNDATION PLAN

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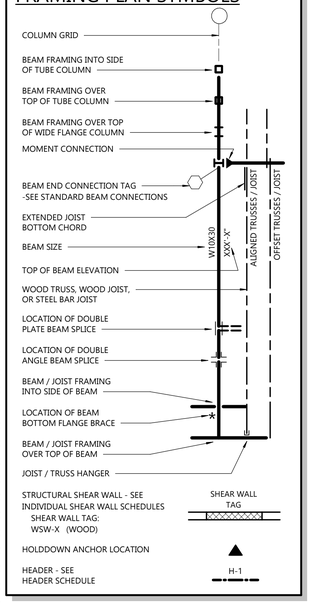
S1.0

TRUSS FRAMING NOTES

- ROOF FRAMING PLANS ARE "SCHEMATIC" ONLY - TRUSS MANUFACTURER TO PREPARE FINAL FRAMING PLANS FOR THE CONTRACTOR'S USE IN FIELD. NOTIFY ARCHITECT / ENGINEER OF ANY CHANGES. EXISTING STRUCTURE ASSUMED - FEILD VERIFY AS REQUIRED.
- RIGID CEILINGS WILL NOT BE PROVIDED. BOTTOM CHORD BRACING IS REQUIRED - SEE TRUSS MANUFACTURER'S PLANS FOR BRACING LOCATIONS.
- ALL PERMANENT TRUSS BRACING; INCLUDING CONTINUOUS LATERAL, DIAGONAL, BOTTOM CHORD, AND PIGGY-BACK, AND THEIR CONNECTIONS, SHALL BE DESIGNED BY TRUSS MANUFACTURER - SEE TRUSS MANUFACTURER'S DRAWINGS FOR WEB & LATERAL BRACING SIZE & LOCATION REQUIREMENTS. ALL BRACING SHALL BE INSTALLED BY G.C.
- G.C. TO PROVIDE TRUSS MANUFACTURER W/ LOCATIONS & WEIGHTS OF EQUIPMENT LOADS.
- ALL METAL TRUSS HANGERS BY TRUSS MANUFACTURER WHERE REQUIRED.
- PROVIDE (2) 2x6 WOOD BLOCKING AROUND ALL ROOF DECK OPENINGS & UNDER ROOF CURBS, SCUPPERS, ROOF DRAINS, ETC . . .
- THE NUMBER AND SIZE OF NAILS CONNECTING WOOD MEMBERS SHALL NOT BE LESS THAN SET FORTH IN I.B.C. TABLE 2304.10.1 "FASTENING SCHEDULE" - SEE STRUCTURAL DRAWINGS.
- NEW ROOF SHEATHING TO MATCH EXISTING (5/8" MIN. THICKNESS) - FASTEN w/ 10d NAILS @ 6" O.C. @ PANEL EDGES & 12" O.C. MIN. IN FIELD.
- USE (1) 'SIMPSON' H10A TRUSS ANCHOR @ EACH ROOF TRUSS END w/ (9) 10d x 1 1/2" NAILS INTO TRUSS & 10d NAILS INTO TOP PLATES.
- USE 'SIMPSON' LGT TRUSS ACNHORS @ ALL GIRDER TRUSS BEARING ON STUD WALLS. PROVIDE MULTI-MEMBER POST @ BEARING LOCATIONS. -SEE DETAIL 8/S3.2
- UNLESS NOTED OTHERWISE, WALL SHEATHING TO BE 7/16". NAIL WALL SHEATHING 6" O.C. @ PANEL EDGES w/ 8d NAILS. NAIL 12" O.C. (MIN.) TO INTERMEDIATE SUPPORTS.
- ALL NAILS USED IN FRAMING CONNECTIONS TO BE COMMON WIRE UNLESS NOTED OTHERWISE.
- SEE WOOD STUD SCHEDULE ON S3 SHEETS FOR WALL STUD REQUIREMENTS.

FRAMING PLAN SYMBOLS



ROOF FRAMING PLAN

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

NORTH

STRUCTURAL ROOF FRAMING PLAN

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PROJECT INFORMATION

PROPOSED BUILDING RENOVATION

HAWAIIAN BROS - STR: 43

1401 GRINDSTONE PKWY • COLUMBIA, MO

PROFESSIONAL SEAL

SHEET DATES

SHEET ISSUE OCT. 26, 2021

REVISIONS

AD1 MAR. 7, 2022

JOB NUMBER

2164120

SHEET NUMBER

S1.1

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DUMPSTER ENCLOSURE PLANS AND ELEVATION REMOVED PER CHANGES

AD1

STRUCTURAL DUMPSTER ENCLOSURE PLAN

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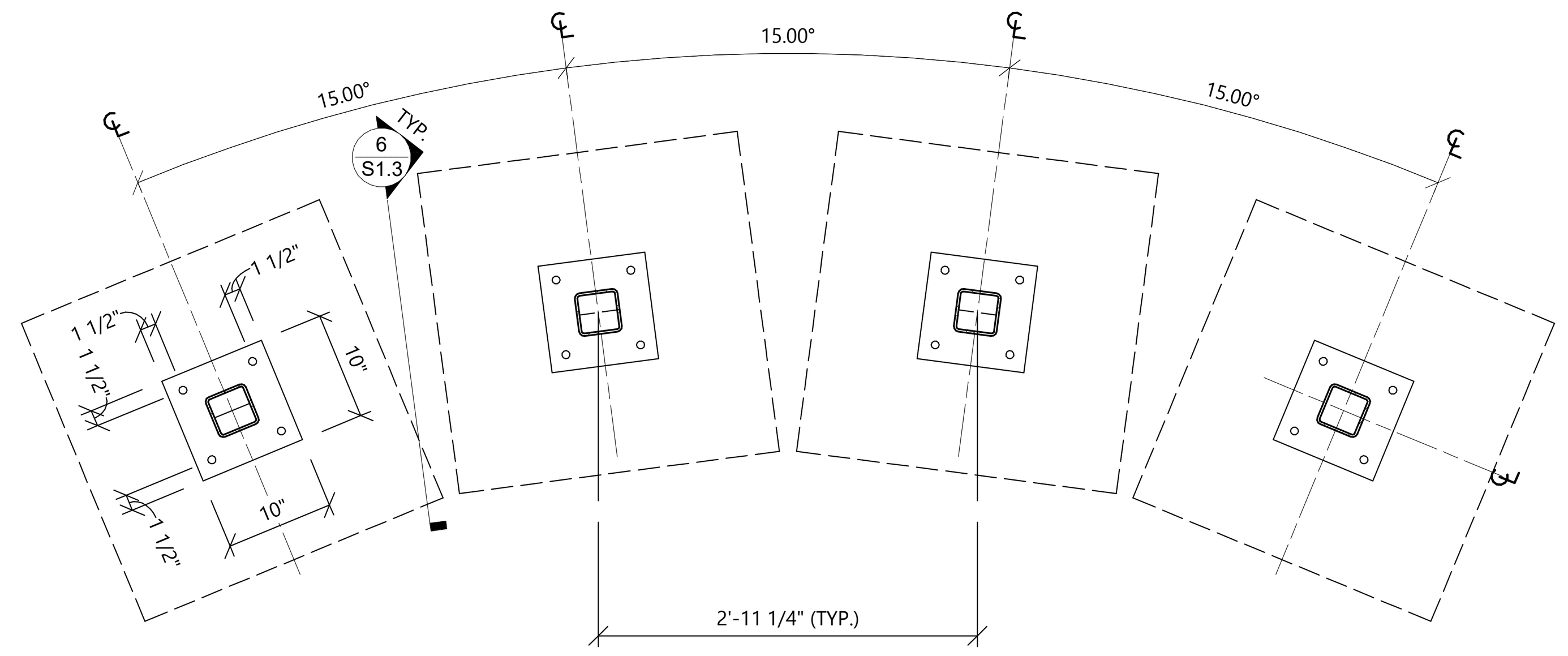
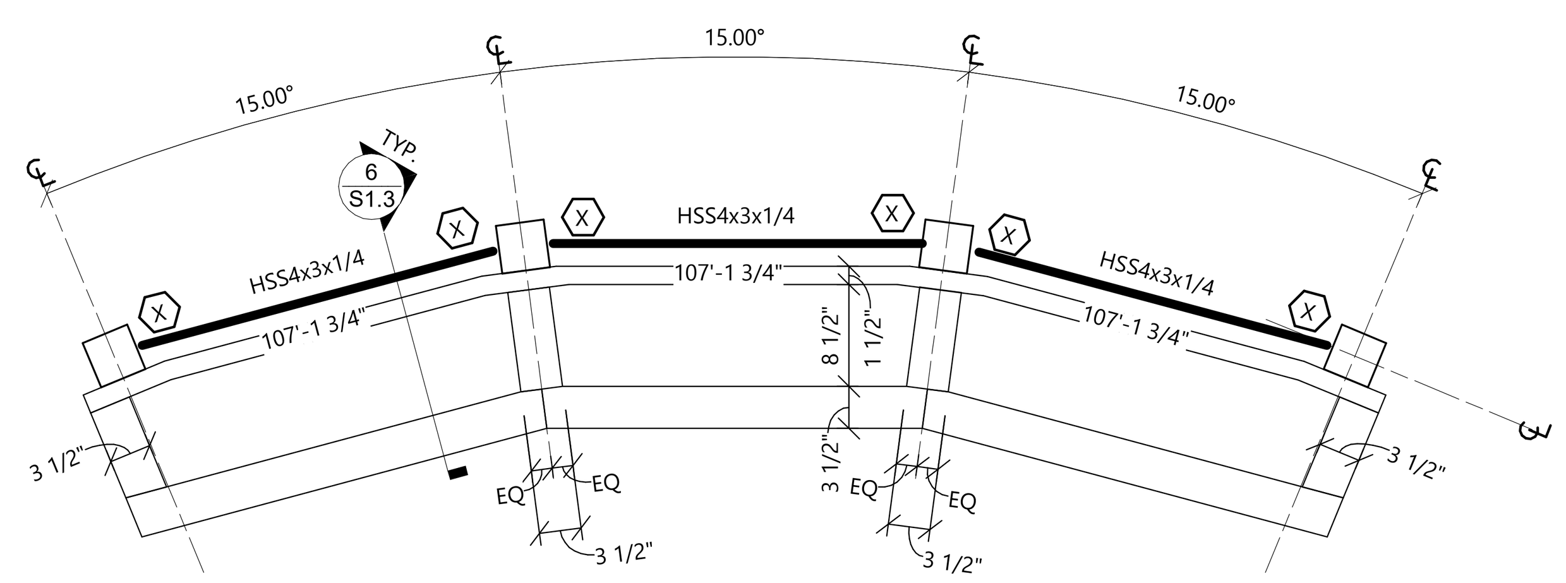


3 S1.3 FOUNDATION PLAN - MENU BOARD

SCALE: 3/4" = 1'-0"

NOTE:
MENU BOARD FINAL LOCATION TO BE COORDINATED WITH CIVIL PLANS AND ARCHITECTURAL SITE PLAN.

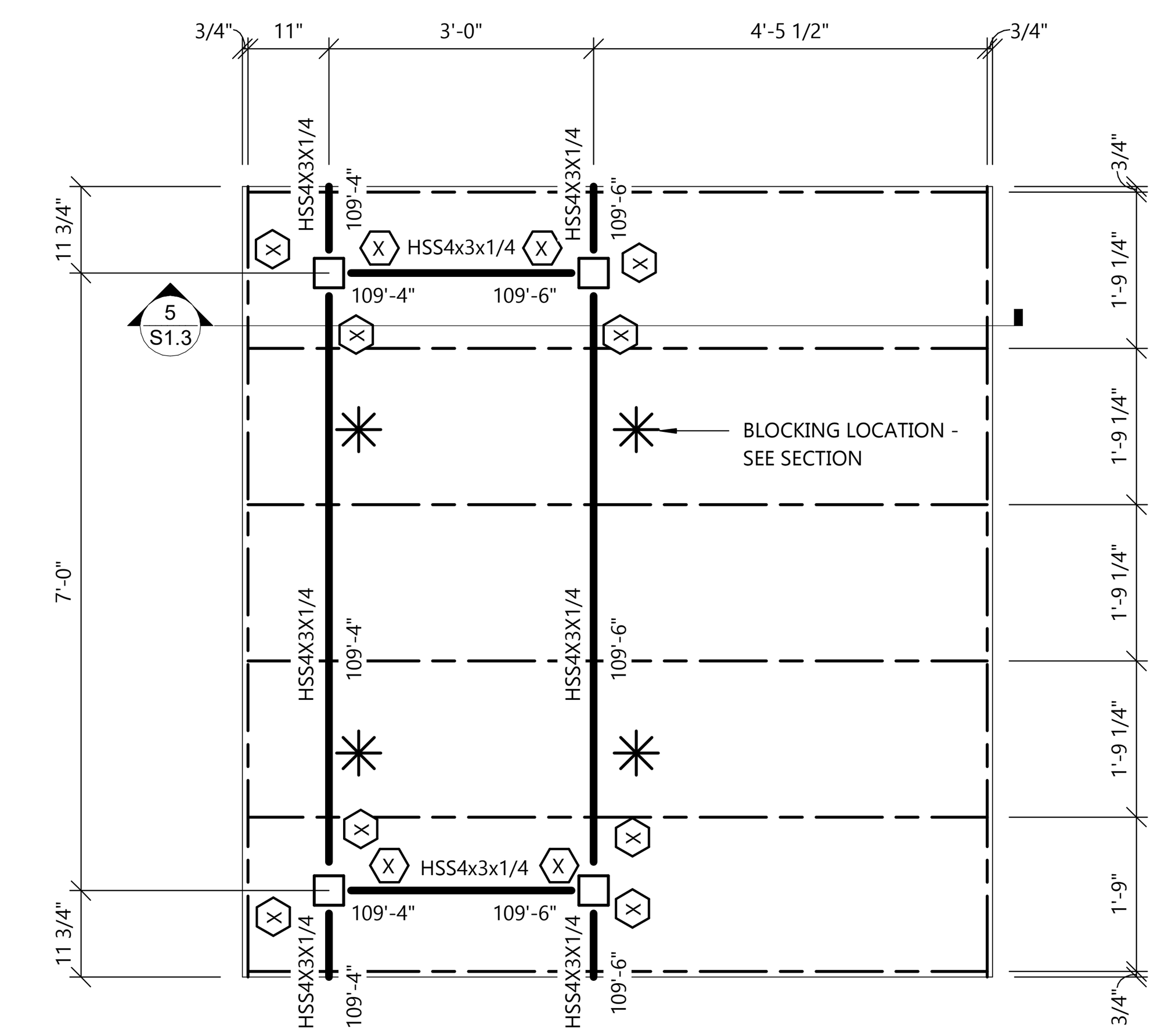
AD1



4 S1.3 FRAMING PLAN - MENU BOARD

SCALE: 3/4" = 1'-0"

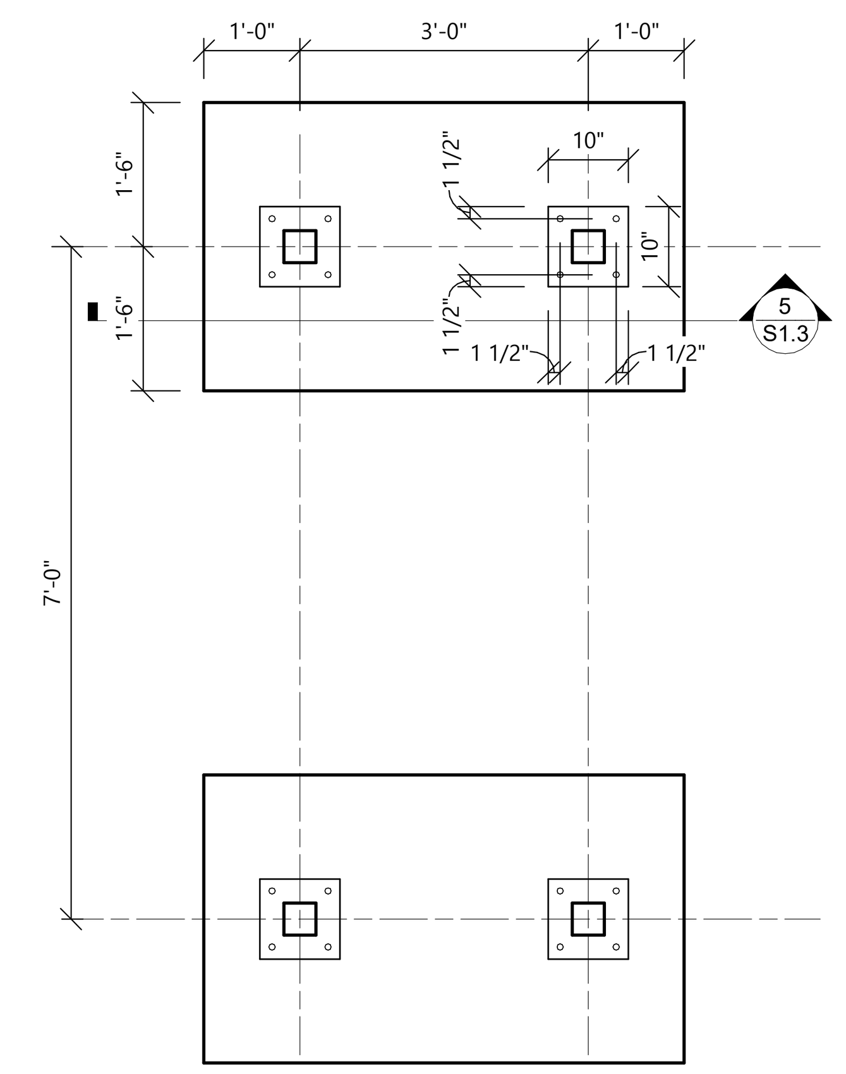
NOTE:
MENU BOARD FINAL LOCATION TO BE COORDINATED WITH CIVIL PLANS AND ARCHITECTURAL SITE PLAN.



2 S1.3 ROOF FRAMING PLAN - ORDER CANOPY

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

NOTE:
ORDER CANOPY FINAL LOCATION TO BE COORDINATED WITH CIVIL PLANS AND ARCHITECTURAL SITE PLAN.

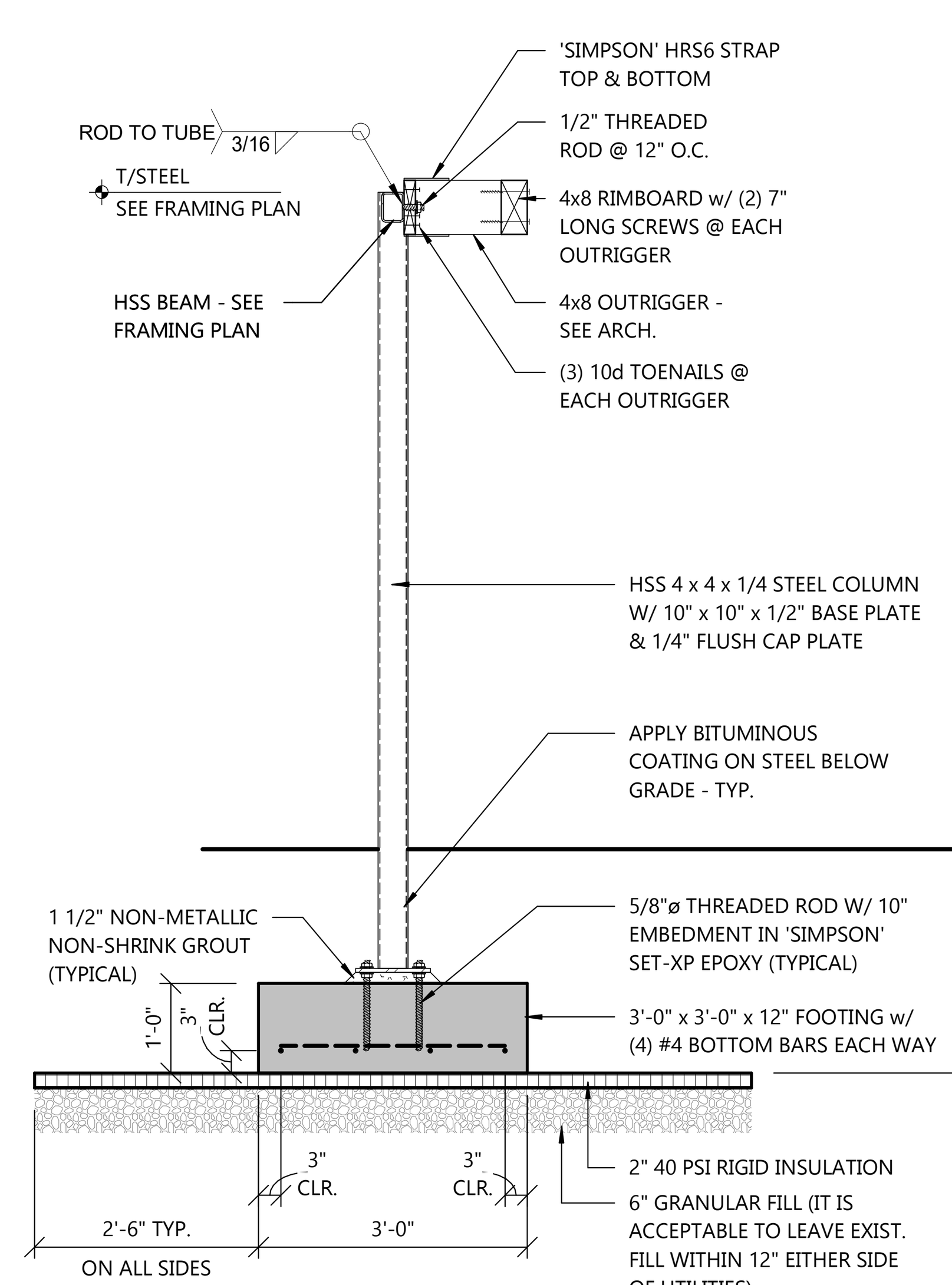


1 S1.3 FOUNDATION PLAN - ORDER CANOPY

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

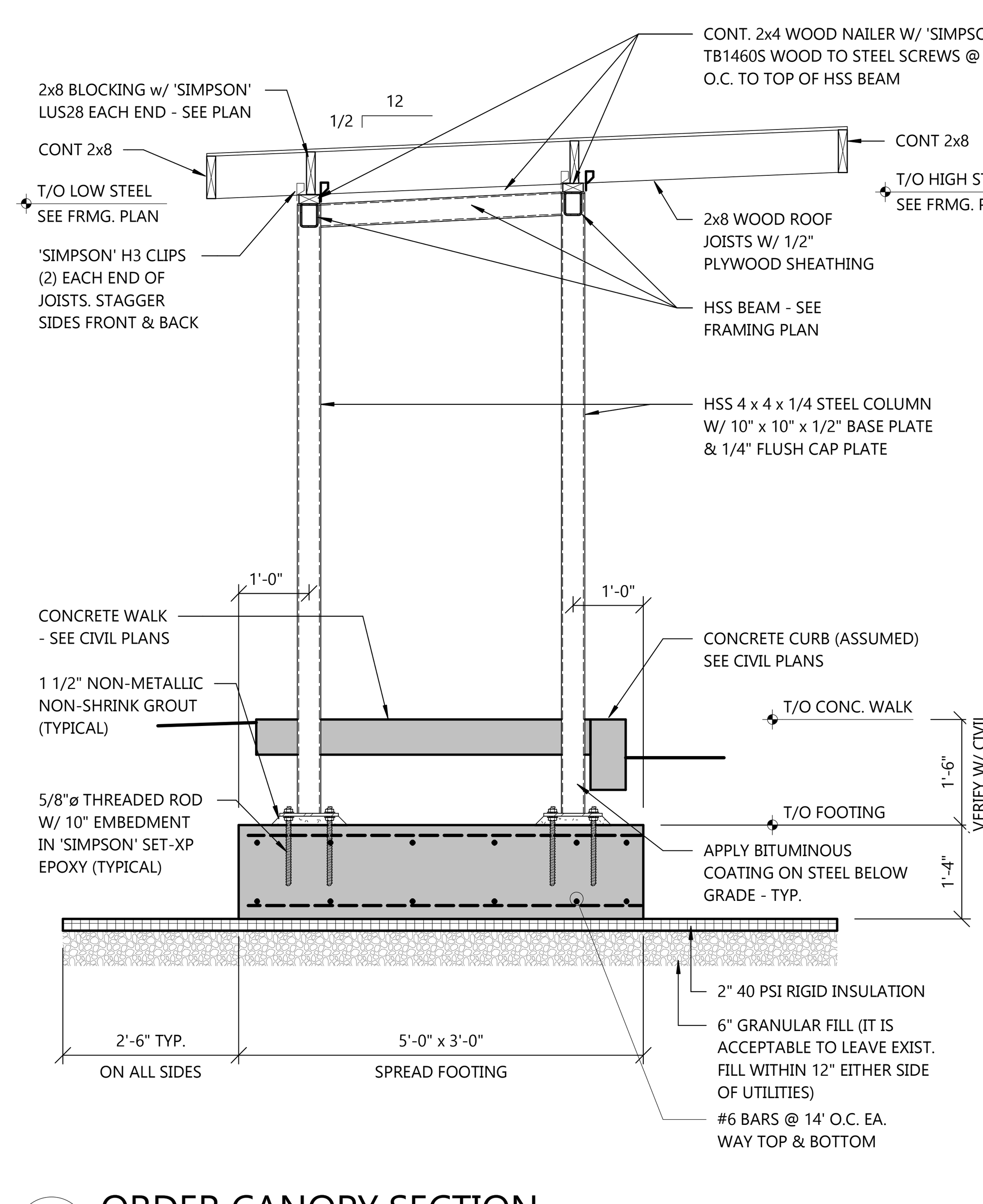
NOTE:
ORDER CANOPY FINAL LOCATION TO BE COORDINATED WITH CIVIL PLANS AND ARCHITECTURAL SITE PLAN.

STANDARD HSS CONNECTION DETAILS MOVED TO S3.1



6 S1.3 MENU BOARD SECTION

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



5 S1.3 ORDER CANOPY SECTION

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

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STRUCTURAL ORDER CANOPY PLANS

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SPREAD FOOTING SCHEDULE NOTES:

- ALL FOOTINGS ARE CENTERED ON PIER UNLESS DIMENSIONED OTHERWISE. IF PIER IS NOT REQUIRED, ALL FOOTINGS ARE CENTERED ON COLUMN GRID LINE INTERSECTIONS UNLESS DIMENSIONED OTHERWISE.
- SEE TYPICAL SPREAD FOOTING DETAIL FOR TYPICAL CONSTRUCTION & NOTES.
- SEE FOUNDATION PLAN FOR TOP OF FOOTING ELEVATIONS.
- SEE FOUNDATION PLAN FOR FOOTING ORIENTATION.
- SEE COLUMN SCHEDULE FOR COLUMN ANCHOR BOLT INFORMATION (WHERE APPLICABLE).
- SEE GENERAL BUILDING SPECIFICATIONS FOR CONSTRUCTION MATERIAL REQ'S AND SPEC'S.

SPREAD FOOTING SCHEDULE

	MARK	FOOTING SIZE LENGTH	FOOTING SIZE WIDTH	DEPTH	REINFORCING - LONG BARS BOTTOM	REINFORCING - LONG BARS TOP	REINFORCING - SHORT BARS BOTTOM	REINFORCING - SHORT BARS TOP	REMARKS
AD1	F3	3'-0"	3'-0"	12"	(4) #4 BARS		(4) #4 BARS		

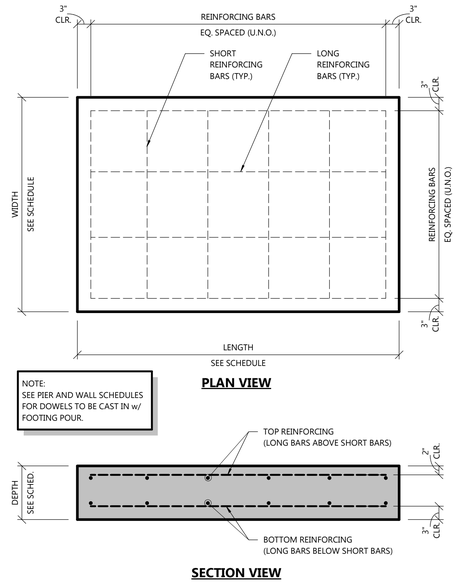
PIER SCHEDULE NOTES:

- ALL PIERS ARE CENTERED ON COLUMN GRID LINE INTERSECTIONS UNLESS DIMENSIONED OTHERWISE.
- SEE TYPICAL PIER DETAIL FOR TYPICAL CONSTRUCTION & NOTES.
- SEE FOUNDATION PLAN FOR TOP OF PIER ELEVATIONS.
- SEE FOUNDATION PLAN FOR PIER ORIENTATION.
- SEE COLUMN SCHEDULE FOR COLUMN ANCHOR BOLT INFORMATION.
- VERTICAL REINF. BARS SHALL BE EQUALLY SPACED, U.N.O.
- SEE REINFORCING TOP VIEW DETAILS FOR ORIENTATION OF VERITCAL REINFORCING.
- HORIZONTAL TIES SHALL MEET REQ'S OF ACI 318-7.10.5.3 FOR LATERAL SUPPORT OF VERTICAL REINFORCING.
- SEE GENERAL BUILDING SPECIFICATIONS FOR CONSTRUCTION MATERIAL REQ'S AND SPEC'S.

PIER SCHEDULE

MARK	SIZE WIDTH	SIZE LENGTH	VERTICAL REINFORCING	HORIZONTAL TIES	REINFORCING TYPE	REMARKS
P1	16"	16"	(4) #6	#3 @ 10" O.C.	TYPE A-4	

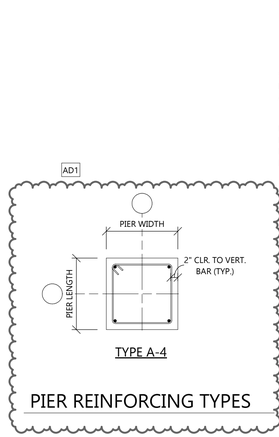
AD1



PLAN VIEW

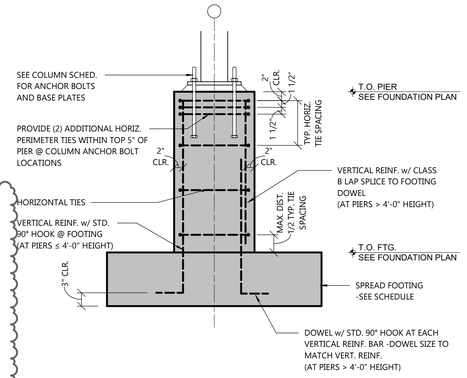
SECTION VIEW

TYPICAL SPREAD FOOTING DETAIL

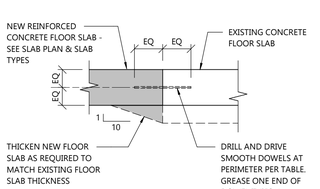


TYPE A-4

PIER REINFORCING TYPES

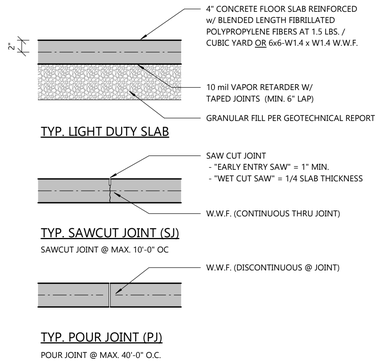


TYPICAL PIER DETAIL



SMOOTH DOWEL SIZE & SPACING (PER ACI 302)			
SLAB DEPTH (IN.)	DIAMETER (IN.)	TOTAL LENGTH (IN.)	SPACING (IN.)
4	1/2	12	12
5	5/8	12	12
6	3/4	16	12
7	7/8	16	12
8	1	18	12
9	1 1/8	18	12
>/=10	1 1/4	20	12

2 S2.0 NEW TO EXISTING SLAB JOINT DETAIL
SCALE: 1" = 1'-0"

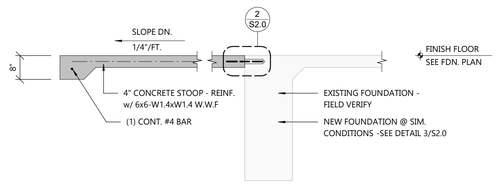


TYP. LIGHT DUTY SLAB

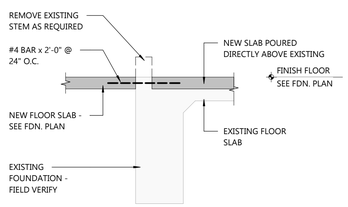
TYP. SAWCUT JOINT (SJ)
SAWCUT JOINT @ MAX. 10'-0" OC

TYP. POUR JOINT (PJ)
POUR JOINT @ MAX. 40'-0" O.C.

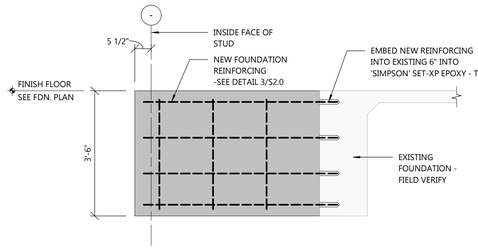
1 S2.0 4" LIGHT DUTY SLAB DETAIL
SCALE: 1" = 1'-0"



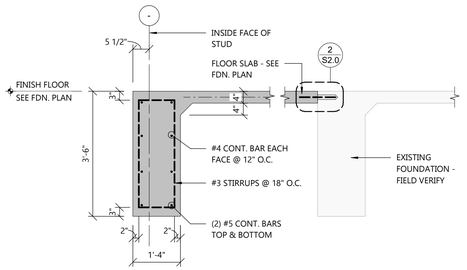
7 S2.0 DETAIL
SCALE: 1/2" = 1'-0"



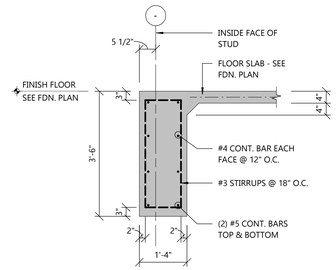
6 S2.0 DETAIL
SCALE: 1/2" = 1'-0"



5 S2.0 DETAIL
SCALE: 1/2" = 1'-0"



4 S2.0 DETAIL
SCALE: 1/2" = 1'-0"



3 S2.0 DETAIL
SCALE: 1/2" = 1'-0"

STRUCTURAL FOUNDATION SCHEDULES & DETAILS

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SHEET ISSUE OCT. 26, 2021
REVISIONS
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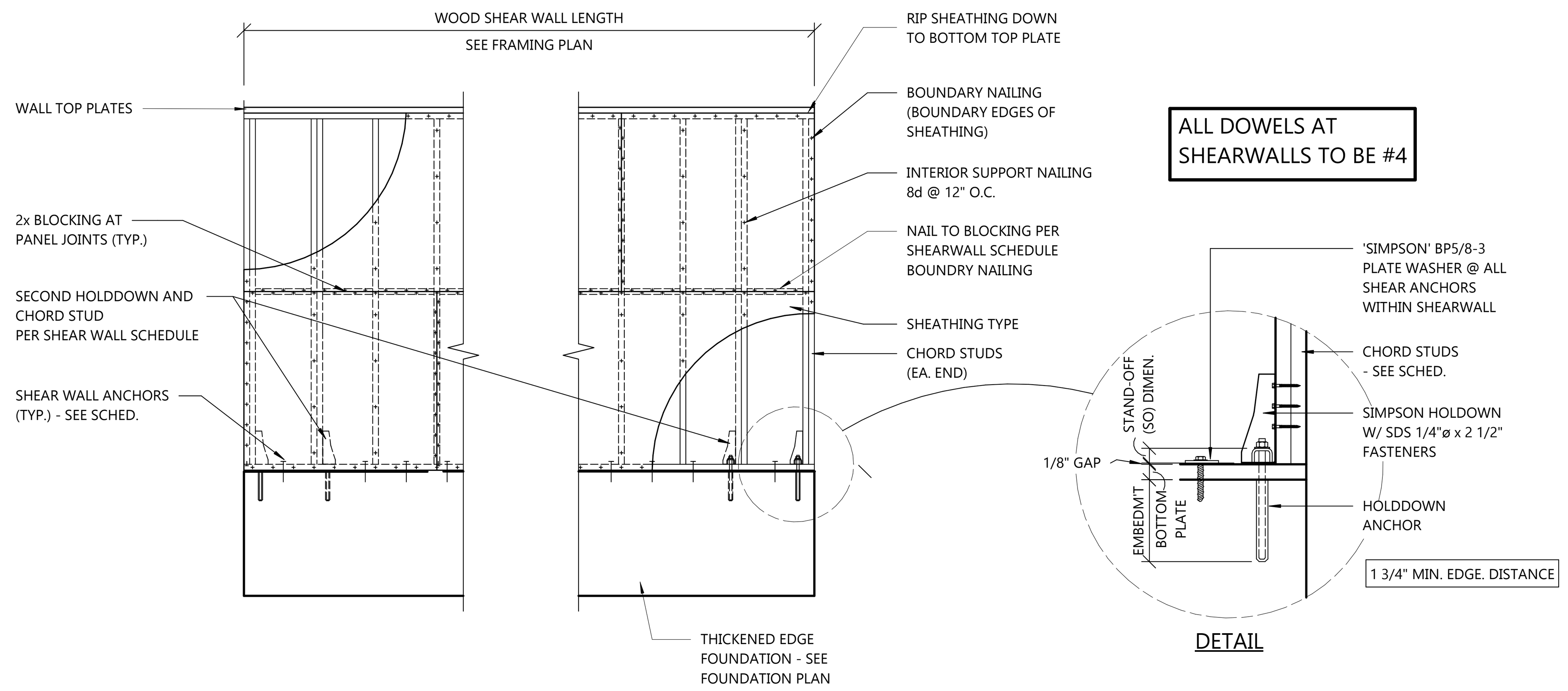


TYPICAL WOOD SHEAR WALL

WOOD SHEARWALL SCHEDULE															
	SHEATHING	SHEATHING	BOUNDARY	CHORD STUD		HOLDOWN		THREADED ANCHOR ROD AT HOLDOWN			SHEAR WALL ANCHOR [3]			
MARK	TYPE	JOINTS	NAILING	No.	SIZE	No.	TYPE	DIA.	EMBED LENGTH	TYPE [1]	DIA.	LENGTH	SPACING	TYPE [2]
WSW-A	7/16 OSB ONE SIDE	BLOCKED	8d @ 4" O.C.	2	2x6 #1/#2 SPF	2	HDU5-SDS2.5	5/8"	12"	A36 THREADED ROD W/ SIMPSON SET EPOXY TIE	1/2"	5"	16" O.C.	SIMPSON TITEN HD
WSW-B	7/16 OSB ONE SIDE	BLOCKED	8d @ 3" O.C.	2	2x6 #1/#2 SPF	2	HDU5-SDS2.5	5/8"	12"	A36 THREADED ROD W/ SIMPSON SET EPOXY TIE	1/2"	5"	16" O.C.	SIMPSON TITEN HD
WSW-C	7/16 OSB ONE SIDE	BLOCKED	8d @ 6" O.C.	2	2x6 #1/#2 SPF	1	HDU4-SDS2.5	5/8"	12"	A36 THREADED ROD W/ SIMPSON SET EPOXY TIE	1/2"	5"	48" O.C.	SIMPSON TITEN HD
WSW-D	7/16 OSB ONE SIDE	BLOCKED	8d @ 3" O.C.	2	2x6 #1/#2 SPF	2	HDU4-SDS2.5	5/8"	12"	A36 THREADED ROD W/ SIMPSON SET EPOXY TIE	1/2"	5"	24" O.C.	SIMPSON TITEN HD
WSW-E	7/16 OSB ONE SIDE	BLOCKED	8d @ 6" O.C.	2	2x6 #1/#2 SPF	1	HDU4-SDS2.5	5/8"	12"	A36 THREADED ROD W/ SIMPSON SET EPOXY TIE	1/2"	5"	48" O.C.	SIMPSON TITEN HD
WSW-F	7/16 OSB ONE SIDE	BLOCKED	8d @ 6" O.C.	2	2x6 #1/#2 SPF	1	HDU4-SDS2.5	5/8"	12"	A36 THREADED ROD W/ SIMPSON SET EPOXY TIE	1/2"	5"	48" O.C.	SIMPSON TITEN HD

WOOD SHEAR WALL SCHEDULE NOTES:

1. USE "SIMPSON AT ACRYLIC TIE" IN LIEU OF SET EPOXY TIE WHEN TEMPERATURE <50 DEG. F DURING CURE TIME. SEE MANUFACTURER'S SPEC.'S FOR CURE TIMES.
2. FOR REQUIRED FASTENER FINISH IN TREATED LUMBER, SEE SECTION XXIV, LUMBER OF THE GENERAL SPECIFICATION ON S0 SHEETS.
3. PLATE WASHERS ARE REQ'D AT ALL SHEARWALL ANCHORS PLATE WASHERS TO BE 'SIMPSON' BP5/8-3

WOOD HEADER SCHEDULE									
	HEADER		SHOULDER STUDS		KING STUDS		TOP/BOTTOM SILL		
MARK	No.	SIZE & GRADE	No.	SIZE & GRADE	No.	SIZE & GRADE	No.	SIZE & GRADE	HEADER LOCATION
H-1	3	1-3/4" X 9-1/4" GENERIC LVL	2	2x6 #1/#2 SPF	1	2x6 #1/#2 SPF	1	2x6 #1/#2 SPF	DIRECTLY BELOW TOP PLATES
H-2	3	2x10 #1/#2 DF-L (N)	1	2x6 #1/#2 SPF	1	2x6 #1/#2 SPF	1	2x6 #1/#2 SPF	DIRECTLY BELOW TOP PLATES
H-3	3	2x10 #1/#2 DF-L (N)	1	2x6 #1/#2 SPF	2	2x6 #1/#2 SPF	1	2x6 #1/#2 SPF	DIRECTLY BELOW TOP PLATES
H-4	3	1-3/4" X 14" GENERIC LVL	2	2x6 #1/#2 SPF	2	2x6 #1/#2 SPF	1	2x6 #1/#2 SPF	DIRECTLY BELOW TOP PLATES
H-5	3	2x10 #1/#2 DF-L (N)	1	2x6 #1/#2 SPF	2	2x6 #1/#2 SPF	1	2x6 #2 SYP	DIRECTLY BELOW TOP PLATES
H-6	3	2x10 #1/#2 DF-L (N)	1	2x6 #1/#2 SPF	2	2x6 #1/#2 SPF	1	2x6 #2 SYP	**DIRECTLY ABOVE OPENING**

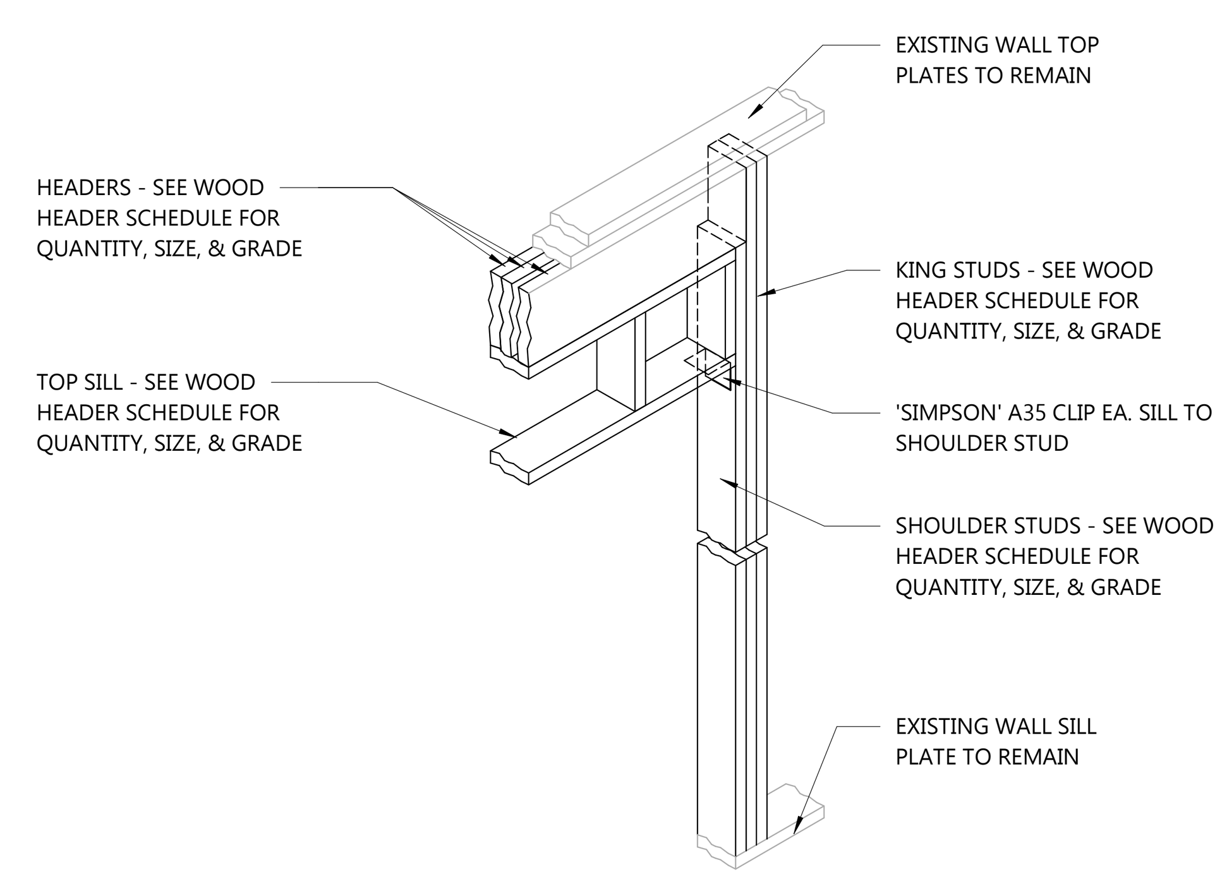
WOOD HEADER SCHEDULE NOTES:

- NAIL ALL HEADERS, BEAMS AND LINTELS UP TO 11 7/8" DEPTH w/ 10d NAILS @ 12'' O.C. TOP AND BOTTOM (MIN.).
- NAIL ALL HEADERS, BEAMS AND LINTELS GREATER THAN 11 7/8" IN DEPTH w/ 10d NAILS @ 12" O.C. TOP, MIDDLE AND BOTTOM (MIN.)
- (3) PLY & GREATER HEADER, BEAM AND LINTEL MEMBERS REQUIRE NAILING FROM EACH SIDE.
- NAIL ALL 2x4 STUD COLUMNS w/ 10d NAILS @ 8" O.C. STAGGERED, ADJACENT FASTENERS FROM OPPOSITE SIDES.
- NAIL ALL 2x6 AND GREATER STUD COLUMNS w/ (2) 10d NAILS @ 8" O.C. STAGGERED, ADJACENT FASTENERS FROM OPPOSITE SIDES.
- LUMBER SPEC. LISTED IN GENERAL BUILDING SPECIFICATIONS, SEE S0 SHEETS.

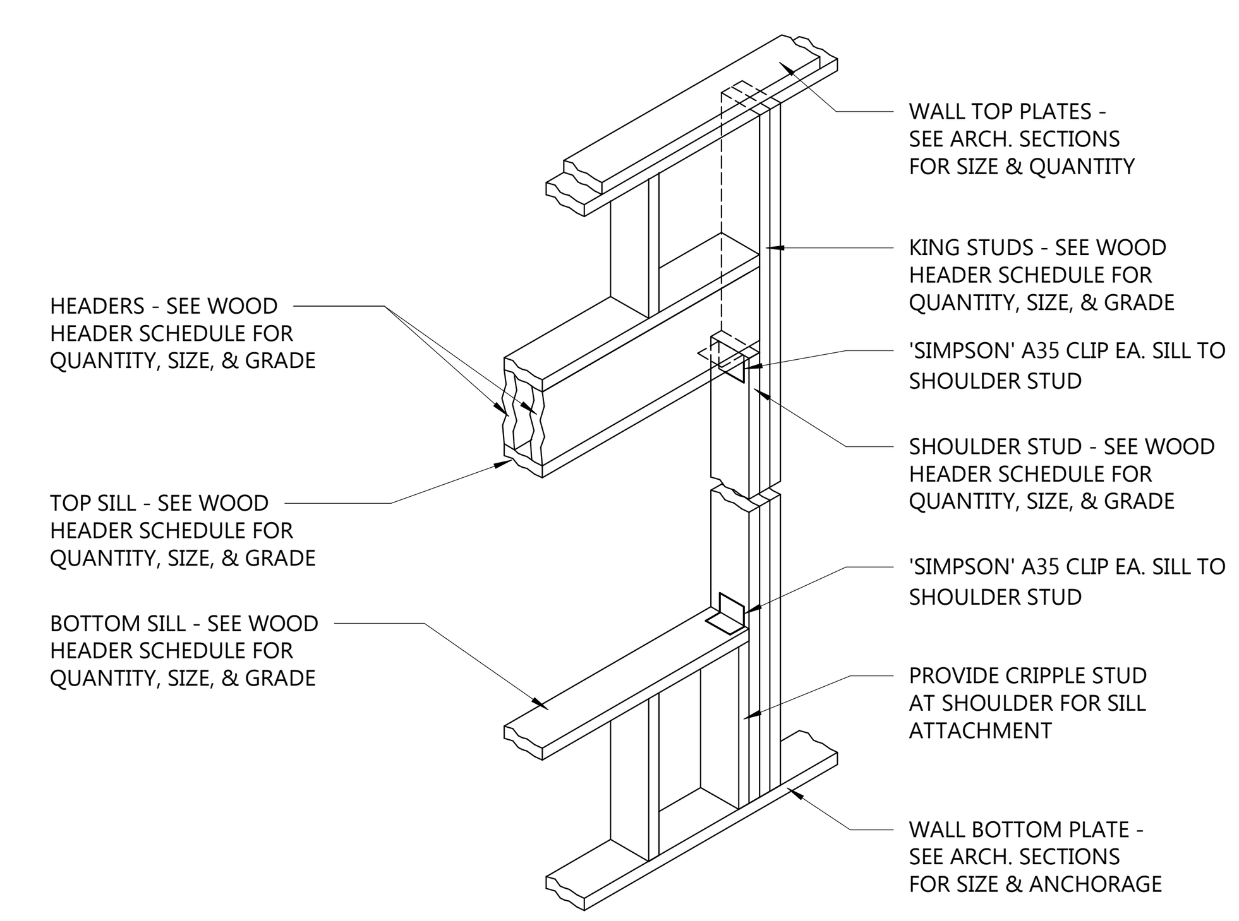
WOOD WALL STUD SCHEDULE - STRUCTURAL BEARING WALLS		
FLOOR LEVEL	**TOP PLATES**	**WALL STUDS**
NEW EXTERIOR WALLS	(2) 2x6 SPF #1/#2	2x6 SPF NO. 1/2 @ 16" O.C.

WOOD WALL SCHEDULE NOTES:

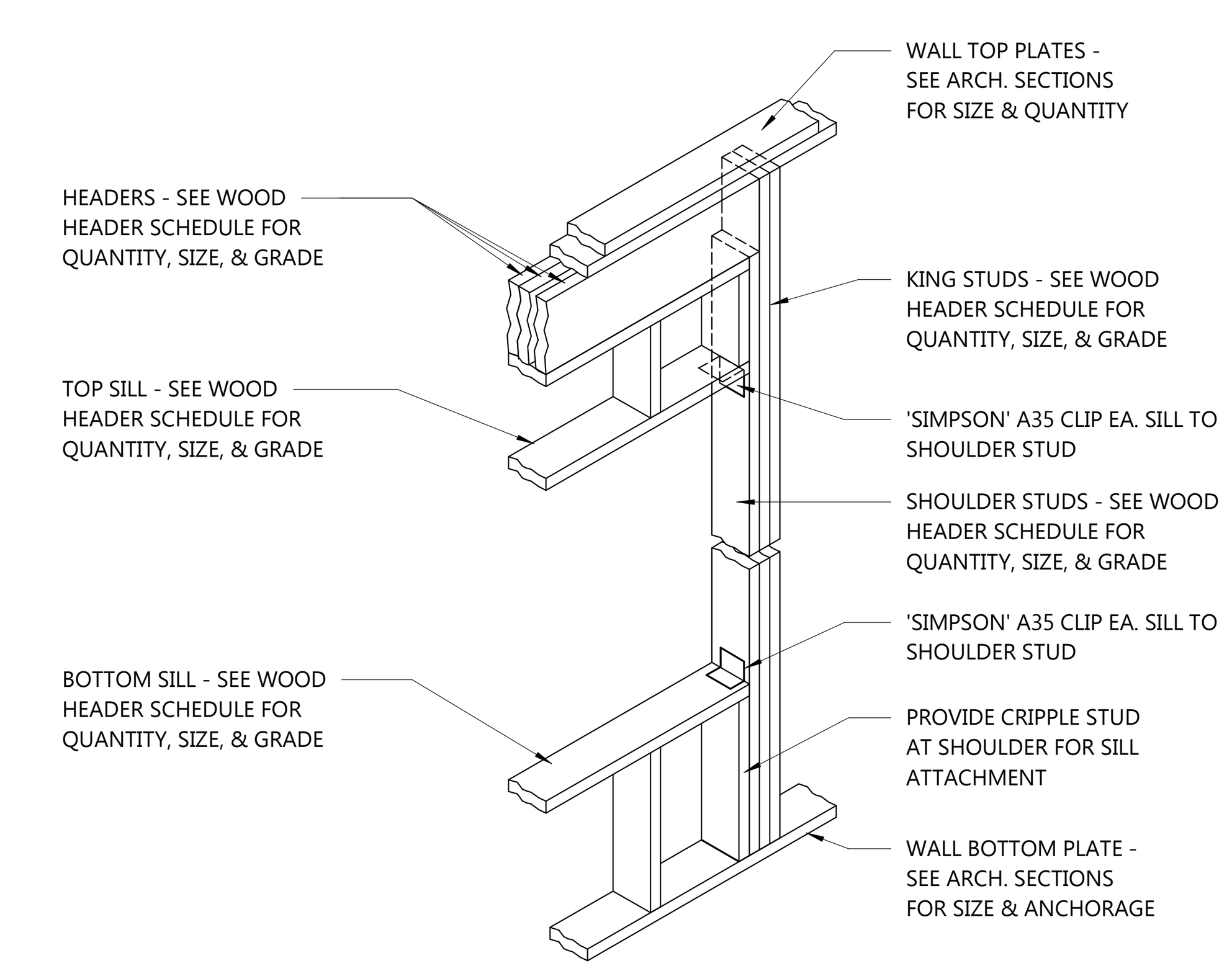
1. THE SCHEDULE APPLIES TO TO LOAD BEARING WALLS.
2. REFER TO PLANS & DETAILS FOR POSSIBLE WALL STUD VARIATIONS. SCHEDULED STUD QUANTITY AND GRADE ARE TO BE TREATED AS MINIMUMS AND SPACING TO BE TREATED AS A MAXIMUM.
3. DEFER TO WOOD HEADER SCHEDULE FOR JAMB STUD QUANTITIES. DEFER TO WOOD SHEAR WALL SCHEDULE FOR CHORD STUD QUANTITIES.
4. IF APPLICABLE, LSL's SHOULD BE 1730Fb-1.35E GRADE OR BETTER.



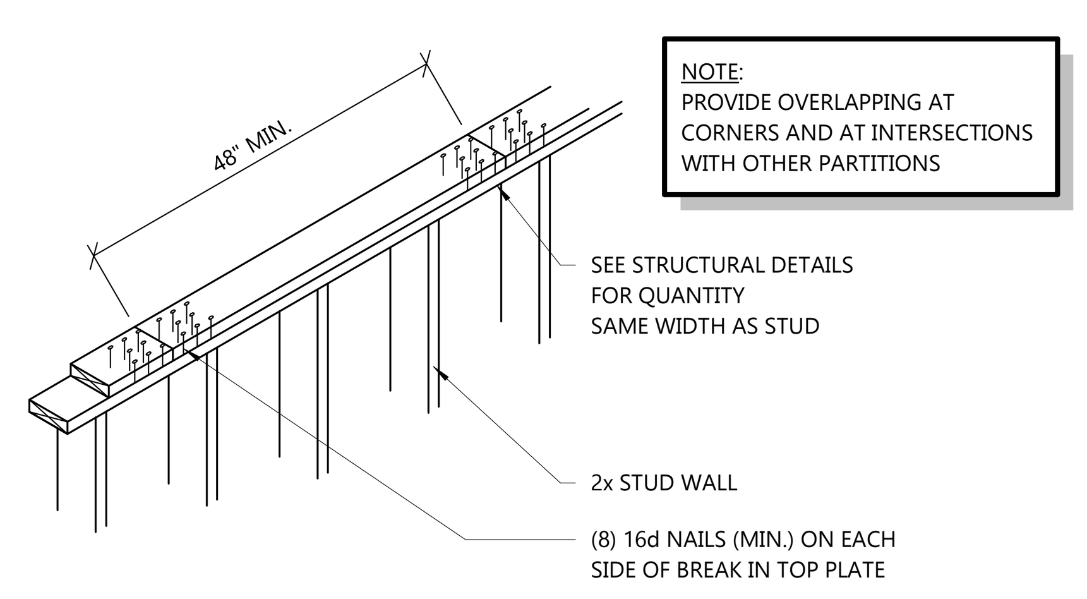
WOOD HEADER @ EXISTING DETAIL



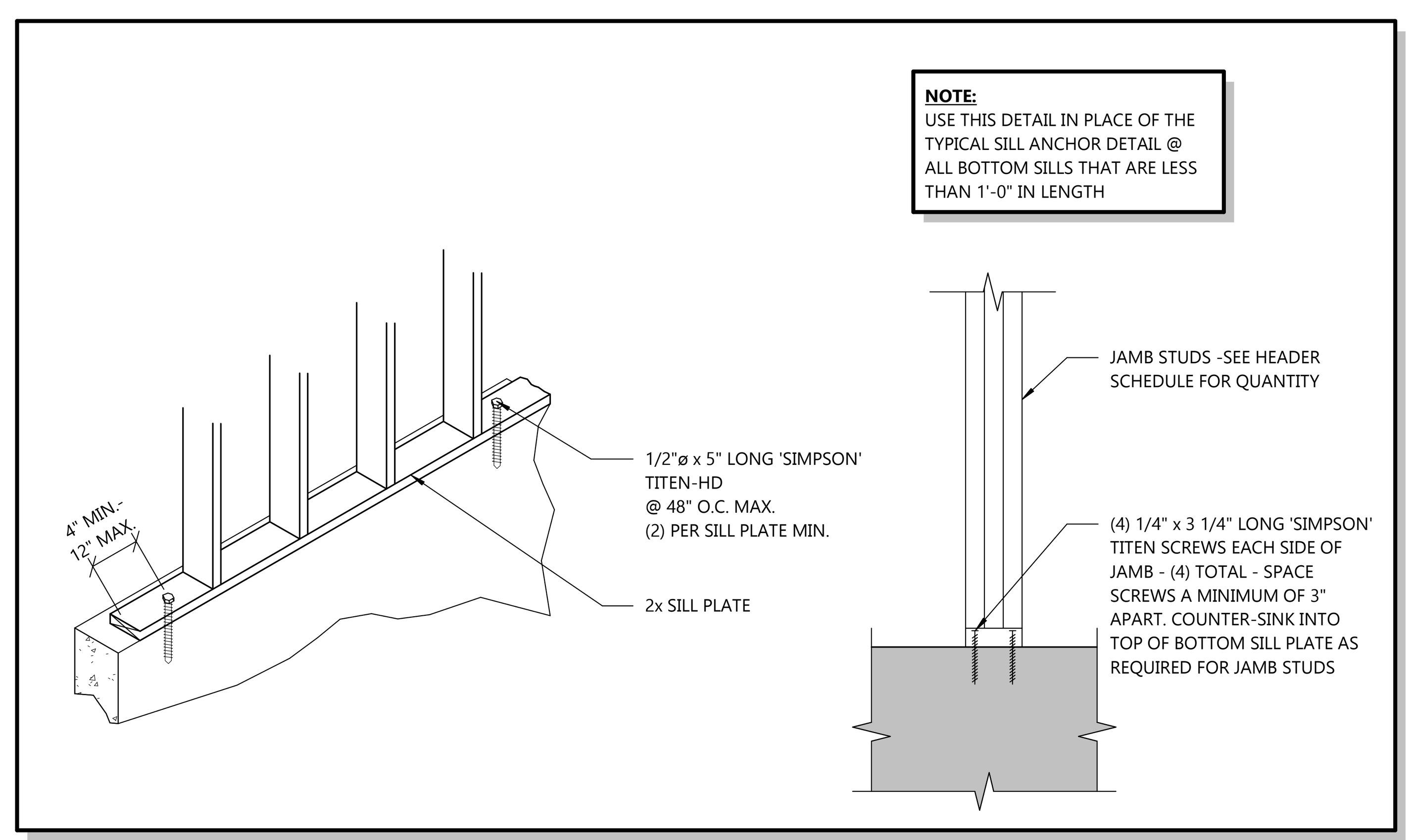
WOOD HEADER LOW DETAIL



WOOD HEADER HIGH DETAIL



TOP PLATE SPLICE DETAIL



SILL ANCHOR DETAIL

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COLUMN SCHEDULE NOTES:

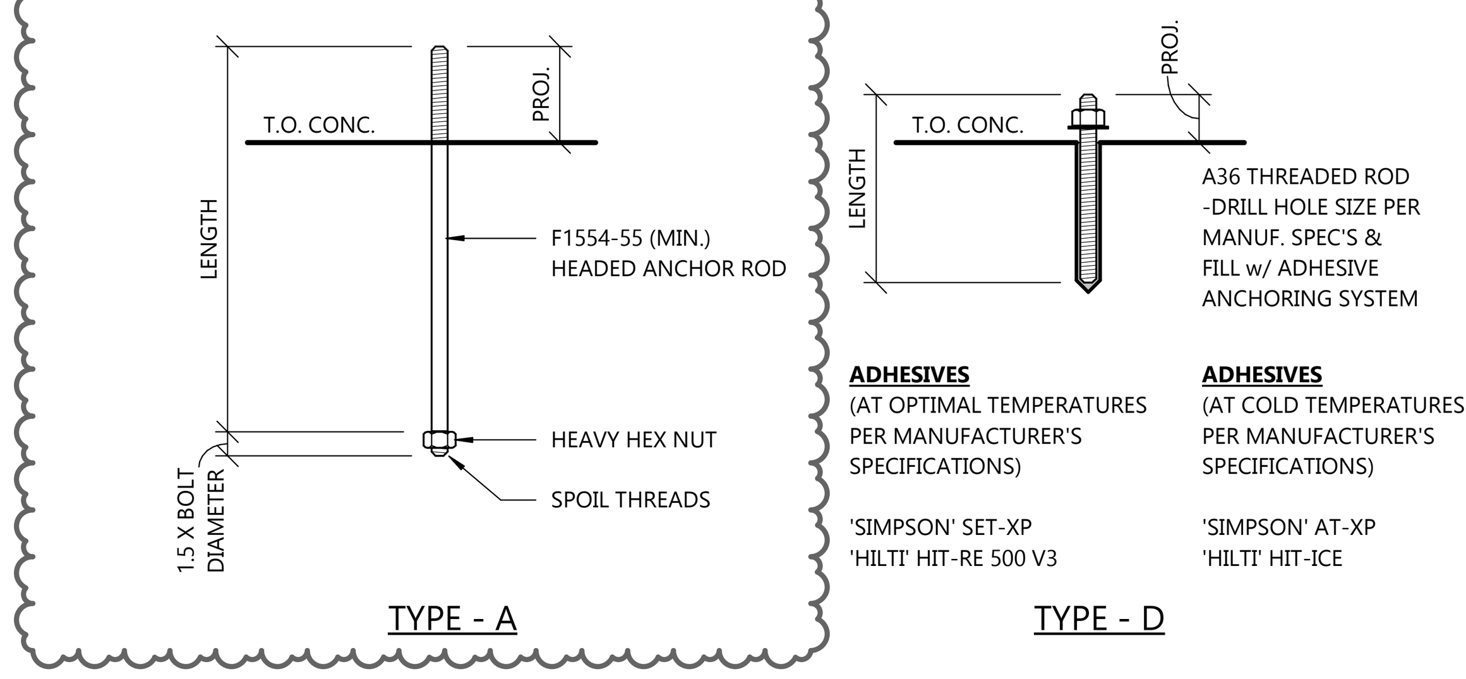
- PROVIDE OVERSIZED HOLES AT ALL BASEPLATES FOR ANCHOR BOLTS AS FOLLOWS:
  1/2" TO 5/8" ø = 1/16" OVERSIZED
  3/4" TO 1" ø = 5/16" OVERSIZED
  1 1/8" TO 2" ø = 1/2" OVERSIZED
  OVER 2" ø = 1" OVERSIZED
- ALL ANCHOR BOLTS SHALL BE INSTALLED FREE OF DIRT, OIL, OR ANY OTHER CONTAMINANTS WHICH MAY DESTROY OR REDUCE BOND TO CONCRETE PER SSPC-SP1.

STEEL COLUMN SCHEDULE

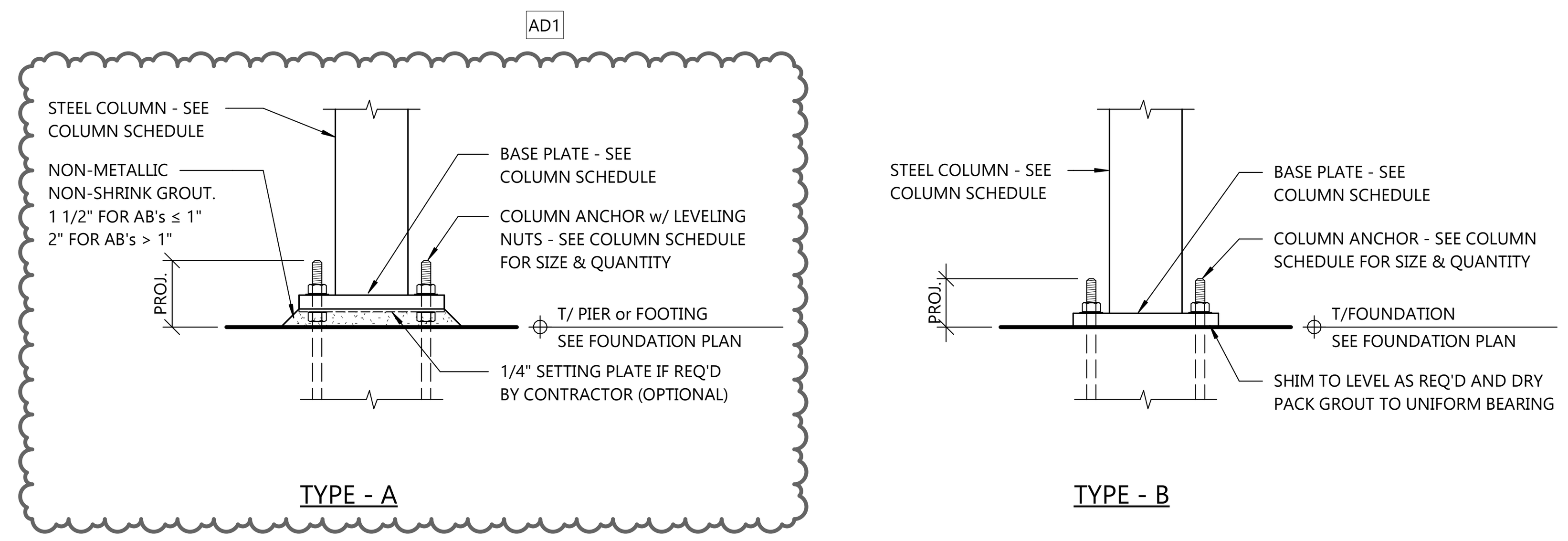
COLUMN LOCATION MARK	SIZE	BASEPLATE	BASEPLATE							CAP PLATE						REMARKS
			PLATE			ANCHORS					PLATE		BOLTS			
		TYPE	T x W x L	WELD	LEVELING TYPE	QTY.	DIA. x L (IN.)	PROJ. (IN.)	TYPE	TYPE	T x W x L	WELD	QTY.	DIA. (IN.)	TYPE	
B.3-4.1	HSS5X5X1/4	A	3/4" x 6" x 11"	1/4"	B	4	5/8" x 12"	4"	D	A	1/4" x 7" x 10"	3/16"	SEE CAP PLATE	SEE CAP PLATE	SEE CAP PLATE	
B.6-0.5	HSS4X4X3/8	B	3/4" x 10" x 10"	1/4"	A	4	3/4" x 16"	4"	A	B	1/4" x FLUSH	3/16"	-	-	-	
B.7-0.5	HSS4X4X3/8	B	3/4" x 10" x 10"	1/4"	A	4	3/4" x 16"	4"	A	B	1/4" x FLUSH	3/16"	-	-	-	
B.8-0.5	HSS4X4X3/8	B	3/4" x 10" x 10"	1/4"	A	4	3/4" x 16"	4"	A	B	1/4" x FLUSH	3/16"	-	-	-	
B.9-0.5	HSS4X4X3/8	B	3/4" x 10" x 10"	1/4"	A	4	3/4" x 16"	4"	A	B	1/4" x FLUSH	3/16"	-	-	-	

AD1

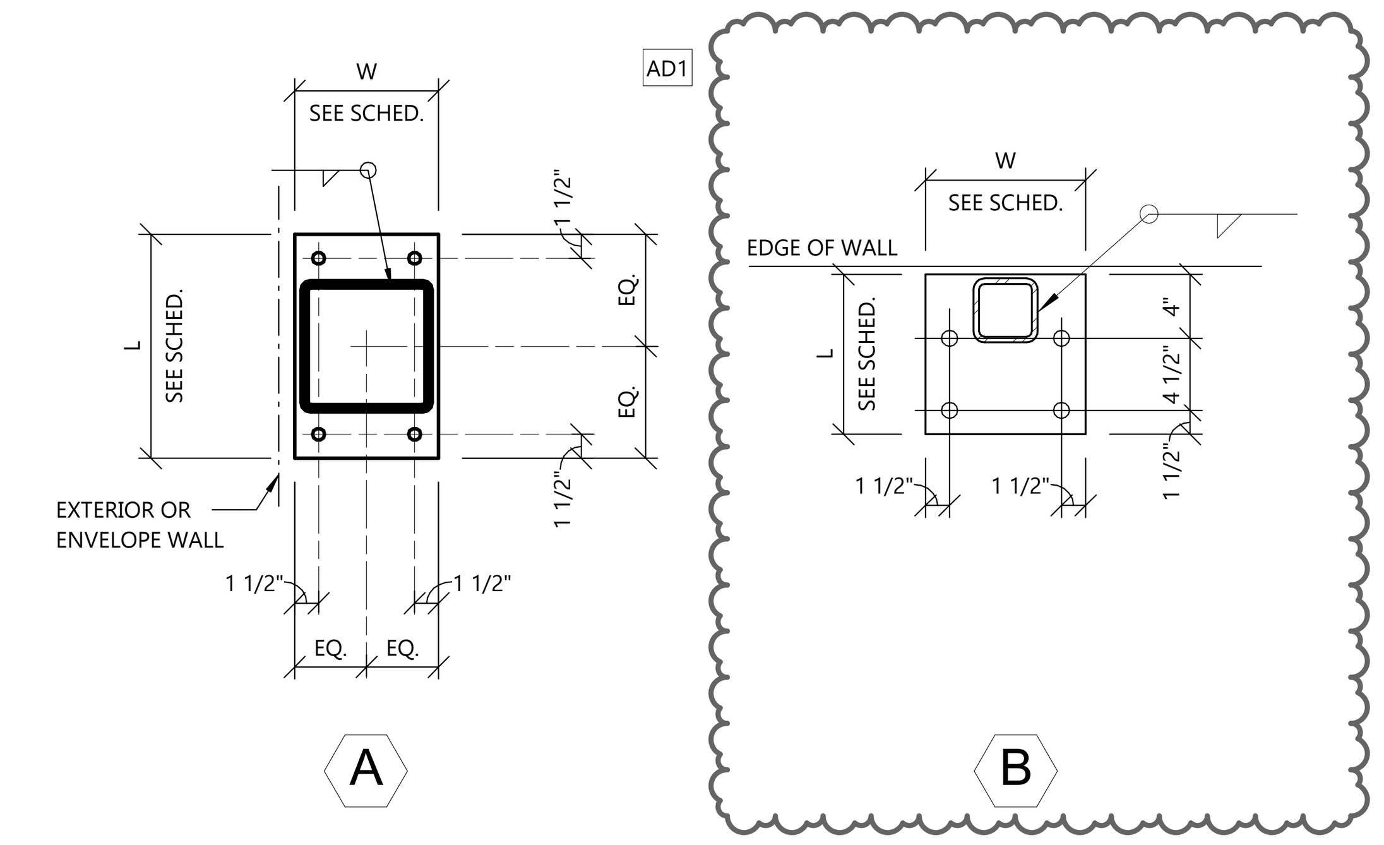
NOTE:
ANCHOR BOLTS SHALL BE PLACED IN FORMS PRIOR TO POURING CONCRETE TO ENSURE PROPER CONSOLIDATION OF CONCRETE AROUND ANCHOR BOLTS. ANCHOR BOLT MUST NOT BE PUSHED INTO ALREADY POURED CONCRETE.



COLUMN ANCHOR TYPES

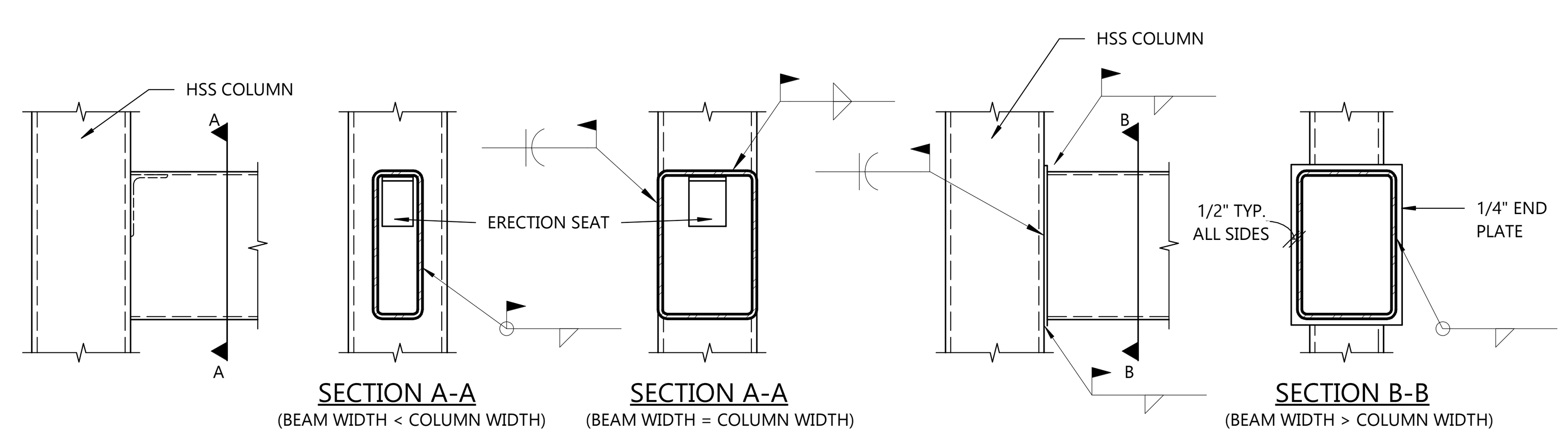


COLUMN BASE PLATE LEVELING TYPES



COLUMN BASE PLATE TYPES

STANDARD HSS CONNECTION DETAILS

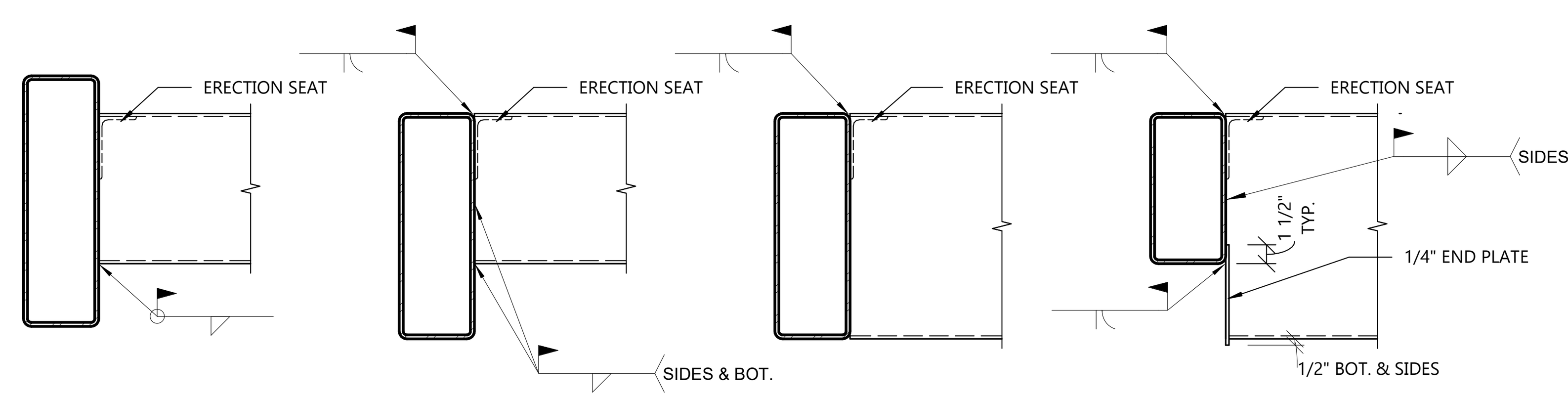


STEEL THICKNESS OF THINNER MEMBER	FILLET WELD SIZE	REMARKS
1/4"≤'T'<1/2"	3/16"	
1/2"≤'T'< 3/4"	1/4"	
'T'≥3/4	5/16"	

X HSS BEAM/COLUMN

NOTE: WELDS SHOWN SHALL PROVIDE A COMPLETE SEAL AROUND ENTIRE BEAM END (TYP.)

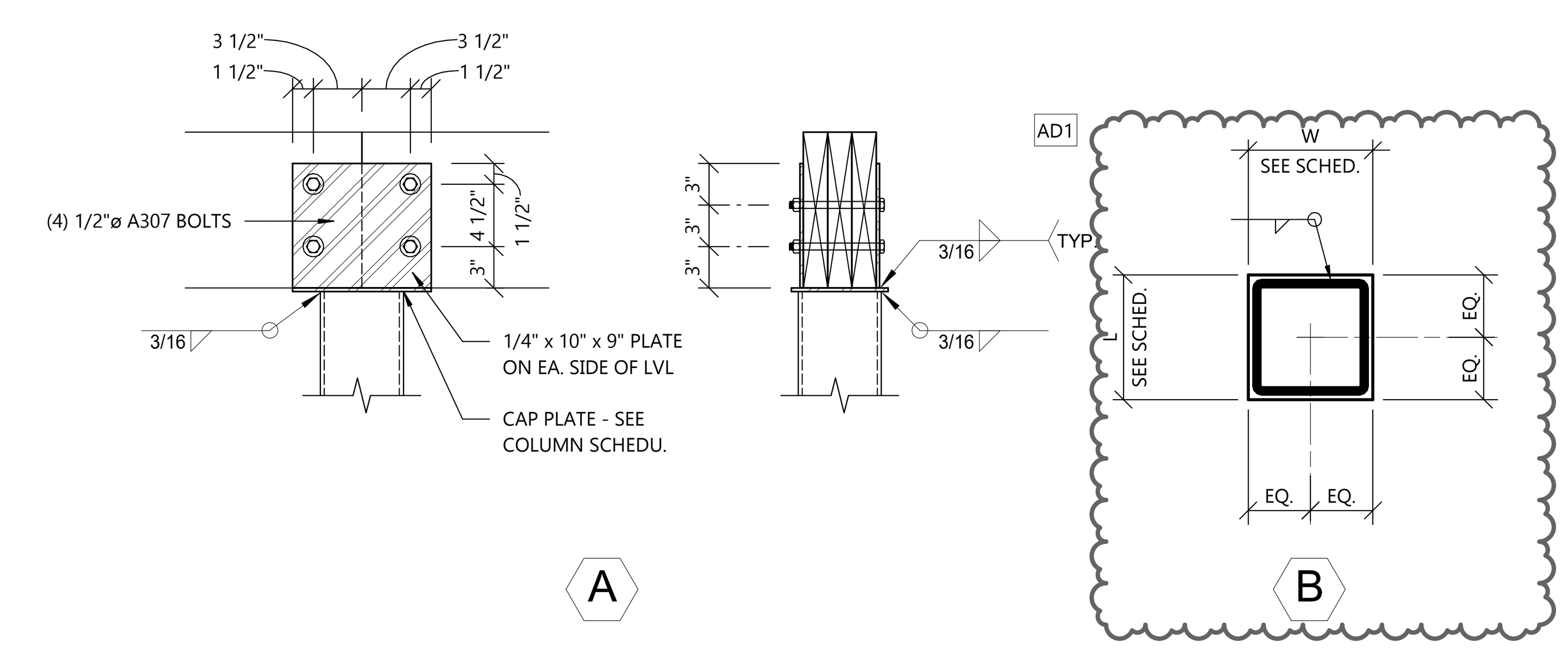
AD1



STEEL THICKNESS OF THINNER MEMBER	FILLET WELD SIZE	REMARKS
1/4"≤'T'<1/2"	3/16"	
1/2"≤'T'< 3/4"	1/4"	
'T'≥3/4	5/16"	

W HSS BEAM/BEAM

NOTE: WELDS SHOWN SHALL PROVIDE A COMPLETE SEAL AROUND ENTIRE BEAM END (TYP.)



COLUMN CAP PLATE TYPES

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PROJECT INFORMATION

PROPOSED BUILDING RENOVATION
HAWAIIAN BROS - STR: 43
1401 GRINDSTONE PKWY ● COLUMBIA, MO

PROFESSIONAL SEAL

SHEET DATES

SHEET ISSUE	OCT. 26, 2021
REVISIONS	
AD1	MAR. 7, 2022

JOB NUMBER
2164120

SHEET NUMBER
S3.1

STRUCTURAL FRAMING SCHEDULES

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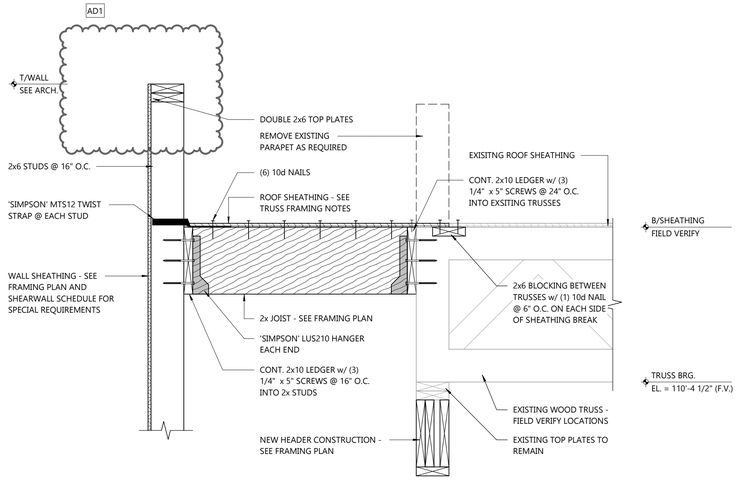
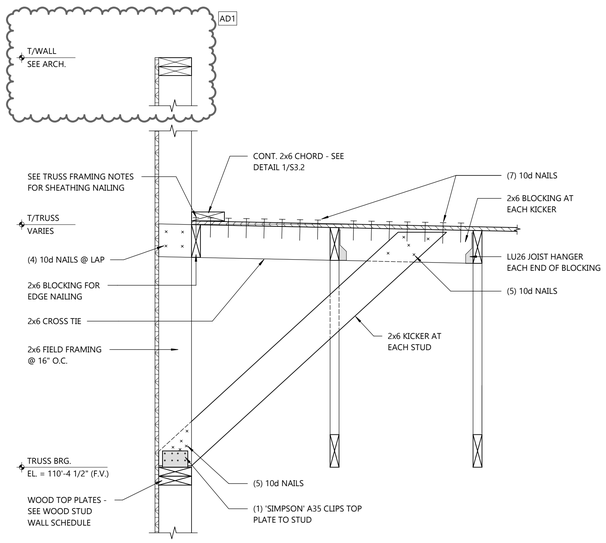
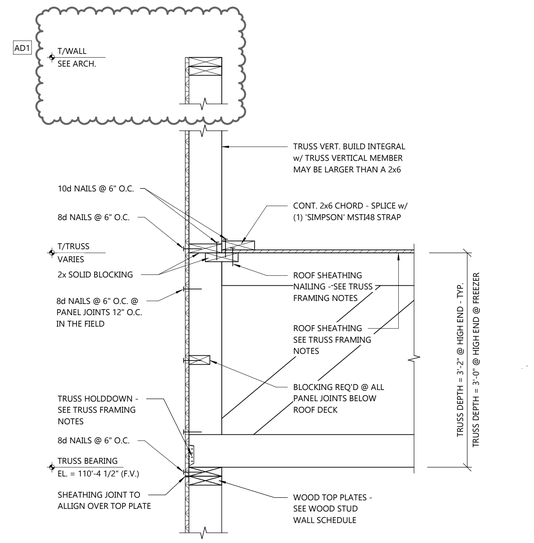


3 S3.2 DETAIL
SCALE: 1" = 1'-0"

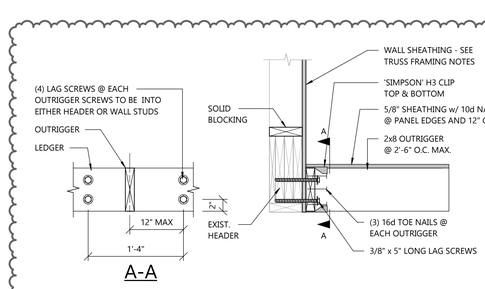


2 S3.2 CORNER DETAIL AT JACK TRUSS
SCALE: 1" = 1'-0"

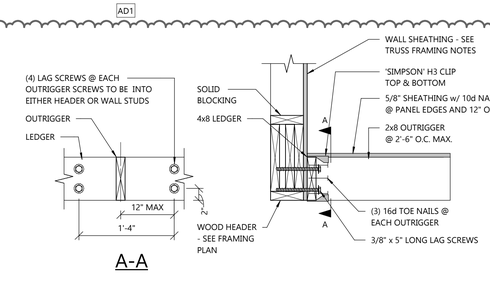


1 S3.2 TYPICAL TRUSS BEARING DETAIL
SCALE: 1" = 1'-0"

7 S3.2 PARAPET DETAIL
SCALE: 1" = 1'-0"



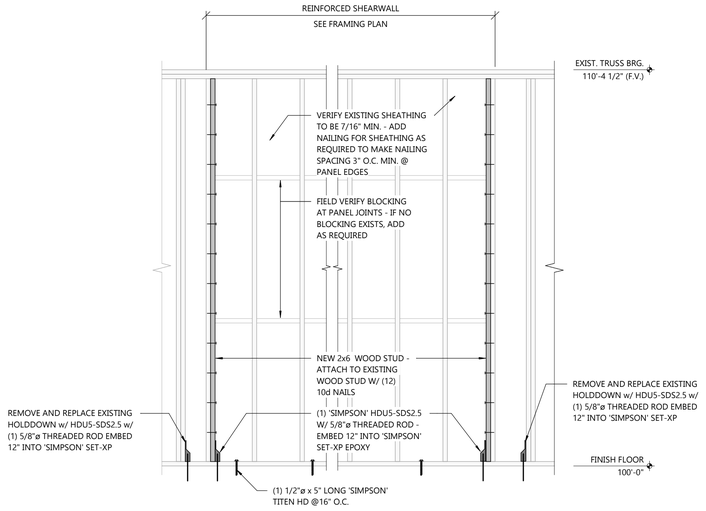
6 S3.2 SUNSHADE DETAIL
SCALE: 1" = 1'-0"



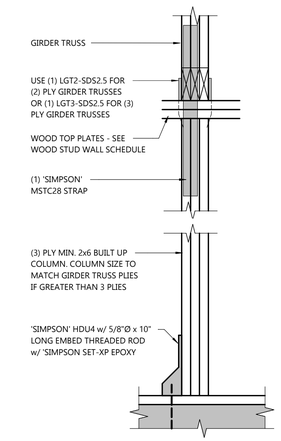
5 S3.2 SUNSHADE DETAIL
SCALE: 1" = 1'-0"

4 S3.2 DETAIL
SCALE: 1" = 1'-0"

DETAUL 10/S3.2
NOT USED



9 S3.2 SHEAR WALL REINFORCING ELEVATION
SCALE: 1/2" = 1'-0"



8 S3.2 GIRDER HOLDDOWN @ STUD COLUMN
SCALE: 1" = 1'-0"

STRUCTURAL FRAMING DETAILS

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REVISIONS
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SHEET NUMBER
S3.2

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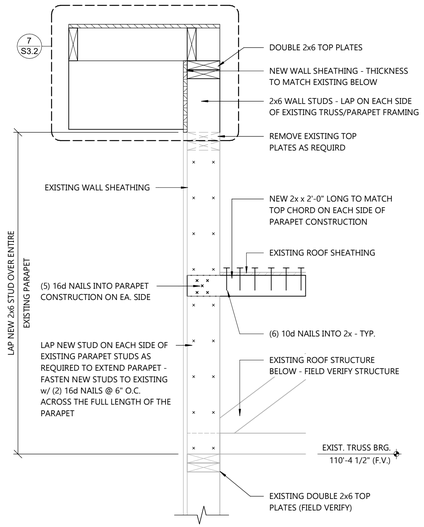
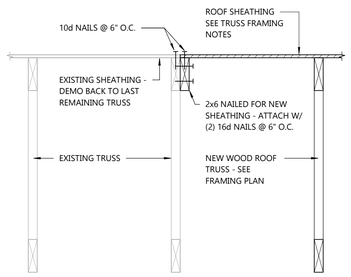


4 S3.3 PARAPET EXTENSION DETAIL
SCALE: 1" = 1'-0"



3 S3.3 DETAIL
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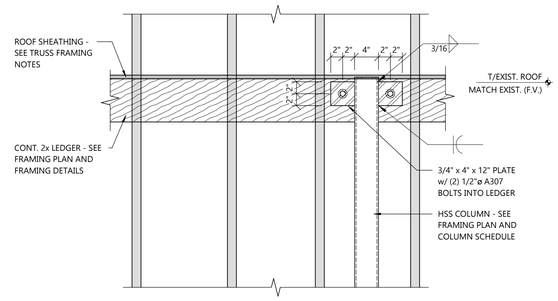
AD1



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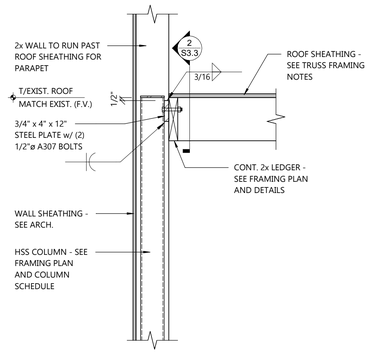

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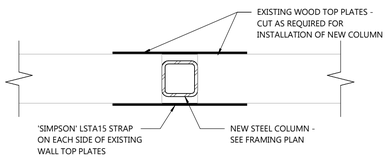
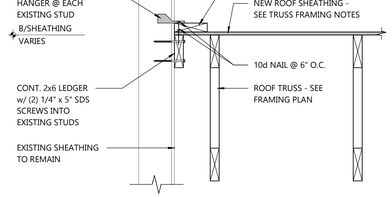


8 S3.3 DETAIL
SCALE: 1 1/2" = 1'-0"



7 S3.3 DETAIL
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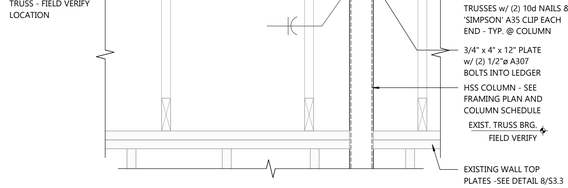

6 S3.3 DETAIL
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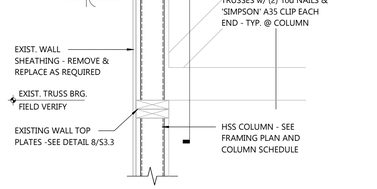
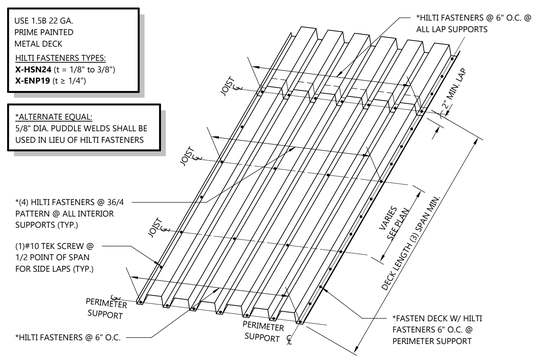


5 S3.3 DETAIL
SCALE: 1" = 1'-0"

USE 1.5B 22 GA. PRIME PAINTED METAL DECK

HILTI FASTENERS TYPES:
X-HSN24 (t = 1/8" to 3/8")
X-ENP19 (t ≥ 1/4")

*ALTERNATE EQUAL:
5/8" DIA. PUDDLE WELDS SHALL BE USED IN LIEU OF HILTI FASTENERS



11 S3.3 ROOF DECK FASTENING DETAIL
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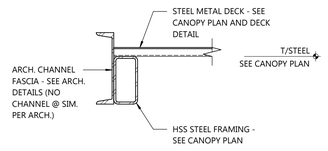

10 S3.3 CANOPY DETAIL
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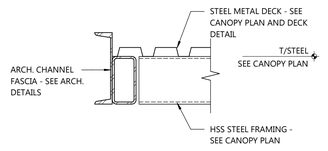

9 S3.3 CANOPY DETAIL
SCALE: 1" = 1'-0"

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SHEET NUMBER
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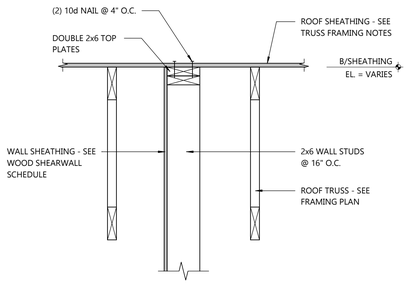

4 S3.4 INTERIOR SHEARWALL DETAIL
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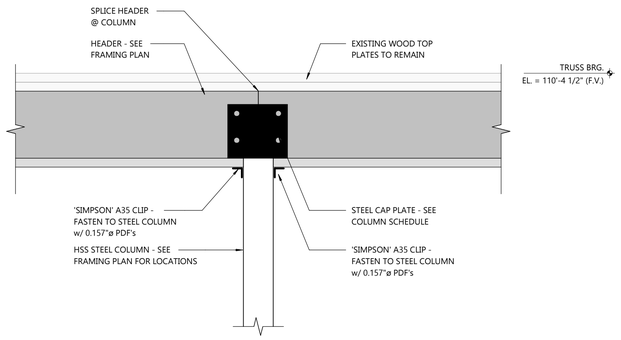

3 S3.4 DETAIL
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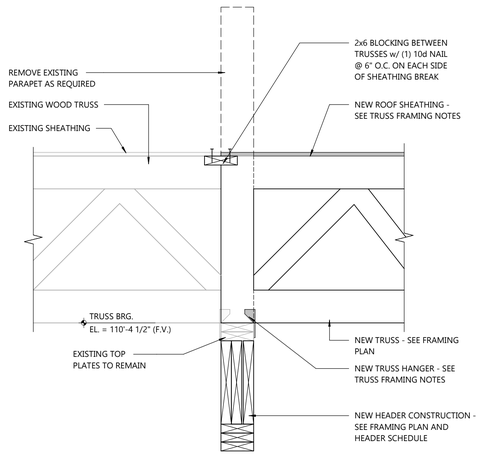

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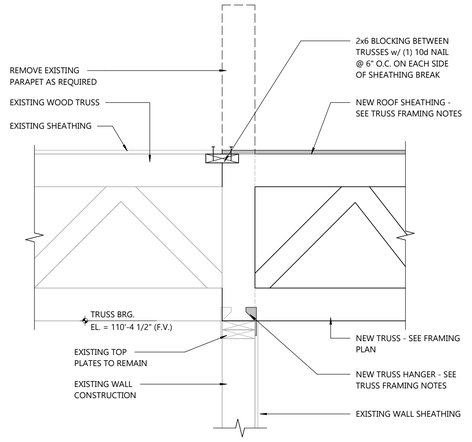

1 S3.4 DETAIL
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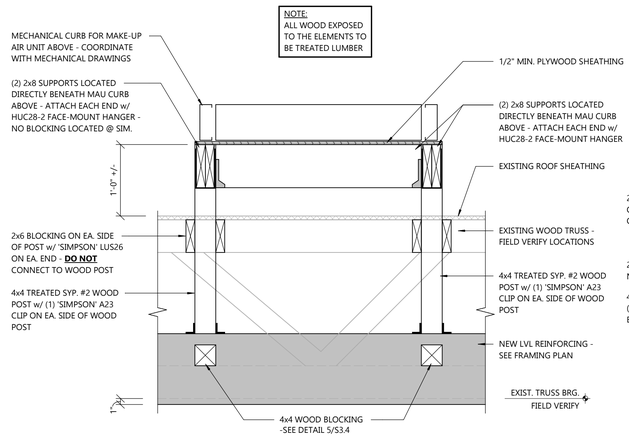

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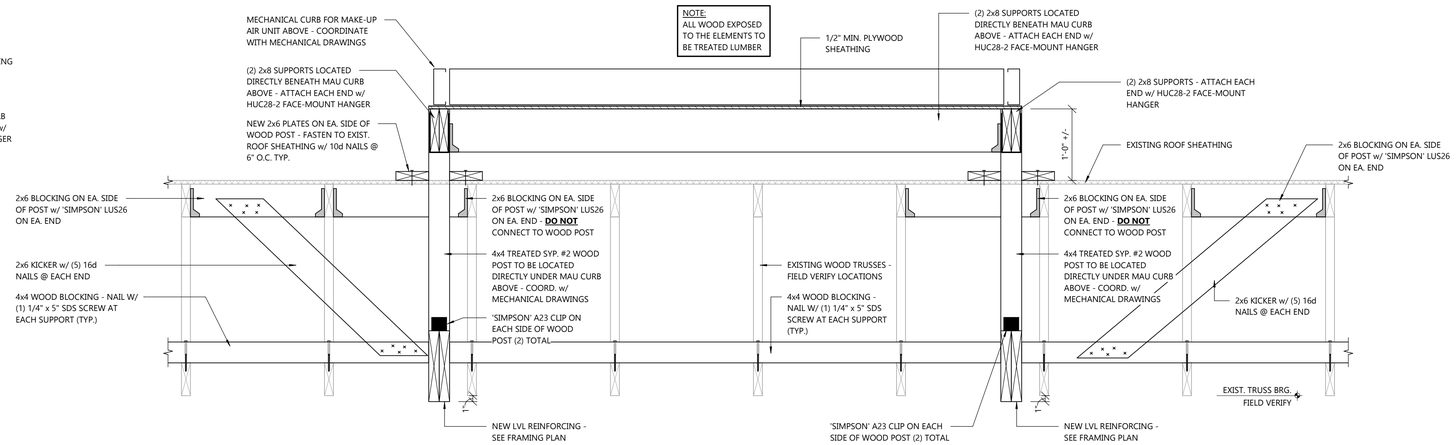
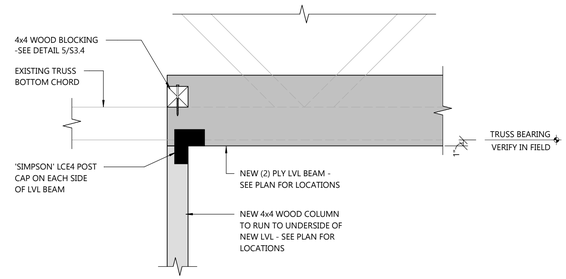


5 S3.4 DETAIL
SCALE: 1" = 1'-0"

DETAILS 8/S3.4, 9/S3.4,
& 10/S3.4 NOT USED



7 S3.4 DETAIL
SCALE: 1" = 1'-0"

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PLUMBING SPECIFICATIONS

DIVISION 22 PLUMBING

22 05 00 BASIC PLUMBING REQUIREMENTS

A. SEE DIVISION 00 PROCUREMENT AND CONTRACTING AND DIVISION 01 GENERAL REQUIREMENT FOR ADDITIONAL REQUIREMENTS.
B. PLUMBING CONTRACTOR SHALL VERIFY REQUIREMENTS FOR TEMPORARY WATER WITH GENERAL CONTRACTOR AND INCLUDE IN HIS SCOPE OF WORK WHEN DIRECTED BY G.C.. INSTALL IN ACCORDANCE WITH ALL CODE AND OSHA REQUIREMENTS FOR CONSTRUCTION PROJECTS.
C. SUBSTITUTIONS
1. SEE DIVISION 01 23 00 PRODUCT SUBSTITUTION PROCEDURES FOR ADDITIONAL REQUIREMENTS.
2. CONTRACTOR SHALL PROVIDE ALL SUPPORTING DATA AND ASSUME THE BURDEN OF PROOF THAT ANY SUBSTITUTE IS EQUIVALENT AS TO APPEARANCE, CONSTRUCTION, CAPACITY, AND PERFORMANCE. THE JUDGMENT OF EQUIVALENCY SHALL BE MADE BY THE ENGINEER AT THE TIME OF SHOP DRAWING REVIEW, NOT DURING BIDDING.
3. WHERE SUBSTITUTE EQUIPMENT REQUIRES REDESIGN OF ANY PART OF THE PROJECT, THE COST OF REDESIGN AND ADDITIONAL COSTS OF THE WORK SHALL BE PAID BY THE CONTRACTOR. REDESIGN SHALL BE SUBJECT TO THE APPROVAL OF ALL AUTHORITIES HAVING JURISDICTION OVER THE WORK INCLUDING THE ARCHITECT/ ENGINEER.
4. CONTRACTOR SHALL ASSUME ALL COORDINATION RESPONSIBILITIES FOR SUBSTITUTE EQUIPMENT INCLUDING COORDINATION ACROSS TRADES AND COORDINATION OF PREVIOUSLY REVIEWED AND APPROVED SHOP DRAWING SUBMITTALS, SHOULD THESE SHOP DRAWINGS BE AFFECTED BY THE SUBSTITUTED EQUIPMENT.
D. SHOP DRAWINGS, PRODUCT DATA, TEST RESULTS AND SAMPLE SUBMITTALS:
1. SEE DIVISION 01 33 23 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES FOR ADDITIONAL REQUIREMENTS.
2. PLUMBING CONSTRUCTION ADMINISTRATION SUBMITTAL LIST:
a. PIPING
b. PIPE IDENTIFICATION
c. FIXTURES
d. INSULATION
e. HANGERS
f. DRAINS AND CLEANOUTS
g. VALVES
h. BACKFLOW PREVENTERS
i. WATER HEATERS
j. WATER HEATER FLUES
k. PUMPS
l. WATER TREATMENT EQUIPMENT
m. INTERCEPTORS
3. PROJECT CLOSEOUT
a. PROVIDE PLUMBING EQUIPMENT OPERATING AND MAINTENANCE MANUALS TO THE OWNER PER IECC C303.3 AND C408.2.5.1.
4. AS-BUILT DRAWINGS SHALL BE MARKED ON A FINAL SET OF DRAWINGS WHICH INCLUDES ALL REVISIONS.
E. FINISHING AND PAINTING
1. SEE DIVISION 09 91 00 FINISH AND PAINTING FOR ADDITIONAL REQUIREMENTS.
2. PREPARE EXPOSED PIPE, FITTINGS, SUPPORTS, AND ACCESSORIES FOR FINISH PAINTING IN ROOMS THAT WILL HAVE CEILING AND STRUCTURE PAINTED.
3. COORDINATE WORK WITH THE PAINTERS SO THAT ALL EQUIPMENT IS INSTALLED PRIOR TO PAINTING. P.C. SHALL PAINT ITEMS IF NOT IN PLACE PRIOR TO NORMAL ROUTINE PAINTING.
4. IF FINISH BECOMES RUSTED, CORRODED, SCRATCHED, OR FLAKED DURING STORAGE OR INSTALLATION, REFINISH THE EQUIPMENT TO THE SATISFACTION OF THE OWNER.
5. WHERE THE PLUMBING CONTRACTOR IS REQUIRED TO PAINT, THE PAINTING SHALL BE DONE IN ACCORDANCE WITH THE PAINTING PORTION OF THE ARCHITECTURAL SPECIFICATION.
F. DETAILS AND SCHEDULES ARE SHOWN TO AID THE CONTRACTOR AND ARE NOT MEANT TO BE INCLUSIVE OF ALL DEVICES. PROVIDE REQUIRED EQUIPMENT AND ACCESSORIES FOR A COMPLETE INSTALLATION.
G. INSTALL ALL EQUIPMENT PER MANUFACTURER'S INSTALLATION INSTRUCTIONS AND REQUIREMENTS. PROVIDE ADDITIONAL WORK AND MATERIALS AS REQUIRED.
H. REGULATORY REQUIREMENTS
1. PERFORM WORK PER ALL LOCAL AND STATE CODES, ORDINANCES AND REGULATIONS HAVING JURISDICTION.
2. PROVIDE CERTIFICATE OF COMPLIANCE FROM AUTHORITY HAVING JURISDICTION INDICATING APPROVAL BACKFLOW PREVENTION DEVICES INSTALLATION.
I. COORDINATE INSTALLATION OF PLUMBING WORK WITH THE OTHER CONTRACTORS TO AVOID CONFLICTS WITH OTHER WORK.
J. VERIFY CONNECTION REQUIREMENTS FOR EQUIPMENT FURNISHED BY OTHERS WITH FINAL SHOP DRAWINGS.
K. CUTTING AND PATCHING
1. PROVIDE ALL CUTTING AND PATCHING NECESSARY FOR PLUMBING WORK INSTALLATION UNLESS THIS WORK IS IDENTIFIED TO BE THE WORK OF OTHER CONTRACTORS. PATCHING SHALL MATCH ADJACENT SURFACES.
L. FIRE RATED INTERIOR WALL AND FLOOR PIPE PENETRATIONS
1. SLEEVE REQUIRED FOR PENETRATION OF CONCRETE AND MASONRY WALLS AND FLOORS.
2. SEAL OPENING AROUND PIPE WITH A UL APPROVED FIRE-STOP SYSTEM HAVING AN F-RATING NOT LESS THAN THE HOURLY RATING OF THE ASSEMBLY BEING PENETRATED.
3. WHERE A SLEEVE IS REQUIRED, FURNISH AND INSTALL SLEEVES FOR NEW DRYWALL WALLS AND CONCRETE WALLS AND FLOORS. FURNISH SLEEVES TO THE MASON CONTRACTOR FOR INSTALLATION IN NEW MASONRY WALLS.
M. SEALANTS
1. PLUMBING CONTRACTOR SHALL PROVIDE ALL SEALANTS WHERE JOINT IS HIDDEN AND WHERE JOINT IS EXPOSED IN MECHANICAL ROOM.
2. SEALANT CONTRACTOR SHALL PROVIDE SEALANTS AT ALL EXPOSED LOCATIONS IN FINISHED ROOMS.
3. SEE SECTION 07 92 00 SEALANTS FOR ADDITIONAL INFORMATION.
N. ESCUTCHEONS
1. INSTALL ONE-PIECE (TWO PIECE FOR EXISTING PIPING) POLISHED CHROME PLATED STEEL ESCUTCHEONS AT PENETRATIONS EXPOSED IN FINISHED ROOMS (ROOMS WHICH DON'T HAVE UNFINISHED CONCRETE FLOORS).
2. ESCUTCHEONS WITH SPRINGS FOR WALL AND CEILING LOCATIONS.
3. ID TO CLOSELY FIT AROUND PIPE/INSULATION, OD THAT COMPLETELY COVERS THE OPENING.
4. ESCUTCHEONS REQUIRED IN CABINETS AND CASEWORK.
O. PROJECT COMPLETION
1. CLEAN FIXTURES AND EQUIPMENT AND LEAVE IN PROPER WORKING CONDITION AT THE TIME OF FINAL CLEAN-UP.
2. REMOVE, CLEAN AND REPLACE AERATORS AFTER FLUSHING WATER PIPING.
3. PROVIDE OPERATING INSTRUCTIONS FOR A TOTAL OF ONE (1) HOURS. MAINTAIN A RECORD OF OPERATING INSTRUCTION PERIODS AND OBTAIN OWNER SIGNOFF THAT INSTRUCTIONS HAVE BEEN COMPLETED.
P. ACCESS
1. FURNISH ACCESS PANELS OF ADEQUATE SIZE TO PERMIT SERVICE OF EQUIPMENT, VALVES, OR OTHER SPECIALTIES WHICH REQUIRE MAINTENANCE OR ADJUSTMENT WHICH ARE INSTALLED BEHIND WALLS OR ABOVE NON-LAYIN CEILING SURFACES.
2. PANELS SHALL BE SUITABLE FOR INSTALLATION IN THE MATERIAL FORMING THE FINISHED SURFACE, WITH FLANGED FLUSH METAL FRAME, FLUSH HINGED STEEL DOOR, FLUSH SCREWDRIVER OPERATED LATCH.
3. PANELS UL LISTED TO CONFORM TO THE FIRE RATING OF THE SURFACE INSTALLED IN.
4. TURN ACCESS PANEL OVER TO CONTRACTOR SKILLED IN THE CONSTRUCTION OF THE SURFACES INVOLVED FOR INSTALLATION.
5. ARCHITECT TO APPROVE ACCESS PANEL LOCATION PRIOR TO INSTALLATION OF EQUIPMENT REQUIRING ACCESS.
6. COORDINATE WITH THE OTHER CONTRACTORS AND WHEREVER PRACTICAL, GROUP DEVICES IN SUCH A MANNER SO AS TO MINIMIZE PANELS.

