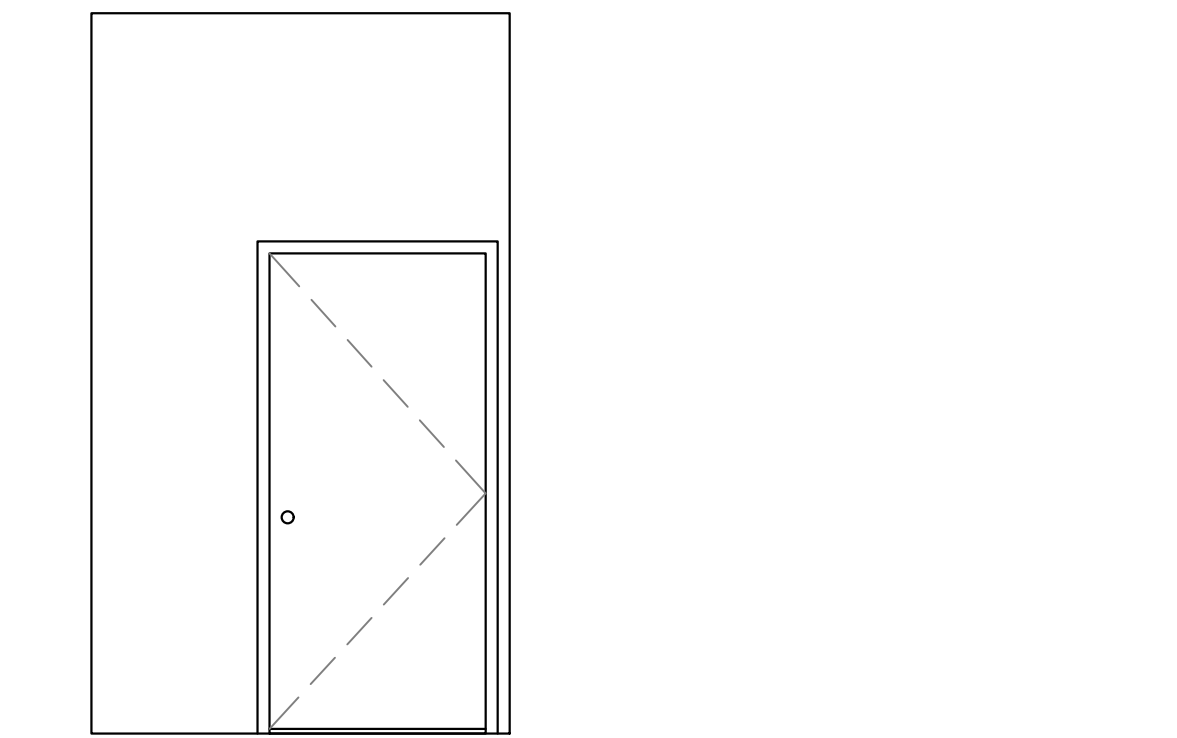
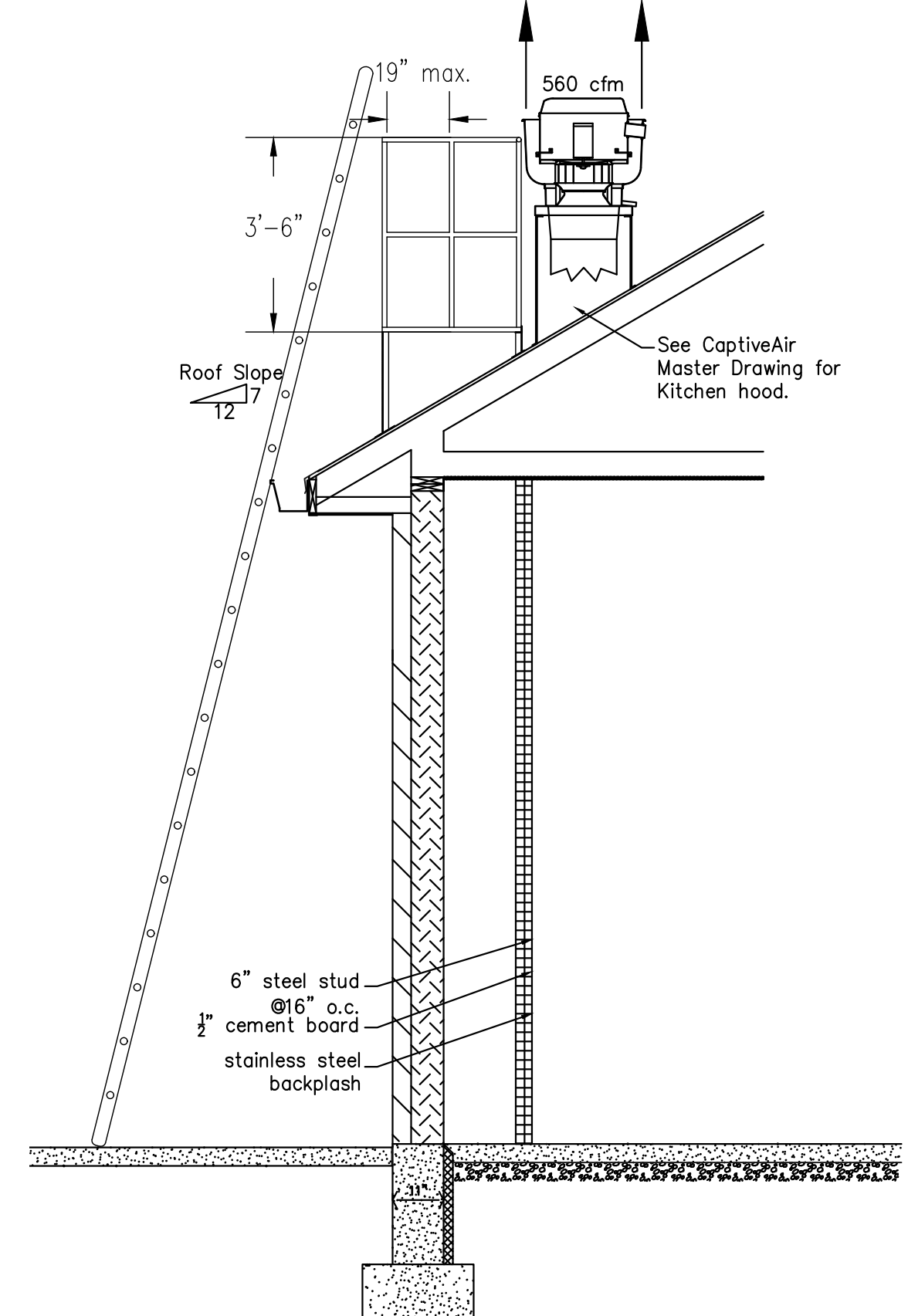


1 HVAC Plan
M1
SCALE: 1/4" = 1'-0"
0 2' 4' 8'



2 Transfer Air Flow Detail
M1
SCALE: None



Exhaust and Supply Ventilation for Hood
(Scale: 1/8" = 1'-0")

General Project Notes

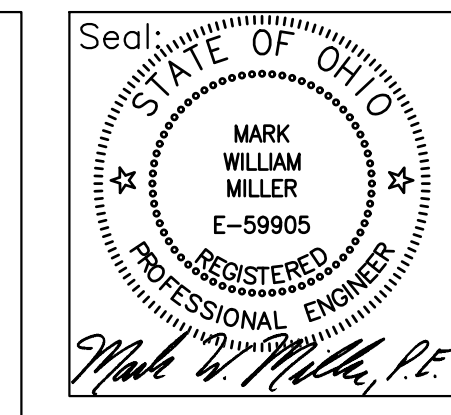
1. New work under this contract is shown in bold line weight. Existing duct work (if any) is shown in dark gray fashion. Other elements are shown in light gray.
2. This drawing shall not be used for construction unless it bears both the seal and signature of the engineer. Blue line reproductions are not approved for construction. Use only the most current revision.
3. All work shall be coordinated with other trades. Gravity drainage takes precedence, followed by HVAC ductwork, and then electrical.
4. Plans are essentially diagrammatic in nature, and do not necessarily reflect all pre-existing conditions, obstacles or ancillary work. This contractor shall conduct his own survey of the job site, and report any material deviations to the engineer prior to commencing work.

HVAC Plan Symbol Legend

- Point of connection to existing system elements.
- 24 x 12 Rectangular metal ductwork (Width" x Depth" of air passage size). Bottom of duct at 9" A.F.F. unless otherwise noted.
- 12" Round ductwork and size (inches diameter of air passage size).
- Flexible ductwork and size (inches diameter of air passage size).
- ☒ Ceiling mounted supply air diffuser, register, or exhaust grille. Refer to identifier.
- ☒ Ceiling mounted return air grille. Refer to identifier.
- ☒ Exhaust Fan
- ☒ Airfoil turning vanes rigidly mounted in metal elbow.
- ☒ Duct smoke detector. Interlock to shutoff supply fan upon detection of smoke. Interlock similarly with all other detectors.
- ☒ 7 day programmable thermostat, mounted on wall at 60" A.F.F. Provide clear plastic key lock cover with ventilation slots.
- ☒ Device identifier. See mechanical specifications. RL = Relocate, EX=Existing Balance or rebalance to CFM or GPM shown.
- ☒ Room Identifier. See Outdoor Air Calculation Table.
- ☒ Fire damper. See installation detail for mounting requirements.
- ☒ Manual set balance damper with locking quadrant operator handle.

Mechanical Plan Notes

1. Coordinate with General Contractor to undercut door 3/4" A.F.F. to allow for transfer air flow.
2. Instruct owner to set the thermostat to the manual "Fan" position whenever the space is occupied, to insure proper ventilation of air flow.
3. Provide a remote mounted bathroom exhaust fan with a SP value of 0.200" delivering 190cfm of supply air or any equipment equivalent to requirement. Fantech model: REG140, Item No. 3TJ96. Toilet exhaust fans shall be provided with hooded wall cap.
4. Provide CaptiveAir specified kitchen exhaust fan.
5. DELETED.
6. Provide CaptiveAir specified kitchen hood.



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MEP:
**New Shell
Convenience Store**
10 West Mitchell Avenue
Cincinnati, Ohio 45217

Issued For:	Date:	By:
3 Permit Revision	26 Jan 2021	M. Miller
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16 April 2020

**Mechanical
Plan**

Sheet:
M1

System Sizing and Ventilation Air Calculations

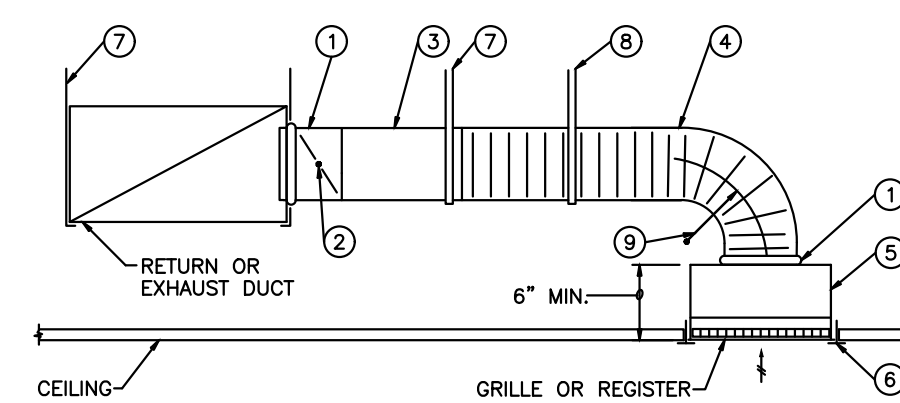
No.	Room Name	Floor Area (ft²)	CFM per Person	CFM per ft²	People per 1000 ft²	Exhaust CFM/ft²	ZADE 0.8	Outdoor Air (CFM)	2017 OMC Table 403.3 Occupancy Classification	HVAC System
100	Office	66	5	0.06	5	0	0.8	7	Offices, Office spaces	1
101	Restroom	72	0	0	0	70	0.8	0	Public Spaces, Toilet Rooms	1
102	Utility	273	0	0.12	0	0	0.8	41	Retail Stores, Shipping & receiving	2
103	Sales area	876	7.5	0.12	15	0	0.8	255	Retail Stores, Sales	2
	Sales area	505	7.5	0.12	15	0	0.8	147	Retail Stores, Sales	1
104	Cashier	206	5	0.06	5	0	0.8	22	Offices, Office spaces	1
105	Kitchen	170	0	0	0	119	0.8	186	Food & Bev, Kitchens (cooking)	1
A	Walk-ins	649	0	0	0	0	0.8	0	Unoccupied	
Totals		2,816	0	0	0	189	0.8	657		

Note: Return air is approximately equal to supply air.
 * 70 CFM direct exhaust per WC/UR from restroom, balance of air is transferred from adjacent space. Recirculation prohibited.