22 05 19 METERS AND GAUGES

A. PRESSURE GAUGES AND THERMOMETERS
1. MANUFACTURERS: TRERICE, U.S. GAUGE, ASHCROFT, MARSH, WEISS, WEKSLER.
2. PRESSURE GAUGES
a. GENERAL PURPOSE: TRERICE 600CB PBF CERTIFIED LEAD FREE CAST ALUMINUM CASE, PHOSPHOR BRONZE BOURDON TUBE; TRERICE 872-1PBF LEAD FREE BRASS PRESSURE SNUBBER.
1). GAUGE COCK: APOLLO 77FLF-100 LEAD FREE FULL PORT THREADED BRASS VALVE, 150 PSI SWP, 400 DEG F MAXIMUM TEMPERATURE.
3. STEM THERMOMETERS:
a. GENERAL PURPOSE: TRERICE BX9, ASTM E1, ORGANIC SPIRIT LIQUID FILL, CAST ALUMINUM CASE WITH EPOXY FINISH, CAST ALUMINUM ADJUSTABLE JOINT WITH POSITIVE LOCKING DEVICE, 9" SCALE, 3/4" NPT BRASS STEM, WITH EXTENSIONS AS REQUIRED FOR INSULATION.
b. PROVIDE THERMOWELL FOR ALL THERMOMETERS. BRASS IN COPPER TUBING. SIZE AND INSERTION LENGTH FOR APPLICATION. PROVIDE HEAT TRANSFER MEDIUM.
4. SCALE RANGES AND MINIMUM INCREMENT AS FOLLOWS:
a. COLD WATER: 0-100 PSIG/ 1 PSIG; 0-100 DEG F/ 1 DEG F
b. HOT WATER: 0-100 PSIG/ 1 PSIG; 0-160 DEG F/ 2 DEG F.
5. EXTEND NIPPLES TO ALLOW INSULATION CLEARANCE.
6. INSTALL WHERE READ FROM NORMAL OPERATING LEVEL.
7. CALIBRATE FOR ACCURACY.

22 05 29 PIPE AND EQUIPMENT HANGERS AND SUPPORTS

A. MANUFACTURERS: B-LINE, EMPIRE INDUSTRIES, GLOBAL PIPE HANGER PRODUCTS, GRINNEL, NATIONAL PIPE HANGER, UNI STRUT.
B. ANGLES, CHANNELS, AND BEAMS: ASTM A36 AND A572 AS REQUIRED.
C. HANGERS SHALL NOT BE ATTACHED TO JOIST BRIDGING.
D. ATTACHMENT TO METAL DECK: HANGERS MAY BE ANCHORED TO METAL FLOOR/ROOF DECK IF ALL THE FOLLOWING CONDITIONS ARE MET:
1. MAXIMUM HANGER LOAD OF 50 LBS.
2. ANCHORED TO BOTTOM OF DECK FLUTES, NOT UPPER FLUTE.
3. ANCHOR LENGTH SHALL EXCEED DECK DEPTH.
E. PIPE HANGERS/SUPPORTS
1. SEE DETAILS ON PLANS FOR ADDITIONAL PIPE HANGER SPECIFICATIONS.
2. SEE SCHEDULE ON PLANS FOR HANGER SPACING.
3. CONFORM TO ASME B31.9 AND MANUFACTURER'S STANDARDIZATION SOCIETY (MSS) SP-58-2009.
4. INSTALL HANGERS AND SUPPORTS SO PIPING LIVE AND DEAD LOADS AND STRESSES FROM MOVEMENT WILL NOT BE TRANSMITTED TO CONNECTED EQUIPMENT. ADJUST HANGERS TO DISTRIBUTE LOADS EQUALLY ON ATTACHMENTS AND TO PROVIDE INDICATED PIPE SLOPES.
5. PROVIDE SWAY BRACING ON HORIZONTAL DRAINAGE PIPES ABOVE GRADE 4" AND LARGER AT ALL CHANGES IN DIRECTION GREATER THAN 45 DEG WITHIN 12" OF CHANGE IN DIRECTION.
6. MATERIALS
a. V BOTTOM CLEVIS HANGER: MSS SP-58 TYPE 1, B-LINE FIGURE B3106 AND FIGURE B3106V PRE-GALVANIZED PLASTIC PIPE SUPPORT CHANNEL FOR PEX PIPING TO INCREASE HANGER SPACING.
F. STRUT SYSTEM
1. COMPLY WITH THE LATEST REVISION OF MFMA STANDARDS PUBLICATION NUMBER MFMA-3, "METAL FRAMING STANDARDS PUBLICATION".
2. INSTALL STRUT IN ACCORDANCE WITH MFMA-102 "GUIDELINES FOR THE USE OF METAL FRAMING"; IN ACCORDANCE WITH EQUIPMENT MANUFACTURER'S RECOMMENDATONS, AND WITH RECOGNIZED INDUSTRY PRACTICES.
3. COLD FORMED LOW CARBON STEEL METAL FRAMING CHANNEL STRUT: B-LINE TYPE B CHANNEL.
4. 1-5/8 INCHES WIDE IN VARYING HEIGHTS AND WELDED COMBINATIONS AS REQUIRED TO MEET LOAD CAPACITIES.
5. MANUFACTURER'S STANDARD FINISH OR PLAIN FINISH
G. PROVIDE SUPPORT FOR UTILITY METERS IN ACCORDANCE WITH REQUIREMENTS OF UTILITY COMPANIES.
H. CONCRETE PADS
1. COORDINATE FINAL EQUIPMENT CONCRETE PAD SIZE REQUIREMENTS. PADS SHALL EXTEND MINIMUM 4" BEYOND EQUIPMENT FOOTPRINT

22 05 53 MECHANICAL IDENTIFICATION

A. PIPE IDENTIFICATION
1. INDOOR SELF-ADHESIVE PIPE MARKERS
a. MANUFACTURERS: MARKING SERVICES MS-900, BRADY B-736, SETON OPTI-CODE.
b. FLEXIBLE PVC FILM WITH PRESSURE SENSITIVE ACRYLIC ADHESIVE BACKING WITH PRINTED MARKINGS.
c. SECURE WITH 2" WIDE TAPE WITH ARROWS INDICATING FLOW.
2. COLOR, OVERALL SIZE AND LETTER HEIGHT SHALL CONFORM TO ASME A13.1- 2007 "SCHEME FOR THE IDENTIFICATION OF PIPING SYSTEMS".
3. IDENTIFY PIPE SERVICE, FLOW DIRECTION, AND PRESSURE.
4. LOCATIONS
a. LOCATE TO FACE GREATEST POINT OF VISIBILITY. ALL ADJACENT LABELS TO BE INSTALLED NEATLY IN A ROW.
b. LOCATE IDENTIFICATION NOT-TO-EXCEED 50 FEET FOR EXPOSED PIPING.
c. LOCATE IDENTIFICATION NOT-TO-EXCEED 25 FEET FOR PIPING ABOVE CEILINGS.
d. MINIMUM ONE LOCATION PER ROOM.
e. INSTALL IDENTIFICATION AFTER PIPING AND INSULATION IS COMPLETE TO ENSURE MAXIMUM VISIBILITY OF THE IDENTIFICATION SYSTEM.
f. BEHIND ACCESS PANELS AND ALL OTHER ACCESSIBLE POINTS OF SERVICE.
g. NEAR LOCATIONS WHERE PIPES PENETRATE WALLS, FLOORS OR CEILINGS.
h. NEAR EACH VALVE AND CONTROL DEVICE.
i. AT EACH MAJOR PIECE OF EQUIPMENT.

22 07 00 INSULATION

A. GENERAL
1. SEE INSULATION SCHEDULES ON PLANS FOR ADDITIONAL INFORMATION.
2. INSULATION, INSULATION SYSTEMS AND JACKETS SHALL MEET UL-723/ASTM E84 REQUIREMENTS OF MAX. FIRE HAZARD CLASSIFICATION OF 25, AND MAX. FLAME SPREAD, FUEL CONTRIBUTED, AND SMOKE DEVELOPED OF 50 WHEN INSTALLED IN RETURN AIR PLENUMS.
3. INSTALL MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND MICA PUBLICATION "COMMERCIAL AND INDUSTRIAL STANDARDS", 2011 SEVENTH EDITION.
4. CONTINUE INSULATION WITHOUT INTERRUPTIONS THROUGH WALLS AND FLOOR PENETRATIONS AND HANGERS.
B. FIBERGLASS (F.G.) INSULATION
1. RIGID PIPING:
a. O.C. FIBERGLAS PIPE INSULATION, KNAUF EARTHWOOL PIPE INSULATION,
b. SINGLE OR DOUBLE ADHESIVE SELF-SEALING LAP SYSTEM FOR LONGITUDINAL JOINT, PRESSURE SENSITIVE BUTT STRIP SEALS, ALL SERVICE JACKET VAPOR BARRIER COVERING.
c. 3.5-5.5 LB./CU.FT., R=4.3 / NOMINAL INCH AT 75 DEG F.
d. MAX 850 DEG F, JACKET MAX 150 DEG F, 0.02 PERM.
e. COMPRESSIVE STRENGTH AT 10% DEFORMATION 125 LB./S.F.
f. VALVES, FITTINGS, AND FLANGE COVERS:
1). ZESTON 2000/300 SERIES, CEELCO 300 SERIES, PROTO LOSMOKE PVC JACKET
2). HIGH IMPACT 30 MIL WHITE PVC WITH PRECUT FIBERGLASS INSERTS. MAX TEMP 150 DEG
C. ELASTOMERIC FOAM INSULATION
1. SEAL BUTT JOINTS WITH ADHESIVE.
2. SHEET
a. MANUFACTURERS: AEROFLEX AEROCEL, K-FLEX INSUL-SHEET, ARMACELL AP ARMAFLEX.
b. EPDM/PVC BASE ELASTOMERIC FOAM MATERIAL
c. MAX. 'K' VALUE 0.245 AT 75 DEG F
d. MAX. CONTINUOUS TEMPERATURE 220 DEG F
e. MAX. 0.05 PERM PER ASTM E96
f. MAX. FIRE/SMOKE DEVELOPED OF 25/50 PER ASTM E84 FOR UP TO 2" THICK.
g. ADHERE WITH 100% ADHESIVE COVERAGE, BOTH SURFACES.
3. PIPE
a. MANUFACTURERS: AEROFLEX AEROCEL SSPT, K-FLEX INSUL-LOCK DS, ARMACELL AP/ARMAFLEX BLACK LAPSEAL.
b. EPDM/PVC BASE ELASTOMERIC FOAM MATERIAL
c. DUAL TAPE CLOSURE
d. MAX. 'K' VALUE 0.245 AT 75 DEG F
e. MAX. CONTINUOUS TEMPERATURE 220 DEG F
f. MAX. 0.05 PERM PER ASTM E96
g. MAX. FIRE/SMOKE DEVELOPED OF 25/50 PER ASTM E84 FOR UP TO 2" THICK.
h. PROVIDE MANUFACTURER PREFORMED INSULATION OVER VALVES AND FITTINGS
i. FIELD CUTTING AND GLUING LONGITUDINAL JOINT NOT PERMITTED.
D. PIPE INSULATION REQUIREMENTS
1. INSULATE ENTIRE PIPING SYSTEM INCLUDING VALVES AND FITTINGS PER MICA INSULATION STANDARDS PLATES 10 THRU 18.
2. SEAL ALL INSULATION ENDS.

22 10 00 EXCAVATION AND BACKFILL

A. P.C. SHALL EXCAVATE AND BACKFILL TRENCHES FOR PLUMBING WORK.
B. PROTECT TREES, PLANTS, LAWNS, AND OTHER FEATURES REMAINING AS PORTION OF FINAL LANDSCAPING.
C. PROTECT BENCHMARKS, EXISTING STRUCTURES, FENCES, SIDEWALKS, PAVING, AND CURBS FROM EXCAVATING EQUIPMENT AND VEHICULAR TRAFFIC.
D. MAINTAIN, PROTECT, AND TEMPORARILY SUPPORT ABOVE AND BELOW GRADE UTILITIES WHICH ARE TO REMAIN.
E. PROVIDE AND MAINTAIN ALL FENCING, BARRICADES, SIGNS, WARNING LIGHTS, AND/OR OTHER EQUIPMENT NECESSARY TO KEEP ALL EXCAVATION PITS AND TRENCHES AND THE ENTIRE SUBGRADE AREA SAFE UNDER ALL CIRCUMSTANCES AND AT ALL TIMES. NO EXCAVATION SHALL BE LEFT UNATTENDED WITHOUT ADEQUATE PROTECTION.
F. ELEVATIONS SHOWN ON THE PLANS ARE SUBJECT TO SUCH REVISIONS AS MAY BE NECESSARY TO FIT FIELD CONDITIONS.
G. EXCAVATING
1. CUT TRENCHES SUFFICIENTLY WIDE TO ENABLE INSTALLATION AND ALLOW INSPECTION. REMOVE WATER OR MATERIALS THAT INTERFERE WITH WORK.
2. DO NOT INTERFERE WITHIN 45 DEGREE BEARING SPLAY OF FOUNDATIONS.
3. EXCAVATE MINIMUM 4" BELOW BOTTOM OF PIPE IF STONE GREATER THAN 1" OR BEDROCK IS ENCOUNTERED.
4. REMOVE UNSTABLE AREAS OF SUBGRADE BELOW PIPE TO MINIMUM 24" BELOW PIPE OR TO STABLE MATERIAL. BACKFILL WITH PEA GRAVEL, LIMESTONE SCREENINGS, OR EQUIVALENT AND COMPACT TO DENSITY EQUAL TO REQUIREMENTS FOR SUBSEQUENT BACKFILL MATERIAL.
5. STOCKPILE EXCAVATED MATERIAL IN AREA DESIGNATED ON SITE AND REMOVE EXCESS MATERIAL NOT BEING USED FROM SITE.
6. DIRECT SURFACE WATER AWAY FROM STOCKPILE SITE TO PREVENT EROSION OR DETERIORATION OF MATERIALS. REMOVE STOCKPILE, LEAVE AREA IN A CLEAN AND NEAT CONDITION. GRADE SITE SURFACE TO PREVENT FREESTANDING SURFACE WATER.
H. BEDDING AND BACKFILL:
1. LINES PASSING UNDER FOUNDATIONS:
a. INSTALL WITH MINIMUM OF 1-1/2 INCH CLEARANCE TO CONCRETE AND ENSURE THERE IS NO DISTURBANCE OF BEARING SOIL.
b. BACKFILL WITH COMPACTED ENGINEER FILL PER GEOTECH REPORT.
2. MECHANICALLY COMPACT BEDDING AND BACKFILL TO PREVENT SETTLEMENT. THE INITIAL COMPACTED LIFT TO NOT EXCEED 24" COMPACTED TO 95% DENSITY PER MODIFIED PROCTOR TEST (ASTM D-1557). SUBSEQUENT LIFTS UNDER PAVEMENTS, CURBS, WALKS AND STRUCTURES ARE NOT TO EXCEED 12" AND BE COMPACTED TO 95% DENSITY PER MODIFIED PROCTOR TEST. IN ALL OTHER AREAS WHERE CONSTRUCTION ABOVE THE EXCAVATION IS NOT ANTICIPATED WITHIN 2 YEARS, MECHANICALLY COMPACT BACKFILL IN LIFTS NOT EXCEEDING 24" TO 90% DENSITY PER MODIFIED PROCTOR TEST.
3. MAINTAIN OPTIMUM MOISTURE CONTENT OF FILL MATERIALS TO ATTAIN REQUIRED COMPACTION DENSITY.
4. DRAIN PIPING
a. BEDDING: WHERE OVEREXCAVATED, BRING BACK TO BOTTOM OF PIPE ELEVATION WITH DRY SAND, GRAVEL, PEA GRAVEL, WASHED STONE OR CRUSHED STONE PASSING A 3/4" SIEVE.
b. BACKFILL TO A DEPTH OF 12" OVER THE PIPE WITH SAND, CRUSHED STONE THAT PASSES A 1" SIEVE. PLACE IN WELL TAMPED MAXIMUM 6" LAYERS FOR LENGTH OF SEWER AND WIDTH OF TRENCH.
5. BACKFILL ABOVE 12" ABOVE THE PIPE:
a. UNDER EXISTING AND FUTURE UTILITIES AND BUILDINGS: GRANULAR MATERIALS, PIT RUN SAND, GRAVEL, OR CRUSHED STONE, FREE FROM LARGE STONES, ORGANIC, AND FROZEN MATERIALS.

22 11 00 WATER PIPING AND VALVES

A. PIPING
1. SEE PIPE SCHEDULE ON PLANS FOR ADDITIONAL INFORMATION.
B. PIPING INSTALLATION
1. DRAWINGS AND DIAGRAMS SHOW SIZE AND APPROXIMATE LOCATION OF PIPING. THE DRAWINGS SHALL NOT BE SCALED TO DETERMINE EXACT LOCATION. PROVIDE ADDITIONAL OFFSETS TO COORDINATE WITH INSTALLATION REQUIREMENTS OF OTHER SYSTEMS.
2. ROUTE ABOVE GROUND PIPING IN ORDERLY MANNER, PARALLEL TO BUILDING STRUCTURE. OFFSET PIPE CONNECTIONS AT EQUIPMENT TO ALLOW FOR SERVICE, SUCH AS REMOVAL OF THE EQUIPMENT.
3. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
4. INSTALL PIPING TO CONSERVE BUILDING SPACE AND NOT INTERFERE WITH USE OF SPACE AND OTHER WORK. GROUP PIPING WHENEVER PRACTICAL AT COMMON ELEVATIONS.
5. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTED EQUIPMENT WITH RESPECT TO THE BUILDING AND PLUMBING SYSTEM.
6. PROVIDE CLEARANCE FOR INSTALLATION OF INSULATION AND ACCESS TO VALVES.
7. DO NOT ROUTE PIPING ABOVE TRANSFORMERS, PANELBOARDS, MOTOR CONTROL CENTERS, SWITCHBOARDS OR OTHER ELECTRICAL DISTRIBUTION EQUIPMENT.
8. PROVIDE NON-CONDUCTING DIELECTRIC CONNECTIONS WHEREVER JOINTING DISSIMILAR METALS.
9. USE ONLY NEW MATERIAL, FREE OF DEFECTS, RUST AND SCALE, AND MEETING THE LATEST REVISION OF THE ASTM SPECIFICATIONS.
10. PREPARE EXPOSED UNFINISHED PIPE, FITTINGS, SUPPORTS, AND ACCESSORIES, READY FOR FINISH PAINTING.
11. SLOPE PIPING AND ARRANGE SYSTEMS TO DRAIN AT LOW POINTS. USE TOP CONNECTIONS FOR TAKEOFFS TO EQUIPMENT ABOVE THE MAINS AND BOTTOM CONNECTIONS FOR TAKEOFFS TO EQUIPMENT BELOW THE MAINS.
12. USE LONG RADIUS ELBOWS FOR ALL 90 DEGREE ELBOWS.
13. INSTALL VALVE STEM BETWEEN THE VERTICAL (UPRIGHT) OR HORIZONTAL POSITION.
14. DO NOT SUPPORT WEIGHT OF PIPING ON VALVE.
C. PIPING TESTING
1. EACH TEST MUST BE WITNESSED BY THE OWNER'S REPRESENTATIVE. IF LEAKS ARE FOUND, REPAIR THE AREA WITH NEW MATERIALS AND REPEAT THE TEST. DO NOT INSULATE PIPE UNTIL IT HAS BEEN SUCCESSFULLY TESTED.
2. MEASURE AND RECORD TEST PRESSURE AT THE HIGH POINT IN THE SYSTEM.
3. TEST WATER DISTRIBUTION SYSTEM WITH POTABLE WATER UNDER A WATER PRESSURE OF 100 PSIG OR THE WORKING PRESSURE OF THE SYSTEM (WHICHEVER IS GREATER) FOR A PERIOD OF (4) HOURS. IF LOCAL AUTHORITIES REQUIRE MORE STRINGENT TESTING, CONTRACTOR SHALL COMPLY WITH THOSE REQUIREMENTS.
D. WATER PIPING BALANCING
1. VERIFY THAT SUFFICIENT WATER FLOW, PRESSURE AND TEMPERATURE ARE AVAILABLE AT EACH OUTLET AND EQUIPMENT CONNECTION.
2. BALANCE CIRCULATING HOT WATER SYSTEM TO ENSURE PROPER CIRCULATION OF HOT WATER IN THE SYSTEM WITH HOT WATER AVAILABLE TO ALL FIXTURES AND CONNECTIONS.
3. BALANCE VALVE MINIMUM FLOW: 0.5 GPM.
E. FLUSH AND DISINFECT DOMESTIC WATER SUPPLY SYSTEM AS FOLLOWS:
1. FILL PIPING WITH POTABLE WATER AND ALLOW TO STAND FOR 24 HOURS.
2. FLUSH EACH OUTLET BEGINNING WITH OUTLET CLOSEST TO BUILDING CONTROL VALVE AND THEN EACH SUCCESSIVE OUTLET IN THE SYSTEM.
3. FLUSH EACH OUTLET MINIMUM 1 MINUTE AND UNTIL WATER APPEARS CLEAR AT THE OUTLET.
4. FILL SYSTEM WITH WATER/CHLORINE SOLUTION OF 50 PPM OF CHLORINE AND LET STAND FOR 24 HOURS, OR 200 PPM FOR 3 HOURS.
5. FLUSH WITH POTABLE WATER.
6. REPEAT DISINFECTION IF BACTERIOLOGICAL CONTAMINATION EXISTS.
7. PERFORM WATER QUALITY TEST IF REQUIRED BY LOCAL AUTHORITIES.
8. IF LOCAL AUTHORITIES REQUIRE MORE STRINGENT FLUSHING AND DISINFECTION, CONTRACTOR SHALL COMPLY WITH THOSE REQUIREMENTS.
F. VALVES
1. MANUFACTURERS: NIBCO, APOLLO, KEYSTONE, CENTERLINE, DEZURIK, CRANE, MUELLER, POWELL, VIEGA, GRINNELL, SIOUX CHIEF. LISTING OF MODEL NUMBER DOES NOT PRECLUDE OTHER ACCEPTABLE MANUFACTURERS FROM PROVIDING EQUIVALENT VALVES.
2. PROVIDE BRONZE VALVE FOR COPPER PIPE.
3. SHUTOFF VALVES 1" AND SMALLER
a. PEX BALL VALVE
1). APOLLO 77X SERIES
2). BRONZE THREE PIECE BODY, CHROME PLATED BRASS BALL, FULL PORT, TEFLON SEATS AND STUFFING BOX RING, LEVER HANDLE WITH VALVE EXTENSIONS FOR INSULATED PIPING, CRIMP JOINT ENDS, 200 PSI WOG, NSF 61 LISTED.
4. SHUTOFF VALVES 2" AND SMALLER
a. BRONZE BALL VALVE:
1). SOLDERED: NIBCO S-685-66-LF.
2). PRESS FITTING: VIEGA SERIES 2970.*ZL OR SERIES 2971.*ZL
3). TWO PIECE, CHROME PLATED BRASS OR STAINLESS STEEL BALL, FULL PORT, REINFORCED PTFE SEATS AND STUFFING BOX RING, LEVER HANDLE WITH LOCKABLE HANDLE AND VALVE STEM EXTENSIONS FOR INSULATED PIPING, 250 PSI, NSF 61 ANNEX G LISTED.
b. CPVC BALL VALVE
1). SIOUX CHIEF 648 SERIES
2). TWO PIECE BRASS BODY, CHROME PLATED BRASS OR STAINLESS STEEL BALL, FULL PORT, TEFLON SEATS AND STUFFING BOX RING, LEVER HANDLE WITH VALVE EXTENSIONS FOR INSULATED PIPING, CPVC SOCKET ENDS, 150 PSI WORKING PRESSURE.
5. SHUTOFF VALVES 2 1/2" AND LARGER
a. IRON BUTTERFLY VALVES:
1). WATTS BF-03-NSF
2). LUG ENDS, CAST OR DUCTILE IRON BODY, MOLDED IN EPDM LINER.
3). BUBBLETIGHT TO 175 PSIG WITH NO DOWNSTREAM FLANGE/PIPE ATTACHED
4). STAINLESS STEEL SHAFT WITH TEFLON, NYLATRON OR ACETAL BEARINGS, EXTENDED NECK.
5). ALUMINUM BRONZE OR STAINLESS STEEL DISC.
6). OPERATOR
a). 6" AND UNDER: INFINITE POSITION LEVER HANDLE OPERATOR.
b). NSF 61 LISTED.
6. MANUAL BALANCE VALVES 2" AND SMALLER
a. BELL & GOSSETT A-549LFP(C), CALEFFI, NIBCO, FLOWSET, ARMSTRONG, AND IMI HYDRONIC ENGINEERING): BRONZE BODY WITH CALIBRATED BRASS ORIFICE OR VENTURI, MEMORY STOP, SOLDERED ENDS AND PRESSURE TAPS. 125 PSIG RATING AT 240 DEG F, NSF 61 ANNEX G LISTED LEAD FREE.
b. INSTALL 5 PIPE DIAMETERS DOWNSTREAM AND 2 PIPE DIAMETERS UPSTREAM OF A FITTING.
7. DRAIN VALVES: SHUTOFF VALVE WITH THREADED CAP. PROVIDE FOR COMPLETE SYSTEM DRAINAGE, NSF 61 LISTED.
8. SPRING LOADED CHECK VALVES
a. 2" AND SMALLER:
1). THREADED: NIBCO MODEL 480-Y-LF
2). BRONZE BODY, TFE SEAT AND DISC, STAINLESS STEEL SPRING, CLASS 125, NSF 61 ANNEX G LISTED LEAD FREE.
9. WATER HAMMER ARRESTORS: SEE SCHEDULE. INSTALL IN ACCESSIBLE LOCATION.

22 13 00 DRAIN PIPING AND VALVES

A. PIPING INSTALLATION
1. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. FIELD VERIFY EXISTING AND PROPOSED SEWER ELEVATIONS AND SIZES AND NOTIFY THE OWNER'S REPRESENTATIVE IN WRITING OF ANY VARIATION OF THE ELEVATIONS BEFORE BEGINNING ANY SEWER AND BUILDING DRAIN WORK.
3. DRAWINGS AND DIAGRAMS SHOW SIZE AND APPROXIMATE LOCATION OF PIPING. THE DRAWINGS SHALL NOT BE SCALED TO DETERMINE EXACT LOCATION. PROVIDE ADDITIONAL OFFSETS TO COORDINATE WITH INSTALLATION REQUIREMENTS OF OTHER SYSTEMS.
4. ROUTE ABOVE GROUND PIPING IN ORDERLY MANNER, PARALLEL TO BUILDING STRUCTURE. OFFSET PIPE CONNECTIONS AT EQUIPMENT TO ALLOW FOR SERVICE, SUCH AS REMOVAL OF THE EQUIPMENT.
5. INSTALL PIPING TO CONSERVE BUILDING SPACE AND NOT INTERFERE WITH USE OF SPACE AND OTHER WORK. GROUP PIPING WHENEVER PRACTICAL AT COMMON ELEVATIONS.
6. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTED EQUIPMENT WITH RESPECT TO THE BUILDING AND PLUMBING SYSTEM.
7. PROVIDE CLEARANCE FOR INSTALLATION OF INSULATION AND ACCESS TO VALVES.
8. DO NOT ROUTE PIPING ABOVE TRANSFORMERS, PANELBOARDS, MOTOR CONTROL CENTERS, SWITCHBOARDS OR OTHER ELECTRICAL DISTRIBUTION EQUIPMENT.
9. PROVIDE NON-CONDUCTING DIELECTRIC CONNECTIONS WHEREVER JOINTING DISSIMILAR METALS.
10. PROVIDE NO-HUB ADAPTER ON PVC PIPE WHERE USING NO-HUB COUPLINGS.
11. SLOPE SANITARY PIPE 2" AND SMALLER 1/4" PER FOOT; 3" AND LARGER PIPING 1/8" PER FOOT.
12. SLOPE GREASE WASTE LINES UPSTREAM OF GREASE INTERCEPTOR MINIMUM 1/4" PER FOOT.
13. SLOPE STORM PIPE TO SLOPE INDICATED ON DRAWINGS WITH MAXIMUM VARIATIONS OF 1/8" IN 10 FEET FROM TRUE SLOPE.
14. MAINTAIN SEPARATION OF SEWER PIPING FROM WATER MAINS IN ACCORDANCE WITH REQUIRED CODES AND REGULATIONS.
B. STORM AND SANITARY DRAIN PIPING TESTING: TEST DRAIN AND VENT PIPING PER CODE REQUIREMENTS.
C. BACKWATER VALVE (SEWER - 3", 4" OR 6")
1. RECTORSEAL CLEAN CHECK OR EQUIVALENT PVC BACKWATER VALVE WITH ACCESS SLEEVE.
2. PROVIDE FLOOR CLEANOUT OR CLEANOUT TO GRADE ASSEMBLY FOR SLEEVE SIZE.

22 40 00 PLUMBING FIXTURES

A. FIXTURES
1. SEE SCHEDULES FOR ADDITIONAL INFORMATION.
2. LIKE FIXTURE TYPE (FAUCETS, FLUSH VALVES, WATER CLOSETS, LAVS, ETC.) SHALL BE THE PRODUCT OF THE SAME MANUFACTURER.
3. SAFETY COVERS OVER EXPOSED WASTE AND SUPPLY PIPING AT ADA ACCESSIBLE FIXTURES SHALL BE LAV-GUARD BY TRUEBRO OR EQUIVALENT.
B. INSTALLATION
1. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. PROVIDE CHROME PLATED RIGID SUPPLIES TO FIXTURES WITH STOPS, REDUCERS, AND ESCUTCHEONS UNLESS OTHERWISE NOTED IN SCHEDULES AND DETAILS.
3. SEAL FIXTURES TO WALL AND FLOOR SURFACES WITH MILDEW-RESISTANT SILICONE SEALANT, COLOR TO MATCH FIXTURE.
4. INSTALL BARRIER-FREE FIXTURES IN COMPLIANCE WITH LOCAL CODES AND FEDERAL ADA ACCESSIBILITY GUIDELINES.
5. EXPOSED TRAPS, PIPING, AND ESCUTCHEONS SHALL BE CHROME PLATED BRASS UNLESS OTHERWISE NOTED IN SCHEDULES AND DETAILS.
6. ADJUST LAVATORY/SINK THERMOSTATIC MIXING VALVE TO 105 DEG F MAXIMUM OUTLET TEMPERATURE.

LEGEND

NOTE: ALL SYMBOLS SHOWN MAY NOT APPEAR ON DRAWINGS.

SYM.	ABBR.	IDENTIFICATION	SYM.	ABBR.	IDENTIFICATION
PIPING ACCESSORIES					
	CO	CLEAN OUT			PIPING CAP
	WCO	WALL CLEAN OUT			UNION
	FCO	FLOOR CLEAN OUT (FLUSH)			THERMOMETER
	BFP	BACKFLOW PREVENTER			PRESSURE GAUGE
	PRV	PRESSURE REDUCING VALVE		HB	HOSE BIBB
		SHUTOFF VALVE		RD	ROOF DRAIN
		BALANCE VALVE		OF	OVERFLOW DRAIN
		AUTOMATIC BALANCE VALVE		HD	HUB DRAIN
		THERMOSTATIC BALANCE VALVE		HD-R	HUB DRAIN WITH REDUCER
		CHECK VALVE		FD	FLOOR DRAIN
		GLOBE VALVE	X		FIXTURE UNIT (WATER SUPPLY OR WASTE)
	WHA	WATER HAMMER ARRESTOR			
		TEST CONNECTION			
PIPING					
	CW	COLD HARD WATER PIPING	—P—	P	PROCESS SEWER PIPING
	HW	HOT WATER PIPING	—LS—	LS	LOW STRENGTH PROCESS SEWER PIPING
	HWR	HOT WATER RETURN PIPING	—HS—	HS	HIGH STRENGTH PROCESS SEWER PIPING
—S—	SOFT	COLD SOFT WATER PIPING	—ST—	ST	STORM PIPING
—140S—	140 HWS	140° HOT WATER PIPING	—OF—	OF	OVERFLOW CONDUCTOR PIPING
—140R—	140 HWR	140° HOT WATER RETURN PIPING		V	VENT PIPING
-HP-CW-	HP CW	HIGH PRESSURE COLD WATER SUPPLY	—AW—	AW	ACID WASTE PIPING
-HP-HW-	HP HW	HIGH PRESSURE HOT WATER SUPPLY	—AV—	AV	ACID VENT PIPING
-HP-HWR-	HP HWR	HIGH PRESSURE HOT WATER RETURN	—CLW—	CLW	CLEARWATER DRAIN PIPING
-NP-CW-	NP	NON-POTABLE WATER PIPING	—CLV—	CLV	CLEARWATER VENT PIPING
-NP-HW-	NP HW	NON-POTABLE HOT WATER	—G—	G	GAS PIPING
-NP-HWR-	NP HWR	NON-POTABLE HOT WATER RETURN	—A—	AIR	AIR PIPING
—TW—	TW	TEMPERED WATER PIPING	—HS—	HS	HYDRAULIC SUPPLY PIPING
—SA—	SA	SANITARY SEWER PIPING	—HR—	HR	HYDRAULIC RETURN PIPING
—GW—	GW	GREASE WASTE PIPING	—NIT—	NIT	NITROGEN PIPING
—F—	F	FILTERED WATER PIPING	—CO2—	CO2	CARBON DIOXIDE PIPING
MISCELLANEOUS					
	EL	ELEVATION			DETAIL OR SECTION NUMBER SHEET NUMBER
ABBREVIATIONS					
	AFF	ABOVE FINISHED FLOOR		OC	ON CENTER
	AFG	ABOVE FINISHED GRADE		PC	PLUMBING CONTRACTOR
	BJ	BETWEEN JOISTS		RC	REFRIGERATION CONTRACTOR
	EC	ELECTRICAL CONTRACTOR		RI	ROUGH IN
	FPC	FIRE PROTECTION CONTRACTOR		TJ	THRU JOISTS
	GC	GENERAL CONTRACTOR / CONSTRUCTION MANAGER		TTS	TIGHT TO STRUCTURE
	HC	HVAC CONTRACTOR		TYP	TYPICAL
	IE	INVERT ELEVATION		VTR	VENT THRU ROOF
	NIC	NOT IN CONTRACT		WP	WEATHER PROOF
	NTS	NOT TO SCALE			
FIRE RATED WALLS					
		FIRE - 1 HOUR			FIRE - 3 HOUR
		FIRE - 2 HOUR			FIRE - 4 HOUR

SHEET INDEX

NUMBER	SHEET NAME
PLUMBING	
P0.1	LEGEND AND SPECIFICATIONS
PD1.U	UNDERGROUND PLAN - DEMOLITION
PD1.1	FIRST FLOOR PLAN - DEMOLITION
P1.U	UNDERGROUND PLAN
P1.1	FIRST FLOOR PLAN
P2.0	ISOMETRICS AND SCHEDULES
P3.0	DETAILS
P4.0	SCHEDULES
P4.1	SCHEDULES

PLUMBING LEGEND AND SPECIFICATIONS

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PROJECT INFORMATION

PROPOSED BUILDING RENOVATION
HAWAIIAN BROS - STR: 43
1401 GRINDSTONE PKWY • COLUMBIA, MO 65201

PROFESSIONAL SEAL

SHEET DATES
SHEET ISSUE OCT. 26, 2021
REVISIONS

JOB NUMBER
2164120

SHEET NUMBER
P0.1

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DEMOLITION PLAN NOTES

- ALL PIPING AND FIXTURES SHOWN "HEAVY DASHED" ARE TO BE DEMOLISHED.
- ALL PIPING AND FIXTURES SHOWN "LIGHTER" ARE EXISTING TO REMAIN.
- COORDINATE DEMOLITION OF EXISTING PIPING TO BE REMOVED WITH GC
- NO EXISTING PLANS OF UNDERGROUND PIPING EXIST. PIPING SHOWN IS ENGINEER'S ESTIMATION OF ROUTING. FIELD VERIFY LOCATIONS OF EXISTING PIPE MAINS. REUSE ANY PIPING OF SUFFICIENT SIZE IN GOOD CONDITION. REROUTE AS REQUIRED BY ACTUAL CONDITIONS.
- WHERE EXISTING PIPING IS SHOWN TO BE REMOVED, CAP BRANCH PIPE IF NOT BEING USED FOR NEW CONSTRUCTION.

NORTH

UNDERGROUND PLAN - DEMOLITION

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

4' 0' 4' 8'

PLUMBING UNDERGROUND PLAN - DEMOLITION

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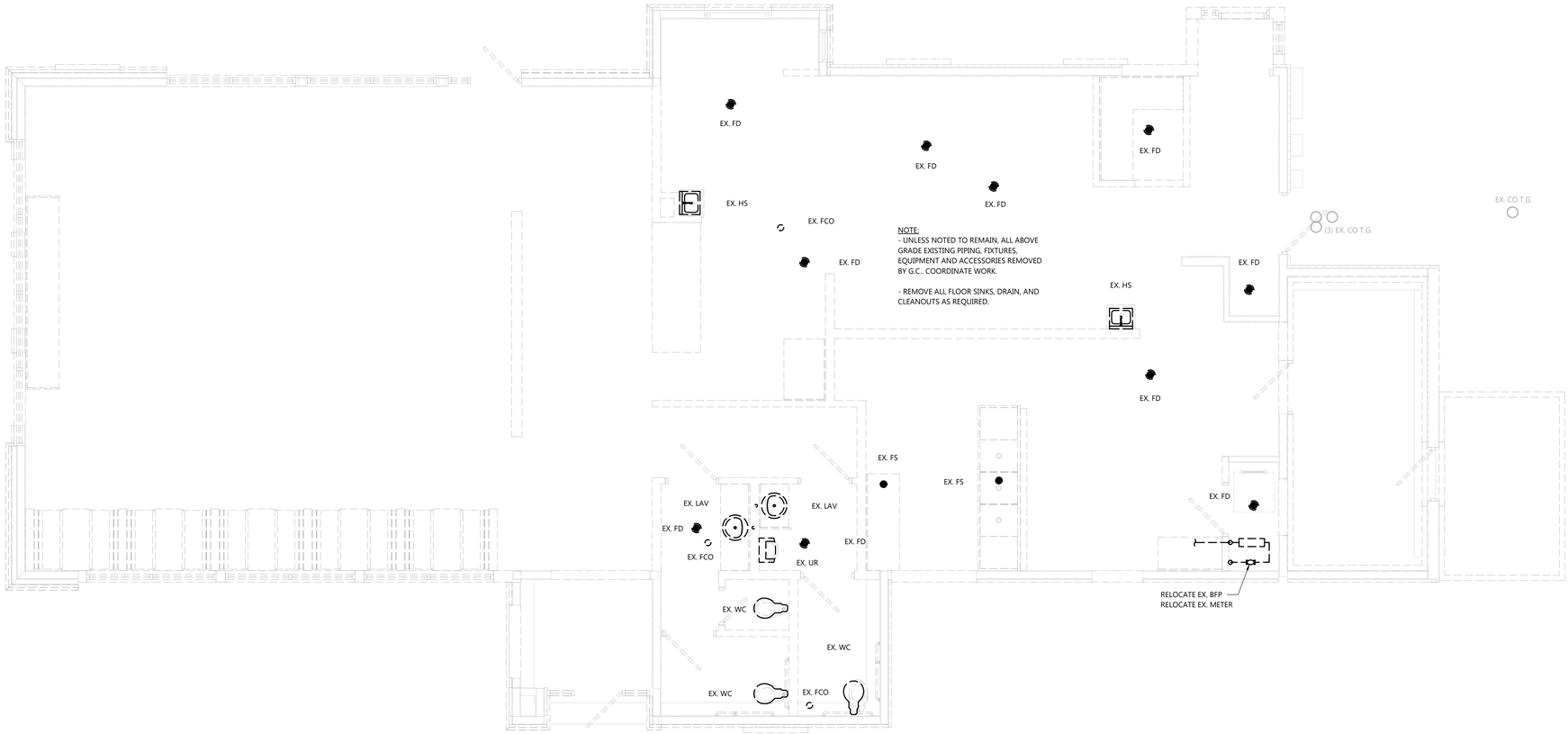
DEMOLITION PLAN NOTES

- ALL PIPING AND FIXTURES SHOWN "HEAVY DASHED" ARE TO BE DEMOLISHED.
- ALL PIPING AND FIXTURES SHOWN "LIGHTER" ARE EXISTING TO REMAIN.
- COORDINATE DEMOLITION OF EXISTING PIPING TO BE REMOVED WITH GC
- NO EXISTING PLANS OF UNDERGROUND PIPING EXIST. PIPING SHOWN IS ENGINEER'S ESTIMATION OF ROUTING. FIELD VERIFY LOCATIONS OF EXISTING PIPE MAINS. REUSE ANY PIPING OF SUFFICIENT SIZE IN GOOD CONDITION. REROUTE AS REQUIRED BY ACTUAL CONDITIONS.
- WHERE EXISTING PIPING IS SHOWN TO BE REMOVED, CAP BRANCH PIPE IF NOT BEING USED FOR NEW CONSTRUCTION.



NORTH

FLOOR PLAN - DEMOLITION

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

4' 0' 4' 8'

PLUMBING FIRST FLOOR PLAN - DEMOLITION

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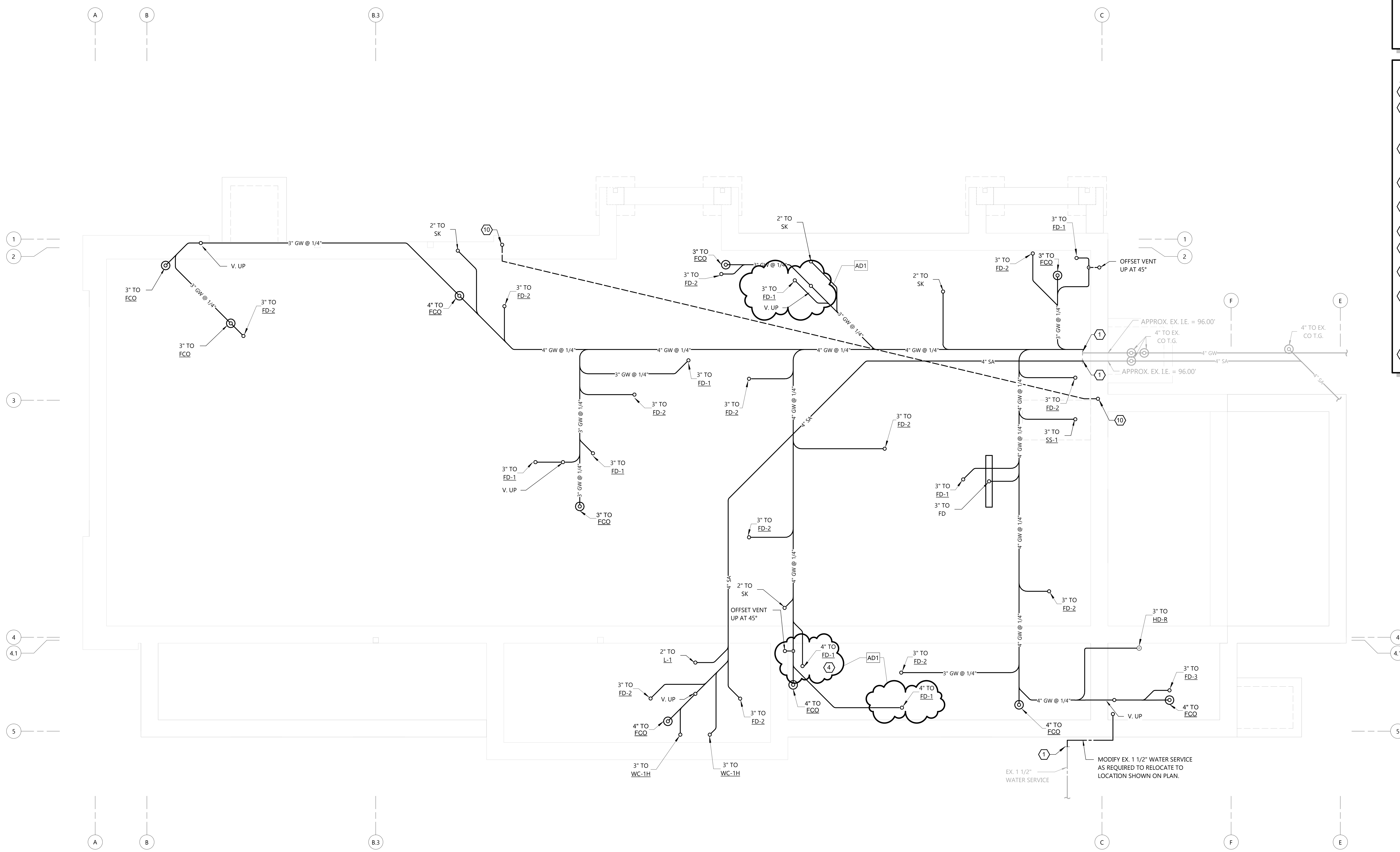

UNDERGROUND PLAN

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

GENERAL NOTES:

- FIELD VERIFY EXISTING UNDERGROUND PIPING LOCATION, DEPTH AND SIZE AT POINT OF CONNECTION AND THAT NEW PIPE ROUTE IS CLEAR OF UTILITIES AND OTHER OBSTRUCTIONS PRIOR TO INSTALLATION OF ANY UNDERGROUND PIPING. NO UNDERGROUND BUILDING DRAIN PIPING SHALL BE INSTALLED UNTIL BUILDING SEWERS ARE BROUGHT TO THE BUILDING AND INVERT ELEVATIONS VERIFIED. COSTS INCURRED FOR FAILURE TO DO SO SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
- ALL PIPING IS TO BE CONCEALED. IF BUILDING CONSTRUCTION DOES NOT PERMIT CONCEALING PIPING, LOCATIONS AND ROUTING ARE TO BE APPROVED BY ARCHITECT/OWNER PRIOR TO INSTALLATION.
- INSTALL CLEANOUTS AT STACKS WHICH PENETRATE THE LOWEST FLOOR LEVEL 28" AFF UNLESS NOTED OTHERWISE.
- FLOOR AND WALL CLEANOUT LOCATIONS NOT PERMITTED TO BE MOVED WITHOUT APPROVAL OF ARCHITECT/ENGINEER.
- SEE ARCHITECTURAL A5 SHEETS FOR ADA RELATED INSTALLATION DETAILS.
- INSTALL DOWNSPOUT NOZZLE AT 18" A.F.F..

KEYNOTES:

1. CONNECT TO EXISTING.
2. 6" SCHEDULE 40 PVC WITH 24" SWEEP ELBOWS. COORDINATE SIZE AND TERMINATION LOCATION WITH BEVERAGE VENDOR PRIOR TO ROUGH-IN. PROVIDE OPEN FITTINGS WHERE REWQUIRED BY BEVERAGE VENDOR FOR TUBE PULL ACCESS.
3. EVAPORATOR CONDENSATE. SEE WALK-IN DRAIN LINE DETAIL ON KITCHEN EQUIPMENT SHEET QF300 FOR MORE INFORMATION.
4. PROVIDE CAST IRON P-TRAP AND PIPING 15' DOWNSTREAM OF DISHWASHER TERMINATION.
5. INTAKE AND EXHAUST FLUES UP TO VENTS THRU ROOF. INSTALL PER MANUFACTURER REQUIREMENTS.
6. SEE WATER SOFTENER PIPING DETAIL FOR CONTINUATION.
7. SEE INSTANTANEOUS WATER HEATER PIPING DETAIL FOR CONTINUATION.
8. EASIWASH UNIT. UNIT IS EQUIPPED WITH AN INTERNAL AIR GAP, FLOAT FILL, AND OVERFLOW PORT. NO BFP REQUIRED.
9. PROVIDE 2" PVC CONDUIT THROUGH WALL/FLOOR FOR EASIWASH HOSE AND CABLE. HOSE AND CABLE PROVIDED BY KITCHEN EQUIPMENT CONTRACTOR. COORDINATE OPEN FITTING LOCATIONS FOR HOSE/ CABLE PULL BY KITCHEN EQUIPMENT CONTRACTOR. VERIFY WALL TERMINATION REQUIREMENTS PRIOR TO TURN OVER.
10. 2" CONDUIT THROUGH FLOOR FOR EASIWASH SYSTEM HOSE AND CABLE. ALL BENDS SHALL BE MINIMUM OF 24" SWEEP.

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PLUMBING UNDERGROUND PLAN

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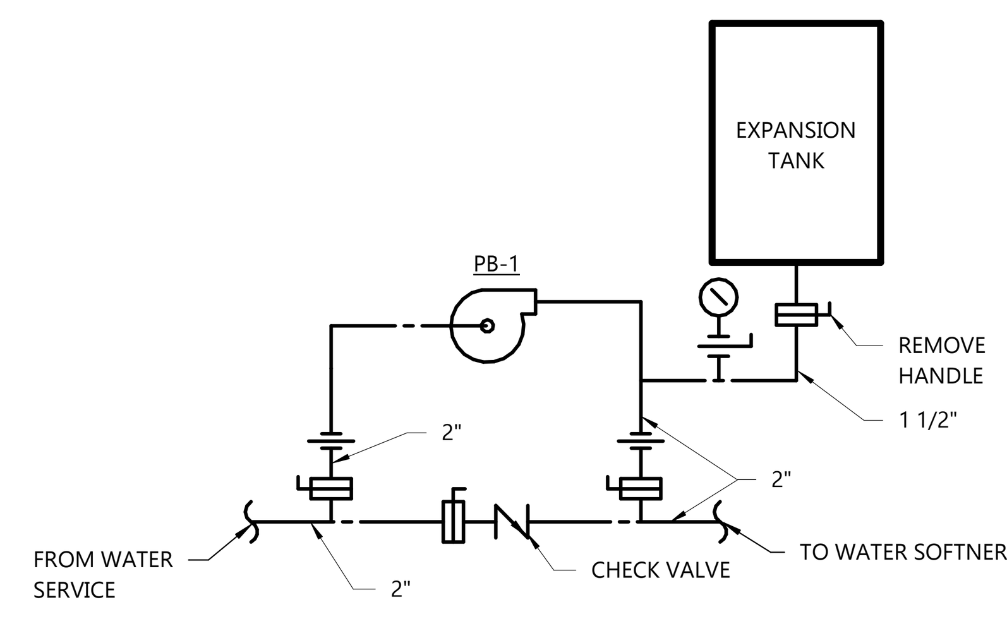
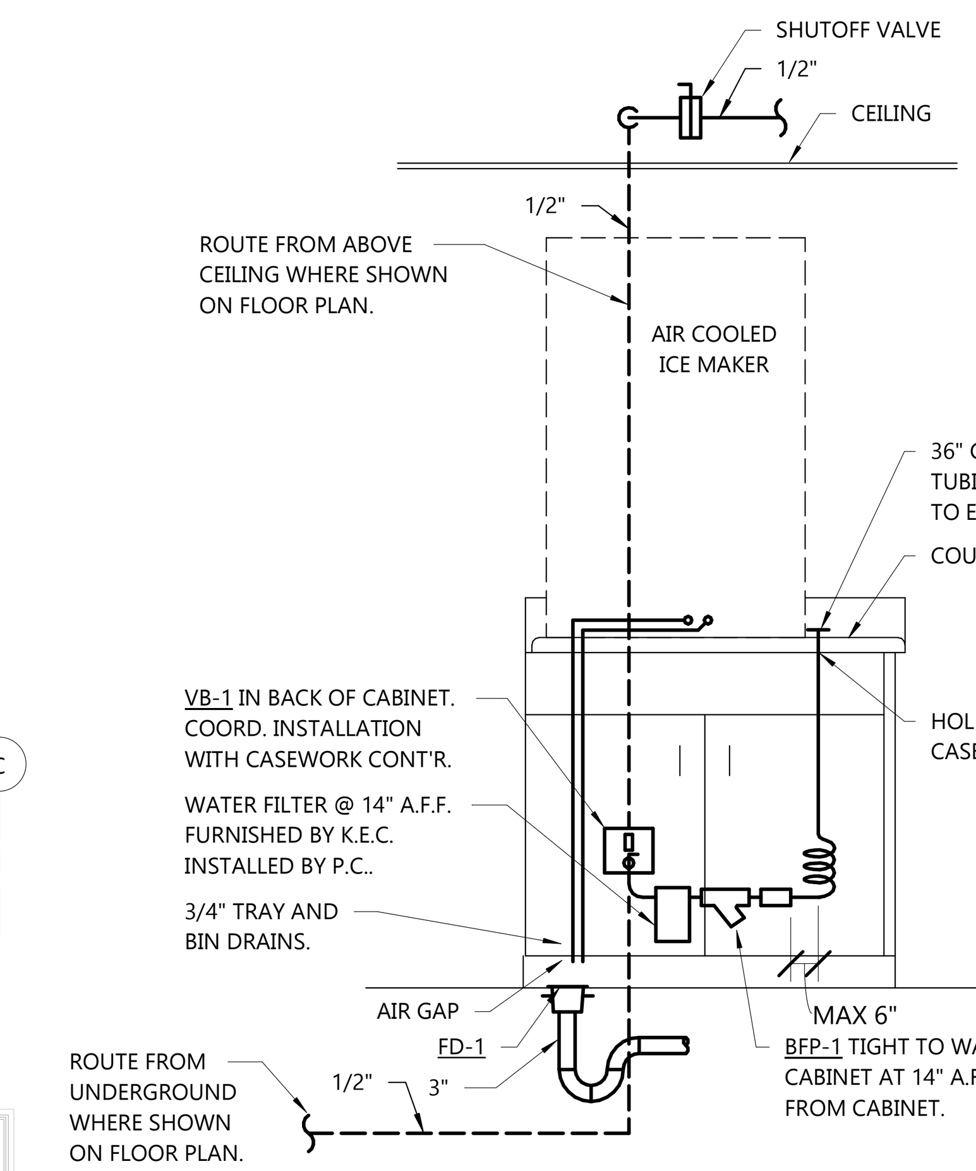
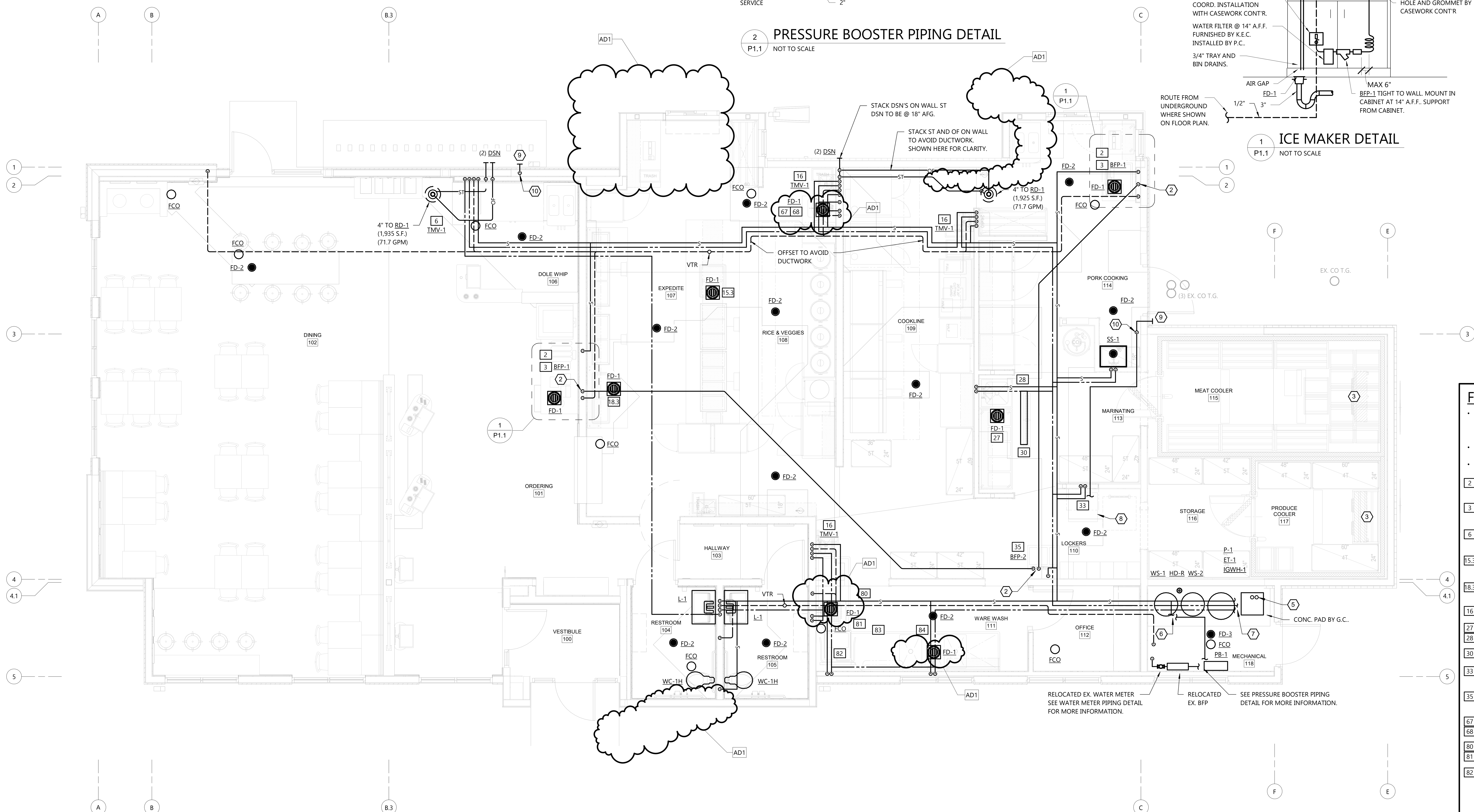


2 P1.1 **PRESSURE BOOSTER PIPING DETAIL**
NOT TO SCALE



1 P1.1 **ICE MAKER DETAIL**
NOT TO SCALE



FIRST FLOOR PLAN
SCALE: 1/4" = 1'-0"
NORTH
8' 0' 8' 16'

GENERAL NOTES:

- FIELD VERIFY EXISTING UNDERGROUND PIPING LOCATION, DEPTH AND SIZE AT POINT OF CONNECTION AND THAT NEW PIPE ROUTE IS CLEAR OF UTILITIES AND OTHER OBSTRUCTIONS PRIOR TO INSTALLATION OF ANY UNDERGROUND PIPING. NO UNDERGROUND BUILDING DRAIN PIPING SHALL BE INSTALLED UNTIL BUILDING SEWERS ARE BROUGHT TO THE BUILDING AND INVERT ELEVATIONS VERIFIED. COSTS INCURRED FOR FAILURE TO DO SO SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
- ALL PIPING IS TO BE CONCEALED. IF BUILDING CONSTRUCTION DOES NOT PERMIT CONCEALING PIPING, LOCATIONS AND ROUTING ARE TO BE APPROVED BY ARCHITECT/OWNER PRIOR TO INSTALLATION.
- INSTALL CLEANOUTS AT STACKS WHICH PENETRATE THE LOWEST FLOOR LEVEL 28" AFF UNLESS NOTED OTHERWISE.
- FLOOR AND WALL CLEANOUT LOCATIONS NOT PERMITTED TO BE MOVED WITHOUT APPROVAL OF ARCHITECT/ENGINEER.
- SEE ARCHITECTURAL A5 SHEETS FOR ADA RELATED INSTALLATION DETAILS.
- INSTALL DOWNSPOUT NOZZLE AT 18" A.F.F..

KEYNOTES:

1. CONNECT TO EXISTING.
2. 6" SCHEDULE 40 PVC WITH 24" SWEEP ELBOWS. COORDINATE SIZE AND TERMINATION LOCATION WITH BEVERAGE VENDOR PRIOR TO ROUGH-IN. PROVIDE OPEN FITTINGS WHERE REWQUIRED BY BEVERAGE VENDOR FOR TUBE PULL ACCESS.
3. EVAPORATOR CONDENSATE. SEE WALK-IN DRAIN LINE DETAIL ON KITCHEN EQUIPMENT SHEET QF300 FOR MORE INFORMATION.
4. PROVIDE CAST IRON P-TRAP AND PIPING 15' DOWNSTREAM OF DISHWASHER TERMINATION.
5. INTAKE AND EXHAUST FLUES UP TO VENTS THRU ROOF. INSTALL PER MANUFACTURER REQUIREMENTS.
6. SEE WATER SOFTENER PIPING DETAIL FOR CONTINUATION.
7. SEE INSTANTANEOUS WATER HEATER PIPING DETAIL FOR CONTINUATION.
8. EASIWASH UNIT. UNIT IS EQUIPPED WITH AN INTERNAL AIR GAP, FLOAT FILL, AND OVERFLOW PORT. NO BFP REQUIRED.
9. PROVIDE 2" PVC CONDUIT THROUGH WALL/FLOOR FOR EASIWASH HOSE AND CABLE. HOSE AND CABLE PROVIDED BY KITCHEN EQUIPMENT CONTRACTOR. COORDINATE OPEN FITTING LOCATIONS FOR HOSE/ CABLE PULL BY KITCHEN EQUIPMENT CONTRACTOR. VERIFY WALL TERMINATION REQUIREMENTS PRIOR TO TURN OVER.
10. 2" CONDUIT THROUGH FLOOR FOR EASIWASH SYSTEM HOSE AND CABLE. ALL BENDS SHALL BE MINIMUM OF 24" SWEEP.

FOOD SERVICE EQUIPMENT NOTES:

- XX = EQUIPMENT NUMBER FROM KITCHEN PLAN. EQUIPMENT FURNISHED BY OWNER, ROUGH-INS AND FINAL CONNECTIONS BY P.C.. SEE KITCHEN EQUIPMENT PLAN SHEET QF300 AND QF400 FOR MORE INFORMATION.
- MODIFY FLOOR SINK GRATES AS REQUIRED FOR DRAINS.
- CUT INDIRECT KITCHEN WASTE DRAINS AT 45° ANGLE AT DISCHARGE.

2	ICE MACHINE - PROVIDE 1/2" CW DN TO VB-1. PROVIDE 1/2" FILTERED FROM ITEM 3 AT 14" A.F.F.. PROVIDE BFP-2 AND INDIRECT WASTE TO FD-1.
3	WATER FILTER - PROVIDE 3/4" CW AT 14" A.F.F.. ROUTE FILTERED PIPING TO ITEM 2.
6	HAND SINK - FURNISHED BY KEC. INSTALLED BY P.C.. PROVIDE ALL ACCESSORIES FOR A COMPLETE INSTALLATION.
15.3	DOUBLE COLD WELL - P.C. SHALL EXTEND 1" INDIRECT WASTE FROM COLD WELL TO FLOOR SINK BY AIR GAP.
18.3	DOUBLE COLD WELL - P.C. SHALL EXTEND 1" INDIRECT WASTE FROM COLD WELL TO FLOOR SINK BY AIR GAP.
16	WALL MOUNT HAND SINK - INSTALLED BY P.C..
27 28	PREP TABLE W/ SINK AND FAUCET - PROVIDE 1/2" CW & HW AT 14" A.F.F.. PROVIDE INDIRECT WASTE TO FD-1.
30	TRENCH DRAIN - INSTALLED BY P.C..
33	EASIWASH - TERMINATE 1/2" CW & HW AT 3-4" FROM CEILING FOR EXTENSION BY EQUIPMENT VENDOR.
35	BAG AND BOX - PROVIDE 3/4" CW AT 60" A.F.F.. VERIFY ROUGH-IN REQUIREMENTS WITH EQUIPMENT VENDOR. PROVIDE BFP-2.
67 68	WORK TABLE W/ SINK AND FAUCET - PROVIDE 1/2" CW & HW AT 14" A.F.F.. PROVIDE INDIRECT WASTE TO FD-1.
80 81	PRE-RINSE SINK AND FAUCET - PROVIDE 1/2" CW & HW AT 14" A.F.F.. PROVIDE INDIRECT WASTE TO FD-1.
82	DISHWASHER - PROVIDE 1/2" CW & HW AT 60" A.F.F.. FIELD VERIFY ROUGH-IN REQUIREMENTS WITH MANUFACTURER'S SHOP DRAWINGS. P.C. SHALL CONNECT DRAIN TEMPERING KIT. FURNISHED BY EQUIPMENT VENDOR. PROVIDE BFP'S AS REQUIRED BY CODE. PROVIDE INDIRECT WASTE TO FD-1.
83 84	3 COMPARTMENT SINK - INSTALLED BY P.C. PROVIDE INDIRECT WASTE TO FD-1.

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PROJECT INFORMATION

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P1.1

PLUMBING FIRST FLOOR PLAN

GENERAL NOTES:

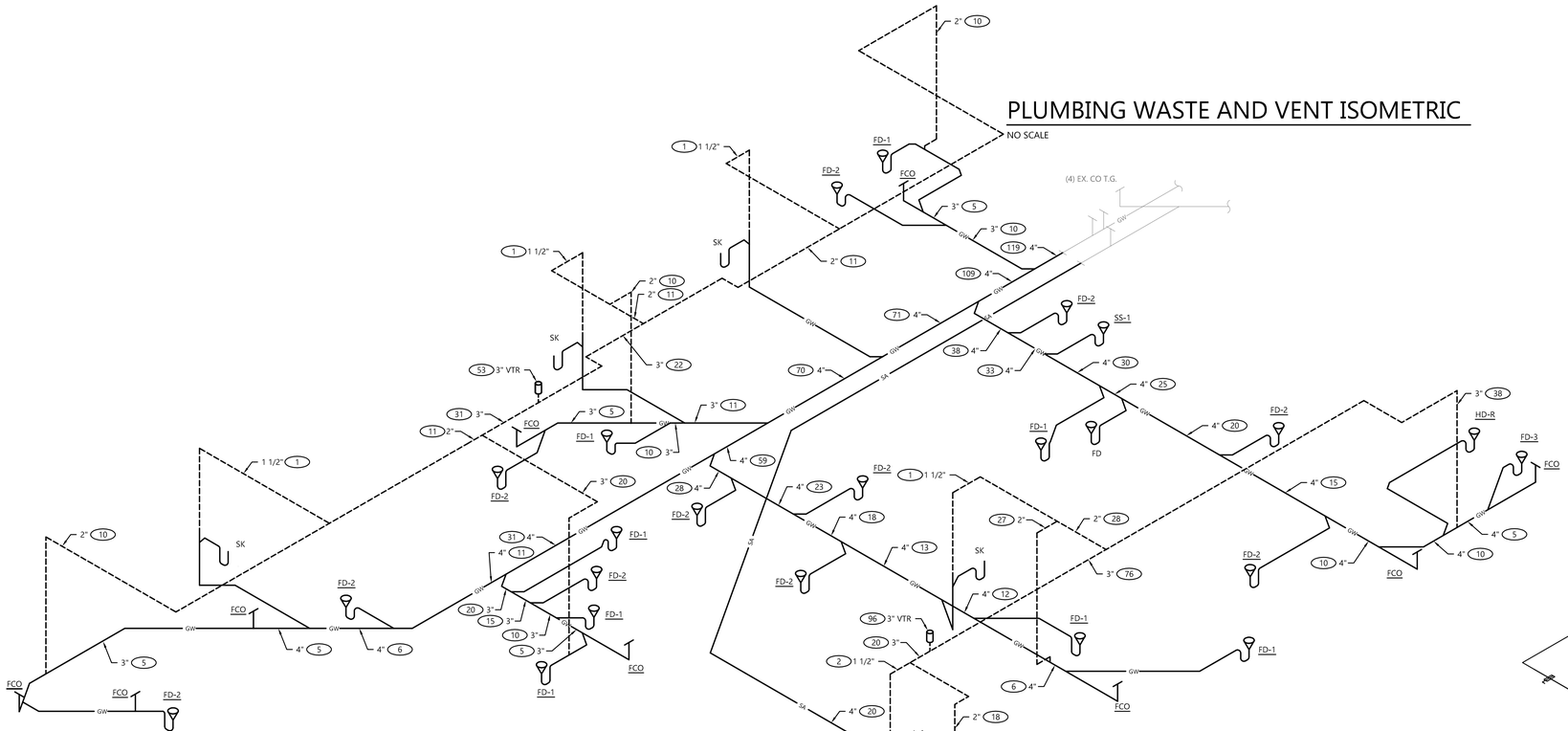
- SEE UNDERGROUND PLAN AND FIXTURE UNIT SCHEDULE FOR RUNOUT TRAP SIZE TO FIXTURE.
- SEE FIXTURE UNIT SCHEDULE THIS SHEET FOR RUNOUT PIPING SIZE TO FIXTURE
- PIPING SIZED BASED ON TYPE L COPPER TUBING. IF CPVC OR PEX IS SUBSTITUTED RESIZE PER TABLE IN WATER CALCULATIONS.

KEYNOTES:

(1) CONNECT TO EXISTING.

PLUMBING WASTE AND VENT ISOMETRIC

NO SCALE



FIXTURE UNITS

NO.	FIXTURE	WASTE UNITS	WASTE TOTAL	WASTE TRAP SIZE	COLD WATER UNITS	COLD WATER TOTAL	COLD WATER BRANCH SIZE	HOT WATER UNITS	HOT WATER TOTAL	HOT WATER BRANCH SIZE	TOTAL WATER UNITS	TOTAL WATER TOTAL
1	BAG IN BOX	-	-	-	0.5	0.5	1/2"	-	-		0.5	0.5
2	ICE MAKER	-	-	-	0.5	1	1/2"	-	-		0.5	1
1	EASI-WASH	-	-	-	3	3	1/2"	3	3	1/2"	4	4
1	DISHWASHER	-	-	-	4	4	3/4"	4	4	3/4"	4	4
21	FLOOR DRAIN- 3"	5	105	3"	-	-	-	-	-	-	-	-
2	FLOOR DRAIN- 4" & LARGER	6	12	4"	-	-	-	-	-	-	-	-
1	HUB DRAIN - 3"	5	5	3"	-	-	-	-	-	-	-	-
2	LAV	1	2	1 1/4"	1.5	3	1/2"	1.5	3	1/2"	2	4
1	SINK- DOLE WHIP	1	1	1 1/4"	1.5	1.5	1/2"	1.5	1.5	1/2"	2	2
1	SINK- PREWASH	-	-	-	3	3	1/2"	3	3	1/2"	4	4
2	SINK- PREP	-	-	-	3	6	1/2"	3	6	1/2"	4	8
1	SINK- 3-COMP	-	-	-	3	3	1/2"	3	3	1/2"	4	4
3	SINK- HAND WASH	1	3	1 1/4"	1.5	4.5	1/2"	1.5	4.5	1/2"	2	6
1	SINK- SERVICE- 3"	3	3	3"	2.25	2.25	1/2"	2.25	2.25	1/2"	3	3
2	WATER CLO- FLUSHOMETER	4	8	-	10	20	1"	-	-	-	10	20
42	**TOTAL**		**139**			**51.75**			**30.25**			**60.5**

WATER CALCULATIONS

WATER PRESSURE DATA

1	ASSUMED STATIC PRESSURE AT MAIN	60 PSIG
2	ASSUMED RESIDUAL PRESSURE AT MAIN	50 PSIG
3	ASSUMED RESIDUAL FLOW AT MAIN	1000 GPM
4	BUILDING FIXTURE UNITS	60.5 F.U.
5	PREDOMINATE FLUSH TYPE	VALVE
6	CONTINUOUS FLOW GPM	0 GPM
7	BUILDING DEMAND	54.0 GPM
8	RESIDUAL PRESSURE AT BUILDING DEMAND	60.0 PSIG
9	SAFETY FACTOR	0 PSIG
10	PRESSURE AVAILABLE FOR DOMESTIC USE	60.0 PSIG

WATER SERVICE AND DISTRIBUTION SIZING DATA

11	ELEVATION OF RESIDUAL TEST HYDRANT	100.00 FEET
12	ELEVATION OF WATER METER	105.00 FEET
13	ELEVATION DIFFERENCE TEST HYDRANT TO METER	5.00 FEET
14	WATER METER SIZE	1 INCHES
15	DEVELOPED LENGTH MAIN TO METER	95 FEET
16	WATER SERVICE SIZE	1 1/2 INCHES

PRESSURE AVAILABLE AFTER METER

17	PRESSURE DROP BETWEEN MAIN AND METER	10.16 PSIG/100'
18	FRICTION PRESSURE LOSS BETWEEN MAIN AND METER	9.7 PSIG
19	ELEVATION PRESSURE LOSS BETWEEN MAIN AND METER	2.2 PSIG
20	METER PRESSURE LOSS	7 PSIG
21	BACKFLOW PREVENTER PRESSURE LOSS	13 PSIG
22	PRESSURE AVAILABLE AFTER METER	28.1 PSIG
23	ADDITIONAL PRESSURE DUE TO BOOSTER PUMP	35 PSIG
25	AVAILABLE BUILDING WATER PRESSURE	63.1 PSIG

WATER DISTRIBUTION SIZING - COLD WATER

A	AVAILABLE BUILDING WATER PRESSURE	63.1 PSIG																
B	START POINT TAG (SEE ISOMETRIC FOR TAG LOCATION)	METER							A									
C	DIST. PREVIOUS START POINT TO THIS START POINT				WSFU				10 FT			WSFU						
D	UNIFORM LOSS PREV. START POINT TO THIS START POINT				Copper		CPVC		PEX	0 PSIG/100'		Copper		CPVC		PEX		
E	PIPE PRESSURE DROP FROM METER TO START POINT			Pipe	Flush	Flush	Flush	Flush	Flush	Flush	0.0 PSIG		Flush	Flush	Flush	Flush	Flush	Flush
F	CONTROLLING FIXTURE: ID:	WC-1H		size	tank	valve	tank	valve	tank	valve	6		tank	valve	tank	valve	tank	valve
	ROOM NAME & NO.:	RESTROOM "104"		1/2	5.0	NP	3.0	NP	3.0	NP	DOLE WHIP "106"		1/2	5	NP	3	NP	3	NP
	PRESSURE REQUIRED	25 PSIG		3/4	16.5	4.0	12.5	4.0	6.0	NP	8 PSIG		3/4	16.5	4	12.5	4	6	NP
G	ELEV. DIFF. BETW. METER AND CONTROLLING FIXTURE	2 FEET		1	31.0	6.5	24.0	5.5	20.5	4.5	2 FEET		1	31	6.5	24	5.5	20.5	4.5
H	PRESSURE LOSS DUE TO WATER SOFTENER	9 PSIG		1 1/4	58.0	15.0	41.0	8.0	34.0	7.0	9 PSIG		1 1/4	58	15	41	8	34	7
I	PRESSURE LOSS DUE TO MIXING VALVE	0 PSIG		1 1/2	107.0	37.0	68.0	19.0	55.0	13.5	4 PSIG		1 1/2	107	37	68	19	55	13.5
J	PRESSURE AVAILABLE FOR PIPING PRESSURE DROP	28.3 PSIG		2	260.0	136.0	171.0	73.0	135.0	53.0	41.3 PSIG		2	260	136	171	73	135	53
K	DEVELOPED LENGTH START PT. TO CONTR. FIXTURE	60 FEET		2 1/2	469.0	356.0	385.0	255.0			85 FEET		2 1/2	469	356	385	255		
L	EQUIVALENT LENGTH START PT. TO CONTR. FIXTURE	90 FEET		3	752.0	698.0	655.0	572.0			128 FEET		3	752	698	655	572		
M	PRESSURE AVAILABLE FOR UNIFORM LOSS	31.40 PSIG/100'		4	1792.0	1792.0	1094.0	1094.0			32.36 PSIG/100'		4	1792	1792	1094	1094		

WATER DISTRIBUTION SIZING - HOT WATER

A	AVAILABLE BUILDING WATER PRESSURE	63.1 PSIG																
B	START POINT TAG (SEE ISOMETRIC FOR TAG LOCATION)	METER							A									
C	DIST. PREVIOUS START POINT TO THIS START POINT				WSFU				275 FT			WSFU						
D	UNIFORM LOSS PREV. START POINT TO THIS START POINT				Copper		CPVC		PEX	0 PSIG/100'		Copper		CPVC		PEX		
E	PIPE PRESSURE DROP FROM METER TO START POINT			Pipe	Flush		Flush		Flush	0.0 PSIG		Flush		Flush		Flush		
F	CONTROLLING FIXTURE: ID:	16		size	tank		tank		tank	33		tank	valve	tank	valve	tank	valve	
	ROOM NAME & NO.:	COOKLINE "109"		1/2	3.5		2.5		2.5	LOCKERS "110"		1/2	5.0		3.0		3.0	
	PRESSURE REQUIRED	8 PSIG		3/4	13.0		9.5		4.0	8 PSIG		3/4	16.5		12.5		6.0	
G	ELEV. DIFF. BETW. METER AND CONTROLLING FIXTURE	3 FEET		1	30.0		21.5		17.5	2 FEET		1	31.0		24.0		20.5	
H	PRESSURE LOSS DUE TO WATER SOFTENER	9 PSIG		1 1/4	58.0		41.0		34.0	9 PSIG		1 1/4	58.0		41.0		34.0	
I	PRESSURE LOSS DUE TO MIXING VALVE	4 PSIG		1 1/2	107.0		68.0		55.0	0 PSIG		1 1/2	107.0		68.0		55.0	
J	PRESSURE AVAILABLE FOR PIPING PRESSURE DROP	40.8 PSIG		2	260.0		171.0		135.0	45.3 PSIG		2	260.0		171.0		135.0	
K	DEVELOPED LENGTH START PT. TO CONTR. FIXTURE	275 FEET		2 1/2	469.0		385.0			55 FEET		2 1/2	469.0		385.0			
L	EQUIVALENT LENGTH START PT. TO CONTR. FIXTURE	413 FEET		3	752.0		655.0			83 FEET		3	752.0		655.0			
M	PRESSURE AVAILABLE FOR UNIFORM LOSS	9.90 PSIG/100'		4	1792.0		1094.0			54.86 PSIG/100'		4	1792.0		1094.0			

MAX. DISTANCE OF HW BRANCH PIPING OFF RECIRC LOOP (FT)

MATERIAL	BRANCH SIZE	FIXTURE FLOW (GPM) 0.5	1	1.5	2	2.2	2.5
TYPE L COPPER	1/2"	14	25	25	25	25	25
TYPE L COPPER	3/4"	7	13	20	25	25	25
PEX	1/2"	18	25	25	25	25	25
PEX	3/4"	9	18	25	25	25	25
CPVC	1/2"	19	25	25	25	25	25
CPVC	3/4"	8	17	25	25	25	25

NOT ALL FIXTURE FLOWS MAY BE ON PROJECT.

PLUMBING WATER ISOMETRIC

NO SCALE

PLUMBING ISOMETRICS AND SCHEDULES

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PROJECT INFORMATION

PROPOSED BUILDING RENOVATION
HAWAIIAN BROS - STR: 43
1401 GRINDSTONE PKWY • COLUMBIA, MO 65201

PROFESSIONAL SEAL

SHEET DATES

ISSUE DATE OCT. 26, 2021

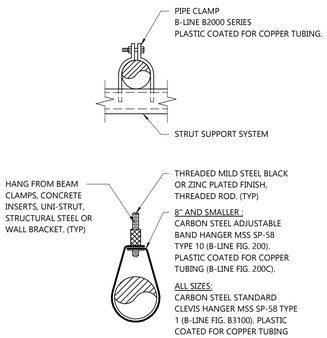
REVISIONS

JOB NUMBER

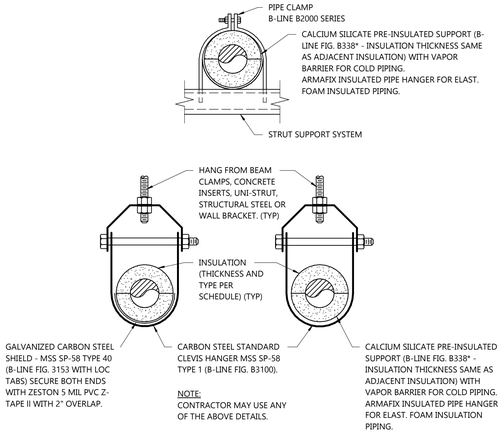
2164120

SHEET NUMBER

P2.0



4 P3.0 UNINSULATED PIPE HANGER DETAIL
NOT TO SCALE



3 P3.0 INSULATED PIPE HANGER DETAILS
NOT TO SCALE

MAX. SPACING BETWEEN PIPE SUPPORTS AND MIN. HANGER ROD SIZES

PIPE SIZE	STEEL			COPPER		PVC	PEX	MIN. ROD	
	WATER	VAPOR	NAT. GAS	WATER	VAPOR	CPVC		METAL PIPE	PLASTIC PIPE
1/4"-1/2"	7'	8'	6'	5'	6'	4'	32"	3/8"	3/8"
3/4"	7'	9'	8'	5'	7'	4'	32"	3/8"	3/8"
1"	7'	9'	8'	6'	8'	4'	32"	3/8"	3/8"
1 1/4"	7'	9'	10'	7'	9'	4'	32"	3/8"	3/8"
1 1/2"	9'	12'	10'	8'	10'	4'	32"	3/8"	3/8"
2"	10'	12'	10'	8'	11'	4'	32"	3/8"	3/8"
2 1/2"	11'	12'	10'	9'	12'	4'	32"	3/8"	3/8"
3"	12'	12'	10'	10'	12'	4'	32"	3/8"	3/8"
4"	12'	12'	10'	12'	12'	4'	-	3/8"	3/8"
6"	12'	12'	10'	12'	12'	4'	-	3/8"	3/8"
8"	12'	12'	-	-	-	4'	-	1/2"	3/8"
10"	12'	12'	-	-	-	4'	-	1/2"	3/8"
12"	12'	12'	-	-	-	4'	-	5/8"	3/8"
14"	12'	12'	-	-	-	4'	-	5/8"	3/8"
16"	12'	12'	-	-	-	4'	-	3/4"	3/8"
MAX VERT. (1)	15'	15'	-	10'	10'	10'	4'	-	-

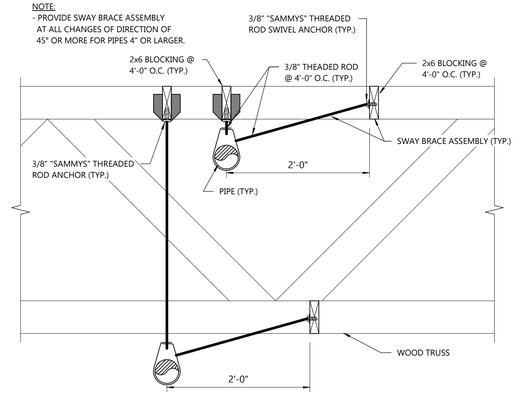
(1) SUPPORT AT MINIMUM EVERY FLOOR LEVEL OR SPACING LISTED.
MSS = MANUFACTURER'S STANDARDIZATION SOCIETY
- INSTALL ADDITIONAL HANGERS WITHIN 12" OF ELBOWS AND TEES AND AT CONCENTRATED LOADS, INCLUDING VALVES, FLANGES AND STRAINERS 2 1/2" AND LARGER.

MAX. HANGER ROD CAPACITY

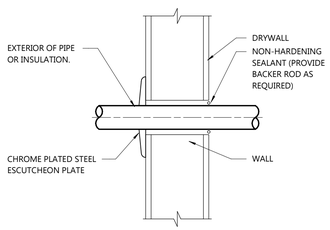
ROD DIA.	MAX LOAD (1)
3/8"	600#
1/2"	1,100#
5/8"	1,800#
3/4"	2,700#

(1) MAX LOAD IS WEIGHT ALLOWED PER EACH ROD.

2 P3.0 PIPE SUPPORT AND HANGER ROD SCHEDULE
NOT TO SCALE



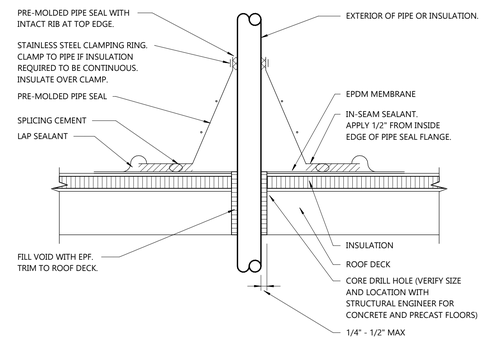
1 P3.0 TRUSS HANGER CONNECTION DETAIL
NOT TO SCALE



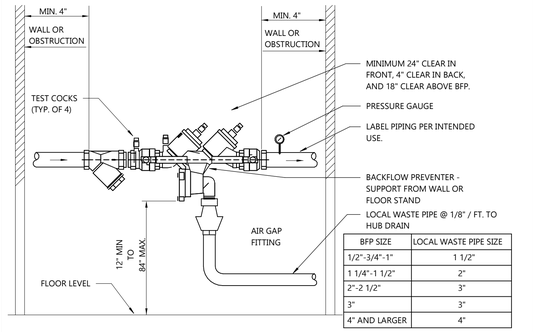
EXPOSED IN FINISHED ROOMS

CONCEALED SIDE OF WALL, EXPOSED IN MECH. EQUIP. ROOM, OR OUTDOORS

8 P3.0 PIPE PENETRATION THRU STUD WALL
NOT TO SCALE

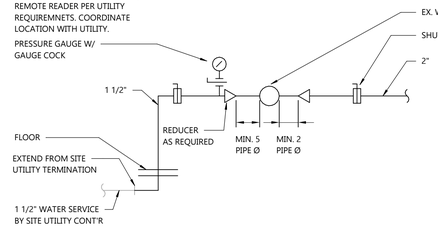


7 P3.0 ROOF PIPE BOOT PENETRATION DETAIL
NOT TO SCALE

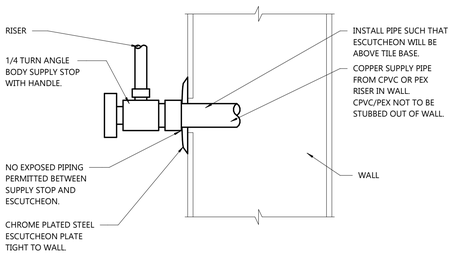


BFP SIZE	LOCAL WASTE PIPE SIZE
1/2"-3/4"-1"	1 1/2"
1 1/4"-1 1/2"	2"
2"-2 1/2"	3"
3"	3"
4" AND LARGER	4"

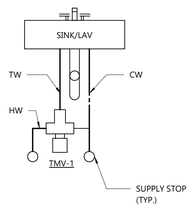
6 P3.0 BACKFLOW PREVENTER DETAIL
NOT TO SCALE



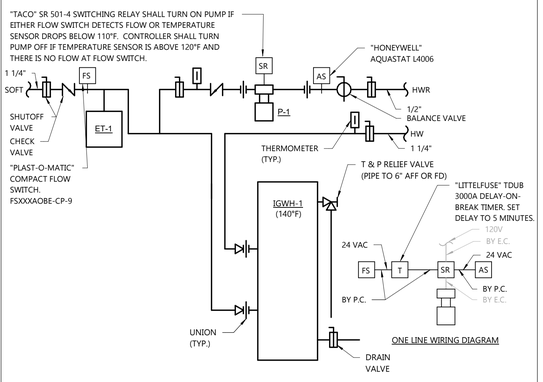
5 P3.0 WATER METER PIPING DETAIL
NOT TO SCALE



12 P3.0 ANGLE STOP DETAIL
NOT TO SCALE

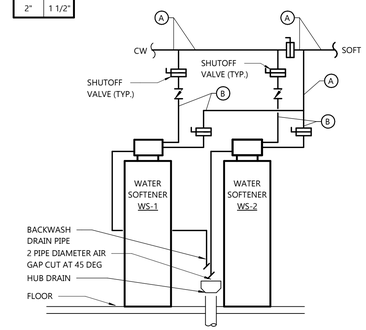


11 P3.0 TMV-1 DETAIL
NOT TO SCALE



10 P3.0 INSTANTANEOUS WATER HEATER PIPING DETAIL
NOT TO SCALE

PIPE SIZE (INCHES)	
A	B
2"	1 1/2"



9 P3.0 WATER SOFTENER DETAIL
NOT TO SCALE

PLUMBING DETAILS

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PROFESSIONAL SEAL

SHEET DATES
SHEET ISSUE OCT. 26, 2021
REVISIONS

JOB NUMBER
2164120

SHEET NUMBER
P3.0

PIPE SCHEDULE

SERVICE	LOCATION	PIPE SIZE	COPPER – C12200 TUBE: ASTM B88 TYPE L HARD DRAWN	COPPER – FITTINGS: ASME B16.15 CAST BRONZE THREADED (1)	COPPER – FITTINGS: ASME B16.18 CAST COPPER SOLDER (1)	COPPER – FITTINGS: ASME B16.51 COPPER PRESS FITTINGS WITH EPDM O-RINGS (4)	COPPER – FITTINGS: ASTM B-88 CDA 89833 CAST OR ASTM B-75 C12200 WROT COPPER ALLOY GROOVED FITTING. (5)	COPPER – FITTINGS: ASME B16.22 WROUGHT COPPER SOLDER (2)	COPPER – JOINTS: LEAD FREE SOLDER	COPPER – JOINTS: COLD PRESS MECH. JOINT (4)	COPPER – JOINTS: COUPLING JOINT (5) (6)	PEX – PIPE: ASTM F876, F877, F2023	PEX – FITTINGS: ASTM F1960, F2159	PEX – JOINTS: PER MFR REQUIREMENTS
WATER	ABOVE GROUND	ALL	X	X	X	X	X	X	X	X	X	X	X	X
OVERFLOW DRAIN	ABOVE GROUND	ALL												
SANITARY, STORM AND CLEAR WATER	ABOVE GROUND	ALL												
DRAIN AND VENT	UNDER BUILDING	ALL												
COMM. DISH, PAN, UTENSIL WASHER DRAIN AND WASTE (VENT PIPING PER SAN. DRAIN)	WITHIN 15' OF HUB													

SERVICE	PVC – PIPE: SCH. 40 PRESSURE RATED ASTM D1785	PVC – PIPE: DWV NON-PRESS. RATED ASTM F891	PVC – PIPE: SCH. 40 NON-PRESS. RATED ASTM D1784, D2665	PVC – FITTINGS: SCH. 40 ASTM D 2466	PVC – FITTINGS: SCH. 80 ASTM D 2467	PVC – FITTINGS: SCH. 40 DWV ASTM D2665	PVC – FITTINGS: SDR 35 ASTM D3034	PVC – JOINT: ASTM F656 PRIMER, ASTM D2564 SOLVENT CEMENT
WATER								
OVERFLOW DRAIN		X				X		X
SANITARY, STORM AND CLEAR WATER		X				X		X
DRAIN AND VENT	X		X			X		X
COMM. DISH, PAN, UTENSIL WASHER DRAIN AND WASTE (VENT PIPING PER SAN. DRAIN)								

SERVICE	CPVC – PIPE: SCHEDULE	CPVC – PIPE: ASTM D2846 - SDR 11	CPVC – PIPE: ASTM D1784 CLASS 23447, F441	CPVC – FITTING: ASTM D1784, F2618	CPVC – FITTING: ASTM D1784, F439	CPVC – JOINT: SOLVENT CEMENT ASTM F493	CPVC – JOINT: SOLVENT CEMENT ASTM F493, NSF 14	CAST IRON – PIPE & FITTING: HUBLESS ASTM A888, CISPI 301	CAST IRON – PIPE & FITTING: BELL AND SPIGOT ASTM A74 SERVICE WEIGHT	CAST IRON – JOINTS: ASTM C1277, CISPI 310 STD. S.S. CLAMP & SHIELD. ASTM C564 RUBBER GASKET.	CAST IRON – JOINTS: ASTM C1540, CISPI 310 HEAVY DUTY S.S. CLAMP & SHIELD. ASTM C564 RUBBER GASKET.
WATER	(16)	X	X		X		X				
OVERFLOW DRAIN											
SANITARY, STORM AND CLEAR WATER								X		<=4"	>4"
DRAIN AND VENT								X	X	<=4"	>4"
COMM. DISH, PAN, UTENSIL WASHER DRAIN AND WASTE (VENT PIPING PER SAN. DRAIN)								X	X	<=4"	>4"

- ALL MATERIALS SHALL COMPLY WITH LASTEST VERSION OF LISTED STANDARD. ALL IMPORTED MATERIAL SHALL BE CERTIFIED BY A DOMESTIC THIRD PARTY FOR COMPLIANCE WITH STANDARD.

(1) LEAD-FREE DEZINCIFICATION-RESISTANT (DZR) BRASS ALLOY C87850 PER ASTM B584

(2) LEAD-FREE PER ASTM B75 ALLOY C12200

(4) INSTALL PER MANUFACTURER'S INSTRUCTIONS. 50 YEAR WARRANTY AGAINST MANUFACTURING DEFECTS.

(5) INSTALL PER MANUFACTURER'S INSTRUCTIONS. 10 YEAR WARRANTY AGAINST MANUFACTURING DEFECTS.

(6) GRINNELL FIG 6400 OR EQUIVALENT. DUCTILE IRON ASTM A536 GRADE 65-45-12 HOUSING WITH COPPER ACRYLIC ENAMEL COATING, BOLTS CONFORMING TO SAE J429 GRADE 5 WITH ASTM A563 GRADE A HEX NUTS (BOTH ZINC PLATED), GRADE "EP" EPDM (COPPER COLOR CODE) NSF 61 APPROVED COMPOUND GASKET SUITABLE FOR WATER TEMPERATURE.

(16) PIPING SHALL BE SCH. 80 SPEARS EVERTUFF FOR 2 1/2" THROUGH 4" SIZES. GREATER THAN 4" CPVC NOT PERMITTED.

WATER SOFTENER SCHEDULE (WS)

NO.	WATER HARD-NESS	MINERAL TANK FLOW GPM	MINERAL TANK P.D. PSI	MINERAL TANK SIZE DIA x HT	MINERAL TANK BACK-WASH	MINERAL TANK RESIN CU. FT.	MINERAL TANK METER SIZE	MINERAL TANK METER P.D.	BRINE TANK CAPACITY GRAINS	BRINE TANK CAPACITY @ LBS	BRINE TANK SIZE DIA x HT	BRINE TANK DRY SALT STORAGE	MODEL	REMARKS
1	11	32	9	21" x 62"	9 GPM	5	1.5"	0.6	140,000	50	24" x 50"	750	H151-150-21	HELLENBRAND
2	11	32	9	21" x 62"	9 GPM	5	1.5"	0.6	140,000	50	-	-	H151-150-21	HELLENBRAND

- ACCEPTABLE MANUFACTURERS: ADDIE, HELLENBRAND, CULLIGAN, WATER CONTROL, WATER-RIGHT.
- PROVIDE COMPLETE FILL OF BRINE TANK AT PROJECT COMPLETION.
- PROVIDE "SYSTEMMATE" ELECTRONIC DEMAND RECALL CONTROLLER/METER AT EACH MINERAL TANK. PROGRAM FOR IMMEDIATE REGENERATION AND TO PREVENT BOTH UNITS FROM REGENERATING AT THE SAME TIME.

EXPANSION TANK SCHEDULE (ET)

NO.	MOUNTING	TANK TYPE	CONN. SIZE	TANK CAP. (GAL.)	ACCEPT. CAPACITY (GAL.)	PRECHARGE PRESSURE (PSIG)	WORKING PRESS (PSIG)	DIA.	HEIGHT	WEIGHT FILLED (LBS.)	MODEL	REMARKS
1	PIPE	DIAPHRAGM	3/4"	4.8	2.2	70	150	11"	14.5"	29	PH 12	FLEXCON

- ACCEPTABLE MANUFACTURERS: FLEXCON, AMTROL, WESSELS, ZILMET.

LAVATORY SCHEDULE (L)

NO.	MOUNTING	OVERALL SIZE	FAUCET CENTERS	CARRIER	LAV MODEL	DRAIN TYPE	DRAIN MODEL	SUPPLY STOP TYPE	SUPPLY STOP MODEL	FAUCET TYPE	FAUCET GPM	FAUCET MODEL
1	WALL HUNG	30" x 21"	6"	YES	BRADLEY LVQD1	(1)	-	HANDLE	BRASSCRAFT OCR1912AZX C	SENSOR	0.5	BRADLEY WB1 (2)

- ACCEPTABLE MANUFACTURERS:
  - -LAV: TOTO, KOHLER, AMERICAN STANDARD, CRANE, ELJER, MANSFIELD, BRADLEY.
  - -FAUCETS: KOHLER, SYMMONS, CHICAGO, AMERICAN STANDARD, DELTA, ZURN, HYDROTEK, BRADLEY.
  - -DRAINS AND TRAPS: KOHLER, DEARBORN, KEENEY, MCGUIRE, BRASSCRAFT.
  - -STOPS AND SUPPLIES: KOHLER, BRASSCRAFT, DEARBORN, KEENEY, MCGUIRE.
  - -CARRIERS AND SUPPORTS: ANCON, JOSAM, SMITH, WADE, ZURN.
- ALL WETTED PARTS SHALL BE LEAD FREE COMPLIANT.
- WALL HUNG LAVS WITH BACKSPLASH. MOUNT TOP OF RIM AT 34" A.F.F. WITH CONCEALED CARRIER.
- FAUCETS WITH VANDAL RESISTANT AERATOR.

(1) DRAIN IS INTEGRAL WITH BASIN.

(2)HARD WIRE POWER SUPPLY. PROVIDE WITH BRADLEY S59-2007 TMV WITH INTEGRAL CHECK VALVES COMPLYING WITH ASSE 1016 AND 1070.

SERVICE SINK SCHEDULE (SS)

NO.	MOUNTING	BASIN MAT'L	BASIN SIZE	BASIN RIM GUARD	BASIN MODEL	FAUCET PIPING EXPOSURE	FAUCET BACKFLOW PREVENTER	FAUCET GPM	FAUCET MFR/MODEL
1	FLOOR	DURASTONE	24"x24"x10"	(1)	MUSTEE 63M	CONCEALED	WATTS SERIES 8	5-7	CHICAGO 305

- ACCEPTABLE MANUFACTURERS:
  - -BASIN: MUSTEE, FIAT, KOHLER, WILLIAMS.
  - -FAUCET: CHICAGO, DELTA, KOHLER, AMERICAN STANDARD, SYMMONS. T&S BRASS.
  - -DRAINS AND TRAPS: KOHLER, DEARBORN, KEENEY, MCGUIRE, BRASSCRAFT.
- FLOOR SERVICE SINKS WITH 3" BRASS DRAIN, STAINLESS STEEL 3 MOP HOLDER HANGER, HEAVY DUTY 5/8" DIAMETER REINFORCED RUBBER HOSE, AND STAINLESS STEEL HOSE BRACKET.

(1) BUMPER GUARDS ON EXPOSED RIMS.

THERMOSTATIC MIXING VALVE SCHEDULE (TMV)

NO.	SERVICE	INLETS	OUTLET	MAX. FLOW (GPM)	ACTUAL FLOW (GPM)	ACT. P.D. (PSI)	INLET CONDITIONS COLD (DEG F)	INLET CONDITIONS PRESS. (PSIG)	INLET CONDITIONS HOT (DEG F)	INLET CONDITIONS PRESS. (PSIG)	RECIRC RATE (GPM)	TEMP. SETTING (DEG F)	MODEL	REMARKS
1	SINK	3/8"	3/8"	3.0	2.0	4	NA	-	NA	-	NA	105	LFe480-11	POWERS (1)

- ACCEPTABLE MANUFACTURERS: LEONARD, SYMMONS, WATTS, POWERS.
- LEAD FREE BODY, REMOVABLE CARTRIDGE WITH STRAINER, STAINLESS STEEL SPRING, EPDM O-RINGS AND SOLID WAX THERMOSTAT ASSEMBLY.
- P.C. SHALL FIELD ADJUST TMV TO TEMPERATURE SETTING INDICATED IN SCHEDULE.

(1) POINT OF USE TMV SHALL COMPLY WITH ASSE 1070.

INSULATION SCHEDULE

SERVICE	LOCATION	INSULATION TYPE (1)	JACKET	PIPE SIZE <1.5"	PIPE SIZE =>1.5"
CW	GENERAL BUILDING	RIGID F.G. OR ELAST. FOAM (10)	NR	1/2"	1/2"
CW	IN WALLS	ELASTOMERIC FOAM	NR	1/2"	1/2"
CW (PEX AND CPVC)	ALL	NR	NR	NR	NR
HW, HWR (=<140°F)	GENERAL BUILDING	RIGID F.G. OR ELAST. FOAM (10)	NR	1"	1 1/2"
HW NOT ON RECIRC. LOOP	GENERAL BUILDING	RIGID F.G. OR ELAST. FOAM (10)	NR	1"	1"
HW BRANCH	IN WALLS	ELASTOMERIC FOAM	NR	1/2"	1/2"

NR = NOT REQUIRED

COLD WATER = HARD, SOFT, IRRIGATION, HOSE STATION, ETC. AT ALL PRESSURES.

HOT WATER = WATER SYSTEMS OPERATING AT TEMPERATURES GREATER THAN 105 DEG F AT ALL PRESSURES.

(1) WHERE INSULATION IS PROVIDED ON PIPING INSULATE METERS, VALVES, BACKFLOW PREVENTERS AND ALL INLINE EQUIPMENT.

(10) INSULATION NOT REQUIRED FOR EXPOSED FINAL PIPING CONNECTIONS TO FIXTURES.

ELECTRICAL/STARTER/DISCONNECT SCHEDULE

NO.	LOCATION	ELECTRICAL DATA HP	KW	AMPS	MCA	MOP	VOLT	PH.	STARTER TYPE	STARTER LOCATION	STARTER FURN. BY	STARTER ACCESS-ORIES	DISCONNECT DIS-CONNECT	DISCONNECT FURN. BY	REMARKS
IGWH-1	118	-	-	15.0	-	-	120	1	INTEG	INTEGRAL	EM	-	R	EM	-
P-1	118	-	0.052	-	-	-	120	1	RELAY	113	PC	-	NR	-	-
PB-1	118	5	-	-	-	-	230	1	INTEG	CONTR. PANEL	EM	HOA	R	EM	-
WS-1	118	-	-	-	-	-	120	1	INTEG	INTEGRAL	EM	-	NR	-	REC.
WS-2	118	-	-	-	-	-	120	1	INTEG	INTEGRAL	EM	-	NR	-	REC.
INFR WTR CONTROL (L-1)	SEE SCHED	-	FRAC.	-	-	-	120	1	-	INTEGRAL	EM	-	NR	-	REC.

STARTER TYPE:

INTEG.= INTEGRAL: PROVIDED INTEGRAL WITH EQUIPMENT.

RELAY= UL LISTED MOTOR RATED RELAY WITH SEPARATE ENTRANCES FOR INPUT AND OUTPUT CONTACTS (RIBT SERIES), OVERIDE SWITCH AND LED STATUS INDICATOR. CONTACT RATING, CONFIGURATION, AND COIL VOLTAGE SUITABLE FOR APPLICATION.

FURNISHED BY:	ACCESSORIES:	DISCONNECT:	REMARKS:
EM = EQUIPMENT MANUFACTURER	HOA = HAND-OFF-AUTO	NR= NOT REQUIRED	REC.=RECEPTACLE
PC = PLUMBING CONTRACTOR	PL = PILOT LIGHT	R = REQUIRED	S.REC.=SWITCHED RECEPTACLE
EC = ELECTRICAL CONTRACTOR	PB = PUSH BUTTON	WP= WEATHERPROOF	
HC = HEATING CONTRACTOR	2-SP = TWO SPEED	F= FUSED	
	RV = REDUCED VOLTAGE		

- ACCEPTABLE MANUFACTURERS: ALLEN BRADLEY, CUTLER HAMMER, SQUARE D, GENERAL ELECTRIC.
- VERIFY VOLTAGE AND PHASE WITH ELECTRICAL CONTRACTOR BEFORE ORDERING EQUIPMENT.
- FURNISH MOTOR STARTERS TO E.C. FOR INSTALLATION AND WIRING WHEN THE STARTER SCHEDULE CALLS FOR P.C. TO FURNISH.

INSTANTANEOUS GAS WATER HEATER SCHEDULE (IGWH)

NO.	LOC.	TYPE	COMM. WARR. (2)	GAS INPUT MBH	THERMAL EFF. %	GPM	TEMP. RISE AT FLOW	PRESSURE DROP AT FLOW	T & P REL. VALVE SETTING	MODEL	REMARKS
1	113	INSTANT	10/2 YR	499	94.0	10.5	90.0	6 PSIG	150 PSIG	In501	INTELLIHOT (3)

- ACCEPTABLE MANUFACTURERS: TAKAGI, RINNAI, BRADFORD WHITE, RHEEM, LOCHINVAR, STATE, BOCK, INTELLIHOT.

(2) HEAT EXCHANGER COIL WARRANTY / ALL OTHER PARTS WARRANTY.

(3) MULTI 316L STAINLESS STEEL HEAT EXCHANGER CONSTRUCTION WITH 16.7:1 TURNDOWN RATIO AND RECIRCULATION PUMP FOR HEAT EXCHANGERS. MASTERLESS CASCADING CONTROL SYSTEM AND ON-BOARD MULTI UNIT SEQUENCING.

CIRCULATING PUMP SCHEDULE (P)

NO.	SERVICE	FLUID TEMP F	GPM	HEAD (FT)	RPM	MOTOR H.P.	VOLT/ PHASE	MIN. EFF.	TYPE	MODEL	REMARKS
1	HOT WATER CIRC	120	5	6	2800	52 WATT	120/1	-	IN-LINE	NBF-10	B&G (1)

- ACCEPTABLE MANUFACTURERS: GRUNDFOS, B & G, ARMSTRONG, TACO, ALLIS-CHALMERS, AMTROL.
- SEE MOTOR SPECIFICATIONS FOR MOTOR REQUIREMENTS.
- LEAD FREE BRONZE BODY.

(1) PROVIDE "INTERMATIC" MODEL ST01 DIGITAL 7-DAY SWITCH TIMER TO CONTROL PUMP OPERATION.

PRESSURE BOOSTER SCHEDULE (PB)

NO.	SERVICE	PUMP TYPE	PUMP GPM	PUMP PRESSURE (PSIG)	PUMP HP	PUMP VOLT/ PHASE	PUMP MODEL	TANK TYPE	TANK WORKING PRESSURE	TANK VOLUME (GALLONS)	TANK DIAMETER X HEIGHT	TANK MODEL
1	BUILDING	SIMPLEX	54	35	5	230/1	GOULDS 5AVN12MS1J2K2 (1)	BLADDER	125 PSIG	13.9	16 x 21	GOULDS V45P

- ACCEPTABLE MANUFACTURERS: B & G, ARMSTRONG, TACO, ALLIS-CHALMERS, AMTROL, TIGERFLOW, GOULDS, QUANTUMFLO.

(1) VARIABLE FREQUENCY DRIVE SIMPLEX BOOSTER PUMP PACKAGE WITH PUMP, CONTROLLER PANEL AND PRESSURE VESSEL. SET OUTLET PRESSURE TO MAINTAIN 65 PSIG.