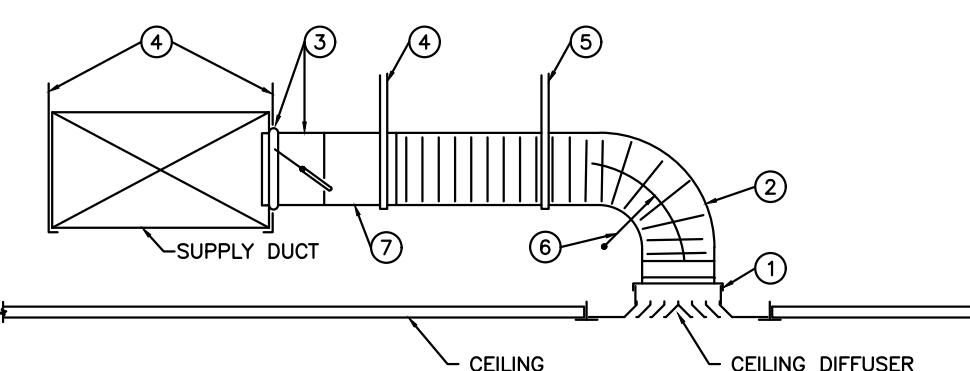
System 1	System 2
Supply CFM	Supply CFM
Outdoor CFM	Outdoor CFM
1,350	1,605
362	296
Tons 3.0	Tons 4.0
% OA 30%	% OA 18%

Equipment	Intake (CFM)	Exhaust (CFM)
Kitchen Hood	-	480
Toilet Room Fan	-	140
HVAC System 1	362	-
HVAC System 2	296	-
Hood MUA System	-	-
TOTALS	657	620
6% Positive		

Ret/Exh Device Duct Connection Detail
(SCHEMATIC - NO SCALE)

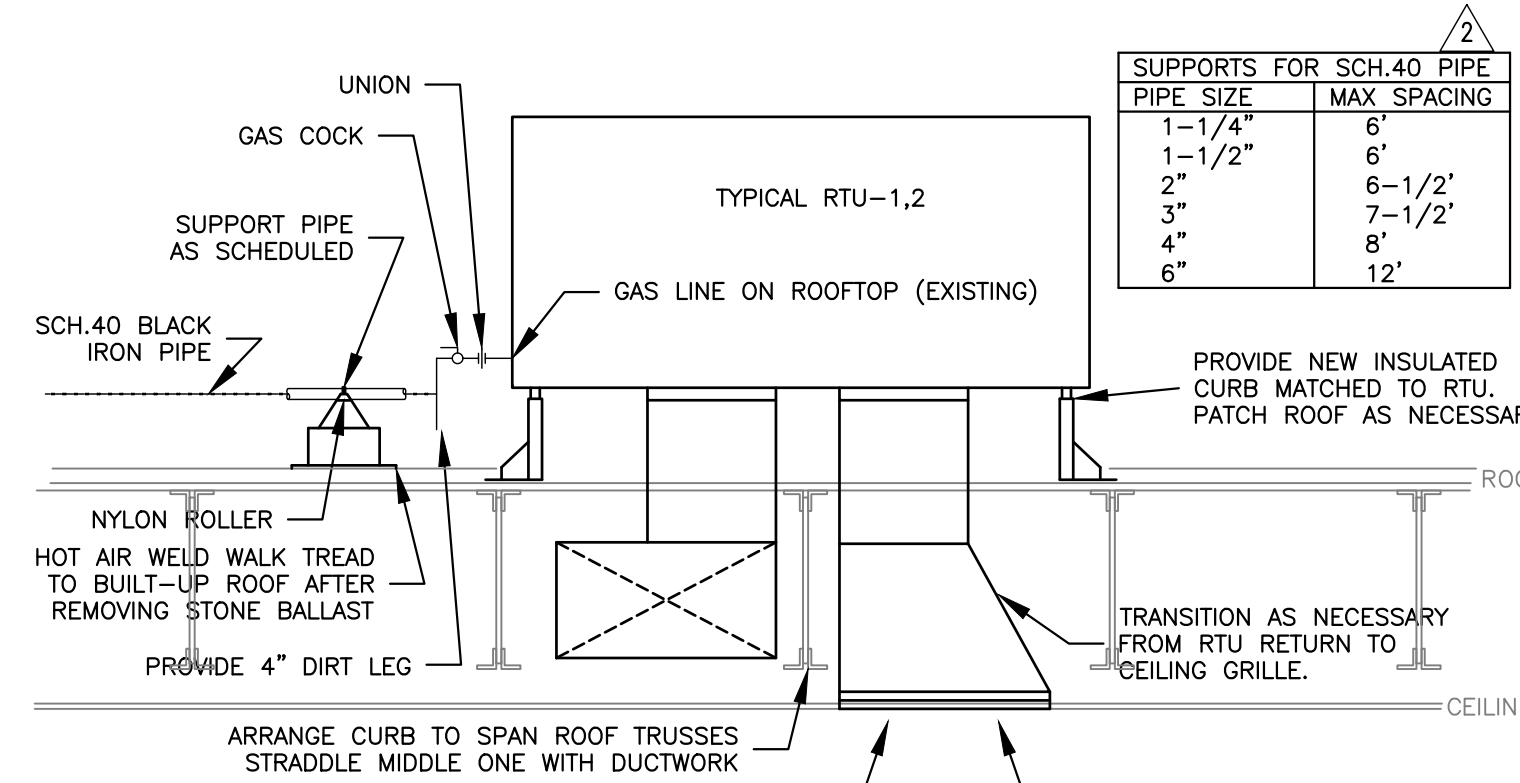


- SPIN-IN TAP FITTING.
- MANUAL DAMPER. PLACE DAMPER SO THAT SHAFT IS IN HORIZONTAL.
- ROUND SHEET METAL BRANCH DUCT. REFER TO SIZING NOTE BELOW.
- NON-INSULATED ROUND FLEXIBLE DUCT. REFER TO SIZING NOTE BELOW. 5 FT. MAXIMUM LENGTH. STRETCH DUCT TO AT LEAST 90% OF FULLY EXTENDED LENGTH.
- SHEET METAL PLENUM SAME SIZE AS GRILLE.
- CEILING T-BAR SUPPORT ON FOUR SIDES BY CEILING CONTRACTOR.
- DUCT STRAP HANGER. ATTACH TO STRUCTURE.
- STRAP HANGER REQUIRED AT MID-LENGTH IF LENGTH OF FLEXIBLE DUCT EXCEEDS 4 FT.
- MINIMUM CENTERLINE RADIUS EQUAL TO DUCT DIAMETER.

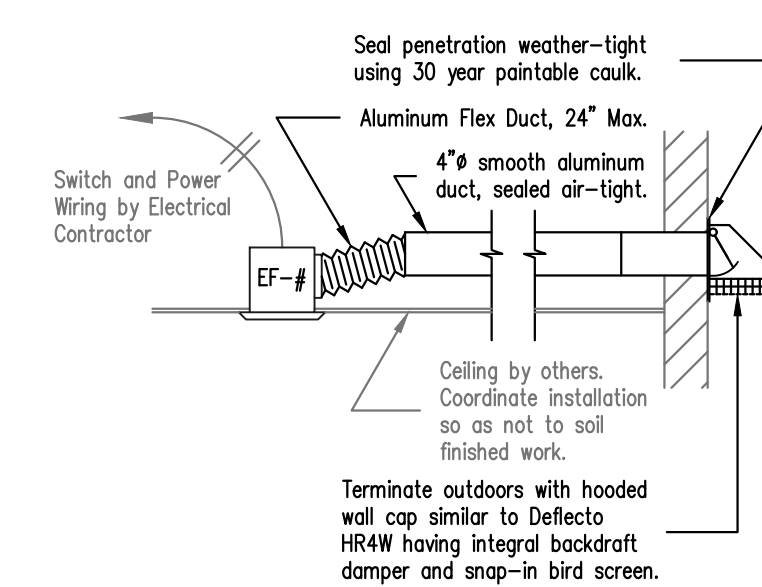


- SQUARE-TO-ROUND ADAPTOR IF DIFFUSER NECK IS SQUARE.
- FLEXIBLE DUCT SAME DIAMETER AS DIFFUSER INLET, 5 FT. MAXIMUM LENGTH. STRETCH FLEXIBLE DUCT TO AT LEAST 90% OF FULLY EXTENDED LENGTH.
- SPIN-IN BRANCH TAP FITTING, STRAIGHT SIDE, WITH MANUAL DAMPER. DAMPER SHAFT IN HORIZONTAL. INTEGRAL INSULATION GUARD SLEEVE REQUIRED FOR TAP FITTING TO MAIN DUCT WITH INTERNAL INSULATION.
- DUCT STRAP HANGER. ATTACH TO STRUCTURE.
- STRAP HANGER REQUIRED IF LENGTH OF FLEXIBLE DUCT IS LONGER THAN 4 FT.
- MINIMUM CENTERLINE RADIUS EQUAL TO DUCT DIAMETER.
- ROUND SHEETMETAL BRANCH DUCT.

Ceiling Diffuser Duct Connection Detail
(SCHEMATIC - NO SCALE)

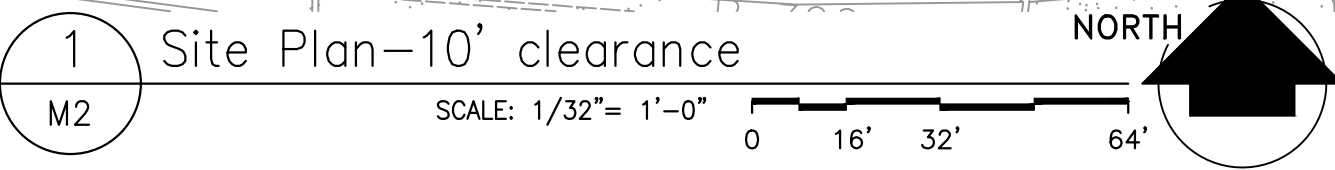
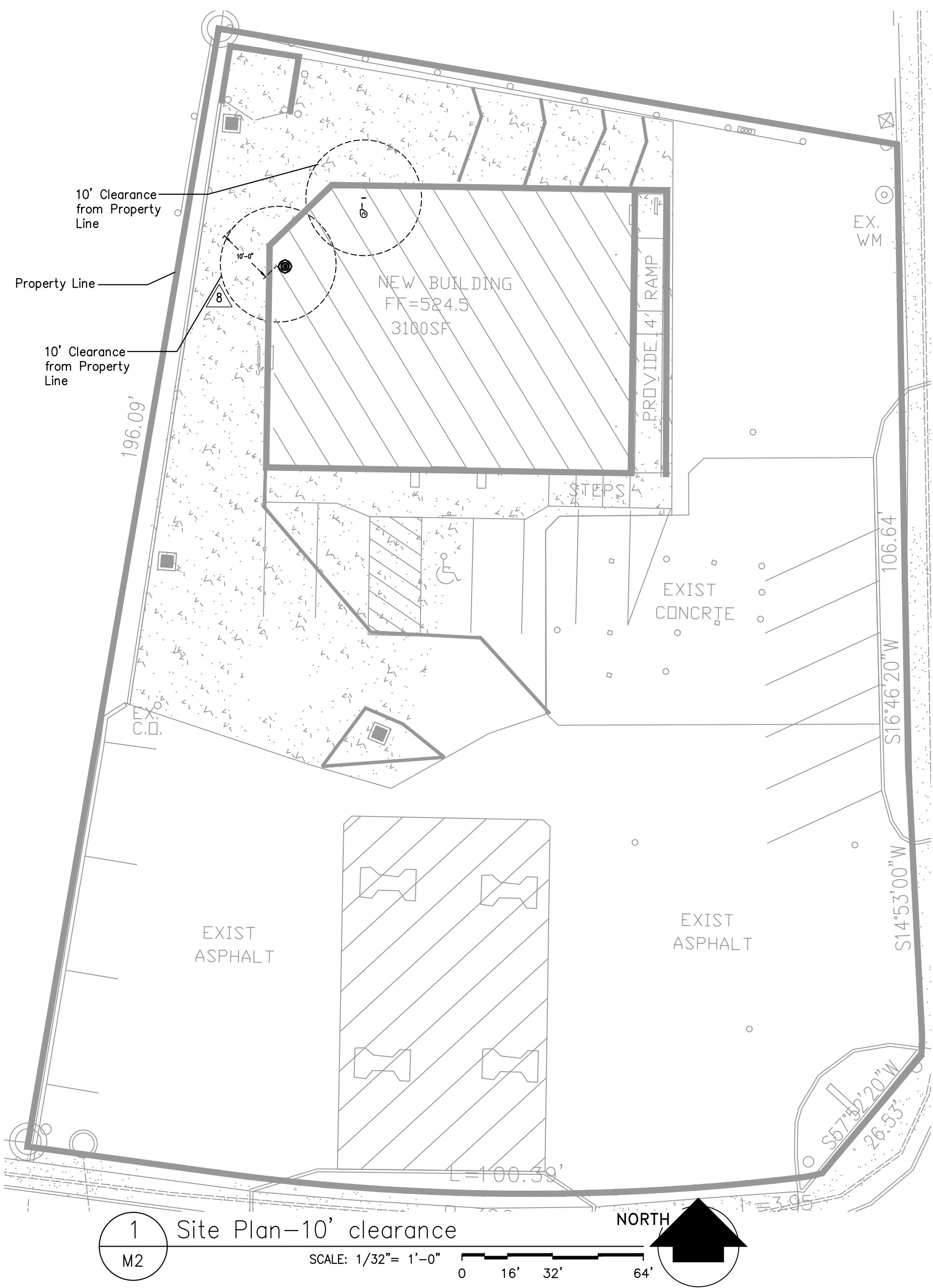


PIPE SIZE	MAX SPACING
1-1/4"	6'
1-1/2"	6'
2"	6-1/2'
3"	7-1/2'
4"	8'
6"	12'