PLUMBING SCHEDULES

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PROJECT INFORMATION

PROPOSED BUILDING RENOVATION
HAWAIIAN BROS - STR: 43
1401 GRINDSTONE PKWY • COLUMBIA, MO 65201

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WATER CLOSET SCHEDULE (WC)

NO.	MT'G	MIN. MaP (1)	ACTUAL MaP (1)	MIN. PRESS. PSIG	FLUSH TYPE	GPF	BOWL MFR/MODEL	BOWL RIM HT. A.F.F.	BOWL PIPING CONNECTION	FLUSH VALVE TYPE	FLUSH VALVE/ SUPPLY STOP MFR/MODEL	SEAT
1H	FLOOR	800	1000	25	VALVE	1.28	ZURN Z5665-BWL1	16-3/4"	1-1/2" TOP SPUD	SENSOR BATT.	HYDROTEK HB8-128	BEMIS 1655 SSCT

- ACCEPTABLE MANUFACTURERS:
  - -BOWL: TOTO, KOHLER, AMERICAN STANDARD, CRANE, ELJER, MANSFIELD, ZURN.
  - -FLUSH VALVE: TOTO, SLOAN, ZURN, DELANY, HYDROTEK.
  - -SEAT: TOTO, KOHLER, BEMIS, SPERZEL, OLSONITE, AMERICAN STANDARD, CHURCH.
- WATER SAVING, SIPHON JET ELONGATED VITREOUS CHINA WATER CLOSET BOWL WITH WHITE SOLID PLASTIC OPEN FRONT SEAT WITH SELF-SUSTAINING CHECK HINGE.
- FLOOR SET WATER CLOSETS WITH BOLT CAPS.
- CONTROLS FOR ADA ACCESSIBLE FIXTURES SHALL BE ON THE OPEN SIDE.

(1) MAXIMUM PERFORMANCE (MaP) RATING PER VERITEC CONSULTING INC. AND KOELLER AND COMPANY. PROVIDE MaP RATING INFORMATION WITH PRODUCT SUBMITTAL.

WATER HAMMER ARRESTOR SCHEDULE (WHA)

NO.	OVERALL LENGTH	CONNECTION SIZE (NPT)	PRECHARGE PRESSURE PSI	CAPACITY CUBIC INCHES	MAX. SYSTEM PRESSURE PSIG	MODEL	MFR
A	6.25"	1/2"	60.0	5	150	SC-500A	PRECISION PLUMBING PRODUCTS
B	7.25"	3/4"	60.0	7	150	SC-750B	PRECISION PLUMBING PRODUCTS
C	9.5"	1"	60.0	11	150	SC-1000C	PRECISION PLUMBING PRODUCTS
D	9.25"	1"	60.0	20	150	SC-1250D	PRECISION PLUMBING PRODUCTS
E	11"	1"	60.0	29	150	SC-1500E	PRECISION PLUMBING PRODUCTS
F	12"	1"	60.0	36	150	SC-2000F	PRECISION PLUMBING PRODUCTS

- ACCEPTABLE MANUFACTURERS: PRECISION PLUMBING PRODUCTS, SIOUX CHIEF, WATTS, ZURN-WILKINS.
- NOT ALL WHA SCHEDULED ARE USED ON THE PROJECT.

CLEANOUT SCHEDULE

NO.	LOCATION	SIZES	BODY MAT'L	PLUG MAT'L	ACCESS COVER MAT'L	ACCESS COVER MISC.	MISC.	FIGURE	REMARKS
CO	ABV. CLGS & EXPOSED PIPE	2" - 6"	(1)	PVC	-	-	-	(1)	(1)
FCO	FINISHED ROOMS W/O CARPET (2)	2" - 6"	C.I.	PVC	N.B.	-	-	Z-1400	ZURN
FCO	FINISHED ROOMS WITH CARPET (2)	2" - 6"	C.I.	PVC	N.B.	CARPET MARKER	-	Z-1400-CM	ZURN
WCO	WALL	3" - 4"	(5)	POLY	S.S.	-	-	Z-1469	ZURN
WCO	WALL	2" & =>6"	(6)	POLY	S.S.	-	-	Z-1469	ZURN

- ACCEPTABLE MANUFACTURERS: J.R. SMITH, SCHIER, JOSAM, WADE, ZURN.
- RECESSED TAPER THREAD PLUG WITH SLOTTED RECESS.

(1) PROVIDE THREADED FEMALE ADAPTER WITH INTERNAL PLUG. ADAPTER MATERIAL SHALL MATCH PIPE MATERIAL TO WHICH CO IS BEING CONNECTED.
(2) FINISHED ROOMS ARE ROOMS WITH CARPET OR FLOOR TILE OR ROOMS ACCESSIBLE BY A DOOR LESS THAN 42" WIDE.
(5) PROVIDE "HOLDRITE" TESTRITE TEST/CLEANOUT TEE. THREADED PLUG WITH BRASS INSERT. MATERIAL SHALL MATCH PIPE MATERIAL TO WHICH TEE IS BEING CONNECTED.
(6) PROVIDE TEST/CLEANOUT TEE. THREADED PLUG WITH BRASS INSERT. MATERIAL SHALL MATCH PIPE MATERIAL TO WHICH TEE IS BEING CONNECTED.

DRAIN SCHEDULE

NO.	TYPE	APPLICATION	OUTLET SIZE	BODY MAT'L	STRAINER/TOP MAT'L	STRAINER/TOP SIZE	MISC.	MODEL	REMARKS
RD	ROOF	INSULATED ROOF	3"-8" (2)	CAST IRON	ALUM. DOME	12"	(1)	ZA-100-C-EA-R	ZURN
FD-1	FLOOR	FLOOR SINK	(2)	CAST IRON	ALUM. DOME	12" x 12"	-	861-23X	SIOUX CHIEF (19)
FD-2	FLOOR	PEDESTRIAN TRAFFIC	2"-3" (2)	CAST IRON	N. B. "TYPE B"	5" DIA	-	ZN-415-5B	ZURN (19)
FD-3	FLOOR	EQ. RM. / MED. DUTY	2"-4" (2)	CAST IRON	CAST IRON	7" DIA	-	Z-507	ZURN (19)
DSN	-	DOWNSPOUT NOZZLE	3"-10" (2)	ALUMINUM	-	-	HINGED COVER	ZF199	ZURN
HD-R	HUB DRAIN	INDIRECT WASTE	(2)	-	STUB DRAIN PIPE 2" A.F.F. AND PROVIDE 1 PIPE SIZE INCREASE ON END OF PIPE. (19)				

- ACCEPTABLE MANUFACTURERS: ZURN, J.R. SMITH, JOSAM, WADE, WATTS, SCHIER, KUSEL, SIOUX CHIEF.

(1) TOP SET DECK PLATE AND ADJUSTABLE EXTENSION 1/2" LESS THAN INSULATION THICKNESS AT ROOF DRAIN.
(2) AS NOTED ON DRAWINGS
(19) PROVIDE BARRIER TYPE INSERT DRAIN TRAP SEAL COMPLIANT WITH ASSE 1072.

BACKFLOW PREVENTER / VACUUM BREAKER SCHEDULE (BFP)

NO.	LOC.	GPM	P.D. (PSI)	INDIRECT WASTE REQ'D	SIZE	MAX. OP TEMP. DEG. F.	TYPE	MAX. HAZ.	BFP/VB PRESS.	APPLICATION	ASSE STD.	MODEL	REMARKS
1	SEE DWG	1.5	10.0	YES	3/8"	130	BFP FOR ICE MAKER	-	-	ICE MACHINE	1022	SD-3	WATTS (1)
2	LOCKERS 110	5.0	4.0	YES	3/4"	180	BFP FOR CARB. BEVERAGES	-	-	BAG-N-BOX	1013	4A-104-T2F	APOLLO (1)

- ACCEPTABLE MANUFACTURERS: WATTS, AMES, ZURN/WILKINS, APOLLO.

(1) LEAD FREE BODY.

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PLUMBING SCHEDULES

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HVAC SPECIFICATIONS

DIVISION 23 HVAC

23 05 00 BASIC HVAC REQUIREMENTS

A. SEE DIVISION 00 PROCUREMENT AND CONTRACTING AND DIVISION 01 GENERAL REQUIREMENT FOR ADDITIONAL REQUIREMENTS.
B. HVAC CONTRACTOR SHALL VERIFY REQUIREMENTS FOR TEMPORARY HEATING WITH GENERAL CONTRACTOR AND INCLUDE IN HIS SCOPE OF WORK WHEN DIRECTED BY G.C. INSTALL IN ACCORDANCE WITH ALL CODE AND OSHA REQUIREMENTS FOR CONSTRUCTION PROJECTS.
C. SUBSTITUTIONS
  1. SEE DIVISION 01 23 00 PRODUCT SUBSTITUTION PROCEDURES FOR ADDITIONAL REQUIREMENTS.
  2. CONTRACTOR SHALL PROVIDE ALL SUPPORTING DATA AND ASSUME THE BURDEN OF PROOF THAT ANY SUBSTITUTE IS EQUIVALENT AS TO APPEARANCE, CONSTRUCTION, CAPACITY, AND PERFORMANCE. THE JUDGMENT OF EQUIVALENCY SHALL BE MADE BY THE ENGINEER AT THE TIME OF SHOP DRAWING REVIEW, NOT DURING BIDDING.
  3. WHERE SUBSTITUTE EQUIPMENT REQUIRES REDESIGN OF ANY PART OF THE PROJECT, THE COST OF REDESIGN AND ADDITIONAL COSTS OF THE WORK SHALL BE PAID BY THE CONTRACTOR. REDESIGN SHALL BE SUBJECT TO THE APPROVAL OF ALL AUTHORITIES HAVING JURISDICTION OVER THE WORK INCLUDING THE ARCHITECT/ENGINEER.
  4. CONTRACTOR SHALL ASSUME ALL COORDINATION RESPONSIBILITIES FOR SUBSTITUTE EQUIPMENT INCLUDING COORDINATION ACROSS TRADES AND COORDINATION OF PREVIOUSLY REVIEWED AND APPROVED SHOP DRAWING SUBMITTALS, SHOULD THESE SHOP DRAWINGS BE AFFECTED BY THE SUBSTITUTED EQUIPMENT.
D. SHOP DRAWINGS, PRODUCT DATA, TEST RESULTS, PROJECT CLOSEOUT DOCUMENTS:
  1. SEE DIVISION 01 33 23 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES FOR ADDITIONAL REQUIREMENTS
  2. CONSTRUCTION ADMINISTRATION SUBMITTAL LIST:
    a. DUCTWORK
    b. DUCTWORK ACCESSORIES
    c. INSULATION
    d. KITCHEN DUCTWORK
    e. PIPING
    f. PIPE HANGERS
    g. VALVES
    h. GRILLES
    i. FANS
    j. ELECTRIC WALL HEATERS
    k. GAS PRESSURE REGULATORS
    l. ROOFTOP AIR CONDITIONING UNITS
    m. TEST AND BALANCE REPORT
  3. PROJECT CLOSEOUT
    a. PROVIDE HVAC EQUIPMENT OPERATING AND MAINTENANCE MANUALS TO THE OWNER PER IECC C303.3 AND C408.2.5.1.
    b. AS-BUILT DRAWINGS SHALL BE MARKED ON A FINAL SET OF DRAWINGS WHICH INCLUDES ALL REVISIONS.
E. FINISHING AND PAINTING
  1. SEE DIVISION 09 91 00 FINISH AND PAINTING FOR ADDITIONAL REQUIREMENTS.
  2. PREPARE EXPOSED PIPE, FITTINGS, SUPPORTS, AND ACCESSORIES FOR FINISH PAINTING IN ROOMS THAT WILL HAVE CEILING AND STRUCTURE PAINTED.
  3. COORDINATE WORK WITH THE PAINTERS SO THAT ALL EQUIPMENT IS INSTALLED PRIOR TO PAINTING. H.C. SHALL PAINT ITEMS IF NOT IN PLACE PRIOR TO NORMAL ROUTINE PAINTING.
  4. IF FINISH BECOMES RUSTED, CORRODED, SCRATCHED, OR FLAKED DURING STORAGE OR INSTALLATION, REFINISH THE EQUIPMENT TO THE SATISFACTION OF THE OWNER.
  5. WHERE THE HEATING CONTRACTOR IS REQUIRED TO PAINT, THE PAINTING SHALL BE DONE IN ACCORDANCE WITH THE PAINTING PORTION OF THE ARCHITECTURAL SPECIFICATION.
F. DETAILS AND SCHEDULES ARE SHOWN TO AID THE CONTRACTOR AND ARE NOT MEANT TO BE INCLUSIVE OF ALL DEVICES. PROVIDE REQUIRED EQUIPMENT AND ACCESSORIES FOR A COMPLETE INSTALLATION.
G. INSTALL ALL EQUIPMENT PER MANUFACTURER'S INSTALLATION INSTRUCTIONS AND REQUIREMENTS. PROVIDE ADDITIONAL WORK AND MATERIALS AS REQUIRED.
H. COORDINATE INSTALLATION OF HVAC WORK WITH THE OTHER CONTRACTORS TO AVOID CONFLICTS WITH OTHER WORK.
I. VERIFY CONNECTION REQUIREMENTS FOR EQUIPMENT FURNISHED BY OTHERS WITH FINAL SHOP DRAWINGS.
J. PROVIDE ALL CUTTING AND PATCHING NECESSARY FOR HVAC WORK INSTALLATION UNLESS THIS WORK IS IDENTIFIED TO BE THE WORK OF OTHER CONTRACTORS. PATCHING SHALL MATCH ADJACENT SURFACES.
K. REMOVE HVAC DUCTWORK, PIPING, EQUIPMENT, ETC. INDICATED BY THE DRAWINGS TO BE DEMOLISHED FROM THE JOB SITE, UNLESS INDICATED TO BE TURNED OVER TO THE OWNER.
L. PROJECT COMPLETION
  1. INSTALL CLEAN SET OF FILTERS IN ALL UNITS AT TIME OF TESTING AND BALANCING.
  2. CLEAN GRILLES AND EQUIPMENT AND LEAVE IN PROPER WORKING CONDITION AT THE TIME OF FINAL CLEAN-UP.
  3. PROVIDE OPERATING INSTRUCTIONS FOR A TOTAL OF FOUR (4) HOURS. MAINTAIN A RECORD OF OPERATING INSTRUCTION PERIODS AND OBTAIN OWNER SIGNOFF THAT INSTRUCTIONS HAVE BEEN COMPLETED.
M. ACCESS
  1. FURNISH ACCESS PANELS OF ADEQUATE SIZE TO PERMIT SERVICE OF EQUIPMENT, VALVES, OR OTHER SPECIALTIES WHICH REQUIRE MAINTENANCE OR ADJUSTMENT WHICH ARE INSTALLED BEHIND WALLS OR ABOVE CEILING SURFACES.
  2. PANELS SHALL BE SUITABLE FOR INSTALLATION IN THE MATERIAL FORMING THE FINISHED SURFACE, WITH FLANGED FLUSH METAL FRAME, FLUSH HINGED STEEL DOOR, FLUSH SCREWDRIVER OPERATED LATCH.
  3. PANELS UL LISTED TO CONFORM TO THE FIRE RATING OF THE SURFACE INSTALLED IN.
  4. TURN ACCESS PANEL OVER TO CONTRACTOR SKILLED IN THE CONSTRUCTION OF THE SURFACES INVOLVED FOR INSTALLATION.
  5. ARCHITECT TO APPROVE ACCESS PANEL LOCATION PRIOR TO INSTALLATION OF EQUIPMENT REQUIRING ACCESS.
  6. COORDINATE WITH THE OTHER CONTRACTORS AND WHEREVER PRACTICAL, GROUP DEVICES IN SUCH A MANNER SO AS TO MINIMIZE PANELS.
N. GAS SERVICE
  1. COORDINATE INSTALLATION OF GAS SERVICE WITH GAS UTILITY. CONTACT GAS UTILITY TO ARRANGE SERVICE AND ASSIST OWNER IN APPLYING FOR NEW SERVICE.
  2. GAS SERVICE COST BY OWNER.

23 05 13 MOTORS AND ELECTRICAL WORK

A. MOTORS
  1. MANUFACTURERS: GENERAL ELECTRIC, LOUIS ALLIS, MARATHON, AND BALDOR.
  2. MOTORS LESS THAN 250 WATTS: EQUIPMENT MANUFACTURER'S STANDARD AND NEED NOT CONFORM TO THESE SPECIFICATIONS.
  3. OPEN DRIP-PROOF TYPE EXCEPT TOTALLY ENCLOSED FAN COOLED FOR THE FOLLOWING MOTORS:
    a. EXTERIOR LOCATIONS
    b. WHERE NOTED ON EQUIPMENT SCHEDULES
  4. DESIGN FOR CONTINUOUS OPERATION IN 40 DEGREES C ENVIRONMENT AND FOR TEMPERATURE RISE IN ACCORDANCE WITH NEMA MG 1 LIMITS.
  5. SINGLE PHASE POWER (PERMANENT-SPLIT CAPACITOR MOTORS) WITH STARTING TORQUE EXCEEDING ONE FOURTH OF FULL LOAD TORQUE AND STARTING CURRENT UP TO SIX TIMES FULL LOAD CURRENT. CLASS A (50 DEGREES C TEMPERATURE RISE) INSULATION, MINIMUM 1.0 SERVICE FACTOR, PRELUBRICATED SLEEVE OR BALL BEARINGS, AUTOMATIC RESET OVERLOAD PROTECTOR.
  6. THREE PHASE POWER (SQUIRREL CAGE MOTORS) WITH STARTING TORQUE BETWEEN 1 AND 1-1/2 TIMES FULL LOAD TORQUE AND STARTING CURRENT SIX TIMES FULL LOAD CURRENT. NEMA DESIGN B MOTOR AND INSULATION SYSTEM. MINIMUM 1.15 SERVICE FACTOR FOR OPEN DRIP-PROOF MOTORS, 1.0 (MINIMUM) FOR OTHER TYPES. MINIMUM 85% NOMINAL POWER FACTOR UNDER RATED LOAD CONDITIONS. GREASE LUBRICATED ANTI-FRICTION BALL BEARINGS, RATED FOR MINIMUM AFBMA 9, L-10 LIFE OF 200,000 HOURS.
B. STARTERS
  1. SEE ELECTRICAL STARTER DISCONNECT SCHEDULE ON PLANS.

23 05 29 PIPE AND EQUIPMENT HANGERS AND SUPPORTS

A. MANUFACTURERS: B-LINE, EMPIRE INDUSTRIES, GLOBAL PIPE HANGER PRODUCTS, GRINNELL, NATIONAL PIPE HANGER, UNI STRUT.
B. HOT DIP GALVANIZED HANGERS, RODS, AND ACCESSORIES AFTER FABRICATION WHICH ARE EXPOSED TO WEATHER.
C. ANGLES, CHANNELS, AND BEAMS: ASTM A36 AND A572 AS REQUIRED.
D. HANGERS SHALL NOT BE ATTACHED TO JOIST BRIDGING.
E. PIPE HANGERS AND SUPPORTS
  1. SEE DETAILS ON PLANS FOR ADDITIONAL PIPE HANGER SPECIFICATIONS.
  2. SEE SCHEDULE ON PLANS FOR HANGER SPACING.
  3. CONFORM TO ASME B31.9 AND MANUFACTURER'S STANDARDIZATION SOCIETY (MSS) SP-58-2009.
  4. MATERIALS
  5. INSTALL HANGERS AND SUPPORTS SO PIPING LIVE AND DEAD LOADS AND STRESSES FROM MOVEMENT WILL NOT BE TRANSMITTED TO CONNECTED EQUIPMENT. ADJUST HANGERS TO DISTRIBUTE LOADS EQUALLY ON ATTACHMENTS AND TO PROVIDE INDICATED PIPE SLOPES.

23 07 00 INSULATION

A. GENERAL
  1. SEE INSULATION SCHEDULES ON PLANS FOR ADDITIONAL INFORMATION.
  2. INSULATION, INSULATION SYSTEM AND JACKETS SHALL MEET UL-723/ASTM E84 REQUIREMENTS OF MAX. FIRE HAZARD CLASSIFICATIONS OF 25, AND MAX. FLAME SPREAD, FUEL CONTRIBUTED, AND SMOKE DEVELOPED OF 50 WHEN INSTALLED IN A RETURN AIR PLENUM.
  3. INSTALL MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND MICA PUBLICATION "NATIONAL COMMERCIAL AND INDUSTRIAL STANDARDS", 2011 SEVENTH EDITION.
  4. CONTINUE INSULATION WITHOUT INTERRUPTIONS THROUGH WALLS AND FLOOR PENETRATIONS AND HANGERS.
B. FIBERGLASS (F.G.) INSULATION
  1. FLEX. F.G.:
    a. O.C. SOFTR DUCT WRAP, KNAUF FRIENDLY FEEL DUCT WRAP, CERTAINTEED SOFTTOUCH, JOHNS MANVILLE MICROLITE EQ FSK DUCT WRAP.
    b. GLASS FIBER INSULATION FACTORY LAMINATED TO FRK/FSK VAPOR RETARDER. LISTED THICKNESS IS NOMINAL.
    c. 0.75 LB/CU. FT., R=3.3 / NOMINAL INCH AT 75 DEG F.
    d. MAX 250 DEG F, JACKET MAX 150 DEG F, 0.02 PERM.
  2. ACOUSTICAL DUCT LINING
    a. O.C. QUIETR ROTARY DUCT LINER, KNAUF EQUIPMENT LINER M, CERTAINTEED TOUGHGARD 2, J0HNS MANVILLE LINATEX.
    b. DUCT LINER COMPLYING WITH ASTM C1071, NFPA 90A AND 90B.
    c. LININGS MUST MEET ASTM C1338, ASTM G21 FUNGI TEST AND ASTM G22 BACTERIA TEST.
    d. AIR STREAM SURFACES SHALL BE EVALUATED IN ACCORDANCE WITH THE "EROSION TEST" IN UL 181 AND SHALL NOT BREAK AWAY, CRACK, PEEL, FLAKE OFF, OR SHOW EVIDENCE OF DELAMINATION OR CONTINUED EROSION UNDER TEST CONDITIONS.
    e. EDGE COAT ALL TRANSVERSE JOINTS AND EXPOSED EDGES.
    f. R= 4.2 /INCH AT 75 DEG F.
    g. MAX 250 DEG F
C. ELASTOMERIC FOAM INSULATION
  1. SEAL BUTT JOINTS WITH ADHESIVE. INSTALL PER MANUFACTURER INSTRUCTIONS.
  2. PIPE
    a. MANUFACTURERS: AEROFLEX AEROCEL SSPT, K-FLEX INSUL-LOCK DS, ARMACELL AP/ARMAFLEX BLACK LAPSEAL.
    b. EPDM/PVC BASE ELASTOMERIC FOAM MATERIAL
    c. DUAL TAPE CLOSURE
    d. MAX. 'K' VALUE 0.245 AT 75 DEG F
    e. MAX. CONTINUOUS TEMPERATURE 220 DEG F
    f. MAX. 0.05 PERM PER ASTM E96
    g. MAX. FIRE/SMOKE DEVELOPED OF 25/50 PER ASTM E84 FOR UP TO 2" THICK.
    h. PROVIDE MANUFACTURER PREFORMED INSULATION OVER VALVES AND FITTINGS
D. FIRE RATED: THERMAL CERAMICS FASTWRAP XL COMMERCIAL KITCHEN GREASE DUCT WRAP OR EQUIVALENT GREASE DUCT ENCLOSURE COMPLYING WITH ASTM E2336. INSTALL PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
E. JACKETS
  1. PVC:
    a. ZESTON, CEELCO, PROTO LOSMOKE PVC JACKET
    b. 30 MIL WHITE PVC. MAX TEMP 150 DEG F.
    c. FULLY ADHERE JOINT WITH SOLVENT WELDED ADHESIVE. CIRCUMFERENTIAL SEAMS MINIMUM 1" OVERLAP, LONGITUDINAL SEAMS MINIMUM 1.5" OVERLAP. LOCATE JOINT AT LEAST VISIBLE SIDE OF PIPE.
    d. PROVIDE SLIP JOINTS PERIODICALLY ON LONG RUNS OF STRAIGHT PIPE BY INCREASING CIRCUMFERENTIAL OVERLAP TO MINIMUM 8" AND APPLYING A FLEXIBLE WHITE CAULKING IN THE OVERLAP AREA.
F. DUCT INSULATION REQUIREMENTS
  1. INSULATE FITTINGS, JOINTS, FLANGES, FLEXIBLE CONNECTIONS, DAMPERS, AND IN-LINE ACCESSORIES WITHOUT INTERNAL LINING/INSULATION WITH SAME MATERIAL AND THICKNESS AS SPECIFIED FOR THE DUCT SYSTEM. STOP AND POINT INSULATION AROUND ACCESS DOORS AND DAMPER OPERATORS TO ALLOW OPERATION WITHOUT DISTURBING WRAPPING.
G. PIPE INSULATION REQUIREMENTS
  1. INSULATE ENTIRE PIPING SYSTEM INCLUDING VALVES AND FITTINGS PER MICA INSULATION STANDARDS PLATES 10 THRU 18.
  2. SEAL ALL INSULATION ENDS.

AD1

23 11 23 NATURAL GAS PIPING AND ACCESSORIES

A. PIPING
  1. INSTALL, INSPECT, TEST, AND PURGE GAS PIPING IN CONFORMANCE WITH NFPA 54, UTILITY COMPANY AND ALL OTHER GOVERNING CODES.
  2. MAKE BRANCH CONNECTIONS TO THE MAIN FROM THE TOP OR SIDE.
  3. PAINTING GAS PIPING IS NOT BY HEATING CONTRACTOR. PAINTING PER SPECIFICATION 09 91 00 PAINTING.
B. GAS VALVES
  1. UL LISTED FOR USE AS NATURAL GAS SHUTOFF.
  2. BALL VALVES (MANUFACTURERS: NIBCO 585/580-70UL, WATTS B6000UL): BRONZE BODY, THREADED ENDS, CHROME PLATED BRONZE BALL, FULL/CONVENTIONAL PORT, TEFLON SEAT, BLOWOUT-PROOF STEM, TWO-PIECE CONSTRUCTION, 150 PSIG WORKING PRESSURE.
  3. PLUG VALVES (MANUFACTURERS: DEZURIK PEC, HOMESTEAD SERIES 612): CAST IRON BODY, FLANGED ENDS, BRONZE BEARINGS, ELECTROLESS NICKEL PLATED CAST IRON PLUG WITH HYCAR RESILIENT PLUG SEAL, BUNA-N STEM SEAL PACKING, LEVER ACTUATOR, 175 PSIG WOG.
C. GAS PRESSURE REGULATORS
  1. CAST IRON BODY, ALUMINUM SPRING CASE, ALUMINUM ORIFICE, BUNA-N DIAPHRAGM, INTERNAL RELIEF VALVE SET TO RELIEVE AT 7-10" W.C. ABOVE NORMAL OUTLET PRESSURE SETTING OF 7" WC., TOPCOAT ENAMEL.
  2. SENSUS MODELS 496, 61R2, 143-80, 243
  3. FOR REGULATORS INSTALLED INDOORS, PIPE THE RELIEF VALVE VENT FULL SIZE TO THE OUTSIDE OF THE BUILDING AT A NON-HAZARDOUS LOCATION. INCREASE VENT SIZE ONE PIPE SIZE IF VENT LENGTH EXCEEDS 10 FEET. TERMINATE WITH AN ELBOW DOWN WITH A SCREEN OVER THE OPENING. DO NOT COMBINE VENTS.
  4. MAXITROL 325 SERIES WITH VENT LIMITER ARE PERMITTED FOR INDOOR APPLICATIONS WHERE SUPPLYING LESS THAN 300,000 BTUH.
  5. FOR REGULATORS INSTALLED OUTDOORS, POSITION THE REGULATOR SO THE RELIEF VALVE VENT IS FACING DOWN OR INSTALL ELBOW FACING DOWN A MINIMUM 10 FEET FROM AN OUTSIDE AIR INTAKE AND 5 FEET FROM A GAS FLUE DISCHARGE.

23 31 13 DUCTWORK

A. PERFORM WORK IN ACCORDANCE WITH THE LATEST EDITIONS OF SMACNA - HVAC DUCT CONSTRUCTION STANDARDS, NFPA 90A.
B. GENERAL
  1. SEAL ALL OUTSIDE AIR DUCT JOINTS WATERTIGHT WITH SILICONE SEALANT.
  2. PAINT THE INSIDE OF ALL DUCTS VISIBLE THROUGH GRILLES IN ROOMS WITH CEILINGS WITH DULL BLACK PAINT.
  3. CERTAIN VERTICAL AND HORIZONTAL OFFSETS ARE INDICATED IN DUCTS TO INDICATE THE GENERAL POSITION RELATIONSHIP OF THE DUCTWORK SYSTEMS; PROVIDE ADDITIONAL OFFSETS AS REQUIRED TO COORDINATE WITH THE INSTALLATION OF OTHER SYSTEMS, CEILINGS AND STRUCTURE. THE DRAWINGS SHALL NOT BE SCALED TO DETERMINE EXACT LOCATION OF DUCTWORK.
  4. PROVIDE TEMPORARY CLOSURES OF METAL OR TAPED POLYETHYLENE ON OPEN DUCTWORK TO PREVENT CONSTRUCTION DUST FROM ENTERING DUCTWORK SYSTEM.
  5. LOCATE DUCTS WITH SUFFICIENT SPACE AROUND EQUIPMENT TO ALLOW NORMAL OPERATING AND MAINTENANCE ACTIVITIES.
  6. INCREASE DUCT SIZES GRADUALLY, NOT EXCEEDING 15 DEGREES WHENEVER POSSIBLE. 30 DEGREE MAXIMUM.
  7. ROUND DUCTS MAY BE SUBSTITUTED FOR RECTANGULAR IF SIZED IN ACCORDANCE WITH ASHRAE TABLES OF EQUIVALENT RECTANGULAR AND ROUND DUCTS.
C. ROUND DUCTWORK
  1. CONCEALED BRANCH DUCTWORK TO GRILLES AND DIFFUSERS MAY BE LONGITUDINAL LOCKSEAM. ALL OTHER ROUND DUCTWORK SHALL BE SPIRAL LOCKSEAM WITH FITTINGS AND COUPLINGS MINIMUM 2 GAUGES HEAVIER THAN DUCT.
D. FLEXIBLE DUCTWORK
  1. MANUFACTURERS: THERMAFLEX, FLEXMASTER, CLEVAFLEX.
  2. U.L. 181 LISTED CLASS 1 FACTORY FABRICATED FLEXIBLE AIR DUCT, COMPLY WITH NFPA 90A, FLAME SPREAD OF 25 OR LESS, SMOKE DEVELOPED RATING OF 50 OR LESS.
  3. MINIMUM PRESSURE RANGE -1/2" TO 4" W.C., TEMPERATURE RANGE 0-200 DEG F.
  4. ACOUSTIC: THERMAFLEX M-KE OR G-KM, FLEXMASTER TYPE 1 OR 6
    a. POLYETHYLENE, SPUNBOUND NYLON OR CHLORINATED POLYETHYLENE LINER.
    b. DUCTWORK TO HAVE TESTED ACOUSTICAL PERFORMANCE NOT LESS THAN 2 DB LESS THAN THE TYPES SPECIFIED.
  5. SEMI-RIGID FLEXIBLE ALUMINUM DUCTWORK NOT PERMITTED.
  6. SUPPLY DUCTWORK SHALL BE INSULATED WITH FIBERGLASS INSULATION, MINIMUM R VALUE 4, WITH VAPOR BARRIER JACKET WITH MAXIMUM 0.10 PERM RATING
  7. CONNECT TO SUPPLY DUCTWORK BY SLIDING CORE OVER COLLAR, TAPE JOINT WITH MINIMUM 3 WRAPS OF TAPE, AND APPLY METAL BAND CLAMP OR PANDUIT. FOR INSULATED DUCTWORK, PULL INSULATION AND OUTER JACKET BACK INTO POSITION, AND TAPE WITH MINIMUM 3 WRAPS OF TAPE BETWEEN FLEX DUCT AND DUCT INSULATION.
  8. CONNECT TO GRILLES AND RETURN AND TRANSFER DUCTWORK WITH METAL BAND CLAMP OR PANDUIT.
  9. MAXIMUM LENGTH FROM DUCTWORK TO GRILLES OR SLOTS 8'-0" WITH ONE 90 DEG ELBOW.
  10. DO NOT RUN THROUGH WALLS OR PARTITIONS.
E. DUCTWORK SEALANTS
  1. MANUFACTURERS: HARDCAST SURE-GRIP 404 SOLVENT BASED DUCT SEALANT OR EQUIVALENT.
    a. SYNTHETIC RUBBER RESIN BASE.
    b. -20 TO 200 DEG F.
    c. PRESSURE CLASSES UP TO 10" W.C., MEETING SEAL CLASS A.
    d. MAXIMUM FLAME SPREAD OF 25, SMOKE DEVELOPED OF 50.
    e. APPLY MINIMUM 20-MIL THICK WET FILM AT TEMPERATURES BETWEEN 35-100 DEG F.
  2. HARDCAST ALUMA-GRIP 701 OR EQUIVALENT PRESSURE SENSITIVE DUCT JOINT ROLLED SEALANT MAY BE USED IN PLACE OF MASTIC. SEALANT SHALL COMPLY WITH THE FOLLOWING:
    a. MILL FINISH ALUMINUM SUSTRATE WITH GRAY ADHESIVE.
    b. MINIMUM 30 MIL THICK

AD1

PROJECT DESIGN CRITERIA

MECHANICAL CODE **IMC 2018**
ENERGY CODE **IECC 2018**
SEISMIC DESIGN CATEGORY **C**
NEAREST ASHRAE CITY **COLUMBIA RGNL**
ELEVATION **889**

	OUTSIDE	
	DB	WB
WINTER:	2.8	N/A
SUMMER:	94.2	79.3

SHEET INDEX

NUMBER	SHEET NAME
HVAC	
H0.1	LEGEND AND SPECIFICATIONS
H0.2	SPECIFICATIONS
HD1.1	FIRST FLOOR DEMOLITION PLAN
HD1.2	ROOF DEMOLITION PLAN
H1.1	FIRST FLOOR PLAN
H1.2	ROOF PLAN
H3.0	DETAILS
H3.1	DETAILS
H4.0	SCHEDULES

LEGEND

NOTE: ALL SYMBOLS SHOWN MAY NOT APPEAR ON DRAWINGS.

SYM.	ABBR.	IDENTIFICATION	SYM.	ABBR.	IDENTIFICATION
DUCTWORK					
		DUCT (R)ISE/(D)ROP			SA OR OA DUCT DOWN OR AWAY
		RADIUS ELBOW			EA DUCT DOWN OR AWAY
		SQUARE ELBOW WITH TURNING VANES			RA DUCT DOWN OR AWAY
		SQUARE ELBOW WITHOUT TURNING VANES		VD	VOLUME DAMPER
		SQUARE OR RECTANGULAR BRANCH TAKEOFF		BDD	BACKDRAFT DAMPER
		RECTANGULAR TO ROUND TAKEOFF		MOD	MOTOR OPERATED DAMPER
		TEE WITH TURNING VANES	DS	DSD	DUCT SMOKE DETECTOR
		ROUND TO ROUND CONICAL TAKEOFF	F	FD	FIRE DAMPER
		ECCENTRIC TRANSITION	S	SD	SMOKE DAMPER
		CONCENTRIC TRANSITION	F/S	FSD	FIRE/SMOKE DAMPER
		SQUARE TO ROUND TRANS.		SG	SUPPLY GRILLE
		DUCT CAP		EG,RG, TG	(E)XHAUST / (R)ETURN / (T)RANSFER GRILLE
	ALD	ACOUSTICALLY LINED DUCT	UCD	UCD	UNDERCUT DOOR (BY GC)
	SA	SUPPLY AIR DUCT UP	DTG (0 SF)	DTG	DOOR TRANSFER GRILLE
	OA	OUTSIDE AIR DUCT UP		FC	FLEXIBLE CONNECTION
	RA	RETURN AIR DUCT UP		AD	ACCESS DOOR
	EA	EXHAUST AIR DUCT UP			
MISCELLANEOUS AND CONTROLS					
		DETAIL OR SECTION NUMBER / SHEET NUMBER	S		STATIC PRESS. SENSOR
H		HUMIDISTAT / HUMID. SENSOR	SS		SLAB TEMPERATURE SENSOR
T		THERMOSTAT / TEMP. SENSOR			COMBINATION STARTER
VFD	VFD	VARIABLE FREQUENCY DRIVE	MS		MANUAL STARTER
	AFF	ABOVE FINISHED FLOOR		OC	ON CENTER
	AFG	ABOVE FINISHED GRADE		PC	PLUMBING CONTRACTOR
	AP	ACCESS PANEL		RAO	RETURN AIR OPENING
	BJ	BETWEEN JOISTS		TAO	TRANSFER AIR OPENING
	BOD	BOTTOM OF DUCT		EAO	EXHAUST AIR OPENING
	BOG	BOTTOM OF GRILLE		TCC	TEMPERATURE CONTROL CONTRACTOR
	EC	ELECTRICAL CONTRACTOR		TCP	TEMPERATURE CONTROL PANEL
	GC	GENERAL CONTRACTOR / CONSTRUCTION MANAGER		TJ	THRU JOISTS
	HC	HVAC CONTRACTOR		TYP.	TYPICAL
	IMP	INSULATED METAL PANEL		TTS	TIGHT TO STRUCTURE
	NIC	NOT IN CONTRACT		TV	TURNING VANES
	NTS	NOT TO SCALE		WWM	WELDED WIRE MESH
PIPING					
		SHUTOFF VALVE		PRV	PRESS. REDUCING VALVE
		BALANCE VALVE		SRV	SAFETY RELIEF VALVE
		CHECK VALVE			STEAM TRAP
		COMBINATION VALVE			ANCHOR
		STRAINER			GUIDE
		DRAIN VALVE			PIPING BOTTOM TAKE-OFF
		GLOBE VALVE			PIPING TOP TAKE-OFF
		THERMOMETER			PIPE DOWN OR AWAY
	PG	PRESSURE GAUGE			PIPE UP
		GAUGE COCK			PIPING CAP
	TCV	TEMP. CONTROL VALVE			UNION/FLANGE
		TEST CONNECTION			PIPE PITCH DOWN
	MAV	MANUAL AIR VENT			CONCENTRIC REDUCER
	FM	FLOW METER			ECCENTRIC REDUCER
		FLOW CONTROL / SHUTOFF VALVE		FC	FLEXIBLE CONNECTION
		FLOW CONTROL VALVE		BF	BLIND FLANGE
	GEO-S/GEO-R	GEOTHERMAL SUPPLY/RETURN		HWS/HWR	HOT WATER SUPPLY/RETURN
	CTS/CTR	COOLING TOWER WATER SUPPLY/RETURN		GS/GR	GLYCOL SUPPLY/RETURN
	MU	MAKEUP WATER		RWS/RWR	RADIANT WATER SUPPLY/RETURN
	LPS/LPC	LOW PRESSURE STEAM/CONDENSATE		SMS/SMR	SNOW MELT SUPPLY/RETURN
	HPS/HPC	HIGH PRESSURE STEAM/CONDENSATE		FOS/FOR	FUEL OIL SUPPLY/RETURN
	PC	PUMPED CONDENSATE		BF	BOILER FEED
	G/LP	NATURAL GAS/LP GAS		CF	CHEMICAL FEED
	D	DRAIN		A	COMPRESSED AIR
	CHWS/CHWR	CHILLED WATER SUPPLY/RETURN		V	VENT
FIRE RATED WALLS					
		FIRE - 1 HOUR			FIRE - 3 HOUR
		FIRE - 2 HOUR			FIRE - 4 HOUR

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PROJECT INFORMATION

PROPOSED BUILDING RENOVATION
HAWAIIAN BROS - STR: 43
1401 GRINDSTONE PKWY • COLUMBIA, MO

PROFESSIONAL SEAL

SHEET DATES
SHEET ISSUE OCT. 26, 2021
REVISIONS
AD1 MAR. 7, 2022

JOB NUMBER
2164120

SHEET NUMBER
H0.1

HVAC LEGEND AND SPECIFICATIONS

HVAC SPECIFICATIONS (CONT.)

c. MIN. 17 LB PER LINEAR INCH PEEL STRENGTH
d. MAX FLAME SPREAD OF 25, MAX SMOKE DEVELOPED OF 50 WHEN TESTED IN ACCORDANCE WITH ASTM G-53.
e. VOC: 0 G/L COMPLIANT WITH LEED SCAQMD RULE 1168.
f. PRESSURE CLASSES UP TO 10" W.C.

F. TYPE I KITCHEN HOOD EXHAUST DUCTWORK
1. LIQUID TIGHT, CONTINUOUS EXTERNAL WELDED SEAMS, JOINTS AND PENETRATIONS.
2. PROVIDE LISTED ACCESS PANELS IN THE DUCTWORK PER NFPA 96 AT MAXIMUM 12'-0" INTERVALS AND AT ALL CHANGES IN DIRECTION. PLACE A SIGN ON ALL ACCESS PANELS STATING THE FOLLOWING: "ACCESS PANEL - DO NOT OBSTRUCT".
3. PITCH HORIZONTAL DUCTS DOWN IN THE DIRECTION OF AIR FLOW MINIMUM 2% FOR HORIZONTAL RUNS UP TO 75 FEET AND 8% IN RUNS GREATER THAN 75 FEET. PROVIDE RESIDUE TRAP AT THE BASE OF EACH VERTICAL RISE WITH PROVISIONS FOR CLEANOUT NEAR THE BOTTOM OF THE TRAP.

G. TYPE II KITCHEN HOOD EXHAUST DUCTWORK
1. LIQUID TIGHT, CONTINUOUS EXTERNAL SEALED SEAMS, JOINTS AND PENETRATIONS.
2. PITCH DUCTWORK DOWN TO CONNECTION AT HOOD.

H. DUCT CLEANING
1. PROTECT DUCTWORK AGAINST ENTRY OF FOREIGN MATTER DURING CONSTRUCTION. PROVIDE TEMPORARY END CAPS AND SEALS. PROVIDE TEMPORARY FILTERS OVER RETURN OR EXHAUST AIR INLETS IF DUCTWORK IS USED DURING CONSTRUCTION.
2. REMOVE ALL DIRT AND FOREIGN MATTER AND CLEAN DIFFUSERS, REGISTERS, AND GRILLES BEFORE OPERATING FANS.

I. SEALING DUCT PENETRATIONS
1. THRU NON-RATED WALLS WHERE DRYWALL, CONCRETE, OR MASONRY EXTENDS TO STRUCTURE, FILL VOID BETWEEN DUCT AND WALL WITH MINERAL WOOL AND CAULK BOTH SIDES WITH NON-HARDENING CAULK.

23 33 00 DUCTWORK ACCESSORIES

A. GENERAL - ALL DUCT ACCESSORIES SHALL BE CONSTRUCTED OF SAME MATERIAL AS DUCTWORK BEING INSTALLED IN.

B. TURNING VANES
1. MANUFACTURERS: AERO/DYNE CO. H.E.P., HART & COOLEY, UNITED MCGILL, SEMCO.
2. RECTANGULAR DUCTWORK: AIRFOIL TURNING VANES IN ACCORDANCE WITH SMACNA FIG. 2-3 AND 2-4. VANE RADIUS AS PROVIDED BY AERO/DYNE H.E.P. OR 4-1/2 INCHES WITH A 3-1/2 INCH SPACING.
3. ROUND DUCTWORK: TWO-PIECE MITERED, MINIMUM 20 GAUGE.

C. MANUAL VOLUME DAMPERS
1. MANUFACTURERS: RUSKIN, VENT PRODUCTS, UNITED MCGILL.
2. DAMPERS WITH EXTENDED SHAFTS AND QUADRANTS, OPERATOR WITH LOCKING DEVICE, POSITION INDICATOR, AND ELEVATED PLATFORM FOR EXTERNALLY INSULATED DUCTWORK.
3. EVERY SUPPLY, RETURN AND EXHAUST GRILLE SHALL HAVE EITHER A VOLUME DAMPER IN THE BRANCH DUCT OR AT THE GRILLE WHERE SHOWN. IF ONE IS NOT SHOWN, CONTRACTOR SHALL PROVIDE VOLUME DAMPER IN DUCT IF DUCT IS ACCESSIBLE, OTHERWISE AT THE GRILLE.
4. RECTANGULAR DAMPERS WHICH DO NOT EXCEED 12" HIGH OR 36" WIDE: BUTTERFLY DAMPER, MINIMUM 22 GAUGE. SHAFT ALONG ENTIRE LENGTH OF DAMPER FOR DAMPERS EXCEEDING 18" IN WIDTH.
5. RECTANGULAR DAMPERS GREATER THAN 12" HIGH OR 36" WIDE: MULTI-BLADE DAMPER WITH CONNECTING LINKAGE TO CONTROL FROM A SINGLE POINT. BLADES MINIMUM 16 GAUGE WITH OPPOSED BLADE ACTION.
6. ROUND DAMPERS: MINIMUM 20 GAUGE BUTTERFLY DAMPER.

D. TAKE-OFF FITTINGS
1. MANUFACTURERS: FLEXMASTER, UNITED MCGILL.
2. ROUND BRANCH TAKE-OFFS TO MULTIPLE GRILLES SHALL BE CONICAL.
3. RECTANGULAR BRANCH TAKE-OFFS TO MULTIPLE GRILLES SHALL BE PER DUCT FITTING DETAIL ON PLANS.
4. ROUND TAKE-OFFS TO INDIVIDUAL GRILLES AND SLOT DIFFUSERS: ONE PIECE SPIN-IN WITH INTEGRAL FACTORY INSTALLED LOCKING TYPE BALANCING DAMPERS.

E. DUCT ACCESS DOORS
1. MANUFACTURERS: CESCO, FLEXMASTER, VENT PRODUCTS, KEES, UNITED MCGILL, SEMCO, DUCTMATE.
2. HINGE, LATCHES, HANDLES, AND RUBBER GASKET IN FRAME. 1" INSULATED DOUBLE WALL CONSTRUCTION FOR DOORS IN LINED OR EXTERNALLY INSULATED DUCTWORK. ATTACHMENT CABLES FOR SPIN-IN UNITS. DOOR SUITABLE FOR DUCT STATIC PRESSURE CLASS.
3. DOOR SIZE 2" LESS THAN THE WIDTH OF THE DUCT (MAX. DOOR SIZE 24"X 24" (24" DIA.).
4. ROUND DUCTWORK: 16 GAUGE ROLLED SHEET METAL HINGED ACCESS DOOR WITH BUCKLE LOCKS.
5. PROVIDE AT:
a. UPSTREAM SIDE OF TURNING VANES IN RETURN AND EXHAUST DUCTWORK
b. DRAIN PANS
c. DUCT MOUNTED SMOKE DETECTORS
d. AT ANY DEVICE IN THE DUCT WHICH REQUIRES MAINTENANCE, SERVICE OR CLEANING.
6. USE HINGED ACCESS DOORS WHERE POSSIBLE. USE CAM OPERATED REMOVABLE DOORS WHERE SPACE PREVENTS THE OPENING OF A HINGED MODEL.

F. FLEXIBLE CONNECTIONS
1. MANUFACTURERS: VENTFABRICS, DURO-DYNE.
2. MATERIAL BOLTED SECURELY TO THE EQUIPMENT AND CONNECTING DUCTWORK WITH #16 GAUGE GALVANIZED IRON BAND (LOOP) CLAMPS BOLTED TIGHT TO MAKE AN AIRTIGHT CONNECTION, MINIMUM 6" WIDE.
3. PROVIDE AT INLET AND OUTLET OF ALL AIR HANDLING UNITS AND FANS IN ACCORDANCE WITH SMACNA FIGURE 2-19.
4. CONVENTIONAL INTERIOR: VENTGLAS, -20 TO 200 DEG F., 30 OZ. PER SQUARE YARD GLASS FABRIC DOUBLE COATED WITH NEOPRENE, UL 214 APPROVED.

23 90 00 TEMPERATURE CONTROLS

A. INSTALLER QUALIFICATIONS: AUTOMATIC CONTROL SYSTEM MANUFACTURER'S AUTHORIZED REPRESENTATIVE WHO IS TRAINED AND APPROVED FOR INSTALLATION OF SYSTEM COMPONENTS REQUIRED FOR THIS PROJECT.

B. ALL PRODUCTS USED IN THIS INSTALLATION SHALL BE NEW, CURRENTLY UNDER MANUFACTURE, AND SHALL BE APPLIED IN STANDARD OFF THE SHELF PRODUCTS. THIS INSTALLATION SHALL NOT BE USED AS A TEST SITE FOR ANY NEW PRODUCTS UNLESS EXPLICITLY APPROVED BY THE ENGINEER IN WRITING. SPARE PARTS SHALL BE AVAILABLE FOR AT LEAST 5 YEARS AFTER COMPLETION OF THIS CONTRACT.

C. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION, AND MARKED FOR INTENDED USE.

D. LABOR AND MATERIALS FOR THE CONTROL SYSTEM SPECIFIED SHALL BE WARRANTED FREE FROM DEFECTS FOR A PERIOD OF 12 MONTHS AFTER FINAL COMPLETION AND ACCEPTANCE. CONTROL SYSTEM FAILURES DURING THE WARRANTY PERIOD SHALL BE ADJUSTED, REPAIRED, OR REPLACED AT NO ADDITIONAL COST OR REDUCTION IN SERVICE TO THE OWNER.

E. CONNECT AND CONFIGURE EQUIPMENT AND SOFTWARE TO ACHIEVE SEQUENCE OF OPERATION SPECIFIED.

F. CONTROLLER HARDWARE USED OUTDOORS AND/OR IN WET AMBIENT CONDITIONS SHALL BE MOUNTED WITHIN NEMA 3R ENCLOSURES, AND RATED FOR OPERATION AT -40 DEG F TO 150 DEG F AND 10 TO 90% RH. HARDWARE USED IN CONDITIONED SPACE SHALL BE MOUNTED IN AN ENCLOSURE AND BE RATED FOR OPERATION AT 32 DEG F TO 120 DEG F.

G. POWER SUPPLIES: UL LISTED TRANSFORMERS WITH CLASS 2 CURRENT-LIMITING TYPE OR OVERCURRENT PROTECTION; LIMIT CONNECTED LOADS TO 80 PERCENT OF RATED CAPACITY. DC POWER SUPPLY SHALL MATCH OUTPUT CURRENT AND VOLTAGE REQUIREMENTS AND BE FULL-WAVE RECTIFIER TYPE.

H. POWER LINE FILTERING: INTERNAL OR EXTERNAL TRANSIENT VOLTAGE AND SURGE SUPPRESSION.

I. ELECTRONIC SENSORS/TRANSMITTERS
1. INSTALLATION
a. INSTALL ALL SENSORS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
b. ROOM TEMPERATURE SENSORS SHALL BE INSTALLED ON CONCEALED JUNCTION BOXES PROPERLY SUPPORTED BY THE WALL FRAMING WITH CONDUIT STUB TO ABOVE THE CEILING.
c. INSTALL DEVICES WHICH HAVE ADJUSTMENT 48 INCHES ABOVE THE FLOOR OR COMPLY WITH CURRENT ADA REQUIREMENTS. INSTALL NON-ADJUSTABLE CONTROL SENSORS AT 60 INCHES ABOVE THE FLOOR.
d. COORDINATE LOCATION OF THERMOSTATS, HUMIDISTATS, AND OTHER EXPOSED CONTROL SENSORS WITH PLANS AND ROOM DETAILS BEFORE INSTALLATION.
e. ALL WIRES ATTACHED TO SENSORS SHALL BE AIR SEALED IN THEIR RACEWAYS OR IN THE WALL TO STOP AIR TRANSMITTED FROM OTHER AREAS AFFECTING SENSOR READINGS.

J. THERMOSTATS
1. ELECTRIC, SOLID-STATE, MICROCOMPUTER-BASED ROOM THERMOSTAT WITH REMOTE SENSOR (7 DAY PROGRAMMABLE): HONEYWELL VISIONPRO 8000 WITH RED LINK. THERMOSTAT SHALL HAVE THE CAPABILITY TO SET BACK OR TEMPORARILY OPERATE THE SYSTEM TO MAINTAIN ZONE TEMPERATURES DOWN TO 55 DEG. F AND SHALL HAVE OPTIMAL START CAPABILITY AND REMOTE MONITORING AND CONTROL.
a. SEE "SEQUENCE OF OPERATION" FOR ADDITIONAL INFORMATION.
b. PROVIDE HONEYWELL REDLINK INTERNET GATEWAY.
2. RELAYS: SEE ELECTRICAL STARTER DISCONNECT SCHEDULE.
3. VOLTAGE TRANSFORMERS: UL/CSA RECOGNIZED, 600 VAC RATED, COMPLETE WITH BUILT-IN FUSE PROTECTION. SUITABLE FOR AMBIENT TEMPERATURES OF 40 TO 130 DEG F. PROVIDE PLUS OR MINUS 0.5% ACCURACY AT 24 VAC AND A 5 VA LOAD. WINDINGS COMPLETELY ENCLOSED WITH METAL OR PLASTIC MATERIAL.

K. ELECTRICAL WIRING AND CONNECTION INSTALLATION
1. PROVIDE 120 VAC POWER TO ANY CONTROL PANELS RELATED TO THIS SECTION NOT SHOWN ON THE DRAWINGS.
2. ALL CONTROL AND INTERLOCK WIRING SHALL COMPLY WITH NATIONAL AND LOCAL ELECTRICAL CODES AND ELECTRICAL SPECIFICATION. WHERE THE REQUIREMENTS OF THIS SECTION DIFFER WITH THOSE IN THE ELECTRICAL SPECIFICATIONS, THE MORE STRINGENT REQUIREMENTS SHALL TAKE PRECEDENCE.
3. ALL NEC CLASS 1 (LINE VOLTAGE) WIRING SHALL BE UL LISTED IN APPROVED RACEWAY PER NEC AND ELECTRICAL SPECIFICATIONS.
4. SEE ELECTRICAL SPECIFICATIONS FOR CONDUIT REQUIREMENTS.
5. ALL LOW-VOLTAGE WIRING SHALL MEET NEC CLASS 2 REQUIREMENTS. (LOW-VOLTAGE POWER CIRCUITS SHALL BE SUB-FUSED WHEN REQUIRED TO MEET CLASS 2 CURRENT-LIMIT).
6. ALL WIRING IN MECHANICAL, ELECTRICAL, OR SERVICE ROOMS AND WHERE SUBJECT TO DAMAGE SHALL BE INSTALLED IN RACEWAY.
7. WHERE NEC CLASS 2 (CURRENT-LIMITED) WIRES ARE IN CONCEALED AND ACCESSIBLE LOCATIONS, APPROVED CABLES NOT IN RACEWAY MAY BE USED PROVIDED THAT CABLES ARE UL LISTED FOR THE INTENDED APPLICATION.
8. DO NOT INSTALL CLASS 2 WIRING IN RACEWAY, BOXES AND PANELS CONTAINING CLASS 1 WIRING.
9. SUPPORT CABLES AND RACEWAYS FROM STRUCTURAL MEMBERS. CABLES AND RACEWAYS SHALL NOT BE SUPPORTED BY DUCTWORK, ELECTRICAL RACEWAYS, PIPING, OR CEILING SUSPENSION SYSTEMS. SECURE AND SUPPORT CABLE AT INTERVALS NOT EXCEEDING 30 INCHES AND NOT MORE THAN 6 INCHES FROM CABINETS, BOXES, FITTINGS, OUTLETS, RACKS, FRAMES, AND TERMINALS.
10. INSTALL WIRING IN SLEEVES WHERE IT PASSES THROUGH WALLS AND FLOORS. MAINTAIN FIRE RATING AT ALL PENETRATIONS.
11. SIZE OF WIRE AND RACEWAY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND BE PER THE MANUFACTURER'S RECOMMENDATION AND NEC REQUIREMENTS.
12. INCLUDE ONE PULL STRING IN EACH RACEWAY 1" OR LARGER.
13. LOCATE CONTROL AND STATUS RELAYS IN DESIGNATED ENCLOSURES ONLY.
14. FLEXIBLE METAL RACEWAYS ARE NOT PERMITTED OVER 6 FEET.
15. MAINTAIN UPDATED (AS-BUILT) WIRING DIAGRAMS WITH TERMINATIONS IDENTIFIED AT THE JOB SITE.
16. IDENTIFICATION OF HARDWARE AND WIRING
a. LABEL ALL WIRING AND CABLING, INCLUDING THAT WITHIN FACTORY-FABRICATED PANELS, AT EACH END WITHIN 2" OF TERMINATION WITH THE DDC ADDRESS OR TERMINATION NUMBER.
b. PERMANENTLY LABEL OR CODE EACH POINT/OBJECT OF FIELD TERMINAL STRIPS TO SHOW THE INSTRUMENT OR ITEM SERVED.

L. DUCT SMOKE DETECTORS AND THE INTERLOCK REQUIRED FOR AIR HANDLING EQUIPMENT SHUTDOWN ARE FURNISHED AND INSTALLED UNDER ELECTRICAL SPECIFICATIONS OR BY THE EQUIPMENT MANUFACTURER.

M. INSTALLATION
1. INSTALL EQUIPMENT, PIPING, AND WIRING/RACEWAY PARALLEL TO BUILDING LINES (I.E., HORIZONTAL, VERTICAL, AND PARALLEL TO WALLS) WHEREVER POSSIBLE.
2. INSTALL ALL EQUIPMENT IN READILY ACCESSIBLE LOCATIONS AS DEFINED BY CHAPTER 1, ARTICLE 100, PART A OF THE NATIONAL ELECTRICAL CODE (NEC).
3. THE CONTRACTOR SHALL PROTECT ALL WORK AND MATERIAL FROM DAMAGE BY HIS WORK OR EMPLOYEES, AND SHALL BE LIABLE FOR ALL DAMAGE THUS CAUSED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HIS WORK AND EQUIPMENT UNTIL FINALLY INSPECTED, TESTED, AND ACCEPTED. THE CONTRACTOR SHALL PROTECT ANY MATERIAL THAT IS NOT IMMEDIATELY INSTALLED.
5. TEST AND BALANCE: FURNISH ALL TOOLS NECESSARY TO INTERFACE TO THE CONTROL SYSTEM FOR TEST AND BALANCE PURPOSES. PROVIDE A QUALIFIED TECHNICIAN TO ASSIST IN THE TEST AND BALANCE PROCESS.

N. FIELD QUALITY CONTROL
1. INSPECT, TEST, AND ADJUST FIELD-ASSEMBLED COMPONENTS AND EQUIPMENT INSTALLATION, AND TO ASSIST IN FIELD TESTING.
2. PERFORM THE FOLLOWING FIELD TESTS AND INSPECTIONS AND PREPARE TEST REPORTS:
a. OPERATIONAL TEST: AFTER ELECTRICAL CIRCUITRY HAS BEEN ENERGIZED, START UNITS TO CONFIRM PROPER UNIT OPERATION. REMOVE AND REPLACE MALFUNCTIONING UNITS AND RETEST.
b. TEST AND ADJUST CONTROLS AND SAFETIES.
c. TEST CALIBRATION OF ELECTRONIC CONTROLLERS BY DISCONNECTING INPUT SENSORS AND SIMULATING OPERATION WITH COMPATIBLE SIGNAL GENERATOR.
d. TEST EACH POINT THROUGH ITS FULL OPERATING RANGE TO VERIFY THAT SAFETY AND OPERATING CONTROL SET POINTS ARE AS REQUIRED.
e. TEST EACH CONTROL LOOP TO VERIFY STABLE MODE OF OPERATION AND COMPLIANCE WITH SEQUENCE OF OPERATION. ADJUST PID ACTIONS.
f. TEST EACH SYSTEM FOR COMPLIANCE WITH SEQUENCE OF OPERATION.
g. TEST SOFTWARE AND HARDWARE INTERLOCKS.

O. CALIBRATING AND ADJUSTING:
1. CALIBRATE INSTRUMENTS.
2. MAKE THREE-POINT CALIBRATION TEST FOR BOTH LINEARITY AND ACCURACY FOR EACH ANALOG INSTRUMENT.
3. CALIBRATE EQUIPMENT AND PROCEDURES USING MANUFACTURER'S WRITTEN RECOMMENDATIONS AND INSTRUCTION MANUALS. USE TEST EQUIPMENT WITH ACCURACY AT LEAST DOUBLE THAT OF INSTRUMENT BEING CALIBRATED.
4. CONTROL SYSTEM INPUTS AND OUTPUTS:
a. CHECK ANALOG INPUTS AT 0, 50, AND 100 PERCENT OF SPAN.
b. CHECK ANALOG OUTPUTS USING MILLIAMPERE METER AT 0, 50, AND 100 PERCENT OUTPUT.
c. CHECK DIGITAL INPUTS USING JUMPER WIRE.
d. CHECK DIGITAL OUTPUTS USING OHMMETER TO TEST FOR CONTACT MAKING OR BREAKING.
e. CHECK RESISTANCE TEMPERATURE INPUTS AT 0, 50, AND 100 PERCENT OF SPAN USING A PRECISION-RESISTANT SOURCE.
5. TEMPERATURE:
a. CALIBRATE RESISTANCE TEMPERATURE TRANSMITTERS AT 0, 50, AND 100 PERCENT OF SPAN USING A PRECISION-RESISTANCE SOURCE.
b. CALIBRATE TEMPERATURE SWITCHES TO MAKE OR BREAK CONTACTS.

P. TRAINING
1. PROVIDE A MINIMUM OF TWO ONSITE TRAINING CLASSES, 2 HOURS EACH SEPARATED BY TWO WEEKS, AT THE COMPLETION OF CALIBRATING AND ADJUSTING FOR PERSONNEL DESIGNATED BY THE OWNER.
2. PROVIDE DOCUMENTATION OF ITEMS COVERED IN TRAINING EITHER IN HARD COPY OR ELECTRONIC FORMAT.
3. TRAIN THE OWNER DESIGNATED DAY-TO-DAY OPERATORS TO ENABLE THEM TO:
a. PROFICIENTLY OPERATE THE SYSTEM
b. ADJUST AND CHANGE SYSTEM SETPOINTS, TIME SCHEDULES, AND HOLIDAY SCHEDULES
c. UNDERSTAND SYSTEM DRAWINGS, AND OPERATION AND MAINTENANCE MANUAL
d. UNDERSTAND THE JOB LAYOUT AND LOCATION OF CONTROL COMPONENTS
4. OCCUPANCY ADJUSTMENTS: WHEN REQUESTED WITHIN 12 MONTHS OF DATE OF SUBSTANTIAL COMPLETION, PROVIDE ON-SITE ASSISTANCE IN ADJUSTING SYSTEM TO SUIT ACTUAL OCCUPIED CONDITIONS. PROVIDE UP TO TWO VISITS TO PROJECT DURING OTHER THAN NORMAL OCCUPANCY HOURS FOR THIS PURPOSE.

23 90 10 SEQUENCE OF OPERATION

A. ROOFTOP AIR CONDITIONING UNITS
1. PROVIDE A HONEYWELL VISION PRO 8000 SEVEN DAY PROGRAMMABLE HEATING/COOLING THERMOSTAT CAPABLE OF 2 STAGES OF HEATING AND 2 STAGES OF COOLING (CONVENTIONAL), WITH ECONOMIZER/TIME OF DAY OUTPUT. (SEE TEMPERATURE CONTROLS SECTION FOR ADDITIONAL INFORMATION ON THERMOSTAT)
a. SET FAN SETTING TO "ON" FOR FAN TO RUN CONTINUOUSLY IN OCCUPIED PERIODS, AND TO RUN WITH EQUIPMENT OPERATION DURING UNOCCUPIED PERIODS.
b. SET INSTALLER SETUP NUMBERS TO MATCH INSTALLED SYSTEM IN ADDITION TO THE FOLLOWING (CONTACT ENGINEER WITH ANY QUESTIONS REGARDING ANY SETUP NUMBERS):
1). 101 APPLICATION: COMMERCIAL
2). 326 EXTENDED FAN RUN TIME IN HEAT: 60 SECONDS.
2. PROVIDE HONEYWELL C7770A DUCT MOUNTED REMOTE SENSOR(S) WHERE SHOWN ON THE DRAWINGS. REMOTE SENSORS SHALL DETERMINE THERMOSTAT OUTPUT.
3. ECONOMIZER PACKAGE PROVIDED WITH ROOFTOP UNITS. MONITOR FAULT DETECTION AND DIAGNOSTICS SYSTEM FOR FAULTS.
4. POWER RELIEF: CONTROLLED BY ROOFTOP UNIT BASED ON OUTSIDE AIR DAMPER POSITION.
5. HOT GAS REHEAT: INSTALL HUMIDITY SENSOR FURNISHED BY ROOFTOP UNIT MANUFACTURER IN RETURN DUCTWORK. PROGRAM ROOFTOP UNIT CONTROLS TO MAINTAIN 50% RELATIVE HUMIDITY SETPOINT.
6. MOUNT AND WIRE ALL CONTROL WIRING ASSOCIATED WITH THE ROOFTOP AND PROVIDE ANY ADDITIONAL DEVICES NECESSARY FOR A COMPLETE OPERATIONAL SYSTEM.

B. EXHAUST FANS (EF'S)
1. TOILET ROOM EXHAUST FAN TO OPERATE CONTINUOUSLY DURING OCCUPIED CYCLE OF ROOFTOP UNITS.
2. CONTROL OF KITCHEN HOOD EXHAUST FANS AND ASSOCIATED MAKE UP AIR UNIT BY KITCHEN EQUIPMENT SUPPLIER.

23 95 00 TESTING, ADJUSTING AND BALANCING

A. QUALITY ASSURANCE
1. PERFORM TOTAL SYSTEM BALANCE IN ACCORDANCE WITH AABC NATIONAL STANDARDS FOR FIELD MEASUREMENT AND INSTRUMENTATION, TOTAL SYSTEM BALANCE OR NEBB PROCEDURAL STANDARDS FOR TESTING, BALANCING AND ADJUSTING OF ENVIRONMENTAL SYSTEMS, AND ASHRAE STANDARD 111.
2. THE TESTING, ADJUSTING AND BALANCING (TAB) CONTRACTOR SHALL BE AN INDEPENDENT COMPANY SPECIALIZING IN THE TESTING, ADJUSTING, AND BALANCING OF SYSTEMS WITH MINIMUM THREE YEARS EXPERIENCE AND NOT ASSOCIATED WITH THE SUPPLIERS OF EQUIPMENT OR THE INSTALLING CONTRACTOR.
3. PERFORM WORK UNDER SUPERVISION OF AABC CERTIFIED TEST AND BALANCE ENGINEER OR NEBB CERTIFIED TESTING, BALANCING AND ADJUSTING SUPERVISOR.

B. SUBMITTALS
1. CONTRACTOR SHALL SUBMIT THE FINAL TESTING AND BALANCING REPORT TO LOCAL AHJ PRIOR TO PROJECT COMPLETION AND IN ADVANCE OF DATE OF OCCUPANCY. SUBMIT REPORTS ON AABC NATIONAL STANDARDS FOR TOTAL SYSTEM BALANCE OR NEBB FORMS.
2. SUBMIT THE DESIGN AND ACTUAL DATA FOR EACH SCHEDULED PIECE OF EQUIPMENT: MODEL; SUPPLY, RETURN, AND OUTSIDE AIR FLOWS; STATIC PRESSURE PROFILES OF AIR HANDLING UNIT COMPONENTS AND ALL FANS; FAN RPM, BHP, AMPERAGE; FAN AND MOTOR SHEAVE, DIAMETER, BORE AND MAKE; BELT SIZE AND QUANTITY; MOTOR SHEAVE CENTER LINE AND OPERATOR DISTANCE; ROOM AIR FLOW; EQUIPMENT FLOW RATES AND PRESSURE DROPS.

C. INSTALLATION TOLERANCES
1. AIR HANDLING SYSTEMS: ADJUST SUPPLY SYSTEMS TO WITHIN PLUS OR MINUS 5 PERCENT OF DESIGN AND RETURN AND EXHAUST SYSTEMS TO PLUS OR MINUS 10 PERCENT OF DESIGN.
2. AIR OUTLETS AND INLETS: ADJUST TOTAL AIR FLOW TO SPACE TO WITHIN PLUS 10 PERCENT AND MINUS 5 PERCENT OF DESIGN.
3. ADJUST OUTLETS AND INLETS IN SPACE TO WITHIN PLUS OR MINUS 10 PERCENT OF DESIGN.

D. AIR SYSTEM BALANCE
1. VARY TOTAL SYSTEM AIR QUANTITIES BY ADJUSTING FAN SPEEDS. VARY BRANCH AIR QUANTITIES BY DAMPER REGULATION.
2. ADJUST SETTINGS ON DIRECT DRIVE FANS WITH ECM MOTORS AS REQUIRED TO ACHIEVE DESIGN AIRFLOW.
3. ADJUST OUTSIDE AIR, RETURN AIR, AND EXHAUST AIR AUTOMATIC DAMPERS FOR DESIGN CONDITIONS.
4. TEST AIR HANDLING UNITS AT MINIMUM AND 100% OUTSIDE AIR.
5. FOR BELT DRIVE FANS WITH A VFD, ADJUST BELT AND SHEAVES TO ACHIEVE DESIGN AIRFLOW WITH VFD AT 60 HERTZ. VFD IS NOT TO BE USED FOR INITIAL BALANCING

E. FANS WITH FIXED MOTOR SHEAVES - TEST THE FAN EQUIPMENT. IF THE DESIGN CONDITIONS ARE NOT OBTAINED, CALCULATE THE FINAL FIXED MOTOR SHEAVE AND/OR BELTS REQUIRED TO OBTAIN DESIGN CONDITIONS. HEATING CONTRACTOR SHALL OBTAIN THE FINAL FIXED MOTOR SHEAVE AND BELT(S) FROM THE FAN MANUFACTURER AND TURN THEM OVER TO THE TAB CONTRACTOR FOR INSTALLATION.

AD1

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1401 GRINDSTONE PKWY • COLUMBIA, MO

PROFESSIONAL SEAL

SHEET DATES

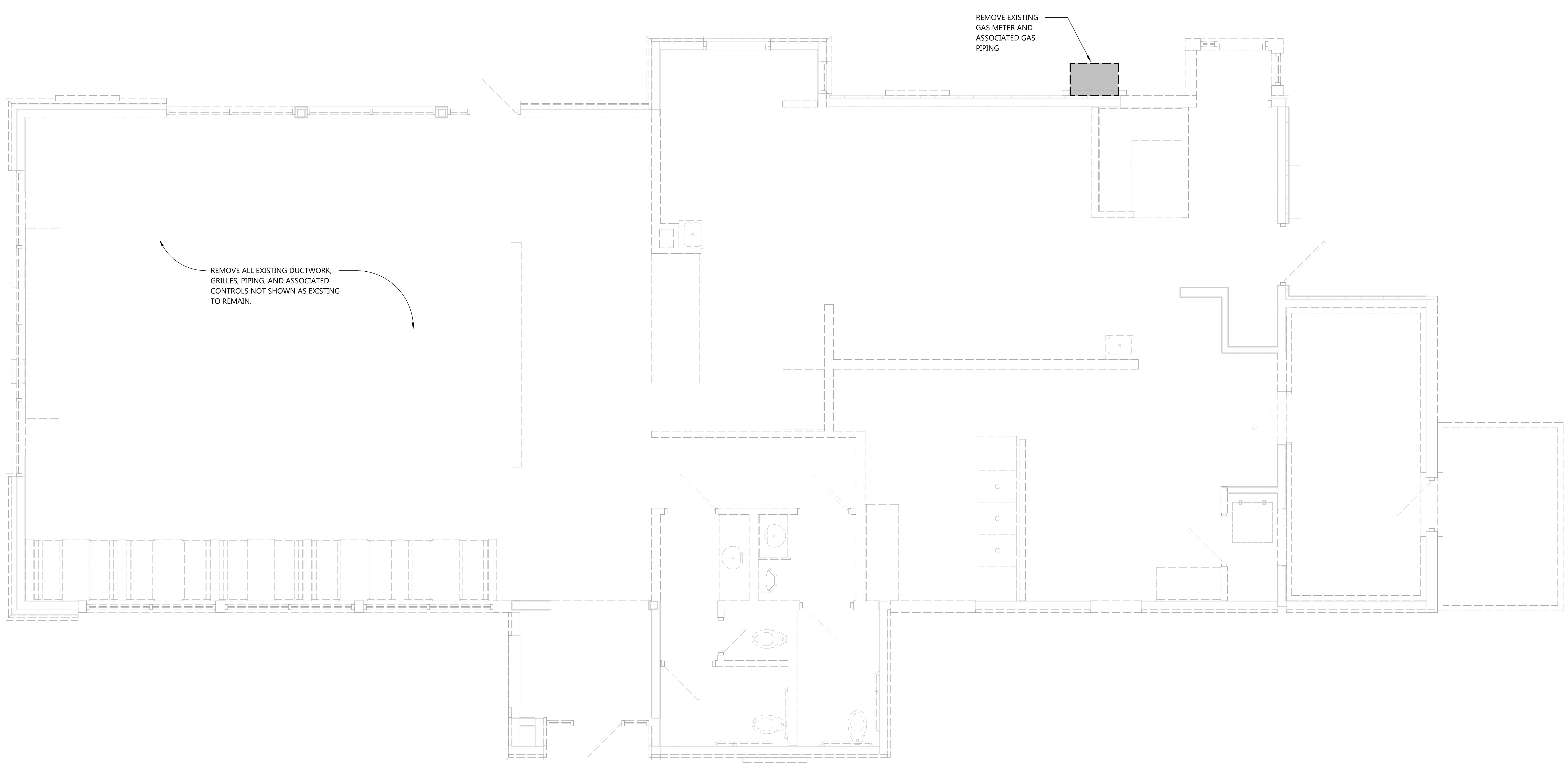
SHEET ISSUE	OCT. 26, 2021
REVISIONS	
AD1	MAR. 7, 2022

JOB NUMBER
2164120

SHEET NUMBER
H0.2

DEMOLITION PLAN NOTES

- ALL EQUIPMENT, DUCTWORK AND PIPING SHOWN "HEAVY DASHED" ARE TO BE DEMOLISHED.
- ALL EQUIPMENT, DUCTWORK AND PIPING SHOWN "LIGHTER" ARE EXISTING TO REMAIN.
- WHERE GRILLES ARE SHOWN TO BE REMOVED, REMOVE BRANCH DUCT. CAP AT MAIN IF MAIN REMAINS AND TAKEOFF IS NOT BEING USED FOR NEW GRILLE.



NORTH

FIRST FLOOR DEMOLITION PLAN

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

4' 0' 4' 8'

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HD1.1

HVAC FIRST FLOOR DEMOLITION PLAN

DEMOLITION PLAN NOTES

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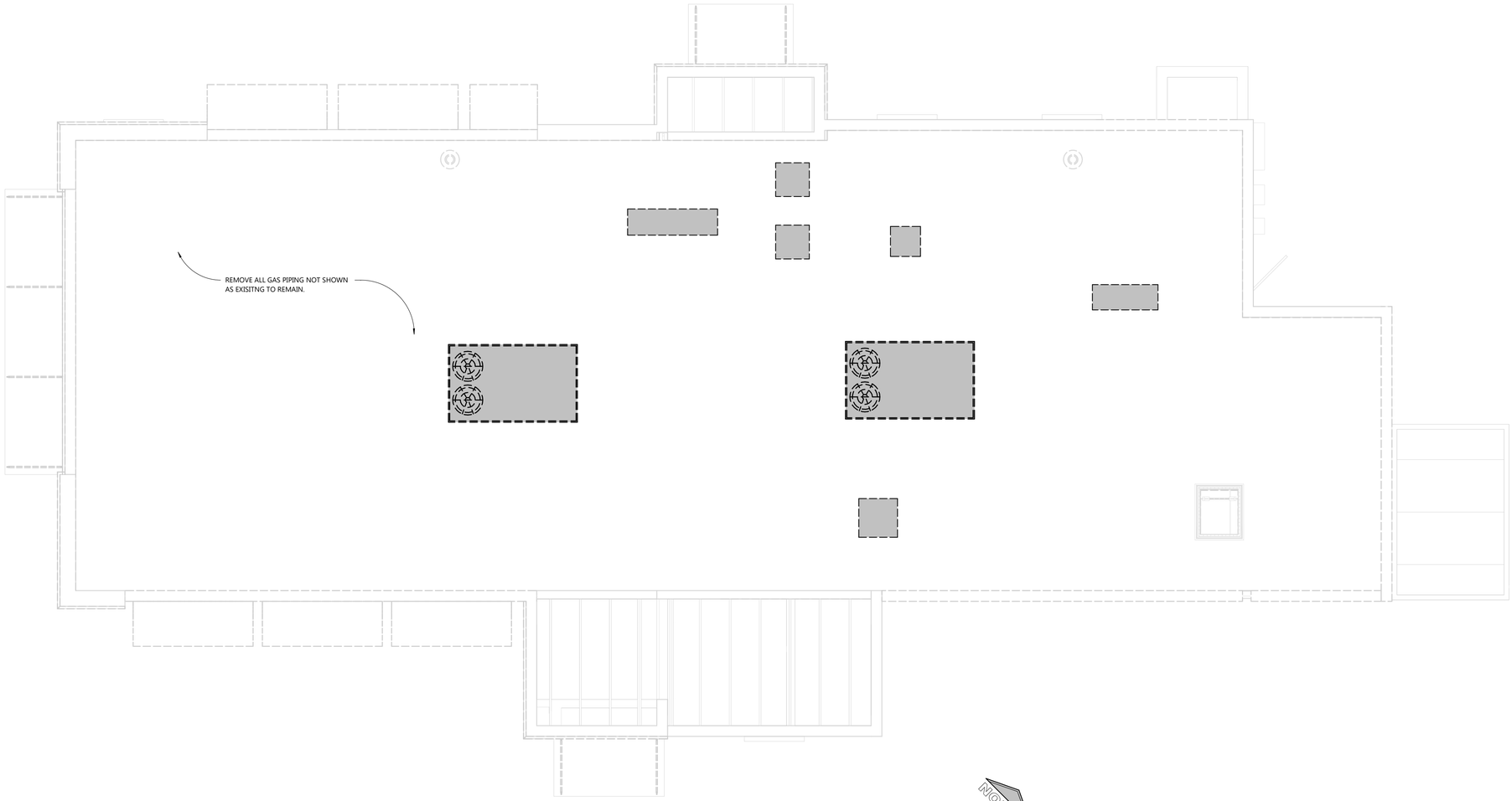
- ALL EQUIPMENT, DUCTWORK AND PIPING SHOWN "LIGHTER" ARE EXISTING TO REMAIN.



NORTH

ROOF DEMOLITION PLAN

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

4' 0' 4' 8'

HVAC ROOF DEMOLITION PLAN

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GAS LOAD SUMMARY

ITEM	MBH INPUT	REQUIRED PRESSURE (1)
RTAC-1	180	7" W.C.
RTAC-2	130	7" W.C.
RTAC-3	130	7" W.C.
GWH-1	499	7" W.C.
RICE COOKER	35	7" W.C.
RICE COOKER	35	7" W.C.
RICE COOKER	35	7" W.C.
RICE COOKER	35	7" W.C.
RICE COOKER	35	7" W.C.
CONVECTION OVEN	45	7" W.C.
CONVECTION OVEN	45	7" W.C.
GRIDDLE	120	7" W.C.
GRIDDLE	120	7" W.C.
GRIDDLE	120	7" W.C.
MAU-1	274	7" W.C.
TOTAL	1,838	

- GAS PRESSURE AT METER = 2 PSIG
- PROVIDE GAS PRESSURE REGULATOR AT EACH PIECE OF EQUIPMENT LISTED ABOVE.

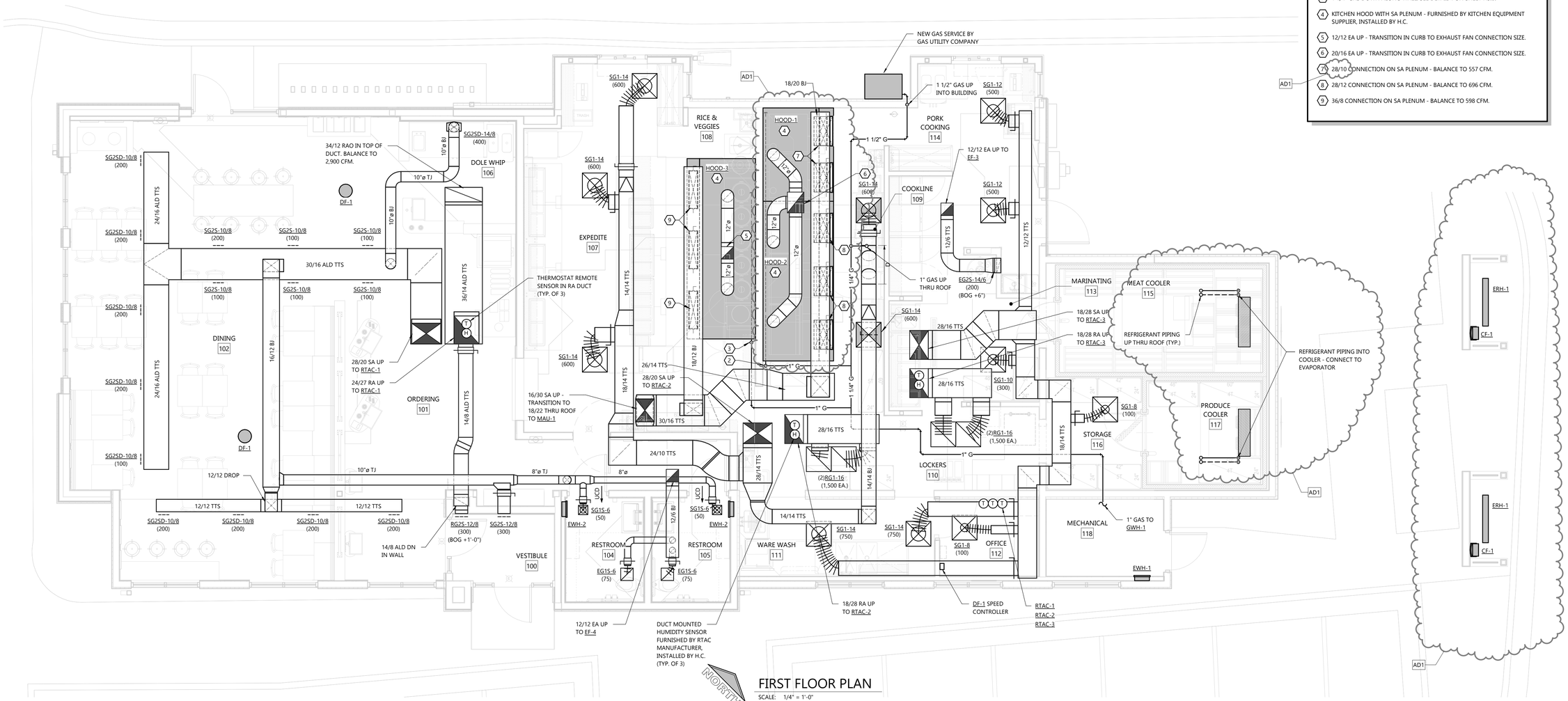
(1) VERIFY PRESSURE REQUIRED WITH ACTUAL EQUIPMENT INSTALLED ON PROJECT BEFORE SIZING REGULATOR.

GENERAL NOTES

- VERIFY BUILDING OPENING AND CURB SIZES LISTED ON PLANS WITH ACTUAL EQUIPMENT SCHEDULED AND SUPPLIED. COORDINATE REQUIRED OPENING SIZES AND LOCATIONS WITH CONTRACTORS PROVIDING OPENING. SCHEDULES AND ACTUAL EQUIPMENT SIZES SHALL TAKE PRECEDENCE OVER SIZES SHOWN ON PLANS.
- DETAIL REFERENCES ON PLANS ARE TO AID THE CONTRACTOR IN IDENTIFYING THE APPLICABLE DETAIL. NOT ALL DETAILS, OR INSTANCES OF DETAILS, ARE REFERENCED ON PLANS. CONTRACTOR IS RESPONSIBLE TO REVIEW AND COMPLY WITH ALL APPLICABLE DETAILS WHETHER OR NOT REFERENCED ON PLANS.
- COORDINATE LOCATION OF ALL EXPOSED PIPING AND DUCTWORK WITH OWNER PRIOR TO INSTALLATION.
- IF DUCT SYSTEMS ARE USED FOR TEMPORARY HEAT, PROVIDE TEMPORARY FILTERS AT RETURN AIR OPENINGS AND INSTALL FILTERS IN THE UNITS EQUIVALENT TO THE EFFICIENCY OF THE SPECIFIED FILTERS FOR THE UNIT. IF PROPER EFFICIENCY FILTERS ARE NOT INSTALLED IN UNIT, UNIT AND ALL DUCTWORK DOWNSTREAM OF UNIT SHALL BE CLEANED BEFORE TEST AND BALANCE.

KEYNOTES

1. CONNECT TO EXISTING.
2. 1 1/4" GAS DOWN ALONG WALL. SEE DETAIL 3 ON SHEET H3.0.
3. 1 1/4" GAS DOWN ALONG WALL. SEE DETAIL 4 ON SHEET H3.0.
4. KITCHEN HOOD WITH SA PLENUM - FURNISHED BY KITCHEN EQUIPMENT SUPPLIER, INSTALLED BY H.C.
5. 12/12 EA UP - TRANSITION IN CURB TO EXHAUST FAN CONNECTION SIZE.
6. 20/16 EA UP - TRANSITION IN CURB TO EXHAUST FAN CONNECTION SIZE.
7. 28/10 CONNECTION ON SA PLENUM - BALANCE TO 557 CFM.
8. 28/12 CONNECTION ON SA PLENUM - BALANCE TO 696 CFM.
9. 36/8 CONNECTION ON SA PLENUM - BALANCE TO 598 CFM.



FIRST FLOOR PLAN

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

HVAC FIRST FLOOR PLAN

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GENERAL NOTES

- VERIFY BUILDING OPENING AND CURB SIZES LISTED ON PLANS WITH ACTUAL EQUIPMENT SCHEDULED AND SUPPLIED. COORDINATE REQUIRED OPENING SIZES AND LOCATIONS WITH CONTRACTORS PROVIDING OPENING. SCHEDULES AND ACTUAL EQUIPMENT SIZES SHALL TAKE PRECEDENCE OVER SIZES SHOWN ON PLANS.
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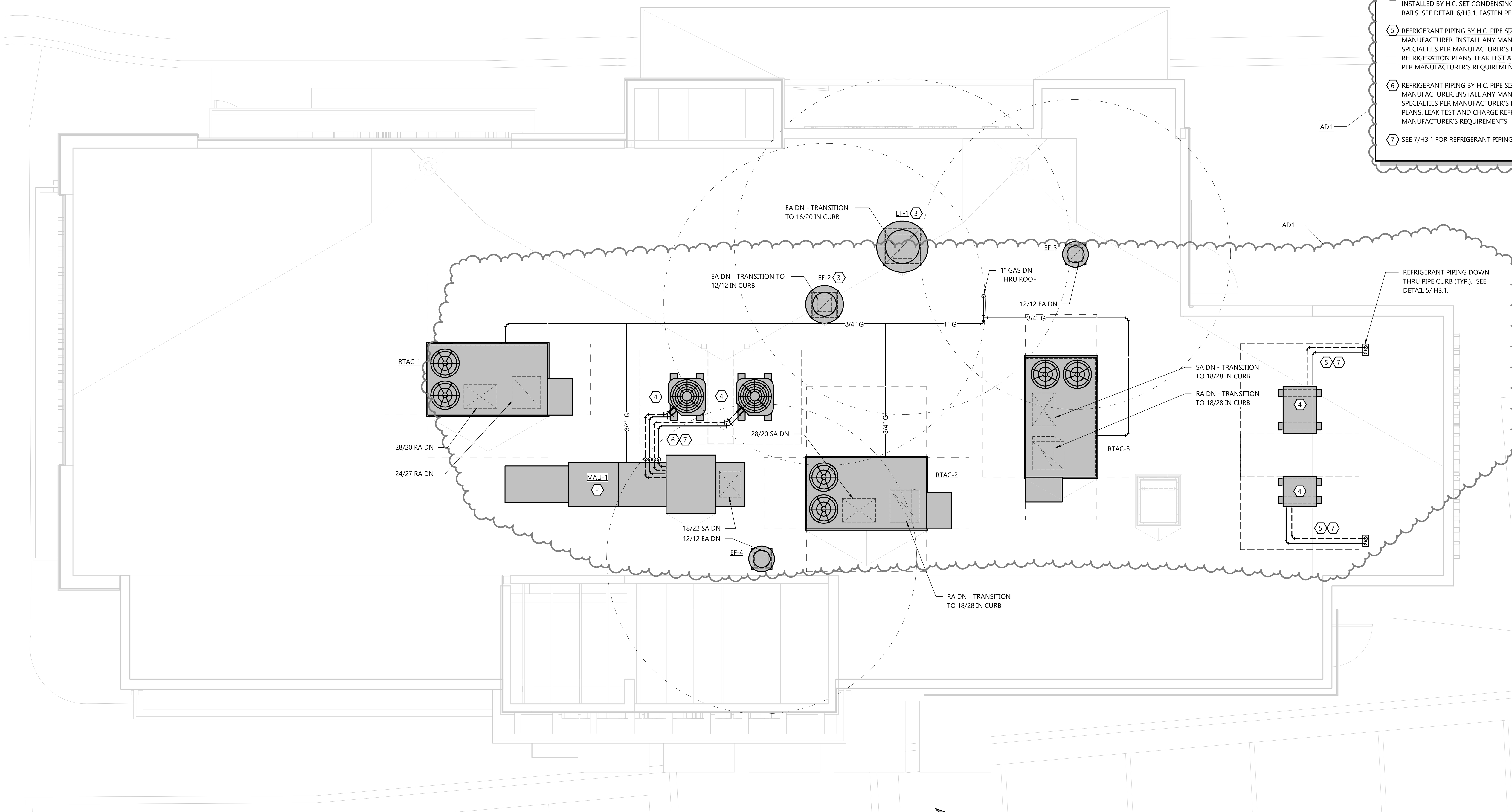
- TERMINATE ALL UNIT HEATER INTAKES/FLUES MINIMUM 10'-0" FROM EDGE OF ROOF.
- TERMINATE ALL GAS REGULATOR VENTS MINIMUM 10'-0" FROM EDGE OF ROOF. VENTS SHALL NOT BE TERMINATED OUT EXTERIOR WALLS
- DASHED LINES AROUND EXHAUST TERMINATIONS INDICATE 10'-0" REQUIRED CLEARANCE TO OUTSIDE AIR INTAKES.

KEYNOTES

1. CONNECT TO EXISTING.
2. MAKE UP AIR UNIT FURNISHED BY KITCHEN EQUIPMENT SUPPLIER, INSTALLED BY H.C.
3. KITCHEN HOOD EXHAUST FAN - FURNISHED BY KITHEN EQUIPMENT SUPPLIER, INSTALLED BY H.C.
4. CONDENSING UNITS FURNISHED BY KITCHEN EQUIPMENT SUPPLIER, INSTALLED BY H.C. SET CONDENSING UNITS ON EQUIPMENT SUPPORT RAILS. SEE DETAIL 6/H3.1. FASTEN PER MANUFACTURER'S REQUIREMENTS.
5. REFRIGERANT PIPING BY H.C. PIPE SIZING BY CONDENSING UNIT MANUFACTURER. INSTALL ANY MANUFACTURER FURNISHED REFRIGERANT SPECIALTIES PER MANUFACTURER'S REQUIREMENTS. SEE AIRDYNE REFRIGERATION PLANS. LEAK TEST AND CHARGE REFRIGERANT CIRCUITS PER MANUFACTURER'S REQUIREMENTS.
6. REFRIGERANT PIPING BY H.C. PIPE SIZING BY CONDENSING UNIT MANUFACTURER. INSTALL ANY MANUFACTURER FURNISHED REFRIGERANT SPECIALTIES PER MANUFACTURER'S REQUIREMENTS. SEE CAPTIVEAIRE PLANS. LEAK TEST AND CHARGE REFRIGERANT CIRCUITS PER MANUFACTURER'S REQUIREMENTS.
7. SEE 7/H3.1 FOR REFRIGERANT PIPING SUPPORTS. SEE 7/H3.0 FOR SPACING.



ROOF PLAN

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

4' 0' 4' 8'

HVAC ROOF PLAN

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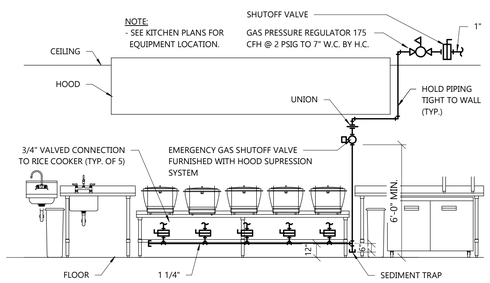
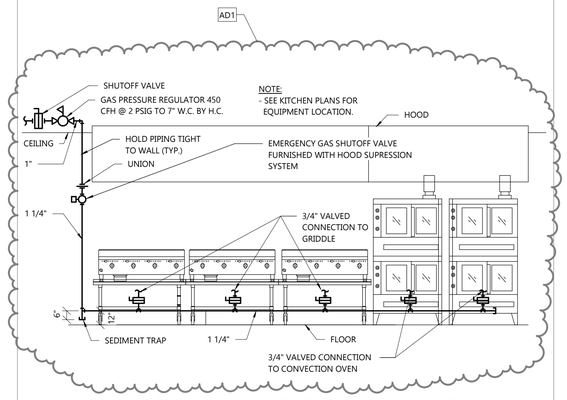
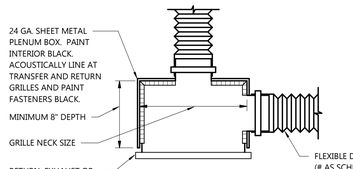


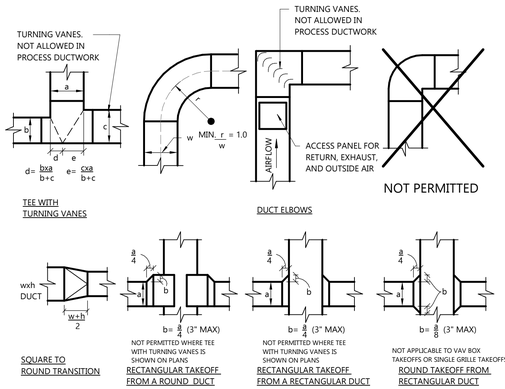
4 H3.0 KITCHEN EQUIPMENT GAS PIPING DETAIL
NOT TO SCALE



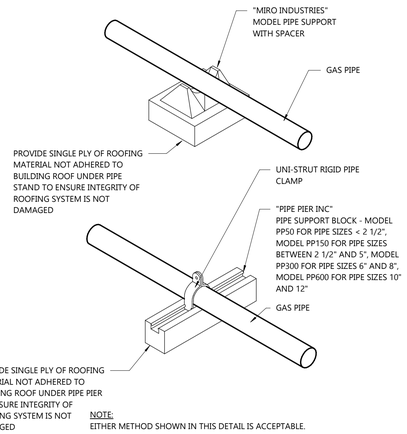
3 H3.0 KITCHEN EQUIPMENT GAS PIPING DETAIL
NOT TO SCALE



2 H3.0 GRILLE PLENUM BOX DETAIL
NOT TO SCALE



1 H3.0 DUCT FITTING DETAILS
NOT TO SCALE

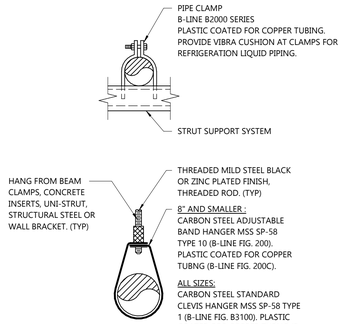


8 H3.0 GAS PIPE SUPPORT ON ROOF DETAIL
NOT TO SCALE

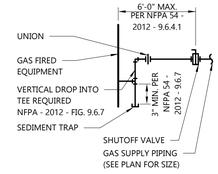
MAX. SPACING BETWEEN PIPE SUPPORTS AND MIN. HANGER ROD SIZES										
PIPE SIZE	STEEL			COPPER			PVC	PEX	MIN. ROD	
	WATER	VAPOR	NAT. GAS	WATER	VAPOR	CPVC	CPVC		METAL PIPE	PLASTIC PIPE
1/4"–1/2"	7'	8'	6'	5'	6'	4'	32"		3/8"	3/8"
3/4"	7'	9'	8'	5'	7'	4'	32"		3/8"	3/8"
1"	7'	9'	8'	6'	8'	4'	32"		3/8"	3/8"
1 1/4"	7'	9'	10'	7'	9'	4'	32"		3/8"	3/8"
1 1/2"	9'	12'	10'	8'	10'	4'	32"		3/8"	3/8"
2"	10'	12'	10'	8'	11'	4'	-		3/8"	3/8"
2 1/2"	11'	12'	10'	9'	12'	4'	-		3/8"	3/8"
3"	12'	12'	10'	10'	12'	4'	-		3/8"	3/8"
4"	12'	12'	10'	12'	12'	4'	-		3/8"	3/8"
6"	12'	12'	10'	12'	12'	4'	-		3/8"	3/8"
8"	12'	12'	-	-	-	4'	-		1/2"	3/8"
10"	12'	12'	-	-	-	4'	-		1/2"	3/8"
12"	12'	12'	-	-	-	4'	-		5/8"	3/8"
14"	12'	12'	-	-	-	4'	-		5/8"	3/8"
16"	12'	12'	-	-	-	4'	-		3/4"	3/8"
MAX VERT. (1)	15'	15'	-	10'	10'	10'	10'		-	-

(1) SUPPORT AT MINIMUM EVERY FLOOR LEVEL OR SPACING LISTED.
MSS = MANUFACTURER'S STANDARDIZATION SOCIETY
- INSTALL ADDITIONAL HANGERS WITHIN 12" OF ELBOWS AND TEES AND AT CONCENTRATED LOADS, INCLUDING VALVES, FLANGES AND STRAINERS 2 1/2" AND LARGER.

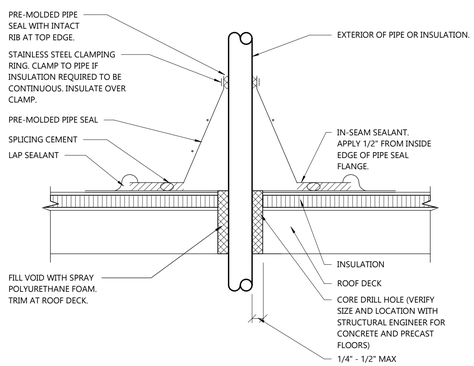
7 H3.0 PIPE SUPPORT SCHEDULE
NOT TO SCALE



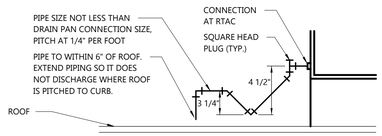
6 H3.0 UNINSULATED PIPE HANGER DETAIL
NOT TO SCALE



5 H3.0 GAS PIPE CONNECTION DETAIL
NOT TO SCALE

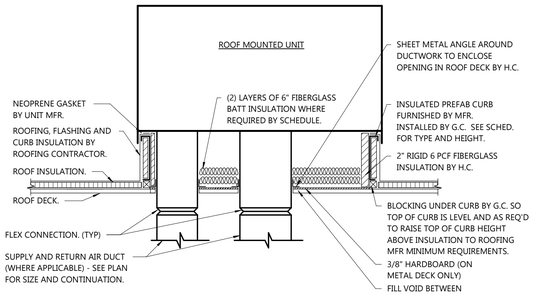


11 H3.0 ROOF PIPE BOOT PENETRATION DETAIL
NOT TO SCALE



10 H3.0 RTAC CONDENSATE DRAIN TRAP PIPING DETAIL
NOT TO SCALE

UNIT	INSULATION	BALLAST
RTAC-1	YES	NO
RTAC-2	YES	NO
RTAC-3	YES	NO
MAU-1	YES	NO



9 H3.0 ROOF MOUNTED UNIT DETAIL
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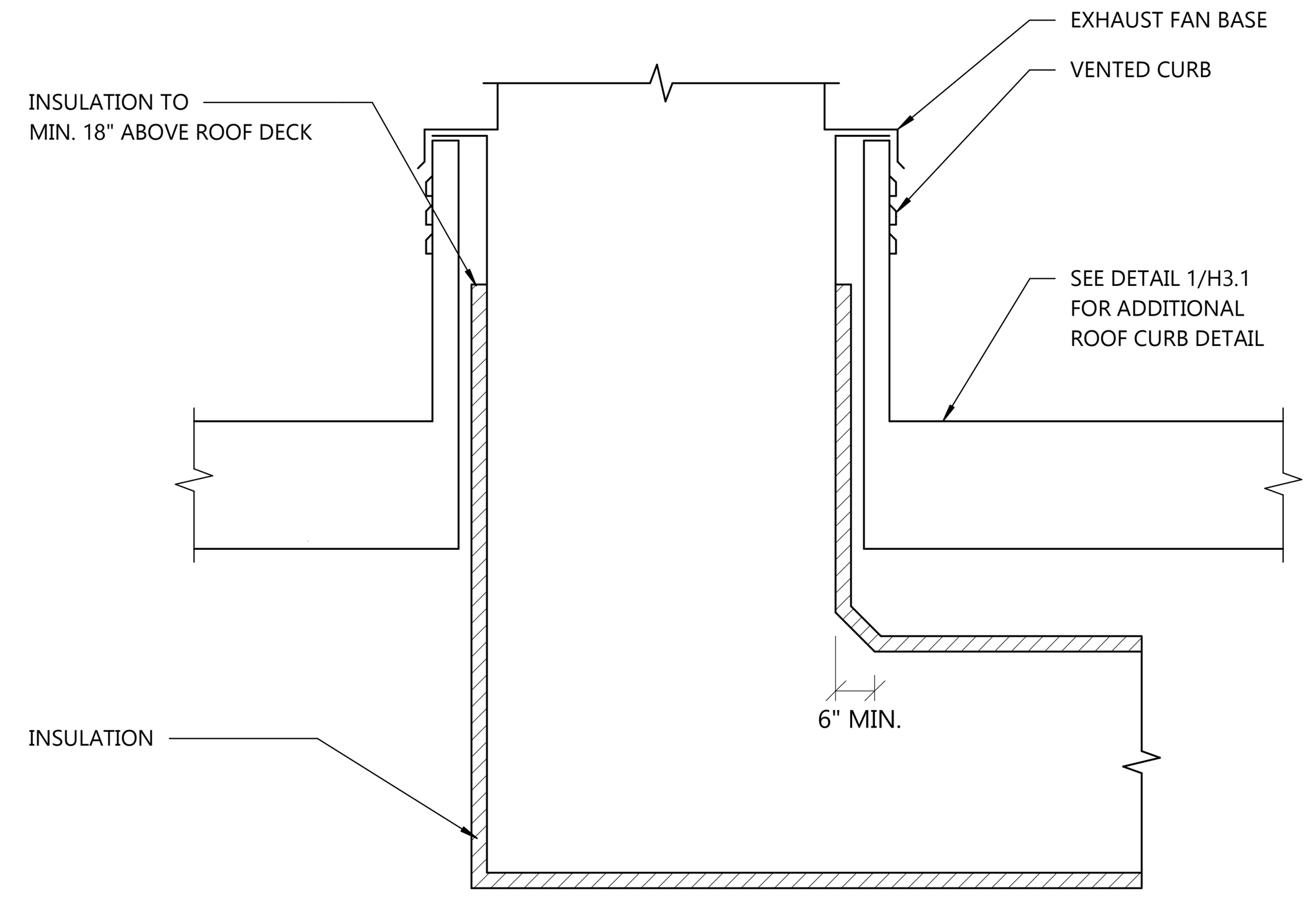
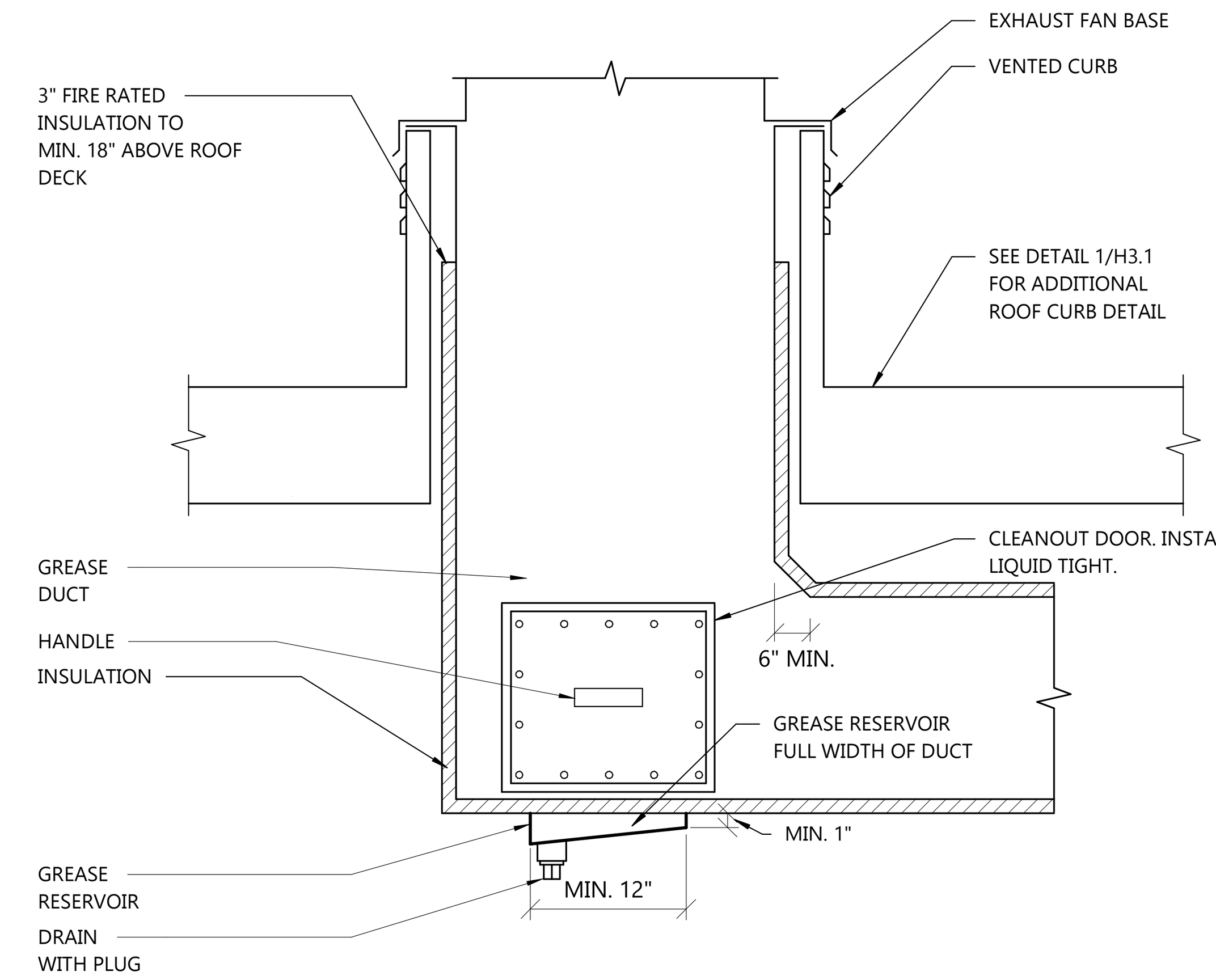
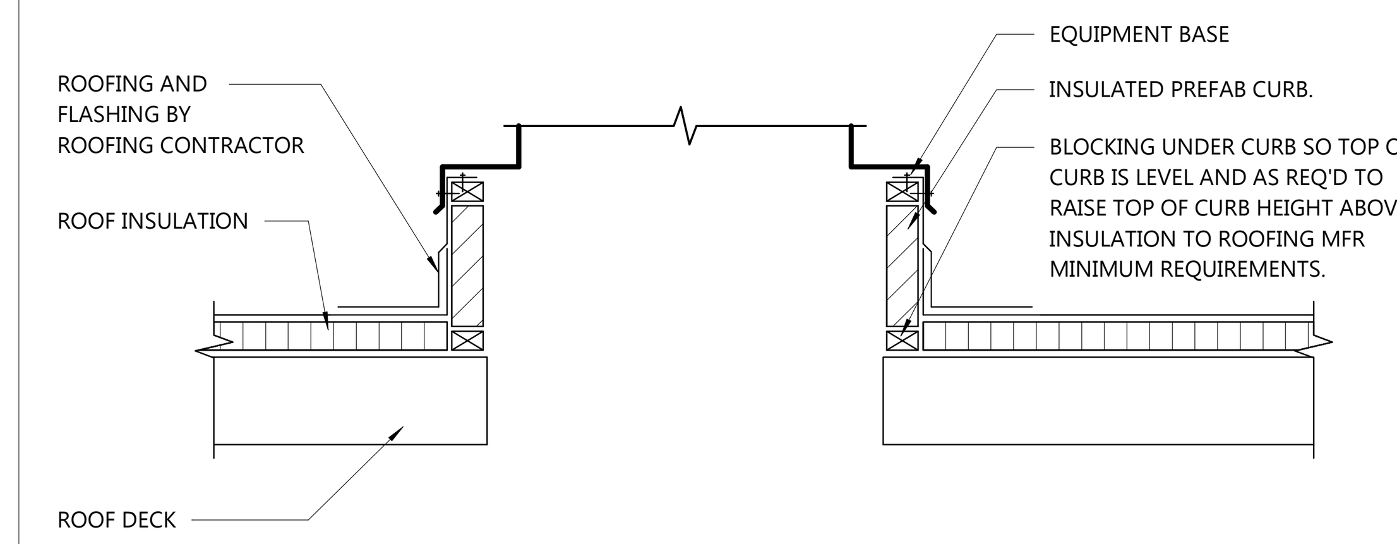


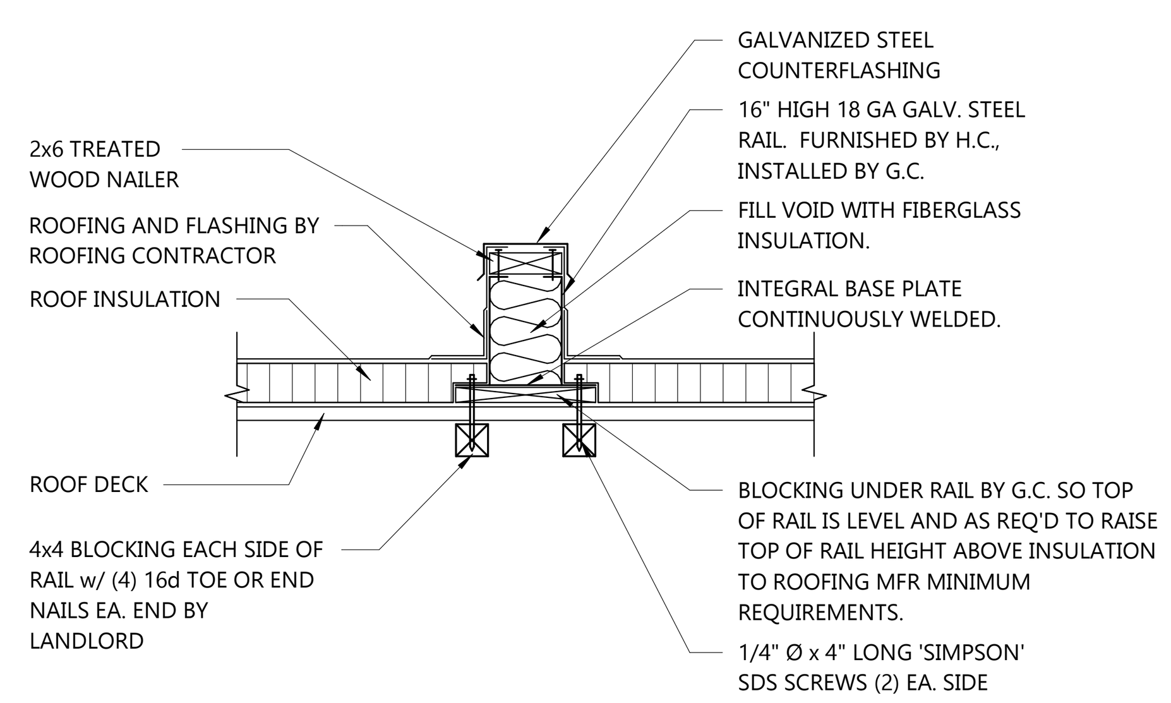
3 H3.1 EXHAUST FAN DETAIL (EF-2)
NOT TO SCALE



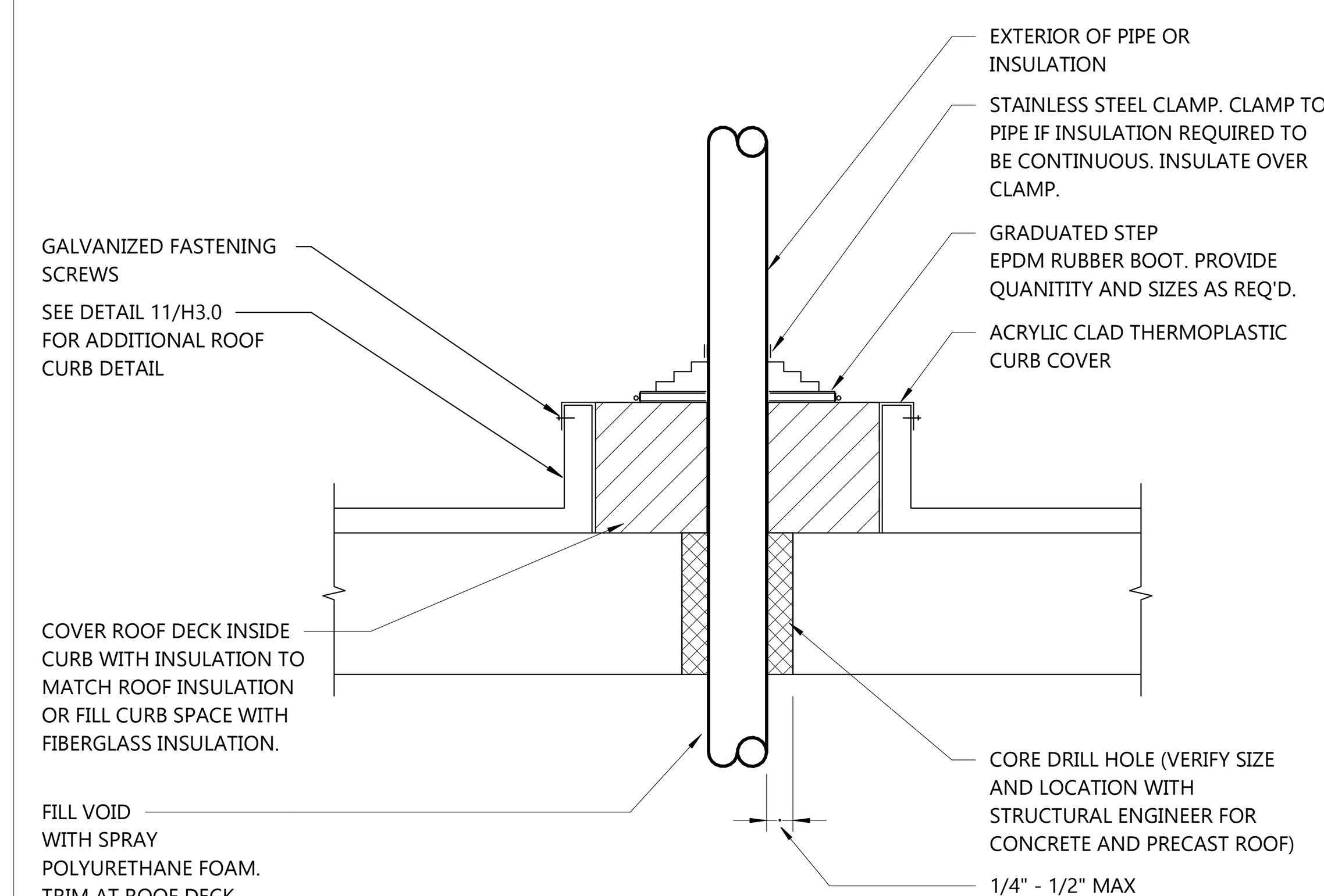
2 H3.1 EXHAUST FAN DETAIL (EF-1)
NOT TO SCALE



1 H3.1 TYPICAL ROOF CURB DETAIL
NOT TO SCALE

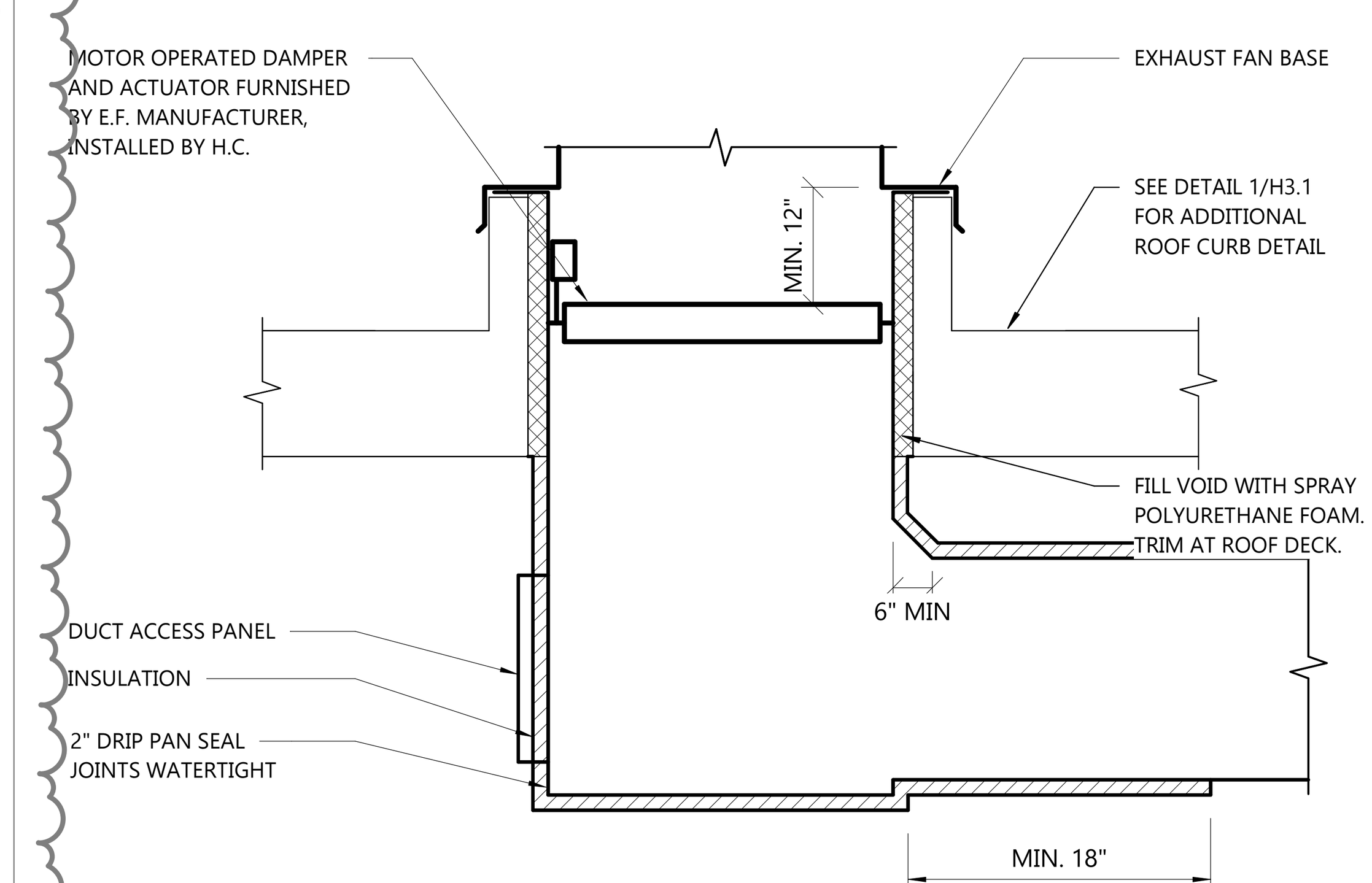


6 H3.1 EQUIPMENT SUPPORT RAIL DETAIL
NOT TO SCALE



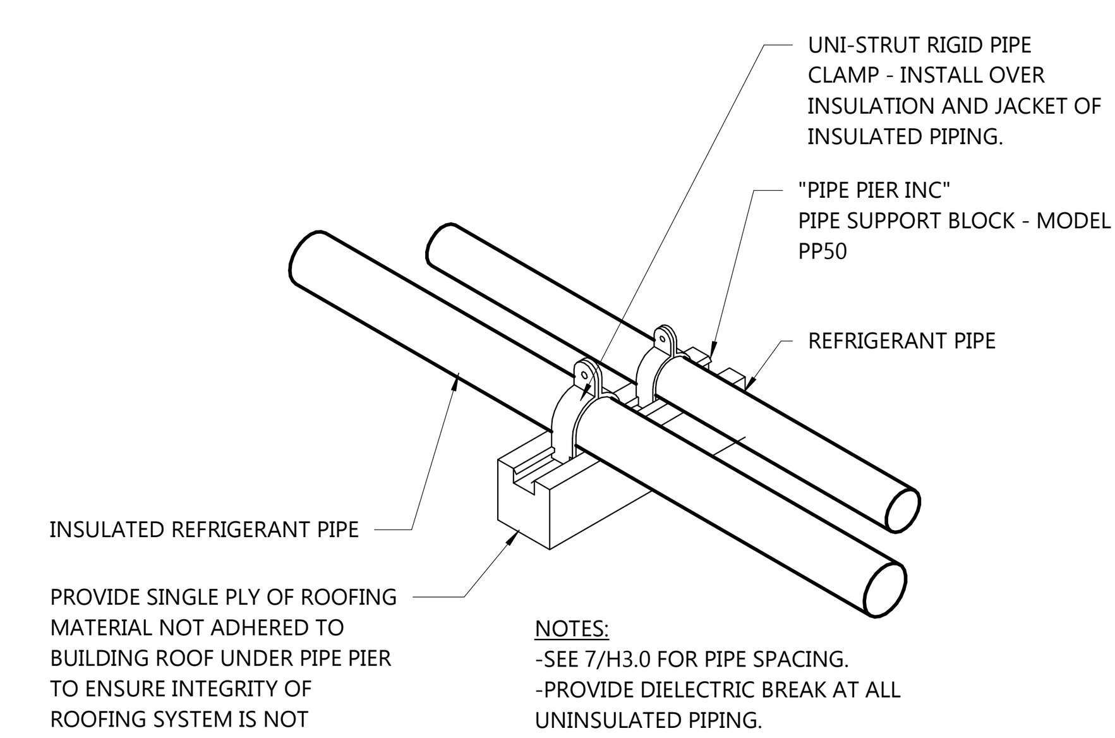
NOTE:
- PROVIDE ONE SPARE BOOT PER CURB FOR
ELECTRICAL CONDUIT.

5 H3.1 ROOF PIPE CURB PENETRATION DETAIL
NOT TO SCALE



4 H3.1 EXHAUST FAN DETAIL (EF-3 & EF-4)
NOT TO SCALE

AD1



NOTES:
-SEE 7/H3.0 FOR PIPE SPACING.
-PROVIDE DIELECTRIC BREAK AT ALL
UNINSULATED PIPING.

7 H3.1 REFRIGERANT PIPE SUPPORT ON ROOF DETAIL
NOT TO SCALE

HVAC DETAILS

EXCEL
ARCHITECTS • ENGINEERS • SURVEYORS
Always a Better Plan
100 Camelot Drive
Fond Du Lac, WI 54935
Phone: (920) 926-9800
www.EXCELENGINEER.com

PROJECT INFORMATION

PROPOSED BUILDING RENOVATION
HAWAIIAN BROS - STR: 43
1401 GRINDSTONE PKWY • COLUMBIA, MO

PROFESSIONAL SEAL

SHEET DATES
SHEET ISSUE OCT. 26, 2021
REVISIONS
AD1 MAR. 7, 2022

JOB NUMBER
2164120

SHEET NUMBER
H3.1

ELECTRIC RADIANT HEATER SCHEDULE (E.R.H.)

NO.	BTU	WATT	CABINET HEIGHT	CABINET DEPTH	CABINET LENGTH	HEIGHT A.F.F. (1)	VOLTS	CONTROL	MODEL	REMARKS
1	5,100	1,500	3.375"	5.5"	46"	SEE DWG.	120/1	WALL SWITCH	JRK41512	BERKO

- ACCEPTABLE MANUFACTURERS: BERKO, Q-MARK, MARKEL.
- 20-GAUGE COLD ROLLED STEEL ENCLOSURE FINISHED IN A POLYESTER PGIC POWER PAINT.
- ONE PIECE, SNAP-OUT, 0.30 GOLD ANODIZED ALUMINUM REFLECTOR WITH A 60 DEGREE SYMMETRICAL BEAM ANGLE.
- QUARTZ TUBE RADIANT HEATING TYPE RADIANT ELEMENT WITH HIGH THERMAL SHOCK CHARACTERISTICS.

(1) IF MOUNTING HEIGHT NOT INDICATED ON PLAN, MOUNT HEATER AT MINIMUM HEIGHT 8'-0" AFF.

AD1

EXHAUST FAN SCHEDULE (EF)

NO.	SERVICE	CFM	SP " WC	MAX. BHP	MOTOR HP	FAN RPM	MOTOR RPM	DRIVE	VFD	DISC.	DAMPER	DAMPER LOC.	DAMPER ACTUATOR	MAX. SONES	CURB	WEIGHT LBS.	MODEL	REMARKS
3	CO2 EXHAUST	200	0.38	0.05	1/4	1,025	1,750	DIRECT (1A)	NO	(3)	M.O.D. (5)	(9)	(10)	4.6	18"	100	DR12HFA	CAPTIVE AIRE
4	TOILET EXHAUST	150	0.50	0.08	1/4	1,154	1,750	DIRECT (1A)	NO	(3)	M.O.D. (5)	(9)	(10)	5.6	18"	100	DR12HFA	CAPTIVE AIRE

- ACCEPTABLE MANUFACTURERS: GREENHECK, COOK, CARNES, PENN-BARRY, ACME, TWIN CITY.
- PERMANENTLY LUBRICATED SEALED BALL BEARING MOTORS MOUNTED ON VIBRATION ISOLATORS OUT OF THE AIRSTREAM. SEE MOTOR SPEC FOR ADDITIONAL REQUIREMENTS.
- PROVIDE GREASABLE BEARINGS WITH MINIMUM L10 LIFE IN EXCESS OF 100,000 HOURS (EQUIVALENT TO L50 AVERAGE LIFE OF 500,000 HOURS).
- PROVIDE WITH 1/2" MESH BIRD SCREEN AND CURB SEAL.
- PROVIDE WITH TOOL-LESS TOP CAP REMOVAL.

MOTOR
(1A) PROVIDE DIRECT DRIVE FANS WITH ECM MOTOR. AIRFLOW SET MANUALLY AT MOTOR.
DISCONNECT
(3) PROVIDE PRE-WIRED NEMA 1 DISCONNECT SWITCH OR TWIST LOCK PLUG, NEMA 3R IF NOT PROECTED FROM THE WEATHER.
DAMPER
(5) PROVIDE WITH MOTORIZED DAMPER. 16 GA. GALV. FRAME AND BLADES, PLATED STEEL LINKAGE AND AXLES, SYNTHETIC BEARINGS.
DAMPER LOCATION
(9) DAMPER MOUNTED IN ROOF CURB, INTERNAL MOUNT ACTUATOR, HINGED FAN BASE. DAMPER SHELF NOT PERMITTED. DUCTWORK CONTINUOUS THRU CURB.
ACTUATOR
(10) 120 VOLT.

ELECTRIC WALL HEATER SCHEDULE - (E.W.H.)

NO.	CFM	EAT F	LAT F	MBH	HTG KW	THERMOSTAT	CABINET RECESS DEPTH	CABINET HGT. AFF	MODEL	COLOR	REMARKS
1	100	60	122	6.8	2	INTEG., PREWIRED, TAMPER-RESISTANT	-	12"	FRC-4020	WHITE	"BERKO"
2	100	60	122	6.8	2	INTEG., PREWIRED, TAMPER-RESISTANT	3-3/4"	12"	FRC-4020	WHITE	"BERKO"

- ACCEPTABLE MANUFACTURERS: BERKO, RAYWALL, Q-MARK, MARKEL.
- PROVIDE ALL EWH'S WITH PREWIRED DISCONNECT SWITCH, PREWIRED AUTOMATIC RESET THERMAL OVERLOAD PROTECTION, BUILT-IN FAN DELAY CONTROLS, 16 GAUGE FRONT BAR GRILLE.

DESTRATIFICATION FAN SCHEDULE (D.F.)

NO.	LOC.	CFM	FAN DIA.	INSTALLATION HEIGHT HEIGHT	RPM	MAX. AMPS	HP	WATTS	PROTECTIVE CAGE	SECONDARY SUPPORT CABLE	COLOR	WEIGHT	MODEL	REMARKS
1	SEE DWG.	620	-	BETWEEN TRUSSES	1,640	0.46	-	31	NO	NO	WHITE	15 LBS	D-25-EC	"AIRIUS" (1)

- ACCEPTABLE MANUFACTURERS: ENVIRO-FAN, LEADING EDGE, AIRUS
(1) PROVIDE (1) SPEED CONTROLER FOR (2) FANS.

SUPPLY GRILLE SCHEDULE (S.G.)

NO.	TYPE	CFM RANGE	NECK/ FACE SIZE	INLET DUCT DIA.	MAT'L	VOL. DMPR	FINISH	FRAME	THROW	MODEL	REMARKS
1-6	PLAQUE	0-75	24 X 24	6"	STEEL	(1)	WHITE	LAY-IN	(3)	OMNI	"TITUS" (5)
1-8	PLAQUE	76-275	24 X 24	8"	STEEL	(1)	WHITE	LAY-IN	(3)	OMNI	"TITUS" (5)
1-10	PLAQUE	276-375	24 X 24	10"	STEEL	(1)	WHITE	LAY-IN	(3)	OMNI	"TITUS" (5)
1-12	PLAQUE	376-550	24 X 24	12"	STEEL	(1)	WHITE	LAY-IN	(3)	OMNI	"TITUS" (5)
1-14	PLAQUE	551-750	24 X 24	14"	STEEL	(1)	WHITE	LAY-IN	(3)	OMNI	"TITUS" (5)
1S-6	PLAQUE	0-75	12 X 12	8"	STEEL	(1)	WHITE	(6)	(3)	OMNI	"TITUS" (5)
1S-8	PLAQUE	76-275	12 X 12	8"	STEEL	(1)	WHITE	(6)	(3)	OMNI	"TITUS" (5)
1S-10	PLAQUE	276-375	12 X 12	10"	STEEL	(1)	WHITE	(6)	(3)	OMNI	"TITUS" (5)
1S-12	PLAQUE	375-550	15 X 15	12"	STEEL	(1)	WHITE	(6)	(3)	OMNI	"TITUS" (5)
2S	DBL DEFL.	SEE DWG	(2)	-	STEEL	(1)	WHITE	SURFACE MOUNT	DBL DEFL. (4)	300R	"TITUS"

- ACCEPTABLE MANUFACTURERS: TITUS, PRICE, CARNES, METALAIRE, ANEMOSTAT, KRUEGER, NAILOR.
- NOT ALL SUPPLY GRILLES SCHEDULED ARE USED ON THE PROJECT.
(1) VOLUME DAMPER AT THE GRILLE INDICATED BY A "D" AFTER THE GRILLE DESIGNATION. EXAMPLE: SG1S-8D IS SG1S-8 WITH A DAMPER.
(2) NECK SIZE INDICATED ON PLAN AT GRILLE IDENTIFICATION.
(3) NUMBER OF THROW DIRECTION INDICATED ON PLAN BY GRILLE SHADING. SHADED QUADRANT DOES NOT HAVE AIRFLOW.
(4) FRONT BLADES IN THE HORIZONTAL DIRECTION.
(5) PROVIDE MOLDED FIBERGLASS INSULATION BLANKET ON BACK SIDE OF GRILLE.
(6) PROVIDE GRILLE WITH LAY-IN FRAME AND MODEL TRM-S MOUNTING FRAME TO INSTALL GRILLE.

RETURN GRILLE SCHEDULE (RG)

NO.	TYPE	MAX. CFM	NECK/ FACE SIZE	FLEX. DUCT. DIA.	MAT'L	VOL. DMPR	FINISH	FRAME	MODEL	REMARKS
1-6	LOUVERED	75	22 x 10	6"	STEEL	(1)	WHITE	LAY-IN (3)	350RL	"TITUS"
1-8	LOUVERED	250	22 x 10	8"	STEEL	(1)	WHITE	LAY-IN (3)	350RL	"TITUS"
1-10	LOUVERED	450	22 x 10	10"	STEEL	(1)	WHITE	LAY-IN (3)	350RL	"TITUS"
1-12	LOUVERED	750	22 x 22	12"	STEEL	(1)	WHITE	LAY-IN (3)	350RL	"TITUS"
1-14	LOUVERED	1,100	22 x 22	14"	STEEL	(1)	WHITE	LAY-IN (3)	350RL	"TITUS"
1-16	LOUVERED	1,600	22 x 22	16"	STEEL	(1)	WHITE	LAY-IN (3)	350RL	"TITUS"
1-18	LOUVERED	2,000	22 x 22	18"	STEEL	(1)	WHITE	LAY-IN (3)	350RL	"TITUS"
2S	LOUVERED	SEE DWG.	(2)	-	STEEL	(1)	WHITE	SURFACE MOUNT	350R (4)	"TITUS"
3S	LOUVERED	SEE DWG.	(2)	-	STEEL	(1)	WHITE	SURFACE MOUNT	33R (4)	"TITUS"

- ACCEPTABLE MANUFACTURERS: TITUS, PRICE, CARNES, METALAIRE, ANEMOSTAT, KRUEGER, NAILOR.
- NOT ALL RETURN GRILLES SCHEDULED ARE USED ON THE PROJECT.
(1) VOLUME DAMPER AT THE GRILLE INDICATED BY A "D" AFTER THE GRILLE DESIGNATION. EXAMPLE: RG1S-8D IS RG1S-8 WITH A DAMPER.
(2) NECK SIZE INDICATED ON PLAN AT GRILLE IDENTIFICATION.
(3) SURFACE MOUNT BORDER WITH NO SCREW HOLES FOR LAY-IN APPLICATION.
(4) BLADES IN HORIZONTAL DIRECTION.

EXHAUST GRILLE SCHEDULE (EG)

NO.	TYPE	CFM RANGE	NECK/ FACE SIZE	FLEX. DUCT. DIA.	MAT'L	VOL. DMPR	FINISH	FRAME	MODEL	REMARKS
1S-6	LOUVERED	0-75	8 X 8	6"	STEEL	(1)	WHITE	SURFACE MOUNT	350RL	"TITUS"
2S	LOUVERED	SEE DWG.	(2)	-	STEEL	(1)	WHITE	SURFACE MOUNT	350R (4)	"TITUS"

- ACCEPTABLE MANUFACTURERS: TITUS, PRICE, CARNES, METALAIRE, ANEMOSTAT, KRUEGER, NAILOR.
(1) VOLUME DAMPER AT THE GRILLE INDICATED BY A "D" AFTER THE GRILLE DESIGNATION. EXAMPLE: EG1S-8D IS EG1S-8 WITH A DAMPER.
(2) NECK SIZE INDICATED ON PLAN AT GRILLE IDENTIFICATION.
(4) BLADES IN HORIZONTAL DIRECTION.

AD1

CIRCULATING FAN SCHEDULE (C.F.)

NO.	TYPE	CFM	S.P. " W.C.	MOTOR HP	VOLTS	AMPS	BLADE SIZE (IN.)	MODEL	REMARKS
1	BOLT ON	2,650	-	1/15	120/1	1.2	12	B12P	MARLEY

- ACCEPTABLE MANUFACTURERS: MARLEY, BERKO, Q-MARK.
- PROVIDE 3-SPEED PULL CHAIN SPEED SWITCH MOUNTED ON FAN HOUSING.
- PROVIDE WITH CDMW WALL MOUNTING BRACKET

DUCTWORK AND DUCTWORK INSULATION SCHEDULE

SERVICE		LOCATION	DUCT MAT'L	SMACNA PRESS. CLASS	INSULATION RECTANGULAR DUCT	INSULATION ROUND DUCT	INSUL. JACKET
SUPPLY	SINGLE ZONE SYSTEMS (RTU AND MAU)	CONCEALED	GALV. ST.	+1"	1.5" FLEX. F.G.	1.5" FLEX. F.G.	N.R.
SUPPLY	SINGLE ZONE SYSTEMS (RTU)	EXPOSED IN ROOMS SERVED BY UNIT	GALV. ST.	+1"	1" ALD (1)	N.R.	N.R.
RETURN	UPSTREAM OF FAN	CONCEALED	GALV. ST.	-1"	1" ALD (1)	N.R.	N.R.
EXHAUST	UPSTREAM OF FAN, RE	CONCEALED	GALV. ST.	-1"	1.5" FLEX. F.G. (2)	1.5" FLEX. F.G. (2)	N.R.
EXHAUST	TYPE I KITCHEN HOOD	CONCEALED	(5)	-3"	(4)	(4)	N.R.
EXHAUST	TYPE II KITCHEN HOOD	CONCEALED	GALV. ST.	-3"	1.5" FLEX. F.G.	1.5" FLEX. F.G.	N.R.

N.R. = NOT REQUIRED
CONCEALED = HIDDEN FROM VIEW BY WALLS AND CEILINGS.
MATERIALS:
GALV. STEEL: ASTM A653, LOCK FORMING QUALITY, 1.25 OUNCES/ S.F. ZINC COATING (G90 IN ACCORDANCE WITH ASTM A90 BOTH SIDES).
- ALL JOINTS, LONGITUDINAL AND TRANSVERSE SEAMS AND CONNECTIONS IN DUCTWORK SHALL BE SEALED PER 2015 IECC 403.2.9.
(2) INSULATE FROM 18" UPSTREAM OF THE BACKDRAFT OR MOTOR OPERATED DAMPER TO THE POINT WHERE THE DUCT EXITS THE BUILDING.
(4) INSULATE CONCEALED DUCTWORK AND SURFACES OF TYPE 1 KITCHEN HOODS WITH (2) LAYERS OF 1 1/2" FIRE RATED INSULATION.
(5) DUCTWORK AND SUPPORT MINIMUM 18 GA NO. 2B MILL ROLLED FINISH S.S. OR 16 GA. STEEL. WELD FINISH SHALL BE AS WELDED.

PIPE SCHEDULE

SERVICE	PIPE SIZE	STEEL PIPE: BLACK STEEL	STEEL PIPE: GALVANIZED	STEEL PIPE: ASTM A53 GRADE B F	E	S	SCHEDULE	STEEL FITTINGS: CAST IRON THREADED ASTM A126/ANSI B16.4	MALLEABLE IRON THREADED ASME/ANSI B16.3	FORGED STEEL THREADED OR WELDED ASTM A105 GRADE II/ ANSI B16.11	SEAMLESS CARBON STEEL WELDED ASTM A234, GR. WPB/ ANSI 16.9	COLD PRESS MECHANICAL JOINT	CLASS	COPPER PIPE: ASTM B280 TYPE ACR	COPPER PIPE: PRECHARGED LINE SET	COPPER FITTINGS: ASME B16.22 WROUGHT COPPER	COPPER FITTINGS: SOLDER / BRAZING	PLASTIC: PRESSURE RATED	PLASTIC: NON-PRESSURE RATED	PLASTIC: SCHEDULE	PLASTIC PIPE: PVC ASTM D1784, D1785, D2672	PLASTIC FITTINGS: PVC ASTM D2464, D2467, D1784	PEX
GAS (INDOOR ≤ 5 PSIG)	1/2" - 3"	X			X	X	40	X	X	X	X	(3)	125/150										
GAS (OUTDOOR)	1/2"- 4"	X			X	X	40	X	X	X	X	(3)	125/150										
GAS REGULATOR VENTS	ALL SIZES	X			X	X	40	X	X	X	X	(3)	125/150										
REFR. SUCTION AND LIQUID	ALL													X		X	(1)						
COND. DRAIN	ALL																		X	40	X	(2)	

AD1

(1) AWS A5.8 BCuP SILVER/PHOSPHOROUS/COPPER ALLOY BRAZING WITH MELTING RANGE OF 1190 TO 1480 DEG F.
(2) ASTM F656 SOLVENT WELD WITH ASTM D2564 CLEAR SOLVENT CEMENT.
(3) VIEGA MEGAPRESS FITTING COMPLYING WITH ASTM A420 OR ASME B16.3. HNBR SEAL FOR GAS.
10 YEAR WARRANTY IN MATERIAL AND WORKMANSHIP. INSTALL PER MFR INSTALLATION INSTRUCTIONS.

AD1

PIPE INSULATION SCHEDULE

SERVICE	LOCATION	INSULATION TYPE	JACKET	PIPE SIZE < 1"	1" - 1.25"	1.5" - 3"	4" - 6"	> 6"
REFRIGERATION SUCTION	OUTDOORS (1)	ELASTOMERIC FOAM	PVC	1/2"	1"	1"	1"	1"
REFRIGERATION SUCTION	INDOORS	ELASTOMERIC FOAM	N.R.	1/2"	1"	1"	1"	1"
REFRIGERATION LIQUID	ALL	N.R.	N.R.	-	-	-	-	-

(1) CONTINUE INSULATION INTO THE COIL MODULE TO THE COOLING COIL.

AD1

ELECTRICAL/STARTER/DISCONNECT SCHEDULE

SYM.	HP	KW	FLA	MCA	MOP	VOLT	PH.	STARTER TYPE	STARTER LOCATION	STARTER FURN. BY	AUX. CONTACT	ACCESS-ORIES	SMOKE DETECTOR	DISCONNECT DIS-CONNECT	DISCONNECT FURN. BY	REMARKS
RTAC-1	-	-	-	51.0	60	208	3	INTEG.	INTEGRAL	EM	-	-	(6)	R	EM (2)	-
RTAC-2	-	-	-	46.0	50	208	3	INTEG.	INTEGRAL	EM	-	-	(6)	R	EM (2)	-
RTAC-3	-	-	-	46.0	50	208	3	INTEG.	INTEGRAL	EM	-	-	(6)	R	EM (2)	-
EF-3	1/4	-	-	-	-	120	1	RELAY	(28)	HC	-	-	-	R	EM (2)	(3)(4)
EF-4	1/4	-	-	-	-	120	1	RELAY	(28)	HC	-	-	-	R	EM (2)	(3)
EWH'S	-	2	-	-	-	208	1	INTEG.	INTEGRAL	EM	-	-	-	R	EM	-
DF-1'S	-	-	-	-	-	120	1	INTEG.	INTEGRAL	EM	-	-	-	R	EC	H.W. (7)
ERH-1	-	1.5	-	-	-	120	1	INTEG.	INTEGRAL	EM	-	-	-	R	EC	H.W. (8)
CF-1	1/15	-	-	-	-	120	1	INTEG.	INTEGRAL	EM	-	-	-	R	EC	H.W. (8)

STARTER TYPE:
INTEG.= INTEGRAL: PROVIDED INTEGRAL WITH EQUIPMENT.
RELAY= UL LISTED MOTOR RATED RELAY WITH SEPARATE ENTRANCES FOR INPUT AND OUTPUT CONTACTS (RIBT SERIES), OVERRIDE SWITCH AND LED STATUS INDICATOR. CONTACT RATING, CONFIGURATION, AND COIL VOLTAGE SUITABLE FOR APPLICATION.
MAN= MANUAL: NEMA ICS 2, AC GENERAL PURPOSE CLASS A MANUALLY OPERATED, FULL-VOLTAGE CONTROLLER WITH QUICK MAKE AND BREAK TOGGLE ACTION AND DOUBLE BREAK SILVER ALLOY CONTACTS. BIMETALLIC OR MELTING ALLOY TYPE THERMAL OVERLOAD UNITS. NEMA ICS 6 GENERAL PURPOSE FLUSH MOUNTED ENCLOSURE WITH STAINLESS STEEL COVER PLATE IN FINISHED AREAS AND TYPE 1 SURFACE MOUNTED IN UNFINISHED AREAS.
MAG= MAGNETIC: NEMA ICS 2, AC GENERAL PURPOSE CLASS A MAGNETIC ACROSS-THE-LINE CONTROLLER. DOUBLE BREAK SILVER ALLOY CONTACTS. NEMA SOLID STATE OVERLOAD RELAY WITH USER SELECTABLE SETTINGS, CLASS 10, 20, AND 30; BUILT-IN MEMORY TO PREVENT HOT MOTOR RESTART. OPERATING TEMPERATURE: -20 DEGREE C TO +70 DEGREE C. PHASE CURRENT LOSS PROTECTION. PHASE CURRENT UNBALANCE PROTECTION (ADJUSTABLE 20-50%). PROVIDE NEMA ICS 6, TYPE 1 ENCLOSURE AUXILIARY CONTACT(S) AS REQUIRED FOR CONTROL. PROVIDE 120V, 60 HZ, SECONDARY, 100VA FUSED MINIMUM, TRANSFORMER IN EACH STARTER. FUSED PRIMARY AND SECONDARY, BOND UNFUSED LEG OF SECONDARY TO ENCLOSURE.
COMB= COMBINATION: COMBINE MAGNETIC STARTER AND NON-FUSED DISCONNECT SWITCH IN COMMON ENCLOSURE. LOCKABLE IN OPEN POSITION, MOLDED CAST TYPE MOTOR CIRCUIT PROTECTOR (MAGNETIC PROTECTION ONLY).
VFD= VARIABLE FREQUENCY DRIVE- SEE SPECS.

FURNISHED BY:	ACCESSORIES:	DISCONNECT:	REMARKS:
EM = EQUIPMENT MANUFACTURER	HOA = HAND-OFF-AUTO	NR= NOT REQUIRED	REC.=RECEPTACLE
HC = HEATING CONTRACTOR	PL =LED PILOT LIGHT	R = REQUIRED	
EC = ELECTRICAL CONTRACTOR	PB = PUSH BUTTON	3R = NEMA 3R	

- ACCEPTABLE MANUFACTURERS: ALLEN BRADLEY, CUTLER HAMMER, SQUARE D, GENERAL ELECTRIC.
- VERIFY VOLTAGE AND PHASE WITH ELECTRICAL CONTRACTOR BEFORE ORDERING EQUIPMENT.
- FURNISH MOTOR STARTERS TO E.C. FOR INSTALLATION AND WIRING WHEN THE STARTER SCHEDULE CALLS FOR H.C. TO FURNISH.
(2) DISCONNECT FACTORY MOUNTED AND PREWIRED BY EQUIPMENT MANUFACTURER.
(3) EC SHALL WIRE TO 120 VOLT MOTOR OPERATED DAMPER ACTUATOR LOCATED INSIDE BUILDING BELOW ROOF EXHAUSTER FROM SAME FEED AS ROOF EXHAUSTER.
(4) EC SHALL WIRE 24V FROM CO2 DETECTOR ALARM OUTPUT TO RELAY. TURN ON EF-3 UPON CO2 ALARM FROM DETECTOR.
(6) SMOKE DETECTOR PROVIDED WITH RTAC TO SHUT DOWN UNIT ON SMOKE DETECTION.
(7) EC SHALL WIRE (2) DF-1'S TO SPEED CONTROLLER. SPEED CONTROLLER FURNISHED BY DF-1 MANUFACTURER.
(8) EC SHALL PROVIDE WALL SWITCH.
(28) MOUNT RELAY ON WALL NEAR ELECTRICAL PANEL THAT SERVES FAN. COORDINATE LOCATION WITH ELECTRICAL CONTRACTOR.

ROOFTOP AIR CONDITIONING UNIT SCHEDULE (R.T.A.C.)

NO.	NOM. TONS	SUPPLY FAN CFM	OA CFM	EXT. SP	DRIVE TYPE	MOTOR HP	MOD. TYPE	RELIEF	COOLING EAT DB / WB	MBH CAP.	AMB. TEMP F	NO. COMPR.	NO. STAGES	HEATING KW	MBH IN	MBH OUT	NO. STAGES	OUTSIDE AIR	SMOKE DETECTOR	CURB HEIGHT BY MFR.	CURB TYPE	MCA	MOP	VOLT/ PHASE	EFFICIENCY MIN. CODE	UNIT RATING	TEST PROC.	WEIGHT (LBS.)	MODEL	REMARKS
1	10	3,200	800	1.0	BELT	2	2 SPD VFD (5)	FAN	80.6/67.0	105.0	105	2	2	-	180	144	2	(3)	YES (2)	14"	STANDARD	51.0	60	208/3	12.6 IEER, 11.0 EER	13.0 IEER, 11.0 EER	ARI 340/360	1,700	KGB120S4M	LENNOX (1)(6)
2	8.5	3,000	400	1.0	BELT	2	2 SPD VFD (5)	FAN	78.4/66.0	91.8	105	2	2	-	130	104	2	(3)	YES (2)	14"	STANDARD	46.0	50	208/3	12.6 IEER, 11.0 EER	14.0 IEER, 12.2 EER	ARI 340/360	1,700	KGB102S4M	LENNOX (1)(6)
3	8.5	3,000	400	1.0	BELT	2	2 SPD VFD (5)	FAN	78.4/66.0	91.8	105	2	2	-	130	104	2	(3)	YES (2)	14"	STANDARD	46.0	50	208/3	12.6 IEER, 11.0 EER	14.0 IEER, 12.2 EER	ARI 340/360	1,700	KGB102S4M	LENNOX (1)(6)

- ACCEPTABLE MANUFACTURERS: LENNOX, TRANE, CARRIER, DAIKIN, AAON. USE OF MANUFACTURER OR MODEL OTHER THAN LISTED IN SCHEDULE ABOVE SHALL BE CONSIDERED A SUBSTITUTION AND SHALL BE APPROVED BY OWNER. DRAWINGS SHOWING REVISED DUCT ROUTING, ROOF OPENINGS, STRUCTURAL STEEL, ETC. WILL BE REQUIRED AT TIME OF RTAC SHOP DRAWINGS SUBMITTAL.
- SEE MOTOR SPECIFICATIONS FOR MOTOR REQUIREMENTS.
- PROVIDE PRE-INSULATED ROOF CURB.
- PROVIDE WITH 2" ASHRAE STD 52.2 MERV 8 T.A. FILTERS .
- RTAC DESIGNED TO PREVENT RAIN INTRUSION INTO THE AIRSTREAM WHEN TESTED AT DESIGN AND NO AIRFLOW PER SECTION 58 OF UL 1995.
- PROVIDE UNIT WITH INTEGRAL MANUFACTURER INSTALLED WATER-LEVEL MONITORING DEVICE IN THE PRIMARY DRAIN PAN TO SHUT OFF THE EQUIPMENT PER IMC 307.2.3.1.
- PROVIDE WITH HAIL GUARD FOR CONDENSING COILS.
- PROVIDE FACTORY RECOMMENDED FLUE EXTENSION. EXTENSION SHALL TAKE FLUE GASES TO 6" ABOVE TOP OF CABINET.
- PROVIDE WITH FACTORY INSTALLED HINGED ACCESS DOORS.
(1) PROVIDE UNIT MOUNTED NEMA 3R DISCONNECT.
(2) PROVIDE FACTORY INSTALLED DUCT SMOKE DETECTOR IN RETURN AIR SECTION WIRED TO SHUT DOWN SUPPLY FAN ON DETECTION OF SMOKE. PROVIDE SMOKE DETECTOR SIGNALING AND TESTING DEVICE WITH ADD ON "SMOKE" STROBE AT AHJ APPROVED LOCATION.
(3) PROVIDE MODULATING ECONOMIZER DAMPERS AND ACTUATOR WITH DIFFERENTIAL ENTHALPY CONTROL. CONTROL SHALL INCLUDE FAULT DETECTION AND DIAGNOSTICS SYSTEM COMPLYING WITH 2015 IECC C403.2.4.7.
(5) PROVIDE NEMA MG1 PART 31 PREMIUM EFFICIENCY MOTOR SUITABLE FOR VFD APPLICATION WITH FACTORY INSTALLED AEGIS SHAFT GROUNDING RING.
(6) PROVIDE WITH "HUMIDITROL" MODULATING HOT GAS RE-HEAT DEHUMIDIFICATION COIL AND FIELD INSTALLED DUCT MOUNTED HUMIDITY SENSOR.

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PROJECT INFORMATION
PROPOSED BUILDING RENOVATION
HAWAIIAN BROS - STR: 43
1401 GRINDSTONE PKWY • COLUMBIA, MO

PROFESSIONAL SEAL

SHEET DATES
SHEET ISSUE OCT. 26, 2021
REVISIONS
AD1 MAR. 7, 2022

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2164120

SHEET NUMBER
H4.0

ELECTRICAL SPECIFICATIONS

DIVISION 26 ELECTRICAL

26 05 00 BASIC ELECTRICAL REQUIREMENTS

A. SEE DIVISION 00 PROCUREMENT AND CONTRACTING AND DIVISION 01 GENERAL REQUIREMENT FOR ADDITIONAL REQUIREMENTS.
B. ELECTRICAL CONTRACTOR SHALL VERIFY REQUIREMENTS FOR TEMPORARY LIGHTING AND POWER WITH GENERAL CONTRACTOR AND INCLUDE IN HIS SCOPE OF WORK WHEN DIRECTED BY G.C. INSTALL IN ACCORDANCE WITH ALL CODE AND OSHA REQUIREMENTS FOR CONSTRUCTION PROJECTS.
C. SUBSTITUTIONS
  1. SEE DIVISION 01 23 00 PRODUCT SUBSTITUTION PROCEDURES FOR ADDITIONAL REQUIREMENTS.
  2. CONTRACTOR SHALL PROVIDE ALL SUPPORTING DATA AND ASSUME THE BURDEN OF PROOF THAT ANY SUBSTITUTE IS EQUIVALENT AS TO APPEARANCE, CONSTRUCTION, CAPACITY, AND PERFORMANCE. THE JUDGMENT OF EQUIVALENCY SHALL BE MADE BY THE ENGINEER AT THE TIME OF SHOP DRAWING REVIEW, NOT DURING BIDDING.
  3. WHERE SUBSTITUTE EQUIPMENT REQUIRES REDESIGN OF ANY PART OF THE PROJECT, THE COST OF REDESIGN AND ADDITIONAL COSTS OF THE WORK SHALL BE PAID BY THE CONTRACTOR. REDESIGN SHALL BE SUBJECT TO THE APPROVAL OF ALL AUTHORITIES HAVING JURISDICTION OVER THE WORK INCLUDING THE ARCHITECT/ENGINEER.
D. SHOP DRAWINGS, PRODUCT DATA, TEST RESULTS AND SAMPLE SUBMITTALS:
  1. SEE DIVISION 01 33 23 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES FOR ADDITIONAL REQUIREMENTS.
  2. ELECTRICAL CONSTRUCTION ADMINISTRATION SUBMITTAL LIST:
    a. PANELBOARDS
    b. LIGHT FIXTURES
    c. OCCUPANCY SENSORS
  3. INCLUDE OUTLINE AND GENERAL ARRANGEMENT DRAWINGS, DATA SHEETS AND WIRING DIAGRAMS.
  4. SHOP DRAWINGS SHALL CLEARLY INDICATE SPECIFIC MODEL BEING PROVIDED WHERE CUT SHEETS SHOW MULTIPLE MODELS.
  5. LIGHT FIXTURE SHOP DRAWINGS SHALL CLEARLY INDICATE INDENTIFICATION TAG AS INDICATED IN LIGHT FIXTURE SCHEDULE. ALL OPTIONS, ACCESSORIES AND FINISHES BEING PROVIDED SHALL BE CLEARLY INDICATED.
  6. SYSTEM WIRING RISER DIAGRAMS SHALL INDICATE ALL COMPONENTS SHOWN ON THE FLOOR PLANS, TYPE AND TERMINATION POINT OF CABLE TO EACH COMPONENT.
  7. PROJECT CLOSEOUT
    a. MARK RECORD DRAWINGS ON A FINAL SET OF DRAWINGS WHICH INCLUDES ALL REVISIONS.
E. FINISHING AND PAINTING
  1. SEE DIVISION 09 91 00 FINISH AND PAINTING FOR ADDITIONAL REQUIREMENTS.
  2. PREPARE EXPOSED CONDUIT, FITTINGS, SUPPORTS, AND ACCESSORIES FOR FINISH PAINTING IN ROOMS THAT WILL HAVE CEILING AND STRUCTURE PAINTED.
  3. E.C. SHALL PROVIDE A FACTORY OR FIELD APPLIED PRIME AND FINISH COAT OF COLOR SELECTED BY THE OWNER'S REPRESENTATIVE TO ALL ROOF MOUNTED EQUIPMENT AND OTHER EXTERIOR MATERIALS, INCLUDING SUPPORT HARDWARE.
  4. COORDINATE WORK WITH THE PAINTERS SO THAT ALL EQUIPMENT IS INSTALLED PRIOR TO PAINTING. E.C. SHALL PAINT ITEMS IF NOT IN PLACE PRIOR TO NORMAL ROUTINE PAINTING.
  5. IF FINISH BECOMES RUSTED, CORRODED, SCRATCHED, OR FLAKED DURING STORAGE OR INSTALLATION, REFINISH THE EQUIPMENT TO THE SATISFACTION OF THE OWNER.
  6. WHERE THE ELECTRICAL CONTRACTOR IS REQUIRED TO PAINT, THE PAINTING SHALL BE DONE IN ACCORDANCE WITH THE PAINTING PORTION OF THE ARCHITECTURAL SPECIFICATION.
F. DETAILS AND SCHEDULES ARE SHOWN TO AID THE CONTRACTOR AND ARE NOT MEANT TO BE INCLUSIVE OF ALL DEVICES. PROVIDE REQUIRED EQUIPMENT AND ACCESSORIES FOR A COMPLETE INSTALLATION.
G. INSTALL ALL EQUIPMENT PER MANUFACTURER’S INSTALLATION INSTRUCTIONS AND REQUIREMENTS. PROVIDE ADDITIONAL WORK AND MATERIALS AS REQUIRED.
H. COORDINATE INSTALLATION OF ELECTRICAL WORK WITH THE OTHER CONTRACTORS TO AVOID CONFLICTS WITH OTHER WORK.
I. MAINTAIN MAXIMUM HEADROOM AND SPACE CONDITION AT ALL POINTS IN THE BUILDING. WHERE HEADROOM OR SPACE CONDITIONS APPEAR INADEQUATE, NOTIFY ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE INSTALLATION.
J. COMPLY WITH THE REQUIREMENTS OF NFPA; NATIONAL, STATE AND LOCAL ELECTRICAL CODES AND LOCAL UTILITY REGULATIONS.
K. MATERIAL SHALL BEAR U.L. AND/OR OTHER APPROVED AGENCY LISTING.
L. INSTALL MOTOR STARTERS/VFDS FURNISHED BY HVAC AND PLUMBING CONTRACTORS, AND WIRE FROM THE POWER SOURCE TO THE STARTER/VFD AND FROM THE STARTER/VFD TO THE MOTOR.
M. VERIFY ELECTRICAL SIZE AND CONNECTION REQUIREMENTS FOR EQUIPMENT FURNISHED BY OTHERS WITH FINAL SHOP DRAWINGS.
N. CONTRACTOR SHALL CALL LOCAL UTILITY LOCATING SERVICE AND CONDUCT A PRIVATE UTILITY LOCATE TO ENSURE THAT ALL ELECTRICAL FEEDERS, BRANCH CIRCUITS, LOW VOLTAGE CABLES AND FIBER OPTIC HAVE BEEN LOCATED BEFORE STARTING SITE DEMOLITION. DESIGN ENGINEER AND GENERAL CONTRACTOR SHALL BE NOTIFIED OF ANY DISCREPANCIES BETWEEN PLAN AND FIELD CONDITIONS PRIOR TO CONSTRUCTION.
O. SCHEDULE REQUIRED POWER, TELEPHONE OR DATA OUTAGES IN OCCUPIED AREAS OF THE BUILDING WITH THE OWNER. CONTRACTOR SHALL WORK UNTIL SERVICE IS RESTORED. OUTAGE WORK SHALL BE PERFORMED DURING NON-WORKING HOURS, WEEKENDS, OR HOLIDAYS.
P. PROVIDE ALL CUTTING AND PATCHING NECESSARY FOR ELECTRICAL WORK INSTALLATION UNLESS THIS WORK IS IDENTIFIED TO BE THE WORK OF OTHER CONTRACTORS. PATCHING SHALL MATCH ADJACENT SURFACES. CORE DRILL OR SAW-CUT OPENINGS THROUGH EXISTING CONCRETE.
Q. REMOVE FROM THE JOB SITE ELECTRICAL CONDUIT, PANELS, CABLE, WIRE, EQUIPMENT, ETC. INDICATED BY THE DRAWINGS TO BE DEMOLISHED, UNLESS INDICATED TO BE TURNED OVER TO THE OWNER.
R. PROJECT COMPLETION
  1. CLEAN FIXTURES AND EQUIPMENT AND LEAVE IN PROPER WORKING CONDITION AT THE TIME OF FINAL CLEAN-UP.
S. PROVIDE OPERATING INSTRUCTIONS AS FOLLOWS:
  1. TWO (2) HOURS FOR BUILDING ELECTRICAL SYSTEM.
  2. FOUR (2) HOURS FOR LIGHTING CONTROL BY A MFR’S AUTHORIZED TECHNICIAN.
  3. FOUR (2) HOURS FOR FIRE ALARM SYSTEM. THE SUPPLIER SHALL REVIEW THE FIRE ALARM PANEL SEQUENCES OF OPERATION.
  4. MAINTAIN A RECORD OF OPERATING INSTRUCTION PERIODS.
  5. RECORD A VIDEO OF ALL OPERATING INSTRUCTIONS AND TURN OVER A COPY OF DVD TO OWNER.
T. LOCATION
  1. THE ARCHITECT SHALL RESERVE THE RIGHT TO MAKE OUTLET POSITION CHANGES UP TO 10' BEFORE INSTALLATION WITHOUT ANY ADDITIONAL COST TO PROJECT.
  2. DO NOT LOCATE OUTLETS OR EQUIPMENT WHERE THE USEFULNESS AND/OR OPERATION WILL BE AFFECTED BY THE WORK OF OTHER TRADES, DOOR SWING, COUNTER, EQUIPMENT, ETC.
U. ACCESS
  1. INSTALL EQUIPMENT, JUNCTION BOXES, PULL BOXES AND ACCESSORIES TO PERMIT ACCESS WITHOUT RELOCATING INSTALLED OR YET TO BE INSTALLED EQUIPMENT.
  2. ACCESS PANELS
    a. FURNISH ACCESS PANELS OF ADEQUATE SIZE TO PERMIT SERVICE OF CONCEALED DEVICES. PANELS SHALL BE SUITABLE FOR INSTALLATION IN THE MATERIAL FORMING THE FINISHED SURFACE, WITH FLUSH METAL FRAME, FLUSH HINGED STEEL DOOR, FLUSH SCREWDRIVER OPERATED LATCH.
    b. PANELS UL LISTED TO CONFORM TO THE FIRE RATING OF THE SURFACE INSTALLED IN.
    c. TURN ACCESS PANEL OVER TO CONTRACTOR SKILLED IN THE CONSTRUCTION OF THE SURFACES INVOLVED FOR INSTALLATION.
    d. ARCHITECT TO APPROVE ACCESS PANEL LOCATION PRIOR TO INSTALLATION OF EQUIPMENT REQUIRING ACCESS.
    e. COORDINATE WITH THE OTHER CONTRACTORS AND WHEREVER PRACTICAL, GROUP DEVICES IN SUCH A MANNER SO AS TO MINIMIZE PANELS.
V. EXCAVATION AND BACKFILL.
  1. VERIFY ALL EXISTING UNDERGROUND ELECTRICAL FEEDERS, BRANCH CIRCUITS, LOW VOLTAGE CABLES AND FIBER OPTIC AND PLUMBING PIPING HAVE BEEN LOCATED PRIOR TO EXCAVATION. CONTRACTOR SHALL NOT USE MACHINE EXCAVATORS AROUND EXISTING BURIED ELECTRICAL AND PLUMBING LINES.
  2. EXCAVATE AND BACKFILL TRENCHES FOR ELECTRICAL WORK. BACKFILL AND COMPACTION SHALL MEET REQUIREMENTS SPECIFIED ELSEWHERE.
  3. CONDUIT PASSING UNDER FOOTINGS AND FOUNDATION WALLS ARE ALLOWED WHERE PERMITTED BY NEC. MAINTAIN MINIMUM 1-1/2" CLEARANCE UNDER FOOTINGS AND FOUNDATION WALLS.
  4. BURY CONDUIT AND CABLE A MINIMUM 24" DEEP WITH 6" SAND BED ABOVE AND BELOW, AND WARNING MARKER TAPE MINIMUM 12” ABOVE.
  5. RESTORE EXISTING GROUND, LAWNS, PAVING, WALKS, ETC. TO ORIGINAL CONDITION.
  6. BRANCH CIRCUITS SIZED LESS THAN 100 AMPS MAY BE TRENCHED IN USING A “DITCH WITCH” STYLE TRENCHER OR VIBRATORY PLOW WHERE SOILS ARE SUITABLE FOR SUCH INSTALLATION METHODS AND WHERE ALLOWED BY STATE AND LOCAL CODES AND LOCAL AUTHORITY HAVING JURISDICTION. IT IS THE CONTRACTOR’S RESPONSIBILITY TO PROVE INSTALLATION DEPTHS TO THE AUTHORITY HAVING JURISDICTION.
W. DEMOLITION
  1. CONTRACTOR SHALL INCLUDE REMOVAL OF ALL ELECTRICAL MATERIALS BEING DEMOLISHED FROM THE JOBSITE.
  2. ALL FLUORESCENT AND HID LAMPS AND BALLASTS SHALL BE DISPOSED OF IN A MANNER APPROVED BY STATE, FEDERAL, AND E.P.A. STANDARDS.
X. REMODELING IN EXISTING CONSTRUCTION
  1. CONCEAL CONDUIT IN WALLS, ABOVE CEILING, OR BELOW FLOORS.
  2. WHERE IT IS IMPOSSIBLE TO CONCEAL CONDUIT AND WHEN APPROVED BY ARCHITECT, METAL SURFACE RACEWAY MAY BE USED FOR 110 VOLT OR GREATER POWER. PLASTIC SURFACE RACEWAY MAY BE USED UNDER THE FOLLOWING CIRCUMSTANCES:
    a. EACH LINE VOLTAGE CIRCUIT IN THE RACEWAY IS PROVIDED WITH A SEPARATE GREEN GROUND WIRE.
    b. RACEWAY HAS DIVIDERS BETWEEN THE LOW VOLTAGE AND LINE VOLTAGE COMPARTMENTS.
    c. WIRE HOLDDOWN CLIPS ARE PROVIDED IN THE RACEWAY.

26 05 02 UTILITIES

A. MODIFY EXISTING ELECTRIC SERVICE AS SHOWN ON THE DRAWINGS.
B. ASSIST THE OWNER IN APPLYING FOR ELECTRICAL SERVICE AND COORDINATE ANY MODIFICATIONS WITH THE UTILITY COMPANY. PROVIDE METERING EQUIPMENT, TRANSFORMER PAD, AND CONDUIT ROUGH-IN AS REQUIRED BY THE UTILITY.
C. ELECTRIC UTILITY
  1. EXISTING
  2. UTILITY COST BY OWNER.
D. TELEPHONE UTILITIES
  1. EXISTING TELEPHONE SERVICE
  2. TELEPHONE UTILITY COSTS BY OWNER
E. CABLE TELEVISION UTILITY
  1. EXISTING CABLE TELEVISION SERVICE
  2. CABLE UTILITY COSTS BY OWNER

26 05 19 LOW VOLTAGE POWER CONDUCTORS AND CABLES (600V AND LESS)

A. TYPE AND SIZE
  1. NO. 10 & 12: SOLID OR STRANDED COPPER, 600V, THHN/THWN.
  2. NO. 8 TO 3: STRANDED COPPER, 600V, THHN/THWN.
  3. NO. 2 TO 4/0: STRANDED COPPER OR ALUMINUM, 600V, THHN/THWN.
  4. 250 KCMIL AND LARGER: STRANDED COPPER OR ALUMINUM, 600V, XHHW.
  5. MINIMUM BRANCH CIRCUIT WIRE SIZE NO. 12.
  6. CONTROL WIRING: STRANDED COPPER, MINIMUM NO. 14.
  7. GREEN INSULATION, COPPER STRANDED EQUIPMENT GROUND.
  8. NM CABLE SHALL NOT BE PERMITTED.
  9. UF CABLE SHALL NOT BE PERMITTED.
  10. TYPE AC OR MC CABLE SHALL NOT BE PERMITTED.
B. NEUTRALS AND GROUNDS SHALL BE COLOR CODED PER NEC.
C. WIRE COLORS
  1. 120/208-VOLT SYSTEM: PHASE-A (BLACK), PHASE-B (RED), PHASE-C (BLUE).
D. VOLTAGE DROP
  1. AT NO POINT IN THE ELECTRICAL SYSTEM SHALL THERE BE MORE THAN 5 PERCENT TOTAL VOLTAGE DROP.
  2. THE CONTRACTOR SHALL APPROPRIATELY INCREASE THE SIZE OF ALL CIRCUIT CONDUCTORS TO LIMIT VOLTAGE DROP TO 2 PERCENT OR LESS FOR FEEDERS, AND 3 PERCENT OR LESS FOR BRANCH CIRCUITS.
  3. VOLTAGE DROP ON BRANCH CIRCUITS FOR LIGHTING OR RECEPTACLES SHALL BE CALCULATED USING 80 PERCENT AMPACITY OF THE BRANCH CIRCUITS OVERCURRENT PROTECTION DEVICE.
E. PROVIDE GROUND CONDUCTOR(S) WITH EVERY BRANCH CIRCUIT AND EVERY FEEDER.
F. WHEN USING ALUMINUM CONDUCTORS: THE CONTRACTOR SHALL SEAL ALL EXPOSED ALUMINUM WHEN CONDUCTOR IS EXPOSED IN A LUG WITH AN ANTI-OXIDANT COMPOUND. THE CONDUCTORS SHALL BE COMPACT CONCENTRIC STRANDED PURE ALUMINUM CONDUCTORS.
G. PROVIDE A SEPARATE GROUND CONDUCTOR AND A SEPARATE NEUTRAL CONDUCTOR WHEN AN INDIVIDUAL RECEPTACLE OR PIECE OF EQUIPMENT IS SHOWN WITH AN INDIVIDUAL HOMERUN.
H. PROVIDE A SEPARATE NEUTRAL CONDUCTOR FOR EACH LIGHTING BRANCH CIRCUIT THAT SERVES HID, ELECTRONIC FLUORESCENT BALLASTS AND SOLID-STATE LED DRIVERS OR PROVIDE A NEUTRAL CONDUCTOR ONE SIZE LARGER THAN THE LARGEST SOURCE CONDUCTOR WHEN THE NEUTRAL IS SHARED.
I. TESTING: ALL CIRCUITS SHALL BE TESTED FOR PROPER OPERATION AND FUNCTION. REPAIR ALL NON-WORKING, NEWLY INSTALLED, CIRCUITS.
J. VERIFY LUG SIZES AND TERMINATION LOCATION PRIOR TO INSTALLING FEEDERS.

26 05 29 HANGERS AND SUPPORTS

A. CONDUIT HANGERS, ATTACHMENTS, AND SUPPORTS
  1. PROVIDE PROPER FITTINGS AND SUPPORT SUITABLE FOR AMBIENT/ENVIRONMENTAL CONDITIONS AND SERVICE DUTY.
  2. ATTACH TO STRUCTURAL COMPONENTS TO NOT JEOPARDIZE STRUCTURAL INTEGRITY.
  3. PROVIDE ANGLES, CHANNELS, AND BEAMS AS REQUIRED.
B. BACKBOARDS
  1. 3/4" PLYWOOD PAINTED ON BOTH SIDES AND EDGES WITH TWO COATS OF WHITE ENAMEL PAINT TO MOUNT EQUIPMENT WHERE SHOWN.
  2. SUPPORT WITH PAINTED OR GALVANIZED STEEL CHANNEL.
C. CONCRETE PADS
  1. COORDINATE FINAL EQUIPMENT CONCRETE PAD SIZE REQUIREMENTS. PADS SHALL EXTEND MINIMUM 2" BEYOND EQUIPMENT FOOTPRINT.

26 05 30 CONDUIT

A. RMC
  1. ALLOWED FOR ALL SIZES BELOW GRADE AND INSIDE ABOVE GRADE.
  2. REQUIRED WHERE CALLED OUT ON PLANS.
  3. REQUIRED FOR ALL SIZES OF OUTDOOR ABOVE GRADE CONDUIT.
  4. GALVANIZED RIGID STEEL REQUIRED FOR ALL UNDERGROUND 90 DEGREE BENDS.
  5. GALVANIZED RIGID STEEL WITH GALVANIZED RIGID STEEL FITTINGS, THREADED WATERTIGHT.
B. EMT
  1. ALLOWED FOR INSIDE ABOVE GRADE CONDUIT 2” AND SMALLER.
  2. STEEL SET SCREW OR COMPRESSION TYPE FITTINGS WITH INSULATED THROAT.
  3. CAST METAL SET SCREW FITTINGS NOT ALLOWED.
C. ENT
  1. SIZES: MINIMUM 1/2", MAXIMUM 1".
  2. ALLOWED FOR ABOVE GRADE CONDUIT WHICH IS CONCEALED INSIDE NON-RATED WALLS AND WHERE PERMITTED BY CODE AND LOCAL AUTHORITY HAVING JURISDICTION.
  3. SUPPORT MINIMUM EVERY TWO FEET.
D. FLEXIBLE
  1. MINIMUM SIZE 1/2".
  2. MAXIMUM LENGTH 36" FOR CONNECTION TO HVAC EQUIPMENT
  3. MAXIMUM LENGTH 72" FOR CONNECTION TO FIXTURES IN TILE CEILINGS.
  4. STEEL FITTINGS WITH INSULATED THROAT, UL LISTED.
E. PVC
  1. USE FOR CONDUIT IN CONCRETE, UNDER FLOOR SLABS, OR IN EARTH WHEN PERMITTED BY CODE AND LOCAL ORDINANCES.
  2. MINIMUM SIZE 3/4".
  3. SCHEDULE 40 PVC.
F. FITTINGS
  1. FITTING MATERIAL SHALL MATCH CONDUIT MATERIAL UNLESS OTHERWISE NOTED IN PLANS AND SPECIFICATIONS OR WITH WRITTEN APPROVAL BY ENGINEER.
G. INSTALLATION
  1. DRAWINGS AND DIAGRAMS SHOW SIZE AND APPROXIMATE LOCATION OF CONDUIT. THE DRAWINGS ARE DIAGRAMMATIC AND SHALL NOT BE SCALED TO DETERMINE EXACT LOCATION. PROVIDE ADDITIONAL OFFSETS AS REQUIRED FOR FIELD CONDITIONS. ROUTE CONDUIT IN ORDERLY MANNER, PARALLEL TO BUILDING STRUCTURE. CONCEAL CONDUIT IN FINISHED AREAS.
  2. INSTALL UL APPROVED EXPANSION FITTINGS COMPLETE WITH GROUNDING JUMPERS WHERE CONDUITS CROSS BUILDINGS EXPANSION JOINTS AND IN LONG CONDUIT RUNS WHERE DIFFERENTIAL EXPANSION OR CONTRACTION WOULD CAUSE BENDING OR SEPARATION.
  3. WHERE CONDUIT IS INSTALLED IN EXISTING WALLS, FLOORS OR HARD CEILINGS THE CONTRACTOR SHALL CUT AND PATCH SURFACES TO MATCH EXISTING FOR INSTALLING CONDUIT AND RACEWAYS. THE CUTTING AND PATCHING SHALL BE DONE BY THIS CONTRACTOR TO THE SATIFACTION OF THE GENERAL CONTRACTOR.
  4. INSTALL CONDUIT WITH ADEQUATE DRAINAGE.
  5. PROVIDE PULL STRING IN ALL EMPTY CONDUITS.
  6. WHEN REQUIRED BY STATE AND LOCAL CODES AND ORDINANCES, PROVIDE SEPARATE CONDUIT/RACEWAY FOR FIRE ALARM AND TELECOMMUNICATION SYSTEMS.
  7. ROUTE CONDUIT ABOVE LAY-IN SUSPENDED CEILINGS SO AS NOT TO INTERFERE WITH TILE REMOVAL.
  8. INSTALL FLEXIBLE STEEL CONDUIT DROPS FROM INDEPENDENT JUNCTION BOX MOUNTED ABOVE CEILING TO RECESSED LIGHT FIXTURES.
  9. SECURE CONDUITS WITH AT LEAST ONE CORROSION PROOF MALLEABLE ALLOY STRAP OR HANGER EVERY 8 FT. DO NOT USE PERFORATED STRAPPING.
  10. PROVIDE UL LISTED FIRE-WALL PENETRATIONS WHEN CONDUIT PASS THROUGH A FIRE RATED WALL.

26 05 33 BOXES

A. FLUSH INTERIOR 4" SQUARE STEEL BOXES WITH RAISED COVERS AND SQUARE CUT CORNERS. PROVIDE BOXES RATED FOR THROUGH FEED.
B. PROVIDE CAST BOXES FOR EXTERIOR USE DEVICES. PROVIDE COVERS WITH GASKETS.
C. JUNCTION AND SPLICE BOXES SHALL HAVE GALVANIZED SCREW COVERS AND BE NOT LESS THAN CODE DIMENSIONS. THROUGH-WALL AND BACK-TO-BACK BOXES NOT ALLOWED.
D. OUTLET AND JUNCTION BOXES USED AS SURFACE METAL RACEWAY SHALL BE MANUFACTURED BY THE SURFACE METAL RACEWAY MANUFACTURER TO BE COMPATIBLE WITH THE RACEWAY USED.
E. VERIFY LOCATION PRIOR TO ROUGH-IN. MATCH THE HEIGHT OF EXISTING DEVICES FOR INSTALLATIONS IN ADDITIONS TO EXISTING FACILITIES.
F. SURFACE MOUNT RECEPTACLES AND OTHER ELECTRICAL DEVICES IN COOLERS/FREEZERS.

26 05 35 PENETRATIONS

A. SLEEVES
  1. FURNISH RIGID CONDUIT SLEEVES FOR CABLES PASSING THROUGH MASONRY, CONCRETE, OR OTHER SIMILAR CONSTRUCTION.
  2. FURNISH SLEEVE TO MASON FOR NEW MASONRY WALLS.
  3. FURNISH, INSTALL, AND GROUT SLEEVE IN EXISTING MASONRY AND NEW CONCRETE WALLS.
  4. SLEEVE NOT REQUIRED FOR DRYWALL WALLS OR CORE DRILLED HOLE IN CONCRETE WALL.
B. NON-FIRE RATED INTERIOR WALL AND FLOOR PENETRATIONS: FILL VOID BETWEEN CONDUIT AND SLEEVE, CONCRETE, OR DRYWALL WITH EXPANDING POLYURETHANE FOAM. CAULK BETWEEN CONDUIT AND SLEEVE OR WALL WITH NON-HARDENING CAULK.
C. FIRE RATED INTERIOR WALL AND FLOOR PENETRATIONS: SEAL OPENING AROUND PIPE WITH A UL APPROVED FIRE-STOP SYSTEM HAVING AN F-RATING NOT LESS THAN THE HOURLY RATING OF THE ASSEMBLY BEING PENETRATED.
D. SMOKE WALL PENETRATIONS: CONDUITS OR CABLES PENETRATING PENETRATION SHALL NOT DESTROY THE BARRIER'S INTEGRITY.
E. CONTRACTOR SHALL USE CAUTION PRIOR TO MAKING PENETRATIONS AS TO NOT DISTURB ANY EXISTING UTILITIES THAT MIGHT BE PRESENT IN EXISTING WALLS, CEILINGS OR FLOORS. THIS CONTRACTOR IS RESPONSIBLE FOR LOCATING EXISTING UTILITIES IN EXISTING WALLS, CEILINGS OR FLOORS.
F. SEAL ALL RACEWAY, CABLE AND CONDUIT PENETRATIONS THROUGH ALL WALLS IN THE ELECTRICAL ROOM(S).
G. SEAL COOLER/FREEZER CONDUIT PENETRATIONS PER DETAILS.

26 05 53 IDENTIFICATION FOR ELECTRICAL SYSTEMS

A. ENGRAVED LABELS: ENGRAVED 3-LAYER PHENOLIC LABEL WITH BLACK LETTERS ON WHITE MATERIAL, UNLESS OTHER COLORS ARE CALLED OUT ON THE DRAWINGS OR DETAILS. LABELS MINIMUM 3/4" HIGH AND 3" LONG. LABELS MAY BE ATTACHED WITH DOUBLE BACKED ADHESIVE TAPE UNLESS INDICATED OTHERWISE. LABELS REQUIRED AT:
  1. DISTRIBUTION PANELBOARDS
    a. LABEL MOUNTED AT THE TOP OF THE MAIN SECTION TO INCLUDE:
      1). BOARD DESIGNATION
      2). VOLTAGE
      3). BUS AMPERE RATING.
      4). INTERRUPTING RATING
      5). FAULT CURRENT AMPERE RATING
      6). “FED FROM” LABEL.
    b. PROVIDE LABEL ADJACENT TO EACH OVERCURRENT DEVICE. LABEL SHALL INCLUDE:
      1). LOAD IDENTITY OR “SPARE”
      2). WHERE THE LOAD IS A SINGLE MOTOR, IDENTIFY MOTOR HP
  2. PANELBOARDS:
    a. MOUNT IDENTIFICATION LABEL AT THE TOP OF THE FRONT COVER. MOUNT ON THE INSIDE OF DOOR FOR RECESSED PANELBOARDS.
    b. FAULT CURRENT AMPERE RATING
    c. “FED FROM” LABEL.
  3. DISCONNECTS:
    a. LABEL EQUIPMENT THAT IT SERVES.
    b. “FED FROM” LABEL.
  4. LIGHTING CONTROL PANELS:
    a. MOUNT IDENTIFICATION LABEL AT THE TOP OF THE FRONT COVER.
    b. PROVIDE "CIRCUITS CONTROLLED ARE FED FROM" LABEL.
B. PROVIDE TYPEWRITTEN DIRECTORY ACCURATELY INDICATING ROOMS AND/OR EQUIPMENT BEING SERVED AT THE FOLLOWING LOCATIONS:
  1. PANELBOARDS
  2. LIGHTING CONTROL PANELS.
C. PROVIDE ARC-FAULT LABELS ON ALL SWITCHBOARDS, DISTRIBUTION PANELS, PANELBOARDS, MOTOR CONTROL CENTERS, DISCONNECTS AND STARTERS.
  1. LABEL SHALL MEET THE MOST CURRENT NFPA 70E REQUIREMENTS
  2. PROVIDE COLORED LABELS. VERIFY LABEL TYPE IS ACCEPTABLE TO THE OWNER’S REPRESENTATIVE PRIOR TO FURNISHING.

26 24 16 PANELBOARDS

A. MANUFACTURER:
  1. EATON CUTLER HAMMER
  2. GENERAL ELECTRIC
  3. ITE — SIEMENS
  4. SQUARE D
B. CABINET
  1. NEMA 1 CABINET, OR AS LISTED IN PANEL SCHEDULES, CODE GAUGE STEEL CONSISTING OF A BOX WITH A REMOVABLE FRONT WITH HINGED DOOR AND LATCH.
  2. FABRICATE WITH STRAIGHT EDGES AND SQUARE CORNERS.
  3. BOXES SHALL BE MINIMUM 20" WIDE.
  4. MANUFACTURER'S STANDARD FINISH, PRIME COAT AND BAKED ENAMEL FINISH.
  5. RECESSED DOUBLE TUB PANELBOARDS SHALL HAVE TUBS OF THE SAME HEIGHT.
C. PROVIDE A NAMEPLATE LISTING OF THE PANEL TYPE AND NUMBER OF PROTECTIVE AND SWITCHING DEVICES AND RATINGS.
D. BUS BARS FOR THE MAINS SHALL BE COPPER OR ALUMINUM SIZED IN ACCORDANCE WITH UL STANDARDS. INCLUDE FULL SIZE NEUTRAL BARS UNLESS OTHERWISE NOTED. PROVIDE GROUND BUS.
E. NEUTRAL BUSSING SHALL HAVE ONE LUG FOR EVERY BRANCH CIRCUIT THAT THE PANELBOARD IS CAPABLE OF SUPPORTING.
F. BUS SPACES FOR FUTURE SWITCHING AND PROTECTIVE DEVICES FOR THE MAXIMUM DEVICES AND SWITCHES THAT THE PANELBOARD CAN ACCOMMODATE.
G. CIRCUIT BREAKERS:
  1. UNLESS INDICATED OTHERWISE, CIRCUIT BREAKERS SHALL BE PLUG-ON, INDIVIDUALLY REPLACEABLE, THERMAL-MAGNETIC, AUTOMATIC FREE TRIPPING, SEPARATELY INDICATING "ON", "TRIPPED", AND "OFF", AMBIENT COMPENSATED AT 40 DEGREES C., SINGLE, DOUBLE, OR TRIPLE POLE, AS REQUIRED BY THE PANEL SCHEDULES.
  2. CIRCUIT BREAKERS INDICATED AS MULTIPLE POLE SHALL BE COMMON TRIP.
  3. SHUNT TRIP BREAKERS SHALL HAVE INTEGRAL RELAYS.
H. PROVIDE FOUR (4) ONE-INCH CONDUIT STUBS FROM PANELBOARD TO AN ACCESSIBLE SPACE FOR EACH RECESSED PANELBOARD.

26 27 26 WIRING DEVICES

A. MANUFACTURERS: COOPER, HUBBELL, LEVITON AND PASS & SEYMOUR.
B. COLOR
  1. SWITCH AND RECEPTACLE COLORS SHALL BE WHITE, VERIFY COLOR WITH OWNER.
C. COVER PLATE COLORS IN DINING/OFFICE AREAS SHALL BE WHITE, VERIFY COLOR WITH OWNER.
D. COVER PLATE COLORS IN KITCHEN/BACK OF HOUSE AREAS SHALL BE BRUSHED STAINLESS, VERIFY COLOR WITH OWNER.
E. WALL SWITCHES:
  1. 20-AMPERE HUBBELL 1221 SINGLE POLE, 1223 THREE-WAY AND 1224 FOUR-WAY.
  2. SEE LEGEND FOR MOUNTING HEIGHTS.
  3. PROVIDE PILOT LIGHT SWITCHES WHERE INDICATED.
F. DIMMERS:
  1. 20 AMPERE SLIDE DIMMER WITH INTEGRAL ON/OFF SWITCH. DIMMER SHALL BE RATED FOR AN LED LOAD OF 1200 WATTS MINIMUM, UNLESS NOTED OTHERWISE.
  2. FOR LED DIMMING LOADS GREATER THAT 1200W PROVIDE LEVITON AWSMT-7DW OR APPROVED EQUIVALENT. PROVIDE COLOR CHANGE KIT AS NECESSARY TO MEET DEVICE COLOR SPECIFICATIONS.
  3. DIMMERS RATED OVER 1200W SHALL NOT BE MULTI-GANGED. INSTALL PER MANUFACTURERS INSTALLATION INSTRUCTIONS.
  4. CONTRACTOR SHALL VERIFY WITH THEIR SUPPLIER(S) ALL DIMMERS AND DIMMABLE FIXTURES ARE 100% COMPATIBLE.
G. RECEPTACLES:
  1. DUPLEX GROUNDED RECEPTACLES, 20 AMPERE SPECIFICATION GRADE, HUBBELL 5362.
  2. GFCI RECEPTACLES: 20-AMPERE HUBBELL SPECIFICATION GRADE WITH LOCK OUT CAPABILITY UPON GFCI FAILURE.
  3. USB CHARGER DUPLEX RECEPTACLE, 20 AMPERE WITH 2 USB 3 AMP CHARGING PORTS, LEVITON T5832.
  4. EXTERIOR RECEPTACLES SHALL BE MARKED “WEATHER-RESISTANT” PER NEC.
  5. SEE LEGEND FOR MOUNTING HEIGHTS.
  6. MATCH EXISTING MOUNTING HEIGHTS IN EXISTING BUILDINGS WHERE HEIGHTS COMPLY WITH ADA.
  7. REVIEW RECEPTACLE LAYOUT WITH OWNER PRIOR TO ROUGH-IN.
  8. VERIFY ACTUAL LOCATION OF EQUIPMENT WITH OWNER PRIOR TO ROUGH-IN.
  9. MAKE CONNECTIONS THROUGH THE USE OF PIG-TAILS.
H. COVER PLATES
  1. INTERIOR: SMOOTH NYLON MATERIAL.
  2. KITCHENS: BRUSHED STAINLESS STEEL.
  3. MECHANICAL EQUIPMENT ROOM: STEEL.
  4. EXTERIOR: WEATHER-PROOF, GASKETED, LIFT COVER. RECEPTACLE COVER SHALL ALLOW CONTINUED USE WHEN COVER IS CLOSED.
I. BLANK, TELEVISION AND TELEPHONE OUTLETS: 4" SQUARE EXTRA DEEP BOX, SINGLE GANG RING AND BLANK COVER PLATE. PROVIDE CONDUIT FROM EACH BOX INTO AN ACCESSIBLE SPACE. TERMINATE CONDUIT WITH INSULATED CONNECTORS ON BOTH ENDS.

SHEET INDEX

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E4.1	PANEL SCHEDULES

LEGEND

NOTE: ALL SYMBOLS SHOWN MAY NOT APPEAR ON DRAWINGS. ALL MOUNTING HEIGHTS ARE TYPICAL UNLESS NOTED OTHERWISE.

SYM.	IDENTIFICATION	SYM.	IDENTIFICATION
LIGHTING			
	RECESSED, SURFACE, OR PENDANT MOUNTED LIGHT FIXTURE		EMERGENCY LIGHT MOUNT 11'-0" AFF. TO TOP OR 8" BELOW CEILING, WHICHEVER IS LOWER
	WALL MOUNTED LIGHT FIXTURE. MOUNT 7'-0" AFF. OR 8" ABOVE MIRROR		RECESSED EMERGENCY LIGHT
	RECESSED, SURFACE MOUNTED, OR CHAIN HUNG LIGHT FIXTURE	E	EXIT LIGHT
	PENDANT FIXTURE		OCCUPANCY SENSOR
	EXTERIOR WALL MOUNTED OR INTEROR WALL WASH FIXTURE		WALL MOUNTED OCCUPANCY SENSOR WITH SWITCH D = DIMMER
	SINGLE HEAD POLE		DUAL LEVEL/CIRCUIT OCCUPANCY SENSOR WITH SWITCH
	TWIN HEAD POLE MOUNTED FIXTURE	PC	PHOTO CONTROL
WIRING DEVICES			
$	SINGLE POLE SWITCH. MOUNT 46" AFF. TO CENTER, 3 = 3 WAY, 4 = 4 WAY, P = PILOT, D = DIMMER, K = KEYED	MW	DUPLEX RECEPTACLE. MOUNT IN CABINET BEHIND MICROWAVE, FIELD VERIFY HEIGHT
$$	DUAL LEVEL SWITCH. MOUNT 46" AFF. TO CENTER SEE DETAIL		POWER RECEPTACLE. MOUNT 18" AFF. TO CENTER
$	LOW VOLTAGE SWITCH. MOUNT 46" AFF. TO CENTER		SWITCH BOTTOM HALF OF RECEPTACLE, TOP HALF UNSWITCHED
	SIMPLEX RECEPTACLE. MOUNT 18" AFF. TO CENTER		SPECIAL OUTLET
	DUPLEX RECEPTACLE. MOUNT 18" AFF. TO CENTER	J	JUNCTION BOX
	DOUBLE DUPLEX RECEPTACLE. MOUNT 18" AFF. TO CENTER		SWITCH BOTTOM HALF OF GFI RECEPTACLE, TOP HALF UNSWITCHED
	GFI DUPLEX RECEPTACLE. MOUNT 18" AFF. TO CENTER		DUPLEX RECEPTACLE SURFACE MOUNTED CLG = CEILING/SOFFIT MOUNTED
	GFI DOUBLE DUPLEX RECEPTACLE. MOUNT 18" AFF. TO CENTER		BLANK BOX 4" EXTRA DEEP BOX, SINGLE GANG RING, BLANKPLATE, 1" C STUB INTO ACCESSIBLE SPACE, MOUNT 18" AFF. TO CENTER
	DUPLEX RECEPTACLE MOUNT VERTICALLY 6" ABOVE BACKSPLASH TO CENTER. IF NO BACKSPLASH MOUNT 6" ABOVE COUNTER		ABOVE COUNTER BLANK BOX, 4" EXTRA DEEP BOX, SINGLE GANG RING, BLANKPLATE, 1"C STUBBED INTO ACCESSIBLE SPACE, MOUNT 6" ABOVE BACKSPLASH TO CENTER
	GFI DUPLEX RECEPTACLE MOUNT VERTICALLY 6" ABOVE BACKSPLASH TO CENTER. IF NO BACKSPLASH MOUNT 6" ABOVE COUNTER		COMBINATION FLOOR OUTLET/BLANK JUNCTION BOX - WIREMOLD - RESOURCE RFB/SERIES OR EQUIVALENT, 1" C STUB INTO ACCESSIBLE SPACE
MOTORS / MOTOR CONTROL / EQUIPMENT			
	DISCONNECT FURNISHED BY EC F = FUSIBLE	MS	MANUAL STARTER
	NON-COMBINATION STARTER		MOTOR CONNECTION
	COMBINATION STARTER		MOTOR CONNECTION REQUIRING REMOTE STARTER/VFD
	SURFACE MOUNTED PANELBOARD		EQUIPMENT CONNECTION
	RECESSED PANELBOARD		SURFACE MOUNTED RACEWAY
FIRE ALARM / LIFE SAFETY			
S	STROBE. MOUNT 84" AFF. TO TOP OR 6" BELOW CEILING WHICHEVER IS LOWER	M	MAGNETIC DOOR HOLDER
	HORN/STROBE. MOUNT 84" AFF. TO TOP OR 6" BELOW CEILING WHICHEVER IS LOWER	TS	SPRINKLER TAMPER SWITCH
	HORN (SOUNDER). MOUNT 84" AFF. TO TOP OR 6" BELOW CEILING WHICHEVER IS LOWER	FACP	FIRE ALARM CONTROL PANEL
F	PULL STATION. MOUNT 46" AFF. TO CENTER	FAA	FIRE ALARM ANNUNCIATOR PANEL
H	HEAT DETECTOR	Co	CARBON MONOXIDE DETECTOR
S	SMOKE DETECTOR	S_D	DUCT SMOKE DETECTOR
MISCELLANEOUS			
	CONDUIT STUB THROUGH WALL BUSHED EACH END		PUSHBUTTON, PROVIDE JUNCTION BOX AND CONDUIT, MOUNT AT SWITCH HEIGHT
	CONDUIT WITH BUSHING ON END.		
	ELECTRICAL HOMERUN, CIRCUIT AS SHOWN		ITEMS AND/OR DEVICES CIRCUITED TOGETHER
*PNL-X	SHARED ELECTRICAL HOMERUN WHEN WIRE TAG HAS (*) ASTERISK PRECEDING PANEL-CIRCUIT INFO		ITEMS AND/OR DEVICES CIRCUITED TOGETHER, BUT SWITCHED SEPARATELY
	RELAY CIRCUIT		DETAIL OR SECTION NUMBER SHEET NUMBER
ABBREVIATIONS			
AC	ABOVE COUNTER	HC	HVAC CONTRACTOR
AFF.	ABOVE FINISHED FLOOR	IG	ISOLATED GROUND
AFG	ABOVE FINISHED GRADE	IMP	INSULATED METAL PANEL
DISC	DISCONNECT	LCP	LIGHTING CONTROL PANEL
DW	DISHWASHER	NL	NIGHT LIGHT
EC	ELECTRICAL CONTRACTOR	NTS	NOT TO SCALE
ELEV	ELEVATION	OC	ON CENTER
EM	EMERGENCY	PC	PLUMBING CONTRACTOR
ETR	EXISTING TO REMAIN	PNL	PANELBOARD
FPC	FIRE PROTECTION CONTRACTOR	REF	REFRIGERATOR
GC	GENERAL CONTRACTOR/CONSTRUCTION MANAGER	UC	UNDER COUNTER
REL	RELOCATED	UNO	UNLESS NOTED OTHERWISE
4X	NEMA 4X	3R	NEMA 3R
		XFMR	TRANSFORMER
FIRE RATED WALLS			
	FIRE - 1 HOUR		FIRE - 3 HOUR
	FIRE - 2 HOUR		FIRE - 4 HOUR
SECURITY			
DC	DOOR CONTACT	K	KEY PAD
ES	ELECTRIC STRIKE	I	INTERCOM
CR	CARD READER		SECURITY CAMERA. SINGLE GANG BOX WITH (1) DATA CABLE TO DATA RACK COIL 5’ 0” OF CABLE AT EACH END PER SPECIFICATIONS.
COMMUNICATION			
	TELEPHONE OUTLET, 1" C. STUB INTO ACCESSIBLE SPACE, W = WALL MOUNT 52" AFF. TO CENTER		CEILING MOUNTED SPEAKER
X	DATA OUTLET, 1" C STUB INTO ACCESSIBLE SPACE, CAT6E TO DATA RACK X = NUMBER OF DATA DROPS PER BOX		WALL MOUNTED SPEAKER
	COMBINATION TELEPHONE/DATA, 1" C STUB INTO ACCESSIBLE SPACE	TV	TELEVISION OUTLET MOUNT 18" AFF. TO CENTER
V	LOCAL VOLUME CONTROL		

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PROJECT INFORMATION

PROPOSED BUILDING RENOVATION
HAWAIIAN BROS - STR: 43
1401 GRINDSTONE PKWY ● COLUMBIA, MO

PROFESSIONAL SEAL

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ELECTRICAL LEGEND AND SPECIFICATIONS

ELECTRICAL SPECIFICATIONS (CONT.)

26 27 27 OCCUPANCY SENSORS / VACANCY SENSORS

A. MANUFACTURERS: COOPER, HUBBELL, LEVITON, SENSOR SWITCH, & THE WATT STOPPER.
1. COLOR:
a. WALL MOUNTED SENSORS SHALL BE THE SAME COLOR AS WIRING DEVICES. REFERENCE SPECIFICATION SECTION 26 27 26.
b. CEILING MOUNTED SENSORS SHALL MATCH COLOR OF CEILING THEY'RE INSTALLED ON.
2. SHALL BE FROM THE SAME MANUFACTURER AS THE WIRING DEVICES.

B. SENSOR TECHNOLOGY
1. ULTRASONIC (US).
a. RESTROOMS
b. HALLWAYS
2. PASSIVE INFRARED (PIR).
a. STORAGE ROOMS
3. DUAL TECHNOLOGY (PASSIVE INFRARED & ULTRASONIC)
a. OFFICES
b. OTHER SPACES

C. SENSOR PERFORMANCE
1. INFRARED:
a. UTILIZE MULTIPLE SEGMENTED LENS, WITH INTERNAL GROOVES TO ELIMINATE DUST AND RESIDUE BUILD-UP.
2. ULTRASONIC:
a. UTILIZE AN OPERATING FREQUENCY OF 32 KHZ OR 40 KHZ THAT SHALL BE CRYSTAL CONTROLLED TO OPERATE WITHIN PLUS OR MINUS 0.005% TOLERANCE. UTILIZE DOPPLER SHIFT ULTRASONIC DETECTION TECHNOLOGY.
3. DUAL TECHNOLOGY:
a. UTILIZE MULTIPLE SEGMENTED LENS, WITH INTERNAL GROOVES TO ELIMINATE DUST AND RESIDUE BUILD-UP.
b. UTILIZE AN OPERATING FREQUENCY OF 32 KHZ OR 40 KHZ THAT SHALL BE CRYSTAL CONTROLLED TO OPERATE WITHIN PLUS OR MINUS 0.005% TOLERANCE.
c. INCORPORATE DOPPLER SHIFT ULTRASONIC AND PASSIVE INFRARED MOTION DETECTION TECHNOLOGIES. PRODUCTS THAT REACT TO NOISE OR AMBIENT SOUND SHALL NOT BE CONSIDERED.
4. SENSOR DEVICES SHALL HAVE EITHER INTEGRAL DUAL RELAYS OR CONTROL SEPARATE DUAL RELAY POWER PACKS TO ACHIEVE DUAL LEVEL LIGHTING WHEN DUAL LEVEL CONTROL IS INDICATED.
5. INTEGRAL ADJUSTABLE LIGHT LEVEL SENSOR WITH CAPACITY TO CONTROL ONE OR MORE RELAY WHEN THE SELECTED ADEQUATE DAYLIGHT IS PRESENT.
6. UTILIZE ZERO CROSSING CIRCUITRY WHICH INCREASES RELAY LIFE AND SENSORS LONGEVITY.
7. SHOULD POWER BE INTERRUPTED AND SUBSEQUENTLY RESTORED, SETTINGS AND PARAMETERS SAVED IN PROTECTED MEMORY SHALL NOT BE LOST.
8. SENSORS SHALL BE SIZED FOR THE ROOM THEY SERVE BY MANUFACTURER'S VENDOR OR COVER 1,500 SQUARE FEET WITH STANDARD LENS AND UP TO 90 LINEAR FEET WITH LONG RANGE LENS FOR WALKING MOTION WHEN MOUNTED AT A CEILING HEIGHT OF 12 FEET.
9. INDEPENDENT SENSITIVITY ADJUSTMENTS AND LED DISPLAY FOR EACH SENSING TECHNOLOGY.
10. SENSOR SHALL HAVE STANDARD 5 YEAR WARRANTY AND BE UL LISTED.

D. CONTROL STRATEGIES
1. AUTOMATIC CONTROLS SHALL BE MANUAL ON, OR SHALL TURN ON NOT MORE THAN 50% OF THE OF THE CONTROLLED LAMPS WITH THE REMAINING LAMPS BEING CONTROLLED MANUALLY.
a. EXCEPTION: PUBLIC CORRIDORS, STAIRWAYS, RESTROOMS, PRIMARY ENTRANCES AND LOBBIES SHALL HAVE FULL ON AUTOMATIC CONTROLS.
2. AUTOMATIC CONTROLS SHALL TURN LIGHTS OFF WITHIN 30 MINUTES OF ALL OCCUPANTS LEAVING THE SPACE.
3. RETRIGGER TIME DELAY: ONLY ONE MOTION IS NECESSARY TO TURN ON THE LIGHTS WITHIN 5 SECONDS AFTER TURNING OFF.
4. E.C. SHALL INCLUDE TIME IN HIS BID TO WORK WITH THE OWNER AND MANUFACTURER TO DETERMINE THE PROPER TIME AND SENSOR SETTINGS FOR EACH SENSOR IN THE SPACES IN WHICH THEY OPERATE. INCLUDE TIME IN BID TO HAVE THE MANUFACTURER'S REPRESENTATIVE ON SITE AND REVIEW THE JOB TO DETERMINE WHAT THE EXPECTED EQUIPMENT SETTINGS SHOULD BE.

26 28 16 ENCLOSED DISCONNECT SWITCHES

A. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION, AND MARKED FOR INTENDED USE.
B. NONFUSIBLE SWITCH: TYPE GD WITH LOCKABLE HANDLE.
C. FUSIBLE SWITCH: TYPE HD WITH CLIPS TO ACCOMMODATE FUSES. HANDLE LOCKABLE IN OPEN AND CLOSED POSITION. HANDLE INTERLOCKED WITH COVER IN CLOSED POSITION WITH INTERLOCK BYPASS.
D. ENCLOSURES: NEMA AB 1 AND NEMA KS 1 TO MEET ENVIRONMENTAL CONDITIONS OF INSTALLED LOCATION.
1. OUTDOOR LOCATIONS: NEMA 250 TYPE 3R.
2. KITCHEN AREAS: NEMA 250 TYPE 4X, STAINLESS STEEL.
3. OTHER WET OR DAMP INDOOR LOCATIONS: NEMA 250 TYPE 4.
4. HAZARDOUS AREAS INDICATED ON DRAWINGS: NEMA 250 TYPE 7C
E. MANUFACTURER'S STANDARD PRIME-COAT FINISH READY FOR FIELD PAINTING.
F. LABEL EACH ENCLOSURE WITH ENGRAVED METAL OR LAMINATED-PLASTIC NAMEPLATE MOUNTED WITH CORROSION-RESISTANT SCREWS.
G. INSTALL EQUIPMENT GROUNDING CONNECTIONS FOR SWITCHES AND CIRCUIT BREAKERS WITH GROUND CONTINUITY TO MAIN ELECTRICAL GROUND BUS.
H. DEMONSTRATE PRODUCT CAPABILITY AND COMPLIANCE WITH REQUIREMENTS AFTER INSTALLATION AND AFTER ELECTRICAL CIRCUITRY HAS BEEN ENERGIZED.
1. PERFORM VISUAL AND MECHANICAL INSPECTION AND ELECTRICAL TEST. CERTIFY COMPLIANCE WITH TEST PARAMETERS.
2. CORRECT MALFUNCTIONING UNITS, ON-SITE WHERE POSSIBLE, AND RETEST TO DEMONSTRATE COMPLIANCE.

26 43 13 SURGE PROTECTION DEVICE

A. ACCEPTABLE MANUFACTURERS: APT, CUTLER HAMMER, CURRENT TECHNOLOGIES, LIEBERT, SQUARE D.
B. PROVIDE SURGE PROTECTION DEVICE, EXTERNALLY MOUNTED, FOR MAINBOARD(S) AND PANELBOARD(S) DESIGNATED ON THE ONELINE DIAGRAM. PROVIDE 60-AMP FEEDS FOR THE MAINBOARDS AND 30-AMP FEEDS FOR THE PANELBOARDS.
C. LENGTH OF CONDUCTORS FEEDING FREE STANDING UNITS EXCEEDING 3-FEET IN LENGTH SHALL BE INCREASED TWO CONDUCTOR SIZES AND SHALL NOT EXCEED 6-FEET.
D. SHOP DRAWING SUBMITTAL: PROVIDE A UL COMPLIANCE LETTER, OR A COPY OF LISTING CLASSIFICATION PAGE FROM THE UL ENGINEERING FILE.
E. UL 1449 THIRD EDITION, 1283 LISTED, AND IEEE C62.45 LISTED, MINIMUM 5 YEAR WARRANTY, REPLACEABLE MODULES. THE UNIT SHALL BE UL LISTED AND CARRY THE UL LABEL.
F. UNITS SHALL BE FREE STANDING.
G. EACH METAL OXIDE VARISTORS (MOV) SHALL BE INDIVIDUALLY FUSED OR SURGE RATED FUSES AND THERMAL CUTOUTS COORDINATED TO THE MOV FAILURE MODE CHARACTERISTICS SHALL BE PROVIDED.
H. THE UNIT SHALL BE UL 1283 LISTED AS AN ELECTROMAGNETIC INTERFERENCE FILTER.
I. FRONT PANEL ALARM WITH TEST SILENCE SWITCH.
J. OPERATIONAL INDICATORS TO INDICATE “CIRCUIT OPERATIONAL”, “REDUCED PROTECTION”, “LOSS OF PROTECTION”.
K. THE SURGE PROTECTION DEVICE SHALL MAINTAIN MECHANICAL INTEGRITY DURING FAILURE MODE CONDITIONS.
L. MAINBOARD SURGE PROTECTION
1. CAPABLE OF SURVIVING MORE THAN 12,000 CATEGORY C3 TRANSIENTS WITHOUT FAILURE OR DEGRADATION OF UL 1449 SUPPRESSION VOLTAGE RATING.
2. SUITABLE FOR IEEE C62.41 CATEGORY C3 ENVIRONMENTS.
3. PARALLEL CONNECTED FOR C3 APPLICATIONS.
4. MINIMUM SURGE CAPACITY: 240KA/PHASE. L-N: 120KA. L-G: 120KA. N-G: 120KA.
M. PANELBOARD SURGE PROTECTION
1. CAPABLE OF SURVIVING MORE THAN 3,000 CATEGORY C1 TRANSIENTS WITHOUT FAILURE OR DEGRADATION OF UL 1449 SUPPRESSION VOLTAGE RATING.
2. SUITABLE FOR IEEE C62.41 CATEGORY C1 ENVIRONMENTS.
3. PARALLEL CONNECTED FOR C1 APPLICATIONS.
4. MINIMUM SURGE CAPACITY: 120KA/PHASE. L-N: 60KA. L-G: 60KA. N-G: 60KA.

DIVISION 27 COMMUNICATIONS

27 05 01 GENERAL COMMUNICATIONS REQUIREMENTS

A. SCOPE OF WORK:
1. THE FOLLOWING SECTION SHALL PROVIDE THE INFORMATION REQUIRED FOR UNIFORM DESIGN, CONSTRUCTION AND INSTALLATION OF THE EQUIPMENT AT THIS FACILITY. IT IS NOT THE INTENT OF THIS SECTION TO COMPLETELY SPECIFY ALL DETAILS OF DESIGN, CONSTRUCTION AND INSTALLATION; NEVERTHELESS, EQUIPMENT SHALL IN ALL RESPECTS CONFORM TO THE HIGHEST STANDARDS OF ENGINEERING, DESIGN AND WORKMANSHIP.

B. QUALITY ASSURANCE:
1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO KNOW ALL APPLICABLE CODES AND ENSURE THAT ALL WORK AND EQUIPMENT MEETS OR EXCEEDS APPLICABLE NATIONAL STANDARDS, INCLUDING:
a. THE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
b. THE INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE)
c. THE NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)
d. THE NATIONAL ELECTRICAL CODE (NEC)THE NATIONAL ELECTRICAL SAFETY CODE (NESC)
e. THE UNDERWRITERS' LABORATORIES, INC. (UL).
f. COMPLY WITH NFPA 70.
2. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES:
a. LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO AHJ'S, AND MARKED FOR INTENDED USE.
b. COMPLY WITH TIA-568-C SERIES OF TELECOMMUNICATION STANDARDS:
1). SECTIONS REQUIRING TESTING OF COPPER CABLE:
a). CONTRACTOR SHALL FIELD-VERIFY EACH CABLE AND ITS TERMINATIONS IAW TIA-568-C.2 — BALANCED TWISTED-PAIR TELECOMMUNICATION CABLING AND COMPONENTS STANDARD. THREE COPIES OF THIS REPORT SHALL BE PROVIDED TO THE OWNER AS PART OF RECORD DRAWINGS.
2). SECTIONS THAT REQUIRE OPTICAL FIBER CABLING AND COMPONENTS:
a). CONTRACTOR SHALL FIELD-VERIFY ALL COMPONENTS AND COMPLY WITH TIA-568-C.3 — OPTICAL FIBER CABLING COMPONENTS STANDARD. THREE COPIES OF THIS REPORT SHALL BE PROVIDED TO THE OWNER AS PART OF RECORD DRAWINGS
c. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE ALL ELECTRICAL CONSTRUCTION AND MATERIALS PROVIDED MEETS SEISMIC ZONE STANDARDS FOR THE building LOCATION WHERE PROJECT IS BEING IMPLEMENTED.
d. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO KNOW ALL APPLICABLE CODES AND ENSURE THAT ALL WORK AND EQUIPMENT MEETS OR EXCEEDS ALL APPLICABLE STATE AND CITY ELECTRICAL CODES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE PROPER LICENSED PERSONNEL TO PERFORM ANY WORK AT OWNER FACILITIES BASED UPON STATE AND LOCAL CODES.
e. ALL ELECTRICAL WORK WILL REQUIRE INSPECTIONS BY THE LOCAL GOVERNING AGENCIES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ACQUIRE ALL NECESSARY PERMITS, AND PROVIDE SCHEDULING AND REPRESENTATION DURING INSPECTION.
f. COORDINATE THE FEATURES OF MATERIALS AND EQUIPMENT SO THEY FORM AN INTEGRATED SYSTEM. MATCH COMPONENTS AND INTERCONNECTIONS FOR OPTIMUM FUTURE PERFORMANCE.

C. GENERAL REQUIREMENTS:
2. OWNER FURNISHED EQUIPMENT (OFE):
a. WHEN REQUIRED TO INSTALL OFE, CONTRACTOR SHALL ENSURE COMPLIANCE WITH THE SECTION SPECIFICATION AND NOTIFY OWNER IF EQUIPMENT FURNISHED BY OWNER IS INSUFFICIENT OR WILL NOT ALLOW COMPLIANCE.
b. ANY SUBSTITUTED EQUIPMENT SPECIFIED HEREIN TO BE OFE INSTALLED BY CONTRACTOR THAT IS NOT A PRE-APPROVED SUBSTITUTION, SHALL BE REMOVED AND REPLACED BY CONTRACTOR WITH THE APPROVED OFE COMPONENT WITHOUT COST TO OWNER.

D. INSTALLATION MEANS AND METHODS:
1. EXECUTION OF WORK:
a. ALL METHODS OF CONSTRUCTION AND DETAILS OF WORKMANSHIP, WHERE NOT SPECIFICALLY DESCRIBED IN THIS SPECIFICATION OR SHOWN IN THE PLANS ARE SUBJECT TO THE FINAL APPROVAL OF THE OWNER. ALL CONTRACTORS SHALL CONSULT THE (GC) IF IN QUESTION AS TO THE METHOD OR MATERIAL TO BE EMPLOYED DURING INSTALLATION. ALL WORK DEEMED NOT ACCEPTABLE BY THE (GC) SHALL BE REWORKED, AT COST TO THE CONTRACTOR, UNTIL SUCH CONDITIONS AS CORRECTED ARE DEEMED ACCEPTABLE TO THE APPROPRIATE (GC) PROJECT REPRESENTATIVE.
b. PROVIDE QUALITY WORKMANSHIP EQUAL TO THE HIGHEST PREVAILING IN THE CONSTRUCTION INDUSTRY.
2. BONDING AND GROUNDING:
a. THE CONDUIT SYSTEM SHALL NOT BE CONSIDERED SUITABLE FOR EQUIPMENT GROUNDING.
b. BONDING THE NEUTRAL TO EARTH GROUND SHALL NOT BE DONE ANYWHERE EXCEPT AT THE SECONDARY SIDE OF THE CONTROL TRANSFORMER WHERE IT MUST BE DONE (INCLUDING CONTROL VOLTAGE TRANSFORMERS).
3. GENERAL WIRING REQUIREMENTS:
a. USE TECHNIQUES, PRACTICES, AND METHODS THAT ARE CONSISTENT WITH EIA/TIA-568 RATING OF COMPONENTS AND THAT ENSURE CATEGORY PERFORMANCE LEVEL FOR THE COMPLETED AND LINKED SIGNAL PATHS, END TO END.
b. USE UL-LISTED PLENUM CABLE IN ENVIRONMENTAL AIR SPACES, INCLUDING PLENUM CEILINGS AS REQUIRED. UNLESS SPECIFIED OTHERWISE, INSTALL WIRING IN RACEWAY AND CABLE TRAY EXCEPT WITHIN CONSOLES, CABINETS, DESKS, AND COUNTERS.
c. THE MAXIMUM ALLOWABLE CABLE LENGTH IS 295 FEET (90 M).
d. MAKE SPLICES, TAPS, AND TERMINATIONS ONLY AT INDICATED OUTLETS, TERMINALS, AND CROSS-CONNECT AND PATCH PANELS.
e. USE SPLICE AND TAP CONNECTORS COMPATIBLE WITH MEDIA TYPES IAW MANUFACTURERS INSTRUCTIONS.:
f. ALL WIRES LEAVING ENCLOSURES SHALL BE INSTALLED IN CONDUITS OR SUITABLE RACEWAYS.
g. PROVIDE AND INSTALL ADDITIONAL, APPROPRIATE NEMA RATED JUNCTION AND PULL BOXES WHEREVER NECESSARY TO FACILITATE THE INSTALLATION OF WIRES AND CABLES.
h. ALL BACKBONE CABLING SHALL HAVE A MINIMUM 25FT SLACK LOOP INSTALLED AT EACH INTERIOR IDF AND MDF. PROVIDE A 25FT SLACK LOOP IN EACH EXTERIOR HANDHOLE JUNCTION AND AT FIRST EXTERIOR CABLE BUILDING TERMINATION POINT.
i. ALL HORIZONTAL STATION CABLING SHALL HAVE A 10FT SLACK LOOP MANAGED IN THE IDF ROOM. HORIZONTAL STATION CABLING SHALL BE ROUTED TO THE BOTTOM OF THE VERTICAL CABLE MANAGEMENT SYSTEM BEFORE BEING TERMINATED AT THE ASSOCIATED PATCH PANEL LOCATION.