Mechanical HVAC Specifications

- Scope of Work:** Includes all labor, materials, equipment and services necessary for a complete and safe installation conforming to all applicable codes.
- Air Distribution System:**
 - Ductwork and Accessories**
 - Sheet metal ductwork construction to be in accordance with the latest edition of "SMACNA HVAC Duct Construction Standards, Metal and Flexible." Duct Construction to be suitable for 2 inches water gauge for supply and negative 1 inch water gauge for return and exhaust systems.
 - Ductwork material to be prime, low carbon, galvanized steel of lock forming quality, ASTM A525 and ASTM A527, with minimum galvanizing of 1-1/4 ounces per square foot G-90, and with name of manufacturer, trade name, and "LFD" stamped on each sheet.
 - Round flexible ductwork to be insulated and listed to UL181 for Class 0 or 1. Max. installed length of round flexible duct is unlimited per 2017 OMC 603.6.1.1.
 - Volume Dampers:**
 - Single blade dampers of single thickness sheet metal with hemmed edges on all sides. For blades over 18 inches long, use continuous rod across center of blade, with metal on both sides of rod to form streamlined blades.
 - All damper hardware to be Ventlok or equal.
 - Flexible connections to be Ventfabrics Inc. "Vention," coated glass fabric.
 - Air Measurement Openings:**
 - Openings to be 3/4 inch diameter, not more than 12 inches on center, located far from elbow, but ahead of any air outlet.
 - Test Holes to be Ventlok No. 699
 - Diffusers, registers, grilles and accessories to be equal to Models scheduled. All to include dampers adjustable from the room side.
 - Insulate all ductwork with 1-1/2" thick, 3/4 pound, aluminum foil backed fiberglass.
 - Testing and balancing:**
 - Testing and balancing by a NEBB or AABC certified technician is required for all HVAC systems. Submit four copies of report to Owner.
 - Furnish four complete sets of Operation and Maintenance Manuals for all installed equipment.
 - Duct access panels to be Ventlok insulated access doors, 12 inches by 16 inches where duct size permits. For smaller panels, use maximum size available. Provide at each fire damper.
- Equipment:** The following equipment is furnished and installed by the Mechanical Contractor. All wiring to be completed under Division 16.
 - RT1 Carrier Model 48SX030080 or equal packaged gas/electric rooftop air conditioning unit. 372lbs.3 tons nominal cooling 90 MBH input, 64.8 MBH output heating, 208/230-1-60, 22.8 MCA, 30 MOCCP. Install with 2" condensate trap, drip to roof. Install in horizontal flow configuration on stiffs and base rail per manufacturer's instructions and service clearances at least 10' from any roof edge.
 - RT2 Carrier Model 48SX048120 or equal packaged gas/electric rooftop air conditioning unit. 458lbs. 4 tons nominal cooling 120 MBH input, 97.2 MBH output heating, 208/230-1-60, 41.6 MCA, 60 MOCCP. Install with 2" condensate trap, drip to roof. Install in downflow configuration on factory curb per manufacturer's instructions and service clearances at least 10' from any roof edge.
 - EF1 Fantech Model REG140 or equal ceiling mounted exhaust fan. 190 cfm., 200 SP, 0.53 amps, 115V/60 Hz 61W low noise direct drive motor. 4" dia. Throat. Field run 4" vent to hooded wall cap.
 - EF2 Dayton Model 4HZ49 or equal central direct-drive upblast exhaust fan with a 0.25 SP delivering 1864 cfm supply air. 115V/60 Hz 3.2 amps, 1/4 HP. Aluminum backward included, nonoverloading centrifugal wheel design.
 - SF1 Dayton Model 4YC93 or equal axial direct-drive downblast supply fan with a 0.25 SP delivering 1741 cfm supply air. 115V/60 Hz 3 amps, 1/4 HP. Aluminum backward included, nonoverloading centrifugal wheel design.
 - SAD Titus 24" x 24" TMS square ceiling diffuser. Steel construction with #26 white finish. 10" dia. Collar. Frame type for full face surface mount.
 - RG1 Titus 24" x 24" PAR lay-in ceiling mount return grille. 22" x 22" Throat.

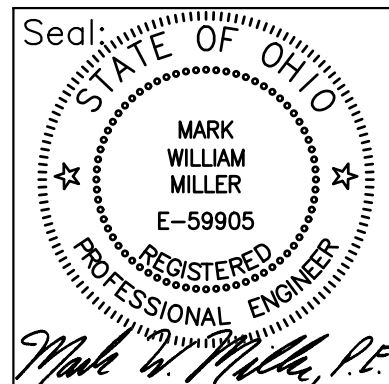


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- ☒ 7 day programmable thermostat, mounted on wall at 60" A.F.F. Provide clear plastic key lock cover with ventilation slots.
- ①W Device identifier. See mechanical specifications.
- ??? Device identifier. See mechanical specifications.
- RL Relocate, EX=Existing Balance or rebalance to CFM or GPM shown.
- Room Identifier. See Outdoor Air Calculation Table.
- FD Fire damper. See installation detail for mounting requirements.
- BD Manual set balance damper with locking quadrant operator handle.



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 (513) 842-1144 Office
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MEP:
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 10 West Mitchell Avenue
 Cincinnati, Ohio 45217

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 16 April 2020

Mechanical Information

Sheet:
M2

HOOD INFORMATION - JOB#4959677

HOOD NO	TAG	MODEL	MANUFACTURER	LENGTH	MAX COOKING TEMP	TYPE	APPLIANCE DUTY	DESIGN CFM/FT	TOTAL EXH CFM	EXHAUST PLENUM					HOOD CONSTRUCTION	HOOD CONFIG			
										WIDTH	LENG	HEIGHT	DIA	CFM		VEL	SP	END TO END	ROW
1	KHD1	3347 BD-2	CAPTIVEAIRE	4' 0"	450 DEG	I	MEDIUM	120	480			4"	8"	480	1375	-0.182"	430 SS WHERE EXPOSED	ALONE	ALONE

HOOD INFORMATION

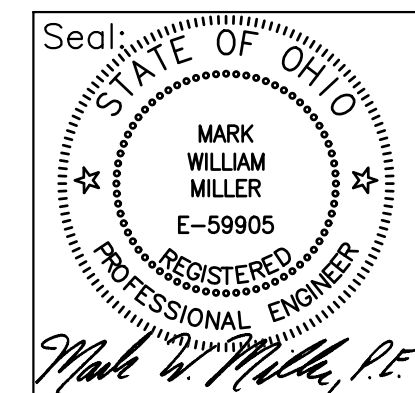
HOOD NO	TAG	FILTER(S)					LIGHT(S)				UTILITY CABINET(S)				FIRE SYSTEM PIPING	HOOD HANGING WEIGHT	
		TYPE	QTY	HEIGHT	LENGTH	EFFICIENCY @ 7 MICRONS	QTY	TYPE	WIRE GUARD	LOCATION	SIZE	TYPE	SIZE	MODEL #			QUANTITY
1	KHD1	SS BAFFLE WITH HANDLES	2	16"	20"	30%	2	L55 SERIES E26	NO							NO	246 LBS

CAPTIVE-AIRE HOODS ARE BUILT IN COMPLIANCE WITH UL 710 AND NFPA 96 AND ARE RECOGNIZED BY ONE OR MORE OF THE FOLLOWING:

ETL SANITATION LISTED
ETL LISTED FILE # 3054804-001

HOOD SYSTEM IS FABRICATED & DESIGNED PER UL-710 STANDARDS

REVISIONS	
DESCRIPTION	DATE



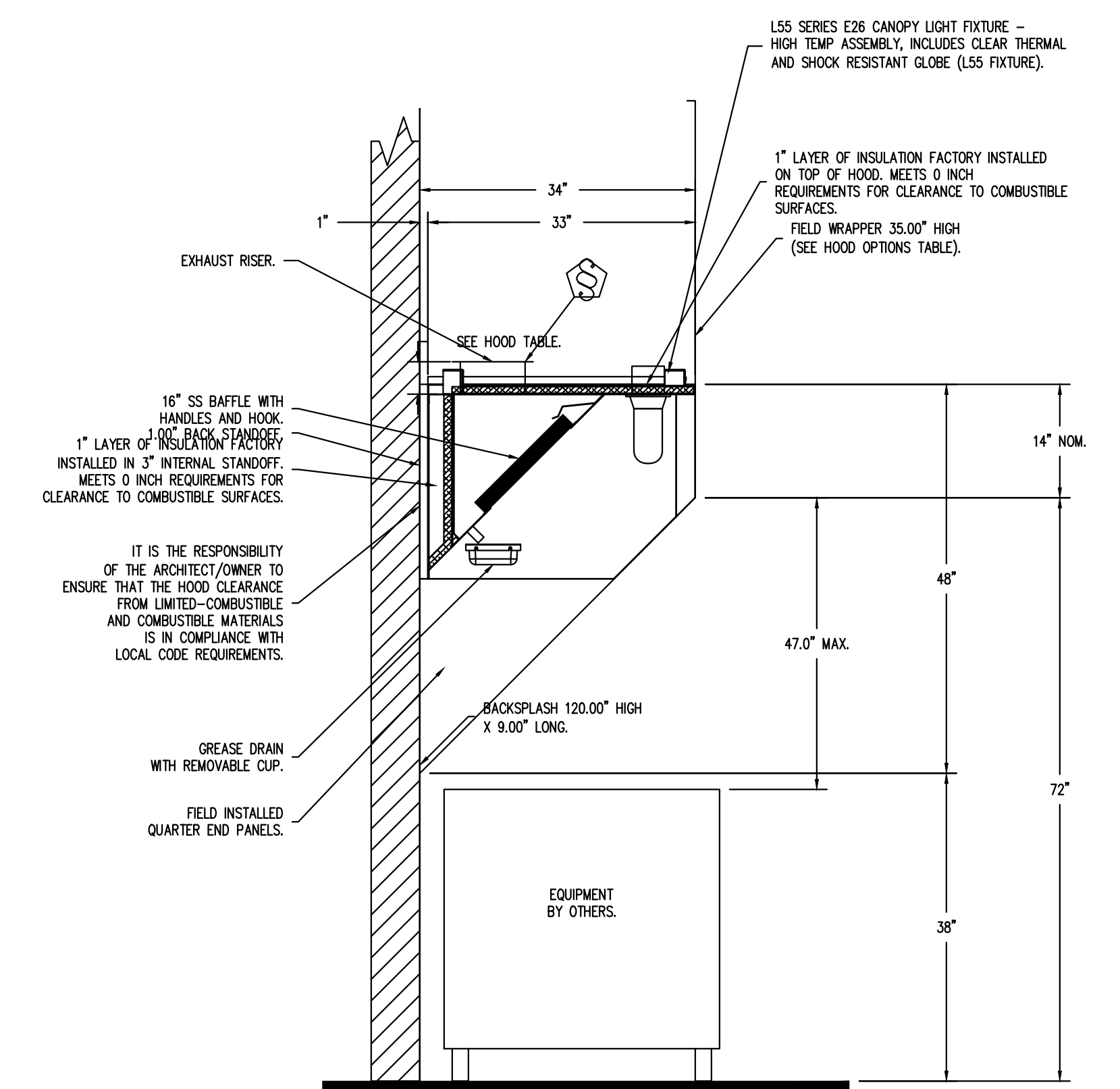
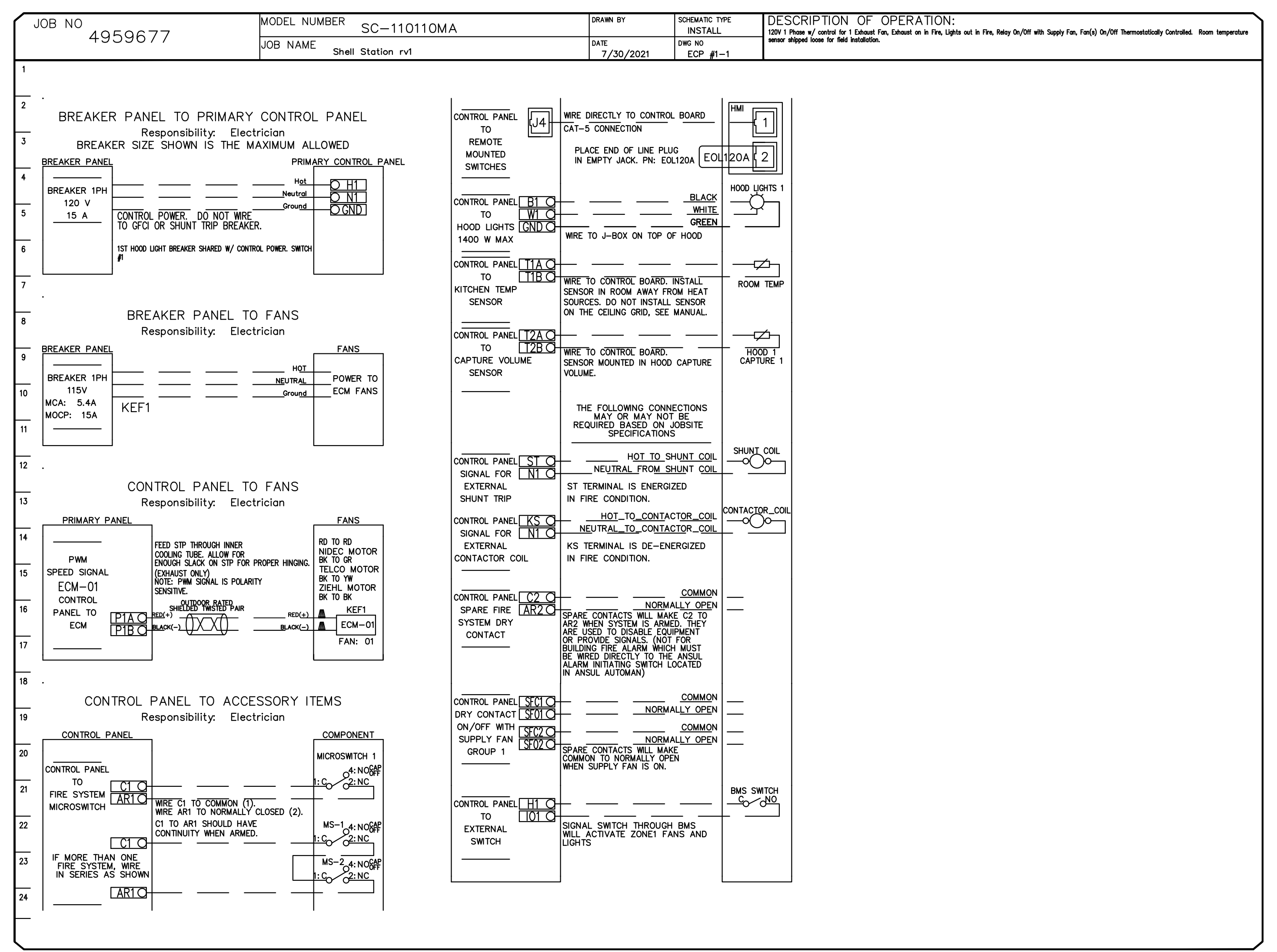
Plumetrics
"Plumbing, Mechanical, Electrical Engineering"
1550 Magnolia Drive
Cincinnati, Ohio 45215
(513) 842-1144 Office
(513) 617-2263 Mobile



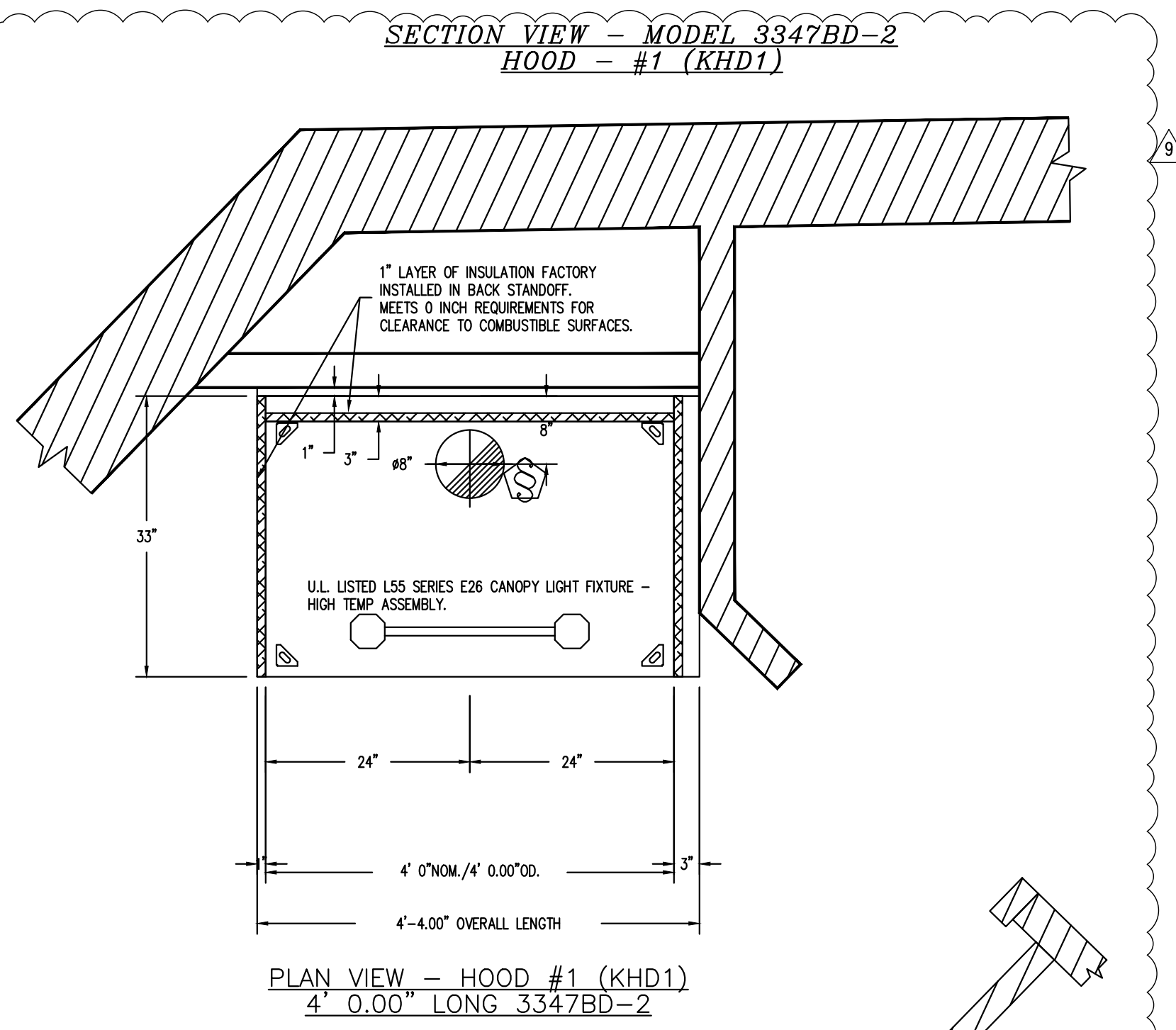
Air Solutions
1329 East Kemper Rd., Ste. 4210, Cincinnati, OH 45206 PHONE: (513) 860-5555 EMAIL: reg120@captiveaire.com

ELECTRICAL PACKAGE - JOB#4959677

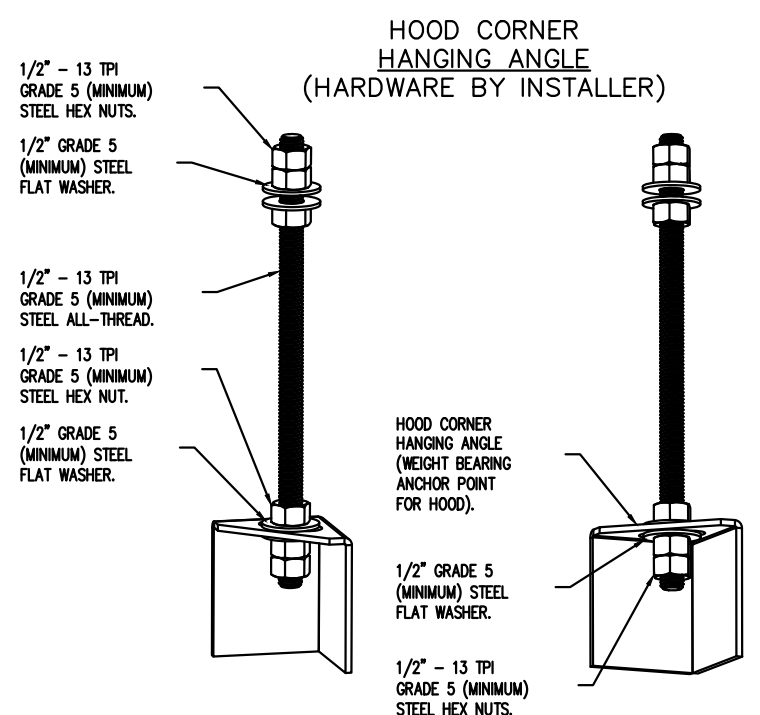
NO	TAG	PACKAGE #	LOCATION	SWITCHES		OPTION	FANS CONTROLLED					
				LOCATION	QUANTITY		FAN TAG	TYPE	Φ	HP	VOLT	FLA
1	EPI	SC-110110MA	WALL MOUNT IN SS BOX	O1 - FACE MOUNT LEFT SIDE OF HOOD HOOD # 1	1 LIGHT 1 FAN	SMART CONTROLS THERMOSTATIC CONTROL W/ RELAY ON/OFF WITH SUPPLY	KEF1	EXHAUST	1	0.333	115	4.3



SECTION VIEW - MODEL 3347BD-2 HOOD - #1 (KHD1)



PLAN VIEW - HOOD #1 (KHD1) 4' 0.00\"/>



ASSEMBLY INSTRUCTIONS

HANGING ANGLE MUST BE SUPPORTED WITH 1/2" - 13 TPI GRADE 5 (MINIMUM) ALL-THREAD. SANDWICH HANGING ANGLES AND CEILING ANCHOR POINTS WITH 1/2" GRADE 5 (MINIMUM) STEEL FLAT WASHERS AND 1/2" - 13 TPI GRADE 5 (MINIMUM) HEX NUTS AS SHOWN. MUST USE DOUBLED HEX NUT CONFIGURATION BENEATH HOOD HANGING ANGLES AND ABOVE CEILING ANCHORS. MAINTAIN 1/4" OF EXPOSED THREADS BENEATH BOTTOM HEX NUT. TORQUE ALL HEX NUTS TO 57 FT-LBS.

HOOD OPTIONS

HOOD NO	TAG	OPTION
1	KHD1	FIELD WRAPPER 35.00" HIGH FRONT, LEFT, RIGHT. BACKSPLASH 120.00" HIGH X 28.00" LONG 430 SS VERTICAL. BACKSPLASH 120.00" HIGH X 48.00" LONG 430 SS VERTICAL. BACKSPLASH 120.00" HIGH X 9.00" LONG 430 SS VERTICAL. BACK STANDOFF (FLAT) 1" WIDE 52" LONG. BACKSPLASH - INSIDE CORNER 62.00" HIGH X 2.00" LEG LENGTH 430 SS VERTICAL. RIGHT END STANDOFF(FIN/SLP) 3" WIDE 33" LONG INSULATED. LEFT END STANDOFF(FIN/SLP) 1" WIDE 33" LONG INSULATED. RIGHT QUARTER END PANEL 24" TOP WIDTH, 0" BOTTOM WIDTH, 24" HIGH 430 SS. LEFT QUARTER END PANEL 24" TOP WIDTH, 0" BOTTOM WIDTH, 24" HIGH 430 SS. INSULATION FOR TOP OF HOOD. INSULATION FOR BACK OF HOOD. SENSOR-CV.

Shell Station rvl
CINCINNATI, OH, 45202

DATE: 7/30/2021
DWG.#: 4959677

DRAWN BY: Jcirilli
SCALE: 3/4" = 1'-0"
MASTER DRAWING

SHEET NO.
1

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3 Permit Revision	26 Jan 2021	M. Miller
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16 April 2020

Kitchen Hood Information

Sheet:
M3

EXHAUST FAN INFORMATION - JOB#4959677

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	KEF1	1	DU33HFA	CAPTIVEAIRE	480	1.000	1534	TEAO-ECM	0.333	0.2200	1	115	4.3	238 FPM	74	15.4

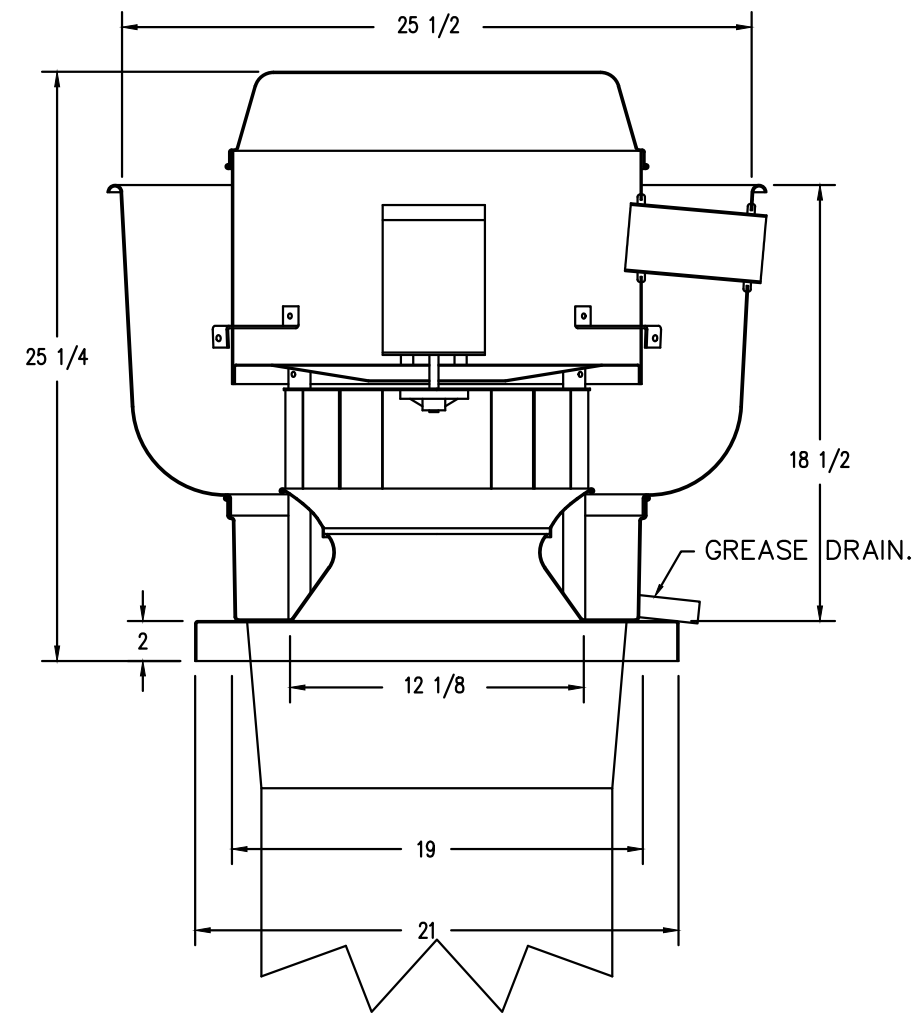
FAN OPTIONS

FAN UNIT NO	TAG	QTY	DESCRIPTION
1	KEF1	1	GREASE BOX.
1	KEF1	1	FAN BASE CERAMIC SEAL - INSTALLED AT PLANT - FOR GREASE DUCTS.
1	KEF1	1	ECM WIRING PACKAGE - PWM SIGNAL FROM ECPM03 PREWIRE (TELCO MOTOR), CCW ROTATION.
1	KEF1	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	KEF1	YES						