E. PROJECT COMPLETION:
1. WARRANTY:
a. THE WARRANTY SHALL BE COMPREHENSIVE. NO DEDUCTIBLES SHALL BE ALLOWED FOR TRAVEL TIME, SERVICE HOURS, AND REPAIR PARTS COST.
b. SUBMIT A WRITTEN WARRANTY EXECUTED BY THE INSTALLER AGREEING TO REPAIR OR REPLACE ANY CABLING THAT FAILS WITHIN THE WARRANTY PERIOD.
c. DURING THE WARRANTY PERIOD THERE SHALL BE NO CHARGES TO THE OWNER FOR SERVICE CALLS FOR WARRANTY WORK. HOWEVER, WHEN SERVICE WORK IS REQUIRED TO REPAIR ITEMS DAMAGED BY NEGLECT, MISUSE, OR VANDALISM, COSTS SHALL BE REIMBURSED TO THIS CONTRACTOR.
d. THE WARRANTY SHALL NOT DEPRIVE THE OWNER OF OTHER RIGHTS THE OWNER MAY HAVE UNDER OTHER PROVISIONS OF THE CONTRACT DOCUMENTS AND WILL BE IN ADDITION TO AND RUN CONCURRENT WITH OTHER WARRANTIES MADE BY THE CONTRACTOR UNDER THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

27 05 26 BONDING AND GROUNDING

A. ABBREVIATIONS AND DEFINITIONS:
1. ABBREVIATIONS:
a. BCT- BONDING CONDUCTOR FOR TELECOMMUNICATIONS
b. GE — GROUNDING EQUALIZER
c. TBB — TELECOMMUNICATIONS BONDING BACKBONE
d. TGB — TELECOMMUNICATIONS GROUNDING BUSBAR
e. TMGB — TELECOMMUNICATIONS MAIN GROUNDING BUSBAR
2. DEFINITIONS:
a. BONDING — THE PERMANENT JOINING OF METALLIC PARTS TO FORM AN ELECTRICALLY CONDUCTIVE PATH THAT WILL ASSURE ELECTRICAL CONTINUITY AND THE CAPACITY TO CONDUCT SAFELY ANY CURRENT LIKELY TO BE IMPOSED.
b. BONDING CONDUCTOR FOR TELECOMMUNICATIONS (BCT) — A CONDUCTOR THAT INTERCONNECTS THE TELECOMMUNICATIONS BONDING INFRASTRUCTURE TO THE BUILDING'S SERVICE EQUIPMENT (POWER) GROUND.
c. GROUNDING EQUALIZER (GE) — A conductor that BONDS TBB'S USED IN MULTISTORY BUILDINGS. WHEN TWO OR MORE TBB'S ARE USED IN A MULTISTORY BUILDING, THE TBB'S SHALL BE BONDED TOGETHER WITH A GROUNDING EQUALIZER (GE) AT THE TOP FLOOR AND AT A MINIMUM OF EVERY THIRD FLOOR IN BETWEEN TO THE LOWEST FLOOR LEVEL.
d. TELECOMMUNICATIONS BONDING BACKBONE (TBB) — A CONDUCTOR THAT INTERCONNECTS THE TELECOMMUNICATIONS MAIN GROUNDING BUSBAR (TMGB) TO THE TELECOMMUNICATIONS GROUNDING BUSBAR (TGB).
e. TELECOMMUNICATIONS GROUNDING BUSBAR (TGB) — THE INTERFACE TO THE BUILDING TELECOMMUNICATIONS GROUNDING SYSTEM GENERALLY LOCATED IN TELECOMMUNICATIONS ROOM.
f. TELECOMMUNICATIONS MAIN GROUNDING BUSBAR (TMGB) — A BUSBAR PLACED IN A CONVENIENT AND ACCESSIBLE LOCATION AND BONDED BY MEANS OF THE BONDING CONDUCTOR FOR TELECOMMUNICATIONS TO THE BUILDING SERVICE EQUIPMENT (POWER) GROUND.
g. TELECOMMUNICATIONS ROOM — THE LOCATION OF THE COMMON ACCESS POINT FOR BACKBONE AND HORIZONTAL PATHWAYS

B. BONDING AND GROUNDING:
1. GENERAL REQUIREMENTS:
a. GROUNDING MUST CONFORM TO APPLICABLE BUILDING CODES AS WELL AS ANSI-J-STD-607-A AND THE NEC.
b. GROUND CABLE SHIELDS, DRAIN CONDUCTORS, AND EQUIPMENT TO ELIMINATE SHOCK HAZARD AND TO MINIMIZE GROUND LOOPS, COMMON-MODE RETURNS, NOISE PICKUP, CROSS TALK, AND OTHER IMPAIRMENTS.
c. BOND SHIELDS AND DRAIN CONDUCTORS TO GROUND AT ONLY ONE POINT IN EACH CIRCUIT.
d. SHORT METALLIC PATHWAYS (WALL AND FLOOR SLEEVES) ARE NOT REQUIRED TO BE BONDED.
2. TELECOMMUNICATIONS MAIN GROUNDING BUSBAR (TMGB) REQUIREMENTS:
a. THE (TMGB) SHALL BE UL LISTED, A MINIMUM 1/4" THICK, 4” WIDE, 12” IN LENGTH AND BE INSULATED FROM ITS SUPPORT BY A MINIMUM OF 2”.
b. THE (TMGB) SHALL SERVE TELECOMMUNICATIONS EQUIPMENT THAT IS LOCATED IN THE SAME ROOM.
c. LOCATE (TMGB) NEAR THE TELECOMMUNICATIONS SERVICE ENTRANCE AND THE ELECTRICAL SERVICE ENTRANCE. IT SHOULD ALSO BE LOCATED SO THAT IT IS ACCESSIBLE TO TELECOMMUNICATIONS PERSONNEL
d. BUSBAR SHALL BE CLEANED PRIOR TO FASTENING OF CONDUCTORS AND AN ANTI-OXIDANT SHOULD BE APPLIED TO THE CONTACT AREA TO CONTROL CORROSION AND REDUCE CONTACT RESISTANCE.
3. TELECOMMUNICATIONS GROUNDING BUSBAR (TGB) REQUIREMENTS:
a. THE (TGB) SHALL BE UL LISTED, A MINIMUM 1/4" THICK, 2” WIDE, 12” IN LENGTH AND BE INSULATED FROM ITS SUPPORT BY A MINIMUM OF 2”
b. ALL TGB'S SHALL BE BONDED together back to the tmgb.
c. ALL METALLIC RACEWAYS FOR TELECOMMUNICATIONS CABLING located in the same room as the idf or mdf shall be connected to the associated tgb.
d. CONNECTIONS TO THE (TGB) SHALL UTILIZE LISTED COMPRESSION LUGS, SUITABLE AND EQUIVALENT ONE HOLE NON-TWISTING LUGS OR OTHER IRREVERSIBLE COMPRESSION TYPE CONNECTIONS. TWO-HOLE LUGS ARE PREFERRED.
e. MULTIPLE (TGB)'S MAY BE INSTALLED WITHIN THE SAME TELECOMMUNICATIONS ROOM TO AID IN MINIMIZING BONDING CONDUCTOR LENGTHS AND TERMINATING SPACE.
4. BONDING CONDUCTOR FOR TELECOMMUNICATIONS (BCT) REQUIREMENTS:
a. (BCT) BONDING CONDUCTOR SHALL BOND THE (TMGB) TO THE SERVICE EQUIPMENT GROUND AND SHALL BE 4/0 bare copper conductor.
b. CONNECTIONS SHALL UTILIZE EXOTHERMIC WELDING (BELOW GRADE), LISTED COMPRESSION LUGS, SUITABLE AND EQUIVALENT ONE HOLE NON-TWISTING LUGS OR OTHER IRREVERSIBLE COMPRESSION TYPE CONNECTIONS. TWO-HOLE LUGS ARE PREFERRED.
5. TELECOMMUNICATIONS BONDING BACKBONE (TBB) REQUIREMENTS:
a. THE (TBB) SHALL BE NO LESS THAN #6 AWG AND NO MORE THAN 13' IN LENGTH. IT SHALL ORIGINATE AT THE (TMGB) AND INTERCONNECT ALL (TGB)'S WITH THE (TMGB) THROUGHOUT THE BUILDING USING THE TELECOMMUNICATIONS BACKBONE PATHWAYS.
b. (TBB) CONDUCTORS SHALL BE INSTALLED WITHOUT SPLICES UNLESS LOCATED IN TELECOMMUNICATIONS SPACES. JOINED SEGMENTS OF A (TBB) SHALL BE CONNECTED USING EXOTHERMIC WELDING, IRREVERSIBLE COMPRESSION-TYPE CONNECTORS, OR EQUIVALENT. IF (TBB) IS INSULATED, IT SHALL MEET THE FIRE RATINGS OF ITS PATHWAY.
c. THE METALLIC CABLE SHIELD OR INTERIOR PIPING SYSTEM OF THE BUILDING SHALL NOT BE USED AS A (TBB).
d. IF LONGER LENGTHS ARE REQUIRED, A LARGER AWG CONDUCTOR IS REQUIRED AS SHOWN BELOW:
1). 14' TO 20' - #4 AWG
2). 21' TO 26' - #3 AWG
3). 27' TO 33' - #2 AWG
4). 34' TO 41' - #1 AWG
5). 42' TO 52' - 1/0 AWG
6). 53' TO 66' - 2/0 AWG
7). OVER 66' - 3/0 AWG
6. GROUNDING EQUALIZER (GE) REQUIREMENTS:
a. THE (GE) CONNECTS ELEMENTS OF THE TELECOMMUNICATIONS GROUNDING INFRASTRUCTURE IN BUILDINGS WITH MULTIPLE STORIES AND SHALL BE SIZED AS THE LARGEST GAUGE (TBB).
b. WHEN TWO OR MORE TGB's ARE USED IN A MULTISTORY BUILDING, THE TGB's SHALL BE BONDED TOGETHER WITH A (GE) AT THE TOP FLOOR AND AT A MINIMUM OF EVERY THIRD FLOOR IN BETWEEN TO THE LOWEST FLOOR.

27 10 00 STRUCTURED CABLING SYSTEM

A. SCOPE OF WORK:
1. PROVIDE WIRES, CABLES AND SUPPORTING EQUIPMENT AS SPECIFIED BELOW AND SHOWN ON PLANS:

B. ABBREVIATIONS AND DEFINITIONS:
1. ABBREVIATIONS:
a. CABLE TYPES:
1). UTP — UNSHIELDED TWISTED PAIR
2). F/UTP (FTP) — AN OVERALL FOIL SHIELD WITH UNSHIELDED TWISTED PAIRS (UTP).
3). S/UTP (STP) — AN OVERALL BRAID SCREEN WITH UNSHIELDED TWISTED PAIRS (UTP).
4). S/FTP — AN OVERALL FOIL SHIELD WITH INDIVIDUALLY SHIELDED TWISTED PAIRS
b. CP — CONSOLIDATION POINT
c. MDF — MAIN DISTRIBUTION FACILITY
d. HC — HORIZONTAL CROSS-CONNECT
e. IDC — INSULATION DISPLACEMENT CONNECTOR
f. IDF — INTERMEDIATE DISTRIBUTION FACILITY
g. MDF — MAIN DISTRIBUTION FRAME
h. PVC — POLYVINYL CHLORIDE
i. TIA — TELECOMMUNICATION INDUSTRY ASSOCIATION
j. TIA-FOCIS: FIBER OPTIC CONNECTOR INTERMATEABILITY STANDARD
k. TR — TELECOMMUNICATIONS ROOM
l. UTP — UNSHIELDED TWISTED PAIR (CABLE)
2. DEFINITIONS:
a. BACKBONE CABLE (TRUNK CABLE) — CABLES THAT PERMIT CONNECTION BETWEEN SYSTEM DISTRIBUTION POINTS OR FRAMES.
b. CONSOLIDATION POINT — AND INTERCONNECTION SCHEME THAT CONNECTS HORIZONTAL CABLES THAT EXTEND FROM BUILDING PATHWAYS TO HORIZONTAL CABLES THAT EXTEND INTO WORK AREA PATHWAYS
c. CROSS-CONNECT — A FACILITY ENABLING TERMINATION OF CABLES AND THEIR CONNECTION VIA PATCH CORDS OR JUMPERS.
d. ENTRANCE FACILITY — THIS AREA PROVIDES THE ENTRANCE POINT FOR THE COMMUNICATION SERVICES THAT ENTER THE FACILITY FROM THE AP OR THE CABLE SERVICE PROVIDER. LIGHTNING PROTECTION SHALL BE INSTALLED, UNLESS OTHERWISE NOTED. THIS IS WHERE THE OUTSIDE CABLE TYPE SHALL CONVERT TO INSIDE CABLING, UNLESS OTHERWISE NOTED. THE OUTSIDE CABLING CAN BE EXTENDED TO THE EQUIPMENT ROOM IN METAL CONDUIT. IT IS RECOMMENDED, HOWEVER NOT REQUIRED, THAT THE LIGHTNING PROTECTION BE INSTALLED AS SOON AS THE CABLE ENTERS THE BUILDING. THE ENTRANCE FACILITY MAY BE SHARED WITH OTHER SERVICES. THE LIGHTNING PROTECTION SHALL BE GROUNDED TO THE BUILDING MAIN GROUND (THIS CAN BE DONE BY ATTACHING TO THE TMGB).
e. HORIZONTAL CABLING — THE CABLE USED TO CARRY THE INFORMATION FROM THE WORKSTATION OR END DEVICE TO THE LEAST SIGNIFICANT DISTRIBUTION POINT. FOR THE VOICE AND DATA THIS WILL BE THE TELECOMMUNICATIONS ROOM. THE PAGING, SECURITY, AND CATV WILL BE WHERE DISTRIBUTION POINTS ARE; NORMALLY THIS IS IN THE EQUIPMENT ROOM OR TELECOMMUNICATION ROOM OR EQUIPMENT ROOM.
f. TELECOMMUNICATIONS ROOM (TR) — GENERALLY A 'FLOOR SERVING' FACILITY FOR HORIZONTAL CABLE DISTRIBUTION THAT MAY ALSO BE USED FOR INTERMEDIATE AND MAIN CROSS-CONNECTS. THIS LOCATION PROVIDES A COMMON ACCESS POINT FOR BACKBONE AND HORIZONTAL PATHWAYS

C. IDENTIFICATION AND LABELING
1. USE A UNIQUE, THREE-SYLLABLE ALPHANUMERIC DESIGNATION FOR EACH CABLE, AND LABEL CABLE AND JACKS, CONNECTORS, AND TERMINALS TO WHICH IT CONNECTS WITH THE SAME DESIGNATION. USE LOGICAL AND SYSTEMATIC DESIGNATIONS FOR FACILITY'S ARCHITECTURAL ARRANGEMENT.
a. FIRST SYLLABLE IDENTIFIES AND LOCATES WIRING CLOSET OR EQUIPMENT ROOM WHERE CABLE ORIGINATES.
b. SECOND SYLLABLE IDENTIFIES AND LOCATES CROSS-CONNECT OR PATCH-PANEL FIELD IN WHICH CABLE TERMINATES.
c. THIRD SYLLABLE DESIGNATES TYPE OF MEDIA (COPPER OR FIBER) AND POSITION OCCUPIED BY CABLE PAIRS OR FIBERS IN THE FIELD.
2. WORKSTATIONS:
a. LABEL CABLES WITHIN J-BOXES.
b. FACEPLATES SHALL HAVE LABEL TABS ABOVE AND BELOW JACK INSERTS WITH CLEAR WINDOWS TO FACILITATE THE PRINTING OF LABELS
3. DISTRIBUTION RACKS AND FRAMES:
a. LABEL EACH UNIT AND FIELD WITHIN THAT UNIT.
b. LABEL EACH PATCH PANEL JACK WITH CORRESPONDING STATION CABLING LOCATION.
4. CABLES, GENERAL:
a. WHERE INSTALLED IN CABINETS AND J-BOXES, LABEL EACH CABLE WITHIN 4 INCHES OF EACH TERMINATION AND TAP, WHERE IT IS ACCESSIBLE.
5. CABLE SCHEDULE:
a. SCHEDULES SHALL BE POSTED IN A PROMINENT LOCATION AT MDF AS FOLLOWS:
1). LIST INCOMING AND OUTGOING CABLES AND THEIR DESIGNATIONS, ORIGINS, AND DESTINATIONS.
2). PROTECT CABLE SCHEDULE WITH CLEAR PLASTIC COVER.
3). PROVIDE ELECTRONIC COPY OF FINAL COMPREHENSIVE SCHEDULES FOR PROJECT, IN SOFTWARE AND FORMAT SELECTED BY OWNER OR OWNER'S IT STAFF AS DIRECTED.

D. INSTALLATION MEANS AND METHODS:
1. RACEWAYS - CONDUIT
a. ALL EXPOSED RACEWAY IN FINISHED AREAS SHALL BE PAINTED TO MATCH ADJACENT SURFACE COLOR.
b. ALL LOW VOLTAGE WIRING IN DRIV-THRU TUNNEL SHALL BE IN SEALED CONDUIT.
c. RACEWAY IN PERMANENTLY CONCEALLED LOCATIONS SUCH AS, HOLLOW STUD WALLS, MASONRY, AND CHASES, ETC SHALL BE IN CONDUIT.
d. STANDARD CONDUIT DROPS FOR VOICE, DATA AND OTHER LV SYSTEMS SHALL BE 1" IN DIAMETER UNLESS OTHERWISE NOTED ON PLANS.
e. CONDUITS FEEDING TELEVISIONS, DISPLAYS OR FLOORBOXES CONTAINING AUDIO-VIDEO CABLES SHALL BE A MINIMUM SIZE OF 1.25" ID UNLESS OTHERWISE NOTED ON PLANS. AT NO TIME SHALL CONDUIT FILL EXCEED 40%.
f. THERE SHALL BE NO MORE THAN TWO (2) 90-DEGREE BENDS IN CONDUIT BETWEEN PULL POINTS. IF A CONDUIT RUN REQUIRES MORE THAN TWO BENDS OR IF THE CONDUIT RUN IS IN EXCESS OF 100' IN TOTAL LENGTH, INSERT A PULL BOX. IF IT IS NOT PRACTICAL TO INSTALL A PULL BOX IN THE RUN DUE TO FIELD CONDITIONS, THE CONDUIT SIZE SHALL BE INCREASED TO THE NEXT TRADE SIZE FOR EACH ADDITIONAL 90-DEGREE BEND. OFFSETS SHALL BE CONSIDERED AS EQUIVALENT TO A 90-DEGREE BEND.
g. ALL CONDUITS TO BE LABELED AT THE SOURCE BOX WITH THE DESTINATION BOX IN A CLEAR AND LOGICAL MANNER.
h. ENDS OF ALL CONDUITS ARE TO BE DE-BURRED AND BUSHED. ALL CONDUITS NOT TERMINATING INSIDE A JBOX OR PULL BOX BUT TERMINATING INSIDE OF A RACK OR ENCLOSURE SHALL BE PROVIDED WITH PLASTIC INSULATED BUSHINGS.
i. A POLY PULL-LINE SHALL BE PROVIDED IN EACH CONDUIT.
j. FOR LINE VOLTAGE CONDUIT RUNS LONGER THAN 10 FEET, EC SHALL MAINTAIN A MINIMUM OF 24" SEPARATION FROM AUDIO OR VIDEO SIGNAL CONDUITS EXCEPT TO CROSS AT 90-DEGREE ANGLES WHEN NECESSARY.
2. RACEWAY — FREE AIR:
a. TELECOMMUNCIATION CABLES SHALL BE INSTALLED FREE AIR ABOVE ACCESSIBLE SUSPENDED CEILING AREAS, IN IMP SPACES, IN WAREHOUSES, AND EXPOSED OFFICE AREAS.
b. VERTICAL CABLING DROPS SHALL BE PROVIDED IN CONDUIT CONCEALED IN WALLS IN OFFICE SPACES. VERTICAL CABLE DROPS ON EXISTING WALLS SHALL BE IN CONDUIT BELOW 10'-0” ABOVE FINISHED FLOOR.
c. PROVIDE AND INSTALL DEDICATED J-HOOK SYSTEM FOR DATA AND SEPARATE J-HOOK SYSTEM FOR OTHER SYSTEMS THROUGHOUT THE CEILING SPACE AND OTHER EXPOSED AREAS WHERE CABLES ARE RUN. THE "J" SHALL HAVE FLAT BOTTOM TO ELIMINATE SINGLE POINT STRESS ON CABLES SUPPORTED. MIN SIZE IS 1 5/16” (CADDY CAT21HP). MAINTAIN AT LEAST A 12” SEPARATION FROM FLUORESCENT OR NEON FIXTURES, A 40 — INCH SEPARATION FROM TRANSFORMERS, MOTORS OR OTHER SOURCES OF ELECTROMAGNETIC FIELDS AND A 36” SEPARATION FROM UNSHEILDED POWER CABLES.
d. J-HOOK SPACING TO BE A MAXIMUM OF 60 - INCHES ON CENTER AND SHALL ALLOW FOR 50% SPARE CAPACITY IN ALL RUNS OF J HOOKS. PROVIDE ADDITIONAL RUNS AS REQUIRED TO MEET THIS REQUIREMENT.
e. NON-DATA J-HOOK SYSTEMS SHALL BE RUN PARALLEL TO THE DATA AND FIRE ALARM J HOOK SYSTEMS.
f. CONDUITS THAT ARE STUBBED INTO THE ACCESSIBLE CEILING SPACE THAT ARE ACTING AS CABLE RACEWAYS SHALL BE EXTENDED INTO THE NEAREST CORRIDOR SPACE, OR, AS AN OPTION, THE CONTRACTOR SHALL INSTALL A SLEEVE THROUGH ANY WALL SEPARATING THE ROOM FROM THE CORRIDOR AREA.
g. CABLES SHALL BE ROUTED AT 90 DEGREES FROM THE ROOM TO THE J-HOOK SUPPORT SYSTEM IN THE CORRIDOR. THE CORRIDOR AREA SHALL GENERALLY BE DEFINED AS THE AREA WHERE THE J-HOOK SUPPORT SYSTEM SHALL BE INSTALLED. HOWEVER, IN THE EVENT THAT THERE IS NOT ADEQUATE CORRIDOR SPACE, THE J-HOOK SYSTEM MAY BE MOVED INTO THE ADJACENT ROOMS.
h. J-HOOK SYSTEM SHALL BE INSTALLED IN STRAIGHT LINES PERPENDICULAR, RIGHT ANGLE TO THE BUILDING WALLS. GROUPS OF J-HOOKS SHALL BE USED WHERE THE SINGLE J-HOOK SYSTEM IS NOT ADEQUATE TO SUPPORT THE CABLING TO ALLOW FOR 50% SPARE CAPACITY.
i. SUSPENDED CEILING SYSTEM SHALL NOT BE USED TO SUPPORT CABLES.
j. CEILING JOISTS AND PERLINS MAY BE USED FOR CABLE SUPPORT PROVIDED THEY ARE NOT MORE THAN 60 - INCHES APART. PROVIDE A FLATE SURFACE FOR CABLE. CABLE SHALL NOT BE INSTALLED IN DECK FLUTES SPACE ABOVE JOISTS. CABLE SHALL RUN ABOVE BOTTOM CORD OF JOIST.
k. BRIDAL RING SUPPORTS SHALL NOT BE PERMITTED
l. FREE AIR CABLES SHALL NOT BE ROUTED THROUGH NON-ACCESSIBLE CEILING AREAS, UNLESS NOTED OTHERWISE ON THE DRAWINGS.
m. LV DEVICE TERMINATION SHALL BE MADE IN JUNCTION BOXES. FREE AIR SPLICING AND TERMINATING OF LOW VOLTAGE CABLING IS NOT ALLOWED
3. WALL SLEEVES AND PENETRATIONS:
a. ALL LV SYSTEM SLEEVES ARE TO BE STEEL or pvc EXTEND A MINIMUM OF 6” OUT FROM THE WALL AND ARE TO HAVE INSULATED CONNECTORS ON THE END, OR OTHER TYPE OF CABLE PROTECTION. SLEEVES SHALL BE SECURED ON BOTH SIDES OF THE PENETRATION TO PREVENT SHIFTING DURING CABLE INSTALLATION.
b. SLEEVES SHALL BE PLACED ABOVE THE CEILING, THROUGH THE WALL, BETWEEN ALL OFFICES AND CORRIDORS, AND CLASSROOMS AND CORRIDORS, OR OTHER AREAS WHERE CABLES ARE TO BE ROUTED.
4. EQUIPMENT AND FITTINGS:
a. DISTRIBUTION EQUIPMENT SHALL BE SIZED TO HANDLE THE QUANTITY OF JACKS NOTED ON THE DRAWINGS PLUS BE ADEQUATE TO SATISFY 50 PERCENT EXPANSION, UNLESS NOTED OTHERWISE.
b. MOUNT PATCH PANELS, TERMINAL STRIPS, AND OTHER CONNECTING HARDWARE IN RACKS, UNLESS NOTED OTHERWISE.
c. WHERE REQUIRED, BACKBOARDS SHALL BE 3/4-INCH INTERIOR-GRADE FIRE-RATED PLYWOOD, PAINTED WITH TWO COATS OF FIRE-RESISTIVE-PAINT. INSTALL PASS THROUGH RINGS FOR BOTH HORIZONTAL AND VERTICAL TRAINING OF CABLES.
5. TESTING:
a. PERFORM ALL TESTS IAW TIA/EIA-568-C.0 AND TIA/EIA-568-C.2 AND TELECOMMUNICATIONS STANDARDS FOR TWISTED PAIR AND OPTICAL FIBER CABLING REQUIREMENTS OF THIS SECTION.
b. PROVIDE DOCUMENTATION OF TESTING IAW TELECOMMUNICATIONS STANDARDS FOR TWISTED PAIR AND OPTICAL FIBER CABLING REQUIREMENTS OF THIS SECTION.

27 11 00 COMMUNICATIONS EQUIPMENT

A. SCOPE OF WORK:
1. DESIGN REQUIREMENTS:

B. MAIN DISTRIBUTION FRAMES (MDF):
1. CONTRACTOR TO PROVIDE AND INSTALL 15U WALL MOUNTED, SWING OUT DATA RACK WITH VENTED DOOR WHERE LOCATED ON PLANS.
a. MANUFACTURER:
1). KENDALL HOWARD , MODEL # 3132-3-001-15
2. CONTRACTOR SHALL PROVIDE ALL NECESSARY ACCESSORIES.
3. CONTRACTOR SHALL ENSURE THAT THE INSTALLATION OF RACK AND COORDINATED ACCESSORIES MEET THE FOLLOWING REQUIREMENTS:
a. RACK SHALL BE BONDED TO GROUNDING SYSTEM AS SPECIFIED IN SECTION 27 05 26 — BONDING AND GROUNDING
b. INSTALL ONE FRONT MOUNTED WIRE MANAGER PANEL FOR ROUTING OF HUB CABLES AND ONE REAR MOUNTED WIRE MANAGER PANEL FOR CONTROLLING CABLES ENTERING BACK OF PATCH PANEL.
c. INSTALL APPROPRIATE VERTICAL WIRE MANAGER LOOPS TO PROVIDE A TRAINING AND ATTACHMENT POINT FOR VERTICALLY RUN CABLES. INSTALL FRONT AND BACK AT EACH POST.
d. INSTALL SHELVES FOR OWNER FURNISHED EQUIPMENT (OFE) THAT IS NOT RACK MOUNTABLE. VERIFY WITH OWNER NUMBER OF SHELVES REQUIRED.
e. PROVIDE HORIZONTAL RACK MOUNTED POWER STRIP INCLUDING 8 OUTLETS (4 IN BACK AND 4 IN FRONT). PROVIDE AN INTERNAL SURGE PROTECTION UNIT. PLUG STRIPS SHALL BE CONNECTED TO A CORD. HUBBELL MCCPSS19TS OR EQUAL.

C. PATCH PANELS CATEGORY 6
1. PATCH PANELS SHALL BE POWER SUM RATED AND TESTED IN A LINK CONFIGURATION. DEVICES SHALL HAVE SAME RATING AS STATION OUTLETS.
2. PANELS SHALL HAVE AT A MINIMUM 48 PORTS UNLESS OTHERWISE NOTED ON PLANS.
a. MOUNT PANELS IN RACK OR AS INDICATED ON PLANS.
b. ALL CABLE MANAGEMENT ACCESSORIES SUCH AS HORIZONTAL AND VERTICAL WIRE MANAGERS SHALL BE INSTALLED AS RECOMMENDED BY MANUFACTURER.
c. CABLES FOR DATA, VOICE, CAMERAS AND ACCESS CONTROL SHALL BE TERMINATED ON SEPARATE PATCH PANELS UNLESS OTHERWISE NOTED.

27 15 00 COMMUNICATIONS HORIZONTAL CABLING

A. HORIZONTAL STATION CABLING
1. COPPER HORIZONTAL STATION CABLING:
a. ALL HORIZONTAL station CABLING FOR DATA, VOIP PHONE, WAP'S, SURVIELLANCE CAMERAS, ACCESS CONTROL SHALL BE 4-PAIR, 250OHM UTP OR F/UTP (FOIL SHIELD AND/OR PLENUM RATED AS REQUIRED) AND LISTED AS COMPLYING WITH CATEGORY 6 OF EIA/TIA-568-B.
b. PROVIDE WATER BLOCKED CABLE FOR ANY SLAB-ON-GRADE FLOOR BOX APPLICATION OR DATA CABLE INSTALLED IN CONDUIT IN OR UNDER SLAB. NOTE: CABLE IS NOT PLENUM RATED AND MUST BE INSTALLED IN CONDUIT IF INSTALLED ABOVE THE CEILING IN A PLENUM SPACE. PVC CONDUIT MAY BE ROUTED UNDERGROUND DIRECTLY TO DATA ROOM IN LIEU OF USING EMT ABOVE CEILINGS. CABLE SHALL BE APPROVED FOR WET LOCATIONS AND FLOODED FOR MOISTURE PROTECTION.
c. TERMINATE AND LABEL ALL CABLES AT BOTH ENDS, UNLESS NOTED OTHERWISE.
d. WORKSTATION / DATA OUTLETS SHALL HAVE A MINIMUM OF 2 CABLE RUNS UNLESS OTHERWISE NOTED ON PLANS.
e. WAP LOCATIONS SHALL HAVE 2 CABLE RUNS PER LOCATION. PROVIDE A 25' SERVICE LOOP TERMINATED IN DATA MODULAR IN LINE ADAPTER TO ALLOW FOR TESTING FOR CEILING MOUNTED WAP LOCATIONS. WALL MOUNTED LOCATIONS SHALL UTILIZE A STANDARD WALL-MOUNTED CAT6 DATA OUTLET.
f. CONTRACTOR WILL BE RESPONSIBLE TO MOUNT (OFE) WAP DEVICES IN LOCATIONS DESIGNATED ON PLANS PRIOR TO FINAL COMPLETION OF PROJECT.
g. DATA CABLES
1). 4-PAIR, 250OHM UTP OR F/UTP (FOIL SHIELD AND/OR PLENUM RATED AS REQUIRED) AND LISTED AS COMPLYING WITH CATEGORY 6 OF EIA/TIA-568-B.
2). TERMINATE AND LABEL ALL CABLES AT BOTH ENDS, UNLESS NOTED OTHERWISE.
2. SURVIELLANCE CAMERA CABLING:
a. DATA CABLES (CATEGORY 6)
1). 4-PAIR, 250OHM UTP OR F/UTP (FOIL SHIELD AND/OR PLENUM RATED AS REQUIRED) AND LISTED AS COMPLYING WITH CATEGORY 6 OF EIA/TIA-568-B.
2). CONTRACTOR SHALL PROVIDE (1) ONE CABLE FROM EACH CAMERA LOCATION SHOWN ON DRAWINGS TO DATA RACK LOCATION IN OFFICE. COIL 5' 0” OF CABLE AT EACH END. TERMINATIONS OF CABLE AT CAMERA AND DATA RACK WILL BE PROVIDED BY EQUIPMENT INSTALLER.
3. AUDIO-VIDEO SYSTEM CABLING:
a. DATA CABLES (CATEGORY 6)
1). 4-PAIR, 250OHM UTP OR F/UTP (FOIL SHIELD AND/OR PLENUM RATED AS REQUIRED) AND LISTED AS COMPLYING WITH CATEGORY 6 OF EIA/TIA-568-B.
2). TERMINATE AND LABEL ALL CABLES AT BOTH ENDS, UNLESS NOTED OTHERWISE.
b. CABLE (COAXIAL RG6Q)
1). RG6 CCS QUAD SHIELDED RF VIDEO 3.0GHZ CABLE (PLENUM AS REQUIRED) WITH FOAM POLYETHYLENE DIELECTRIC, FLAME RATED POLYVINYL CHLORIDE (FR-PVC) JACKET AND BE NEC CM, CEC CMG FT4, ROHS COMPLIANT.DEPENDING ON CABLE RUN LENGTH CONSIDER RG9 OR RG11 CABLING. REVIEW CONDUIT SIZE THIS CABLE HAS A MUCH LARGER DIAMETER
2). TERMINATE AND LABEL ALL CABLES AT BOTH ENDS, UNLESS NOTED OTHERWISE.
c. SPEAKER AUDIO
1). 2 OR 4 CONDUCTOR 16 — 12 AWG, 26 STRAND COPPER (MINIMUM), UNSHIELDED, SIZED PER APPLICATION. NEC TYPE CL3R AND CEC TYPE CMG FT4 FOR AUDIO
2). LABEL ALL CABLES AT BOTH ENDS, UNLESS NOTED OTHERWISE.

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PROJECT INFORMATION

PROPOSED BUILDING RENOVATION
HAWAIIAN BROS - STR: 43
1401 GRINDSTONE PKWY • COLUMBIA, MO

PROFESSIONAL SEAL

SHEET DATES
SHEET ISSUE OCT. 26, 2021
REVISIONS

JOB NUMBER
2164120

SHEET NUMBER
E0.2

ELECTRICAL SPECIFICATIONS (CONT.)

- A. FACEPLATES, JACKS, PLUGS AND CONNECTORS FOR LV SYSTEMS:
  - 1. FACEPLATES:
    - a. MANUFACTURER: LEVITON 42080 OR EQUAL
    - b. PROVIDE ABS PLASTIC OR STAINLESS STEEL VERTICAL FACEPLATES AS REQUIRED PER AREA INSTALLED.
    - c. PLATES SHALL ACCEPT IDC-TYPE JACK MODULES AND ALLOW A LABEL TO BE INSERTED INTO AN INTEGRAL LABEL POCKET WITH CLEAR COVER.
    - d. faceplate color shall be as specified in division 26.
    - e. ALL FACEPLATE, JACK, PLUG AND CONNECTOR MANUFACTURERS SHALL BE CONSISTENT THROUGHOUT PROJECT.
  - 2. JACKS:
    - a. PROVIDE MODULAR COLOR-CODED PATCH PANEL AND FACEPLATE INSERT / RJ-45 RECEPTACLE UNITS FOR EACH CABLE WITHIN THE OUTLET AS SHOWN ON PLANS.
    - b. INSTALL DUST CAPS AND SECURE ALL JACKS PER MANUFACTURER'S RECOMMENDATIONS.
  - 3. PLUGS:
    - a. UTP AND F/UTP CABLE PLUG CATEGORY LISTING SHALL MATCH THAT OF THE CABLE MINIMUM.
  - 4. CONNECTORS:
    - a. COAXIAL CABLE:
      - 1). COMPRESSION STYLE IAW CABLE MANUFACTURERS RECOMMENDATIONS.
- B. WORKSTATION COMMUNICATION BOXES AND OUTLETS:
  - 1. USE 4" SQUARE, 2 1/8" DEEP (MINIMUM) OUTLET BOX WITH SINGLE GANG RING UNLESS OTHERWISE SHOWN ON PLAN. PROVIDE CONDUIT STUB INTO CEILING ABOVE TOWARDS CABLE TRAY OR CABLE SUPPORT PATHWAY.
  - 2. PROVIDE COMBINATION TYPE FACEPLATE WITH 4-POSITION OPENINGS FOR IDC-TYPE OUTLETS. FACEPLATES SHALL HAVE LABEL HOLDERS WITH A TYPED OVERLAY LABEL AFFIXED ABOVE / BELOW EACH OUTLET POSITION INDICATING THE OUTLET NUMBER.
  - 3. PROVIDE THE APPROPRIATE COMMUNICATIONS DEVICE IN THE OPENING AS SHOWN ON THE PLANS. ALL EMPTY OPENINGS SHALL BE CLOSED WITH BLANK INSERTS.

27 16 00 COMMUNICATIONS CONNECTING CORDS, DEVICES AND ADAPTERS

- A. PATCH CORDS, STATION CORDS, AND CROSS CONNECT WIRE
  - 1. MDF UTP AND F/UTP PATCH CABLES:
    - a. PATCH CABLES SHALL BE PROVIDED BY OWNER IN LENGTHS TO ALLOW FOR PROPER BEND RADIUS AND SHALL BE INSTALLED BY CONTRACTOR IN A NEAT, ORGANIZED MANNER USING INDUSTRY STANDARD MEANS AND METHODS.
    - b. COLOR CODE CORDS TO KEEP DATA PATCH CABLES SEPARATE FROM VOICE PATCH CABLES PER GENERAL INSTALLATION REQUIREMENTS IN THIS SECTION OR AS NOTED OTHERWISE. COLORS SHALL BE CONSISTENT THROUGHOUT THE PROJECT.

27 21 00 DATA COMMUNICATIONS NETWORK EQUIPMENT

- A. NETWORK SWITCHES
  - 1. NETWORK SWITCHES (OFE) TO BE PROVIDED AND INSTALLED BY OWNER.
- B. UNINTERRUPTIBLE POWER SUPPLY (UPS)
  - 1. MDF RACKS AND CABINETS (OFE) TO BE PROVIDED AND INSTALLED BY OWNER.
- C. POWER DISTRIBUTION UNIT (PDU)
  - 1. MANUFACTURER: CYBERPOWER BASIC PDU SERIES (PDU20BT10R) OR EQUAL

27 41 16 AUDIO-VIDEO SYSTEMS AND EQUIPMENT

- A. AN AUDIO-VIDEO SYSTEM IS NOT PART OF THIS BID PACKAGE. PROVIDE JUNCTION BOXES, CONDUIT STUBS, AND WIRE FOR ALL AUDIO-VIDEO LOCATIONS SHOWN ON THE DRAWINGS.
- B. SEE SPECIFICATION SECTION 27 15 00 FOR CABLING REQUIREMENTS.

DIVISION 28 ELECTRONIC SAFETY, SECURITY, FIRE ALARM

28 10 00 ACCESS CONTROLS

- A. SECURITY & ACCESS CONTROL WIRING IS NOT PART OF THIS BID PACKAGE. PROVIDE JUNCTION BOXES AND CONDUIT STUBS FOR ALL CARD READERS, ELECTRIC STRIKES, DOOR CONTACTS, DOOR ALARMS, AND REQUEST TO EXIT SENSORS SHOWN ON THE DRAWINGS.
- B. CONTRACTOR SHALL WORK WITH THE OWNERS ACCESS CONTROLS SYSTEM PROVIDER AND SHALL PROVIDE 120V POWER AS REQUIRED TO EACH UNIT CONTROLLER UTILIZING SPARE BREAKERS PROVIDED.

28 20 00 VIDEO SURVEILLANCE

- A. VIDEO SURVEILLANCE IS NOT PART OF THIS BID PACKAGE. PROVIDE JUNCTION BOXES, CONDUIT STUBS AND WIRE FOR ALL CAMERA & SECURITY MONITOR LOCATIONS SHOWN ON THE DRAWINGS.
- B. SEE SPECIFICATION SECTION 27 15 00 FOR CABLING REQUIREMENTS. EC SHALL PROVIDE (1) ONE CAT 6 CABLE FROM EACH CAMERA LOCATION SHOWN ON DRAWINGS TO DATA RACK LOCATION IN OFFICE. COIL 5' 0" OF CABLE AT EACH END. TERMINATIONS OF CABLE AT CAMERA AND DATA RACK WILL BE PROVIDED BY EQUIPMENT INSTALLER.

ALTERNATE BIDS

SEE SHEET T2.0

SPECIFICATIONS

EXCEL
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100 Camelot Drive
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PROFESSIONAL SEAL

SHEET DATES
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SHEET NUMBER
E0.3

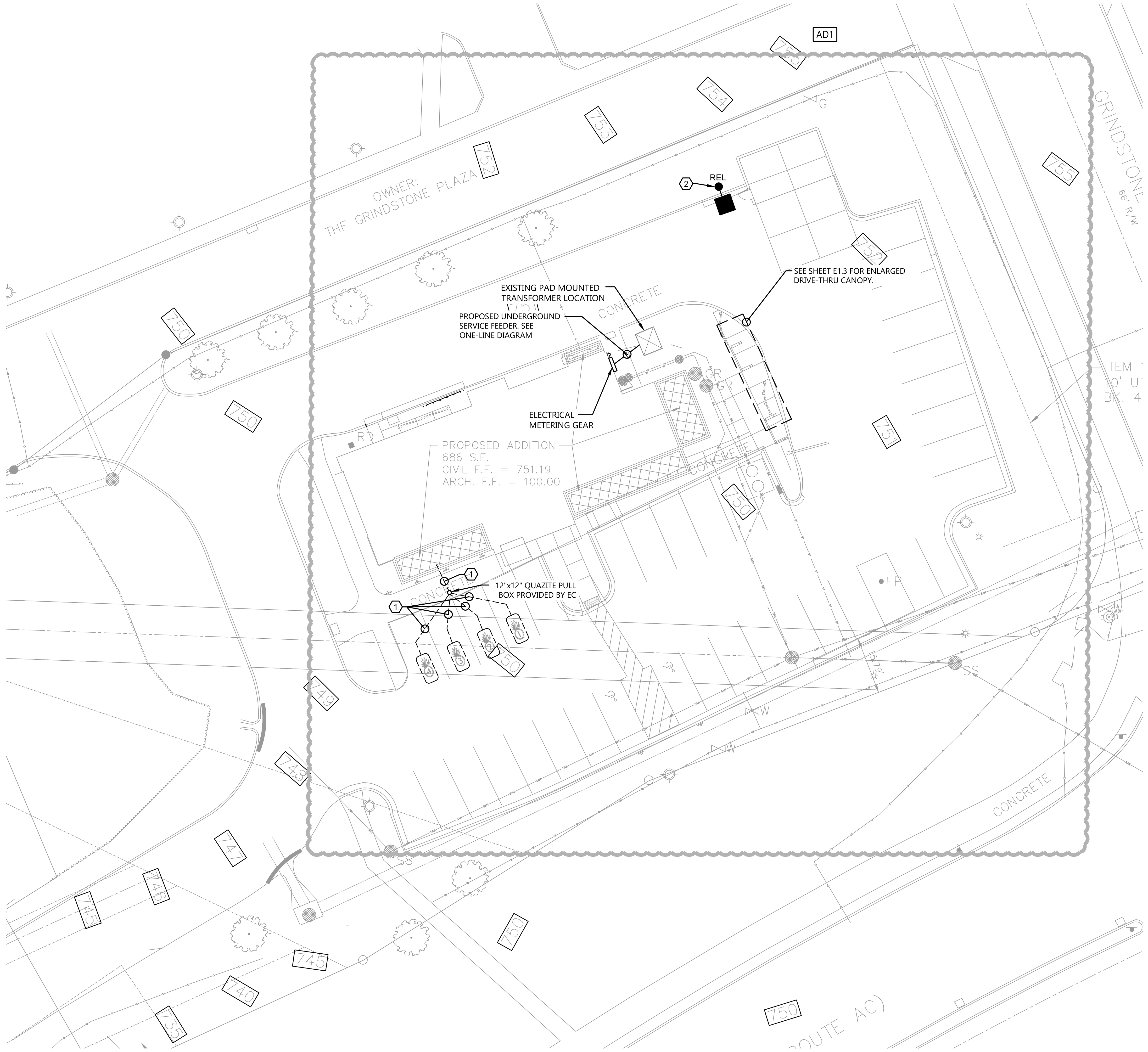
GENERAL NOTES

- EXTERIOR RECEPTACLES SHALL BE GFI TYPE. PROVIDE PASS & SEYMOUR SERIES "WI UC" OR EQUIVALENT COVER. (PER NEC 406.8(B) AND AHJ). COLOR SHALL BE SELECTED BY ARCHITECT.
- SEE SHEET E4.0 FOR BRANCH CIRCUIT FEEDER SIZES.
- SEE HVAC AND PLUMBING PLANS FOR LOCATIONS OF HEATING, VENTILATING, AIR CONDITIONING AND PLUMBING EQUIPMENT. DO NOT REFERENCE ELECTRICAL DRAWINGS FOR EXACT LOCATION.

KEYNOTES

1. EC TO PROVIDE 1"C. FROM GROUND LOOP DETECTOR PROVIDED BY SOUND PRODUCTS AND INSTALLED BY GC TO 12"x12" QUAZITE BOX. CONDUIT RUN NOT TO EXCEED 20' IN LENGTH. COORDINATE LOCATION OF GROUND LOOP WITH GC PRIOR TO ROUGH-IN. PROVIDE 1" C FROM QUAZITE BOX TO INTERIOR OF BUILDING TO ABOVE ACCESSIBLE CEILING.
2. EXISTING LIGHT POLE TO BE RELOCATED AS SHOWN. PROVIDE NEW 6" CONCRETE BASE, REFER TO DETAIL FOR MORE INFORMATION. EXTEND EXISTING CIRCUITING AS REQUIRED.

AD1



NORTH

SITE PLAN

SCALE: 1" = 20'

20' 0 20' 40'

ELECTRICAL SITE PLAN

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ISSUE DATE	OCT. 26, 2021
REVISIONS	
AD1	MAR. 7, 2022

JOB NUMBER

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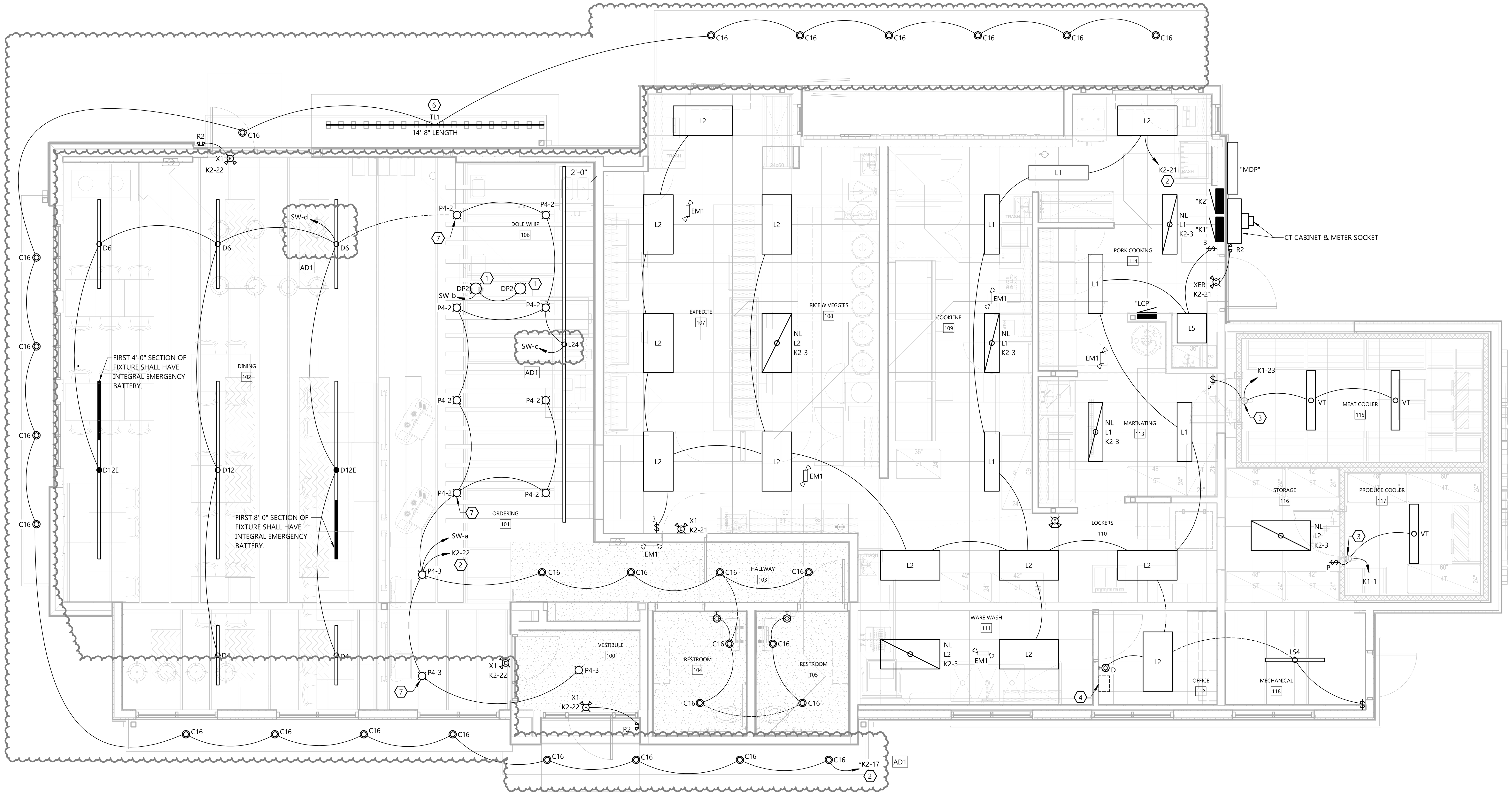
SHEET NUMBER

E1.0



TRUE NORTH

NORTH

FIRST FLOOR PLAN - LIGHTING

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

GENERAL NOTES

- VERIFY ALL EXPOSED CONDUIT ROUTING WITH ARCHITECT/ENGINEER WHERE CONDUIT IS EXPOSED IN FINISHED ROOMS.
- COORDINATE LIGHT FIXTURE LOCATIONS IN MECHANICAL EQUIPMENT ROOMS WITH OTHER CONTRACTORS PRIOR TO ROUGH IN.
- SEE ARCHITECTURAL REFLECTED CEILING AND ELEVATION PLANS FOR LOCATION OF ALL LIGHTING FIXTURES. LOCATE FIXTURES IN ACCORDANCE WITH CEILING AND ELEVATION PLANS.
- DEVICE LOCATIONS MAY BE DISTORTED FOR CLARITY. LOCATE DEVICES SYMMETRICALLY WITH THE ARCHITECTURAL ELEMENTS.
- SEE LIGHTING FIXTURE LEGEND FOR FIXTURE WIRING INFORMATION.
- WIRE EMERGENCY LIGHTS UNSWITCHED TO LIGHTING CIRCUIT SERVING SAME ROOM, OR TO "NIGHT LIGHT" CIRCUIT WHEN AVAILABLE.
- EXISTING CONDUITS AND WIRING MAY BE RE-USED IF IN GOOD WORKING CONDITION AND MEETS REQUIREMENTS OF SPECIFICATIONS.

KEYNOTES

1. PENDANT MOUNT FIXTURE 7'-0" AFF TO BOTTOM OF FIXTURE, COORDINATE MOUNTING HEIGHT WITH OWNER PRIOR TO ROUGH-IN.
2. ROUTE CIRCUIT THRU TIME CLOCK CONTROLLED RELAY. SEE DETAIL 3/E3.0.
3. COORDINATE WITH WALK-IN COOLER SUPPLIER. PROVIDE ALL CONDUIT AND WIRING INSIDE COOLER. CONDUIT AND BOXES SHALL BE RATED NEMA3R AND SWITCHES TO BE LOCATED ON COOLER EXTERIOR. COORDINATE ANY PENETRATIONS REQUIRED THRU COOLER WITH SUPPLIER AND SEAL PER MANUFACTURER REQUIREMENTS. SEE DETAIL 1/E1.1P FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
4. SEE SWITCHBANK DETAIL 3/E3.0.
5. NOT USED. AD1
6. TAPE LIGHT MOUNTED TO OVERHANG, SEE ARCHITECTURAL DETAIL X/AX.X FOR MOUNTING LOCATION. LED DRIVER TO BE MOUNTED AT INTERIOR OF BUILDING ABOVE NEAREST ACCESSIBLE CEILING.
7. REMOTE MOUNT LED DRIVER IOTA-CP10 IN NEMA 1 ENCLOSURE. MOUNT CLOSE TO CEILING STRUCTURE AND PAINT TO MATCH CEILING. DRIVER TO PROVIDE EMERGENCY POWER FOR FIXTURE TYPE P4-3.

LIGHTING CONTROL PANEL SCHEDULE

LCP NAME: LCP
LOCATION: PORK COOKING 114
SURFACE/FLUSH: RECESSED
POWER CIRCUIT: K2-13

AD1

RELAY #	CIRCUIT	DESCRIPTION	LV SWITCH/SENSOR	CHANNEL
1	K2-22: a,b,c,d	INTERIOR DINING LIGHTING	MASTER OVERRIDE	B
2	K2-21	INTERIOR KITCHEN LIGHTING	MASTER OVERRIDE	A
3	K2-24	BUILDING SIGNAGE		E
4	K2-26	BUILDING SIGANGE		E
5	K2-28	BUILDING SIGANGE		E
6	K2-30	BUILDING SIGANGE		E
7	K2-32	BUILDING SIGNAGE		E
8	K2-34	BUILDING SIGNAGE		E
9	K2-57	BUILDING SIGNAGE		E
10	K2-17	BUILDING EXTERIOR LIGHTING	PHOTOCELL	C
11	K3-9	MENU BOARD		E
12	K3-11	MENU BOARD		E
13	K3-10	DRIVE THRU CANOPY LIGHTING	PHOTOCELL	C
14	K2-65,67	SITE LIGHTING	PHOTOCELL	C
15	K2-69,71	SITE LIGHTING	PHOTOCELL	C
16	K2-64,66	SITE LIGHTING	PHOTOCELL	C
17	K2-68,70	SITE LIGHTING	PHOTOCELL	C
18	K2-40	EYEBROW LIGHTING	PHOTOCELL	C
19	K2-44	EYEBROW LIGHTING	PHOTOCELL	C
20	K2-45	EYEBROW LIGHTING	PHOTOCELL	C
21		SPARE		
22		SPARE		
23		SPARE		
24		SPARE		

AD1

LCP CHANNEL AUTOMATION SCHEDULE

CHANNEL	SCENARIO	SCENARIO TIMES	BLINK	TIME DELAY
A	1	OFF 11:00PM		
B	2	11:00AM-9:30PM		2 HOURS
C	3	*		2 HOURS
D	4	DUSK-12:00AM		
E	5	DUSK-DAWN		
F	6	6:00AM-6:00PM		
G	7	TBD-ON 24/7/365 INITIALLY		
H	8			

NOTE TO ELECTRICAL CONTRACTOR ON PROGRAM SCHEDULI...

FINAL TIME SCHEDULES SHALL BE VERIFIED WITH OWNER'S REPRESENTATIVE NOT TO EXCEED 30-MIN BEFORE OPENING OR 30-MIN AFTER CLOSING SCHEDULE TO MEET IECC MANDATORY CONTROL MEASURES.

SCENARIO LISTING:
(1) MANUAL ON/SCHEDULE OFF
(2) SCHEDULE
(3) MANUAL
(4) PHOTOCELL
(5) PHOTO & SCHEDULE ON/OFF
(6) ASTRONOMIC ON/OFF
(7) ASTRONOMIC AND SCHEDULE ON/OFF

AD1

LIGHTING CONTROL PANEL SPECIFICATIONS:
PROVIDE A SINGLE RELAY PANEL WITH UP TO 24 RELAYS. EACH RELAY TO BE INDIVIDUALLY SCHEDULED THROUGH AN EASY TO USE INTEGRAL CLOCK WITH A BACKLIT 8-LINE LCD DISPLAY. RELAYS ARE TO BE SPST 20 AMP RATED, MECHANICALLY HELD CONTACTORS CAPABLE OF SWITCHING EITHER 120 OR 277VAC LOADS. MOUNTED NEXT TO EACH RELAY SHOULD BE A LED TO ANNUNCIATE STATUS AND A PUSHBUTTON TO TOGGLE THE RELAY'S STATE. PANEL SHALL HAVE A MULTITAP TRANSFORMER AND ACCEPT EITHER 120V OR 277V FOR POWER.

PANEL ENCLOSURE TO BE NEMA 1, RATED FOR ENVIRONMENTS FROM 32 - 139 DEGREES FAHRENHEIT, 5 - 95% RELATIVE HUMIDITY NON-CONDENSING PANEL TO COME WITH A SPLIT COVER HINGED IN THE CENTER SUCH THAT THE HIGH VOLTAGE SIDE MUST BE UNSCREWED TO ACCESS THE RELAYS, BUT THE LOW VOLTAGE SIDE CAN BE OPENED VIA A LOCKING LATCH. SURFACE OR FLUSH COVERS SHALL BE AVAILABLE.

EACH RELAY CAN BE CONTROLLED REMOTELY BY EXTERNAL SWITCHES OR MOTION DETECTORS. SWITCHES CAN BE 2- OR 3-WIRE, MOMENTARY OR MAINTAINED LOW VOLTAGE DEVICES. MOTION DETECTORS MUST PROVIDE A 24VDC PILOT SIGNALTO CONTROL THE RELAYS. PANEL MUST BE ABLE TO INTERLOCK TIME BASED SCHEDULES WITH THE OCCUPANCY SENSOR INPUT, SO THAT LIGHTS SCHEDULED ON DURING THE DAY ARE NOT AFFECTED BY THE MOTION DETECTOR, BUT AFTER HOURS THE OCCUPANCY SENSOR HAS CONTROL OF THE RELAY. PANEL SHALL BE CAPABLE OF BLINK WARNING BEFORE "OFF" AND TRUE AFTER HOURS TIME DELAY.

ALL PROGRAMMING TO BE ENTERED VIA A SIMPLE KEYPAD. EACH RELAY CAN BE PROGRAMMED INDEPENDENTLY, OR RELAYS CAN BE GROUPED TOGETHER IN FIRMWARE TO FOLLOW THE SAME CHANNEL SCHEDULE. ON A DAILY 7-DAY REPEATING BASIS, RELAYS CAN BE
(1) MANUAL ON/SCHEDULE OFF
(2) SCHEDULE ON/OFF
(3) MANUAL ON/AS
(4) PHOTOCELL ON/OFF
(5) PHOTO & SCHEDULE
(6) ASTRONOMIC ON/OFF
(7) ASTRONOMIC AND SCHEDULE ON/OFF

THE LCD SCREEN SHOULD NORMALLY SHOW THE CURRENT TIME AND DATE, AS WELL AS SUNRISE AND SUNSET TIMES FOR THAT DAY. RELAY CHANNELS CAN ALSO BE MONITORED FROM THE DISPLAY TO SEE THEIR STATUS. EITHER ON, OFF, OR MIXED. ADDITIONALLY, THE RELAY GROUPS CAN BE OVERRIDDEN FROM THE SCREEN. CONTEXT SENSITIVE HELP SHALL BE AVAILABLE FOR EACH SCREEN.

PANEL TO BE WATT STOPPER'S PANEL (OR APPROVED EQUAL) AND MUST BE UL LISTED 916, MEET LOCAL ENERGY CODES (IECC 2015) AND HAVE A 1 YEAR WARRANTY.

AD1

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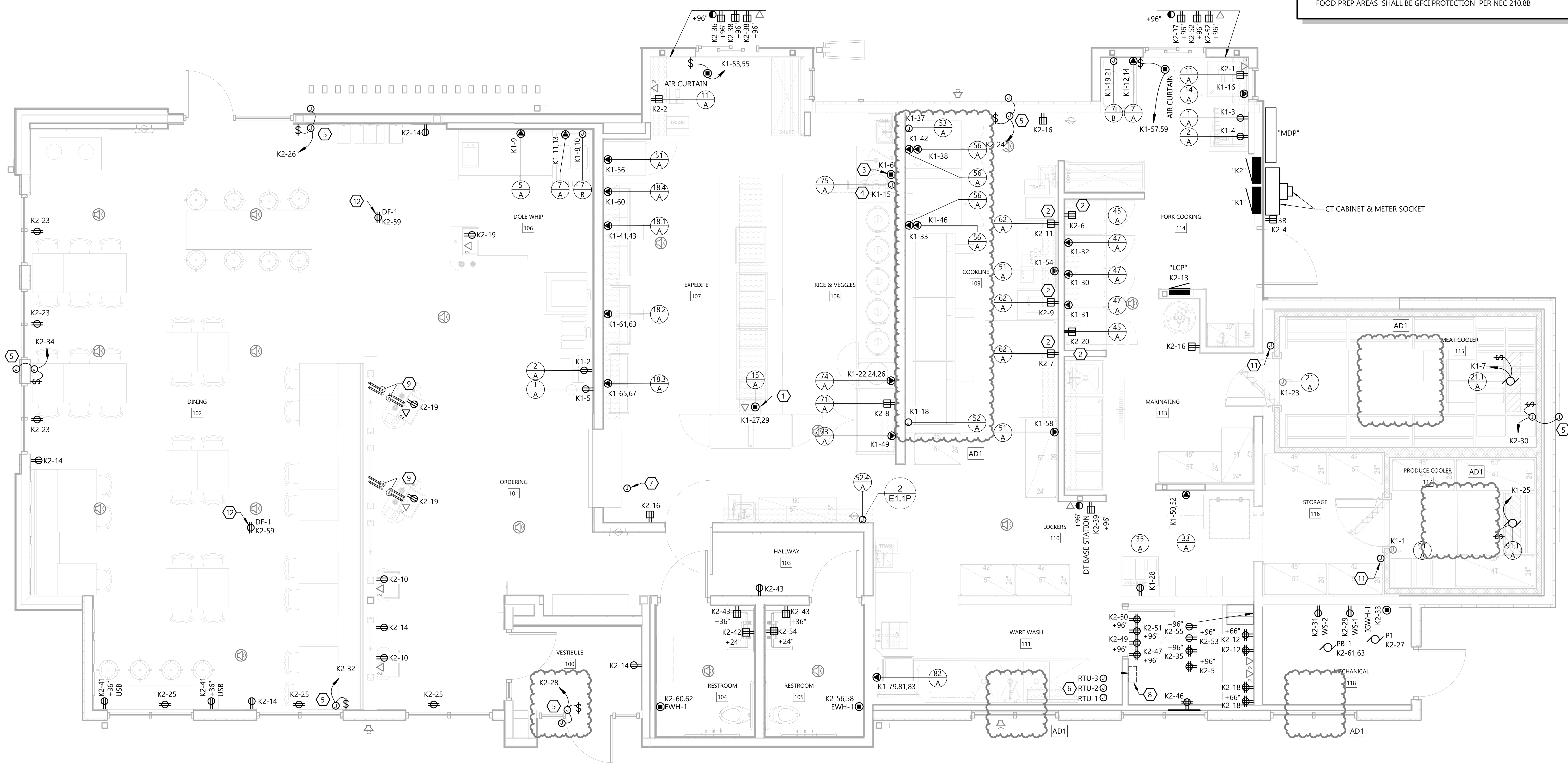
ELECTRICAL FIRST FLOOR PLAN - LIGHTING



FIRST FLOOR PLAN - POWER

NORTH

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

KITCHEN NOTES:

(X/X) = KITCHEN EQUIPMENT TAG. SEE DRAWING QF200 FOR DESCRIPTION AND ADDITIONAL REQUIREMENTS.

- ALL 15A AND 20A AMP RECEPTACLES LOCATED IN KITCHEN, DRIVE-THRU, AND FOOD PREP AREAS SHALL BE GFCI PROTECTION PER NEC 210.8B

GENERAL NOTES

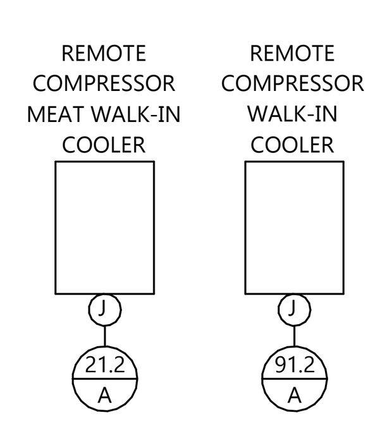
- VERIFY ALL EXPOSED CONDUIT ROUTING WITH ARCHITECT/ENGINEER WHERE CONDUIT IS EXPOSED IN FINISHED ROOMS.
- EXTERIOR RECEPTACLES SHALL BE GFI TYPE. PROVIDE PASS & SEYMOUR SERIES "WI UC" OR EQUIVALENT COVER. (PER NEC 406.8(B) AND AHJ). COLOR SHALL BE SELECTED BY ARCHITECT.
- ROUGH-IN RECEPTACLES FOR ELECTRIC WATER COOLERS (EWC) BEHIND UNIT. VERIFY LOCATION PRIOR TO ROUGH-IN.
- PROVIDE GFI PROTECTION FOR ALL SINGLE PHASE RECEPTACLES IN THE FOLLOWING LOCATIONS: BATHROOMS, KITCHENS, ROOFS, LOCKER ROOMS & SHOWERING FACILITIES, SERVING WATER COOLERS & VENDING MACHINES, GARAGES & SERVICE BAYS, WITHIN 6'-0" OF A SINK, AND ALL OTHER WET LOCATIONS.
- SEE SHEET E4.0 FOR BRANCH CIRCUIT FEEDER SIZES.
- ALL CONDUITS TO ISLAND CABINETRY AND TABLES SHALL BE UNDERGROUND.
- DEVICE LOCATIONS MAY BE DISTORTED FOR CLARITY. LOCATE DEVICES SYMMETRICALLY WITH THE ARCHITECTURAL ELEMENTS.
- SEE HVAC AND PLUMBING PLANS FOR LOCATIONS OF HEATING, VENTILATING, AIR CONDITIONING AND PLUMBING EQUIPMENT. DO NOT REFERENCE ELECTRICAL DRAWINGS FOR EXACT LOCATION.
- SEE HVAC SHEET PLANS FOR AREAS THAT ARE USED AS A RETURN AIR PLENUM. PROVIDE PLENUM RATED CONSTRUCTION.
- EXISTING CONDUITS AND WIRING MAY BE RE-USED IF FOUND TO BE IN GOOD WORKING WORKING CONDITION AND MEETS THE MINIIMM INTENT OF SPECIFICATIONS.

KEYNOTES

1. CONNECT PRODUCTION COUNTER CIRCUIT BREAKER PANEL VIA UTILITY CHASE IN CEILING TO A 2-POLE, 60 AMP CIRCUIT BREAKER IN PANEL SHOWN. VERIFY ALL REQUIREMENTS WITH ACTUAL EQUIPMENT SPECIFIED IN KITCHE PLANS. THE MANUFACTURER WILL FULLY PRE-WIRE THE COMPLETE PRODUCTION COUNTER LINE. THE UNITS WILL THEN BE PULLED APART FOR SHIPPING PURPOSES. ALL CONNECTION POINTS WILL BE MARKED. THE CONDUIT RUNS WILL BE COILED UP FOR FIELD INSTALLATION. SOME ELECTRICAL COMPONENTS MAY BE REMOVED FOR EASE OF DISASSEMBLING THE LINE-UP. THE ELECTRICAL CONTRACTOR WILL BE FULLY RESPONSIBLE FOR MAKING THE PROPER FIELD CONNECTIONS FROM THE ROUGH-IN LOCATION TO THE MANUFACTURER PROVIDED BREAKER PANEL BOX. IN ADDITION, THE ELECTRICAL CONTRACTOR WILL BE RESPONSIBLE FOR ANY SPLICE POINTS AND/OR JUNCTION BOXES THAT NEED TO BE RECONNECTED. SOME ELECTRICAL COMPONENT ASSEMBLY MAY ALSO BE REQUIRED.
2. RECEPTACLE TO BE MOUNTED HORIZONTALLY, SEE KITCHEN EQUIPMENT PLANS.
3. PROVIDE 120V POWER TO GAS SOLENOID VALVE BELOW HOOD TO SHUT OFF GAS LINE UPON ACTIVATION OF ANSUL SYSTEM, VERIFY REQUIEMERNTS AND LOCATION WITH KITCHEN EQIPMENT SUPPLIER.
4. PROVIDE 120V CONNECTION TO TYPE II HOOD INTEGRAL CONTROL PANEL. PROVIDE INTERLOCK WIRING TO HOOD EXHAUST FAN AND HOOD MAKE-UP AIR UNIT AS REQUIRED PER MANUFACTURERS RECOMMENDATIONS. INTERLOCK GAS SOLENOID VALVE UNDER TYPE ii HOOD TO ANSUL SYSTEM IN TYPE I HOOD SO THAT UPON ACTIVATION OF ANSUL SYSTEM, GAS UNDER TYPE II HOOD IS SHUT-OFF.
5. PROVIDE JUNCTION BOX(ES) WITH LOCAL TOGGLE SWITCH DISCONNECT LOCATED ABOVE ACCESSIBLE CEILING AND ASSOCIATED 120V, 1Ø, 20 AMP CIRCUIT(S) FOR SIGNAGE. FIELD VERIFY EXACT ROUGH-IN LOCATION. ROUTE CIRCUIT THROUGH LIGHTING CONTROL PANEL.
6. INSTALL DUCT SMOKE DETECTOR REMOTE INDICATOR LIGHT FOR EACH RTU HIGH ON WALL BELOW CEILING LINE.
7. EC SHALL PROVIDE 18/2 WIRE FROM WIRELESS BOOSTER CONTROLLER (PROVIDED BY OTHERS) LOCATED ABOVE DOOR IN OFFICE TO WIRELESS BOOSTER (PROVIDED BY OTHERS).
8. SEE SWITCHBANK DETAIL 4/E3.0.
9. PROVIDE (2) 1" C. ROUTED UNDERGROUND FOR DATA AND POWER ORDER PODS FROM ABOVE ACCESSIBLE CEILING. COORDINATE SAW CUTTING OF FLOOR WITH GC. VERIFY EXACT STUB-UP LOCATION WITH FURNITURE SUPPLIER PRIOR TO ROUGH-IN.
10. NOT USED.
11. EC SHALL PROVIDE 18/2 WIRE FROM TEMPERATURE SENSOR CONTROLLER (PROVIDED BY OTHERS) LOCATED ABOVE DOOR IN OFFICE TO EXTERNAL SENSOR (PROVIDED BY OTHERS) LOCATED ON COOLER.
12. EC SHALL WIRE (2) DF-1'S TO SPEED CONTROLLER LOCATED IN OFFICE. SPEED CONTROLLER FURNISHED BY DF-1 MANUFACTURER.

REMOTE COMPRESSORS & CONDENSING UNITS

THESE NOTES APPLY TO MULTI-SYSTEM COMPRESSOR RACKS AS WELL AS INDIVIDUAL COMPRESSORS AND CONDENSORS.



IMPORTANT ELECTRICAL NOTE: FOR EACH FREEZER COMPRESSOR, ELECTRICIAN TO PROVIDE (1) 3/4" DIAMETER CONDUIT W/(5) #10 WIRES & INTERCONNECT BETWEEN COMPRESSOR, EVAPORATOR COIL & TIME CLOCK. VERIFY ALL DETAILS WITH MANUFACTURERS SHOP DRAWINGS.

NOTES:

- EXACT LOCATION OF COMPRESSORS ARE TO BE DETERMINED BY ARCHITECT. FREE & EASY ACCESS INTO AREA FOR COMPRESSORS MUST BE PROVIDED BY OTHERS, TO ALLOW PLACEMENT OF RACK AS WELL AS MAINTAIN MINIMUM CLEARANCE REQUIREMENTS.
- SUFFICIENT AIR CHANGES MUST BE PROVIDED IN THIS AREA TO ALLOW ADEQUATE AIR CIRCULATION FOR WATER COOLED OR AIR COOLED COMPRESSORS.
- STRUCTURAL SUPPORT AS WELL AS CURBS, PADS OR REDWOOD RAILS FOR COMPRESSORS, ON ROOF OR INSIDE STRUCTURE, TO BE PROVIDED BY OTHERS.
- SEE MANUFACTURER'S SHOP DRAWINGS FOR DETAILED REQUIREMENTS FOR CLEARANCE ACTUAL SIZES, MECHANICAL, PLUMBING & ELECTRICAL REQUIREMENTS. FOR WATER COOLED UNITS, STRICT ADHERENCE TO MANUFACTURERS REQUIREMENTS FOR MIN./MAX. WATER TEMP AND PRESSURE MUST BE MAINTAINED.
- ASHRAE CALCULATIONS AND ANY RESULTING REQUIREMENTS FOR COMPRESSOR AREA, PIPING CHASES AND FREON DETECTION SYSTEMS SHALL BE THE RESPONSIBILITY OF OTHERS.
- ALL REFRIGERANT PIPING CHASES AND BUILDING PENETRATIONS SHALL BE THE RESPONSIBILITY OF THE BUILDING TRADES AND TO COMPLY WITH ALL LOCAL CODES. EXACT LINE RUNS OF REFRIGERATION PIPING SHALL BE DETERMINED IN COORDINATION WITH THE REFRIGERATION INSTALLER.
- ALL ELECTRICAL DISCONNECTS TO BE PROVIDED BY OTHERS.

4 / E1.1P REMOTE COMPRESSORS/CONDENSING UNITS

NOT TO SCALE

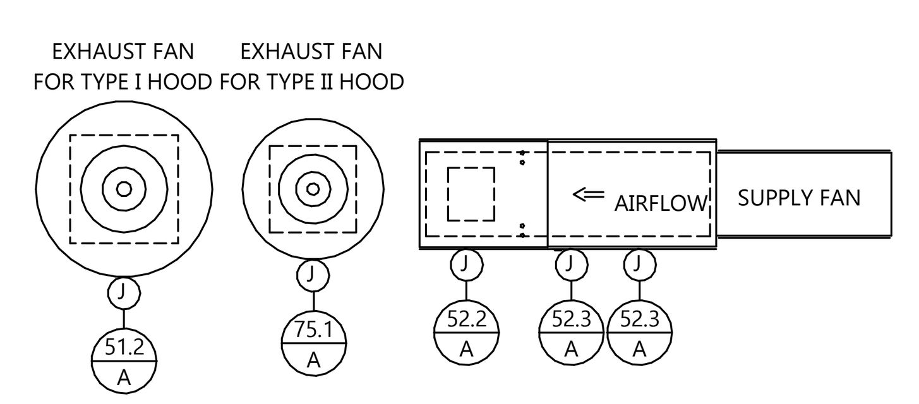
ROOFTOP EXHAUST FANS & MAKE-UP AIR UNITS

THESE ROOF TOP ITEMS ARE TO BE LOCATED BY THE ARCHITECT & ENGINEERS IN CONJUNCTION WITH THE EXHAUST HOOD MANUFACTURER'S SHOP DRAWING. REFER TO ARCHITECTURAL/ENGINEERING DRAWINGS FOR EXACT LOCATIONS.

REFER TO THE LATEST APPROVED MANUFACTURER'S SHOP DRAWINGS FOR COMPLETE INFORMATION AND DETAILS REGARDING ALL ASPECTS OF FANS &/OR MAKE UP AIR UNITS, INCLUDING ACTUAL SIZES, REQUIRED CLEARANCE, ETC.

ALL PENETRATIONS THRU ROOF OR BUILDING STRUCTURE, INCLUDING WALLS, FLOORS, JOISTS OR OTHER STRUCTURAL MEMBERS, IS TO BE BY OTHERS.

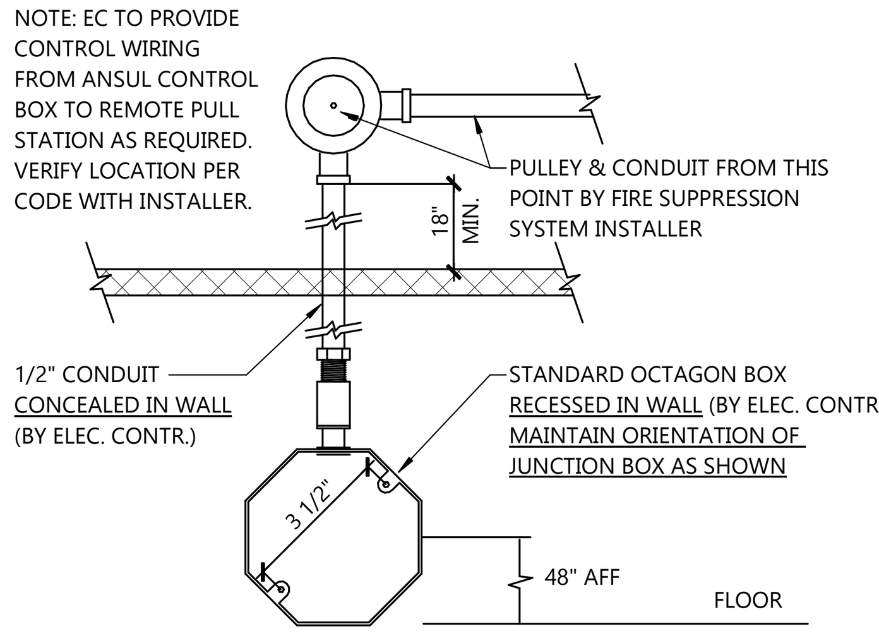
ALL ELECTRICAL DISCONNECTS TO BE PROVIDED BY OTHERS.



IMPORTANT ELECTRICAL NOTE: ELECTRICAL CONTRACTOR SHALL PROVIDE WIRE, CONDUIT AND DISCONNECTS TO EXHAUST & SUPPLY FANS LOCATED ON ROOF (LOCATION TO BE DETERMINED BY OTHERS) W/ INTERCONNECTIONS TO SWITCHES BELOW. SEE MANUFACTURERS SHOP DRAWING FOR COMPLETE ELECTRICAL DETAILS.

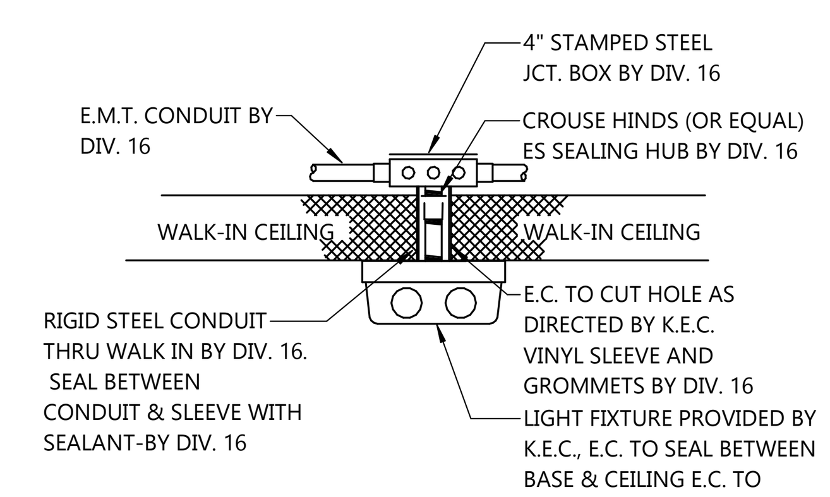
3 / E1.1P ROOFTOP EXHAUSE FANS/MAKE-UP AIR UNITS

NOT TO SCALE



2 / E1.1P FIRE PULL DETAIL

NOT TO SCALE



1. ALL CONDUIT TO BE RUN ON EXTERIOR OF WALK-IN BY DIV. 16 UNLESS BOX IS LOCATED OUTDOORS. THEN CONDUIT IS TO RUN BELOW CEILING.
2. ALL PENETRATIONS THRU WALK-IN TO BE THOROUGHLY SEALED
3. ALL LIGHT FIXTURES TO BE FURNISHED BE K.E.C.
4. MOUNTING FIXTURES, ALL CONDUIT AND ALL INTER-WIRING BY DIV. 16.
5. ALL LAMPS (BULBS) TO BE FURNISHED BY OTHERS.

1 / E1.1P WALK-IN LIGHT DETAIL

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ELECTRICAL FIRST FLOOR PLAN - POWER

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PROJECT INFORMATION

PROPOSED BUILDING RENOVATION
HAWAIIAN BROS - STR: 43
1401 GRINDSTONE PKWY • COLUMBIA, MO

PROFESSIONAL SEAL

SHEET DATES

SHEET ISSUE OCT. 26, 2021

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AD1 MAR. 7, 2022

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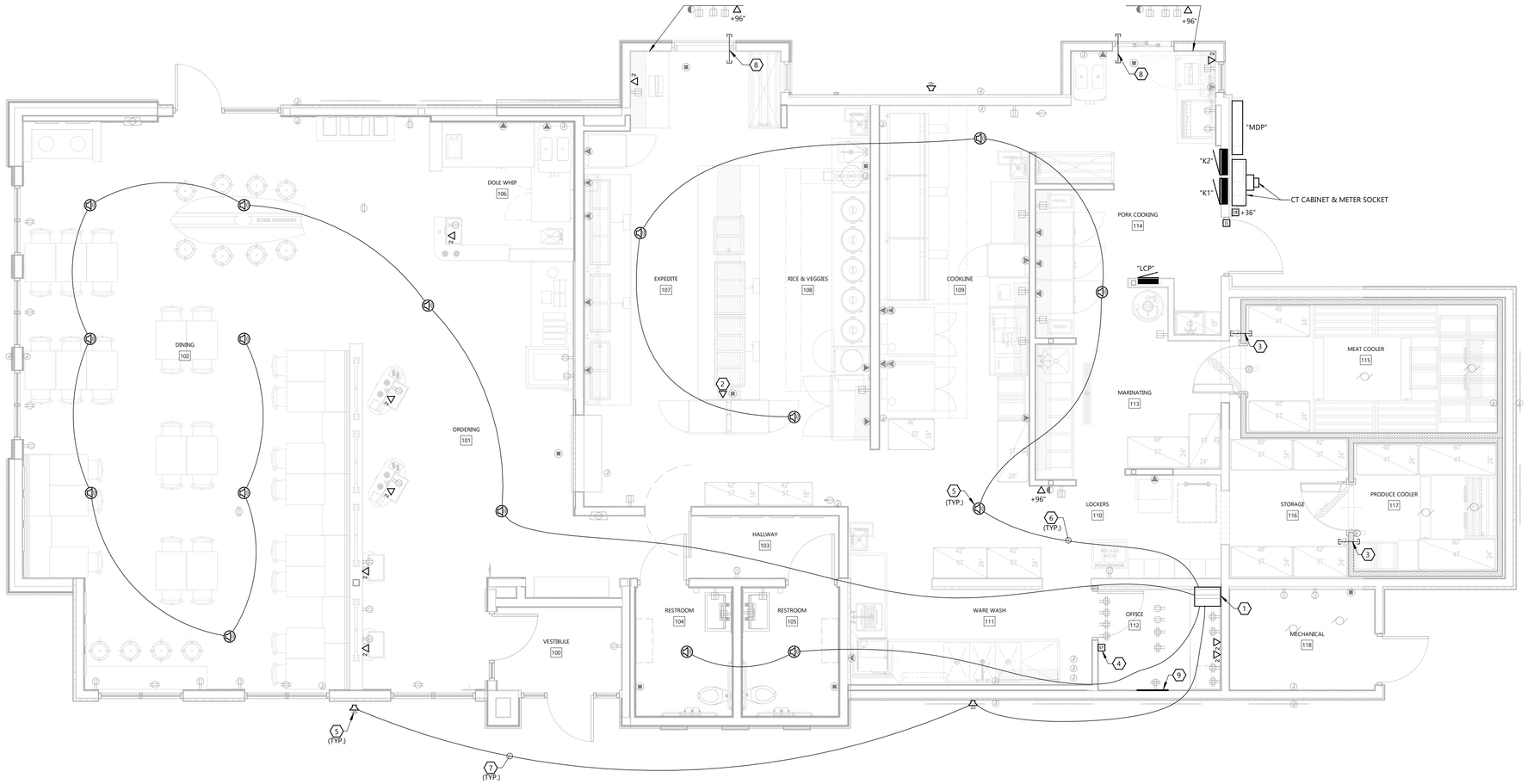


NORTH

FIRST FLOOR PLAN - SYSTEMS

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

4' 0' 4' 8'

GENERAL NOTES

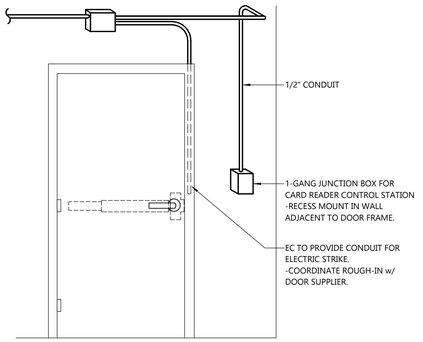
- VERIFY ALL EXPOSED CONDUIT ROUTING WITH ARCHITECT/ENGINEER WHERE CONDUIT IS EXPOSED IN FINISHED ROOMS.
- ALL CONDUITS TO UNDERGROUND CABINETRY AND TABLES SHALL BE UNDERGROUND.

KEYNOTES

1. PROVIDE KENDALL HOWARD 18U WALL MOUNTED SWING OUT DATA RACK WITH VENTED DOOR, AND 4 ACCESSORY SHELVES, MODEL 3131-3-001-18. MOUNT ON WALL NEAR CEILING. VERIFY MOUTING HEIGHT WITH OWNER.
2. PROVIDE (9) INDIVIDUAL DATA RUNS FROM DATA RACK IN OFFICE TO PRODUCTION COUNTER VIA CHASE UTILITY CHASE TO CEILING FURNISHED WITH PRODUCTION LINE. LAND (6) DATA RUNS ON SCREENS MOUNTED TO PRODUCTION LINE, (2) PRINTERS LOCATED ON PRODUCTION LINE, COIL (1) DATA LINE FOR SPARE WITH-IN PRODUCTION LINE. RUN DATA LINES FROM CEILING THROUGH UTILITY CHASE AND THEN THROUGH CONDUIT/CHASES FURNISHED WITH-IN PRODUCTION LINE TO EACH DEVICE.
3. EC SHALL PROVIDE 1/2" C. THRU COOLER WALL APPROXIMATELY 7'-0" AFF FROM INTERNAL TEMPERATURE PROBE TO EXTERNAL SENSOR. COORDINATE ROUTING WITH COOLER SUPPLIER AND OWNER.
4. SECURITY KEYPAD AT 42" AFF. PROVIDE (1) CAT6 CABLE FROM KEYPAD TO DATA RACK.
5. SPEAKER AND ALL MOUTING HARDWARE IS FURNISHED AND INSTALLED BY SOUND PRODUCTS, INC. TYPICAL ALL SPEAKER LOCATIONS.
6. EC TO PROVIDE UNSHIELDED, TWISTED PAIR, PLENUM RATED WIRE, WEST PENN #25224B 18/2 SPEAKER WIRE ABOVE CEILING TO EACH SPEAKER. WHERE WIRING IS RAN THRU OPEN CEILING AREAS WIRE IS TO BE IN CONDUIT PER SPECIFICATIONS. WIRING TO SPEAKERS ARE TO BE "DAISY CHAINED" FROM DATA RACK. COIL 5'-0" OF WIRE AT EACH SPEAKER LOCATION. VERIFY 18/2 WIRE TYPE WITH SOUND PRODUCTS, INC. SPEAKER WIRE AND ROUGH-IN PANS FOR HARD CEILING AREAS TO BE SENT TOT HE SITE BY SOUND PRODUCTS PRIOR TO PRE-WIRE. SPEAKERS WILL BE FURNISHED AND INSTALLED BY SOUND PRODUCTS INC.
7. EC TO PROVIDE UV RATED 18/2 SPEAKER WIRE ABOVE CEILING TO EACH SPEAKER. WHERE WIRING IS RAN THRU OPEN CEILING AREAS WIRE IS TO BE IN CONDUIT PER SPECIFICATIONS. WIRING TO SPEAKERS ARE TO BE "DAISY CHAINED" FROM DATA RACK. COIL 5'-0" OF WIRE AT EACH SPEAKER LOCATION. VERIFY 18/2 WIRE TYPE WITH SOUND PRODUCTS, INC. WIRING ON EXTERIOR OF BULDING SHALL BE RAN ON TOP CORD OF PERGOLA AND SHALL BE HIDDEN FROM VIEW.
8. EC TO PROVIDE 1" C. FROM GROUND LOOP PROVIDED BY SOUND PRODUCTS AND INSTALLED BY GC, TO ABOVE ACCESSIBLE CEILING. CONDUIT RUN SHALL NOT EXCEED 20' IN LENGTH. COORDINATE LOCATION OF GROUND LOOP WITH GC PRIOR TO ROUGH-IN.
9. TELEPHONE BOARD, SEE DETAIL FOR MORE INFORMATION.
10. EC TO PROVIDE CATSE WIRE(S) FROM DATA RACK TO THIS LOCATION FOR CONNECTION TO SECURITY CAMERA SUPPLIED BY OTHERS.

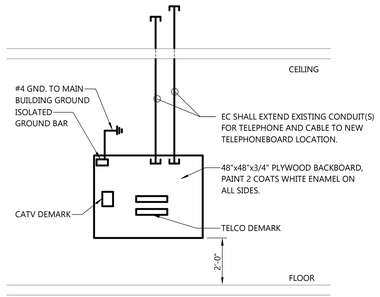
CAT5 CONDUIT FILL TABLE

CONDUIT TRADE SIZE	QUANTITY
1/2"	0
3/4"	3
1"	6
1-1/4"	10
1-1/2"	15
2"	20
2-1/2"	30



2 E1.1S CARD READER / STRIKE DETAIL

NOT TO SCALE



1 E1.1S TELEPHONE BOARD DETAIL

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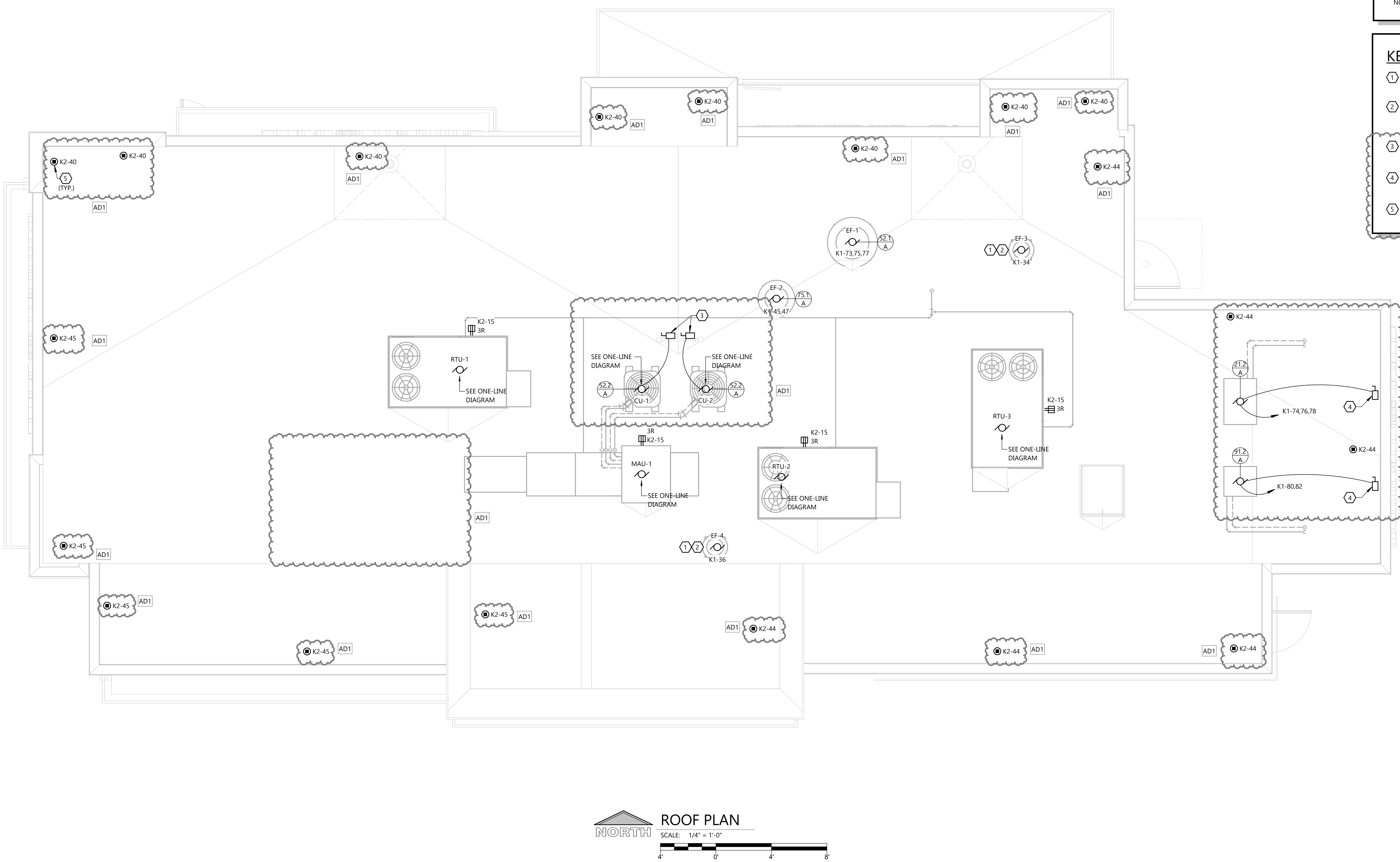

ROOF PLAN

NORTH

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

GENERAL NOTES

- VERIFY ALL EXPOSED CONDUIT ROUTING WITH ARCHITECT/ENGINEER WHERE CONDUIT IS EXPOSED IN FINISHED ROOMS.
- EXTERIOR RECEPTACLES SHALL BE GFI TYPE. PROVIDE PASS & SEYMOUR SERIES "WI UC" OR EQUIVALENT COVER. (PER NEC 406.8(B) AND AHJ). COLOR SHALL BE SELECTED BY ARCHITECT.
- SEE SHEET E4.0 FOR BRANCH CIRCUIT FEEDER SIZES.
- DEVICE LOCATIONS MAY BE DISTORTED FOR CLARITY. LOCATE DEVICES SYMMETRICALLY WITH THE ARCHITECTURAL ELEMENTS.
- SEE HVAC AND PLUMBING PLANS FOR LOCATIONS OF HEATING, VENTILATING, AIR CONDITIONING AND PLUMBING EQUIPMENT. DO NOT REFERENCE ELECTRICAL DRAWINGS FOR EXACT LOCATION.

KEYNOTES

1. EC SHALL WIRE TO 120V MOTOR OPERATED DAMPER ACTUATOR LOCATED INSIDE BUILDING BELOW ROOF EXHAUSTER FROM SAME FEED AS ROOF EXHAUSTER.
2. HC SHALL FURNISH RELAY TO EC FOR INSTALLATION ON WALL NEAR ELECTRICAL PANEL THAT SERVES FAN. WIRE 24V FROM CO2 DETECTOR ALARM OUTPUT TO RELAY. RELAY TO TURN ON EF-3 UPON CO2 ALARM FROM DETECTOR.
3. MOUNT DISCONNECT FURNISHED WITH CU BY EQUIPMENT SUPPLIER TO SUPPORT STAND. DISCONNECT SHALL NOT BE PERMITTED TO BE MOUNTED ON CU. SEE DETAIL 6/A1.3 FOR SUPPORT STAND.
4. MOUNT DISCONNECT FURNISHED WITH CU BY EQUIPMENT SUPPLIER TO PARAPET. DISCONNECT SHALL NOT BE PERMITTED TO BE MOUNTED ON CU.
5. PROVIDE POWER TO QWIK BOX POWER SUPPLY PROVIDED BY COMET SIGNS FOR EYEBROW LIGHTING. COORDINATE EXACT LOCATION OF QWIK BOX POWER SUPPLY WITH COMET SIGNS.

AD1

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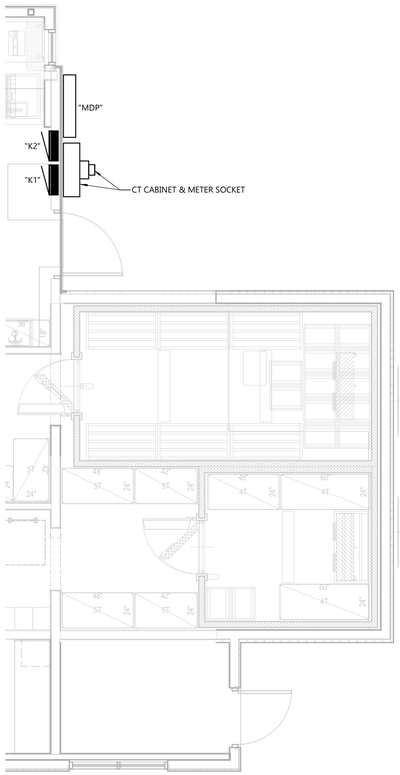
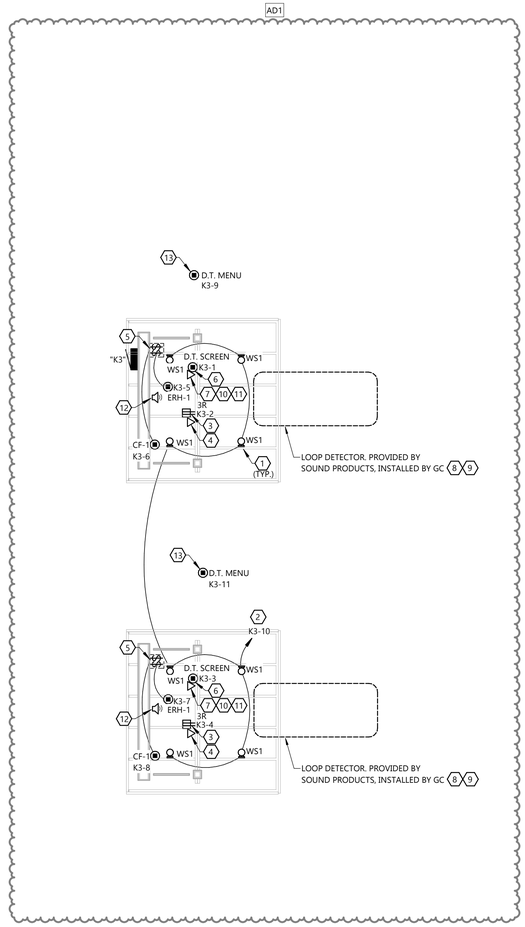
ELECTRICAL ROOF PLAN





FIRST FLOOR PLAN - DRIVE THRU

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

4' 0' 4' 8'

GENERAL NOTES

- VERIFY ALL EXPOSED CONDUIT ROUTING WITH ARCHITECT/ENGINEER WHERE CONDUIT IS EXPOSED IN FINISHED ROOMS.
- SEE ARCHITECTURAL REFLECTED CEILING AND ELEVATION PLANS FOR LOCATION OF ALL LIGHTING FIXTURES. LOCATE FIXTURES IN ACCORDANCE WITH CEILING AND ELEVATION PLANS.
- DEVICE LOCATIONS MAY BE DISTORTED FOR CLARITY. LOCATE DEVICES SYMMETRICALLY WITH THE ARCHITECTURAL ELEMENTS.
- SEE LIGHTING FIXTURE LEGEND FOR FIXTURE WIRING INFORMATION.
- EXTERIOR RECEPTACLES SHALL BE GFI TYPE. PROVIDE PASS & SEYMOUR SERIES "WI UC" OR EQUIVALENT COVER. (PER NEC 406.8(B) AND AHJ). COLOR SHALL BE SELECTED BY ARCHITECT.
- SEE SHEET E4.0 FOR BRANCH CIRCUIT FEEDER SIZES.
- EXISTING CONDUITS AND WIRING MAY BE RE-USED IF FOUND TO BE IN GOOD WORKING WORKING CONDITION AND MEETS THE MINIMM INTENT OF SPECIFICATIONS.

KEYNOTES

AD1

1. REMOTE MOUNT LED DRIVERS PROVIDED WITH FIXTURE IN NEMA 3R ON SIDE OF BEAM AT TOP OF POST PAINT TO MATCH STRUCTURE. TYPICAL ALL WS1 FIXTURES LOCATED IN OUTDOOR ORDER CANOPIES. ALL ATTEMPTS SHALL BE MADE TO HIDE WIRING FROM VIEW.
2. ROUTE CIRCUIT THRU TIME CLOCK CONTROLLED RELAY.
3. PROVIDE (1) 3/4" CONDUIT WITH PULL STRING FROM PANELBOARD "K3" TO EXTERIOR CANOPY. CONDUIT SHALL BE STUBBED UP AND RAN ALONG BACKSIDE OF CANOPY POST TO UNDERSIDE OF CANOPY FOR CONNECTION TO RECEPTACLE. CONDUIT SHALL BE PAINTED TO MATCH COLOR OF POST.
4. PROVIDE (1) 3/4" CONDUIT WITH PULL STRING FROM DATA RACK TO EXTERIOR CANOPY. CONDUIT SHALL BE STUBBED UP AND RAN ALONG BACKSIDE OF CANOPY POST TO UNDERSIDE OF CANOPY FOR CONNECTION TO FUTURE DATA. CONDUIT SHALL BE PAINTED TO MATCH COLOR OF POST.

AD1

5. PROVIDE WEATHERPROOF BOX AND COVER FOR SWTICHES CONTROLLING CF-1 & ERH-1.
6. PROVIDE (1) 3/4" CONDUIT WITH PULL STRING FROM PANELBOARD "K3" TO EXTERIOR CANOPY. CONDUIT SHALL BE STUBBED UP IN WALL TO PROVIDE POWER FOR ORDER SCREEN.
7. PROVIDE (1) 3/4" CONDUIT WITH PULL STRING FROM DATA RACK TO EXTERIOR CANOPY. CONDUIT SHALL BE STUBBED UP IN WALL TO PROVIDE DATA CONNECTION FOR ORDER SCREEN.
8. EC TO PROVIDE 1"C. FROM GROUND DETECTOR LOOP PROVIDED BY SOUND PRODUCTS AND INSTALLED BY GC. CONDUIT SHALL BE STUBBED UP IN WALL FOR CONNECTION TO ORDER SCREEN. CONDUIT RUN NOT TO EXCEED 20' IN LENGTH. COORDINATE LOCATION OF GROUND LOOP WITH GC PRIOR TO ROUGH-IN.
9. EC TO PROVIDE 1"C. WITH PULL STRING FROM ABOVE ACCESSIBLE CEILING INSIDE OF BUILDING TO ORDER SCREEN. CONDUIT SHALL BE STUBBED UP IN WALL FOR CONNECTION TO ORDER SCREEN FOR GROUND LOOP DETECTOR .
10. EC TO PROVIDE 2"C. WITH PULL STRING FROM ABOVE ACCESSIBLE CEILING INSIDE OF BUILDING TO ORDER SCREEN. CONDUIT SHALL BE STUBBED UP IN WALL FOR FUTURE HDMI CONNECTION TO ORDER SCREEN.
11. EC TO PROVIDE 3/4"C. WITH PULL STRING FROM ABOVE ACCESSIBLE CEILING INSIDE OF BUILDING TO ORDER SCREEN. CONDUIT SHALL BE STUBBED UP IN WALL FOR FUTURE CONNECTION TO ORDER SCREEN VIDEO CAMERA.
12. EC TO PROVIDE 1"C. WITH PULL STRING FROM ACCESSIBLE CEILING INSIDE OF BUILDING TO WALL MOUNTED SPEAKER. CONDUIT SHALL BE STUBBED UP AND RAN ALONG BACKSIDE OF CANOPY POST TO UNDERSIDE OF CANOPY FOR CONNECTION TO SPEAKER. CONDUIT SHALL BE PAINTED TO MATCH COLOR OF POST.
13. EC SHALL PROVIDE 2" C. WITH PULL STRING FROM DATA RACK IN OFFICE TO MENUBOARD FOR HDMI CONNECTION.