FAN #1 DU33HFA - EXHAUST FAN (KEF1)



FEATURES:

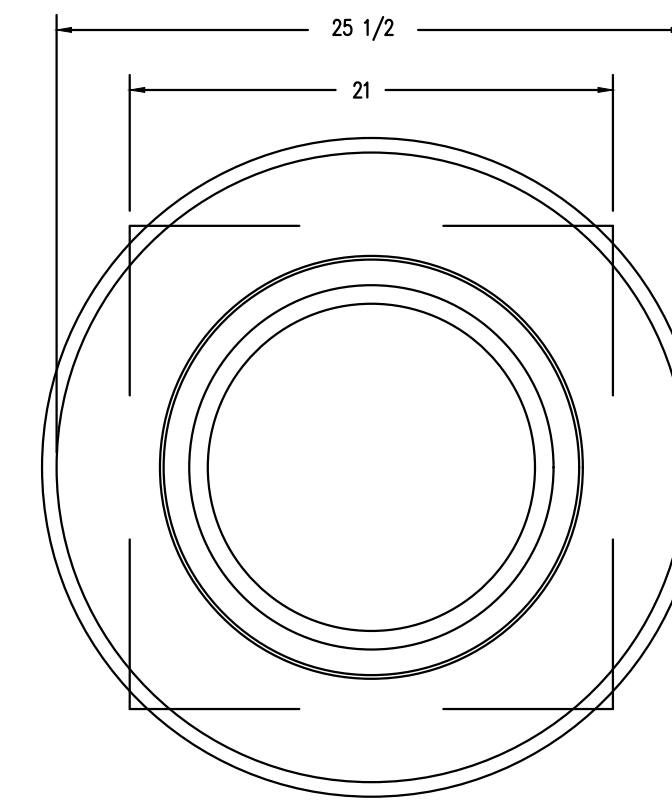
- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL705 AND UL762 AND ULC-S645
- VARIABLE SPEED CONTROL.
- INTERNAL WIRING.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).
- HIGH HEAT OPERATION 300°F (149°C).
- GREASE CLASSIFICATION TESTING.
- NEMA 3R SAFETY DISCONNECT 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.
- FAN BASE CERAMIC SEAL - INSTALLED AT PLANT - FOR GREASE DUCTS.
- ECM WIRING PACKAGE - PWM SIGNAL FROM ECPM03 PREWIRE (TELCO MOTOR), CCW ROTATION.
- 2 YEAR PARTS WARRANTY.

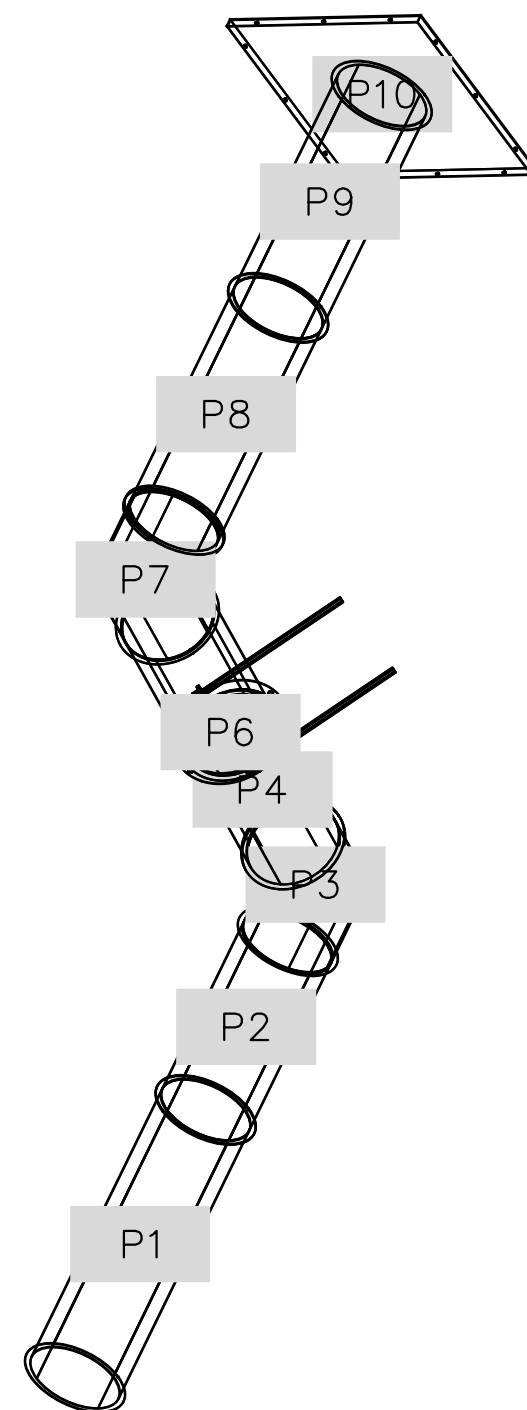


TOP VIEW

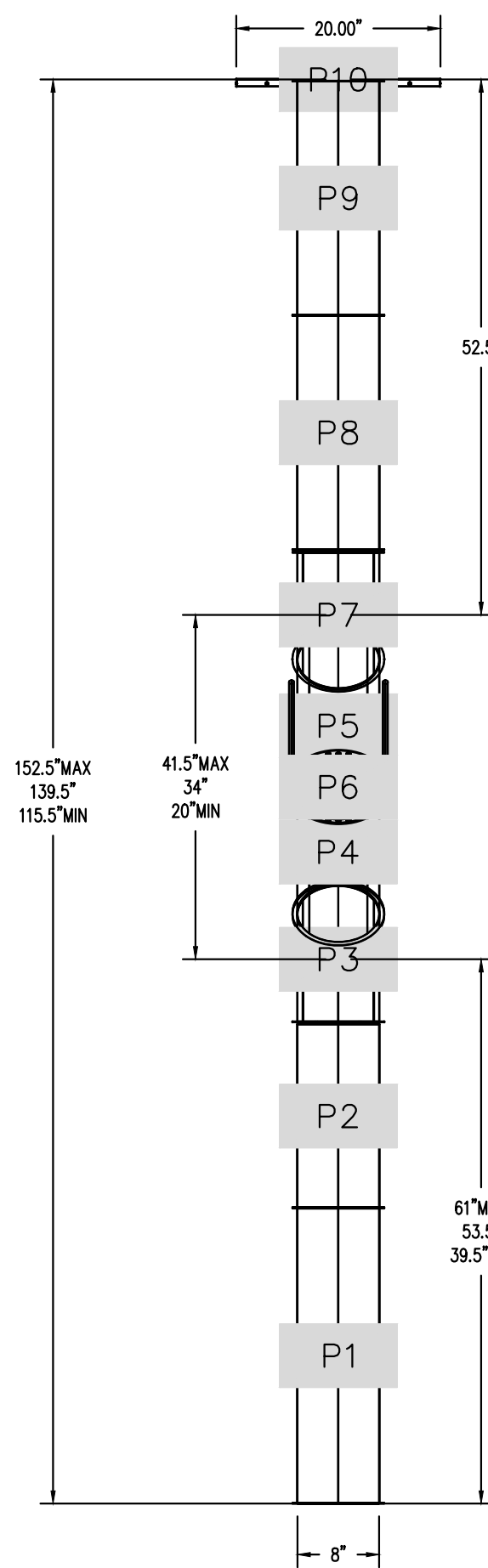
DUCTWORK #1 PARTS - JOB#4959677 DUCT RUN

TAG	PART #	CFM	GPM	ZONE	COVEREDBY	SP	WEIGHT	VELOCITY	QTY	DESCRIPTION
P1	DW0829LT	560				-0.0191	7.82	1604.28	1	SINGLE WALL DUCT 8" DIAMETER, 29" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P2	DW0830AJDKIT	560				-0.0119	10.21	1604.28	1	SINGLE WALL DUCT ADJUSTABLE, 8" DIAMETER, 29.5" LONG, FLANGE AT ONE END WITH A 8" ADJUSTABLE COLLAR - STAINLESS STEEL.
P3	DW0845ASY	560				-0.0288	3.48	1604.28	1	SINGLE WALL DUCT 45 DEGREE ELBOW, 8" DUCT, ASSEMBLY.
P4	DW0817LT	560				-0.0112	4.68	1604.28	1	SINGLE WALL DUCT 8" DIAMETER, 17" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P5	DW0830AJDKIT	560				-0.0118	10.21	1604.28	1	SINGLE WALL DUCT ADJUSTABLE, 8" DIAMETER, 29.5" LONG, FLANGE AT ONE END WITH A 8" ADJUSTABLE COLLAR - STAINLESS STEEL.
P6	DW08SUBRASY						2.34		1	DUCT SUPPORT BRACKET KIT, 8" DUCT, USED FOR HANGING DUCT. 12 GA STEEL, CLEAR ZINC COATING. - 2 RINGS, 4 BRACKETS, & HARDWARE BAG 2.
P7	DW0845ASY	560				-0.0336	3.48	1604.28	1	SINGLE WALL DUCT 45 DEGREE ELBOW, 8" DUCT, ASSEMBLY.
P8	DW0823LT	560				-0.015	6.24	1604.28	1	SINGLE WALL DUCT 8" DIAMETER, 23" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P9	DW0823LT	560				-0.015	6.24	1604.28	1	SINGLE WALL DUCT 8" DIAMETER, 23" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P10	DW1908TPOBEX	560					7.50	1604.28	1	DUCT TO CURB TRANSITION 3/4" DOWN TURN, 19-1/2" CURB TO 8" DUCT, 16 GA ALUMINIZED STEEL. NON-STANDARD PART. FOR USE WITH EXHAUST FANS.
SYSTEM AT P10						-0.3934	0.00			
	3M-2000PLUS						0.80		2	DUCT - 3M FIRE BARRIER 2000 PLUS SILICONE - USED AS SEALANT TO SEAL DUCT JOINTS.
	DW08CLASY						0.70		8	DUCT "V" CLAMP, 8" DUCT WITH NEW DESIGN 14 GA BRACKETS, ASSEMBLY.
TOTAL WEIGHT							69.40			