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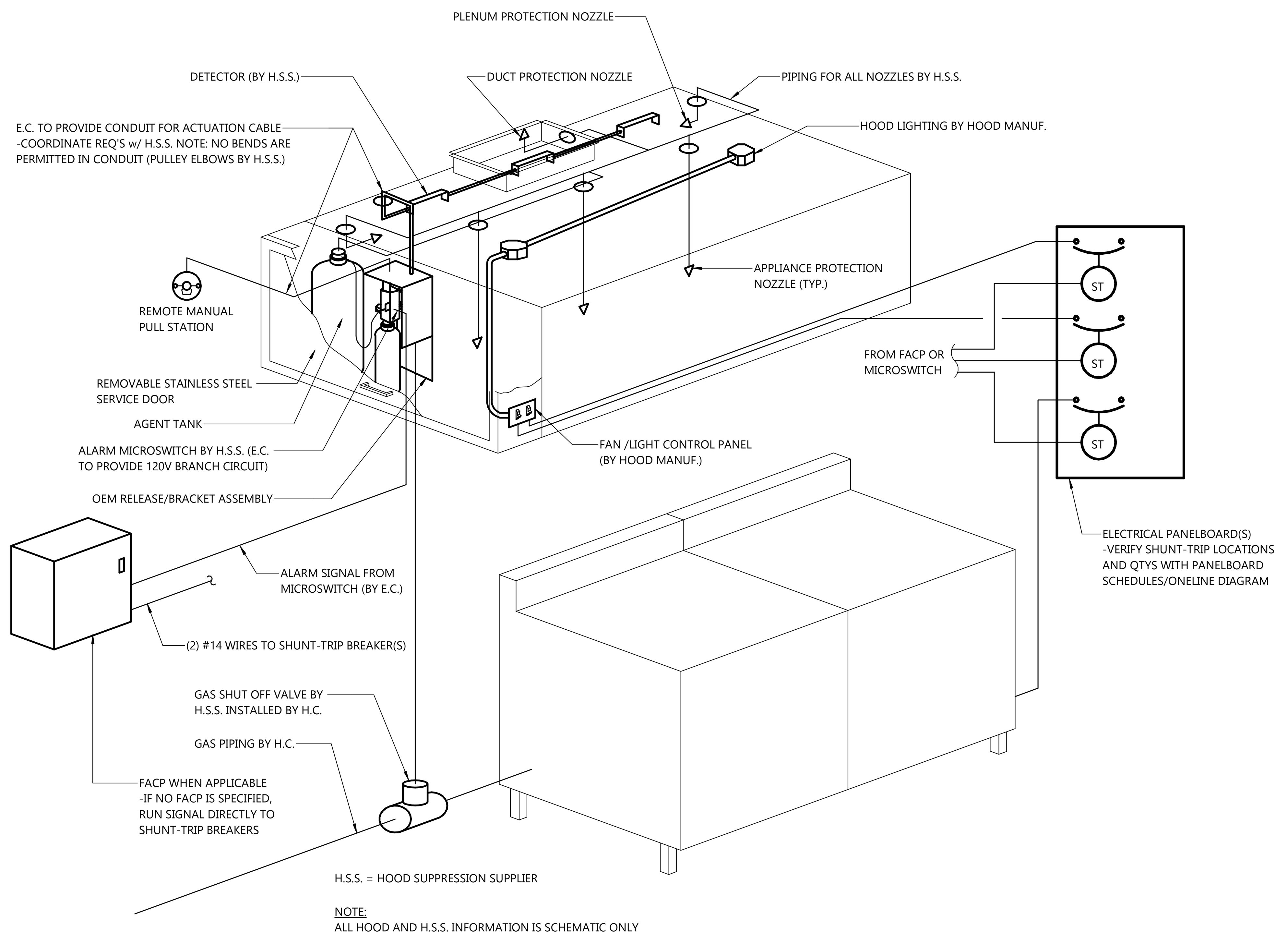
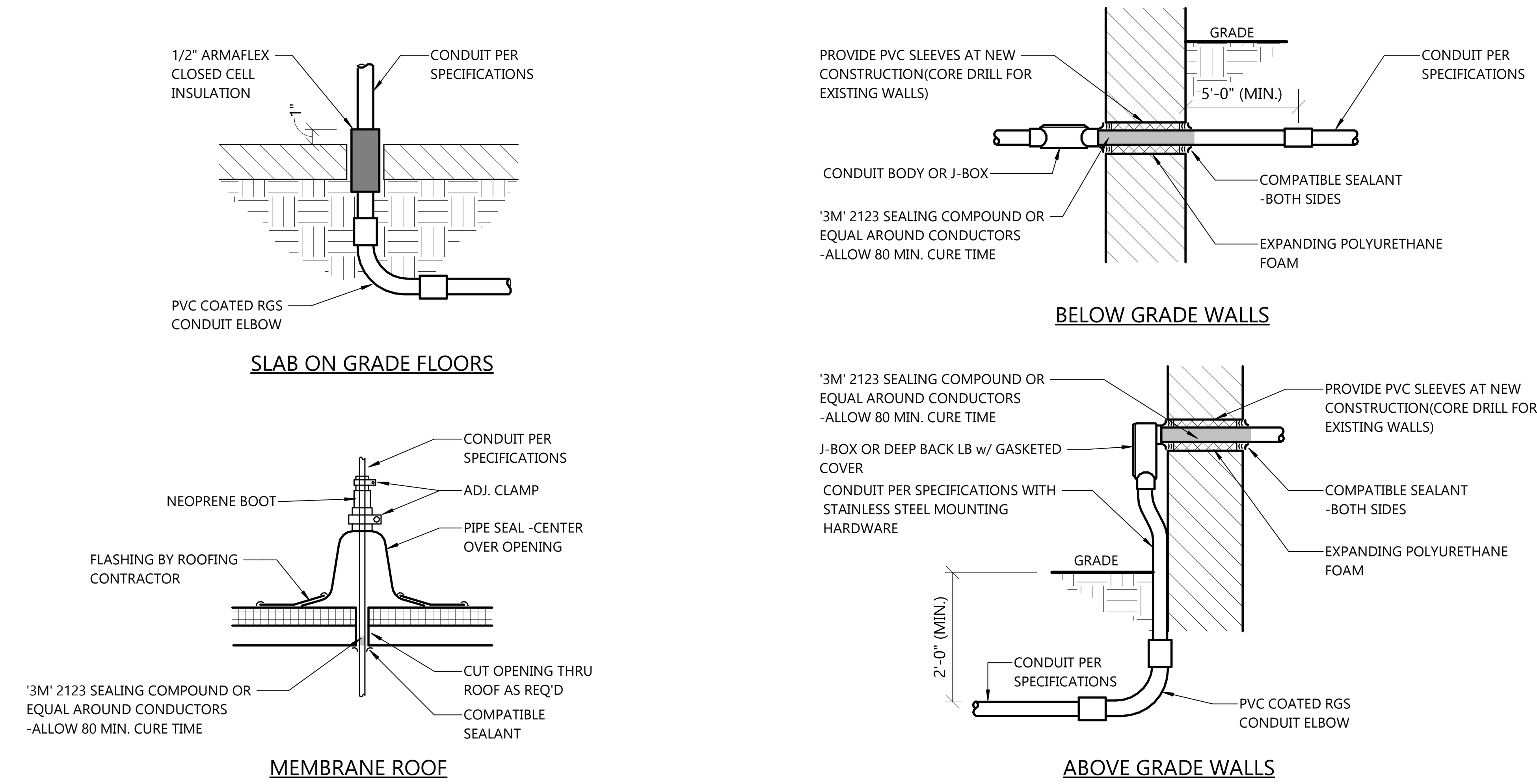
FIRST FLOOR PLAN - DRIVE THRU

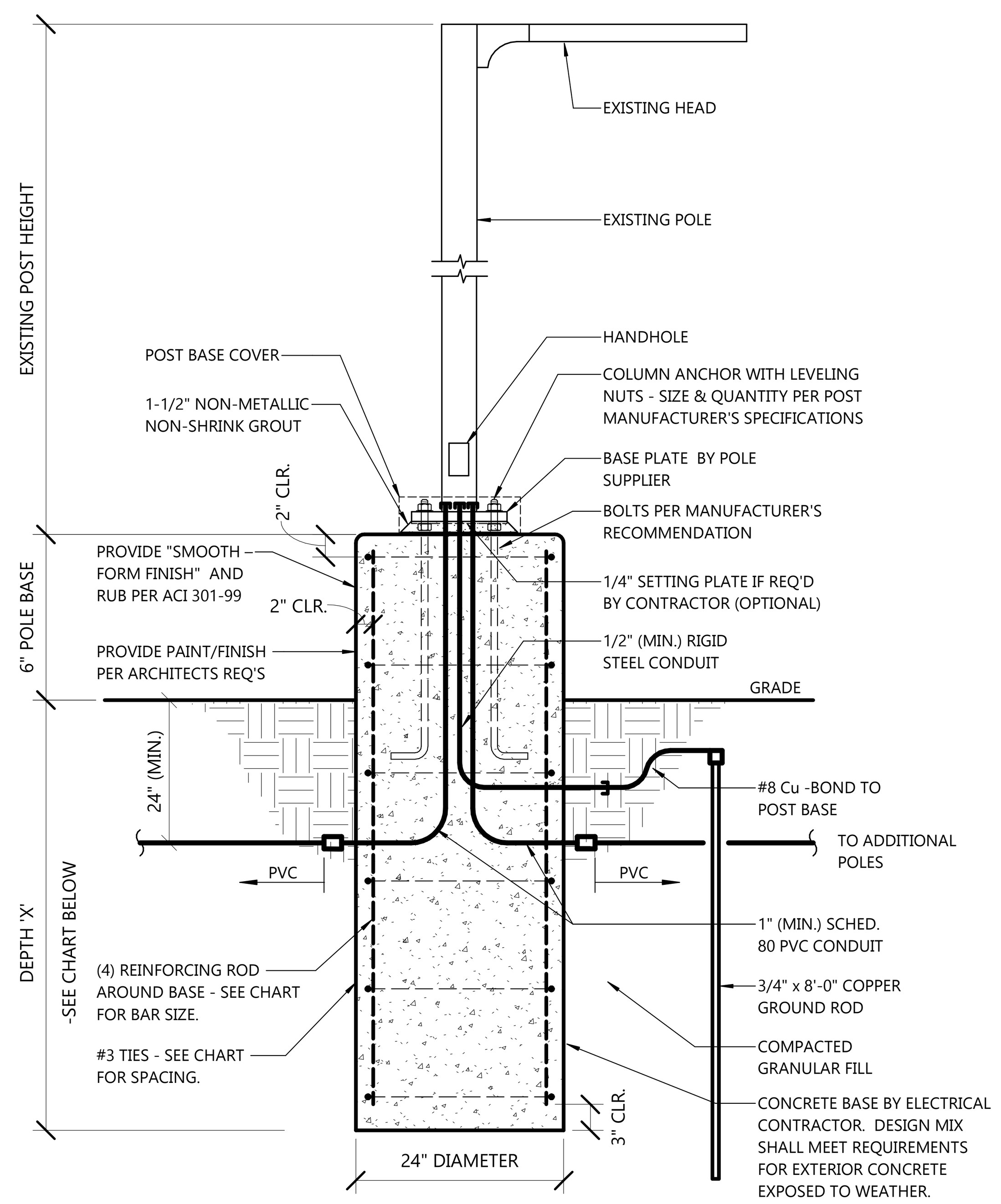


2 E3.0 KITCHEN HOOD DETAIL
NOT TO SCALE



NOTES:
- SEE SPECIFICATIONS FOR CONDUIT MATERIAL BEYOND COUPLINGS.
- SEE SPECIFICATIONS FOR INTERIOR WALL AND FLOOR PENETRATION REQ'S.

1 E3.0 CONDUIT PENETRATION DETAILS
NOT TO SCALE



POLE HEIGHT	DEPTH 'X'	REBAR SIZE	#3 TIE SPACING
10'-0" - 20'-0"	73" (INCHES)	#5	10"
21'-0" - 35'-0"	103" (INCHES)	#5	10"
36'-0" - 45'-0"	120" (INCHES)	#6	12"
46'-0" - 50'-0"	130" (INCHES)	#6	12"

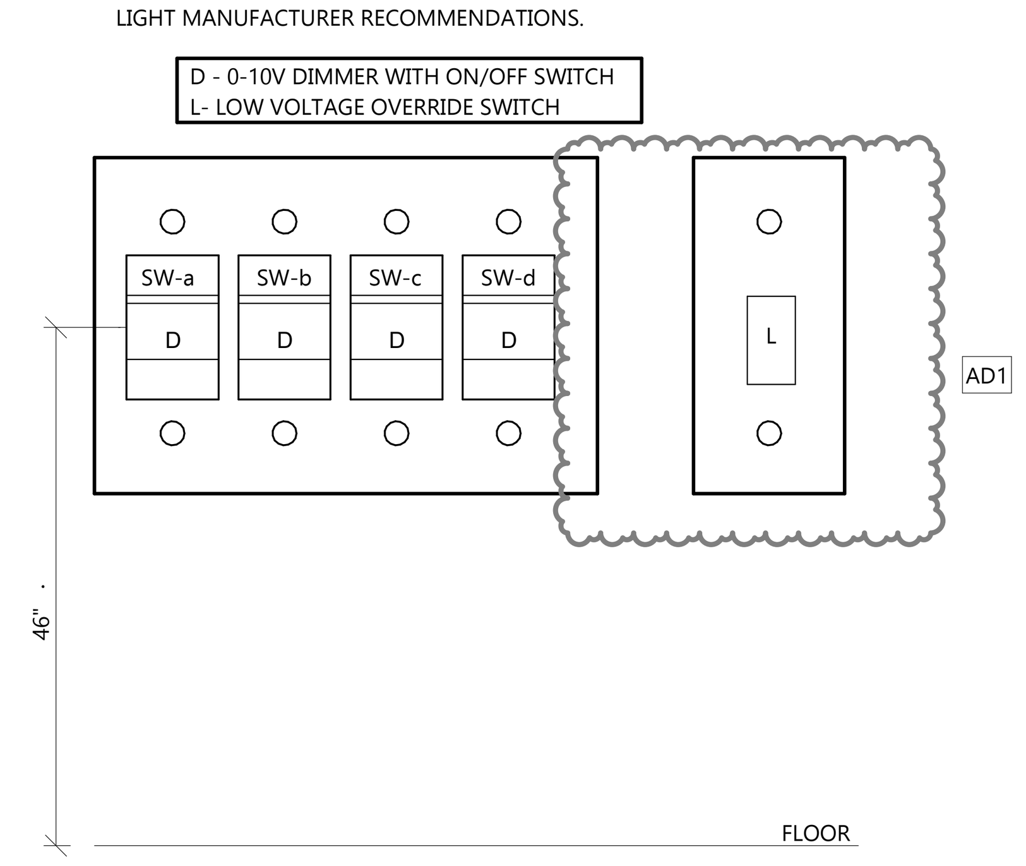
NOTES:
A DRILLED 2'-0" DIA. HOLE SHALL BE USED AS A FORM FOR THE CONCRETE BASE IN UNDISTURBED EARTH, EXCLUDING FILL MATERIAL.

BACKFILL AROUND CONCRETE BASE WITH COMPACTED GRANULAR BACKFILL A MIN. OF 2'-0" IN ALL DIRECTIONS IN EXCAVATED AREAS OR IN EXISTING SOIL CONTAINING FILL OF OBJECTIONABLE MATERIAL.

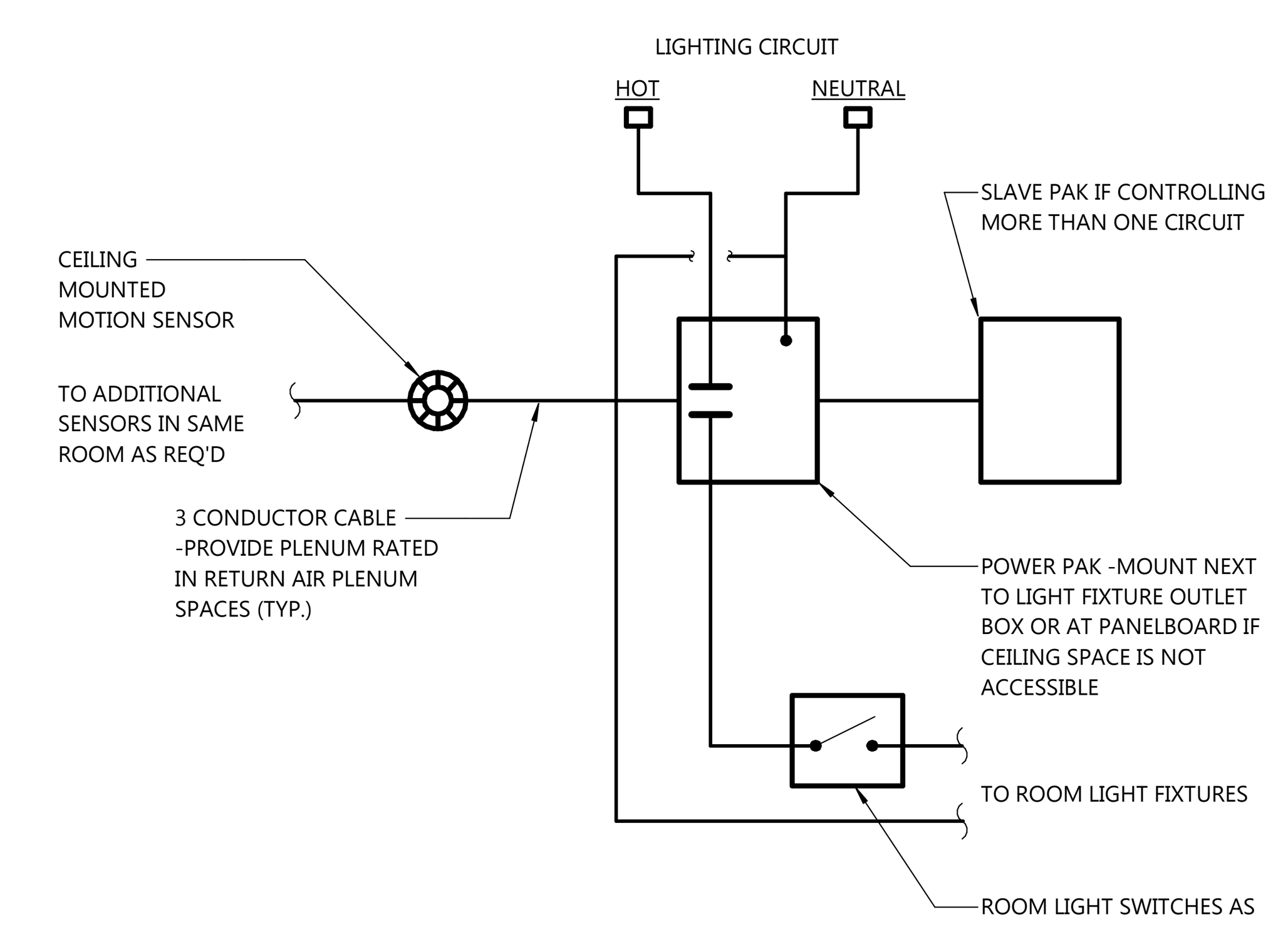
DESIGN BASED ON IBC 2009: 100 MPH WIND SPEED, EXPOSURE C, 150 PSF/FT LATERAL SOIL PRESSURE, OCCUPANCY CATEGORY II, IMPORTANCE FACTOR 1.0.

6 E3.0 LIGHT POLE DETAIL
NOT TO SCALE

NOTE:
PROVIDE 0-10V SLIDE DIMMER WITH ON/OFF SWITCH PER LIGHT MANUFACTURER RECOMMENDATIONS.



4 E3.0 SWITCHBANK DETAIL
NOT TO SCALE



3 E3.0 MOTION SENSOR DETAIL
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ELECTRICAL DETAILS

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LIGHT FIXTURE SCHEDULE

TYPE	DESCRIPTION	VOLTAGE	LIGHT SOURCE	CCT	FIXTURE WATTS	MIN. LUMENS	MANUFACTURER/MODEL NUMBER	REMARKS
C16	6" RECESSED DOWNLIGHT - SPECULAR CLEAR REFLECTOR - WHITE PAINTED FLANGE - 0-10V DIMMING	120 V	LED	3,500K	15 VA	1,500	PRESCOLITE / LTR-6RD-H-ML20L-DM1/LTR-6RD-T-ML35K8WDS	
D4	4' LINEAR LED - LED	120 V	LED	3,500K	72 VA	4,000	AXIS LIGHTING / MBLED 1000 80 35 S S(4) W UNV DP 1 CA **	(4)
D6	6' LINEAR LED - LED	120 V	LED	3,500K	72 VA	6,000	AXIS LIGHTING / MBLED 1000 80 35 S S(6) W UNV DP 1 CA **	(4)
D12	12' LINEAR LED - LED	120 V	LED	3,500K	108 VA	12,000	AXIS LIGHTING / MBLED 1000 80 35 S S(12) W UNV DP 1 CA **	(4)
D12E	12' LINEAR LED - LED W/ EMERGENCY BATTERY	120 V	LED	3,500K	108 VA	12,000	AXIS LIGHTING / MBLED 1000 80 35 S S(12) W UNV DP 1 CA ** B(1)	(4)(5)
DP2	DECORATIVE MINI PENDANT - LED	120 V	LED	3,000K	9 VA	800	BESA LIGHTING / 1JT-DANOSMMD-LED-SN-L	(1)
EM1	WALL BATTERY EMERGENCY LIGHT - WHITE HOUSING - SELF-DIAGNOSTICS	120 V	LED	-	5 VA	-	SURE-LITES / SEL50-SD	
L1	1X4 LAY-IN TROFFER - 0-10V DIMMING	120 V	LED	4,000K	40 VA	4,000	GENISIS / GLSVL1X4 4000 40W	
L2	2X4 LAY-IN TROFFER - DIMMABLE	120 V	LED	4,000K	65 VA	6,000	GENISIS / GLSVLF2X4 65W 4000K	
L5	2X2 LAY-IN TROFFER - 0-10V DIMMING	120 V	LED	4,000K	40 VA	4,000	GENISIS / GLSFP 40W 4000K	
L24	24' LINEAR SUSPENDED WALL WASH LED - BLACK FINISH	120 V	LED	3,500K	72 VA	350/FT	LUMENWERX / V1A2P-D-ARO2-FH-NA-SW-80-350-NA-35-24'-UNV-D1-1C-NA-ACS-B	(9)
LS4	4' SURFACE MOUNTED STRIP - LED - DIMMABLE - WHITE HOUSING - FROSTED LENS	120 V	LED	4,000K	31 VA	4,000	METALUX / 4SNLED-LD5-41SL-LW-UNV-L840-CD1-U	
P4-2	PENDANT MOUNT CYLINDER LIGHT - LED - DIMMABLE	120 V	LED	3,500K	15 VA	1,500	LITHONIA / LDN4CYL 35/10 L06 AR LSS MVOLT GZ10 PM-DWH	(8)
P4-3	PENDANT MOUNT CYLINDER LIGHT - LED - DIMMABLE	120 V	LED	3,500K	21 VA	2,000	LITHONIA / LDN4CYL 35/20 L04 AR LSS MVOLT GZ10 PM-DWH	(6)
R2	EXTERIOR REMOTE EMERGENCY HEAD - ALUMINUM - 25FT - DOUBLE - WHITE	120 V	LED	-	3 VA	-	SURELITE / SRP25DWH	
TL1	WET LOCATION LED TAPE LIGHT	120 V	LED	4,000K	8 VA	530 L/FT	GMLIGHTING / V120-SHO-40-XX-X	(2)(3)(7)
VT	LED VAPOR TIGHT	120 V	LED	3,500K	32 VA	3,500	DAY-BRITE / DWAE35L840-4-UNV	
WS1	EXTERIOR WALL SCONCE - MATTE BLACK WITH REMOTE DRIVER	120 V	-	4,000K	20 VA	1,100	B-K LIGHTING / CK-LED-X63-WFL-BLP-9-11-C-RM-D20INC-BLP-MT	
X1	SINGLE FACE POLYCARBONATE EXIT - W/ BATTERY - GREEN LETTERS - SELF-DIAGNOSTICS	120 V	LED	-	5 VA	-	SURE-LITES / LPXC-25-SD	
XER	COMBO SINGLE FACE EXIT W/EM. HEADS - W/ BATTERY - GREEN LETTERS - THERMOPLASTIC WHITE HOUSING - REMOTE CAPACITY	120 V	LED	-	5 VA	-	SURE-LITES / LPXC-25-R3-SD	

GENERAL NOTES

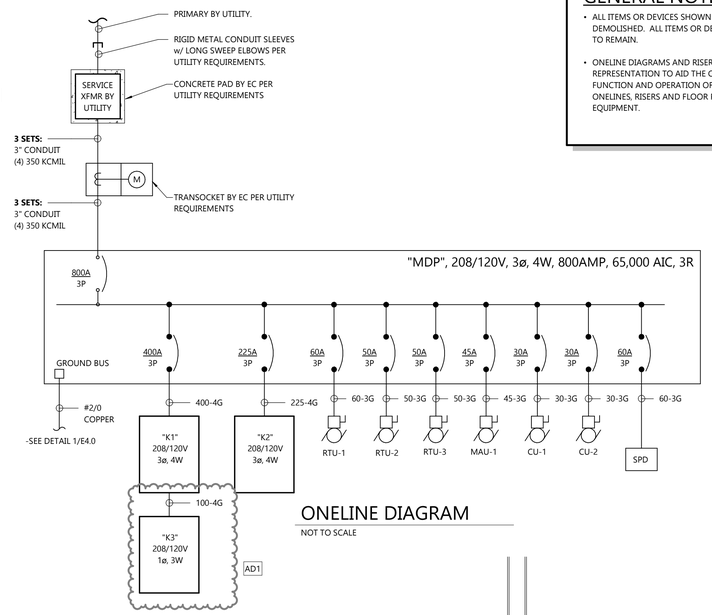
- FIXTURE MODEL NUMBER MAY NOT REFLECT ALL MOUNTING HARDWARE. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY MOUNTING EQUIPMENT, LENSES, STEMS, SAFETY CHAINS, END PLATES, AND ALL OTHER HARDWARE NECESSARY FOR A COMPLETE FIXTURE INSTALLATION. SEE MOUNTING DETAILS WHEN APPLICABLE.
- LINE VOLTAGE DRIVERS MAY BE SUBSTITUTED FOR "UNIVERSAL" OR "MULTI-VOLTAGE" DRIVERS.
- ALL LIGHT FIXTURE POLES SHALL BE RATED FOR WIND ZONE SITE IS LOCATED IN OR 100 MPH WINDS WHICHEVER IS GREATER.
- ALL FIXTURES SHALL BE UL OR ETL LISTED.
- ALL FIXTURES IN DIRECT CONTACT WITH INSULATION SHALL BE IC RATED OR INSULATION SHALL BE KEPT A MINIMUM OF 3" FROM ALL SIDES OF FIXTURES.
- ALL LINEAR LAMP AND BALLAST COMBINATIONS SHALL BE FOCUS ON ENERGY COMPLIANT.

LED REQUIREMENTS

- ALL LED FIXTURES SHALL BE 3500K WITH A MINIMUM 80 PERCENT COLOR RENDERING INDEX UNLESS NOTED OTHERWISE.
- PROVIDE DIMMABLE DRIVERS FOR ALL FIXTURE TYPES SHOWN TO BE "DIMMABLE".
- CONTRACTOR SHALL VERIFY WITH HIS SUPPLIER(S) ALL DIMMERS AND DIMMABLE FIXTURES ARE 100% COMPATIBLE.
- PROVIDE DUAL CIRCUIT TYPE DRIVERS OR TWO DRIVERS PER FIXTURES WHEN FIXTURES ARE SHOWN ON PLANS TO BE "DUAL LEVEL" SWITCHED.
- ALL LED FIXTURES SHALL HAVE MINIMUM 50,000 L70.

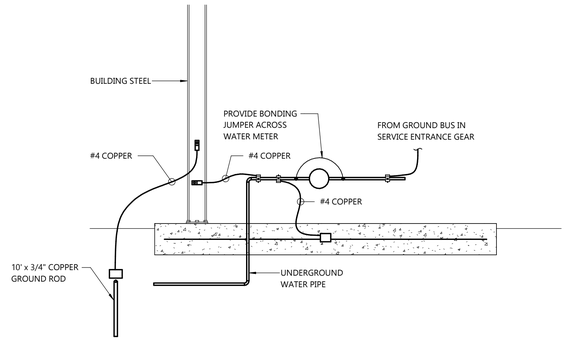
REMARKS:

(1) PROVIDE FIXTURE WITH 9W DIMMABLE LED BULB SUITABLE FOR MANUAL DIMMING
(2) PROVIDE ALL CONNECTORS AND POWER SUPPLIES FOR A COMPLETE AND WORKING SYSTEM.
(3) FIXTURE TO BE MOUNTED IN CHANNEL GMLIGHTING MODEL #V120-CHL-X-LENS WITH END CAPS.
(4) PENDANT MOUNT FIXTURE 9'-0" AFF.
(5) FIRST 4'-0" SECTION OF FIXTURE SHALL HAVE INTEGRAL EMERGENCY BATTERY.
(6) PENDANT MOUNT FIXTURE 12'-0" AFF.
(7) PROVIDE LENGTH(S) AS SPECIFIED ON SHEET E1.1L
(8) PENDANT MOUNT FIXTURE 8'-0" AFF.
(9) PENDANT MOUNT FIXTURE 6" ABOVE WOOD BEAMS. INTENT OF FIXTURE IS TO WASH WALL BELOW.



ONELINE DIAGRAM

NOT TO SCALE



1 E4.0 GROUNDING SYSTEM RISER DETAIL

NOT TO SCALE

BRANCH CIRCUIT FEEDER SCHEDULE

AMP / POLE	CONDUIT SIZE	CONDUCTORS & GROUNDING CONDUCTOR SIZES
15A/1P OR 15A/2P	1/2"	(2) #12 & #12 GND
20A/1P OR 20A/2P	1/2"	(2) #12 & #12 GND
15A/3P OR 20A/3P	1/2"	(3) #12 & #12 GND
25A/1P OR 25A/2P	3/4"	(2) #10 & #10 GND
30A/1P OR 30A/2P	3/4"	(2) #10 & #10 GND
25A/3P OR 30A/3P	3/4"	(3) #10 & #10 GND
35A/1P OR 35A/2P	3/4"	(2) # 8 & #10 GND
40A/1P OR 40A/2P	3/4"	(2) # 8 & #10 GND
35A/3P OR 40A/3P	3/4"	(3) #8 & #10 GND
45A/1P OR 45A/2P	1"	(2) #6 & #10 GND
45A/3P OR 50A/3P	1"	(3) #6 & #10 GND
50A/1P OR 50A/2P	1"	(2) #6 & #10 GND
60A/1P OR 60A/2P	1"	(2) #4 & #8 GND
60A/3P	1-1/4"	(3) #4 & #8 GND
70A/3P OR 80A/3P	1-1/4"	(3) #4 & #8 GND
90A/3P	1-1/4"	(3) #3 & #8 GND
100A/3P OR 110A/3P	1-1/2"	(3) #2 & #6 GND
125A/3P	1-1/2"	(3) #1 & #6 GND

- PROVIDE BRANCH CIRCUIT FEEDERS AS NOTED ABOVE, UNLESS NOTED OTHERWISE.

OVERALL SERVICE CALCULATIONS

LOAD	CONNECTED (VA)	DEMAND (VA)	CONNECTED (AMPS)	DEMAND (AMPS)
RECEPTACLE	57,672	33,836	160.08	93.92
LIGHTING	4,466	5,583	12.40	15.50
MOTOR	95,470	95,470	265.00	265.00
EL HEAT	8,004	8,004	22.22	22.22
KITCHEN	47,421	30,824	131.63	85.56
OTHER (MISC)	28,002	28,002	77.73	77.73
		TOTALS	669	560

DEMAND LOAD KEY	
LOAD DESCRIPTION	DEMAND FACTOR
RECEPTACLES	FIRST 10,000 @ 100%
	REMAINDER @ 50%
LIGHTING	125%
KITCHEN EQUIPMENT	65%
MOTORS	100%
MISCELLANOUS	100%

KITCHEN EQUIPMENT DEMAND FACTOR

UNITS	FACTOR
1	100%
2	100%
3	90%
4	80%
5	70%
6 AND MORE	65%

CHART IS BASED ON CURRENT NEC SECTION 220.56

AD1

3 ø FEEDER SCHEDULES - COPPER

3 WIRE FEEDERS			4 WIRE FEEDERS		
FEEDER DESIGNATION	CONDUIT SIZE(S)	CONDUCTORS & GROUNDING CONDUCTOR(S) SIZES	FEEDER DESIGNATION	CONDUIT SIZE(S)	CONDUCTORS & GROUNDING CONDUCTOR(S) SIZES
20 - 3G	3/4"	(3) #12 & #12 GND	20 - 4G	3/4"	(4) #12 & #12 GND
25 - 3G	3/4"	(3) #10 & #10 GND	25 - 4G	3/4"	(4) #10 & #10 GND
30 - 3G	3/4"	(3) #10 & #10 GND	30 - 4G	3/4"	(4) #10 & #10 GND
35 - 3G	3/4"	(3) #10 & #10 GND	35 - 4G	3/4"	(4) #10 & #10 GND
40 - 3G	1"	(3) #8 & #10 GND	40 - 4G	1"	(4) #8 & #10 GND
45 - 3G	1"	(3) #8 & #10 GND	45 - 4G	1"	(4) #8 & #10 GND
50 - 3G	1"	(3) #8 & #10 GND	50 - 4G	1"	(4) #8 & #10 GND
60 - 3G	1"	(3) #6 & #8 GND	60 - 4G	1"	(4) #6 & #8 GND
65 - 3G	1"	(3) #6 & #8 GND	65 - 4G	1"	(4) #6 & #8 GND
70 - 3G	1"	(3) #4 & #8 GND	70 - 4G	1-1/4"	(4) #4 & #8 GND
80 - 3G	1"	(3) #4 & #8 GND	80 - 4G	1-1/4"	(4) #4 & #8 GND
90 - 3G	1-1/4"	(3) #3 & #8 GND	90 - 4G	1-1/4"	(4) #3 & #8 GND
100 - 3G	1-1/4"	(3) #3 & #8 GND	100 - 4G	1-1/4"	(4) #3 & #8 GND
110 - 3G	1-1/4"	(3) #2 & #6 GND	110 - 4G	1-1/2"	(4) #2 & #6 GND
125 - 3G	1-1/4"	(3) #1 & #6 GND	125 - 4G	1-1/2"	(4) #1 & #6 GND
150 - 3G	1-1/2"	(3) #1/0 & #6 GND	150 - 4G	2"	(4) #1/0 & #6 GND
175 - 3G	2"	(3) #2/0 & #6 GND	175 - 4G	2"	(4) #2/0 & #6 GND
200 - 3G	2"	(3) #3/0 & #4 GND	200 - 4G	2"	(4) #3/0 & #4 GND
225 - 3G	2"	(3) #4/0 & #4 GND	225 - 4G	2-1/2"	(4) #4/0 & #4 GND
250 - 3G	2-1/2"	(3) 250 KCMIL & #4 GND	250 - 4G	3"	(4) 250 KCMIL & #4 GND
300 - 3G	2-1/2"	(3) 350 KCMIL & #3 GND	300 - 4G	3"	(4) 350 KCMIL & #3 GND
350 - 3G	3"	(3) 500 KCMIL & #3 GND	350 - 4G	3-1/2"	(4) 500 KCMIL & #3 GND
400 - 3G	(2) 2"	2 SETS OF (3) #3/0 & #2 GND	400 - 4G	(2) 2-1/2"	2 SETS OF (4) #3/0 & #2 GND
450 - 3G	(2) 2-1/2"	2 SETS OF (3) #4/0 & #2 GND	450 - 4G	(2) 2-1/2"	2 SETS OF (4) #4/0 & #2 GND
500 - 3G	(2) 2-1/2"	2 SETS OF (3) 250 KCMIL & #2 GND	500 - 4G	(2) 3"	2 SETS OF (4) 250 KCMIL & #2 GND
550 - 3G	(2) 2-1/2"	2 SETS OF (3) 300 KCMIL & #1 GND	550 - 4G	(2) 3"	2 SETS OF (4) 300 KCMIL & #2 GND
600 - 3G	(2) 3"	2 SETS OF (3) 350 KCMIL & #1 GND	600 - 4G	(2) 3"	2 SETS OF (4) 350 KCMIL & #1 GND
700 - 3G	(2) 3"	2 SETS OF (3) 500 KCMIL & #1/0 GND	700 - 4G	(2) 3-1/2"	2 SETS OF (4) 500 KCMIL & #1/0 GND
800 - 3G	(3) 3"	3 SETS OF (3) 300 KCMIL& #1/0 GND	800 - 4G	(3) 3"	3 SETS OF (4) 300 KCMIL & #1/0 GND
900 - 3G	(3) 3"	3 SETS OF (3) 350 KCMIL & #2/0 GND	900 - 4G	(3) 3"	3 SETS OF (4) 350 KCMIL & #2/0 GND
1000 - 3G	(3) 3"	3 SETS OF (3) 400 KCMIL & #2/0 GND	1000 - 4G	(3) 3-1/2"	3 SETS OF (4) 400 KCMIL & #2/0 GND
1200 - 3G	(4) 3"	4 SETS OF (3) 350 KCMIL & #3/0 GND	1200 - 4G	(4) 3"	4 SETS OF (4) 350 KCMIL & #3/0 GND
1600 - 3G	(4) 4"	4 SETS OF (3) 600 KCMIL& #4/0 GND	1600 - 4G	(4) 4"	4 SETS OF (4) 600 KCMIL & #4/0 GND
2000 - 3G	(6) 3"	6 SETS OF (3) 400 KCMIL & 250 KCMIL GND	2000 - 4G	(6) 3-1/2"	6 SETS OF (4) 400 KCMIL & 250 KCMIL GND

- CONDUCTOR SIZES LISTED ABOVE ARE FOR COPPER THHN/XHHW. CONTRACTOR SHALL ADJUST ACCORDINGLY FOR DIFFERENT WIRING TYPES.
- CONTRACTOR SHALL MAKE ADJUSTMENTS TO FEEDERS SIZES FOR AMBIENT TEMPERATURES AND VOLTAGE DROP ACCORDINGLY.
- WHERE PARALLEL CONDUCTORS ARE INDICATED, THE CONTRACTOR SHALL VERIFY LUG CONFIGURATIONS OF EQUIPMENT BEING CONNECTED.
- EQUIPMENT GROUNDING CONDUCTOR SIZE MAY BE REDUCED BASE ON OVERCURRENT AND/OR GROUND FAULT PROTECTION EQUIPMENT (NEC 250).

GENERAL NOTES

- ALL ITEMS OR DEVICES SHOWN "HEAVY DASHED" ARE TO BE DEMOLISHED. ALL ITEMS OR DEVICES SHOWN "LIGHTER" ARE EXISTING TO REMAIN.
- ONELINE DIAGRAMS AND RISER DIAGRAMS ARE A DIAGRAMMATIC REPRESENTATION TO AID THE CONTRACTOR IN UNDERSTANDING THE FUNCTION AND OPERATION OF THE SYSTEMS. EC SHALL REVIEW THE ONELINES, RISERS AND FLOOR PLANS FOR THE LOCATION OF ALL EQUIPMENT.

ELECTRICAL ONELINE DIAGRAMS & SCHEDULES

EXCEL
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Always a **Better Plan**
100 Camelot Drive
Fond Du Lac, WI 54935
Phone: (920) 926-9800
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PROJECT INFORMATION

PROPOSED BUILDING RENOVATION
HAWAIIAN BROS - STR: 43
1401 GRINDSTONE PKWY • COLUMBIA, MO

PROFESSIONAL SEAL

SHEET DATES

SHEET ISSUE OCT. 26, 2021

REVISIONS

AD1 MAR. 7, 2022

JOB NUMBER

2164120

SHEET NUMBER

E4.0

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PANELBOARD: K1

LOCATION: PORK COOKING 114	**VOLTS:** 120/208 WYE	**A.I.C. RATING:** 42,000	
SUPPLY FROM: MDP	**PHASES:** 3	**MAINS TYPE:** MLO	
MOUNTING: RECESSED	**WIRES:** 4	**BUS RATING:** 400A	
ENCLOSURE: NEMA 1		**MCB RATING:** -	

NOTES:
-SEE BRANCH CIRCUIT FEEDER SCHEDULE FOR FEEDER DESIGNATIONS.
(L) LOCKABLE STYLE BREAKERS
(S) SHUNT TRIP STYLE BREAKER

CKT	CIRCUIT DESCRIPTION		TRIP	POLES	A		B		C		POLES	TRIP		CIRCUIT DESCRIPTION	CKT
1	OTHER - COOLER 109 (91)		20 A	1	32	1920					1	20 A		RECEPTACLE - SODA MACHINE(2)	2
3	RECEPTACLE - ICE MACHINE(1)		25 A	1			1956	1920			1	20 A		RECEPTACLE - SODA MACHINE(2)	4
5	RECEPTACLE - ICE MACHINE(1)		25 A	1					1956	50	1	20 A		OTHER - GAS SOLENOID VALVE	6
7	MOTOR - WALK-IN COOLER EVAPORATOR(21.1)		20 A	1	192	1560					2	25 A		OTHER - DOLE WHIP MACHINE(7B)	8
9	RECEPTACLE - DRINK DISPLAY COOLER(5)		20 A	1			648	1560			--	--	--	--	10
11	RECEPTACLE - DOLE WHIP MACHINE(7A)		30 A	2					3120	3120	2	30 A		RECEPTACLE - DOLE WHIP MACHINE(7A)	12
13	--	--	--	--	3120	3120					--	--	--	--	14
15	OTHER - EXHAUST HOOD TYPE II(75)	(S)	20 A	1			1800	240			1	20 A		RECEPTACLE - U.C. REF. (14)	16
17	SPACE FOR SHUNT TRIP BREAKER	--	--	1					--	1800	1	20 A	(S)	OTHER - EXHAUST HOODLIGHTS TYPE I(75)	18
19	OTHER - DOLE WHIP MACHINE(7B)		25 A	2	1560	--					1	--	--	SPACE FOR SHUNT TRIP BREAKER	20
21	--	--	--	--			1560	4032			3	45 A		RECEPTACLE - COUNTERTOP STEAMER(74)	22
23	OTHER - MEAT COOLER 110(21)		20 A	1					64	4032	--	--	--	--	24
25	MOTOR - WALK-IN COOLER EVAPORATOR(91.1)		20 A	1	192	4032					--	--	--	--	26
27	OTHER - LOAD CENTER(15)		50 A	2			4056	1920			1	20 A		RECEPTACLE - BAG AND BOX(35)	28
29	--	--	--	--					4056	1704	1	20 A		RECEPTACLE - COOK AND HOLD OVEN(47)	30
31	RECEPTACLE - COOK AND HOLD OVEN(47)		20 A	1	1704	1704					1	20 A		RECEPTACLE - COOK AND HOLD OVEN(47)	32
33	RECEPTACLE - CONVECTION OVEN(56)	(S)	20 A	1			960	696			1	15 A		MOTOR - EF-3 ROOFTOP	34
35	SPACE FOR SHUNT TRIP BREAKER	--	--	1					--	696	1	15 A		MOTOR - EF-4 ROOFTOP	36
37	OTHER - EXHAUST HOOD LIGHT TYPE I(53)	(S)	20 A	1	1800	960					1	20 A	(S)	RECEPTACLE - CONVECTION OVEN(56)	38
39	SPACE FOR SHUNT TRIP BREAKER	--	--	1			--	--			1	--	--	SPACE FOR SHUNT TRIP BREAKER	40
41	RECEPTACLE - HOT WELL(18.1)		20 A	2					676	960	1	20 A	(S)	RECEPTACLE - CONVECTION OVEN(56)	42
43	--	--	--	--	676	--					1	--	--	SPACE FOR SHUNT TRIP BREAKER	44
45	MOTOR - EF-2(75.1) ROOFTOP		20 A	2			957	960			1	20 A	(S)	RECEPTACLE - CONVECTION OVEN(56)	46
47	--	--	--	--					957	--	1	--	--	SPACE FOR SHUNT TRIP BREAKER	48
49	RECEPTACLE - U.C. REF. (73)	(S)	20 A	1	240	3120					2	30 A		RECEPTACLE - EAS/WASH(33)	50
51	SPACE FOR SHUNT TRIP BREAKER	--	--	1			--	3120			--	--	--	--	52
53	ELECTRIC HEAT - AIR CURTAIN		20 A	2					125	1800	1	20 A		RECEPTACLE - HOLDING CABINET(51)	54
55	--	--	--	--	125	1800					1	20 A		RECEPTACLE - HOLDING CABINET(51)	56
57	ELECTRIC HEAT - AIR CURTAIN		20 A	2			125	1800			1	20 A		RECEPTACLE - HOLDING CABINET(51)	58
59	--	--	--	--					125	180	1	20 A		RECEPTACLE - FOOD HOLDING BIN(18.4)	60
61	RECEPTACLE - HOT WELL(18.2)		20 A	2	447	2752					2	100 A		PANEL "K3"	62
63	--	--	--	--			447	2732			--	--	--	--	64
65	RECEPTACLE - DOUBLE COLD WELL(18.3)		20 A	2					406	0	1	20 A	--	SPARE	66
67	--	--	--	--	406	0					1	20 A	--	SPARE	68
69	SPARE	--	20 A	1			0	0			1	20 A	--	SPARE	70
71	SPARE	--	20 A	1					0	0	1	20 A	--	SPARE	72
73	MOTOR - EF-1(52.1) ROOFTOP		20 A	3	1320	1284					3	20 A		MOTOR - MEAT COOLER COMPRESSOR(21.2)	74
75	--	--	--	--			1320	1284			--	--	--	--	76
77	--	--	--	--					1320	1284	--	--	--	--	78
79	RECEPTACLE - DISHMACHINE(82)		60 A	3	5616	884					2	20 A		MOTOR - PRODUCE COOLER COMPRESSOR(91.2)	80
81	--	--	--	--			5616	884			--	--	--	--	82
83	--	--	--	--					5616						84
			TOTAL LOAD:		40566 VA		40593 VA		34046 VA						
			TOTAL AMPS:		346 A		347 A		284 A						

AD1

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
Lighting	116 VA	125.00%	145 VA		
Motor	13269 VA	100.00%	13269 VA	**TOTAL CONN. LOAD**	115204 VA
Other	21402 VA	100.00%	21402 VA	**TOTAL EST. DEMAND**	88488 VA
Receptacle	28992 VA	65.00%	18845 VA	**TOTAL CONN.**	320 A
Kitchen	47421 VA	65.00%	30824 VA	**TOTAL EST. DEMAND**	246 A

PANELBOARD: K2

LOCATION: PORK COOKING 114	**VOLTS:** 120/208 WYE	**A.I.C. RATING:** 42,000	
SUPPLY FROM: MDP	**PHASES:** 3	**MAINS TYPE:** MLO	
MOUNTING: RECESSED	**WIRES:** 4	**BUS RATING:** 225A	
ENCLOSURE: NEMA1		**MCB RATING:** -	

NOTES:
-SEE BRANCH CIRCUIT FEEDER SCHEDULE FOR FEEDER DESIGNATIONS.
AD1
G - SUFFIX DENTOTES GFI TYPE BREAKER. (L) LOCAKABLE STYLE BREAKER
(*) - DENOTES EXISTING CIRCUIT FROM DEMOLISHED PANEL SHALL BE EXTENDED AND FED FROM NEW PANEL AS SHOWN.

CKT	CIRCUIT DESCRIPTION		TRIP	POLES	A		B		C		POLES	TRIP		CIRCUIT DESCRIPTION	CKT
1	RECEPTACLE - POS(11)		20 A	1	1500	1500					1	20 A		RECEPTACLE - POS(11)	2
3	LIGHTING - NIGHT LIGHTS		20 A	1			315	180			1	20 A		RECEPTACLE - EXTERIOR GFI	4
5	RECEPTACLE - DATA RACK		20 A	1					360	1920	1	20 A		RECEPTACLE - UTILITY OUTLET(45)	6
7	RECEPTACLE - UTILITY OUTLET(62)		20 A	1	1920	1920					1	20 A		RECEPTACLE - UTILITY OUTLET(71)	8
9	RECEPTACLE - UTILITY OUTLET(62)		20 A	1			1920	360			1	20 A		RECEPTACLE - ORDER PODS	10
11	RECEPTACLE - UTILITY OUTLET(62)		20 A	1					1920	720	1	20 A		RECEPTACLE - OFFICE 114	12
13	LCP	(L)	20 A	1	0	900					1	20 A		RECEPTACLE - DINING	14
15	RECEPTACLE - ROOFTOP		20 A	1			720	540			1	20 A		RECEPTACLE - KITCHEN	16
17	LIGHTING - EXTERIOR PATIO / EXTERIOR BUILDING		20 A	1					453	720	1	20 A		RECEPTACLE - OFFICE 114	18
19	RECEPTACLE - ORDER PODS		20 A	1	540	1920					1	20 A		RECEPTACLE - UTILITY OUTLET(45)	20
21	LIGHTING - KITCHEN/BOH/COOLER		20 A	1			1061	1081			1	20 A		LIGHTING - SEATING AREA GENERAL	22
23	RECEPTACLE - WINDOW RECEPS.		20 A	1					540	1200	1	20 A		OTHER - SIGNAGE	24
25	RECEPTACLE - WINDOW RECEPS.		20 A	1	540	600					1	20 A		OTHER - SIGNAGE	26
27	OTHER - CIRC. PUMP		20 A	1			52	600			1	20 A		OTHER - SIGNAGE	28
29	OTHER - WS-1	G	20 A	1					1000	600	1	20 A		OTHER - SIGNAGE	30
31	RECEPTACLE - WS-2	G	20 A	1	1000	600					1	20 A		OTHER - SIGNAGE	32
33	OTHER - IGWH-1	G	20 A	1			1800	600			1	20 A		OTHER - SIGNAGE	34
35	RECEPTACLE - DATA RACK		20 A	1					360	180	1	20 A		RECEPTACLE - TIMER LED MONITOR	36
37	RECEPTACLE - TIMER LED MONITOR		20 A	1	180	360					1	20 A		RECEPTACLE - DRIVE THRU VIDEO MONITOR	38
39	RECEPTACLE - DRIVE-THRU BASE STATION		20 A	1			180	1104			1	20 A		LIGHTING - EYEBROW LIGHTING	40
41	RECEPTACLE - DINING USB'S		20 A	1					360	180	1	20 A		RECEPTACLE - RESTROOM FAUCET	42
43	RECEPTACLE - ORDERING / HALLWAY /...		20 A	1	540	912					1	20 A		LIGHTING - EYEBROW LIGHTING	44
45	LIGHTING - EYEBROW LIGHTING		20 A	1			732	360			1	20 A		RECEPTACLE - TELEPHONE	46
47	RECEPTACLE - OFFICE		20 A	1					360	1200	1	20 A		LIGHTING - PYLON SIGN	48
49	RECEPTACLE - OFFICE		20 A	1	360	360					1	20 A		RECEPTACLE - OFFICE	50
51	RECEPTACLE - OFFICE		20 A	1			360	360			1	20 A		RECEPTACLE - DRIVE THRU VIDEO MONITOR	52
53	RECEPTACLE - DATA RACK		20 A	1					180	180	1	20 A		RECEPTACLE - RESTROOM FAUCET	54
55	RECEPTACLE - DATA RACK		20 A	1	180	1000					2	20 A		ELECTRIC HEAT - EWH-1	56
57	SPARE	--	20 A	1			0	1000			--	--	--	--	58
59	RECEPTACLE - DF-1'S		20 A	1					1000	1000	2	20 A		ELECTRIC HEAT - EWH-1	60
61	MOTOR - PB-1		50 A	2	3349	1000					--	--	--	--	62
63	--	--	--	--			3349	600			2	20 A	(*)	LIGHTING - EXISTING POLE LIGHTS	64
65	LIGHTING - EXISTING POLE LIGHTS	(*)	20 A	2					600	600	--	--	--	--	66
67	--	--	--	--	600	600					2	20 A	(*)	LIGHTING - EXISTING POLE LIGHTS	68
69	LIGHTING - EXISTING POLE LIGHTS	(*)	20 A	2			600	600			--	--	--	--	70
71	--	--	--	--					600	0	1	20 A	--	SPARE	72
			TOTAL LOAD:		22381 VA		18473 VA		16233 VA						
			TOTAL AMPS:		189 A		157 A		135 A						

AD1 AD1 AD1 AD1

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
Lighting	11658 VA	125.00%	14572 VA		
Motor	6749 VA	100.00%	6749 VA	**TOTAL CONN. LOAD**	57087 VA
Other	6000 VA	100.00%	6000 VA	**TOTAL EST. DEMAND**	49963 VA
Receptacle	28680 VA	65.00%	18642 VA	**TOTAL CONN.**	158 A
				TOTAL EST. DEMAND	139 A

SHORT CIRCUIT CALCULATIONS
THE FOLLOWING CALCULATIONS ARE BASED UPON THE "POINT BY POINT" METHOD AS FOLLOWS:

I(SCA) = I(SCA) X M $M = \frac{1}{(1+F)}$ $F = \frac{1.732 \times L \times I}{N \times C \times E (L\text{-}L)}$

FAULT POINT	PANEL / S.E.S. TRANSFORMER	"I" AMPS	CONDUIT TYPE	COND. MATERIAL	COND. / PHASE	WIRE SIZE	"C" VALUE	"E" L-L	Ø	"L" LENGTH	"F"	"M"	ISC
1	UTIL. TRANSFORMER	52,000											
2	SERVICE EQUIPMENT	52,000	NON-METALIC	COPPER	3	300	20868	208	3	55	0.380	0.724	37670.0
3	"MDP"	37,670	NON-METALIC	COPPER	3	500	26706	208	3	40	0.157	0.865	32569.5
4	"K1"	32,569	METALIC	COPPER	1	500	22185	208	3	15	0.183	0.845	27522.6
5	"K2"	32,569	METALIC	COPPER	1	4 OTT	15082	208	3	20	0.360	0.735	23954.5
6	"K3"	27,523	NON-METALIC	COPPER	1	3	4811	208	1	45	1.238	0.447	12299.7

NOTES:
- VALUES ABOVE ARE BASED ON THE ASSUMPTION THE UTILTY WILL PROVIDE A 300KVA TRANSFORMER WITH 1.6%Z.
CONTRACTOR SHALL NOTIFY ENGINEER OF RECORD OF ANY DISCREPANCIES.
- SERIES RATING OF BREAKERS MAY BE UTILIZED AT CONTRACTORS DISCRETION.
- "C" VALUES ARE EQUAL TO ONE OVER THE IMPEDANCE PER FOOT, AND ARE BASED UPON IEEE STANDARD TABLES.
- CONTRACTOR SHALL NOTIFY ENGINEER OF RECORD OF ANY DISCREPANCIES.
- VALUES ABOVE DO NOT REFLECT MOTOR CONTRIBUTIONS FROM THE BUILDING.
- ELECTRICAL CONTRACTOR TO PROVIDE ARC-FLASH HASZARD WARNING FIELD MARKING PER NEC 110.16
- ELECTRICAL CONTRACTOR TO PROVIDE SERIES RATED LABELING PER NEC 110-22(B) WHERE THERE IS AN APPLIED SERIES RATING AS SHOWN ON THE DRAWINGS.
- ANY ADDITIONAL COSTS FOR FAILURE TO COMPLY WITH THE ABOVE REQUIREMENTS WILL BE STRICTLY AT CONTRACTORS EXPENSE.

AD1

PANELBOARD: K3

LOCATION: EXTERIOR	**VOLTS:** 120/208 SINGLE	**A.I.C. RATING:** 22,000	
SUPPLY FROM: K1	**PHASES:** 1	**MAINS TYPE:** MCB	
MOUNTING: SURFACE	**WIRES:** 3	**BUS RATING:** 100A	
ENCLOSURE: NEMA 3R		**MCB RATING:** 100A	

NOTES:
SEE BANCH CIRCUIT FEEDER SCHEDULE FOR FEEDER DESIGNATIONS

CKT	CIRCUIT DESCRIPTION	TRIP	POLES	A		B		POLES	TRIP	CIRCUIT DESCRIPTION	CKT
1	OTHER - ORDER SCREEN	20 A	1	400	180			1	20 A	RECEPTACLE - DRIVE THRU CANOPY	2
3	OTHER - ORDER SCREEN	20 A	1			400	180	1	20 A	RECEPTACLE - DRIVE THRU CANOPY	4
5	ELECTRIC HEAT - ERH-1	20 A	1	1500	252			1	20 A	ELECTRIC HEAT - CF-1	6
7	ELECTRIC HEAT - ERH-1	20 A	1			1500	252	1	20 A	ELECTRIC HEAT - CF-1	8
9	OTHER - MENUBOARD	20 A	1	400	20			1	20 A	LIGHTING - DRIVE THRU CANOPY	10
11	OTHER - MENUBOARD	20 A	1			400					12
13											14
15											16
17											18
		TOTAL LOAD:		2752 VA		2732 VA					
		TOTAL AMPS:		26 A		26 A					

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
Lighting	20 VA	125.00%	25 VA		
Other	1600 VA	100.00%	1600 VA	**TOTAL CONN. LOAD:**	5484 VA
Receptacle	360 VA	100.00%	360 VA	**TOTAL EST. DEMAND:**	5489 VA
				TOTAL CONN.:	26 A
				TOTAL EST. DEMAND:	26 A

AD1

EXCEL
ARCHITECTS ● ENGINEERS ● SURVEYORS
Always a Better Plan
100 Camelot Drive
Fond Du Lac, WI 54935
Phone: (920) 926-9800
www.EXCELENGINEER.com

PROJECT INFORMATION

PROPOSED BUILDING RENOVATION
HAWAIIAN BROS - STR: 43
1401 GRINDSTONE PKWY ● COLUMBIA, MO

PROFESSIONAL SEAL

SHEET DATES

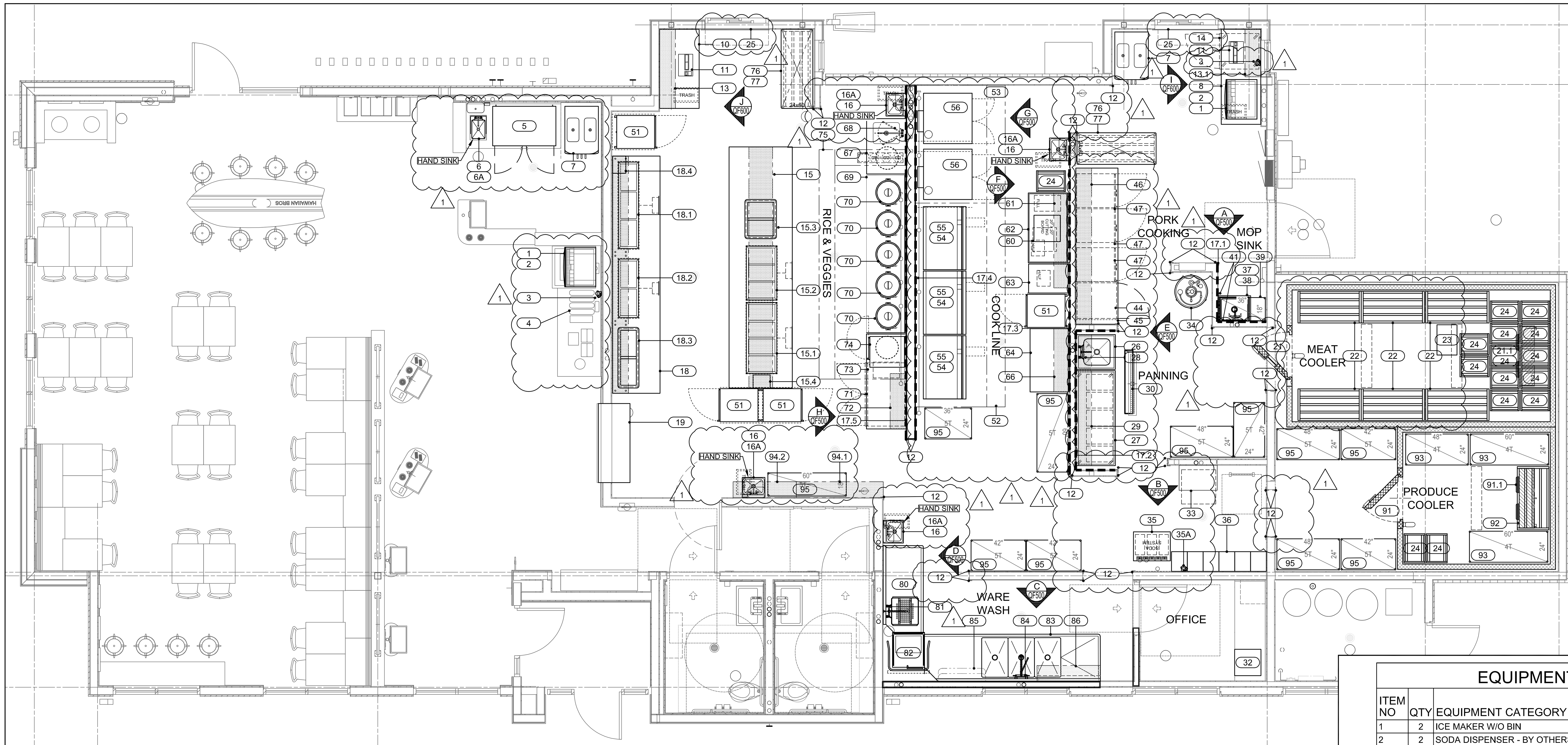
SHEET ISSUE OCT. 26, 2021

REVISIONS
AD1 MAR. 7, 2022

JOB NUMBER
2164120

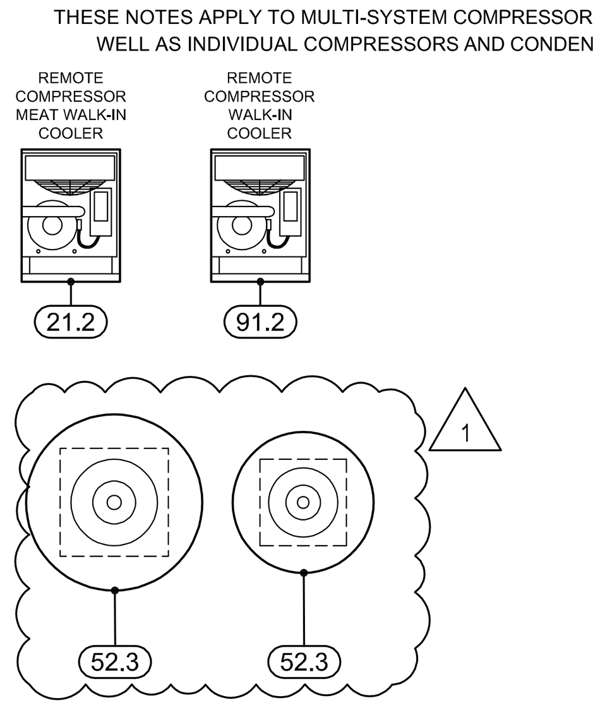
SHEET NUMBER
E4.1

ELECTRICAL PANEL SCHEDULES



REMOTE COMPRESSORS & CONDENSING UNITS

THESE NOTES APPLY TO MULTI-SYSTEM COMPRESSOR RACKS AS WELL AS INDIVIDUAL COMPRESSORS AND CONDENSORS.



EXACT LOCATION OF COMPRESSORS ARE TO BE DETERMINED BY ARCHITECT. FREE & EASY ACCESS INTO AREA FOR COMPRESSORS MUST BE PROVIDED BY OTHERS, TO ALLOW PLACEMENT OF RACK AS WELL AS MAINTAIN MINIMUM CLEARANCE REQUIREMENTS.

SUFFICIENT AIR CHANGES MUST BE PROVIDED IN THIS AREA TO ALLOW ADEQUATE AIR CIRCULATION FOR WATER COOLED OR AIR COOLED COMPRESSORS.

STRUCTURAL SUPPORT AS WELL AS CURBS, PADS OR REDWOOD RAILS FOR COMPRESSORS, ON ROOF OR INSIDE STRUCTURE, TO BE PROVIDED BY OTHERS.

SEE MANUFACTURER'S SHOP DRAWINGS FOR DETAILED REQUIREMENTS FOR CLEARANCE ACTUAL SIZES, MECHANICAL, PLUMBING & ELECTRICAL REQUIREMENTS. FOR WATER COOLED UNITS, STRICT ADHERENCE TO MANUFACTURERS REQUIREMENTS FOR MIN./MAX. WATER TEMP AND PRESSURE MUST BE MAINTAINED.

ASHRAE CALCULATIONS AND ANY RESULTING REQUIREMENTS FOR COMPRESSOR AREA, PIPING CHASES AND FREON DETECTION SYSTEMS SHALL BE THE RESPONSIBILITY OF OTHERS.

ALL REFRIGERANT PIPING CHASES AND BUILDING PENETRATIONS SHALL BE THE RESPONSIBILITY OF THE BUILDING TRADES AND TO COMPLY WITH ALL LOCAL CODES. EXACT LINE RUNS OF REFRIGERATION PIPING SHALL BE DETERMINED IN COORDINATION WITH THE REFRIGERATION INSTALLER.

ALL ELECTRICAL DISCONNECTS TO BE PROVIDED BY OTHERS.

INTERCONNECTION W/ M/U FAN BY G.C.

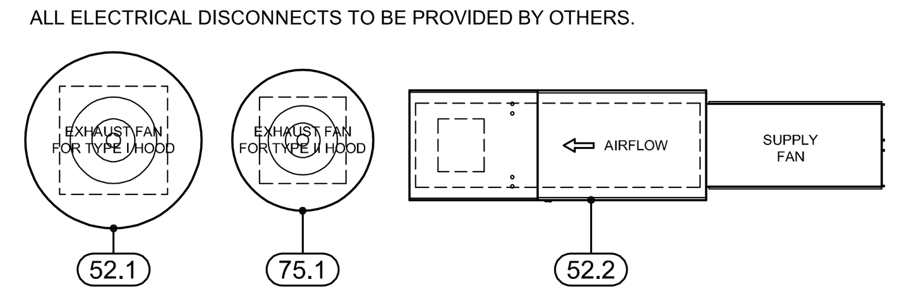
ROOFTOP EXHAUST FANS & MAKE-UP AIR UNITS

THESE ROOF TOP ITEMS ARE TO BE LOCATED BY THE ARCHITECT & ENGINEERS IN CONJUNCTION WITH THE EXHAUST HOOD MANUFACTURER'S SHOP DRAWING. REFER TO ARCHITECTURAL/ENGINEERING DRAWINGS FOR EXACT LOCATIONS.

REFER TO THE LATEST APPROVED MANUFACTURER'S SHOP DRAWINGS FOR COMPLETE INFORMATION AND DETAILS REGARDING ALL ASPECTS OF FANS &/OR MAKE UP AIR UNITS, INCLUDING ACTUAL SIZES, REQUIRED CLEARANCE, ETC.

ALL PENETRATIONS THRU ROOF OR BUILDING STRUCTURE, INCLUDING WALLS, FLOORS, JOISTS OR OTHER STRUCTURAL MEMBERS, IS TO BE BY OTHERS.

ALL ELECTRICAL DISCONNECTS TO BE PROVIDED BY OTHERS.



GENERAL NOTES

1. THESE DRAWINGS ARE TO BE USED AS AN INSTRUMENT OF REFERENCE BY ALL OTHER TRADES AND CONTRACTORS. ALL TRADES SHALL VERIFY THE INFORMATION AS INDICATED ON THESE PLANS.
2. DIMENSIONS AND REQUIREMENTS FOR ALL EQUIPMENT THAT IS LISTED AS EXISTING, PROVIDED BY OTHERS OR PROVIDED BY OWNER, MUST BE VERIFIED WITH THE APPROPRIATE PARTIES.
3. ALL LOCAL, STATE AND NATIONAL CODES SHALL APPLY.
4. ALL DIMENSIONS ON THESE PLANS ARE BASED ON FINISHED WALL AND FLOOR DIMENSIONS. ANY DISCREPANCIES BETWEEN THESE DRAWINGS AND ACTUAL OR INTENDED CONDITIONS IN THE FIELD SHOULD BE REPORTED TO EDWARD DON & COMPANY IMMEDIATELY.
5. UNLESS OTHERWISE NOTED, ARCHITECT TO LOCATE, GENERAL CONTRACTOR TO PROVIDE ALL ROOF/BUILDING PENETRATIONS AND CURBS FOR EXHAUST/SUPPLY AIR SYSTEMS AND REMOTE COMPRESSORS.
6. ARCHITECT TO LOCATE ALL REMOTE COMPRESSORS AND CONDENSERS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
7. UNLESS OTHERWISE NOTED ALL DIMENSIONS SHOWN ON THIS PLAN ARE FROM THE FINISHED FLOOR, CEILING OR WALLS TO THE CENTERLINE OF THE ROUGH-INS.
8. EDWARD DON & COMPANY DOES NOT EMPLOY A LICENSED ARCHITECT OR ENGINEER. THESE DOCUMENTS PROVIDED BY EDWARD DON & COMPANY ARE GUIDELINE DOCUMENTS ONLY AND ARE INTENDED TO BE INCORPORATED INTO THE FINAL CONSTRUCTION DOCUMENTS BY A LICENSED ARCHITECT OR ENGINEER THAT IS EMPLOYED BY THE OWNER. FINAL CODE COMPLIANCE, PLAN SUBMITTAL AND ASSOCIATED FEES ARE THE RESPONSIBILITY OF THE ARCHITECT AND/OR GENERAL CONTRACTOR.

EQUIPMENT SCHEDULE

ITEM NO	QTY	EQUIPMENT CATEGORY
1	2	ICE MAKER W/O BIN
2	2	SODA DISPENSER - BY OTHERS
3	2	WATER FILTER FOR ICE MAKER
4	4	TEA DISPENSER - BY OTHERS
5	1	DRINK DISPLAY COOLER
6	1	HAND SINK W/ FAUCET & SPLASHGUARD
6A	1	SOAP & TOWEL DISPENSER - BY OWNER
7	2	DOLE WHIP DISPENSER, FLOOR MODEL
8	1	STAINLESS STEEL TABLE
9	"	SPARE NUMER
10	1	STAINLESS STEEL TABLE
11	2	POS - BY OTHERS
12	31	CORNER GUARDS
13	1	WALL-MOUNTED SHELF, 5'-0"
13.1	1	WALL-MOUNTED SHELF, 3'-0"
14	1	UNDERCOUNTER REFRIGERATOR
15	1	DOUBLE SIDED SERVING COUNTER
15.1	1	DROP-IN HOT WELL - INSTALLED AS PART OF SERVING LINE #15
15.2	1	DROP-IN HOT WELL - INSTALLED AS PART OF SERVING LINE #15
15.3	1	DOUBLE COLD WELL - INSTALLED AS PART OF SERVING LINE #15
15.4	2	FOOD HOLDING BIN - INSTALLED AS PART OF SERVING LINE #15
16	4	WALL MOUNT HAND SINK WITH FAUCET & SPLASH GUARD
16A	4	SOAP & TOWEL DISPENSER - BY OWNER
17.1	LOT	SS WALL PANELS
17.2	LOT	SS WALL PANELS
17.3	LOT	SS WALL PANELS
17.4	LOT	SS WALL PANELS
17.5	LOT	SS WALL PANELS
18	1	SERVING COUNTER
18.1	1	DROP-IN HOT WELL - INSTALLED AS PART OF SERVING LINE #18
18.2	1	DROP-IN HOT WELL - INSTALLED AS PART OF SERVING LINE #18
18.3	1	DOUBLE COLD WELL - INSTALLED AS PART OF SERVING LINE #18
18.4	1	FOOD HOLDING BIN - INSTALLED AS PART OF SERVING LINE #18
19	1	S/S PASS-THRU SHELF W/ WINDOW FRAME
20	-	SPARE NUMBER
21	1	WALK-IN MEAT COOLER, LED LIGHTS
21.1	1	WALK-IN MEAT COOLER EVAPORATOR COIL
21.2	1	WALK-IN COOLER REMOTE COMPRESSOR
22	6	DUNNAGE RACK, 48"
23	1	FOOD BOX DOLLY
24	15	PAN RACK
25	1	DRIVE-THRU WINDOW (INTERIOR) TRIM
26	1	PREP SINK W/ ROLLED EDGES
27	1	MOBILE WORK TABLE W/ ROLLED EDGES
28	1	SINK FAUCET
29	1	WALL MOUNTED SHELF
30	1	FLOOR TROUGH
31	"	SPARE NUMBER
32	1	OFFICE SAFE
33	1	EASIWASH - BY OTHERS
34	1	CO2 TANK
35	1	BAG AND BOX SYSTEM - BY OTHERS
35A	1	WATER FILTER - BY VENDORS
36	1	SET OF LOCKERS
37	1	MOP SINK - EXISTING
38	1	WALL MOUNT SERVICE SINK FAUCET - EXISTING
39	2	WALL MOUNTED WIRE SHELF

EQUIPMENT SCHEDULE

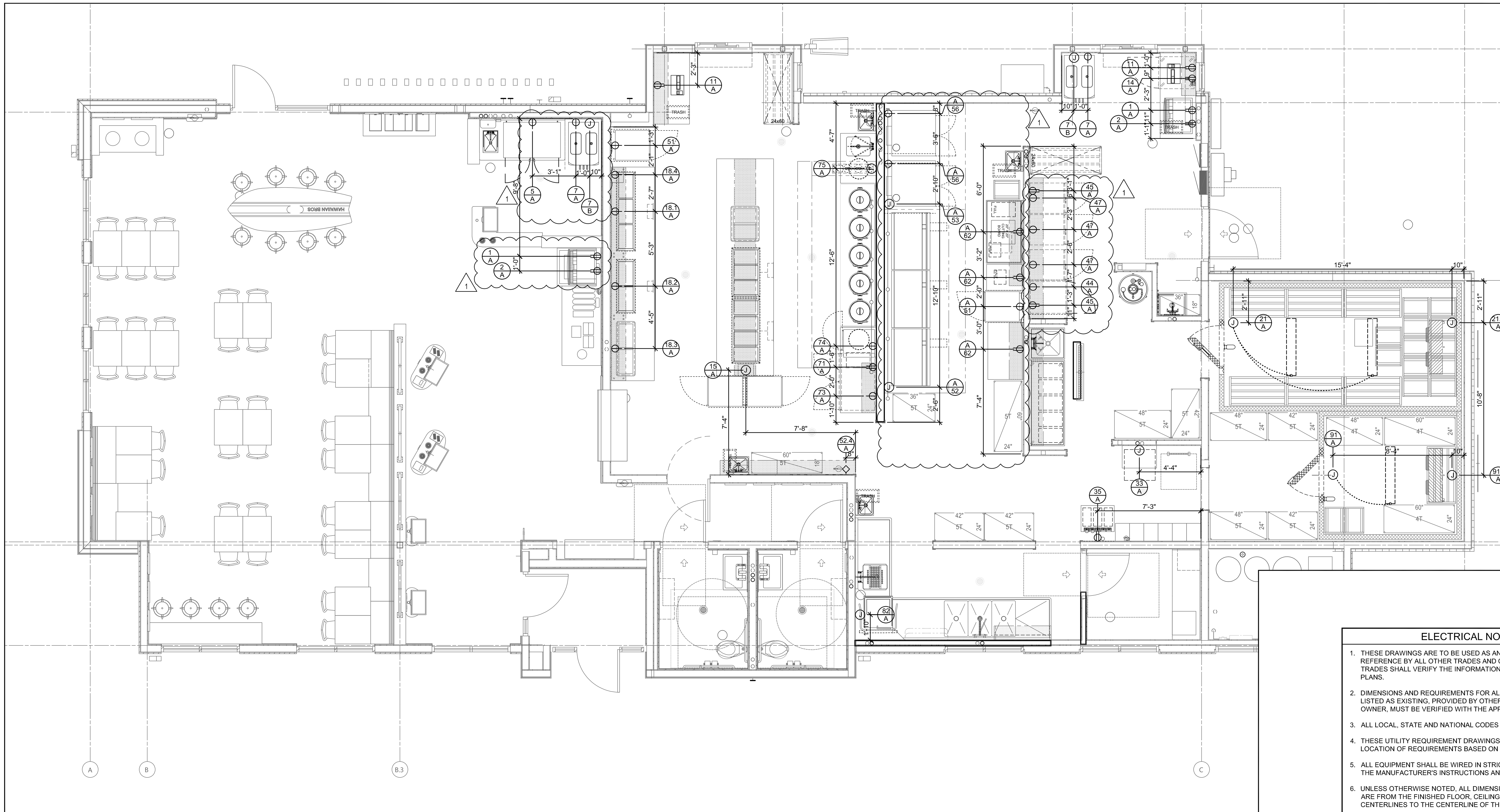
ITEM NO	QTY	EQUIPMENT CATEGORY
40	1	FLOOR CLEANING MACHINE - BY OWNER
41	2	MOP HANGER
42-43	"	SPARE NUMBER
44	1	BLAST CHILLER
45	1	WORK TABLE W/ NO UNDERSHELF
46	2	WALL MOUNTED WALL SHELVES, STACKED
47	3	COOK & HOLD OVEN
48-50	"	SPARE NUMBER
51	4	HOLDING CABINET, FULL SIZE
52	1	EXHAUST HOOD (TYPE I)
52.1	1	EXHAUST FAN
52.2	1	MAKE-UP AIR UNIT, GAS
52.3	2	MAKE-UP AIR CONDENSING UNIT
53	1	EXHAUST HOOD (TYPE I)
53.1	1	EXHAUST FAN
54	3	GRIDDLE, GAS, 48"
55	3	EQUIPMENT STAND
56	2	DOUBLE STACK CONVECTION OVEN, GAS
57-59	"	SPARE NUMBER
60	1	CHICKEN JUICE DOLLY
61	2	WALL-MOUNTED SHELF, STACKED
62	1	CUSTOM CHICKEN PREP TABLE, FULL PAN ON RIGHT
63	1	WRAP TABLE
64	1	SAUCE WORKTABLE W/ UNDERSHELF
65	1	WALL MOUNTED POT RACK
66	2	WALL MOUNTED SHELF, 4'-0"
67	1	WORK TABLE W/ SINK
68	1	DOUBLE JOINTED DECK MOUNT FAUCET
69	1	EQUIPMENT STAND
70	5	RICE COOKER
71	1	WORK TABLE W/ NO UNDERSHELF
72	1	WALL-MOUNTED SHELF, 3'-6"
73	1	UNDERCOUNTER REFRIGERATOR, TWO-DOORS
74	1	STEAMER, ELECTRIC
75	1	EXHAUST HOOD (TYPE II) W/ FIRE SUPPRESSION CABINET
75.1	1	EXHAUST FAN
76	2	DUNNAGE RACK FOR BULK STORAGE
77	2	DRY STORAGE SHELVING - 86" HIGH, 3 TIER, EPOXY
78-79	"	SPARE NUMBER
80	1	SOILED DISH TABLE W/ SINK
81	1	SPLASH MOUNT PRE-RINSE FAUCET
82	1	WAREWASHER, HIGH TEMP - BY OWNER
83	1	3-COMPARTMENT SINK TABLE
84	1	WALL MOUNT PRE-RINSE FAUCET
85	1	WALL MOUNTED POT RACK
86	1	WALL MOUNTED SHELF
87-90	"	SPARE NUMBER
91	1	WALK-IN PRODUCE COOLER, LED LIGHTS
91.1	1	WALK-IN PRODUCE COOLER EVAPORATOR COIL
91.2	1	WALK-IN PRODUCE COOLER REMOTE COMPRESSOR
92	1	DUNNAGE RACK
93	LOT	WALK-IN PRODUCE COOLER SHELVING - 86" HIGH, 4 TIER, EPOXY
94.1	1	OVERHEAD SHELVING, 5'-6" WIDE, MOUNTED 7'-2" OR JUST ABOVE DOOR FRAMES
94.2	1	OVERHEAD SHELVING, 4'-0" WIDE, MOUNTED 7'-2" OR JUST ABOVE DOOR FRAMES
95	LOT	GENERAL DRY STORAGE SHELVING - 86" HIGH, 5 TIER, EPOXY

Edward Don & Company
FOODSERVICE EQUIPMENT DIVISION
1878 CRAIGSHIRE RD.
ST. LOUIS, MO 63146
800.777.4366

PROJECT: HAWAIIAN BROS
1401 GRINDSTONE PKWY
COLUMBIA, MO

DATE:	DESCRIPTION
03.04.22	PLAN COMMENTS 1

DRAWN BY: N. SCHULZ
CHECKED BY: J. KOEHLER
SUBMITTED BY: N. SCHULZ
SCALE: 1/4" = 1'-0"
ISSUE NAME:
DATE: 03.04.2022
SHEET: QF100
FOODSERVICE EQUIPMENT PLAN
DRAWING NO:



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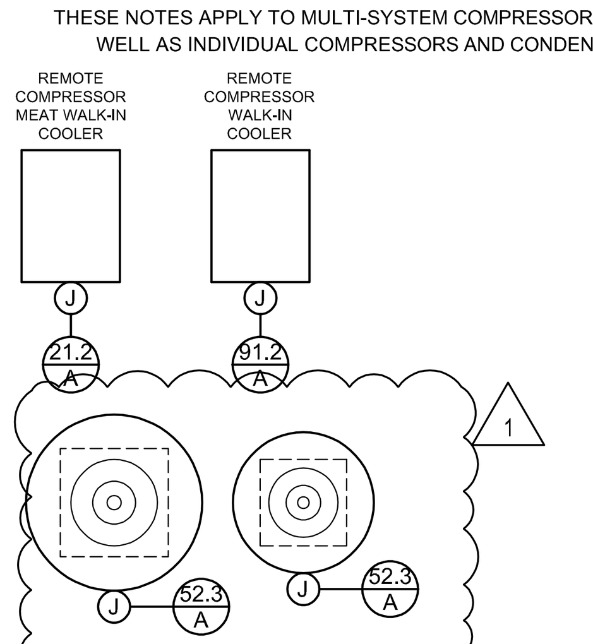

IMPORTANT ELECTRICAL NOTE: FOR EACH FREEZER COMPRESSOR, ELECTRICIAN TO PROVIDE (1) 3/4" DIAMETER CONDUIT W/(5) #10 WIRES & INTERCONNECT BETWEEN COMPRESSOR, EVAPORATOR COIL & TIME CLOCK. VERIFY ALL DETAILS WITH MANUFACTURERS SHOP DRAWINGS.

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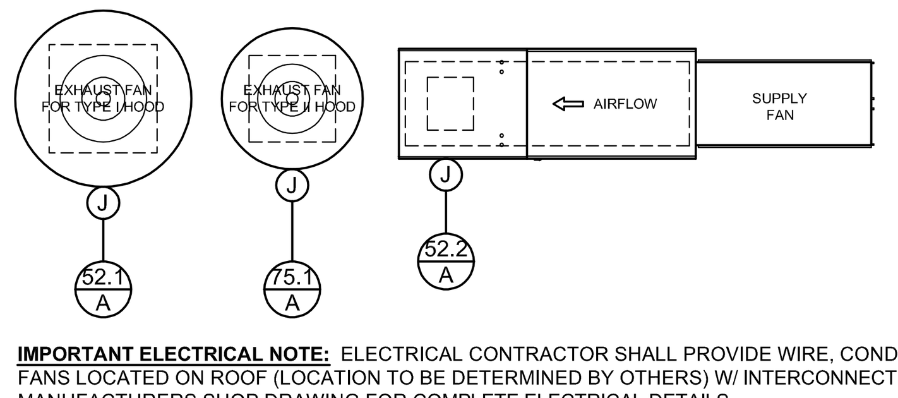
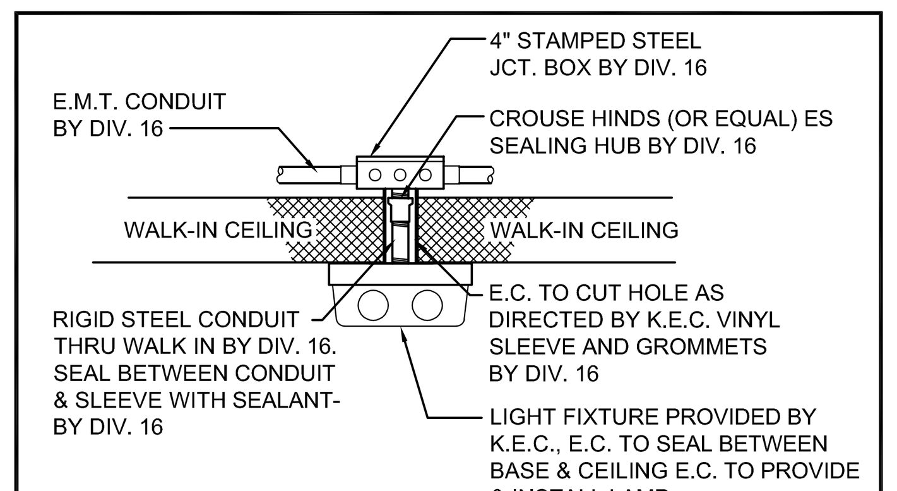


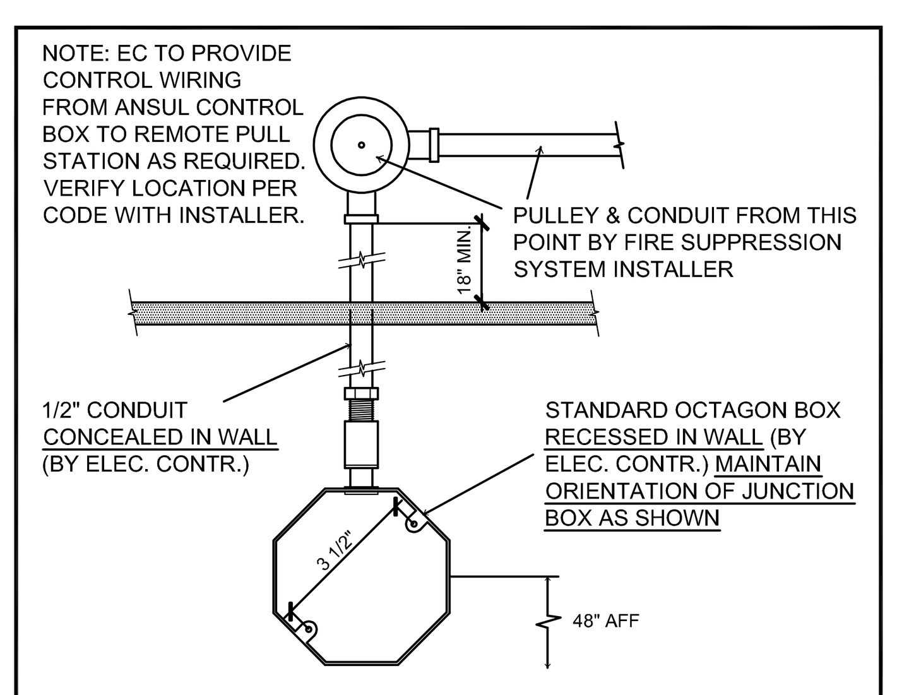
IMPORTANT ELECTRICAL NOTE: ELECTRICAL CONTRACTOR SHALL PROVIDE WIRE, CONDUIT AND DISCONNECTS TO EXHAUST & SUPPLY FANS LOCATED ON ROOF (LOCATION TO BE DETERMINED BY OTHERS) W/ INTERCONNECTIONS TO SWITCHES BELOW. SEE MANUFACTURERS SHOP DRAWING FOR COMPLETE ELECTRICAL DETAILS.



1. ALL CONDUIT TO BE RUN ON EXTERIOR OF WALK-IN BY DIV. 16 UNLESS BOX IS LOCATED OUTDOORS. THEN CONDUIT IS TO RUN BELOW CEILING.
2. ALL PENETRATIONS THRU WALK-IN TO BE THOROUGHLY SEALED
3. ALL LIGHT FIXTURES TO BE FURNISHED BE K.E.C.
4. MOUNTING FIXTURES, ALL CONDUIT AND ALL INTER-WIRING BY DIV. 16.
5. ALL LAMPS (BULBS) TO BE FURNISHED BY OTHERS.

WALK-IN LIGHT DETAIL

NOT TO SCALE



REMOTE FIRE PULL DETAIL

NOT TO SCALE

ELECTRICAL SYMBOLS

(1/A) ITEM NUMBER / CONNECTION NUMBER	ELECTRICAL ROUGH-IN NOTE (SEE SCHEDULE)
	SINGLE RECEPTACLE
	DUPLEX RECEPTACLE
	QUAD RECEPTACLE
	ISOLATED GROUND DUPLEX RECEPTACLE
	HIGH VOLTAGE RECEPTACLE
J	JUNCTION BOX
	SPECIAL OUTLET
	WALL SWITCH
	TELEPHONE
	DATA
	USB RECEPTACLE
	ELECTRICAL INTERCONNECTION

ELECTRICAL NOTES

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2. DIMENSIONS AND REQUIREMENTS FOR ALL EQUIPMENT THAT IS LISTED AS EXISTING, PROVIDED BY OTHERS OR PROVIDED BY OWNER, MUST BE VERIFIED WITH THE APPROPRIATE PARTIES.
3. ALL LOCAL, STATE AND NATIONAL CODES SHALL APPLY.
4. THESE UTILITY REQUIREMENT DRAWINGS INDICATE THE UTILITY AND LOCATION OF REQUIREMENTS BASED ON THE EQUIPMENT SPECIFIED.
5. ALL EQUIPMENT SHALL BE WIRED IN STRICT CONFORMANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND/OR SHOP DRAWINGS.
6. UNLESS OTHERWISE NOTED, ALL DIMENSIONS SHOWN ON THIS PLAN ARE FROM THE FINISHED FLOOR, CEILING, WALLS OR COLUMN CENTERLINES TO THE CENTERLINE OF THE ROUGH-INS.
7. ALL ELECTRICAL CONNECTIONS ARE TO BE EXTENDED AND INTERCONNECTED TO CONNECTION POINTS ON THE EQUIPMENT BY OTHERS. UNLESS SPECIFIED, ALL HARDWARE REQUIRED FOR THESE CONNECTIONS SHALL BE SUPPLIED BY THE ELECTRICAL CONTRACTOR.
8. SURFACE MOUNTED WIRE AND CONDUIT WILL NOT BE ALLOWED. ALL ELECTRICAL LINES AND CONDUIT SHALL BE EXTENDED THROUGH AND OUT OF BUILDING WALLS WHERE POSSIBLE. WHERE SURFACE MOUNTED CONDUIT IS UNAVOIDABLE, IT MUST BE COORDINATED WITH EDWARD DON & COMPANY.
9. ROUGH-INS OUT OF FLOOR SHOULD BE STUBBED UP 4" ABOVE FINISHED FLOOR AND BROUGHT TO THE REQUIRED HEIGHT AFTER EQUIPMENT IS SET IN PLACE.
10. ALL 120 VOLT UTILITY OUTLETS TO BE G.F.C.I. OUTLETS.
11. ALL NECESSARY ELECTRICAL DISCONNECTS, SHUNT TRIP BREAKERS AND STARTERS ARE TO BE FURNISHED AND INSTALLED BY OTHERS, UNLESS PROVIDED AS A STANDARD OR SPECIFIED EQUIPMENT COMPONENT OF THE EQUIPMENT MANUFACTURER. THIS SHALL INCLUDE ELECTRICAL DISCONNECTS FOR ALL REMOTE COMPRESSORS, BOOSTER HEATERS AND OTHER ITEMS REQUIRED BY CODE.
12. ALL ELECTRICAL ITEMS SUPPLIED UNDER COOKING LINE EXHAUST HOOD ARE TO SHUT DOWN WITH SHUNT TRIP BREAKERS (BY OTHERS) CONNECTED TO FIRE SYSTEM. ELECTRICAL ENGINEER TO CONFIRM COMPLIANCE TO ALL CODES.
13. ALL OUTLETS, JUNCTION BOXES, DISCONNECTS, ETC. SHALL BE INSTALLED SO AS NOT TO INTERFERE WITH THE PERFORMANCE, FUNCTION, OR PLACEMENT OF THE EQUIPMENT.
14. STARTERS. RELAYS, HEATERS AND SWITCHES REQUIRED FOR EXHAUST AND SUPPLY FANS ARE TO BE PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
15. DISHMACHINES:
    A. ELECTRICAL CONTRACTOR SHALL INTERCONNECT DISHMACHINE WITH DISHMACHINE EXHAUST FAN. INTERCONNECTION SHALL LINK OPERATION OF EXHAUST FAN AND DISHMACHINE SO THAT BOTH UNITS RUN SIMULTANEOUSLY AT ALL TIMES.
    B. ELECTRICAL CONTRACTOR SHALL INTERCONNECT TABLE LIMIT SWITCH AT END OF CLEAN DISHTABLE WITH CONVEYOR TYPE DISHMACHINES. LIMIT SWITCH SHALL TERMINATE DISHMACHINE OPERATION WHEN DEPRESSED.
16. WALK-IN COOLER/FREEZER BOXES & REMOTE COMPRESSORS:
    A. INTERCONNECT TO BLOWER COIL IN FREEZER.
    B. INTERCONNECT BETWEEN TIMER & CONTACTOR.
    C. INTERCONNECT BETWEEN TIMER & PRESSURE CONTROL SOLENOID.
    D. INTERCONNECT BETWEEN CONTACTOR AND COMPRESSOR FAN.
    E. INTERCONNECT BETWEEN TERMINAL AND CONTACTOR TO BLOWER COIL IN FREEZERS.
    F. CONNECT DRAIN LINE HEATER TO RECEPTACLE IN FREEZER.
    G. CONNECT PAN HEATER TO TERMINAL STRIP IN FREEZERS.
    H. CONNECT DOOR HEATER TO TERMINAL STRIP IN FREEZERS.
17. ALL ELECTRICAL CONDUIT TO BE RUN ON TOP (EXTERIOR) OF WALK-IN COOLER/FREEZER BOX WHERE POSSIBLE.
18. UNLESS PROVIDED BY THE MANUFACTURER, ALL LIGHT BULBS FOR FOODSERVICE EQUIPMENT TO BE PROVIDED BY OTHERS.

ELECTRICAL REQUIREMENTS

- **1/A** ICE MACHINE — 120/60/1, 16.3 AMPS [EACH], DR 72" AFF
- **2/A** SODA DISPENSER - BY OTHERS — 120/60/1, 16.0 AMPS [EACH], DR 48" AFF, VERIFY ALL ROUGH-IN REQUIREMENTS W/ PURVEYOR
- **5/A** DRINK DISPLAY COOLER - BY OWNER — 120/60/1, 5.4 AMPS, SR 24" AFF, VERIFY ROUGH-IN REQUIREMENTS W/ OWNER
- **7/A** DOLE WHIP MACHINE, FLOOR MODEL — 208-230/60/1, 30.0 AMPS [EACH], SR 24" AFF
- **7/B** DOLE WHIP MACHINE, FLOOR MODEL — 208-230/60/1, 25.0 AMPS [EACH], JB 24" AFF
- **11/A** POS STATION - BY OWNER — 120/60/1, 16.0 AMPS [EACH], DR 48" AFF, VERIFY ROUGH-IN REQUIREMENTS & LOCATIONS W/ OWNER
- **14/A** UNDERCOUNTER REFRIGERATOR — 120/60/1, 2.9 AMPS, SR 24" AFF
- **15/A** LOAD CENTER — SEE SCHEDULE THIS SHEET
- **18.1/A** HOT WELL — 208/60/1, 6.5 AMPS, SR 18" AFF
- **18.2/A** HOT WELL — 208/60/1, 4.3 AMPS, SR 18" AFF
- **18.3/A** DOUBLE COLD WELL — 120/60/1, 3.9 AMPS, SR 18" AFF
- **18.4/A** FOOD HOLDING BIN — 120/60/1, 1.5 AMPS, SR 66" AFF
- **21/A** WALK-IN MEAT COOLER - LIGHTS & HEATERS — 120/60/1, 15.0 AMPS, JB DFA, REFER TO DETAIL THIS SHEET, VERIFY ALL ROUGH-IN REQUIREMENTS WITH MFR'S SHOP DRAWINGS
- **21.1/A** WALK-IN MEAT COOLER EVAPORATOR — 120/60/1, 1.6 AMPS, JB DFA, VERIFY ALL ROUGH-IN REQUIREMENTS W/ MFR'S SHOP DRAWINGS
- **21.2/A** WALK-IN MEAT COOLER REMOTE COMPRESSOR — 208/60/3, 10.7 AMPS, JB, LOCATION TBD BY ARCHITECT, REFER TO MANUFACTURER'S SHOP DRAWINGS FOR DETAILS (1)
- **27/A** UTILITY OUTLET — 120/60/1, 16.0 AMPS, DR 48" AFF, MOUNT HORIZONTAL
- **33/A** EASIWASH - BY OTHERS — 208/60/1, 30 AMPS, JB 72" AFF, EC TO PROVIDE CORD TO BE HARDWIRED TO UNIT AT TIME OF INSTALL, VERIFY ALL ROUGH-IN REQUIREMENTS WITH OWNER
- **35/A** BAG AND BOX - BY OTHERS — 120/60/1, 16.0 AMPS, DR 60", VERIFY ALL ROUGH-IN REQUIRMENTS W/ PURVEYOR
- **45/A** UTILITY OUTLET — 120/60/1, 16.0 AMPS, DR 48" AFF, MOUNT HORIZONTAL
- **47/A** COOK AND HOLD OVEN — 120/60/1, 14.2 AMPS [EACH], SR 24" AFF
- **51/A** HOLDING CABINET, FULL SIZE — 120/60/1, 15.0 AMPS [EACH], SR 24" AFF
- **52/A** EXHAUST HOOD LIGHTS/FAN SWITCHES — 120/60/1, 15.0 AMPS, JB DOWN FROM ABOVE, EC TO INTERCONNECT BETWEEN CONTROL PANEL, HOODS, LIGHTS & FANS AS REQUIRED, VERIFY ALL ROUGH-INS W/ MANUFACTURERS SHOP DRAWINGS & EXISTING CONDITIONS
- **52.1/A** EXHAUST FAN — 208/60/3, 15.0 AMPS, JB, EXACT LOCATION TBD BY ARCHITECT, VERIFY ALL ROUGH-INS W/ MANUFACTURERS SHOP DRAWINGS
- **52.2/A** EXHAUST HOOD MAKEUP AIR UNIT — 208/60/3, 26.4 AMPS, JB, EXACT LOCATION TBD BY ARCHITECT. VERIFY ALL ROUGH-INS W/ MANUFACTURERS SHOP DRAWINGS
- **52.3/A** EXHAUST HOOD MAKEUP AIR UNIT CONDENSER — 208-230/60/3, 21.4 AMPS [EACH], JB, LOCATION TBD BY ARCHITECT, VERIFY ALL ROUGH-INS W/ MANUFACTURERS SHOP DRAWINGS
- **52.4/A** REMOTE FIRE PULL — REFER TO DETAIL ON THIS SHEET, VERIFY WITH MANUFACTURER
- **53/A** EXHAUST HOOD LIGHTS/FAN SWITCHES — 120/60/1, 15.0 AMPS, JB DOWN FROM ABOVE, EC TO INTERCONNECT BETWEEN CONTROL PANEL, HOODS, LIGHTS & FANS AS REQUIRED, VERIFY ALL ROUGH-INS W/ MANUFACTURERS SHOP DRAWINGS
- **56/A** DOUBLE STACKED CONVECTION OVEN — 120/60/1, 8.0 AMPS [EACH], SR 18" & 50" AFF, TOTAL OF FOUR CONNECTIONS
- **62/A** UTILITY OUTLET — 120/60/1, 16.0 AMPS [EACH], DR 48" AFF, MOUNT HORIZONTAL
- **71/A** UTILITY OUTLET — 120/60/1, 16.0 AMPS, DR 48" AFF, MOUNT HORIZONTAL
- **73/A** UNDERCOUNTER REFRIGERATOR — 120/60/1, 2.6 AMPS, SR 24" AFF
- **74/A** COUNTERTOP STEAMER — 208/60/3, 33.6 AMPS, SR 48" AFF
- **75/A** EXHAUST TYPE II HOOD LIGHTS/FAN SWITCHES — 120/60/1, 15.0 AMPS, JB DOWN FROM ABOVE, EC TO INTERCONNECT BETWEEN CONTROL PANEL, HOODS, LIGHTS & FANS AS REQUIRED, VERIFY ALL ROUGH-INS W/ MANUFACTURERS SHOP DRAWINGS
- **75.1/A** EXHAUST FAN — 208/60/1, 6.9 AMPS, JB, VERIFY ALL ROUGH-INS W/ MANUFACTURERS SHOP DRAWINGS
- **82/A** DISHMACHINE, VENTLESS - BY OTHERS — 208/60/3, 46.8 AMPS, JB 24" AFF, VERIFY ALL ROUGH-IN REQUIREMENTS W/ MFR'S SHOP DRAWINGS
- **91/A** WALK-IN PRODUCE COOLER LIGHTS & DOOR — 120/60/1, 15.0 AMPS, JB DFA, REFER TO DETAIL THIS SHEET, VERIFY ALL ROUGH-IN REQUIREMENTS WITH MFR'S SHOP DRAWINGS
- **91.1/A** WALK-IN COOLER EVAPORATOR — 120/60/1, 1.6 AMPS, JB DFA, VERIFY ALL ROUGH-IN REQUIREMENTS W/ MFR'S SHOP DRAWINGS
- **91.2/A** WALK-IN COOLER REMOTE COMPRESSOR — 208/60/1, 8.5 AMPS, JB, LOCATION TBD BY ARCHITECT, VERIFY ALL ROUGH-IN REQUIREMENTS W/ MFR'S SHOP DRAWINGS (1)

(15/A) BREAKER PANEL SCHEDULE

120-208/60/1, 39.0 AMPS, EC TO STUB DOWN THRU SS CHASE FROM ABOVE & CONNECT TO BREAKER PANEL. EC TO PROVIDE INTERCONNECTIONS IN COUNTER AS REQUIRED. VERIFY ALL DETAILS WITH MANUFACTURER'S SHOP DRAWINGS.
BREAKER PANEL TO BE PRE-WIRED TO THE FOLLOWING ITEMS:

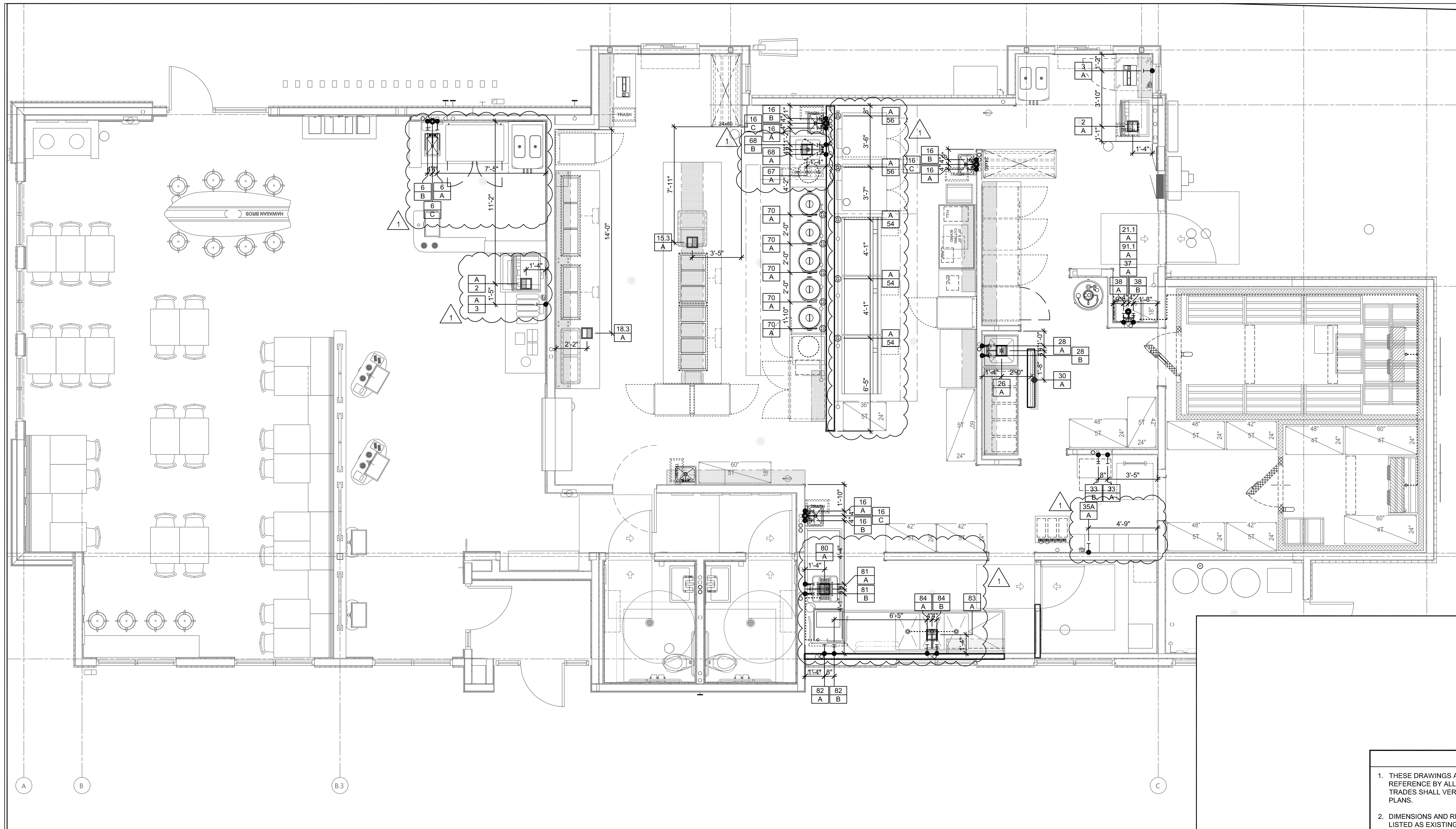
15.1/A	HOT WELL 208/60/1,8.7 AMPS
15.2/A	HOT WELL 208/60/1, 6.5 AMPS
15.3/A	DOUBLE COLD WELL 120/60/1, 3.9 AMPS
15.4/A	FOOD HOLDING BIN 120/60/1, 1.5 AMPS
51/A	HOLDING CABINET, FULL SIZE 120/60/1, 15.0 AMPS [EACH]
-/-	MONITORS - BY OWNER 120/60/1, 15.0 AMPS

Edward Don & Company
FOODSERVICE EQUIPMENT DIVISION
1878 CRAIGSHIRE RD.
ST. LOUIS, MO 63146
800.777.4366

PROJECT: HAWAIIAN BROS
1401 GRINDSTONE PKWY
COLUMBIA, MO

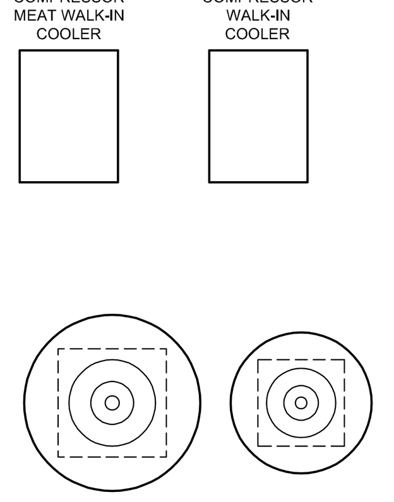
DATE:	DESCRIPTION
03.04.22	PLAN COMMENTS 1

DRAWN BY: N. SCHULZ
CHECKED BY: J. KOEHLER
SUBMITTED BY: N. SCHULZ
SCALE: 1/4" = 1'-0"
ISSUE NAME:
DATE: 03.04.2022
SHEET: QF200
FOODSERVICE ELECTRICAL PLAN
DRAWING NO:



REMOTE COMPRESSORS & CONDENSING UNITS

THESE NOTES APPLY TO MULTI-SYSTEM COMPRESSOR RACKS AS WELL AS INDIVIDUAL COMPRESSORS AND CONDENSORS.



PLUMBING NOTE:
VERIFY ALL DETAILS WITH MANUFACTURERS LATEST SHOP DRAWINGS.

EXACT LOCATION OF COMPRESSORS ARE TO BE DETERMINED BY ARCHITECT. FREE & EASY ACCESS INTO AREA FOR COMPRESSORS MUST BE PROVIDED BY OTHERS, TO ALLOW PLACEMENT OF RACK AS WELL AS MAINTAIN MINIMUM CLEARANCE REQUIREMENTS.

SUFFICIENT AIR CHANGES MUST BE PROVIDED IN THIS AREA TO ALLOW ADEQUATE AIR CIRCULATION FOR WATER COOLED OR AIR COOLED COMPRESSORS.

STRUCTURAL SUPPORT AS WELL AS CURBS, PADS OR REDWOOD RAILS FOR COMPRESSORS, ON ROOF OR INSIDE STRUCTURE, TO BE PROVIDED BY OTHERS.

SEE MANUFACTURER'S SHOP DRAWINGS FOR DETAILED REQUIREMENTS FOR CLEARANCE ACTUAL SIZES, MECHANICAL, PLUMBING & ELECTRICAL REQUIREMENTS. FOR WATER COOLED UNITS, STRICT ADHERENCE TO MANUFACTURERS REQUIREMENTS FOR MIN./MAX. WATER TEMP AND PRESSURE MUST BE MAINTAINED.

ASHRAE CALCULATIONS AND ANY RESULTING REQUIREMENTS FOR COMPRESSOR AREA, PIPING CHASES AND FREON DETECTION SYSTEMS SHALL BE THE RESPONSIBILITY OF OTHERS.

ALL REFRIGERANT PIPING CHASES AND BUILDING PENETRATIONS SHALL BE THE RESPONSIBILITY OF THE BUILDING TRADES AND TO COMPLY WITH ALL LOCAL CODES. EXACT LINE RUNS OF REFRIGERATION PIPING SHALL BE DETERMINED IN COORDINATION WITH THE REFRIGERATION INSTALLER.

ALL ELECTRICAL DISCONNECTS TO BE PROVIDED BY OTHERS.

INTERCONNECTION W/ M/U FAN BY G.C.

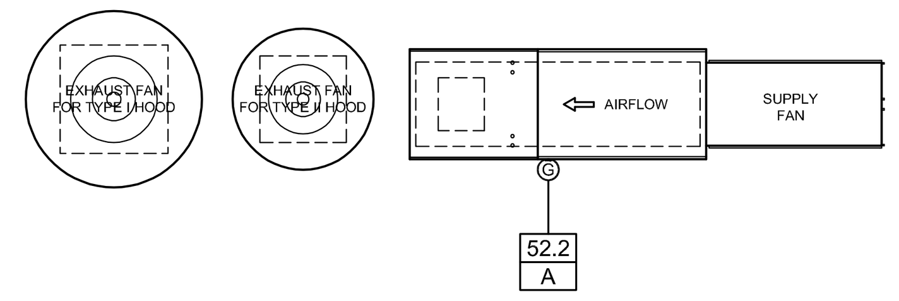
ROOFTOP EXHAUST FANS & MAKE-UP AIR UNITS

THESE ROOF TOP ITEMS ARE TO BE LOCATED BY THE ARCHITECT & ENGINEERS IN CONJUNCTION WITH THE EXHAUST HOOD MANUFACTURER'S SHOP DRAWING. REFER TO ARCHITECTURAL/ENGINEERING DRAWINGS FOR EXACT LOCATIONS.

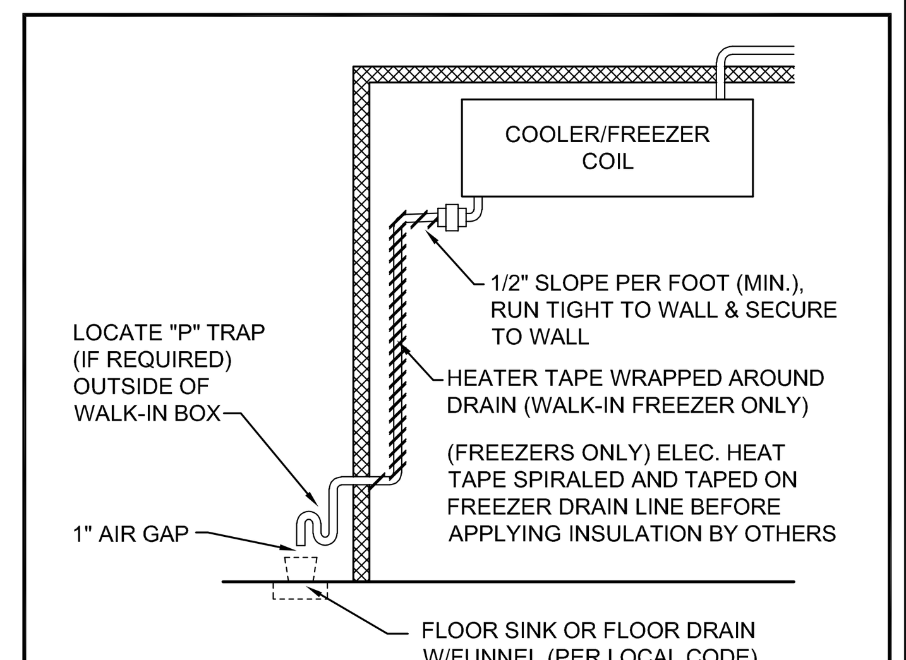
REFER TO THE LATEST APPROVED MANUFACTURER'S SHOP DRAWINGS FOR COMPLETE INFORMATION AND DETAILS REGARDING ALL ASPECTS OF FANS &/OR MAKE UP AIR UNITS, INCLUDING ACTUAL SIZES, REQUIRED CLEARANCE, ETC.

ALL PENETRATIONS THRU ROOF OR BUILDING STRUCTURE, INCLUDING WALLS, FLOORS, JOISTS OR OTHER STRUCTURAL MEMBERS, IS TO BE BY OTHERS.

ALL ELECTRICAL DISCONNECTS TO BE PROVIDED BY OTHERS.



WALK-IN DRAIN LINE DETAIL



WALK-IN DRAIN LINE DETAIL
NOT TO SCALE

PLUMBING SYMBOLS

Symbol	Description
1 ITEM NUMBER / A CONNECTION NUMBER	PLUMBING ROUGH-IN NOTE (SEE SCHEDULE)
	COLD WATER CONNECTION
	HOT WATER CONNECTION
	HOT WATER CONNECTION - 140° MINIMUM
	FLOOR SINK
	FLOOR SINK-HALF COVER
	FLOOR DRAIN
	FUNNEL FLOOR DRAIN
	FILTERED COLD WATER
	INDIRECT DRAIN
	DIRECT DRAIN
	GAS

PLUMBING NOTES

1. THESE DRAWINGS ARE TO BE USED AS AN INSTRUMENT OF REFERENCE BY ALL OTHER TRADES AND CONTRACTORS. ALL TRADES SHALL VERIFY THE INFORMATION AS INDICATED ON THESE PLANS.
2. DIMENSIONS AND REQUIREMENTS FOR ALL EQUIPMENT THAT IS LISTED AS EXISTING, PROVIDED BY OTHERS OR PROVIDED BY OWNER, MUST BE VERIFIED WITH THE APPROPRIATE PARTIES.
3. ALL LOCAL, STATE AND NATIONAL CODES SHALL APPLY.
4. THESE UTILITY REQUIREMENT DRAWINGS INDICATE THE UTILITY AND LOCATION OF REQUIREMENTS BASED ON THE EQUIPMENT SPECIFIED.
5. ALL EQUIPMENT SHALL BE PLUMBED IN STRICT CONFORMANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND/OR SHOP DRAWINGS.
6. UNLESS OTHERWISE NOTED, ALL DIMENSIONS SHOWN ON THIS PLAN ARE FROM THE FINISHED FLOOR, CEILING, WALLS OR COLUMN CENTERLINES TO THE CENTERLINE OF THE ROUGH-INS.
7. ALL PLUMBING CONNECTIONS SHALL BE EXTENDED AND INTERCONNECTED TO CONNECTION POINTS ON THE EQUIPMENT BY OTHERS. UNLESS SPECIFIED, ALL HARDWARE REQUIRED FOR THESE CONNECTIONS SHALL BE SUPPLIED BY THE PLUMBING CONTRACTOR.
8. SURFACE MOUNTED PIPING WILL NOT BE ALLOWED. ALL PIPING SHALL BE EXTENDED THROUGH AND OUT OF BUILDING WALLS WHERE POSSIBLE. WHERE SURFACE MOUNTED PLUMBING IS UNAVOIDABLE, IT MUST BE COORDINATED WITH EDWARD DON & COMPANY.
9. ROUGH-INS OUT OF FLOOR SHOULD BE STUBBED UP 4" ABOVE FINISHED FLOOR AND BROUGHT TO THE REQUIRED HEIGHT AFTER EQUIPMENT IS SET IN PLACE.
10. ONLY COMPONENTS SUPPLIED STANDARD BY THE MANUFACTURER ARE INCLUDED. ALL HARDWARE REQUIRED FOR CONNECTIONS SHALL BE SUPPLIED BY THE PLUMBING CONTRACTOR. SUCH COMPONENTS INCLUDE BUT ARE NOT LIMITED TO, SHUT-OFFS, PRESSURE REGULATORS, VACUUM BREAKERS, P-TRAPS, BACKFLOW PREVENTERS, ETC.
11. PLUMBING CONTRACTOR TO VERIFY THAT ALL APPLIANCES ARE SUPPLIED WITH APPROPRIATE GAS PRESSURE AND THAT ANY VARIANCES IN GAS PRESSURE BE CLEARLY IDENTIFIED AND BROUGHT TO THE IMMEDIATE ATTENTION OF EDWARD DON & COMPANY.
12. ALL INDIRECT WASTE AND CONDENSATE DRAIN LINES SHALL BE EXTENDED FROM EQUIPMENT FITTINGS TO APPROPRIATE DRAINS AS CODES REQUIRE, BY OTHERS.
13. UNLESS OTHERWISE SPECIFIED, HOT WATER SUPPLIED TO BOOSTER HEATER SHALL BE A MINIMUM TEMPERATURE OF 140° F.
14. PLUMBING CONTRACTOR TO VERIFY WATER TEMPERATURE REQUIREMENTS FOR EACH PIECE OF EQUIPMENT. ANY DISCREPANCY BETWEEN MANUFACTURER'S REQUIREMENTS AND TEMPERATURES PROVIDED SHALL BE CLEARLY IDENTIFIED AND BROUGHT TO THE IMMEDIATE ATTENTION OF EDWARD DON & COMPANY.
15. PLUMBING CONTRACTOR TO PROVIDE INSULATED HOT WATER CONNECTIONS BETWEEN BOOSTER HEATER AND DISHMACHINE.
16. UNLESS OTHERWISE SPECIFIED BY CODE, ALL DRAIN LINES FOR DISPOSERS SHALL BY-PASS GREASE INTERCEPTORS.
17. NO GENERAL PURPOSE FLOOR DRAINS ARE SHOWN ON THESE PLANS. THE SPECIFICATION OF THOSE DRAINS, AS WELL AS THE DESIGN FOR REQUIRED SLOPES IN THE FLOOR TO THOSE DRAINS, SHALL BE THE RESPONSIBILITY OF THE ARCHITECT AND/OR ENGINEERS.

PLUMBING REQUIREMENTS

Item	Conn.	Description
2		ICE MACHINE
	A	FLOOR SINK, PC TO EXTEND INDIRECT WASTE FROM ICE MACHINE AND SODA DISPENSER TO FLOOR SINK
3		WATER FILTER
	A	3/4" CW, 14" AFF, INSTALLED UNDERCOUNTER WITH ROOM TO REPLACE FILTER, PC TO EXTEND FILTERED WATER TO ICE MACHINE
6		HAND SINK
	A	1/2" CW, 14" AFF
6		HAND SINK
	B	1/2" HW, 14" AFF
6		HAND SINK
	C	1-1/2" DIRECT WASTE, 16" AFF
15.3		DOUBLE COLD WELL
	A	FLOOR SINK, PC TO EXTEND INDIRECT WASTE FROM COLD WELL TO FLOOR SINK
16		WALL-MOUNTED HAND SINK
	A	1/2" CW, 14" AFF
16		WALL-MOUNTED HAND SINK
	B	1/2" HW, 14" AFF
16		WALL-MOUNTED HAND SINK
	C	1-1/2" DIRECT WASTE, 16" AFF
18.3		DOUBLE COLD WELL
	A	FLOOR SINK, PC TO EXTEND INDIRECT WASTE FROM COLD WELL TO FLOOR SINK
21		WALK-IN MEAT COOLER
	A	FLOOR SINK, PC TO EXTEND INDIRECT WASTE CONDENSATE WASTE LINE FROM EVAPORATOR COIL TO FLOOR SINK, SEE DETAIL THIS SHEET
26		PREP TABLE W/ SINK
	A	FLOOR SINK, PC TO EXTEND INDIRECT WASTE FROM PREP SINK TO FLOOR SINK
28		PREP SINK FAUCET
	A	1/2" CW, 14" AFF
28		PREP SINK FAUCET
	B	1/2" HW, 14" AFF
30		FLOOR TROUGH
	A	2" DIRECT WASTE, STUB-UP, REFER TO DETAIL ON SHEET QF400
33		EASIWASH - BY OTHERS
	A	1/2" CW, PC TO INSTALL ROUGH-IN 3-4" FROM CEILING, VERIFY ALL ROUGH-IN REQUIREMENTS WITH OWNER
33		EASIWASH - BY OTHERS
	B	1/2" HW, PC TO INSTALL ROUGH-IN 3-4" FROM CEILING, VERIFY ALL ROUGH-IN REQUIREMENTS WITH OWNER
35A		WATER FILTER FOR BAG AND BOX - BY OTHERS
	A	3/4" CW, 96" AFF, VERIFY ROUGH-IN REQUIREMENTS W/ PURVEYOR (1)
37		MOP SINK - EXISTING
	A	1-1/2" DIRECT WASTE, STUB UP, VERIFY ALL ROUGH-IN REQUIREMENTS WITH OWNER
38		MOP SINK FAUCET - EXISTING
	A	1/2" CW, 36" AFF, VERIFY ALL ROUGH-IN REQUIREMENTS WITH OWNER
38		MOP SINK FAUCET - EXISTING
	B	1/2" HW, 36" AFF, VERIFY ALL ROUGH-IN REQUIREMENTS WITH OWNER
52.2		MUA UNIT
	A	1" GAS (268,017 BTU), PC TO CONNECT GAS TO MUA UNIT ON ROOF, LOCATION TO BE DETERMINED, VERIFY ALL ROUGH-IN REQUIREMENTS WITH MFR'S SHOP DRAWINGS
54		GRIDDLE
	A	3/4" GAS (120,000 BTU) [EACH], 18" AFF, QUICK DISCONNECT HOSES PROVIDED BY KEC
56		DOUBLE STACKED CONVECTION OVEN
	A	3/4" GAS (45,000 BTU) [EACH], 12" & 45" AFF, QUICK DISCONNECT HOSES PROVIDED BY KEC, TOTAL OF FOUR CONNECTIONS
67		WORK TABLE W/ SINK
	A	FLOOR SINK, PC TO EXTEND INDIRECT WASTE FROM PREP SINK TO FLOOR SINK
68		PREP SINK FAUCET
	A	1/2" CW, 14" AFF
68		PREP SINK FAUCET
	B	1/2" HW, 14" AFF
70		RICE COOKER
	A	3/4" GAS (34,600 BTU [EACH]), 18" AFF, QUICK DISCONNECT HOSES PROVIDED BY KEC
80		PRE-RINSE SINK
	A	FLOOR SINK, PC TO EXTEND INDIRECT WASTE FROM SINK AND DISH MACHINE TO FLOOR SINK
81		PRE-RINSE FAUCET
	A	1/2" CW, 14" AFF
81		PRE-RINSE FAUCET
	B	1/2" HW, 14" AFF
82		DISH MACHINE, VENTLESS - BY OTHERS
	A	1/2" CW, 60" AFF, PC TO CONNECT DRAIN TEMPERING KIT, VERIFY ALL ROUGH-IN REQUIREMENTS W/ MFR'S SHOP DRAWINGS
82		DISH MACHINE, VENTLESS - BY OTHERS
	B	1/2" HW, 60" AFF, VERIFY ALL ROUGH-IN REQUIREMENTS W/ MFR'S SHOP DRAWINGS
83		THREE COMPARTMENT SINK
	A	FLOOR SINK, PC TO EXTEND INDIRECT WASTE FROM (3) SINKS TO FLOOR SINK
84		PRE-RINSE FAUCET
	A	1/2" CW, 14" AFF
84		PRE-RINSE FAUCET
	B	1/2" HW, 14" AFF
91		WALK-IN PRODUCE COOLER
	A	FLOOR SINK, PC TO EXTEND CONDENSATE WASTE LINE FROM EVAPORATOR COIL AND SINK TO FLOOR SINK, SEE DETAIL THIS SHEET

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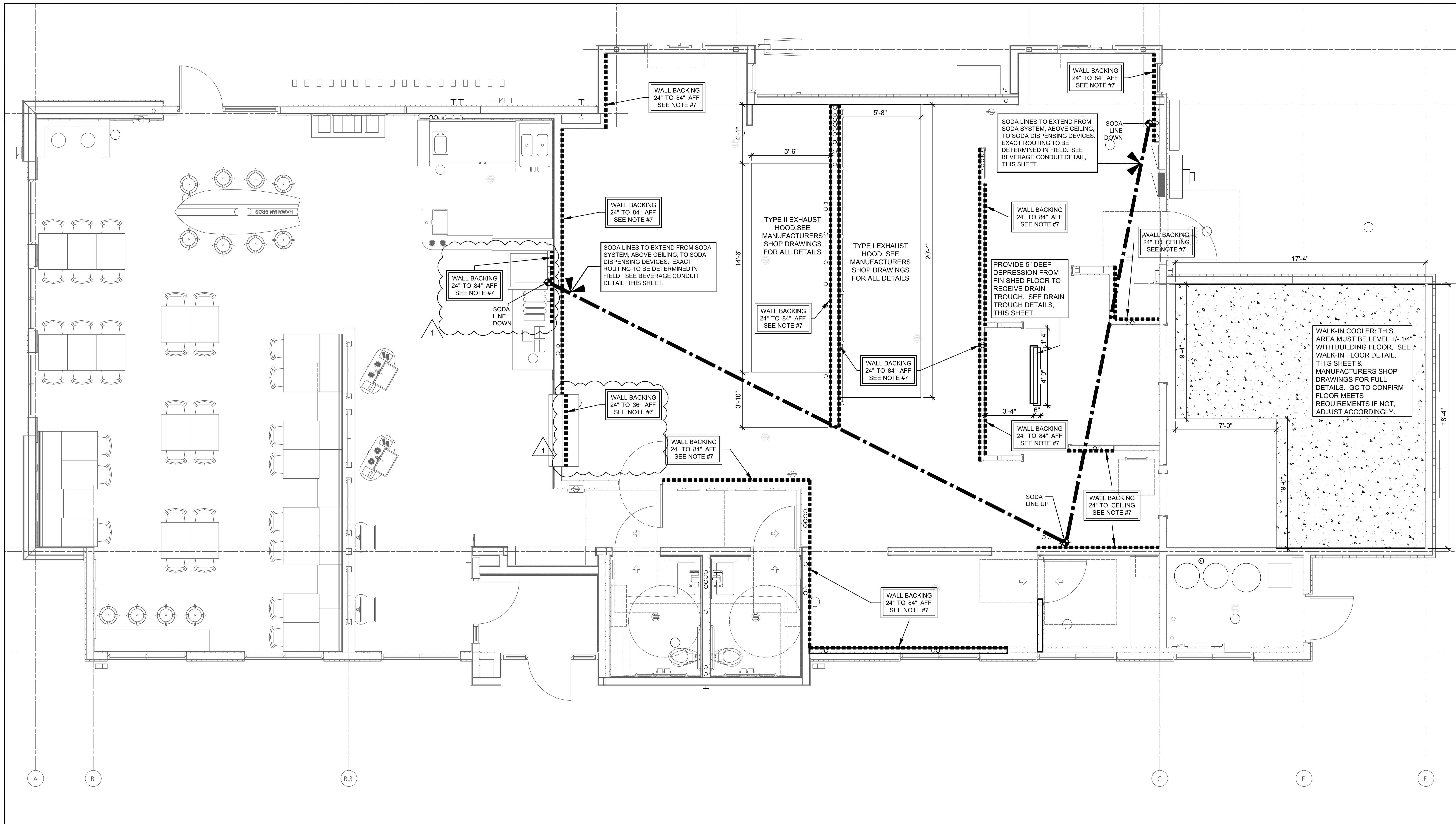
PROJECT: HAWAIIAN BROS
1401 GRINDSTONE PKWY
COLUMBIA, MO

DATE:	DESCRIPTION
03.04.22	PLAN COMMENTS 1

DRAWN BY: N. SCHULZ
CHECKED BY: J. KOEHLER
SUBMITTED BY: N. SCHULZ
SCALE: 1/4" = 1'-0"
ISSUE NAME:
DATE: 03.04.2022
SHEET: QF300
FOODSERVICE PLUMBING PLAN
DRAWING NO:

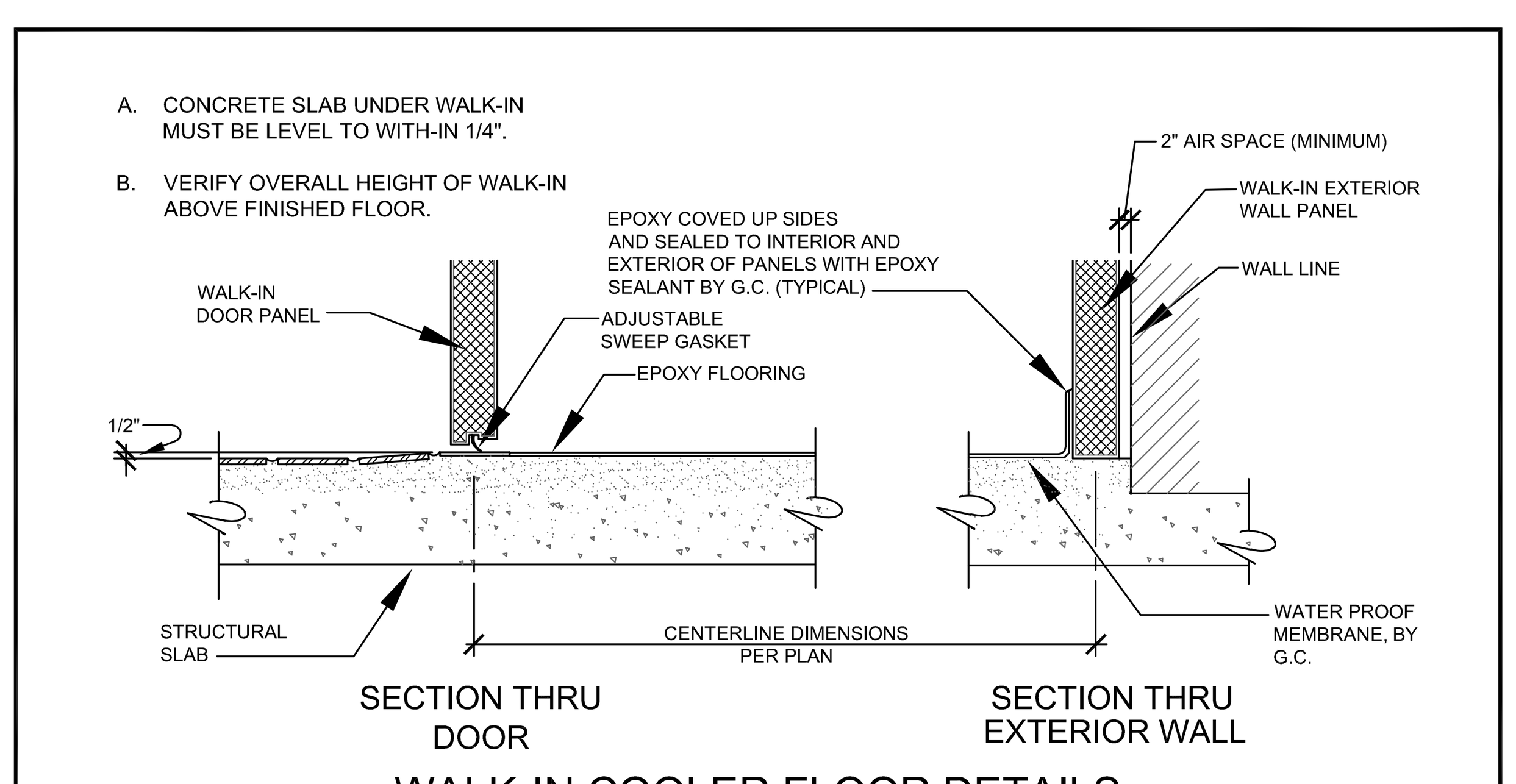


GENERAL CONSTRUCTION NOTES

1. THESE DRAWINGS ARE TO BE USED AS AN INSTRUMENT OF REFERENCE BY ALL OTHER TRADES AND CONTRACTORS. ALL TRADES SHALL VERIFY THE INFORMATION AS INDICATED ON THESE PLANS.
2. DIMENSIONS AND REQUIREMENTS FOR ALL EQUIPMENT THAT IS LISTED AS EXISTING, PROVIDED BY OTHERS OR PROVIDED BY OWNER, MUST BE VERIFIED WITH THE APPROPRIATE PARTIES.
3. ALL LOCAL, STATE AND NATIONAL CODES SHALL APPLY.
4. ARCHITECT TO LOCATE, GENERAL CONTRACTOR TO PROVIDE ALL OPENINGS IN WALLS, FLOORS, CEILINGS, AND ROOFS FOR THE EXTENSION OF REFRIGERATION LINES, BEVERAGE LINES, ELECTRICAL LINES, PLUMBING LINES, EXHAUST AND SUPPLY VENTILATION DUCTS. CURBS, PITCH POCKETS OR SPECIAL FINISHING FOR THESE OPENINGS SHALL BE SUPPLIED BY OTHERS.
5. SUPPLY FANS TO BE LOCATED A MINIMUM OF 10'-0" FROM ANY AIR INLET OR OUTLET ON THE ROOF SUCH AS EXHAUST FANS, VENT STACKS, AIR CONDITIONERS, REFRIGERATION COMPRESSORS, ETC.
6. ALL INFORMATION PROVIDED FOR FOOD SERVICE HOOD SYSTEMS PERTAINING TO QUANTITY, SIZE AND LOCATION OF EXHAUST AND SUPPLY DUCT COLLARS, CFM RATINGS AND STATIC PRESSURE MUST BE CONFIRMED WITH THE MANUFACTURER'S APPROVED SHOP DRAWINGS.
7. GENERAL CONTRACTOR TO PROVIDE 3/4" FIRE RETARDANT PLYWOOD WALL BACKING ON WALLS FOR WALL MOUNTED EQUIPMENT. ALTERNATIVE FOR PLYWOOD MUST BE USED UNDER HOODS AND AT FIRE RATED WALLS PER LOCAL CODES. ALL WALL BACKING MUST BE BEHIND WALL FINISH. NO EXPOSED WALL BACKING SHALL BE ALLOWED. LOCATION AND HEIGHT TO BE COORDINATED WITH MANUFACTURER'S SHOP DRAWINGS AND SPECIFICATION SHEETS.
8. PROVIDE COVED BASES AT ALL VERTICAL INTERSECTIONS OF FLOORS IN KITCHEN AND STORAGE AREAS.
9. ALL HVAC REGISTERS ARE TO BE LOCATED SO AS TO PREVENT ANY INTERFERENCE IN PERFORMANCE OF EXHAUST HOODS, HEATERS OR WARMERS.
10. BOTTOM OF HOODS ARE TO BE MOUNTED AT 6'-6" ABOVE FINISHED FLOOR, UNLESS OTHERWISE SPECIFIED BY LOCAL CODES.
11. RECOMMENDED CEILING HEIGHTS ARE LISTED BELOW. CONTACT EDWARD DON & COMPANY IMMEDIATELY IF MINIMUM HEIGHTS ARE LESS THAN THOSE INDICATED:
   A. KITCHEN AREAS WITH EXHAUST HOODS: 8'6"
   B. KITCHEN AREAS WITH WALK-IN COOLER/FREEZERS: 9'-6"
   C. KITCHEN AREAS WITH ICE MACHINES &/or COMPRESSORS: 9'-0"
   D. GENERAL KITCHEN AREAS: 8'-0"
12. REMOTE CONDENSING UNITS & COMPRESSOR UNITS ARE TO BE LOCATED OUTSIDE WHERE POSSIBLE. FOR INSIDE LOCATIONS, VERIFY PROVISION OF SUFFICIENT VENTILATION WITH MANUFACTURER. ARCHITECT TO LOCATE ALL REMOTE COMPRESSORS AND CONDENSERS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

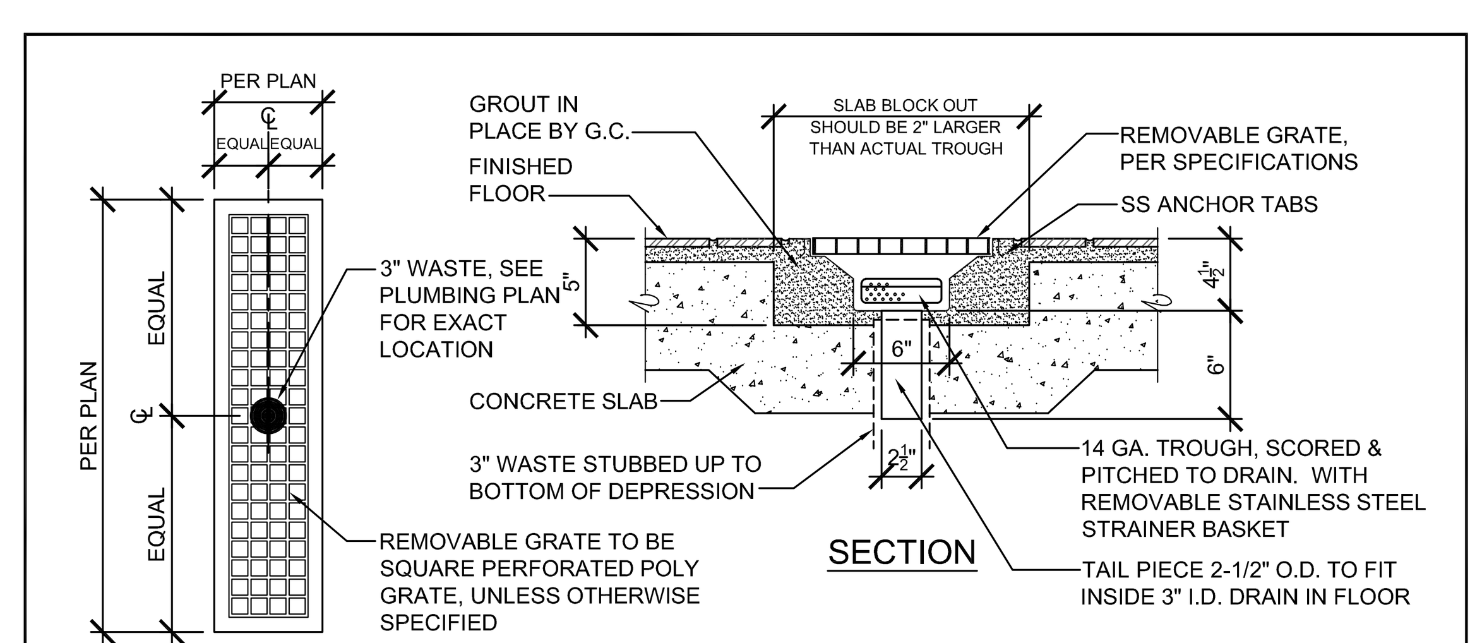
GENERAL CONSTRUCTION & BUILDING WORKS LEGEND

- BEVERAGE LINE
- IN WALL BACKING
- SODA LINE CONDUIT
- BEER/WINE LINE CONDUIT



WALK-IN COOLER FLOOR DETAILS

(NO SCALE)



DRAIN TROUGH DETAILS

NOT TO SCALE

NOTES:

CONDUIT AND BUILDING PENETRATIONS SHALL BE THE RESPONSIBILITY OF THE BUILDING TRADES AND TO COMPLY WITH ALL LOCAL CODES.

EXACT LINE RUNS SHALL BE DETERMINED IN COORDINATION WITH THE BEVERAGE SYSTEM INSTALLER. LINE RUN SHOWN ON PLAN INDICATES DESIRED CONNECTION AND NOT THE ACTUAL LINE RUN.

PROVIDE 6" (MIN.) P.V.C. CONDUIT, AS INDICATED ON PLAN, THRU SLAB, WALLS OR CEILINGS, WITH 24" (MIN.) RADIUS MINIMUM SWEEPING BENDS, INTERNALLY SMOOTH AND WATERTIGHT. EXACT DIAMETER OF CONDUIT TO BE DETERMINED ON PER PROJECT BASIS - VERIFY BEFORE CONSTRUCTION.

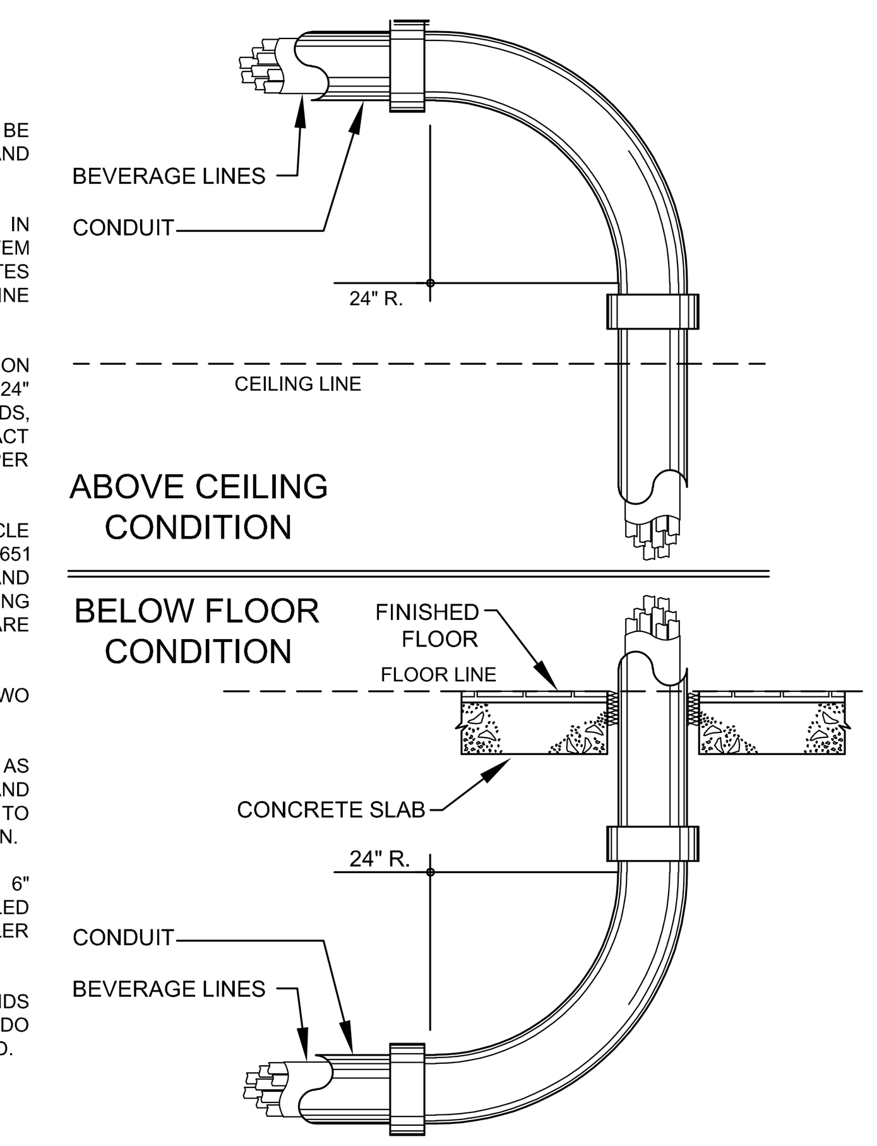
FURNISH P.V.C. CONDUIT AS DESCRIBED IN ARTICLE 347 OF THE NATIONAL ELECTRIC CODE, STANDARD 651 NEMA SPEC. 7-C2 ROBINTECH P.V.C. DUCT AND SWEEP ELBOWS OR EQUAL. CAUTION: PLUMBING STYLE P.V.C. SHORT RADIUS FACTORY "ELLS" ARE NOT ACCEPTABLE.

A PULL BOX SHALL BE INSTALLED AFTER EVERY TWO RADIUS BENDS OR 75 FEET OF CONDUIT.

ALL JOINTS SHALL BE SOLVENT CEMENTED AS RECOMMENDED BY THE MANUFACTURER AND PRESSURE TESTED FOR LEAKS PRIOR TO BACKFILLING, TO CREATE A LIQUID TIGHT CONDITION.

CONDUIT SHALL BE EXTENDED A MINIMUM OF 6" ABOVE FINISHED FLOOR AND CAPPED AND SEALED DURING CONSTRUCTION. BEER CONDUIT IN COOLER TO EXTEND UP 6" ABOVE COOLER FLOOR.

AFTER PRODUCT LINES ARE INSTALLED, OPEN ENDS OF THE CONDUIT ARE TO BE FILLED WITH EXPANDO FOAM APPROXIMATELY 2 TO 4 INCHES AT EACH END.



BEVERAGE SYSTEM CONDUIT DETAIL

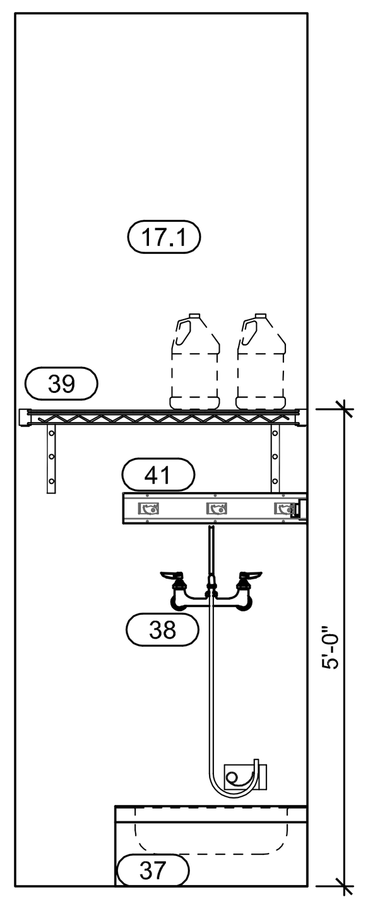
NO SCALE

Edward Don & Company
FOODSERVICE EQUIPMENT DIVISION
1878 CRAIGSHIRE RD.
ST. LOUIS, MO 63146
800.777.4366

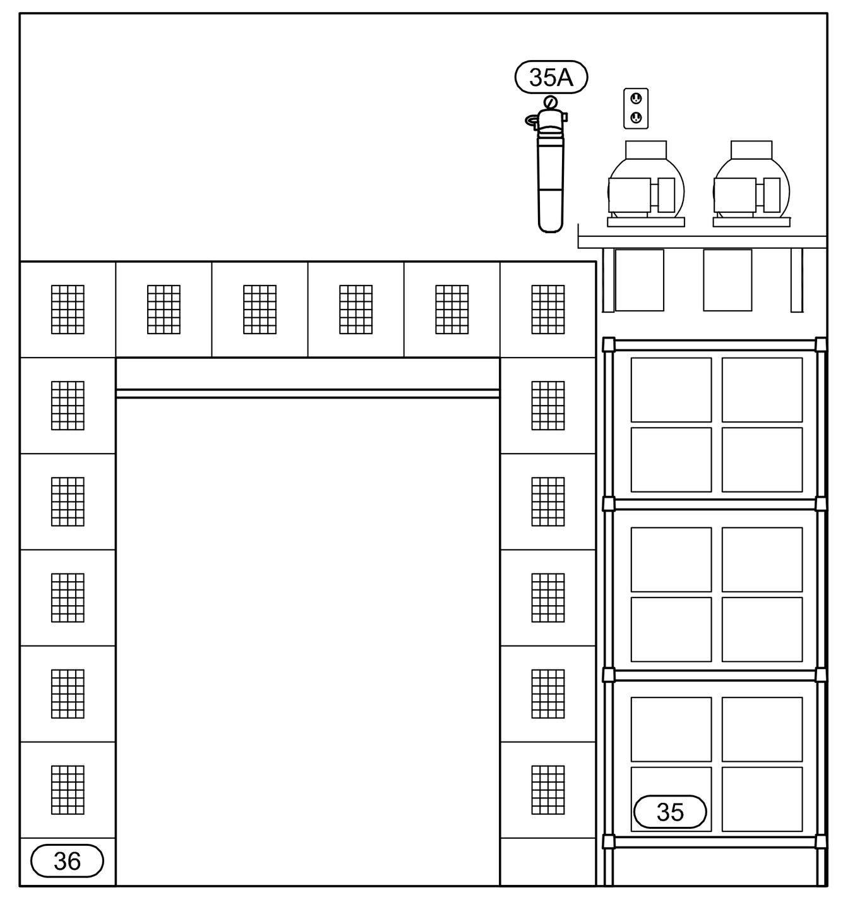
PROJECT: HAWAIIAN BROS
1401 GRINDSTONE PKWY
COLUMBIA, MO

DATE:	DESCRIPTION
03.04.22	PLAN COMMENTS 1

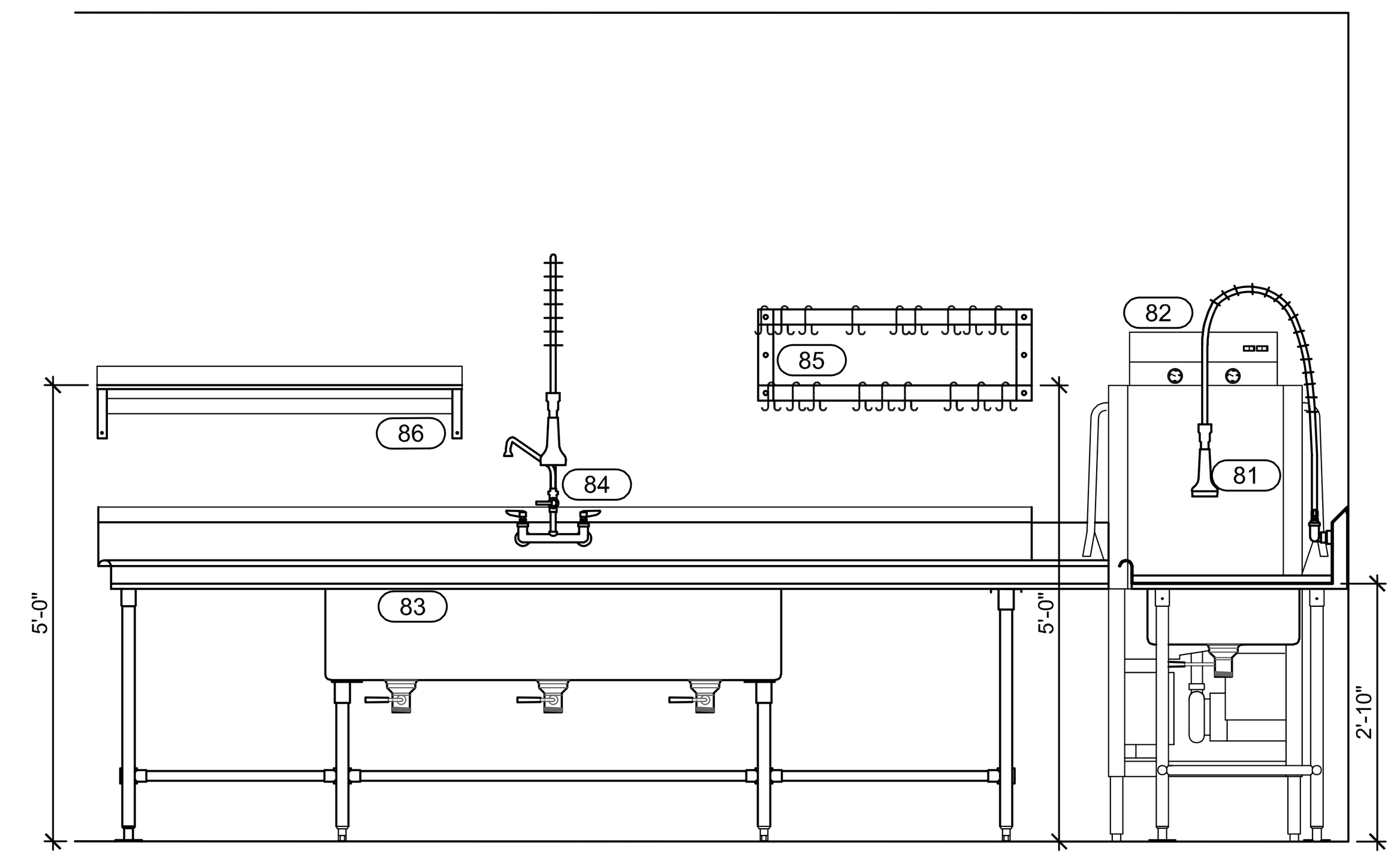
DRAWN BY: N. SCHULZ
CHECKED BY: J. KOEHLER
SUBMITTED BY: N. SCHULZ
SCALE: 1/4" = 1'-0"
ISSUE NAME:
DATE: 03.04.2022
SHEET: QF400
FOODSERVICE BUILDING WORKS PLAN
DRAWING NO:



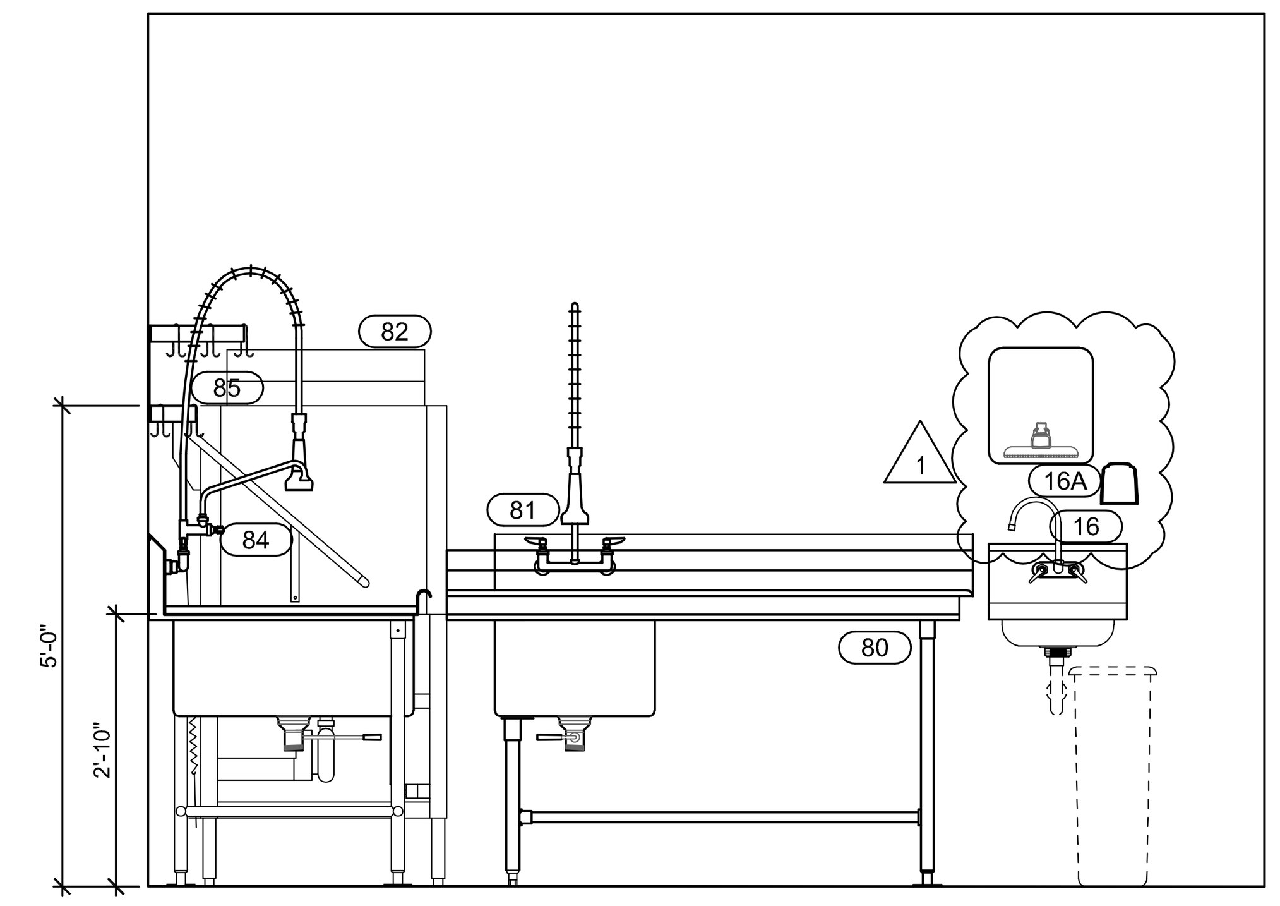
MOP SINK AREA - ELEVATION 'A'
SCALE: 1/2" = 1'-0"



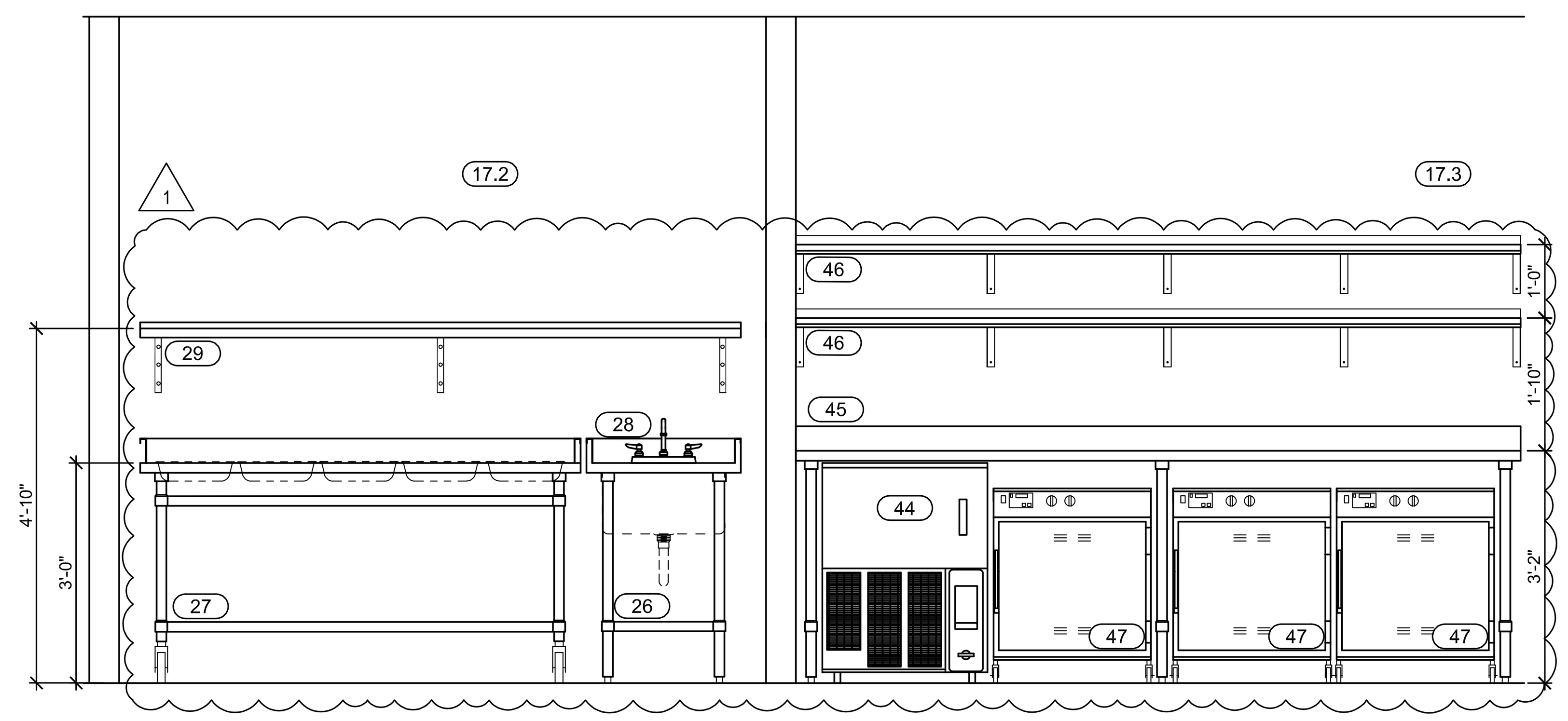
BAG-IN-BOX / CO2 - ELEVATION 'B'
SCALE: 1/2" = 1'-0"



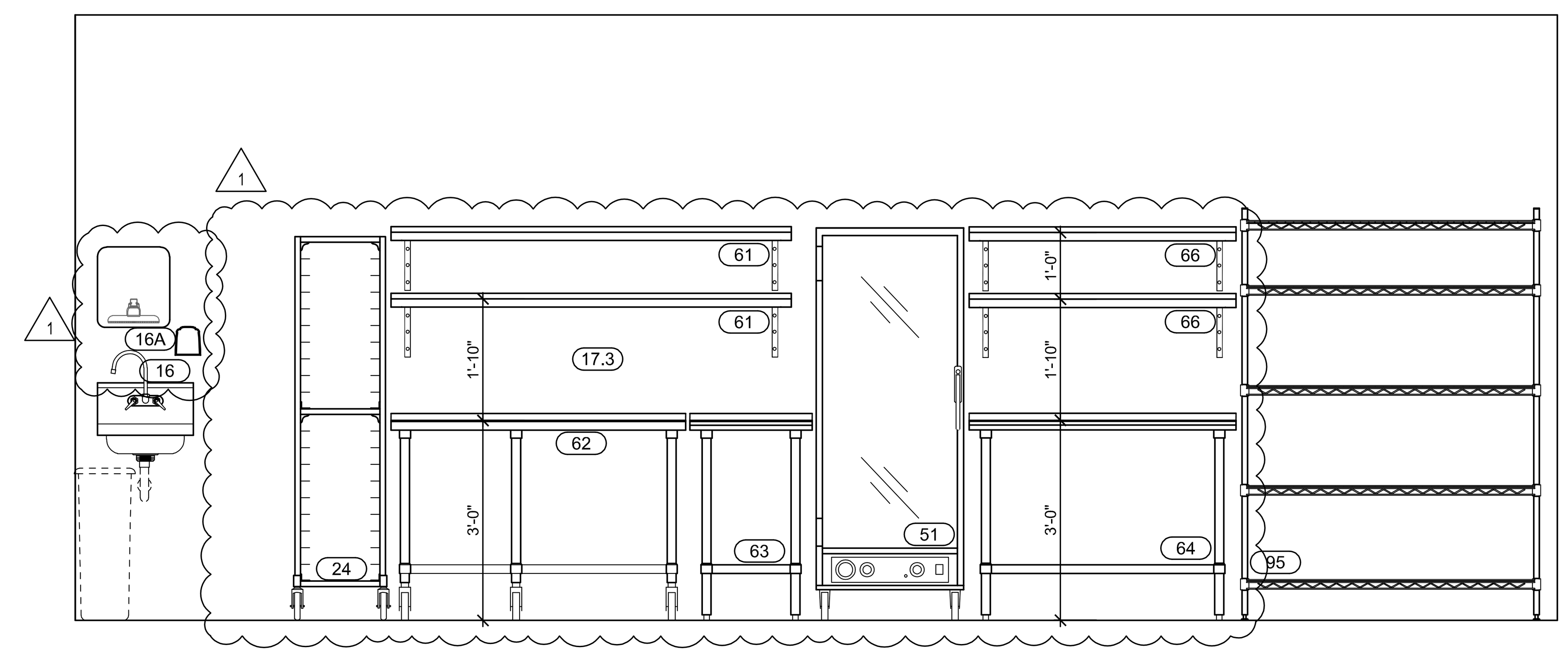
WARE WASH - ELEVATION 'C'
SCALE: 1/2" = 1'-0"



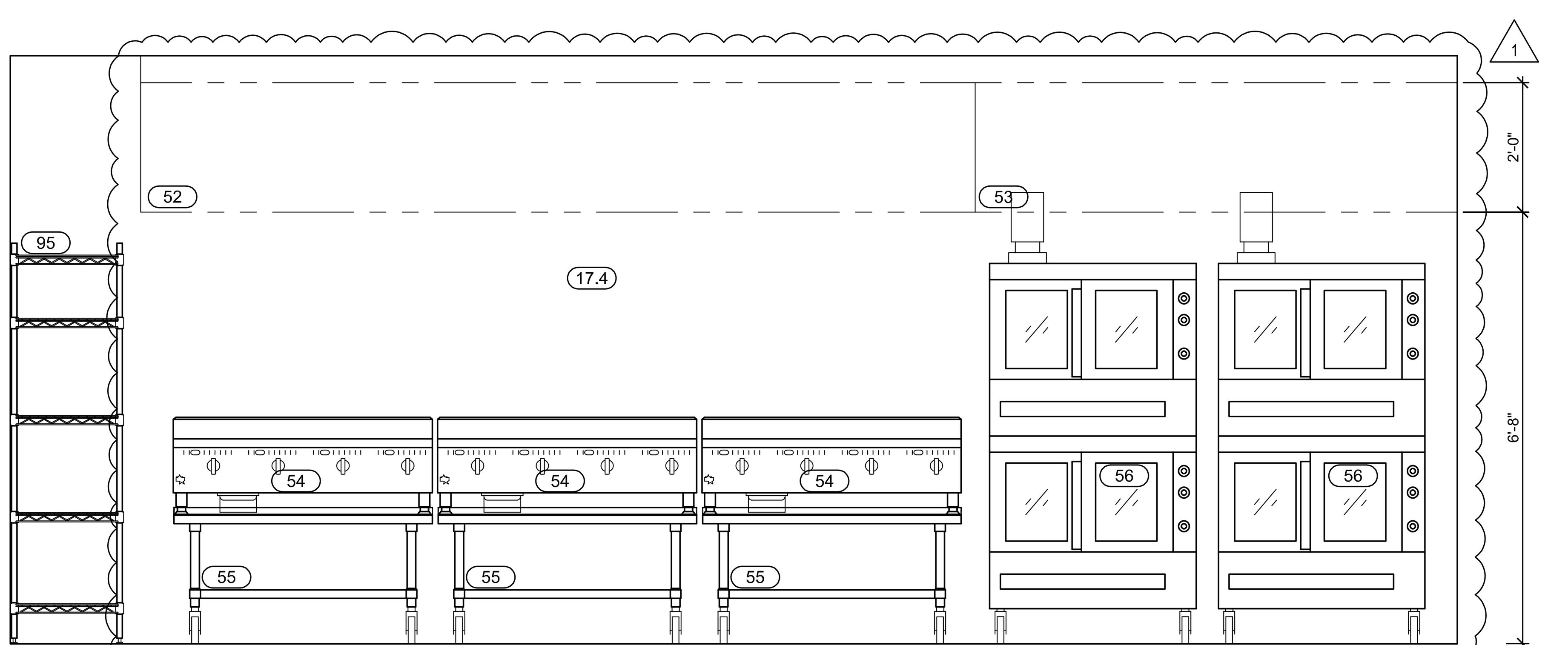
WARE WASH - ELEVATION 'D'
SCALE: 1/2" = 1'-0"



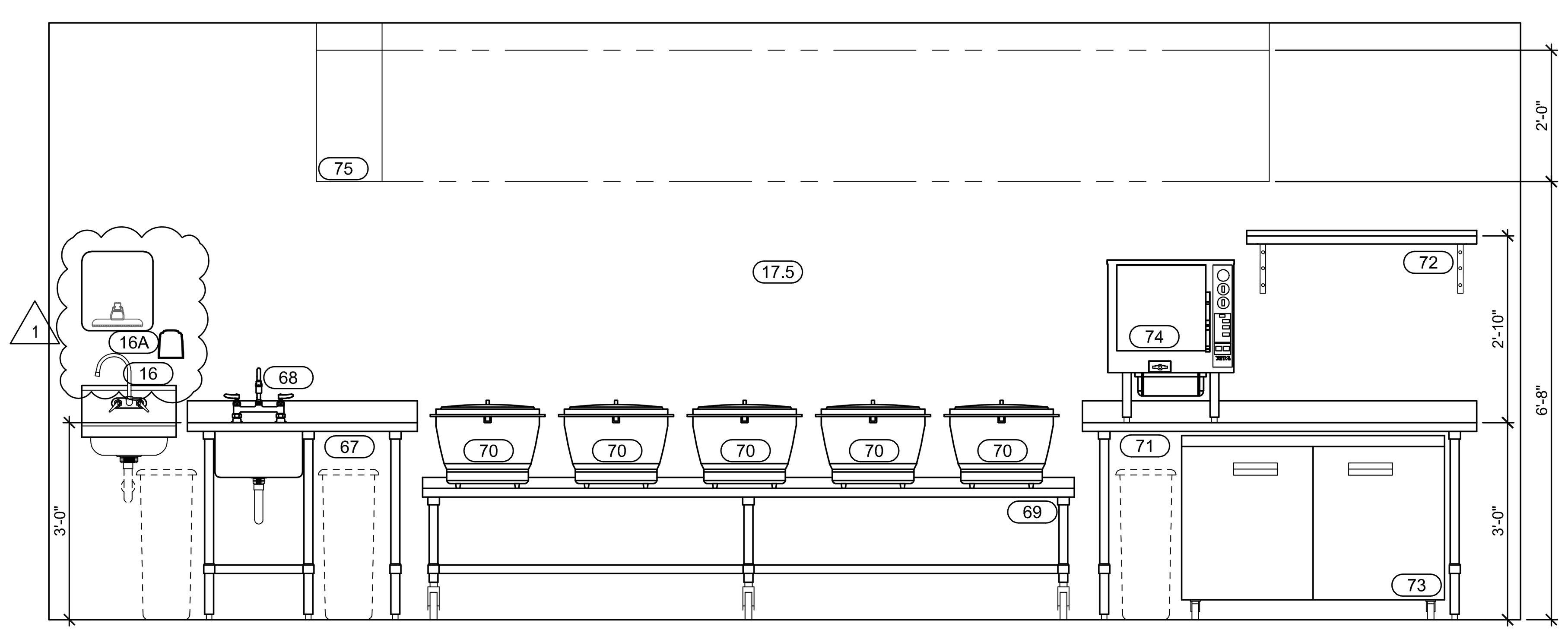
PANNING STATION / PREP & PORK COOKING AREA - ELEVATION 'E'
SCALE: 1/2" = 1'-0"



COOK LINE - ELEVATION 'F'
SCALE: 1/2" = 1'-0"



COOK LINE - ELEVATION 'G'
SCALE: 1/2" = 1'-0"



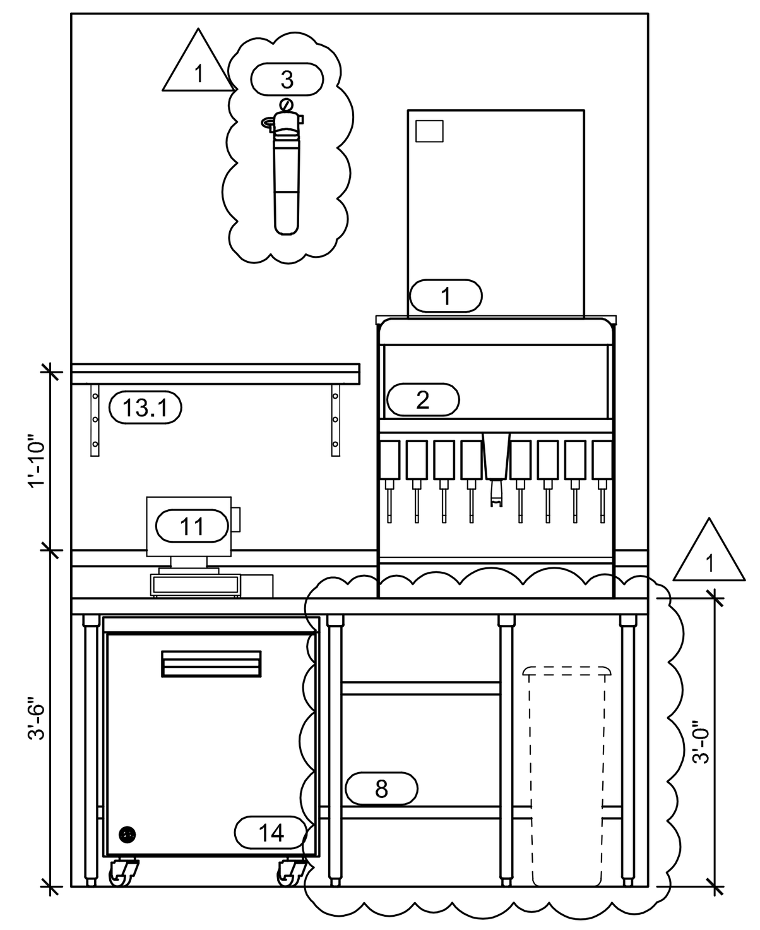
RICE & VEGGIE COOKING AREA - ELEVATION 'H'
SCALE: 1/2" = 1'-0"

Edward Don & Company
FOODSERVICE EQUIPMENT DIVISION
1878 CRAIGSHIRE RD.
ST. LOUIS, MO 63146
800.777.4366

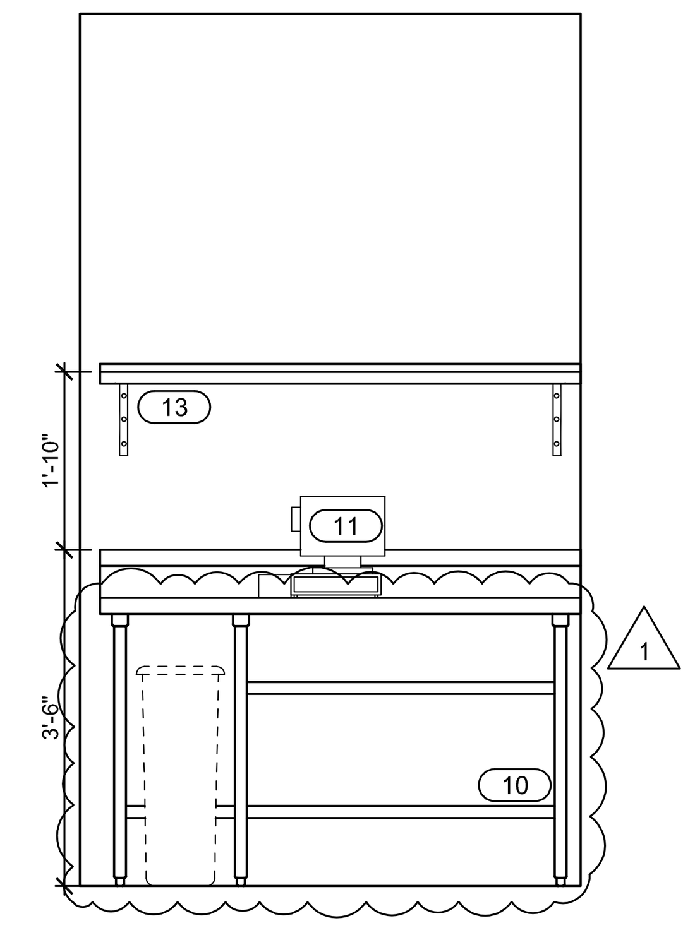
PROJECT: HAWAIIAN BROS
1401 GRINDSTONE PKWY
COLUMBIA, MO

	DATE:	DESCRIPTION		DATE:	DESCRIPTION
1	03.04.22	PLAN COMMENTS 1			

DRAWN BY: N. SCHULZ
CHECKED BY: J. KOEHLER
SUBMITTED BY: N. SCHULZ
SCALE: 1/2" = 1'-0"
ISSUE NAME:
DATE: 03.04.2022
SHEET: QF500
FOODSERVICE EQUIPMENT ELEVATIONS
DRAWING NO:



DRIVE-THRU DRINK WINDOW - ELEVATION 'I'
SCALE: 1/2" = 1'-0"



DRIVE-THRU WINDOW, FOOD PICK-UP - ELEVATION 'J'
SCALE: 1/2" = 1'-0"

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FOODSERVICE EQUIPMENT DIVISION
1878 CRAIGSHIRE RD.
ST. LOUIS, MO 63146
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PROJECT:
HAWAIIAN BROS
1401 GRINDSTONE PKWY
COLUMBIA, MO

	DATE:	DESCRIPTION
1	03.04.22	PLAN COMMENTS 1

	DATE:	DESCRIPTION

DRAWN BY: N. SCHULZ
CHECKED BY: J. KOEHLER
SUBMITTED BY: N. SCHULZ

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

ISSUE NAME:

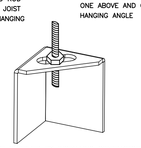
DATE: 03.04.2022

SHEET:
QF600
FOODSERVICE EQUIPMENT ELEVATIONS
DRAWING NO:

ND-2 HANGING ANGLE DETAIL

1/2" DIA. ALL THREAD ROD CONNECTED TO ROOF JOIST THROUGH ANOTHER HANGING ANGLE

1/2" DIA. HEAVY DUTY NUT ONE ABOVE AND ONE BELOW HANGING ANGLE



*ROD AND NUTS TO BE SUPPLIED BY INSTALLING CONTRACTOR
HANGING ANGLE IS PRE-PUNCHED AT FACTORY

HANGING ANGLE LOCATIONS

HOOD STYLE	DIM FROM REAR	DIM FROM FRONT (24"H)	DIM FROM FRONT (30"H)
CANOPY ND2	4.166"	2.246"	2.246"
ND2-PSP-F	4.166"	2.246"	2.246"
BACKSHELF BD-2	4.166"	2.246	–
VHB/VHB-G	36"X36"	42"X42"	48"X48"
FRONT/BACK DIMS BY SIZE	2.246"	2.246"	2.246"

CALCULATIONS UTILIZED

EXHAUST CFM=LENGTH OF HOOD X CFM/LIN.FT. (LOAD)

SUPPLY CFM=EXHAUST CFM X PERCENTAGE REQUIRED

TOTAL DUCT AREA=144 X $\frac{\text{CFM}}{\text{FPM(*)}}$

DUCT LENGTH= $\frac{\text{TOTAL DUCT AREA}}{\text{DUCT DEPTH}}$

*CAPTIVE-AIRE DUCT CONNECTION SIZES ARE CALCULATED USING AN EXHAUST VELOCITY OF 1500-1800 FPM AND A SUPPLY VELOCITY OF 300-400 FPM.

BUILDING CODES

CAPTIVE-AIRE HOODS ARE BUILT IN COMPLIANCE WITH:

ETL LISTED #3054804-001 & #3054804-002

UL STANDARD 710

Intertek

BUILT IN ACCORDANCE WITH NFPA No. 96

Listed under ETL File number 3054804-001/002

CLEARANCE TO COMBUSTIBLES

CAPTIVE-AIRE HOODS HAVE OPTIONAL CLEARANCE REDUCTION SYSTEMS AVAILABLE AS FOLLOWS:

MATERIAL	CLEARANCE REDUCTION SYSTEM
NON-COMBUSTIBLE	NONE REQUIRED
LIMITED-COMBUSTIBLE	3" UNINSULATED STANDOFF
COMBUSTIBLE	1" INSULATED STANDOFF

GENERAL NOTES

INSTALLATION

1. ALL ELECTRICAL "FIELD" CONNECTIONS AND RELATED INTERCONNECTIONS BY ELECTRICAL CONTRACTORS.
2. ALL PLUMBING "FIELD" CONNECTIONS AND RELATED INTERCONNECTIONS BY PLUMBING CONTRACTORS.
3. HANGING BRACKETS LOCATED AND WELDED AS SHOWN ON PLANS. ALL OTHER HANGER MATERIALS PROVIDED BY INSTALLING CONTRACTORS.
4. ALL CONNECTIONS FROM CAPTIVE-AIRE DUCT PER MECHANICAL CONTRACTOR'S PLANS.
5. COOKING EQUIPMENT TO SHUTOFF IN EVENT OF FIRE.
6. EXHAUST FANS TO TURN ON IN EVENT OF FIRE.
7. ALL LIGHTS FIXTURE SHOWN INSTALLED BY CAPTIVE-AIRE ARE FACTORY PREWIRED. INTERCONNECTIONS BETWEEN HOODS AND TO SWITCHES BY ELECTRICAL CONTRACTORS.
8. LAMPS FOR LIGHT FIXTURES BY INSTALLING CONTRACTORS.
9. SEISMIC RESTAINTS ARE RESPONSIBILITY OF INSTALLING CONTRACTOR.
10. INSTALLING CONTRACTORS ASSUME ALL RELATED REPONSIBILITY FOR VERIFICATION OF DIMENSIONAL DATA CONTAINED ON THESE DOCUMENTS FOR ACCURACY, INTEGRATION, AND ADMINISTRATION OF CODE REQUIREMENTS IN EFFECT PRIOR TO ANY RELEASE FOR PRODUCTION OF EQUIPMENT SHOWN.

BALANCE

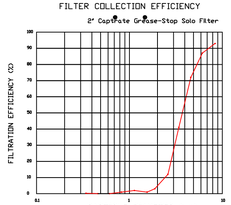
11. KITCHEN HOODS MUST BE BALANCED WITH KITCHEN.
12. KITCHEN SHALL BE NEGATIVE WITH RESPECT TO DINING AREA.
13. RESTAURANT SHALL BE POSITIVE WITH RESPECT TO AMBIENT PRESSURE.

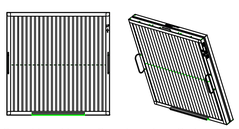
ADDITIONAL

14. WRITTEN HOOD DIMENSIONS HAVE PRECEDENCE OVER SCALE.
15. SIGNED AND "APPROVED" COPIES OF THIS DOCUMENT MUST BE RECEIVED BY THE FACTORY PRIOR TO COMMENCEMENT OF FABRICATION.

FILTER DETAIL

FILTER COLLECTION EFFICIENCY





CaptiveAire Captrate Solo Filter
ETL Listed Grease Extracting Filters
Made From 430 Stainless Steel

HOOD INFORMATION – JOB#5143841

HOOD NO	TAG	MODEL	MANUFACTURER	LENGTH	MAX. COOKING TEMP	TYPE	APPLIANCE DUTY	DESIGN CFM/FT	TOTAL EXH CFM	EXHAUST PLENUM RISER(S) WIDTH	LENG	HEIGHT	DIA	CFM	VEL	SP	TOTAL SUPPLY CFM	HOOD CONSTRUCTION	HOOD CONFIG END TO END	HOOD CONFIG ROW
1	ITEM 52	5424 ND-2-PSP-F	CAPTIVEAIRE	12' 11"	450 DEG	I	MEDIUM	235	3035			4"	12"	1517	1932	-1.074"	2090	430 SS WHERE EXPOSED	LEFT	ALONE
2	ITEM 52	5424 ND-2-PSP-F	CAPTIVEAIRE	7' 5"	450 DEG	I	MEDIUM	180	1335			4"	12"	1335	1700	-0.752"	1115	430 SS WHERE EXPOSED	RIGHT	ALONE
3	ITEM 75	5424 VHB-PSP-F-ND	CAPTIVEAIRE	13' 6"	700 DEG	II	N/A	160	2160			4"	12"	1080	1375	-0.151"	1795	430 SS 100%	ALONE	BACK
												4"	12"	1080	1375	-0.151"				

HOOD INFORMATION

HOOD NO	TAG	FILTER(S) TYPE	QTY	HEIGHT	LENGTH	EFFICIENCY @ 7 MICRONS	LIGHT(S) QTY	TYPE	WIRE GUARD	UTILITY CABINET(S) LOCATION	SIZE	FIRE SYSTEM TYPE	SIZE	ELECTRICAL MODEL #	SWITCHES QUANTITY	FIRE SYSTEM PIPING	HOOD HANGING WEIGHT
1	ITEM 52	CAPTRATE SOLO FILTER	9	16"	16"	85% SEE FILTER SPEC	4	RECESSED ROUND	NO							NO	758 LBS
2	ITEM 52	CAPTRATE SOLO FILTER	5	16"	16"	85% SEE FILTER SPEC	2	RECESSED ROUND	NO							NO	418 LBS
3	ITEM 75						4	RECESSED ROUND	NO	LEFT	12"x54"x24"			DCV-2111	1 LIGHT 1 FAN	NO	674 LBS

HOOD OPTIONS

HOOD NO	TAG	OPTION
1	ITEM 52	FIELD WRAPPER 18.00" HIGH FRONT, LEFT.
		BALANCE DAMPERS.
		RISER SENSOR INSTALL 3IN DBL.
		LEFT VERTICAL END PANEL 27" TOP WIDTH, 21" BOTTOM WIDTH, 80" HIGH INSULATED 430 SS.
2	ITEM 52	FIELD WRAPPER 18.00" HIGH FRONT.
		RIGHT END STANDOFF (FINISHED) 1" WIDE 54" LONG INSULATED.
		BALANCE DAMPERS.
		RISER SENSOR INSTALL 3IN DBL.
3	ITEM 75	FIELD WRAPPER 18.00" HIGH FRONT, LEFT, RIGHT.
		RIGHT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS.
		LEFT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS.
		RISER SENSOR INSTALL 3IN DBL.

PERFORATED SUPPLY PLENUM(S)

HOOD NO	TAG	POS	LENGTH	WIDTH	HEIGHT	TYPE	RISER(S) WIDTH	LENG	DIA	CFM	SP
1	ITEM 52	Front	155"	14"	6"	MUA	12"	28"		696	0.183"
						MUA	12"	28"		696	0.183"
						MUA	12"	28"		696	0.183"
2	ITEM 52	Front	90"	14"	6"	MUA	10"	28"		557	0.145"
						MUA	10"	28"		557	0.145"
3	ITEM 75	Front	174"	12"	6"	MUA	8"	36"		598	0.138"
						MUA	8"	36"		598	0.138"
						MUA	8"	36"		598	0.138"

SPECIFICATION: CAPTRATE® GREASE-STOP® SOLO FILTER

THE CAPTRATE GREASE-STOP SOLO FILTER IS A SINGLE-STAGE FILTER FEATURING A UNIQUE S-BAFFLE DESIGN IN CONJUNCTION WITH A SLOTTED REAR BAFFLE DESIGN, TO DELIVER EXCEPTIONAL FILTRATION EFFICIENCY.

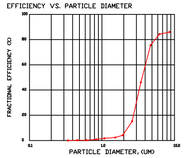
FILTER IS STAINLESS STEEL CONSTRUCTION, AND SIZED TO FIT INTO STANDARD 2-INCH DEEP HOOD CHANNEL(S).

UNITS SHALL INCLUDE STAINLESS STEEL HANDLES AND A FASTENING DEVICE TO SECURE THE TWO COMPONENTS WHEN ASSEMBLED.

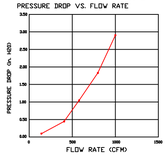
GREASE EXTRACTION EFFICIENCY PERFORMANCE SHALL REMOVE AT LEAST 75% OF GREASE PARTICLES FIVE MICRONS IN SIZE, AND 85% GREASE PARTICLES SEVEN MICRONS IN SIZE AND LARGER, WITH A CORRESPONDING PRESSURE DROP NOT TO EXCEED 1.0 INCHES OF WATER GAUGE.

THE CAPTRATE GREASE-STOP SOLO WAS TESTED TO ASTM STANDARD ASTM F2519-05. MANUFACTURER APPROVED FOR USE IN SOLID FUEL APPLICATIONS AS A SPARK ARRESTER.

EFFICIENCY VS. PARTICLE DIAMETER



PRESSURE DROP VS. FLOW RATE



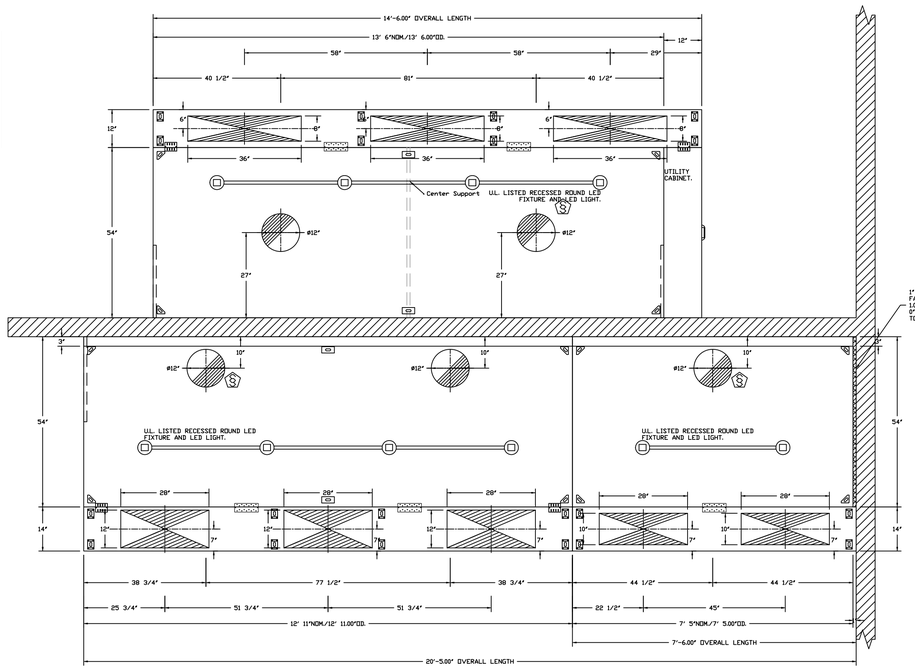
CAPTRATE FILTERS ARE BUILT IN COMPLIANCE WITH.
NFPA #96.
NSF STANDARD #2.
UL STANDARD #1046.
INT. MECH. CODE (IMC).
ULC-S649.

PATENT NUMBERS

AC-PSP (UNITED STATES) - US PATENT 7963830 B2.
AC-PSP WALL (CANADA) - CA PATENT 2820509.
AC-PSP ISLAND (CANADA) - CA PATENT 2520330.

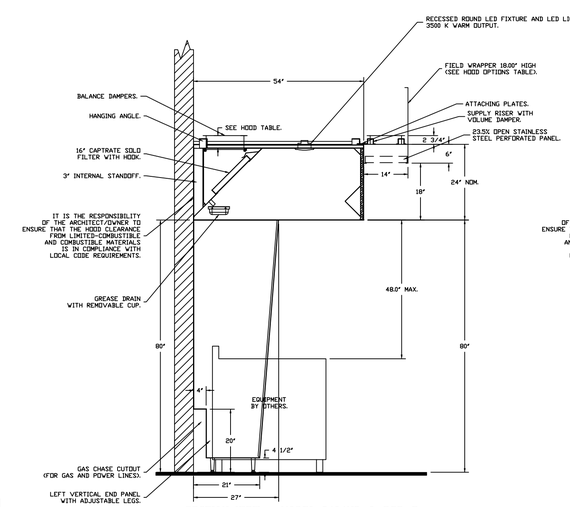
NOTE: ADDITIONAL HANGING ANGLES PROVIDED FOR HOODS 12' AND LONGER.

PLAN VIEW – HOOD #3 (ITEM 75)
13' 6.00" LONG 5424VHB-PSP-F-ND

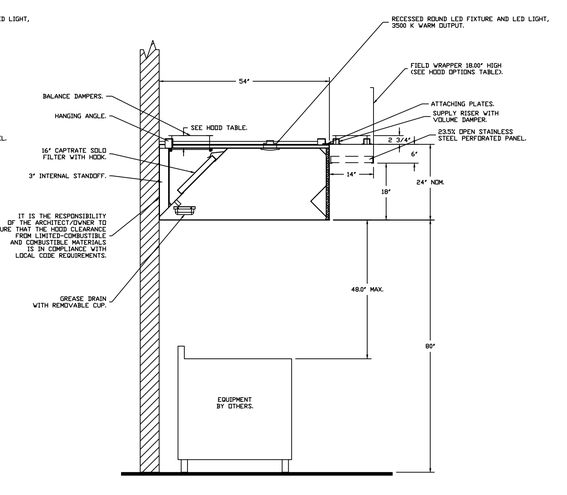


PLAN VIEW – HOOD #1 (ITEM 52)
12' 11.00" LONG 5424ND-2-PSP-F
NOTE: ADDITIONAL HANGING ANGLES PROVIDED FOR HOODS 12' AND LONGER.

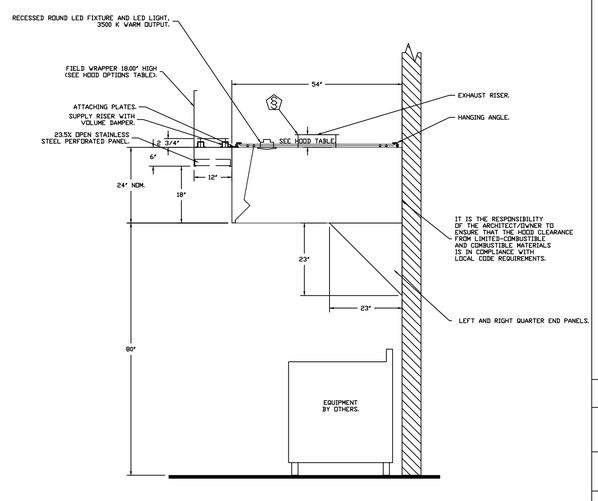
PLAN VIEW – HOOD #2 (ITEM 52)
7' 5.00" LONG 5424ND-2-PSP-F



SECTION VIEW – MODEL 5424ND-2-PSP-F
HOOD – #1 (ITEM 52)



SECTION VIEW – MODEL 5424ND-2-PSP-F
HOOD – #2 (ITEM 52)



SECTION VIEW – MODEL 5424VHB-PSP-F-ND
HOOD – #3 (ITEM 75)

FOR QUESTIONS, CALL THE:
KANSAS CITY REGIONAL OFFICE
1126 SWIFT STREET, KANSAS CITY, MO 64116
PHONE: (816) 221-8575
FAX: (816) 221-8311

CUSTOMER APPROVAL TO MANUFACTURE:

Approved as Noted ☐
Approved with NO Exception Taken ☐
Revise and Resubmit ☐

SIGNATURE _____
Your Title _____ Date _____

***** NOTE *****

ALL WALLS AND STRUCTURES THAT COME WITHIN 18" OF HOOD MUST BE METAL STUDS AND SHEETROCK. WOOD STUDS OR ANY OTHER COMBUSTIBLE MATERIAL WITHIN 18" OF HOOD NO ALLOWED.

***** NOTE *****

HOOD MANUFACTURER RECOMMENDS NO RETURNS OR 4-WAY DIFFUSERS WITHIN 10 FEET OF HOOD IN ALL DIRECTION.

***** NOTE *****

MAKEUP AIR SHALL BE DELIVERED INTO SPACE IN MANNER THAT WILL NOT DISRUPT HOODS ABILITY TO CAPTURE AND CONTAIN.

REVISIONS

	DESCRIPTION	DATE:
△		
△		
△		
△		

CAPTIVE-AIRE
www.captiveaire.com
104 W 9th St Suite 204, Kansas City, MO, 64105 PHONE: (816) 221-8575 FAX: (816) 221-8311 EMAIL: reg98@captiveaire.com

HBT Foodservice

Hawaiian Bros - Columbia, MO
COLUMBIA, MO, 65201

DATE: 3/1/2022

DWG.#: 5143841

DRAWN BY: michael.co

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

MASTER DRAWING

SHEET NO. 1

EXHAUST FAN INFORMATION – JOB#5143841

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	MANUFACTURER	CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	DISCHARGE VELOCITY	WEIGHT (LBS)	SONES
1	ITEM 52.1	1	DU240HFA	CAPTIVEAIRE	4370	1.500	913	ODP,PREMIUM	5.000	2.1580	3	208	15.8	993 FPM	300	17.4
2	ITEM 75.1	1	DU85HFA	CAPTIVEAIRE	2160	0.800	1420	TEAO-ECM	1.000	0.5070	1	208	6.9	684 FPM	92	15.2

CONDENSER DETAILS

FAN UNIT NO	TAG	FAN UNIT MODEL #	CONDENSER NO	TONNAGE	VOLTAGE	PHASE	FREQUENCY	MCA	RLA	MAX FUSE SIZE	MIN WIRE SIZE	SEER
3	ITEM 52.2	A2-D.250-20D-MPU	1	5	208-230	3 PHASE	60 HZ	21.4 AMPS	17.4 AMPS	30 AMPS	10 AWG	14
			2	5	208-230	3 PHASE	60 HZ	21.4 AMPS	17.4 AMPS	30 AMPS	10 AWG	14

MUA FAN INFORMATION – JOB#5143841

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	BLOWER	HOUSING	MIN CFM	DESIGN CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	MCA	MOCP	WEIGHT (LBS)	SONES
3	ITEM 52.2	1	A2-D.250-20D-MPU	20MF-2-MOD	A2-D.250	3600	5000	0.500	2001	ODP,PREMIUM	7.500	4.5170	3	208	21.1	26.4A	45A	1646	24

COILS – JOB#5143841

FAN UNIT NO	TAG	COIL TYPE	DESIGN CFM	COOLING											HEATING								
				ENTERING DB TEMP	ENTERING WB TEMP	LEAVING DB TEMP	LEAVING WB TEMP	ENTERING FLUID TEMP	LEAVING FLUID TEMP	FLUID FLOW RATE	PERCENT GLYCOL	TOTAL CAPACITY	SENSIBLE CAPACITY	LATENT CAPACITY	ENTERING DB TEMP	LEAVING DB TEMP	ENTERING FLUID TEMP	LEAVING FLUID TEMP	FLUID FLOW RATE	PERCENT GLYCOL	STEAM PRESSURE	TOTAL CAPACITY	SENSIBLE CAPACITY
3	ITEM 52.2	DX	5000	99.0°F	76.0°F	81.5°F	69.6°F	---	---	---	---	120.0 MBH	88.9 MBH	31.1 MBH	---	---	---	---	---	---	---	---	---

GAS FIRED MAKE-UP AIR UNIT(S)

FAN UNIT NO	TAG	INPUT BTUs	OUTPUT BTUs	TEMP RISE	REQUIRED INPUT GAS PRESSURE	GAS TYPE	BURNER EFFICIENCY(%)
3	ITEM 52.2	278258	255997	49°F	7 IN. W.C. - 14 IN. W.C.	NATURAL	92

FAN OPTIONS

FAN UNIT NO	TAG	QTY	DESCRIPTION
1	ITEM 52.1	1	GREASE BOX.
		1	2 YEAR PARTS WARRANTY.
2	ITEM 75.1	1	GREASE BOX.
		1	ECM WIRING PACKAGE - PWM SIGNAL FROM ECPM03 PREWIRE (TELCO MOTOR), CCW ROTATION.
		1	2 YEAR PARTS WARRANTY.
3	ITEM 52.2	1	MOTORIZED BACKDRAFT DAMPER FOR A2-D HOUSING - MEETS AMCA CLASS 1A RATING.
		1	LOW FIRE START.
		1	INLET PRESSURE GAUGE, 0-35".
		1	MANIFOLD PRESSURE GAUGE, -5 TO 15" WC.
		1	FREEZESTAT.
		1	10 TON 2 CIRCUIT (5/5) MODULAR PACKAGED COOLING OPTION FOR SIZE 2 DF/EH MUA (3,600 TO 5,000 CFM), 208V/230V, 3 PHASE. COOLING THERMOSTAT OR PROGRAMMABLE STAT REQUIRED FOR PROPER OPERATION.
		1	DOWNTURN PLENUM FOR SIZE 2 DX COIL MODULE.
		1	SEPARATE 120V WIRING PACKAGE (REQUIRED AND USED ONLY FOR DCV OR PREWIRE WITH VFD) - THREE PHASE ONLY.
		1	SHIP CONDENSERS LOOSE - TWO CONDENSERS, THREE PHASE - CONDENSER DISCONNECTS SHIPPED LOOSE.
		1	2 YEAR PARTS WARRANTY.

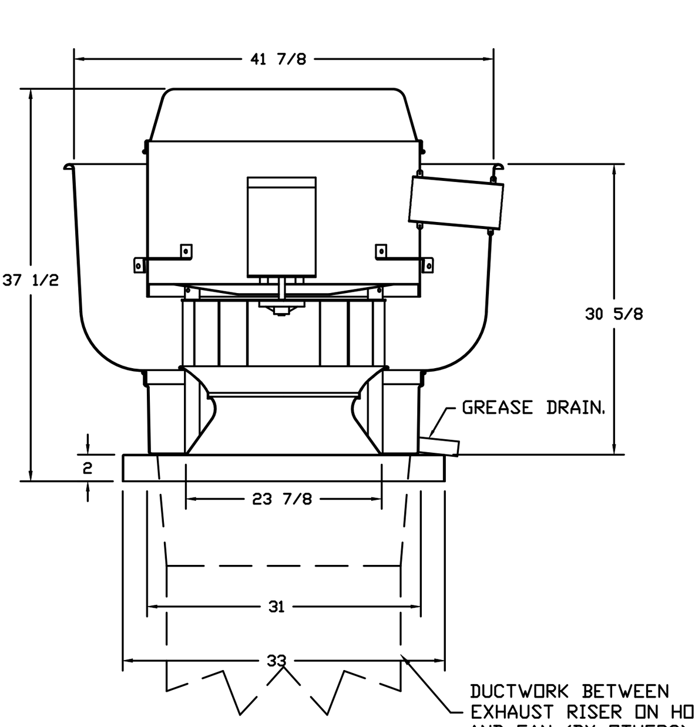
FAN ACCESSORIES

FAN UNIT NO	TAG	EXHAUST			SUPPLY			
		GREASE CUP	GRAVITY DAMPER	WALL MOUNT	SIDE DISCHARGE	GRAVITY DAMPER	MOTORIZED DAMPER	WALL MOUNT
1	ITEM 52.1	YES						
2	ITEM 75.1	YES						
3	ITEM 52.2						YES	

CURB ASSEMBLIES

NO	ON FAN	TAG	WEIGHT	ITEM	SIZE
1	# 1	ITEM 52.1	48 LBS	CURB	31.500"W X 31.500"L X 20.000"H ALONG LENGTH, RIGHT VENTED HINGED.
2	# 2	ITEM 75.1	36 LBS	CURB	23.000"W X 23.000"L X 20.000"H ALONG LENGTH, RIGHT VENTED HINGED.
3	# 3	ITEM 52.2	96 LBS	CURB	31.000"W X 79.000"L X 15.000"H ALONG WIDTH, RIGHT INSULATED.
	# 3			RAIL	6.000"W X 31.000"L X 15.000"H .

FAN #1 DU240HFA - EXHAUST FAN (ITEM 52.1)



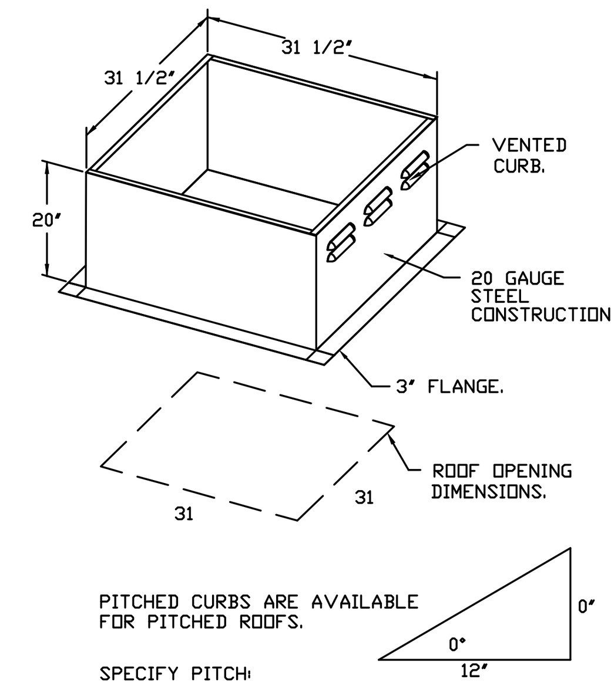
FEATURES:

- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL705 AND UL762 AND ULC-S645
- VARIABLE SPEED CONTROL.
- INTERNAL WIRING.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).
- HIGH HEAT OPERATION 300°F (149°C).
- GREASE CLASSIFICATION TESTING.
- NEMA 3R SAFETY DISCONNECT SWITCH.

NORMAL TEMPERATURE TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

ABNORMAL FLARE-UP TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING BURNING GREASE VAPORS AT 600°F (316°C) FOR A PERIOD OF 15 MINUTES WITHOUT THE FAN BECOMING DAMAGED TO ANY EXTENT THAT COULD CAUSE AN UNSAFE CONDITION.

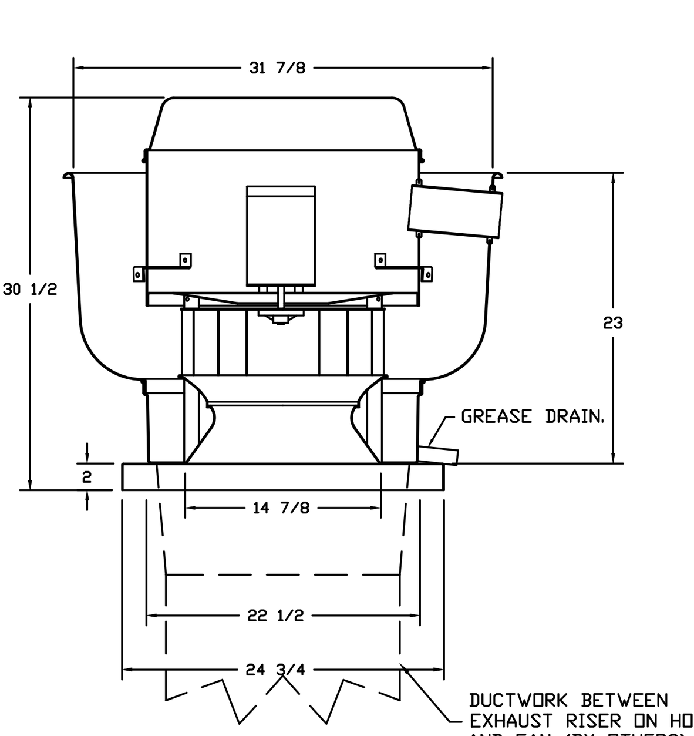
OPTIONS
GREASE BOX.
2 YEAR PARTS WARRANTY.



PITCHED CURBS ARE AVAILABLE FOR PITCHED ROOFS.

SPECIFY PITCH:
EXAMPLE: 7/12 PITCH = 30° SLOPE.

FAN #2 DU85HFA - EXHAUST FAN (ITEM 75.1)



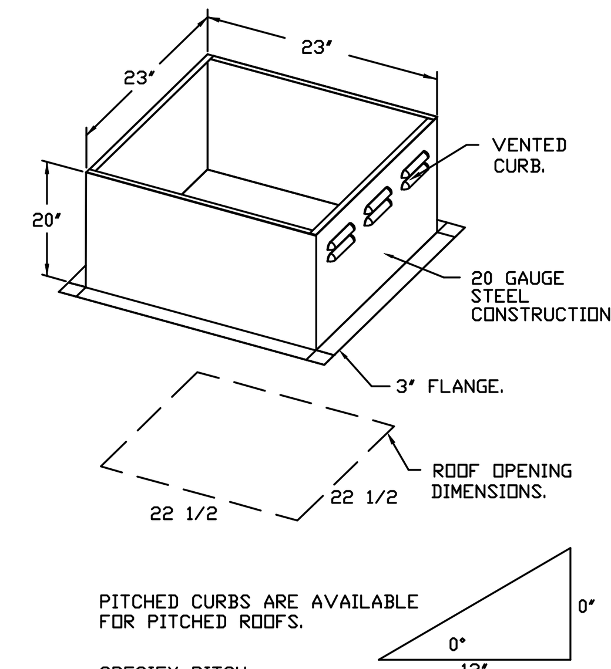
FEATURES:

- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL705 AND UL762 AND ULC-S645
- VARIABLE SPEED CONTROL.
- INTERNAL WIRING.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).
- HIGH HEAT OPERATION 300°F (149°C).
- GREASE CLASSIFICATION TESTING.
- NEMA 3R SAFETY DISCONNECT SWITCH.

NORMAL TEMPERATURE TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

ABNORMAL FLARE-UP TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING BURNING GREASE VAPORS AT 600°F (316°C) FOR A PERIOD OF 15 MINUTES WITHOUT THE FAN BECOMING DAMAGED TO ANY EXTENT THAT COULD CAUSE AN UNSAFE CONDITION.

OPTIONS
GREASE BOX.
ECM WIRING PACKAGE - PWM SIGNAL FROM ECPM03 PREWIRE (TELCO MOTOR), CCW ROTATION.
2 YEAR PARTS WARRANTY.



PITCHED CURBS ARE AVAILABLE FOR PITCHED ROOFS.

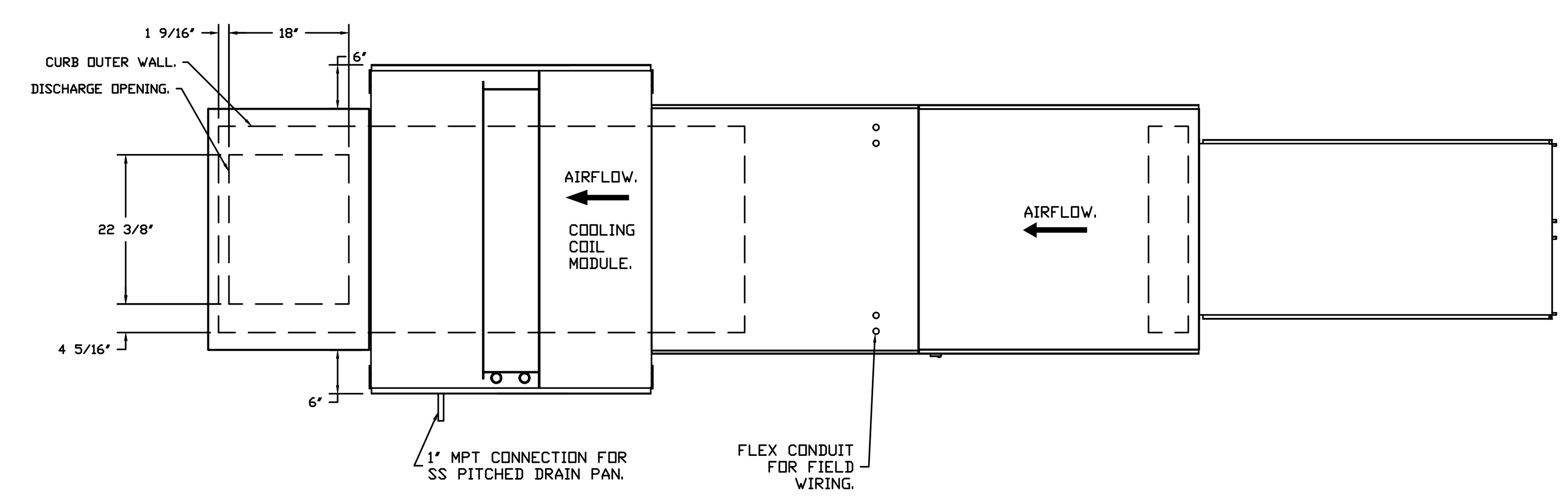
SPECIFY PITCH:
EXAMPLE: 7/12 PITCH = 30° SLOPE.

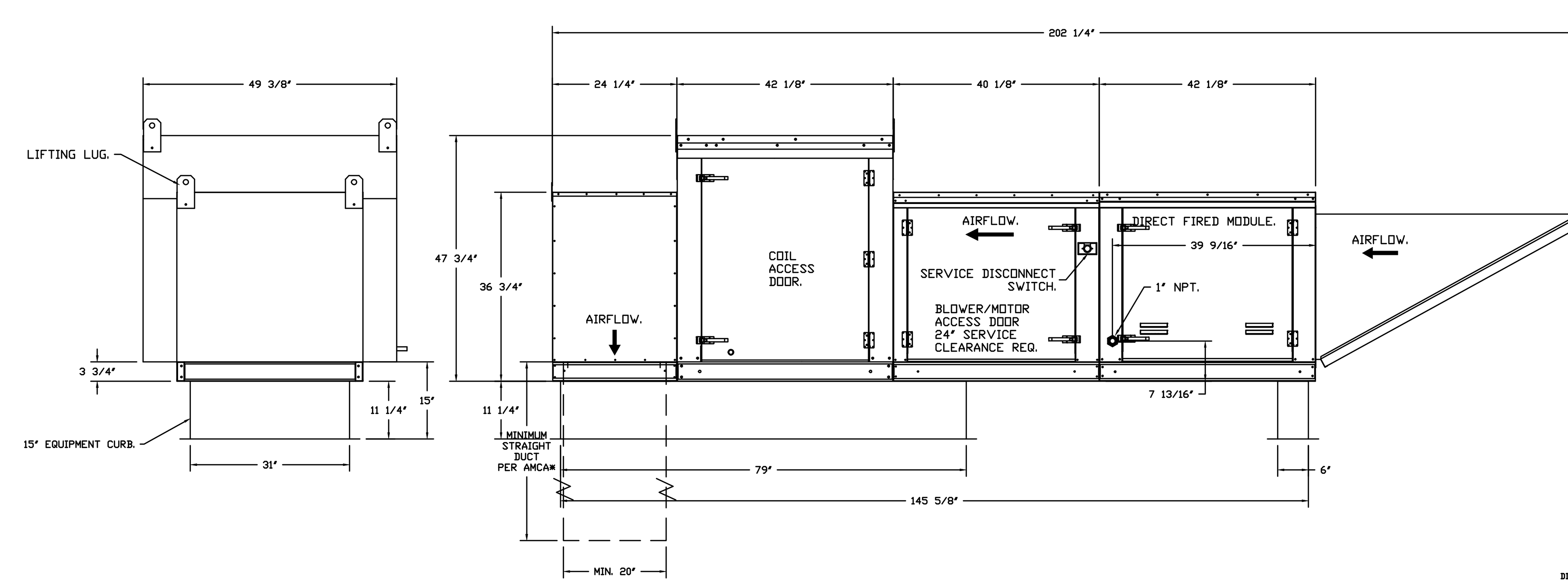
FAN #3 A2-D.250-20D-MPU - HEATER (ITEM 52.2)
1. DIRECT GAS FIRED HEATED MAKE UP AIR UNIT WITH 20" MIXED FLOW DIRECT DRIVE FAN.
2. INTAKE HOOD WITH EZ FILTERS.
3. DOWN DISCHARGE - AIR FLOW RIGHT -> LEFT.
4. MOTORIZED BACK DRAFT DAMPER 22.75" X 24" FOR SIZE 2 STANDARD & MODULAR HEATER UNITS W/EXTENDED SHAFT, STANDARD GALVANIZED CONSTRUCTION, 3/4" REAR FLANGE, LOW LEAKAGE, LF120S ACTUATOR INCLUDED.
5. LOW FIRE START. ALLOWS THE BURNER CIRCUIT TO ENERGIZE WHEN THE MODULATION CONTROL IS IN A LOW FIRE POSITION.
6. GAS PRESSURE GAUGE, 0-35", 2.5" DIAMETER, 1/4" THREAD SIZE.
7. GAS PRESSURE GAUGE, -5 TO +15 INCHES WC., 2.5" DIAMETER, 1/4" THREAD SIZE.
8. FREEZESTAT FACTORY SET AT 35°F AND 10 MINUTES.
9. 10 TON, DUAL CIRCUIT (5/5) MODULAR PACKAGED COOLING OPTION FOR SIZE 2 DF/EH MODULAR PACKAGED UNIT. INCLUDES CONDENSER, DX COIL, FILTER/DRYER KIT, THERMAL EXPANSION VALVE, R410A REFRIGERANT, AND REFRIGERANT PIPING. (3,600 TO 5,000 CFM) WHEN ORDERED WITH OPPOSITE AIRFLOW CONDENSERS ACCESS AND COIL PIPING WILL REMAIN IN STANDARD POSITION. DRAIN AND SLEDS WILL MOVE TO THE OPPOSITE SIDE. ANY OTHER CHANGE WILL REQUIRE CLI. CONDENSERS REQUIRE SEPARATE 208V, 3 PHASE POWER SUPPLY UNLESS ORDERED WITH SINGLE POINT CONNECTION. COIL = 3EZ0802B.
10. DOWNTURN PLENUM FOR SIZE 2 COOLING COIL MODULE - REQUIRED FOR DOWN DISCHARGE COOLING COIL APPLICATIONS.
11. SEPARATE 120VAC WIRING PACKAGE FOR MAKE-UP AIR UNITS. OPTION MUST BE SELECTED WHEN MOUNTING VFD IN PREWIRE PANEL OR WITH DCV PACKAGE. PROVIDES SEPARATE 120VAC INPUT TO SUPPLY FAN. THIS 120V SIGNAL MUST BE RUN BY ELECTRICIAN FROM DCV TO MUA SWITCH.
12. SHIP CONDENSERS LOOSE. THE REFRIGERATION LINES WILL NEED TO BE STUBBED OUT 12 INCHES. THE SUCTION LINES NEEDS TO BE INSULATED INSIDE THE COIL MODULE. ROTARY DISCONNECT SHOULD NOT BE INSTALLED ON THE POST, BLANK POST SHOULD BE USED IN PLACE.
13. HINGED DOUBLE WALL INSULATED DOOR ASSEMBLY (BURNER/BLOWER/MPU SECTION).
14. 2 YEAR PARTS WARRANTY.

*NOTE: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE AS OUTLINED IN AMCA PUBLICATION 201. WHEN USING RECTANGULAR DUCTWORK, ELBOWS MUST BE RADIUS THROAT, RADIUS BACK WITH TURNING VANES. FLEXIBLE DUCTWORK AND SQUARE THROAT/SQUARE BACK ELBOWS SHOULD NOT BE USED. ANY TRANSITION AND/OR TURNS IN THE DUCTWORK WILL CAUSE SYSTEM EFFECT. SYSTEM EFFECT WILL DRASTICALLY INCREASE STATIC PRESSURE AND REDUCE AIRFLOW. DO NOT RELY ON UNIT TO SUPPORT DUCT IN ANY WAY. FAILURE TO PROPERLY SIZE DUCTWORK MAY CAUSE SYSTEM EFFECTS AND REDUCE PERFORMANCE OF THE EQUIPMENT. SUGGESTED STRAIGHT DUCT SIZE IS 20" x 20".

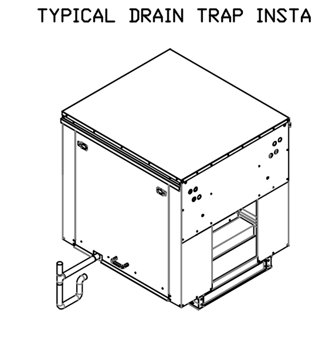
SUPPLY SIDE HEATER INFORMATION:

WINTER TEMPERATURE = 26°F. TEMP. RISE = 49°F.
BTUs CALCULATED OFF ACTUAL AIR DENSITY.
OUTPUT BTUs AT ALTITUDE OF 0.0 FT. = 261743.
INPUT BTUs AT ALTITUDE OF 0.0 FT. = 284504.
OUTPUT BTUs AT ALTITUDE OF 613 FT. = 255997.
INPUT BTUs AT ALTITUDE OF 613 FT. = 278258.