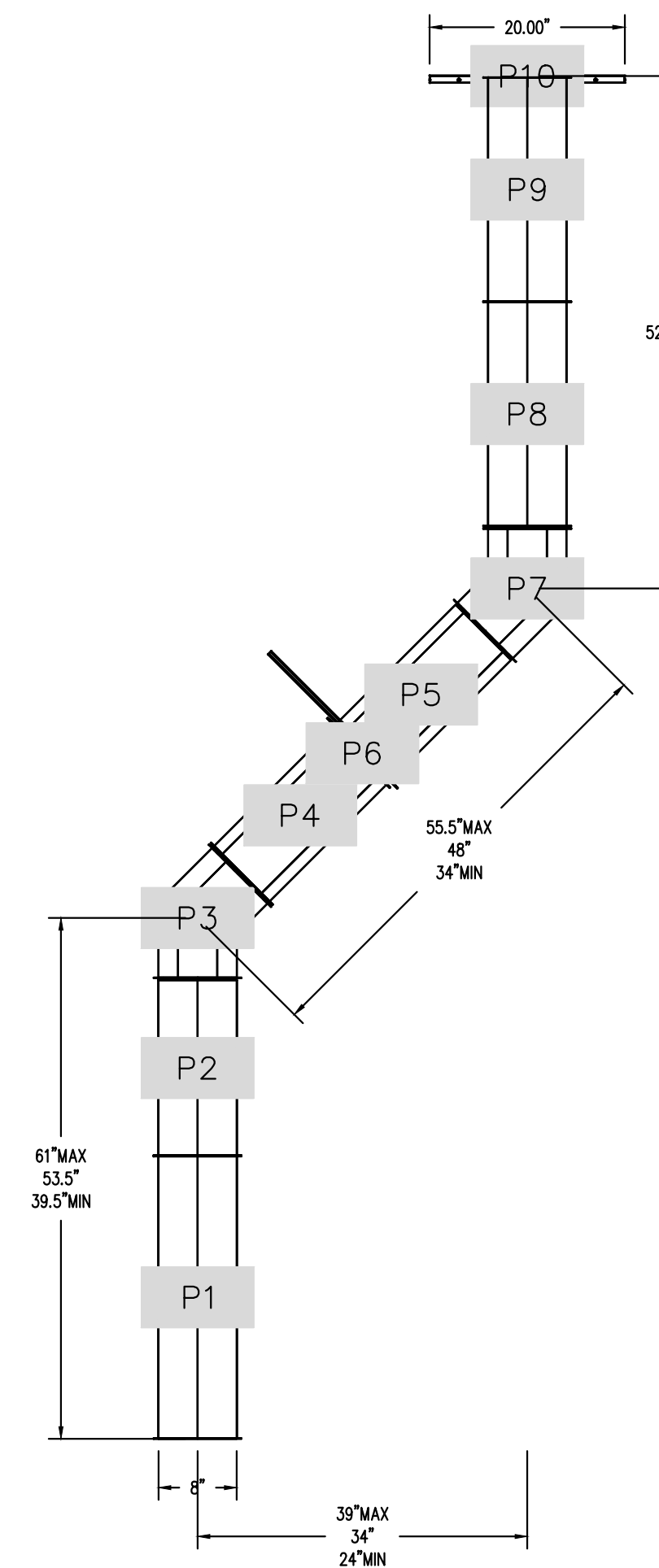
DUCTWORK #1 SE VIEW DUCT RUN



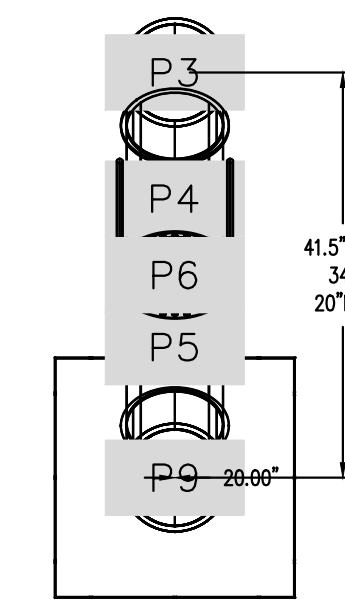
DUCTWORK #1 FRONT VIEW DUCT RUN



DUCTWORK #1 SIDE VIEW DUCT RUN

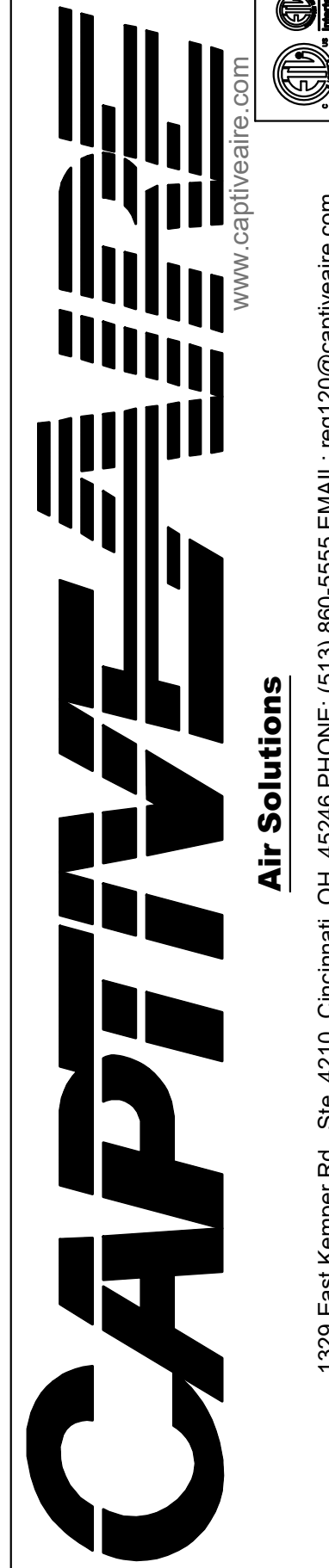


DUCTWORK #1 TOP VIEW DUCT RUN



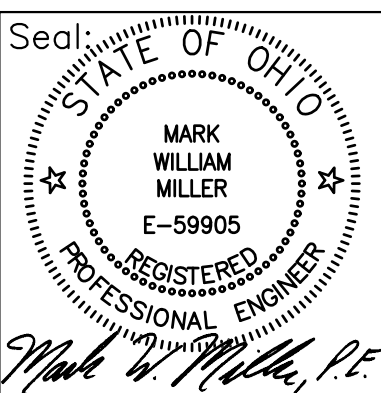
REVISIONS

DESCRIPTION	DATE:



Shell Station rv1
CINCINNATI, OH, 45202

DATE: 7/30/2021
DWG.#: 4959677
DRAWN BY: jcirilli
SCALE: 3/4" = 1'-0"
MASTER DRAWING
SHEET NO. 2



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16 April 2020

Exhaust Fan Information

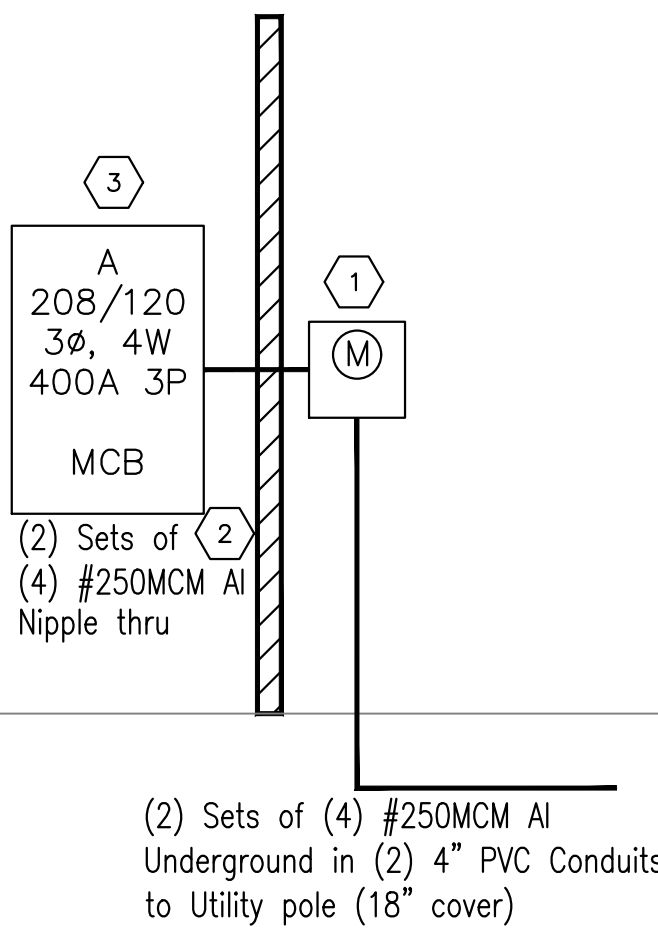
Sheet:
M4

PANEL SCHEDULE NOTES:

- New circuit breakers added to existing panels shall match panel manufacturer, voltage level and fault current rating of existing protectives.
- Identify main disconnects and all up and downstream disconnecting means for all circuits at panel.
- Fill out branch circuit directory indicating circuit numbers, area(s) served, and load type. Index shall be neatly typed. Branch circuit directories shall be updated or replaced in all areas of alterations.
- Black laminated phenolic nameplates shall be provided on all new and existing panelboards secured by #8-32 screws, lock washers and nuts on each corner of nameplate.
- Contractor may arrange circuits to suit field conditions, but loading between phases shall be +/-10%.

CODES:

- A = Added
- B = Breaker Lock-Off
- C = Changed Loading
- E = Existing
- G = GFCI Breaker
- IG = Isolated Ground
- R = Arc Fault Breaker



Single Line Diagram - Permanent Service
SCALE: None

Tag#	Qty	Manufacturer	Model	Description	Furni	Width	Depth	Height	Volts	Phase	Amps	Hz	Plug	MBTUH	Notes
1	1			ice merchandiser	Owner	16.0"	24.5"	31.9"	120	1	12.0	60			
2	2	Bunn	ULTRA-2, HP	Pourover slushy	Owner	30"	30"	41"	120	1	9.3	60			
3	1	Cornelius	621057644	ice drink dispenser	Owner	14.875"	20.375"	31"	120	1	15.0		5-15P	1800W	
4	1	Curtis	CAFE PC4	Cappuccino maker	Owner	18.3"	18.3"	29.0"						5000W 120V/208V	
5	1	Grindmaster	P400E	Shuttle coffee brewers	Owner										
6	1			ATM	Owner										See C1 drawing
9	1			Grease interceptor	Owner	14.5"	25.0"	24.5"	115	1	20.0	60			
11	1	Cornelius	WCC-700 A	Chunklet ice maker	Owner	62 1/2"	20.5"	43 1/2"							
12	1	Advance Tabco	FE-3-1515-15RorLX	3 compartment sink	Owner	12.0"	18.5"	10.0"							
14	1	Advance Tabco	DI-1-10SP-EC	Bar sink	Owner	30.0"	30.0"	6.0"							
15	1	Fiat	SB3030	Mop sink	Owner	30.0"	30.0"	6.0"							
16	3	TBD	TBD	Prep sink	Owner	48.0"	36.0"								w/ side splashes L+R
17	1	TRUE	STR2DT-2S	Dbl dr. frzr/cooler	Owner	52-5/8"	33.8"	77.8"	115	1	11.6	60			
18	1	Hatco	GRHD-4PD	SS dual shelf merchan	Owner	58.5"	26.0"	30.1"	120	1	20.7	60			2480W
19	3	TBD	TBD	Wire shelving	Owner	36.0"	30.0"								
20	1	TBD	TBD	Fryer	Owner	24.0"	36.0"								75MBH TBD-To be Determined
21	1	TBD	TBD	SS table	Owner	30.0"	36.0"								

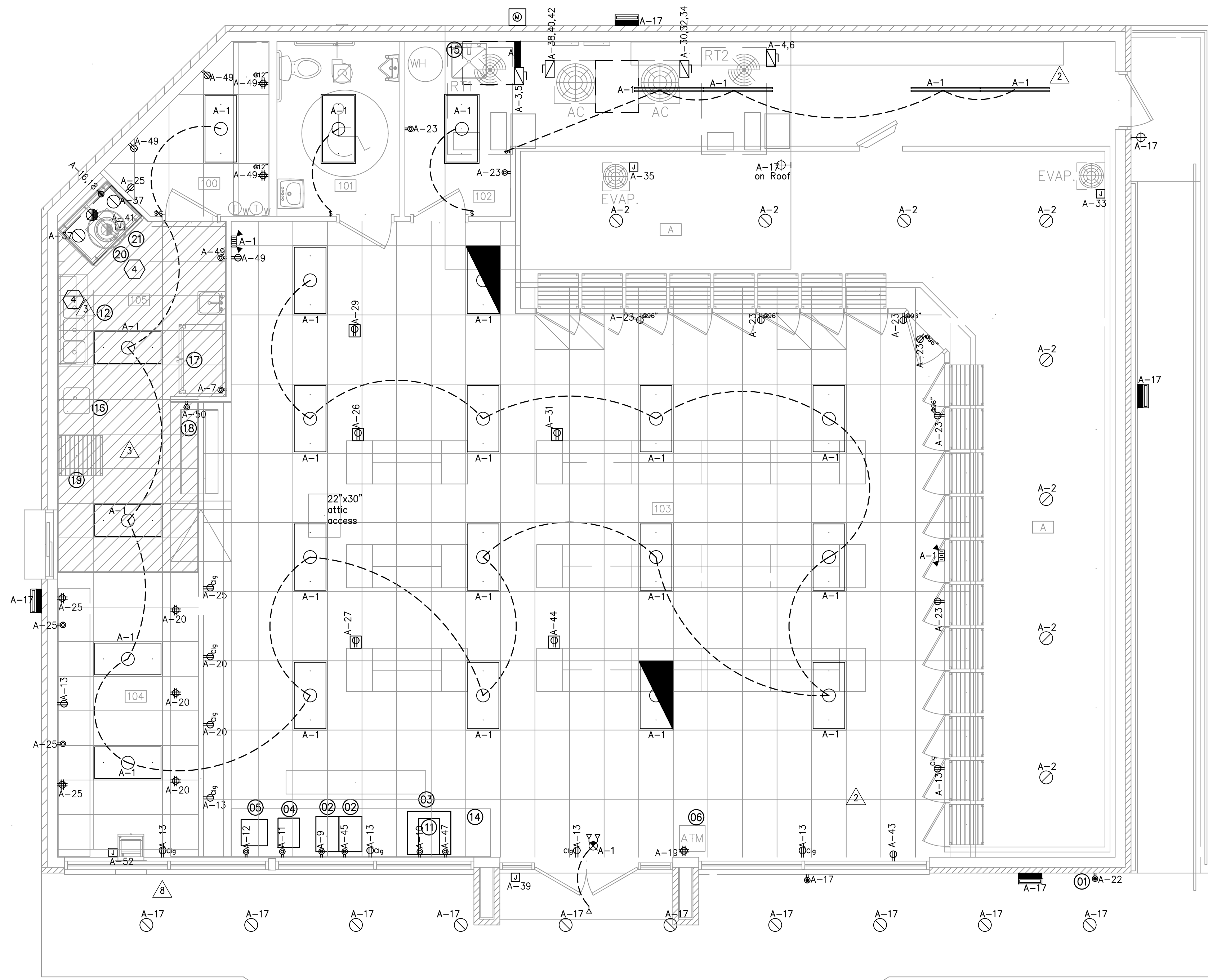
Panel A - 208/120V, 3 PH, 4 W, S.N. - 400A MCB											
Load Description	Load (kVA)			Acc'y Code	Brkr (A)	Wire (AWG)	Ckt No.	Load (kVA)			Load Description
	A	B	C					A	B	C	
All Lites	1.69				20	12	1	0.16			Jelly jar lites
RT1 3 ton		2.70			30	10	3		3.54		RT2 4 ton
Equip#17-dbl door frzr/clr	1.50		2.70		20	12	7			3.54	Blank
Equip#2-Slushy		1.44			20	12	9		1.12		Equip#3-Drink dispenser
Equip#4-Cappucino			1.80		20	12	11		2.50		Equip#5-Coffee machine
Recept-front wall	1.26				20	12	13		2.50		Recept-future equip
Lite-4 poles		1.00		E	20	12	15		3.50		Recept-cashier station
2 Lites+recept-Perimeter			0.82		20	12	17		1.44		Equip#11-ice merchan
Equip#6-ATM	0.36				20	12	19		1.50		Recept-cashier station
Canopy Signage		1.20		E	20	12	21			0.00	Blank
Recept-North+East wall			1.44		20	12	23		1.00		Recept-future equip
Recept-cashier	1.44				20	12	25		1.20		Canopy Signage
Recept-future equip		1.00			20	12	27		3.18		Compressor
Recept-future equip			1.00		20	12	29				Tire Inflator
Recept-future equip	1.00				20	12	31			1.00	Compressor
Evaporator		0.11			20	12	33		2.47		Compressor
Evaporator			0.11		36	12	20		2.47		Recept-future equip
Lite-kitchen hood	0.04				38	10	30		2.47		Veeder Root - Head
Business sign		1.20			40	12	39				VR Leak
Exhaust fan-kitchen			0.37		42	12	41		1.00		Equip#18-food warmer
Recept-future equip	1.00				44	12	20		0.15		Intercom speakers
Equip#2-Slushy		1.44			46	12	20		2.48		Electric charging station
Equip#11- Ice maker			1.50		48	12	20		0.10		LED Price Regular Sub
Recept-office+cashier	1.44				50	10	30		0.75		Plus Sub
Canopy Lights		1.00		E	52	12	20		0.75		Premium Sub
Canopy Lights			1.00	E	54	3	80		0.75		
Dispenser #1		1.20		E	56				9.00		
Dispenser #2			0.00	E	58				9.00		
Dispenser #3		1.20		E	60	12	20		1.20		
Dispenser #4			0.00	E	62	12	20		0.75		
Continous Load:	11.81 kVA	x 1.25 =	14.76 kVA		64	12	20		0.75		
Non-Continous Load:	102.06 kVA	x 1.00 =	102.06 kVA		66	12	20		0.75		
* Largest Motor Load:	3.54 kVA	x 1.25 =	4.42 kVA		68	12	20		0.75		
Total Calculated Ampacity:			337 A		70	12	20		0.75		
Total Connected Load:					72	12	20		0.75		
									A =	33.97 kVA	
									B =	38.05 kVA	
									C =	36.08 kVA	

Electrical Symbol Legend

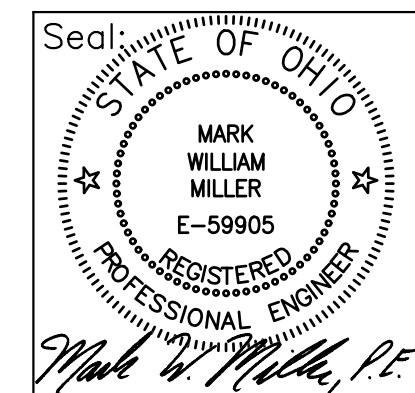
- (Not all symbols may be used)
- 2'x4' fluorescent fixture - recessed.
 - 2'x2' fluorescent fixture - recessed.
 - Shading indicates fixture to be used for emergency egress purposes. Wire nite light/emergency light according to code.
 - Strip Lighting Fixture
 - Insulated Incandescent Light Fixture
 - Wall Sconce
 - Up/Down Incandescent Facade
 - High Bay Fixture
 - Track Lighting
 - Spotlight
 - Emergency battery unit. Unit to provide 1-1/2 hour battery back-up according to code.
 - Exit light - "LED" type. Shading indicates face(s). Arrows indicate direction.
 - Remote emergency head.
 - Switch - Three Way
 - Switch - Four Way
 - Switch - Dimmer
 - Junction Box
 - Transformer
 - Telephone / Power Pole
 - Combination Computer / Phone Jack
 - Computer Jack
 - Telephone Jack
 - Television Jack
 - Duplex receptacle.
 - Receptacle mounted at 44" A.F.F.
 - Quadruplex receptacle
 - Receptacle, floor mounted, flush.
 - 220V Receptacle
 - GFI Receptacle
 - Weatherproof GFI Receptacle
 - Home Run (I.E.: A-B)
 - Surface Mounted Panel
 - Exhaust Fan
 - Electric Meter

Electrical Plan Notes

- Provide 400A high capacity meter base per Duke Energy Red Book Figure 45C.
- Ground service entrance to driven rod, water pipe, building steel (if any), and concrete encased conductor (if any) using #2 Cu or #1/0 Al.
- Each main breaker shall be rated to interrupt the maximum fault current at this location. Installer shall coordinate with local utility to determine available fault current at this, or an upstream location. If upstream, contact engineer for sizing assistance. Preliminary estimate for fault current rating is 22,000 AIC.
- This design is based on 50 ft. candles of light at counter height in cook/prep area and under hood.



Electric Power and Lighting Plan
SCALE: 1/4" = 1'-0"
NORTH



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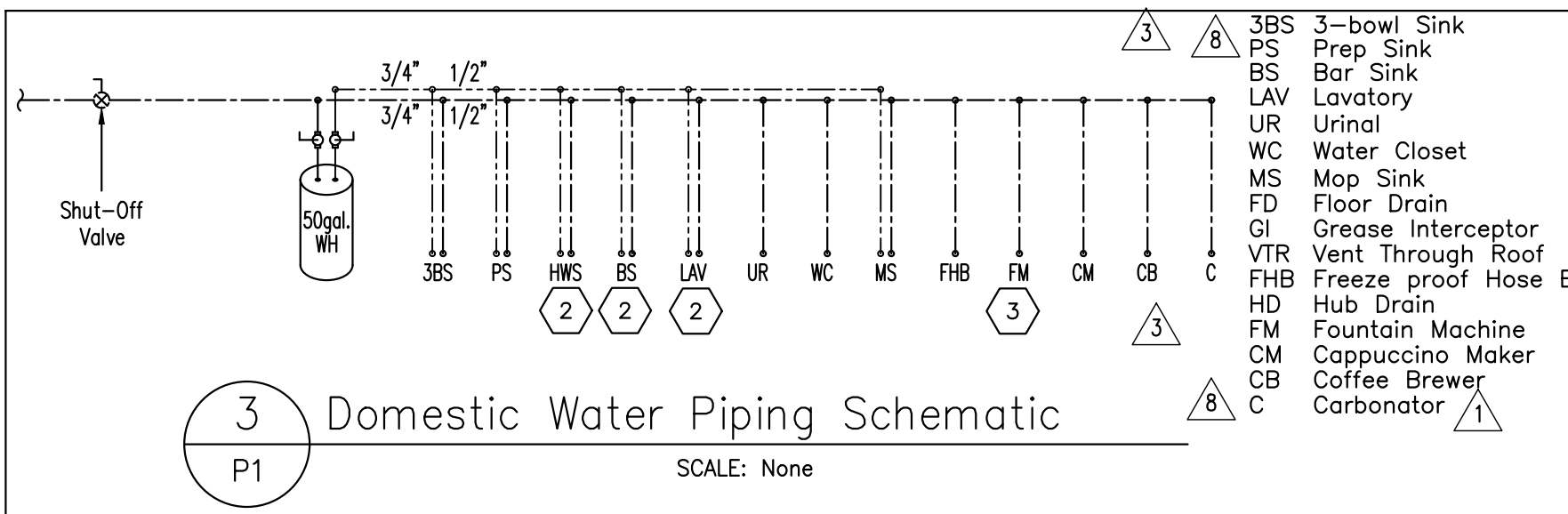
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Electrical Plan