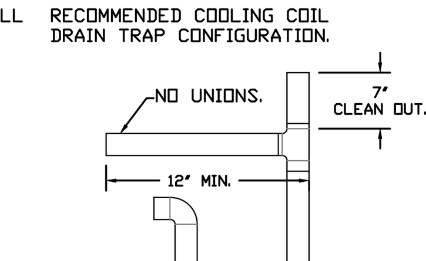




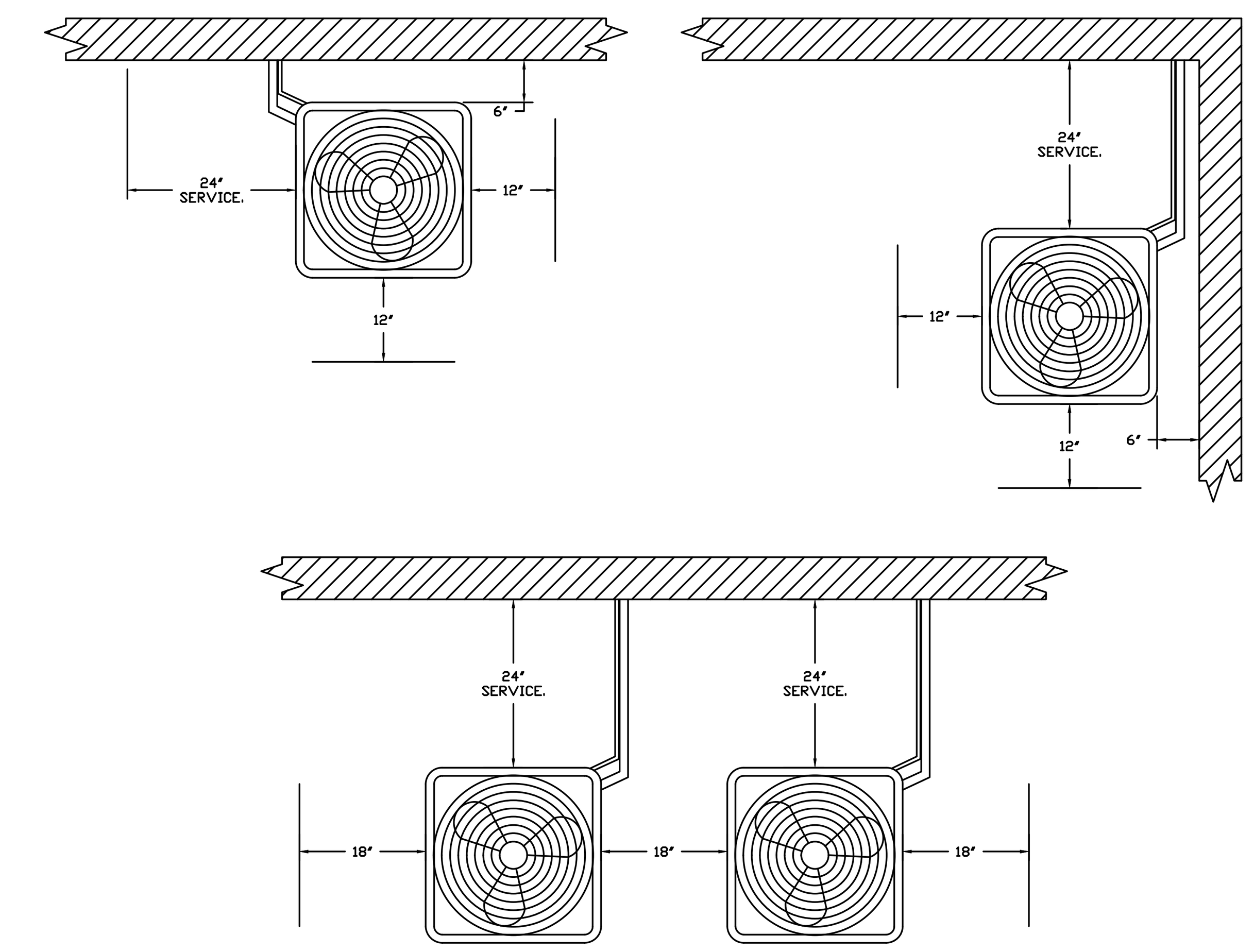
TYPICAL DRAIN TRAP INSTALL



RECOMMENDED COOLING COIL DRAIN TRAP CONFIGURATION.

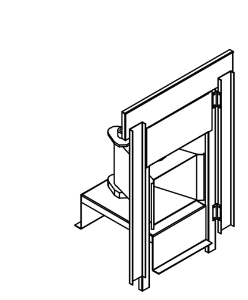


NOTES:
1) 1" DIAMETER PVC PIPE ONLY.
2) USE ONLY LOW PROFILE COUPLINGS.
3) ADD CLEAN OUT AS SHOWN.



CONDENSER CLEARANCES

48" CLEARANCE REQUIRED ABOVE CONDENSERS.
(NOTE: **CONDENSERS SHOWN HERE ARE NOT DRAWN AT SCALE).



DIRECT FIRED (DF) PROFILE PLATE ASSEMBLY

DIRECT FIRED PROFILE PLATE SPECIFICATIONS:
DESCRIPTION:
DIRECT FIRED BURNERS SHALL HAVE PATENTED (US PATENT NO.: US6629523B2), SELF-ADJUSTING PROFILE PLATES DESIGNED TO ENSURE PROPER AIR VELOCITY AND PRESSURE DROP ACROSS THE BURNER. PROFILE PLATES SHALL ALLOW BURNERS TO ACHIEVE CLEAN COMBUSTION BY LIMITING BY-PRODUCT LEVELS TO A MAXIMUM OF 5PPM OF CARBON MONOXIDE (CO), AND 0.5PPM OF NITROGEN DIOXIDE (NO2)DIRECT FIRED UNITS SHALL BE CONFIGURED WITH THE BLOWER MOUNTED DOWNSTREAM OF THE BURNER. THIS ARRANGEMENT WILL ENSURE A CONSISTENT AIRFLOW, REGARDLESS OF INLET AIR TEMPERATURE.

APPLICATION:
SPRING-LOADED BURNER PROFILE PLATES ARE ENGINEERED TO AUTOMATICALLY REACT TO THE MOMENTUM OF A FRESH AIR STREAM, WITHOUT THE NEED FOR ANY MOTORS OR ACTUATORS TO MECHANICALLY ADJUST THEM. WITH THIS FEATURE, ALL DF UNITS ARE DESIGNED FOR DEMAND CONTROL VENTILATION (DCV) REQUIREMENTS.

CERTIFICATIONS:
ALL PROFILE PLATE ASSEMBLIES SHALL BE INCLUDED IN THE DF UNIT'S ETL LISTING AND COMPLY WITH COMBINED SAFETY STANDARDS ANSI Z83.4 AND CSA 3.7 (NON-RECIRCULATING DF HEATERS) AND ANSI Z83.18 (RECIRCULATING DF HEATERS).

GENERAL CONSTRUCTION:
-PROFILE PLATES SHALL BE FORMED FROM G90 GALVANIZED STEEL.
-PROFILE PLATES SHALL VARY IN SIZE PER UNIT.
-PROFILE PLATES SHALL BE MOUNTED ALONG THE SAME PLANE AS THE DISCHARGE OF THE BURNER.
-DESIGN SHALL INCORPORATE PROPERLY TORQUED, PERMANENTLY MOUNTED SPRING HINGES.
-SPRING HINGES SHALL BE MADE FROM PLATED STEEL.

REVISIONS

	DESCRIPTION	DATE:
△		
△		
△		
△		

HBT Foodservice
www.captiveaire.com
104 W 9th St Suite 204, Kansas City, MO, 64105 PHONE: (816) 221-8575 FAX: (816) 221-8311 EMAIL: reg98@captiveaire.com

Hawaiian Bros - Columbia, MO
COLUMBIA, MO, 65201

DATE: 3/1/2022

DWG.#: 5143841

DRAWN BY: michael.co

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

MASTER DRAWING

SHEET NO. 2

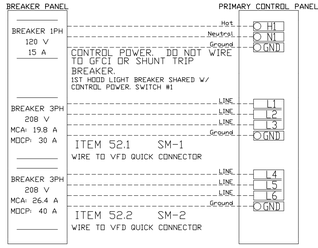
ELECTRICAL PACKAGE - JOB#5143841

NO	TAG	PACKAGE #	LOCATION	SWITCHES		OPTION	FANS CONTROLLED					
				LOCATION	QUANTITY		FAN TAG	TYPE	#	HP	VOLT	FLA
1	ECP-1	DCV-2111	UTILITY CABINET LEFT	02 - FACE MOUNT RIGHT SIDE OF HOOD	1 LIGHT	SMART CONTROLS DCV	ITEM 52.1	EXHAUST	3	5.000	208	15.8
				HOOD # 2	1 FAN		ITEM 75.1	EXHAUST	1	1.000	208	6.9
							ITEM 52.2	SUPPLY	3	7.500	208	21.1

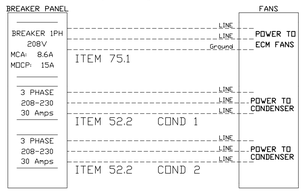
JOB NO 5143841 | MODEL NUMBER DCV-2111 | JOB NAME Hawaiian Bros - Columbia, MO | DRAWN BY | DATE 10/19/2021 | SCHEMATIC TYPE INSTALL | DWG NO ECP #1-1

DESCRIPTION OF OPERATION:
Demand Control Ventilation, w/ control for 2 Exhaust Fans, 1 Supply Fan, Exhaust on in Fire, Lights out in Fire, Fans modulate based on duct temperature. INVERTER DUTY 3 PHASE MOTOR REQUIRED FOR USE WITH VFD. Room temperature sensor shipped loose for field installation.Verify distance between VFD and Motor; additional cost could apply if distance exceeds 50 feet.

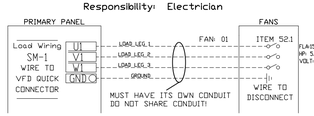
BREAKER PANEL TO PRIMARY CONTROL PANEL
Responsibility: Electrician
BREAKER SIZE SHOWN IS THE MAXIMUM ALLOWED

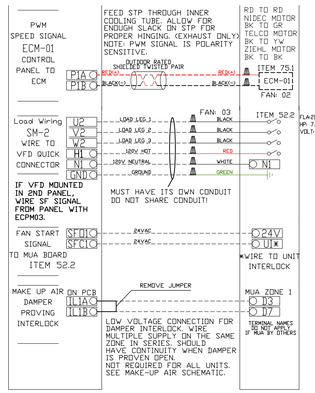


BREAKER PANEL TO FANS
Responsibility: Electrician

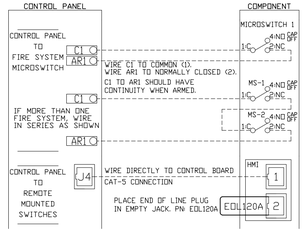


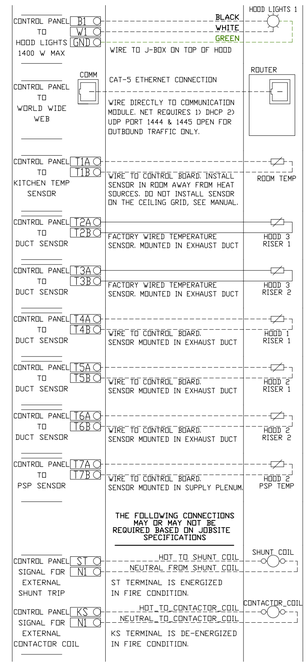
CONTROL PANEL TO FANS
Responsibility: Electrician





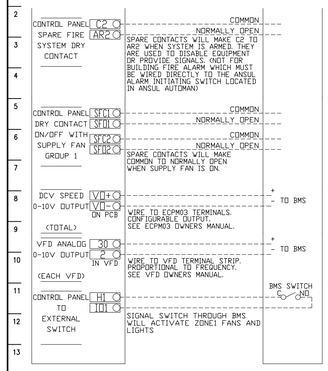
CONTROL PANEL TO ACCESSORY ITEMS
Responsibility: Electrician

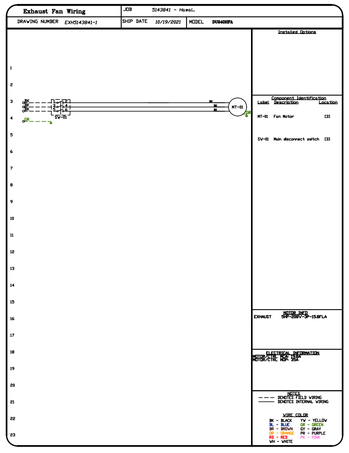


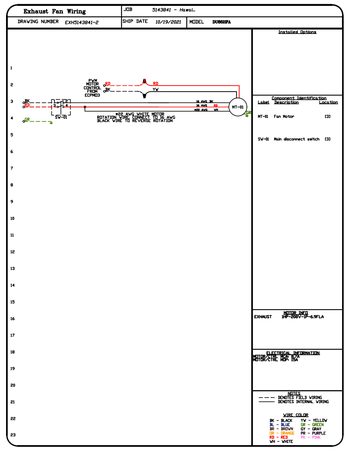


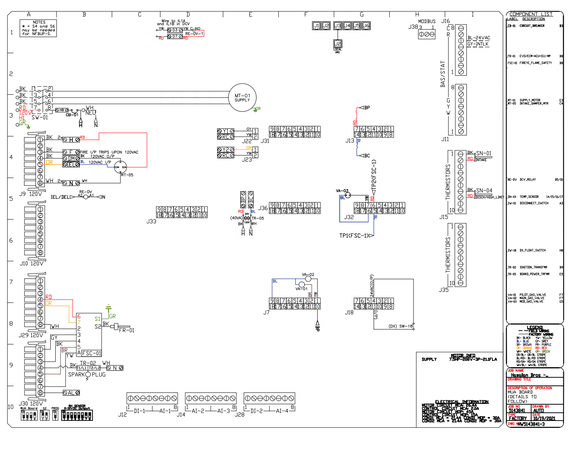
JOB NO 5143841 | MODEL NUMBER DCV-2111 | JOB NAME Hawaiian Bros - Columbia, MO | DRAWN BY | DATE 10/19/2021 | SCHEMATIC TYPE INSTALL | DWG NO ECP #1-2

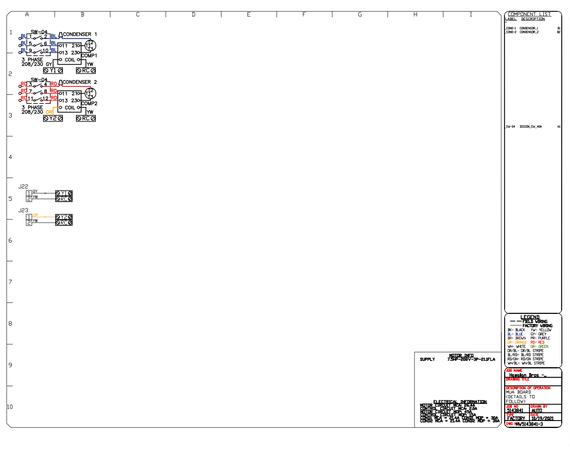
DESCRIPTION OF OPERATION:
Demand Control Ventilation, w/ control for 2 Exhaust Fans, 1 Supply Fan, Exhaust on in Fire, Lights out in Fire, Fans modulate based on duct temperature. INVERTER DUTY 3 PHASE MOTOR REQUIRED FOR USE WITH VFD. Room temperature sensor shipped loose for field installation.Verify distance between VFD and Motor; additional cost could apply if distance exceeds 50 feet.

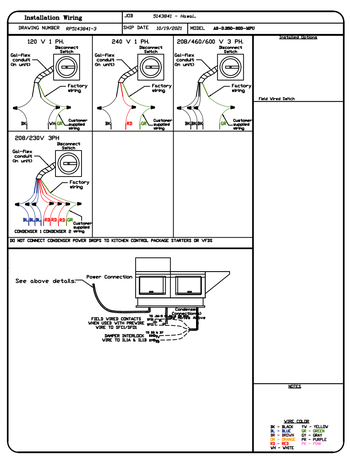












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REVISIONS

	DESCRIPTION	DATE:
△		
△		
△		
△		

Hawaiian Bros - Columbia, MO
COLUMBIA, MO, 65201

DATE: 3/1/2022

DWG.#: 5143841

DRAWN BY: michael.co

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

MASTER DRAWING

SHEET NO. 3

HAWAIIAN BROS™

ISLAND GRILL

MARCH 2022

COLUMBIA, MO

TRUE
N

AREAL MAP

SCALE: NTS

CUSTOMER APPROVAL

APPROVED BY: _____ **DATE:** ____ / ____ / ____

Proposal Drawing
Final Drawing

Client: Hawaiian Bros
Location: 1401 Grindstone Pkwy, Columbia, MO
Salesperson: Pete Sitterle
Prj. Mngr.: Steven Munson
Date: 10/5/2021
Designer: LABONVILLE
File Name: 21-2750 R6 H-Bros Columbia, MO.cdr
Proposal #: 63043
Job #: 21-2750

Revisions
Note:

License #: 18010

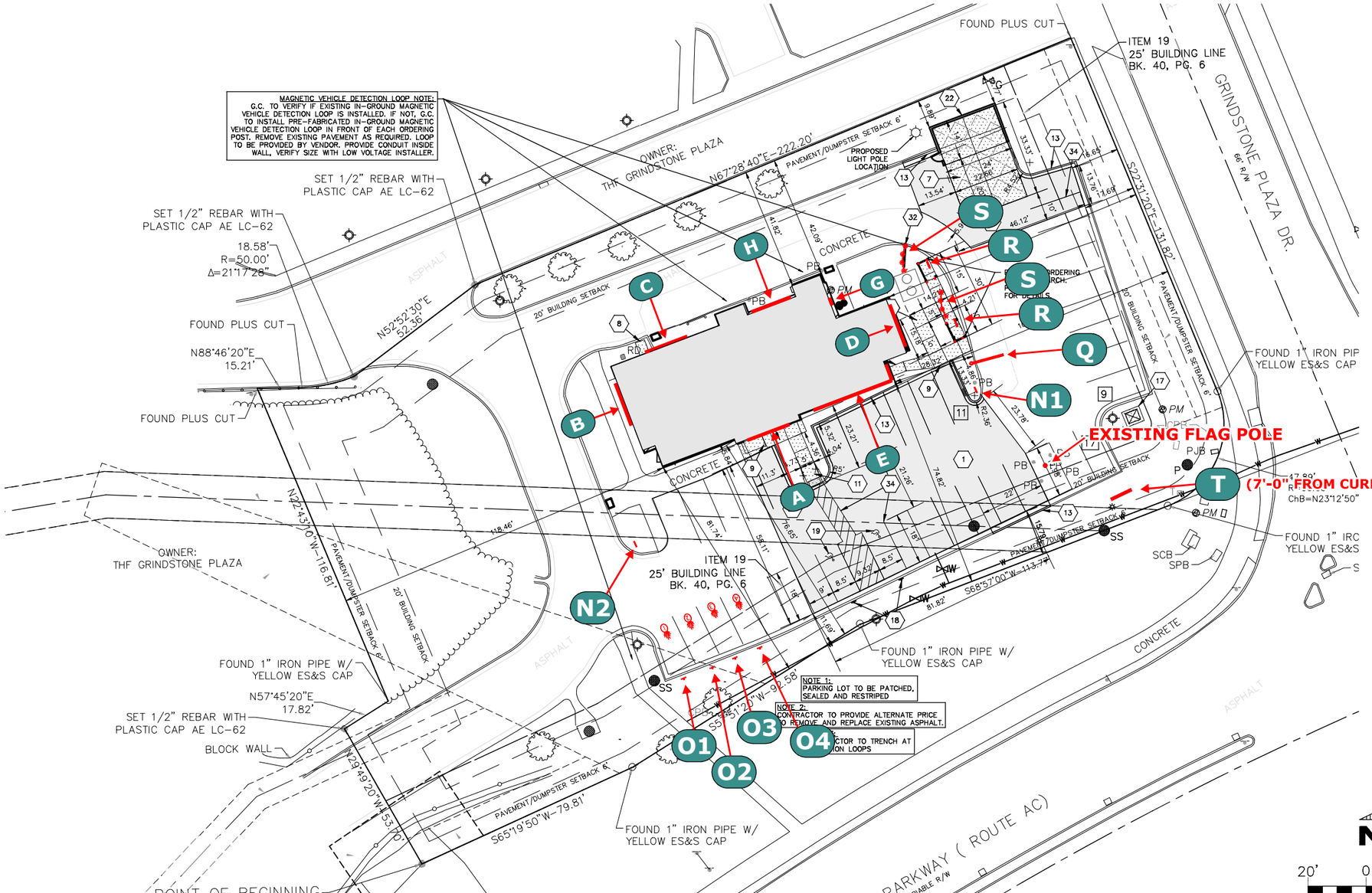
Corporate Office
5003 Stout Drive
San Antonio, TX 78219
(210) 341-7244

Dallas
2703 Mockingbird Lane
Dallas, TX 75235
(972) 870-1594

Houston (State Sign)
7630 Hansen Road
Houston, TX 77061
(713) 943-1831

Austin (Custom Sign Creations)
1130 Rutherford, Suite 180
Austin, TX 78753
(512) 374-9300

Tyler (Design Center Signs)
3245 W. Grande Blvd.
Tyler, TX 75703
(903) 561-4995



NORTH

1"= 40' 20' 0 20' 40'

SCALE FEET

CIVIL SITE PLAN

CUSTOMER APPROVAL

APPROVED BY: _____ **DATE:** ____ / ____ / ____

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☐ Final Drawing

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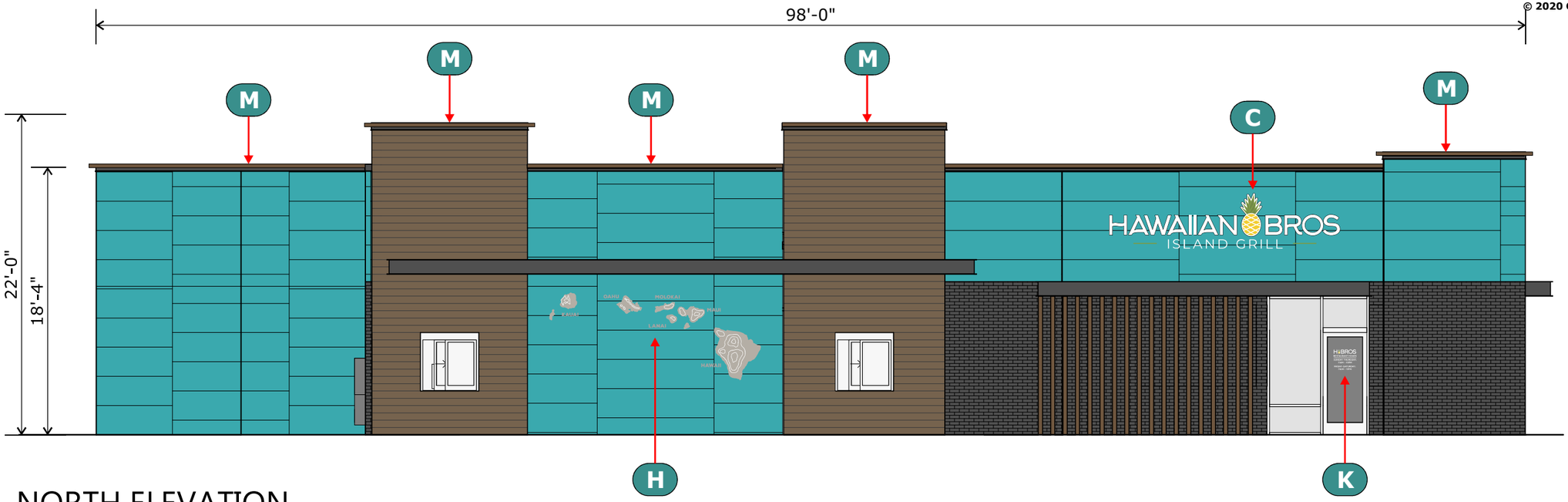

NORTH ELEVATION

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

GRINDSTONE PARKWAY SOUTH ELEVATION

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

CUSTOMER APPROVAL

APPROVED BY: _____ **DATE:** ____ / ____ / ____

Proposal Drawing
Final Drawing

Client: Hawaiian Bros
Location: 1401 Grindstone Pkwy, Columbia, MO
Salesperson: Pete Sitterle
Prj. Mngr.: Steven Munson
Date: 10/5/2021
Designer: LABONVILLE
File Name: 21-2750 R6 H-Bros Columbia, MO.cdr
Proposal #: 63043
Job #: 21-2750

Revisions
Note:

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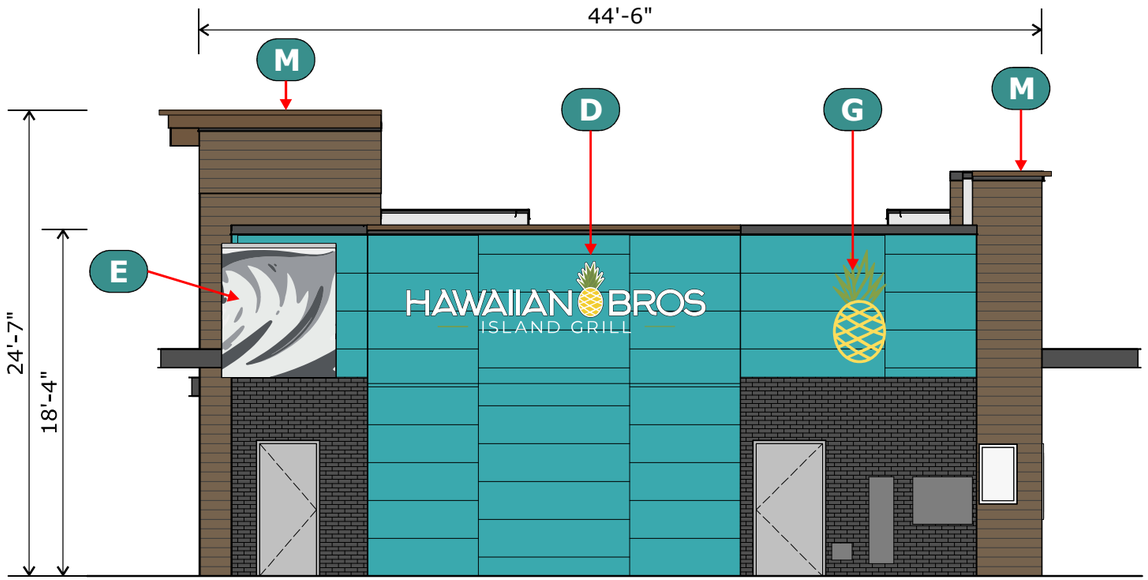
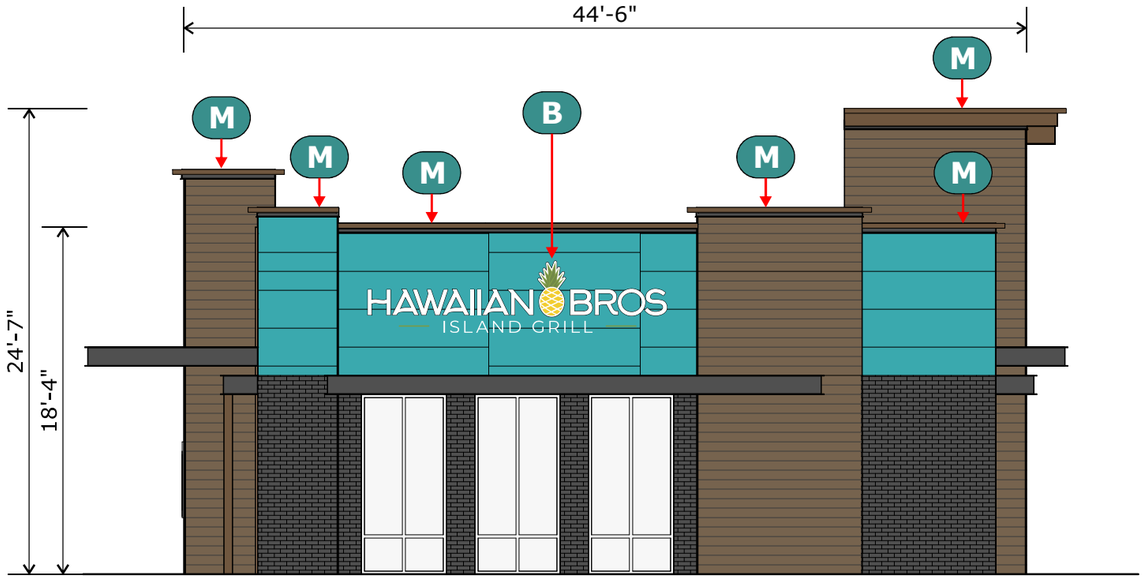


GRINDSTONE PLAZA DRIVE
EAST ELEVATION

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



WEST ELEVATION

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

CUSTOMER APPROVAL

APPROVED BY: _____ **DATE:** ____ / ____ / ____

Proposal Drawing
Final Drawing

Client: Hawaiian Bros
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Salesperson: Pete Sitterle
Prj. Mngr.: Steven Munson
Date: 10/5/2021
Designer: LABONVILLE
File Name: 21-2750 R6 H-Bros Columbia, MO.cdr
Proposal #: 63043
Job #: 21-2750

Revisions
Note:

License #: 18010

Corporate Office
5003 Stout Drive
San Antonio, TX 78219
(210) 341-7244

Dallas
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Dallas, TX 75235
(972) 870-1594

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BUILDING SIGN | SMALL HB-IG CHANNEL LETTER SET

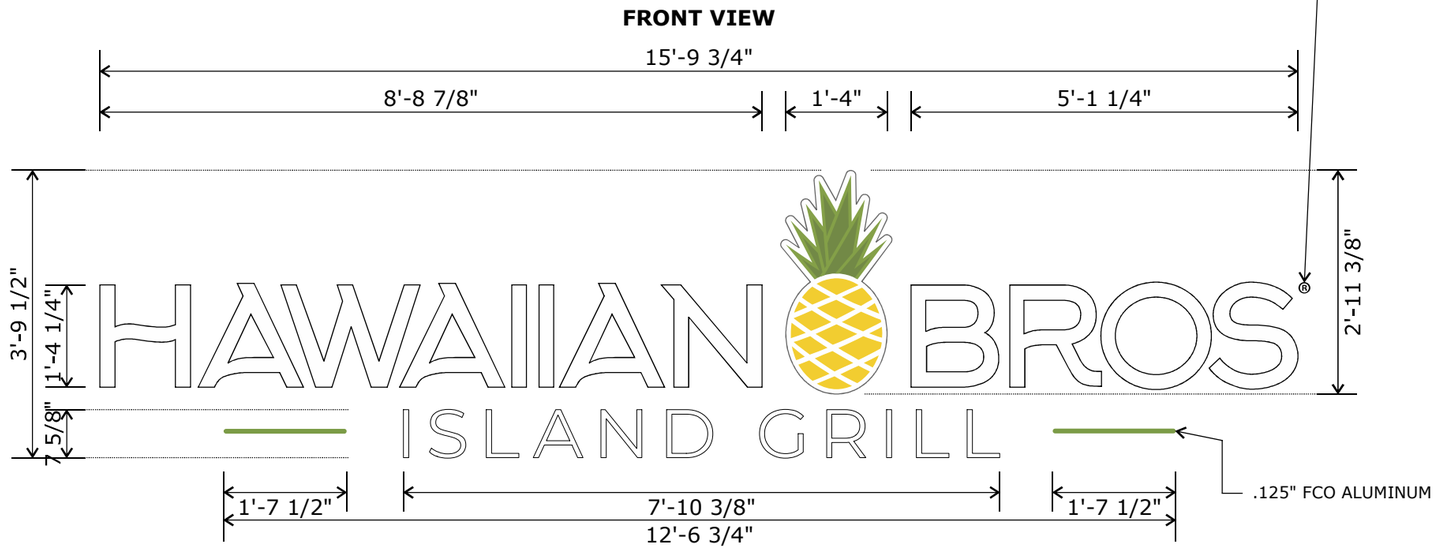
"HAWAIIAN" & "BROS":
- ILLUMINATED CHANNEL LETTERS
- 5" DEEP LETTERS W/ PRE-FINISHED BLACK RETURNS
- WHITE ACRYLIC FACES W/ 1" BLACK TRIM CAP
- ILLUMINATED W/ QM2 WHITE LEDs

PINEAPPLE LOGO:
- TYPICAL CHANNEL LETTER CONSTRUCTION
- 5" DEEP LOGO W/ PRE-FINISHED WHITE RETURNS
- WHITE ACRYLIC FACE TO HAVE 1" TRIM CAPS
- 1ST SURFACE DIRECT PRINT GRAPHICS
- ILLUMINATED WITH QM2 WHITE LEDs

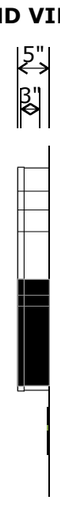
SUB-COPY:
"- ISLAND GRILL -":
- .125" ALUMINUM FLAT CUT OUT LETTERS
- PAINT TO MATCH BURNT LEAF AND WHITE AS SHOWN
- INSTALLED W/ ALUMINUM STUDS

PMS Natural Black	Pineapple Yellow PMS 129	Burnt Leaf Green PMS 576	Palm Green PMS 575

FRONT VIEW



END VIEW



A
B
C
D

ILLUMINATED CHANNEL LETTERS W/ FLAT CUT OUT SUB-COPY — **60 SF**

QTY: FOUR (4) — **SCALE: ½" = 1'-0"**

CUSTOMER APPROVAL

APPROVED BY: _____ **DATE:** ____ / ____ / ____

Proposal Drawing
Final Drawing

Client: Hawaiian Bros
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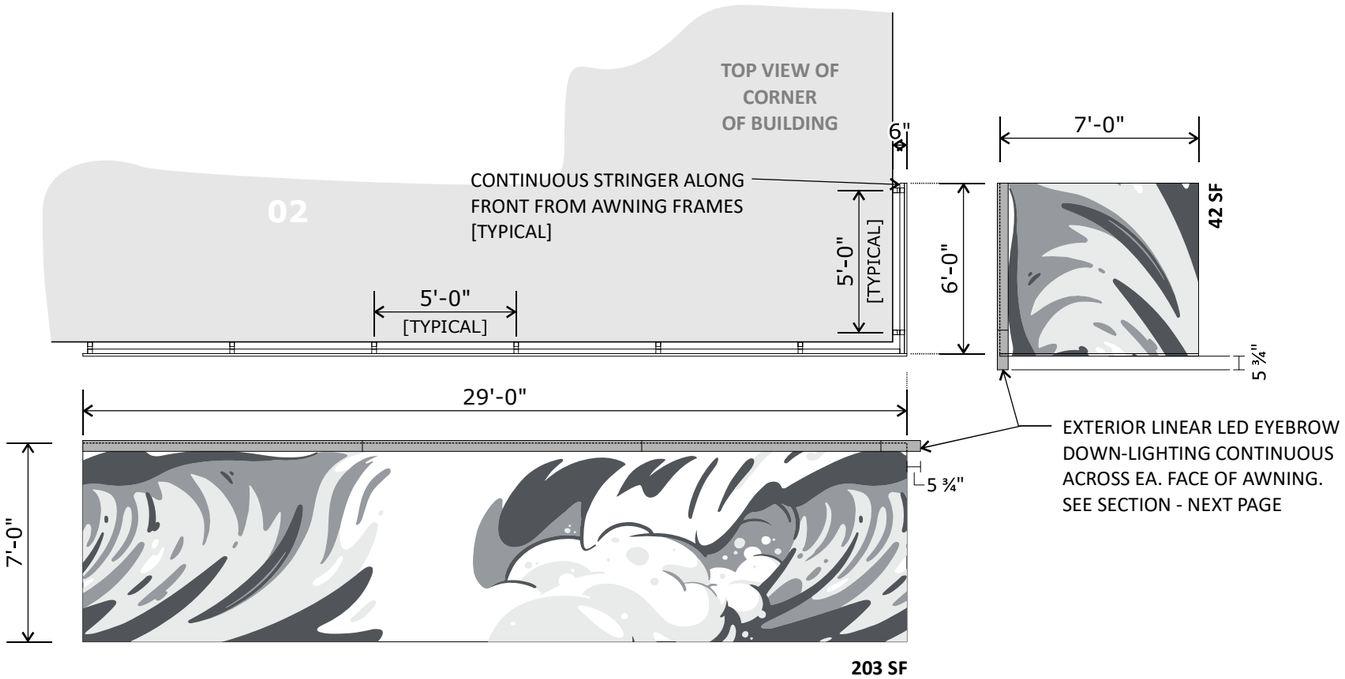
AWNING with WAVE GRAPHIC & EYEBROW LIGHTING

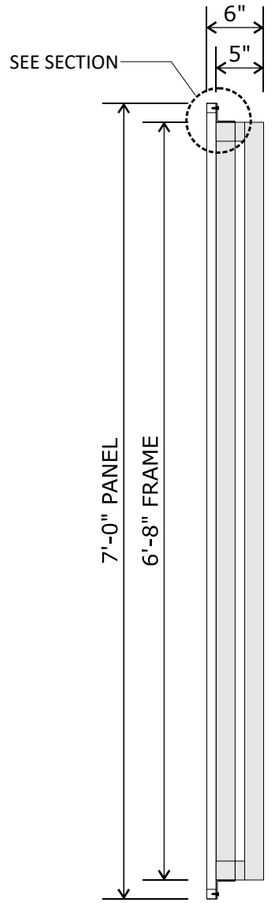
SCOPE OF WORK:
MANUFACTURE AND INSTALL ONE NEW “L” SHAPED AWNING AS SHOWN.
- 2" ALUMINUM SQUARE TUBE FRAME STRUCTURE
- 1" SQUARE TUBE FRAMED GRAPHIC PANELS WITH DIGITALLY PRINTED FLEX FACES
- FRAME TO BE POWDER COATED - SILVER.
- GRAPHICS TO BE OPAQUE (NO FRAME VISIBLE WHEN STRETCHED).
- INCLUDES EXTRUDED ALUMINUM LED LIGHT COVE CONTINUOUS ACROSS TOP OF FACE. PAINTED SV952SP MATTHEWS SPARKLE SILVER (WHITE INTERIOR).



E **AWNING FRAME - CONCEPT ILLUSTRATION** **SCALE: 3/16 = 1'-0"**

CUSTOMER APPROVAL

APPROVED BY: _____ **DATE:** ____ / ____ / ____



E **FRAME DETAIL** **SCALE: 3/4 = 1'-0"**

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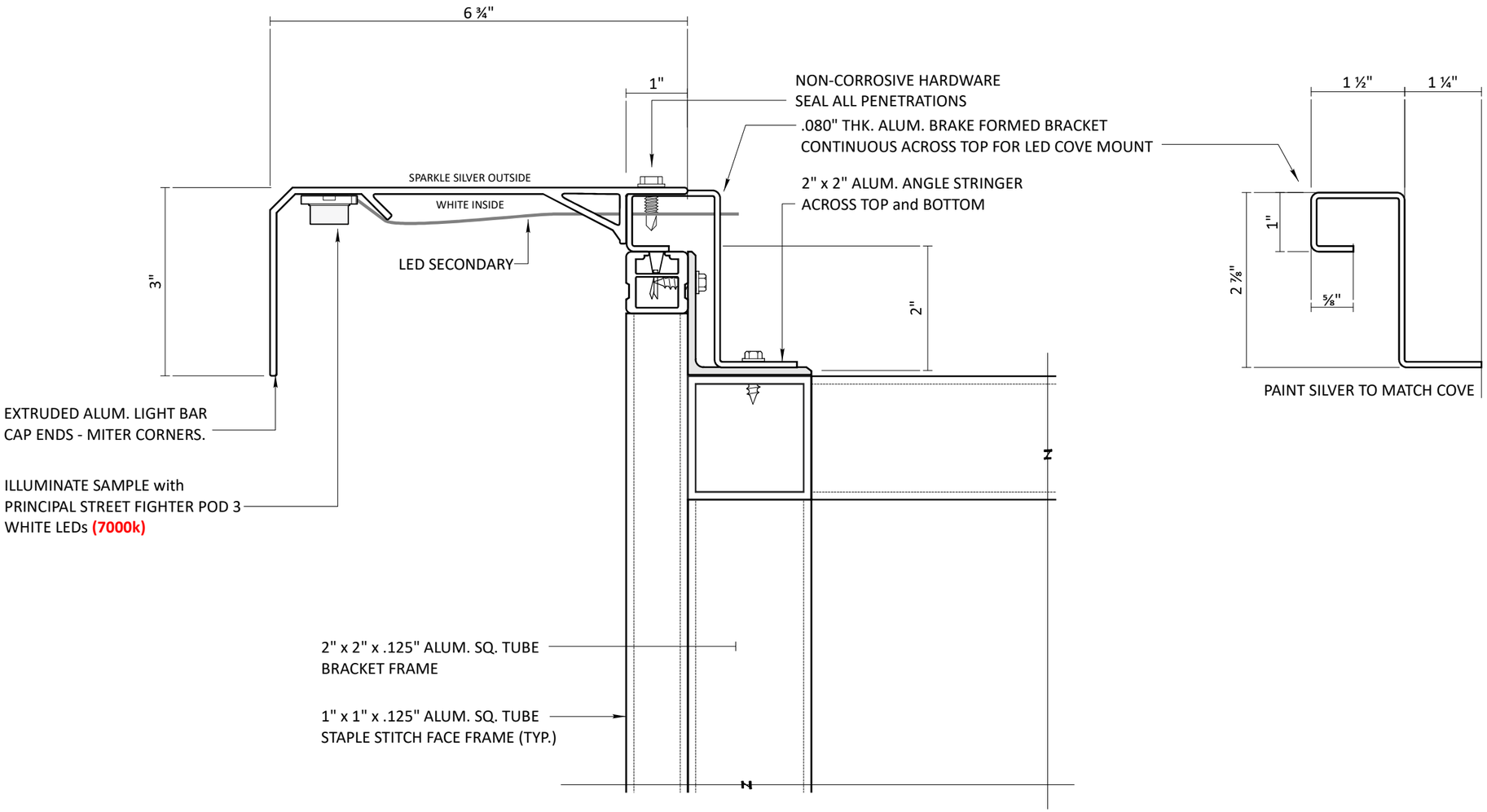
AWNING with WAVE GRAPHIC & EYEBROW LIGHTING



E **SECTION** (VERT) 6" = 1'-0"

TYP. EA. ELEVATION

ALL EXTERIOR PIECES PAINTED MATTHEWS PAINT SPARKLE SILVER SV952SP

ALL INTERIOR PIECES PRE-FINISHED WHITE

CUSTOMER APPROVAL

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■ **Proposal Drawing**
□ Final Drawing

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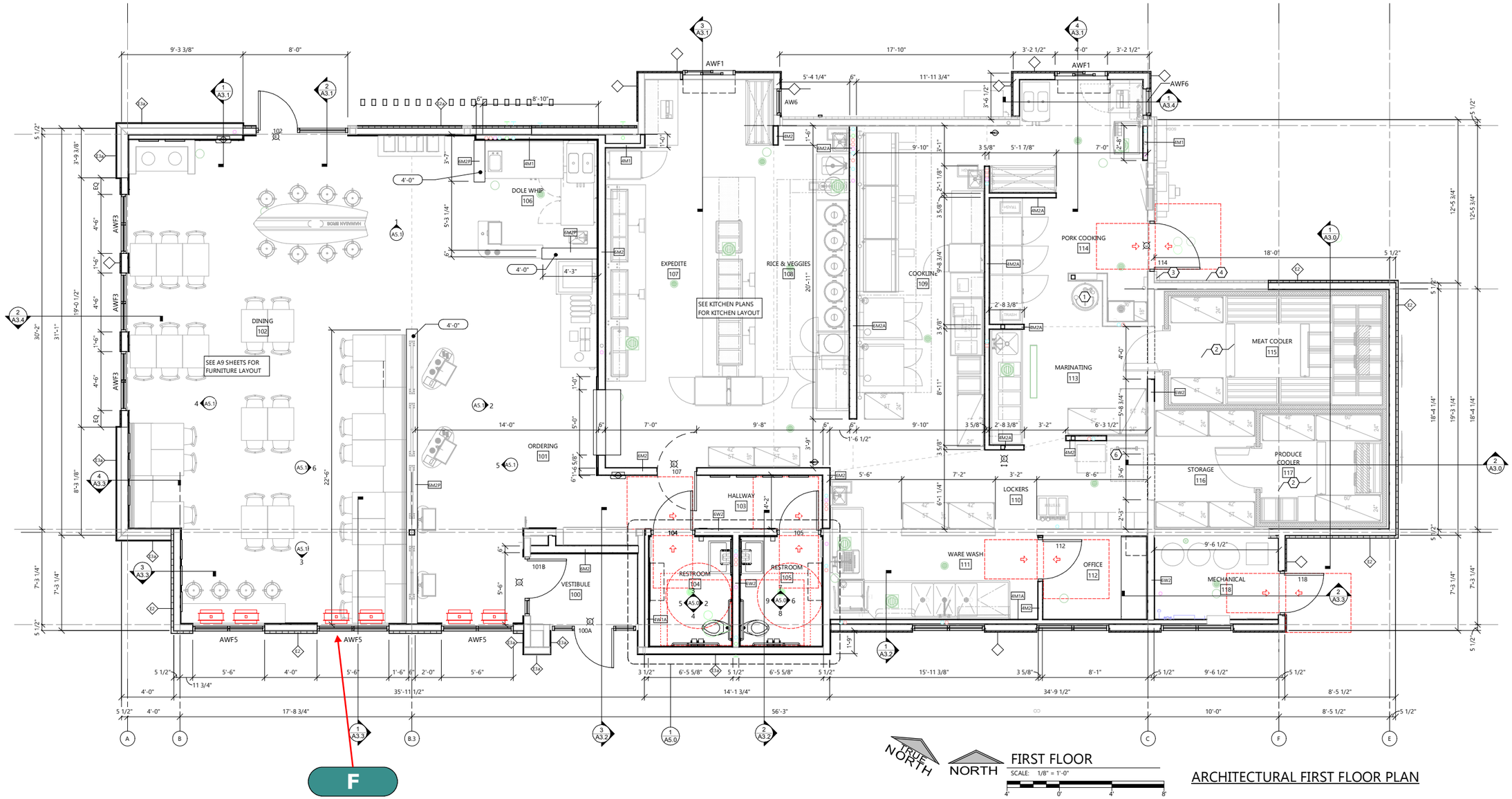

ARCHITECTURAL FIRST FLOOR PLAN

CUSTOMER APPROVAL

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Revisions

Note:

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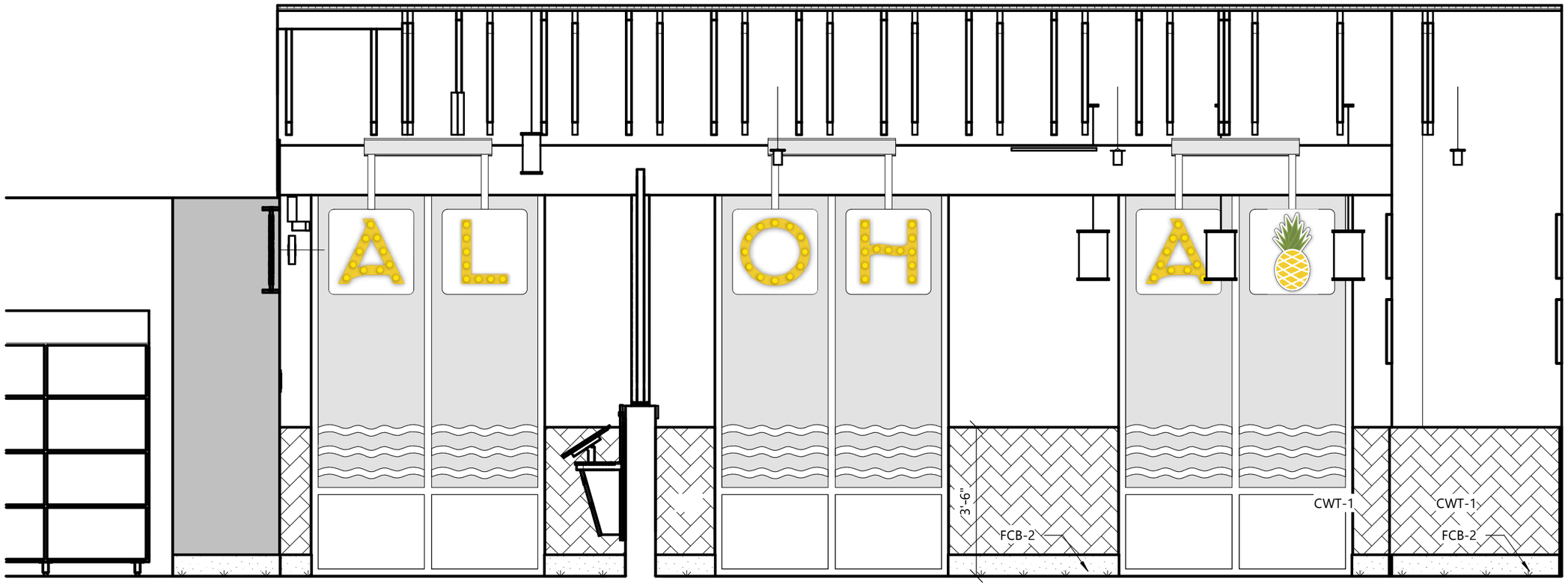

3
A5.1

FOH - SOUTH ELEVATION

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

F

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BUILDING SIGN | STD INTERIOR ALOHA SIGN

SIX (6) D/F SUSPENDED CABINETS:
- 3MM ACM PANELS ON FABRICATED ALUMINUM CABINET PAINTED WHITE
- SUSPENDED IN WINDOWS AS SHOWN.
- METHOD OF ATTACHMENT TO BE DETERMINED

"ALOHA":
- OPEN FACED CHANNEL LETTERS W/ EXPOSED LED BULBS
- 3" DEEP LETTERS PAINTED
  - INSIDE PAINTED YELLOW - RETURNS PAINTED BLACK
- ZLIGHT S14 WHITE LED BULBS (P/N ZL-ST14-FIL-2W-27K-WHITE) WITH STATE TOOL 22248 MEDIUM BASE SOCKETS (RSPN: 5606)

PINEAPPLE LOGO:
- TYPICAL CHANNEL LETTER CONSTRUCTION
- 3" DEEP LOGO
- ILLUMINATED WITH WHITE LEDs
- ACRYLIC FACE TO HAVE 1" TRIM CAPS
- 1ST SURFACE DIRECT PRINT GRAPHICS

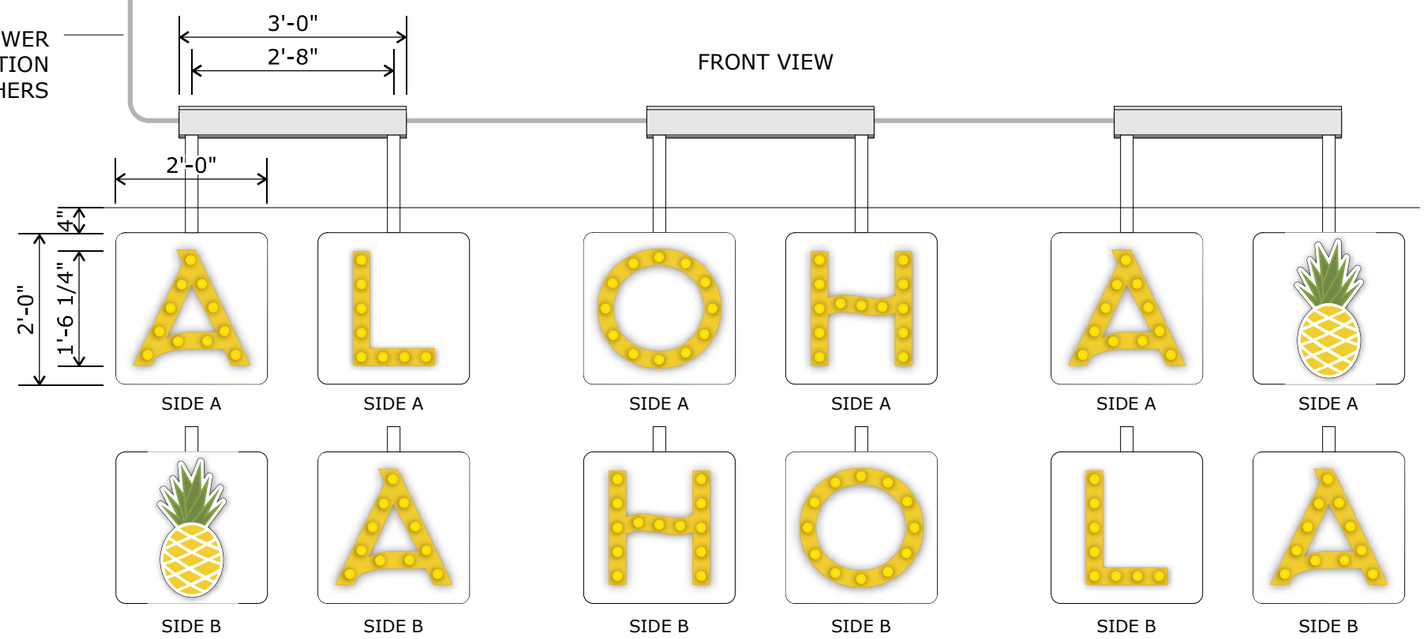
Pineapple Yellow PMS 129

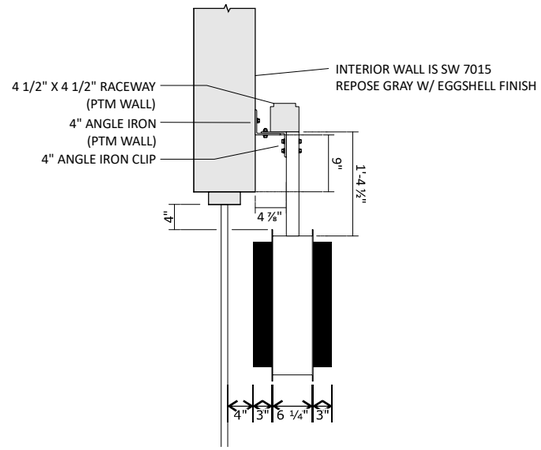
Burnt Leaf Green PMS 576

Palm Green PMS 575

PMS Natural Black

White





END VIEW

F **D/F SUSPENDED CABINETS W/ CHANNEL LETTERS**

QTY: ONE (1)

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

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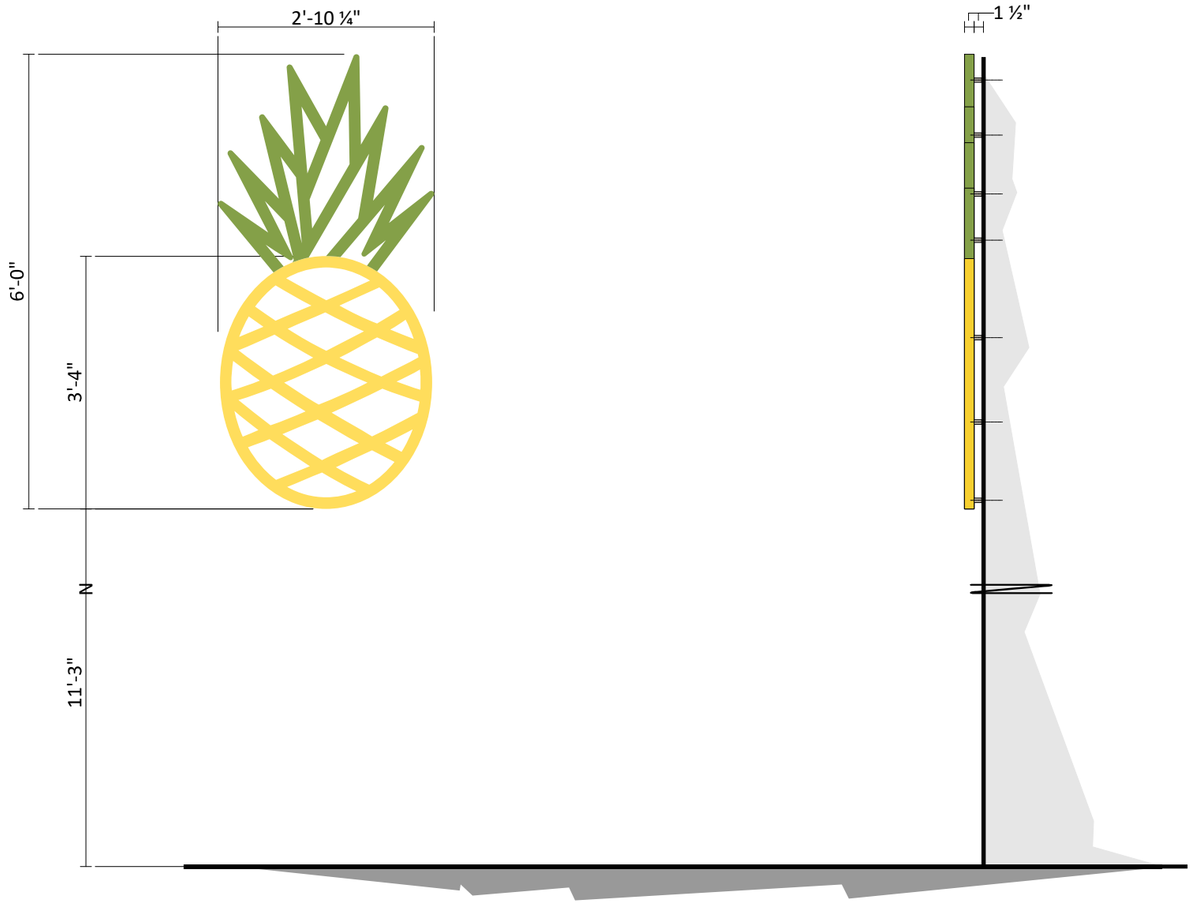
BUILDING SIGN | 6'-0" REV. ILLUMINATED PINEAPPLE LOGO



G **REVERSE CHANNEL LOGO** **17.12 SF**

QTY: ONE (1) AS SHOWN **SCALE: 1/2" = 1'-0"**

.125" THK. ALUM. FACE with .063" THK. ALUM. WELDED RETURNS.
.125" THK. POLYCARBONATE BACK with SANDED FINISH FOR DIFFUSION.
ILLUMINATE with PRINCIPAL WHITE QM2 LEDs - REMOTE POWER SUPPLIES.
STAND OFF WALL 1 ½" with ALUM. TUBE SPACERS.

Pineapple Yellow PMS 129

Wall color to follow

Burnt Leaf Green PMS 576

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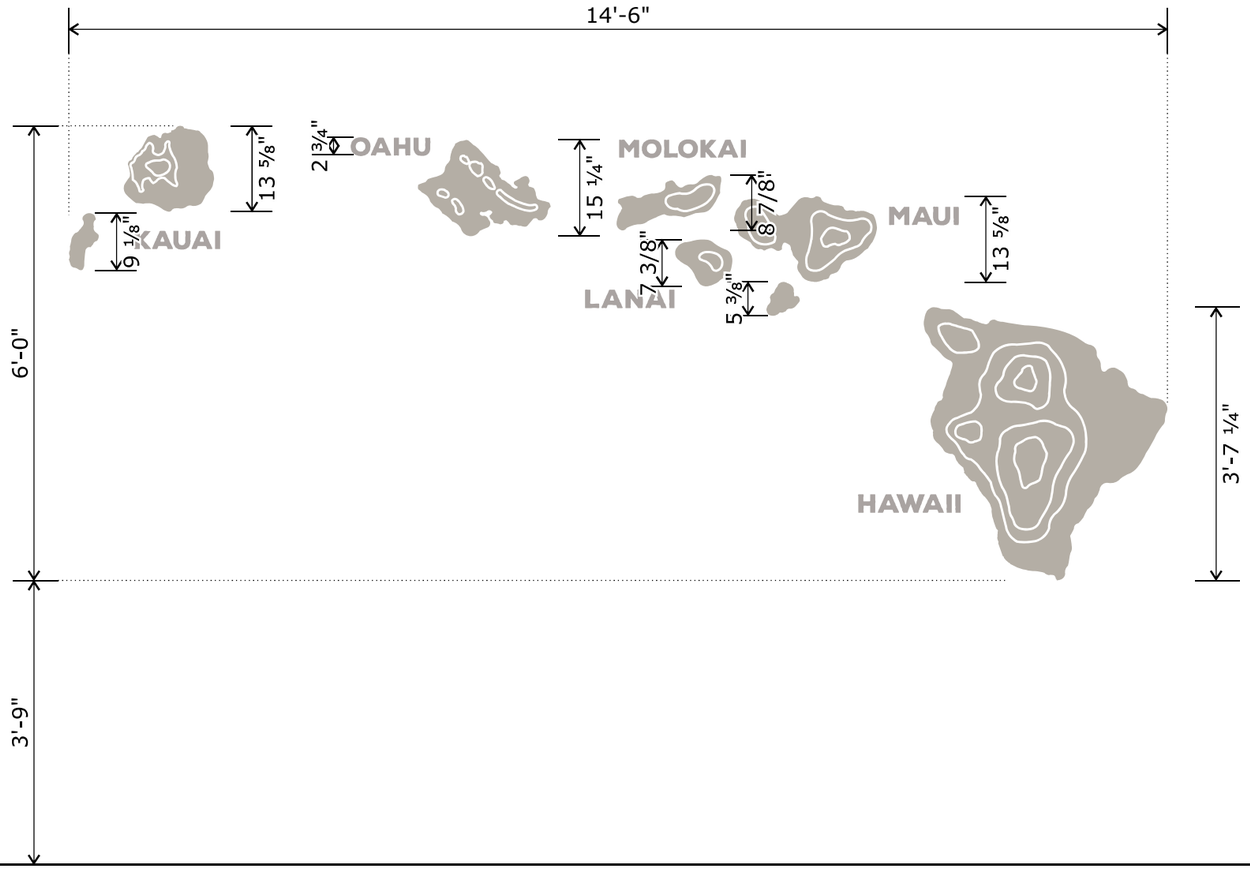

MEDIUM ISLAND SIGN:

NAMES:
- .125" FLAT CUT OUT ALUMINUM LETTERS
- PAINT TO MATCH SW 7023 REQUISITE GRAY
- INSTALL WITH ALUMINUM STUDS FLUSH TO FASCIA

ISLANDS:
- 1 1/2" DEEP HALO ILLUMINATED REVERSE CHANNELS
- PAINT TO MATCH SW 7023 REQUISITE GRAY
- WHITE VINYL TOPOGRAPHY LINES
- ILLUMINATED W/ WHITE LEDs
- INSTALL W/ 1 1/2" SPACERS ON EXTERIOR WALLS

MATCH SW 7023
REQUISITE GRAY

H **ILLUMINATED & NON-ILLUMINATED WALL GRAPHICS** **87 SF**

QTY: ONE (1) **SCALE: 1/2" = 1'-0"**

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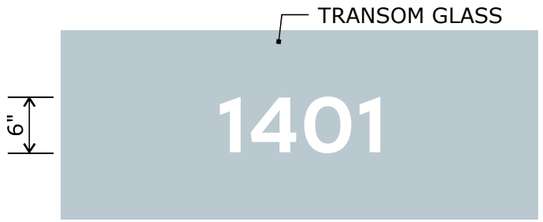


I **VINYL GRAPHICS**

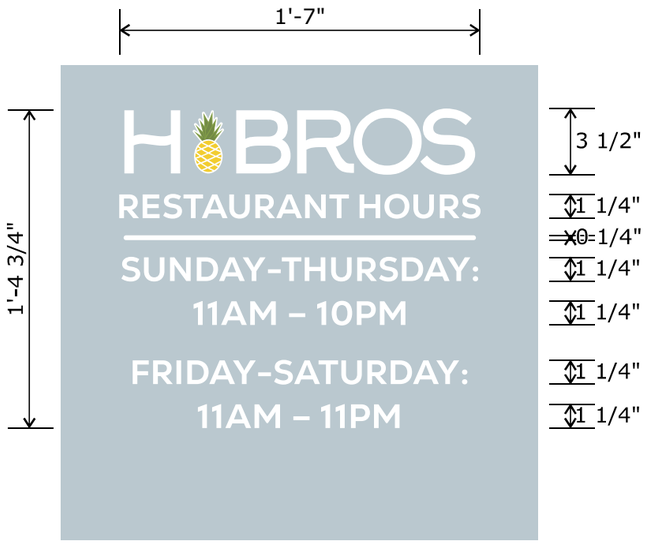
QTY: ONE (1) **SCALE: 3/4" = 1'-0"**

White Vinyl

Pineapple Yellow PMS 129

Burnt Leaf Green PMS 576

Palm Green PMS 575



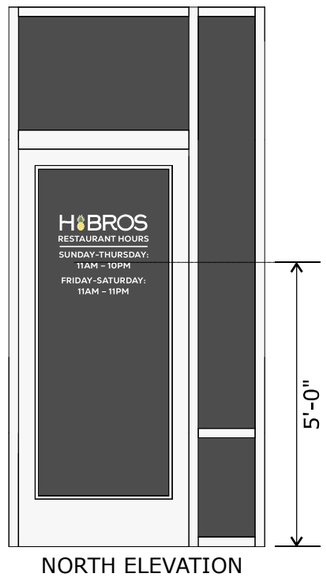
WHITE VINYL W/ DIGITALLY PRINTED/DIE-CUT GRAPHIC

VERIFY HOURS PRIOR TO PRODUCTION

J

K **RESTAURANT HOURS VINYL**

QTY: TWO (2) **SCALE: 1 1/2" = 1'-0"**



SOUTH ELEVATION

NORTH ELEVATION

ENTRANCE ELEVATIONS

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

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EXISTING 60' FLAG POLE

RE-USE EXISTING FLAG POLE:
- SURVEY REQUIRED TO VERIFY O.A.H.
- ADD NEW 120W GROUND LIGHTS

8'-0" X 12'-0" U.S. FLAG
(FOR VISUAL REFERENCE
ONLY - NOT TO SCALE)

5'-0" X 8'-0" H-BROS FLAG
(FOR VISUAL REFERENCE)

NOTE:
BRANDED FLAGS ALLOWED UP TO 40 SF PER CODE.

L **RE-USE EXISTING FLAG POLE**

QTY: ONE (1) **SCALE: NTS**

L **NEW U.S. FLAG and H-BROS FLAG**

QTY: ONE (1) EACH **SCALE: NTS**

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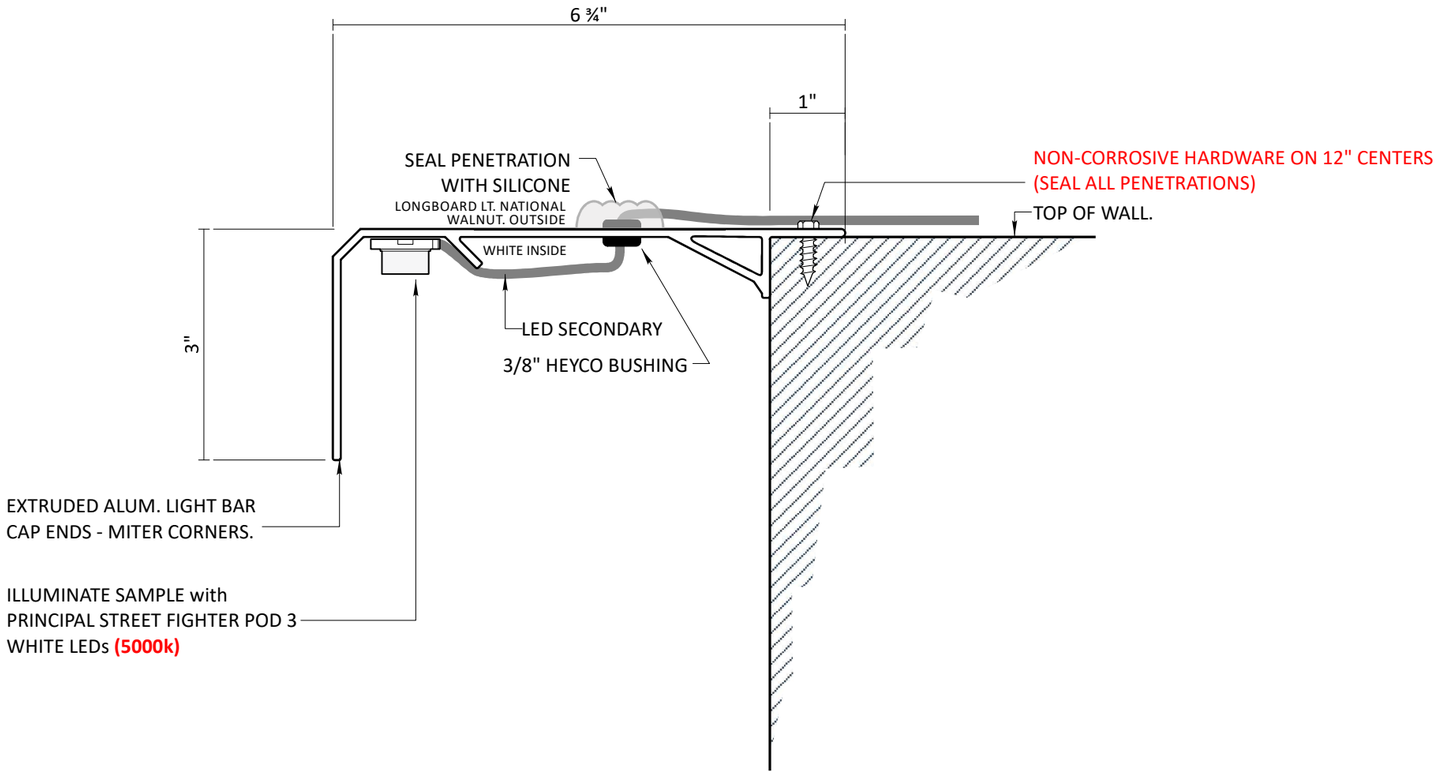
EYEBROW LIGHTING



M **SECTION** (VERT) 6" = 1'-0"

TYP. EA. ELEVATION
ALL EXTERIOR PIECES PAINTED TO MATCH LONGBOARD LT. NATIONAL WALNUT.
ALL INTERIOR PIECES PAINTED WHITE

Longboard Light
National Walnut

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□ Final Drawing

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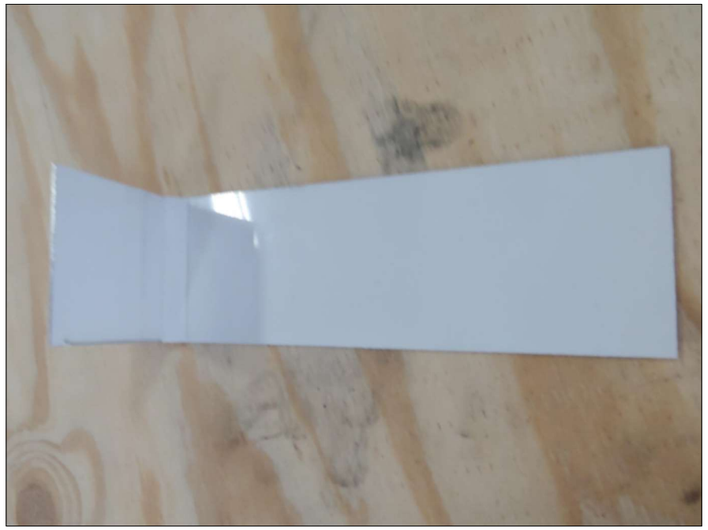
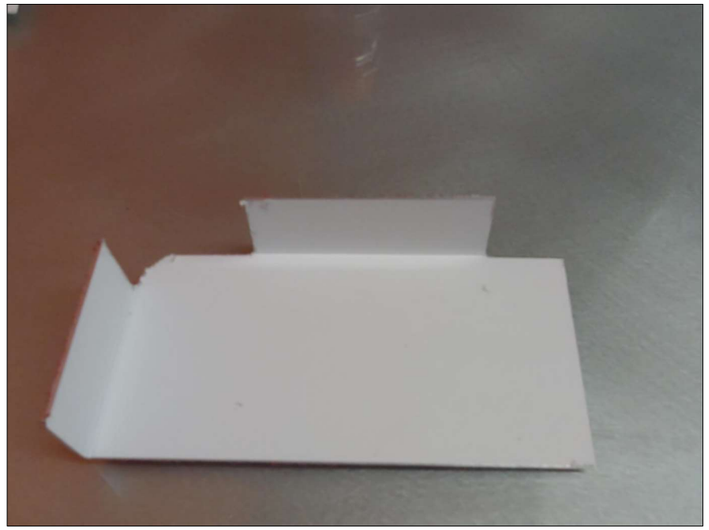


SEAM PLATE



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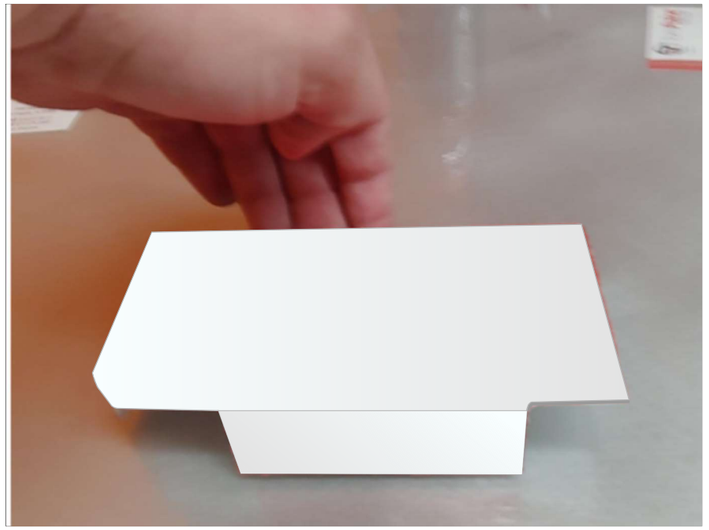
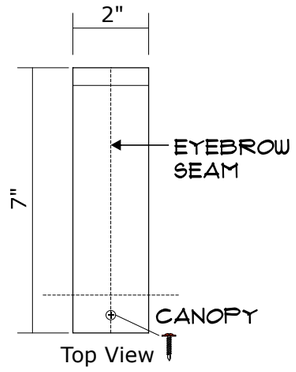


ENDCAP

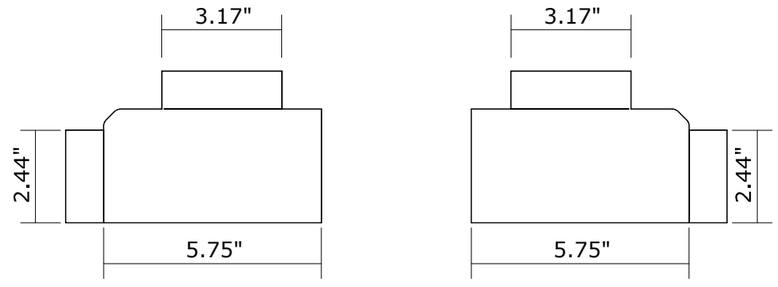
Seam Plate

#CKFG00002



Endcap

#CKFG0307



SEAM PLATE AND ENDCAP DETAILS

- SEAM PLATE FASTENERS TO BE INSTALLED ON TOP
- TO BE FASTENED WITH TRUSS HEAD SELF DRILLING SCREWS
- TOUCH UP HEAD WITH PAINT

ALL EXTERIOR PIECES PAINTED TO MATCH LONGBOARD LT. NATIONAL WALNUT

ALL INTERIOR PIECES PRE-FINISHED WHITE

Scale: 3" = 1'-0"

Longboard Light
National Walnut

*** ALL FASTENERS ARE TO BE PROVIDED BY INSTALLER**

CUSTOMER APPROVAL

APPROVED BY: _____ **DATE:** ____ / ____ / ____

■ **Proposal Drawing**
□ Final Drawing

Client: Hawaiian Bros
Location: 1401 Grindstone Pkwy, Columbia, MO
Salesperson: Pete Sitterle
Prj. Mngr.: Steven Munson
Date: 10/5/2021
Designer: LABONVILLE
File Name: 21-2750 R6 H-Bros Columbia, MO.cdr
Proposal #: 63043
Job #: 21-2750

Revisions
Note:

License #: 18010

Corporate Office
5003 Stout Drive
San Antonio, TX 78219
(210) 341-7244

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2703 Mockingbird Lane
Dallas, TX 75235
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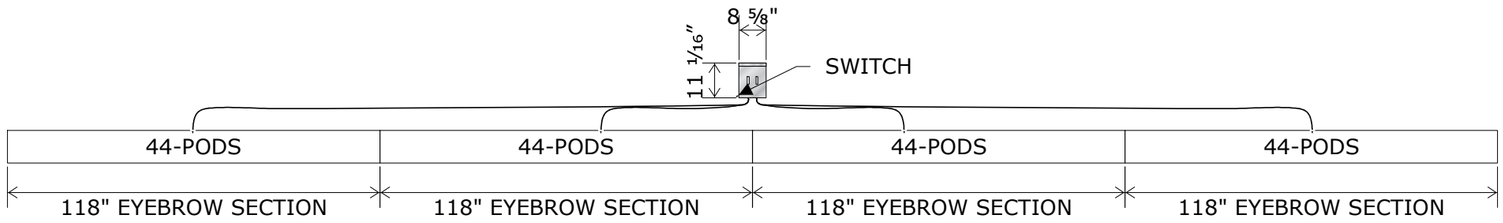
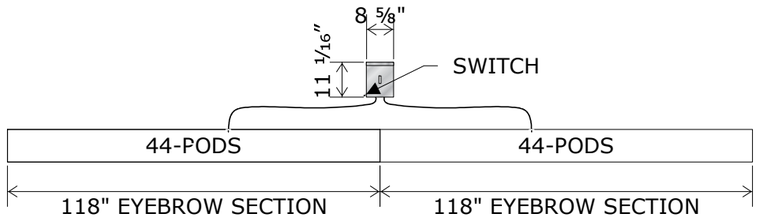


11 1/16" X 8 5/8" X 4 3/4" QWIK BOX.
MAX 44-PODS PER LEG.

* EACH QWIK BOX PULLS 2.2 AMPS

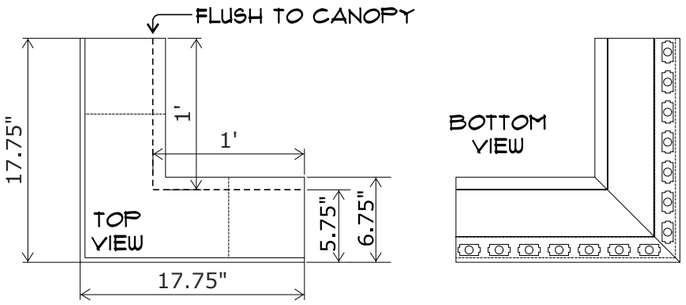
LED DOUBLE QWIK BOX DETAILS

Scale: ¼" = 1'-0"



11 1/16" X 8 5/8" X 4 3/4" QWIK BOX.
MAX 44-PODS PER LEG.

* EACH QWIK BOX PULLS 1.1 AMPS



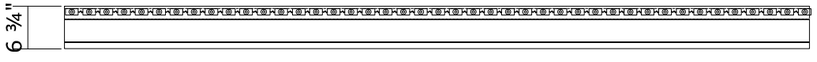
CORNER

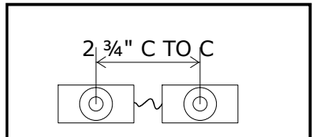
TYPICAL CORNER PIECE W/ ILLUMINATION

Scale: 1" = 1'-0"

LED SINGLE QWIK BOX DETAILS

Scale: ¼" = 1'-0"





LED SPACING

Scale: 3" = 1'-0"

LED LAYOUT UNDER HOOD - TYPICAL BOTTOM VIEW

Scale: ½" = 1'-0"

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APPROVED BY: _____ **DATE:** ____ / ____ / ____

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NOTE:
MET labels will be provided

Any labels for local codes to be provided by installer.

SUGGESTED TOOLS FOR CUTTING EYEBROW

SKILSAW WITH FINE METAL BLADE
OR
JIGSAW WITH FINE METAL BLADE

ALL CUSTOM LENGTHS TO BE CUT IN THE FIELD

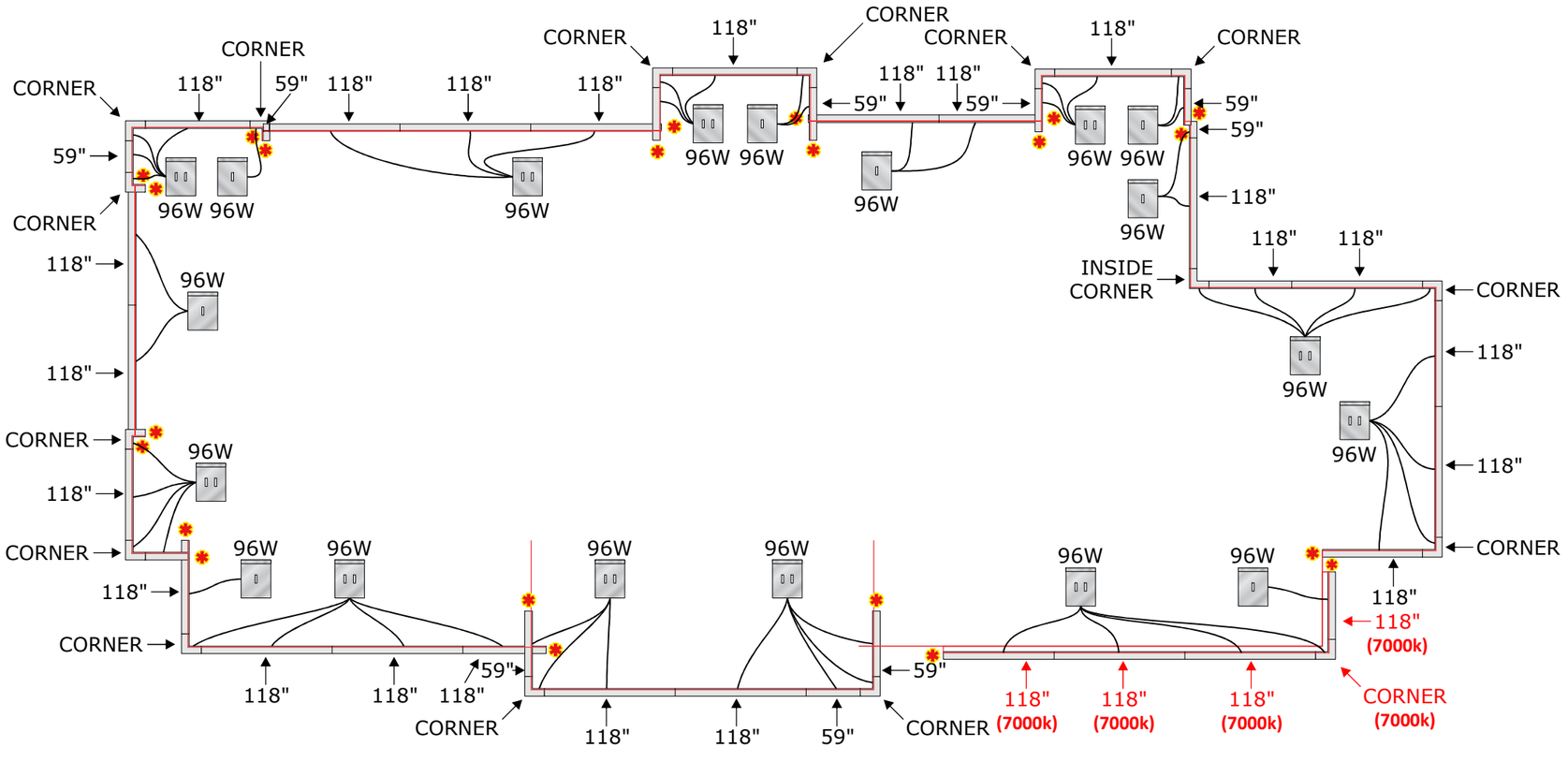
PARTS LIST PTM LONGBOARD LT. NTL WALNUT - 5000K LEDS **PARTS #**

10	QWIK BOX (Ea.), 2-96w 24v Power Supplies	ELPS0055
7	QWIK BOX (Ea.), 1-96w 24v Power Supplies	ELPS0057
9	SINGLE PACK 59" EYEBROW	CKFG0059
1	SINGLE PACK, 118" EYEBROW	CKFG0118
11	TWIN PACK, 118" EYEBROWS	CKFG0236
7	CORNER PIECE, Pair (12" x 12")	CKFG1212
20	ENDCAP (Ea.)	CKFG0307
38	SEAM PLATE (Ea.)	CKFG00002
13	INSTALL KIT (25 Screws & Touch-up Paint Bottle)	FAWA0018

ONE (1) INSIDE CORNER PIECE NEEDED

PARTS LIST PTM SPARKLE SILVER - 7000K LEDS

1	QWIK BOX (Ea.), 2-96w 24v Power Supplies
1	QWIK BOX (Ea.), 1-96w 24v Power Supplies
0	SINGLE PACK 59" EYEBROW
0	SINGLE PACK, 118" EYEBROW
2	TWIN PACK, 118" EYEBROWS
1	CORNER PIECE (12" x 12")
2	ENDCAP (Ea.)
4	SEAM PLATE (Ea.)
2	INSTALL KIT (25 Screws & Touch-up Paint Bottle)



24-VOLT SYSTEM WIRING DIAGRAM **Scale: 3/32" = 1'-0"**

NORTH

CUSTOMER APPROVAL

APPROVED BY: _____ DATE: ____ / ____ / ____

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□ Final Drawing

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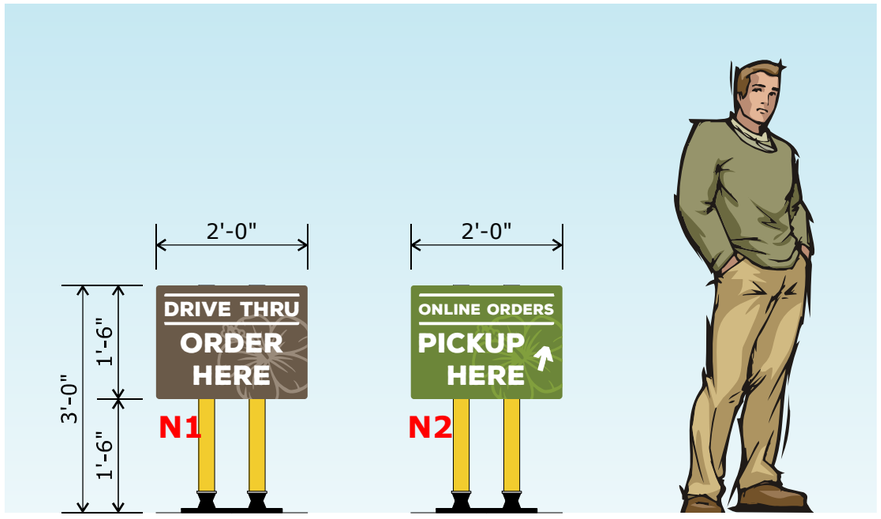
S/F POST & PANEL SIGNS:
- TYPICAL .080" THK. ALUM. PANEL SIGNS W/ MOUNTING HOLES.
- DIGITALLY PRINTED DIE-CUT VINYL APPLIED TO PANELS
- PANELS FASTENED TO FACES W/ COUNTER SUNK SCREWS
- ALL SUPPORTS TO BE IMPACT RECOVERY SYSTEMS:
  - 36" YELLOW POSTS P/N: SP-36YO-F
  - 8" FIXED RUBBER BASE P/N: BS-SMFB
  - ANCHOR KIT P/N: IM-ANCHOR-KIT

Coconut Brown PMS 7532 | Pineapple Yellow PMS 129 | Burnt Leaf Green PMS 576

Wave Blue PMS 5473 | Deep Sea Blue PMS 7477 | Palm Green PMS 575

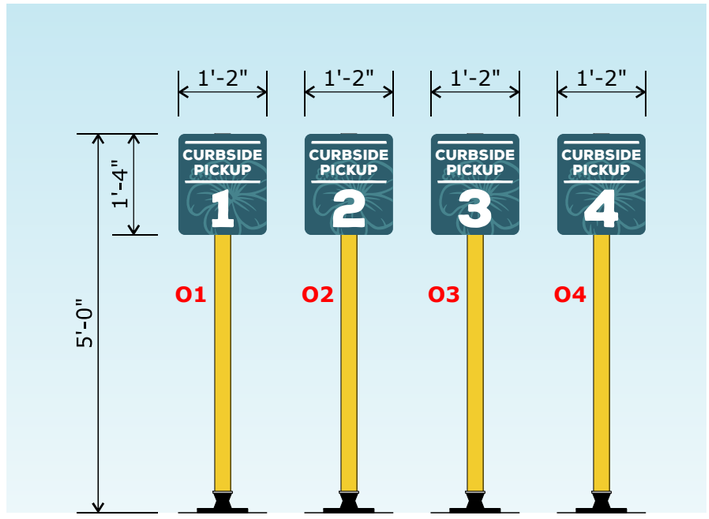


N **INFORMATION GROUND SIGNS**

QTY: ONE (1) EACH **SCALE: 1/2" = 1'-0"**

S/F POST & PANEL SIGNS:
- TYPICAL .080" THK. ALUM. PANEL SIGNS W/ MOUNTING HOLES.
- DIGITALLY PRINTED DIE-CUT VINYL APPLIED TO PANELS
- PANELS FASTENED TO FACES W/ COUNTER SUNK SCREWS
- ALL SUPPORTS TO BE IMPACT RECOVERY SYSTEMS:
  - 60" YELLOW POSTS P/N: SP-60YO-F
  - 8" FIXED RUBBER BASE P/N: BS-SMFB
  - ANCHOR KIT P/N: IM-ANCHOR-KIT

Wave Blue PMS 5473 | Deep Sea Blue PMS 7477



O **CURBSIDE PICKUP PANELS**

QTY: ONE (1) EACH **SCALE: 1/2" = 1'-0"**

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Job #: 21-2750

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Note:

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License #: 18010

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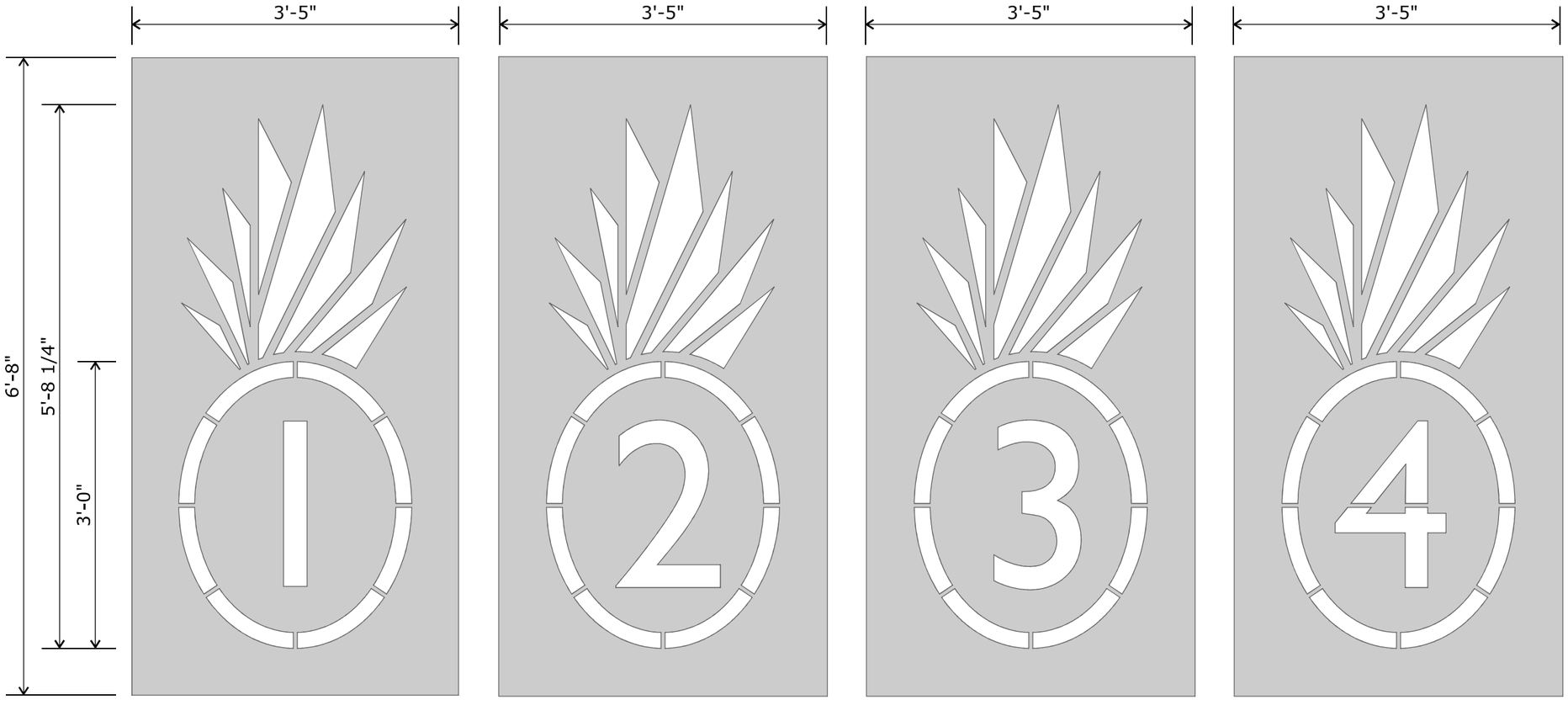
STENCILS TO BE CUT OUT OF 3mm SINTRA



P **DELIVERY LANE PAINT STENCILS *(NO PAINTING, JUST DELIVER THE STENCILS)***

QTY: ONE (1) EACH

SCALE: 3/4" = 1'-0"

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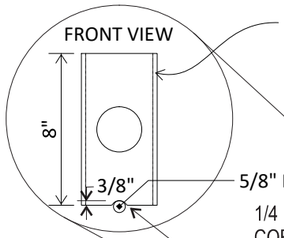
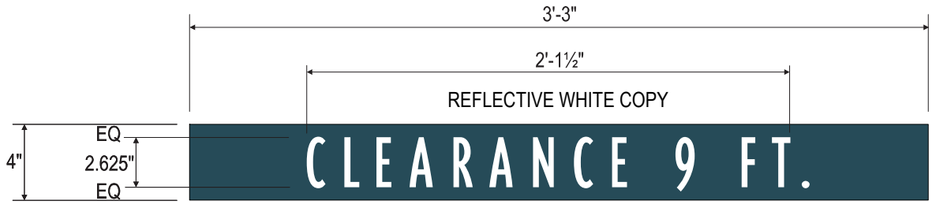
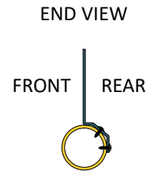


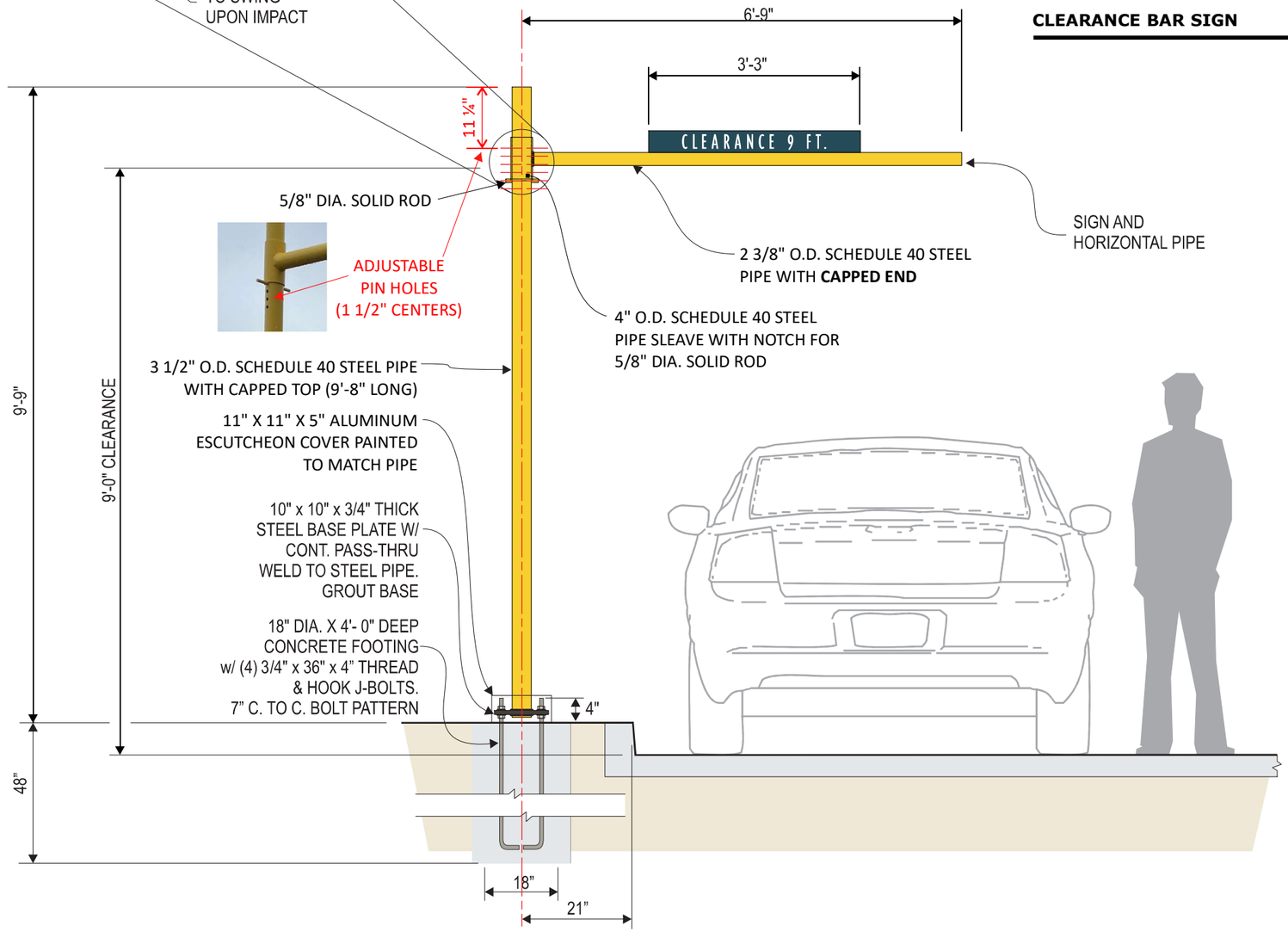
Pineapple Yellow PMS 129

Deep Sea Blue PMS 7477





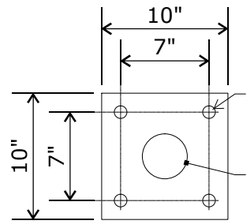
BRAKE FORMED .125" ALUMINUM PANEL TEK SCREWED TO TOP OF STEEL PIPE.
BUMP BRAKE AS SHOWN FOR ATTACHMENT OF PANEL TO PIPE.



CLEARANCE BAR SIGN

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

DRIVE-THRU CLEARANCE BAR



¾" STEEL PLATE • SCALE: 1" = 1'-0"

Q **DRIVE-THRU CLEARANCE BAR**

QTY: ONE (1)

SCALE: 1/2 = 1'-0"

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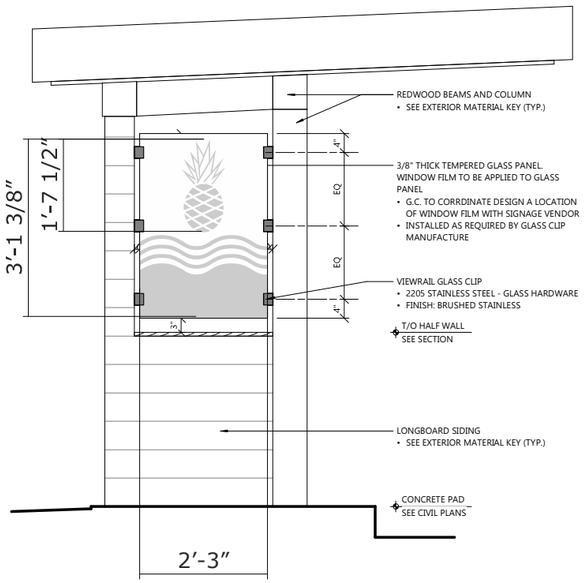
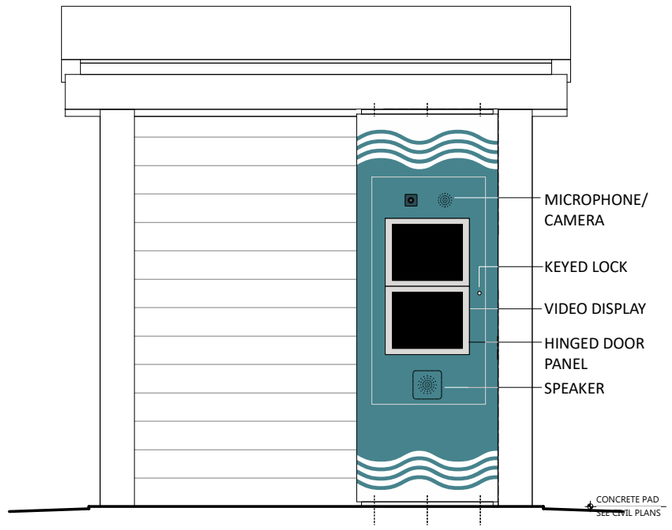
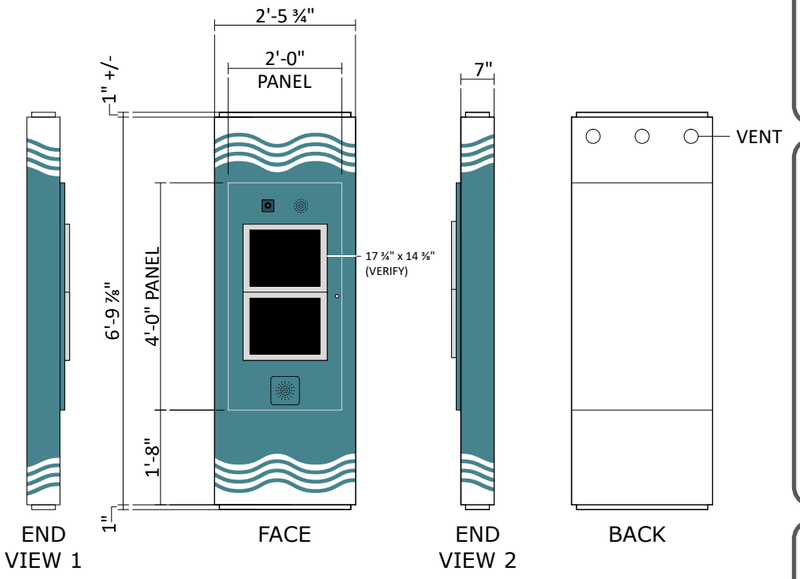


2 A1.6 ORDER CANOPY SECTION



1 A1.6 ORDER CANOPY SECTION



R **ORDERING SCREEN SURROUND & ETCHED GLASS VINYL ON GLASS** **SCALE: 3/8" = 1'-0"**

QTY: TWO (2) ORDER SCREEN SURROUND FOUR (4) ETCHED GLASS VINYL

SCOPE OF WORK:
FABRICATE AND INSTALL ORDERING SCREEN AND SURROUND & ETCHED GLASS VINYL.

• FABRICATED ALUMINUM CABINET PAINTED WHITE AND WAVE BLUE.

• CABINET FACE TO HAVE HINGED DOOR PANEL with MONITOR/SPEAKER ATTACHED. KEYED LOCK ON PANEL FOR SECURITY. VERIFY VENDOR FOR EQUIPMENT.

• CAB TO ALSO HAVE STANDARD DRIVE THRU SPEAKER SETUP INSTALL BELOW SCREEN AND CAMERA INSTALLED ABOVE SCREEN. VERIFY VENDOR FOR EQUIPMENT.

• BACK SIDE OF CABINET TO HAVE REMOVABLE BACK FOR SERVICE HELD IN W/ SECURITY SCREWS. REVEAL ACROSS TOP TO BE ADJUSTABLE FOR FIELD CONDITIONS.

• CABINET MOUNTED TO FOUNDATION AND BEAMS W/ ANCHOR BOLTS.

• ETCHED GLASS VINYL APPLIED TO 2ND SURFACE OF GLASS ON BOTH SIDES OF STRUCTURE

DETAILED SURVEY OF STRUCTURE REQ. PRIOR TO FAB.

Wave Blue
PMS 5473

White

Etched Glass Vinyl

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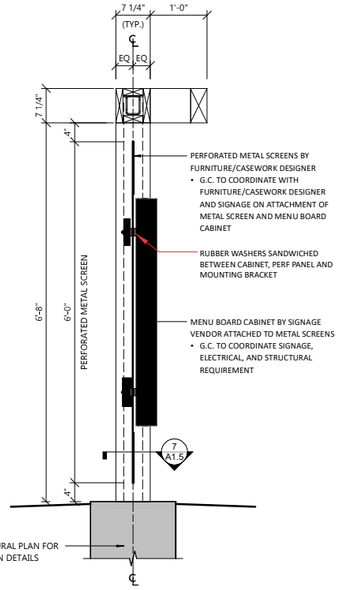

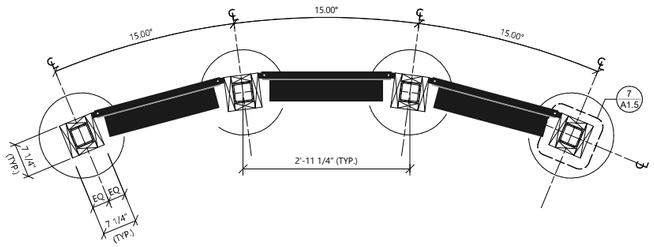

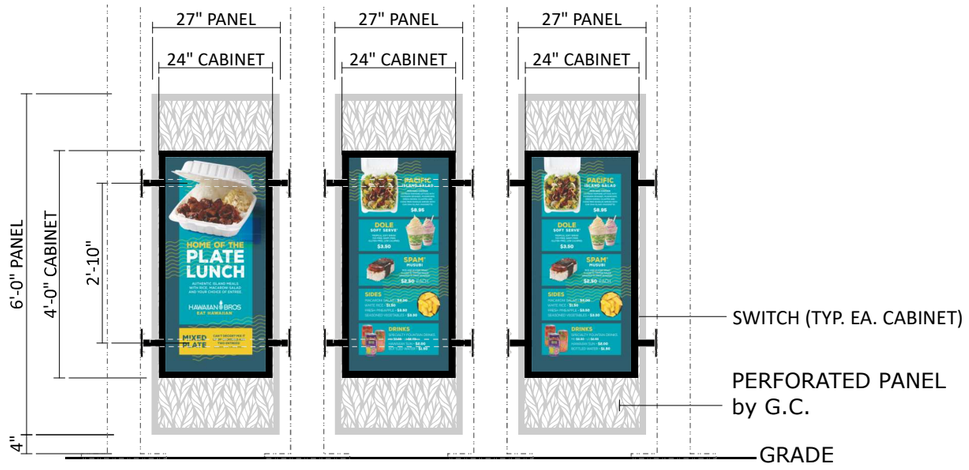

S **MENU BOARD** **SCALE: 3/8" = 1'-0"**

QTY: TWO (2) set of THREE (3) MENU BOARDS

SCOPE OF WORK:
FABRICATE AND INSTALL MENU BOARD CABINETS

• SW-01 TYPE FABRICATED CABINETS W/ FILLER AND 1 1/2” RETAINERS PAINTED BLACK.

• .187” THK. CLEAR POLYCARBONATE FACES W/ 2ND SURFACE DIRECT DIGITAL PRINT GRAPHICS FROM CUSTOMER PROVIDED FILES. (FILE TO FOLLOW)

• ILLUMINATED W/ WHITE LEDS. SELF-CONTAINED POWER SUPPLY

• MOUNTED W/ THRU BOLTS AND RUBBER WASHERS TO 1 1/2" SQ. STEEL TUBE SUPPORTS with 2" ANGLE IRON CLIPS - PAINT BLACK.

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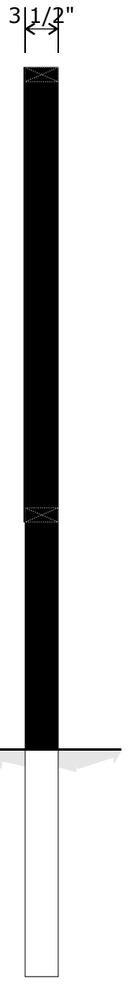
TOP VIEW

FRONT VIEW

END VIEW



EXAMPLE

S/F "COMING SOON" SIGN:

- 3MM PRE-FINISHED WHITE ACM PANEL W/ DIRECT PRINT COPY & GRAPHICS
- 4"X4" POSTS W/ 2"X4" STRINGERS PAINTED BLACK
- PANEL FASTENED TO POSTS & STRINGERS WITH PAN HEAD SCREWS THRU THE PANEL, SCREW HEADS PTM PANEL.

PMS Natural Black	Pineapple Yellow PMS 129	Burnt Leaf Green PMS 576	Palm Green PMS 575

T **SINGLE FACED "COMING SOON" SIGN** **32 SF**

QTY: ONE (1) **SCALE: 3/4" = 1'-0"**

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License #: 18010

Corporate Office
5003 Stout Drive
San Antonio, TX 78219
(210) 341-7244

Dallas
2703 Mockingbird Lane
Dallas, TX 75235
(972) 870-1594

Houston (State Sign)
7630 Hansen Road
Houston, TX 77061
(713) 943-1831

Austin (Custom Sign Creations)
1130 Rutherford, Suite 180
Austin, TX 78753
(512) 374-9300

Tyler (Design Center Signs)
3245 W. Grande Blvd.
Tyler, TX 75703
(903) 561-4995