Sheet:
E1

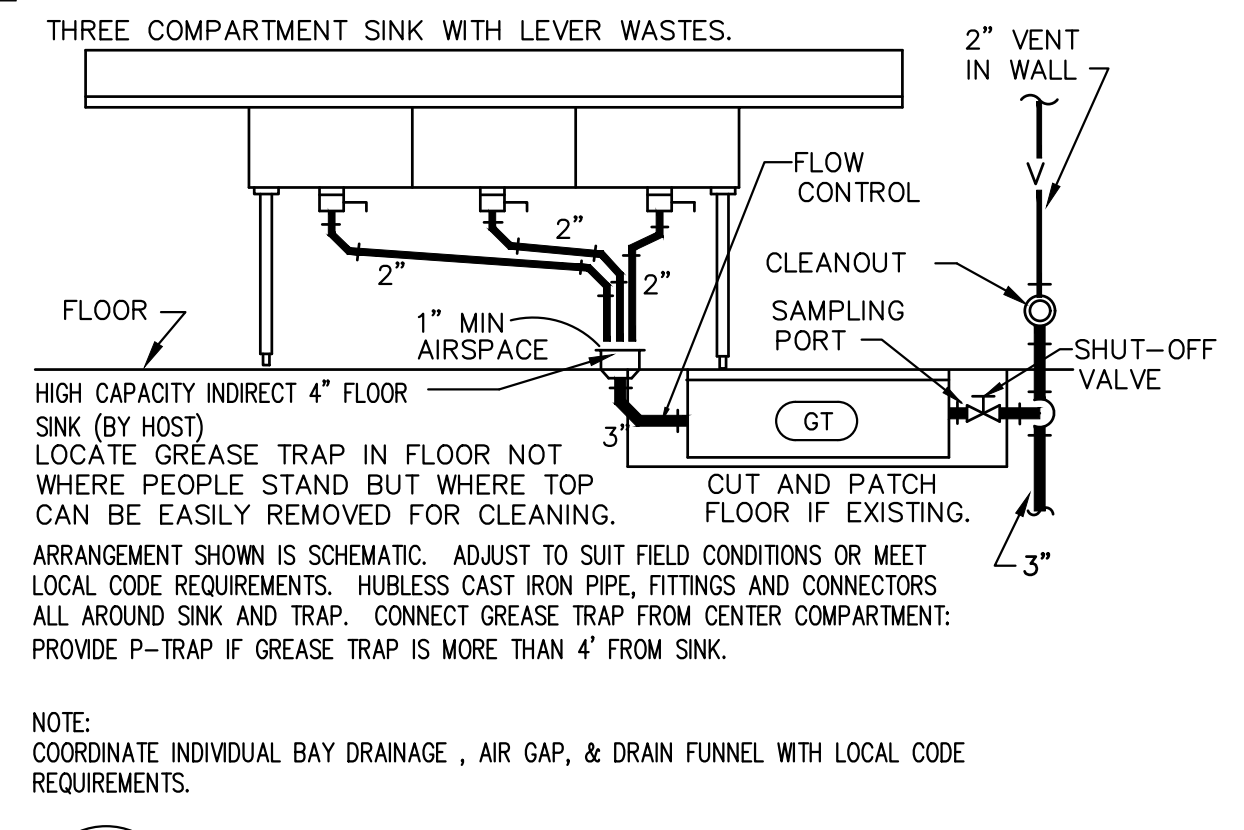
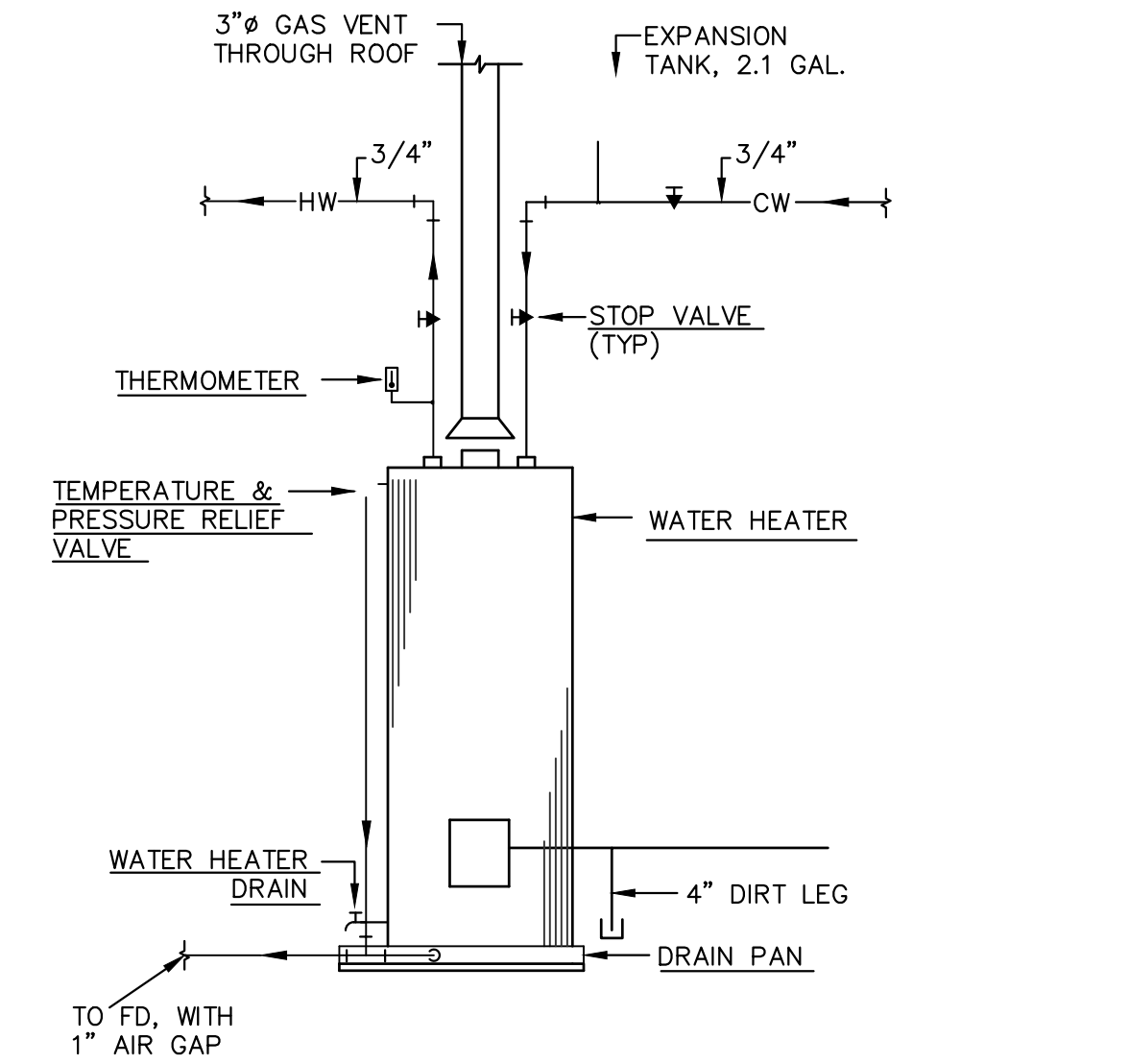
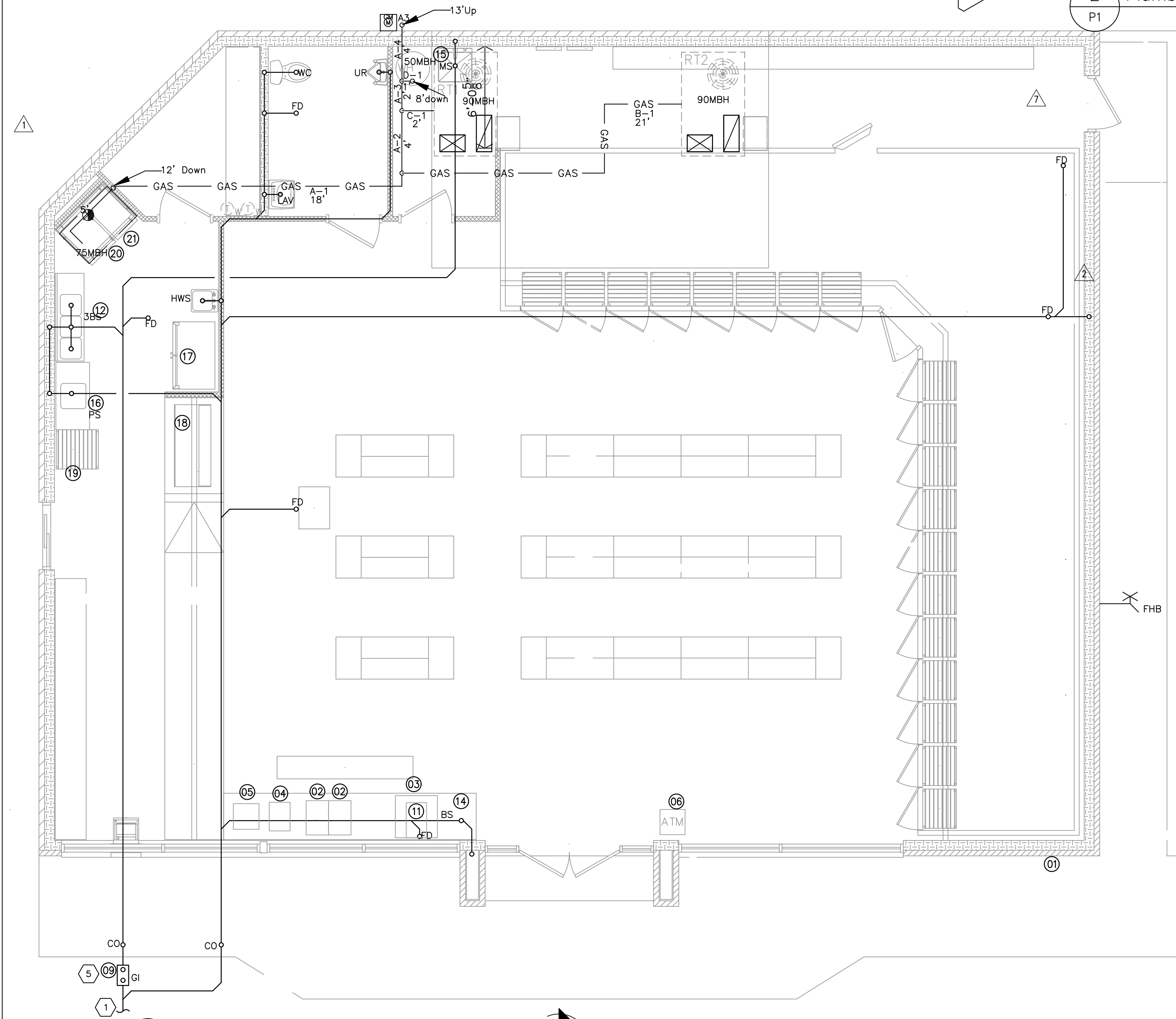
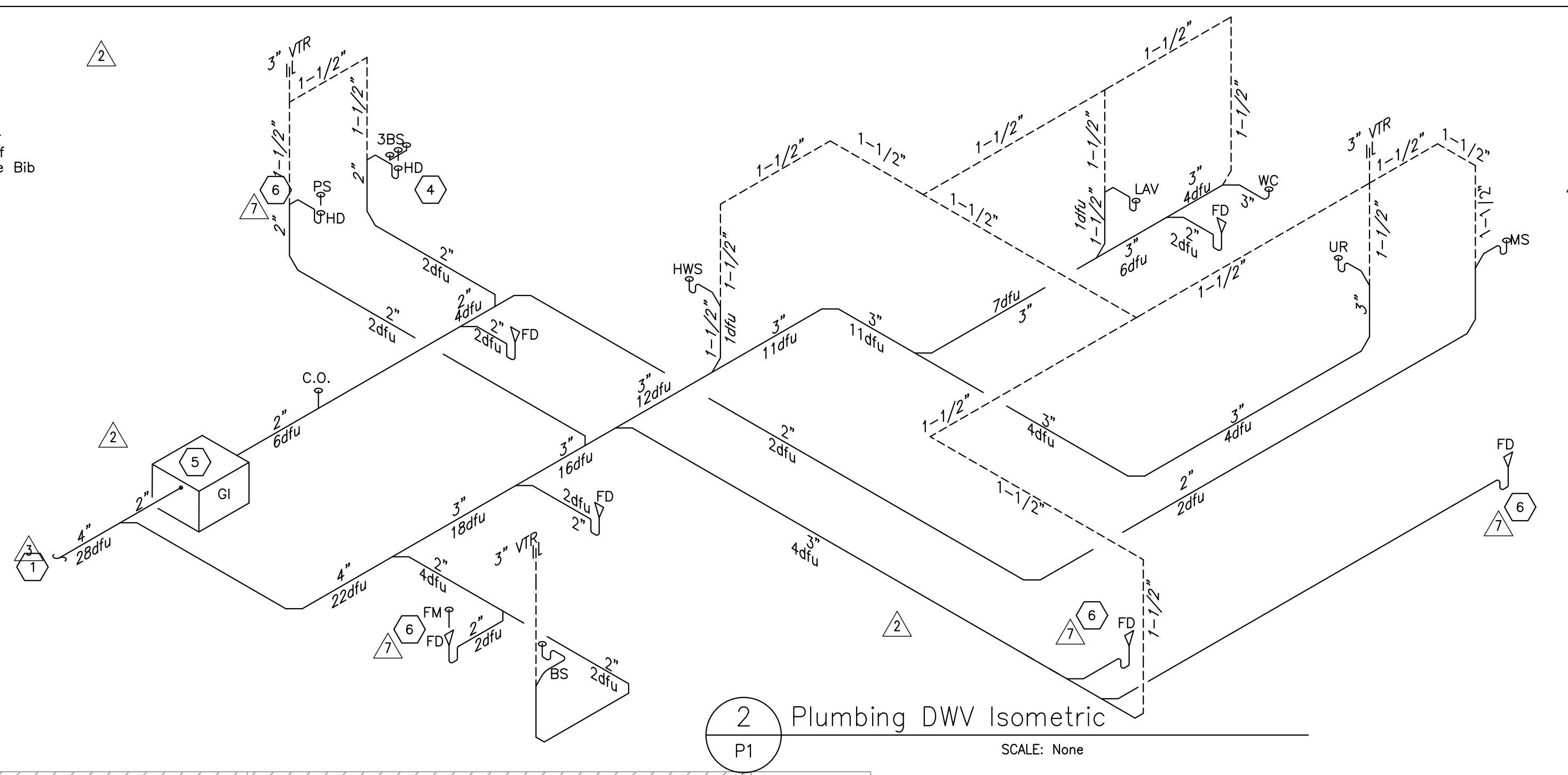
General Notes:

- The term "provide" shall mean contractor shall furnish and install items and connect as required to obtain a complete working system.
- Receptacles shall be circuited with a separate ground wire. Receptacles protected by ground fault circuit interrupter devices shall each have a separate neutral wire pulled for that circuit.
- All conduit shall be run concealed wherever possible above ceilings, inside walls, or in or under floor slab (only where shown dashed on plan), unless otherwise noted on plan. In high-bay (no ceiling) areas, run exposed conduit high as possible. All conduit shall be run parallel or perpendicular to nearby surfaces or structural members and follow the surface contours as much as practical. No nonmetallic conduit shall be run in air return plenum.
- From each outlet other than power, provide a minimum 3/4-inch conduit (with pull string) stubbed above lay-in ceiling, unless otherwise noted.
- Ethernet and other communications wiring shall be plenum rated if conductors pass through an air return plenum.
- Electrical drawings shall be coordinated with associated mechanical drawings and mechanical contractor for motors, devices, fixtures, etc., for exact locations before rough-in of conduit system.
- Mounting heights above finished floor (A.F.F.) are to center of device unless noted otherwise.
- All wiring shall be installed per the National Electric Code (NEC). All wiring shall be secured and supported per NEC 300.11.
- Contractor shall include the cost to secure all applicable permits in base bid.



Fuel Gas Pipe Sizing
 Design per 2011 International Fuel Gas Code, 5th Printing (IFGC)
 All pipe sized by Branch Length Method Per IFGC 402.4.2.
 Each segment size calculated per IFGC 402.4, Equation 4-1 for low pressure gas (<1.5psi).

Branch-Segment	Distance from source	Distance for calculation	Input load of segment	Calculated Pipe ID	Sch. 40 B.I. Pipe (Trade Size) Minimum Required	Installed
A-1 (longest run)	58'	75 MBH	0.56"	1/2"	1/2"	
A-2	23'	58'	165 MBH	0.76"	3/4"	3/4"
A-3	19'	58'	255 MBH	0.90"	1"	1"
A-4	17'	58'	305 MBH	0.96"	1"	1"
B-1	44'	44'	90 MBH	0.57"	1/2"	1/2"
C-1	21'	21'	90 MBH	0.49"	3/8"	3/8"
D-1	26'	26'	50 MBH	0.41"	3/8"	3/8"



General Notes

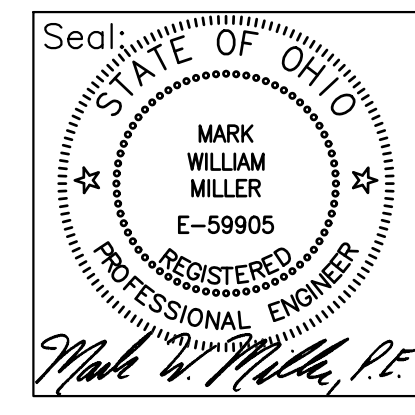
- New work under this contract is shown in bold line weight. Existing plumbing work (if any) is shown in dark gray fashion. Work by others and other elements is shown in light gray.
- This drawing shall not be used for construction unless it bears both the seal and signature of the engineer. Blue line reproductions are not approved for construction. Use only the most current revision.
- All work shall be coordinated with other trades. Gravity drainage takes precedence, followed by HVAC ductwork, and then electrical. Plans are essentially diagrammatic in nature, and do not necessarily reflect all pre-existing conditions, obstacles or ancillary work. This contractor shall conduct his own survey of the job site, and report any material deviations to the engineer prior to commencing work.

Plumbing Plan Symbol Legend

- Point of connection to existing system elements.
- Domestic cold water supply line. Type M copper tubing. Insulate with 1/2" Armaflex or equal. 1/2" diameter unless otherwise noted.
- Domestic hot water supply line. Type M copper tubing. Insulate with 1/2" Armaflex or equal. 1/2" diameter unless otherwise noted.
- Under floor sanitary waste line. PVC solvent weld after application of colored primer. All sizes given on isometric unless otherwise shown. Slope is 1% unless otherwise noted.
- Overhead sanitary vent line. PVC solvent weld after application of colored primer. All sizes given on isometric unless otherwise shown.
- xxx Fixture designation. Specified by Architect unless scheduled herein.
- VTR 3" vent through roof as detailed.
- Domestic water run out to fixture inside wall/floor. Provide escutcheon plate and stop valve at fixture. 1/2" unless otherwise scheduled.
- Piping run continuation to utility connection. See site/civil drawings for continuation and tie-in details.
- Water meter. See detail for water service entrance equipment, sizes, connections, and back flow prevention.
- Gas Meter
- Tabulation meter installed on gas line.

Plumbing Plan Notes

- Sanitary and grease waste shall be run to existing sewer line. See Leesman plan sheet C1 for grease interceptor sizing and location. Coordinate installation with site utilities installer.
- Provide ASSE-1070 water temperature limiting device at each public hand washing fixture set to deliver water no hotter than 120°F.
- Provide ASSE-1022 vented double check backflow prevention device at each beverage dispensing equipment connection to the domestic water supply. Vent shall be installed in downward position, and drained to visible location via 1" minimum air gap. Provide water hammer arrestor installed in the upward position.
- Each bowl of SBS shall be sized to completely submerge the largest food prep utensil on premises.
- See C1 drawing of Leesman Engineering & Associate for grease interceptor specification.
- Provide air gap between equipment discharge and drain receptacle.



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Tag#	Description
1	Ice merchandiser
2	Pourover slushy
3	Ice drink dispenser
4	Cappuccino maker
5	Shuttle coffee brewers
6	ATM
9	Grease interceptor
11	Chunklet ice maker
12	3 compartment sink
14	Bar sink
15	Mop sink
16	Prep sink
17	dbl dr. frzr/cooler
18	SS dual shelf merch
19	Wire shelving
20	Fryer
21	SS table

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Plumbing Plan

Sheet:
P1