

FOR QUESTIONS, CALL THE
Air Solutions
REGION 120
PHONE: (513) 860 - 5555
EMAIL: regi120@captiveaire.com

PATENT NUMBERS

AC-PSP (UNITED STATES) - US PATENT 7963830 B2.
AC-PSP WALL (CANADA) - CA PATENT 2820509.
AC-PSP ISLAND (CANADA) - CA PATENT 2520330.

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

SPECIFICATION: CAPTRATE® GREASE-STOP® SOLID FILTER

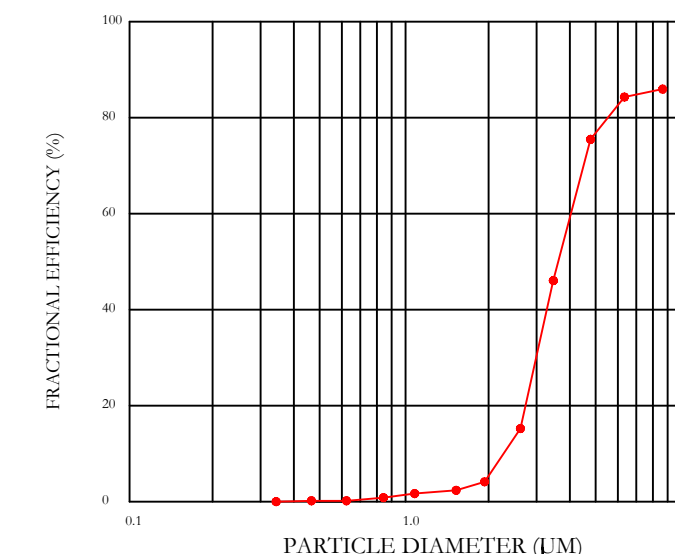
THE CAPTRATE GREASE-STOP SOLID FILTER IS A SINGLE-STAGE FILTER FEATURING A UNIQUE S-Baffle DESIGN IN CONJUNCTION WITH A SLOTTED REAR Baffle DESIGN, TO DELIVER EXCEPTIONAL FILTRATION EFFICIENCY.

FILTER IS STAINLESS STEEL CONSTRUCTION, AND SIZED TO FIT INTO STANDARD 2-INCH DEEP HOOD CHANNEL(S).

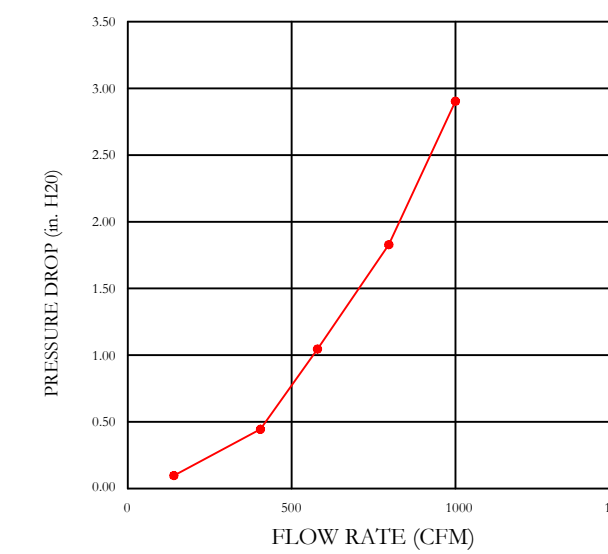
UNITS SHALL INCLUDE STAINLESS STEEL HANDLES AND A FASTENING DEVICE TO SECURE THE TWO COMPONENTS WHEN ASSEMBLED.

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 SOLID WAS TESTED TO ASTM STANDARD ASTM F2519-05. MANUFACTURER APPROVED FOR USE IN SOLID FUEL APPLICATIONS AS A SPARK ARRESTER.

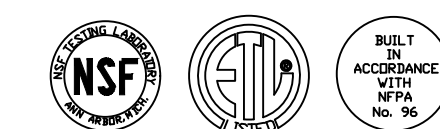
EFFICIENCY VS. PARTICLE DIAMETER



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.



HOOD INFORMATION - JOB#6984457

HOOD NO	TAG	MODEL	MANUFACTURER	LENGTH	MAX COOKING TEMP	TYPE	APPLIANCE DUTY	DESIGN CFM/FT	TOTAL EXH CFM	EXHAUST PLENUM RISER(S)					TOTAL SUPPLY CFM	HOOD CONSTRUCTION	HOOD CONFIG	
										HEIGHT	DIA	CFM	VEL	SP			END TO END	ROW
1	HD1-LEFT	6024 ND-2-PSP-F	CAPTIVEAIRE	10' 0"	600 DEG	I	HEAVY	220	2200	4'	16"	2200	1576	-0.938"	1848	430 SS WHERE EXPOSED	LEFT	ALONE
2	HD2-CTR	6024 ND-2-PSP-F	CAPTIVEAIRE	10' 6"	600 DEG	I	HEAVY	185	1942	4'	14"	1942	1817	-1.006"	1728	430 SS WHERE EXPOSED	MIDDLE	ALONE
3	HD3-RGHT	6024 ND-2-PSP-F	CAPTIVEAIRE	10' 0"	600 DEG	I	HEAVY	185	1850	4'	14"	1850	1731	-0.912"	1646	430 SS WHERE EXPOSED	RIGHT	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
1	HD1-LEFT	CAPTRATE SOLID FILTER	7	16"	16"	85% SEE FILTER SPEC	4	L55 SERIES E26	NO			YES	605 LBS		
2	HD2-CTR	CAPTRATE SOLID FILTER	7	16"	16"	85% SEE FILTER SPEC	4	L55 SERIES E26	NO			YES	601 LBS		
3	HD3-RGHT	CAPTRATE SOLID FILTER	7	16"	16"	85% SEE FILTER SPEC	4	L55 SERIES E26	NO	RIGHT	12"x60"x24"	TANK FS	4.0/4.0/4.0/4.0	YES	1139 LBS

HOOD OPTIONS

HOOD NO	TAG	OPTION
1	HD1-LEFT	FIELD WRAPPER 17.00' HIGH FRONT, LEFT.
		BACKSPLASH 80.00' HIGH X 378.00' LONG 430 SS VERTICAL.
		LEFT SIDESPLASH 80.00' HIGH X 20.00' LONG 430 SS VERTICAL.
		LEFT SIDESPLASH 120.00' HIGH X 30.00' LONG 430 SS VERTICAL.
		RIGHT SIDESPLASH 120.00' HIGH X 18.00' LONG 430 SS VERTICAL.
		BACKSPLASH - INSIDE CORNER 80.00' HIGH X 2.00' LEG LENGTH 430 SS VERTICAL.
		BACKSPLASH - OUTSIDE CORNER 120.00' HIGH X 2.00' LEG LENGTH 430 SS VERTICAL.
		BACKSPLASH - OUTSIDE CORNER 120.00' HIGH X 2.00' LEG LENGTH 430 SS VERTICAL.
		LEFT QUARTER END PANEL 23' TOP WIDTH, 0' BOTTOM WIDTH, 23' HIGH 430 SS.
		BALANCE DAMPERS. INSULATION FOR BACK OF HOOD. SENSDR-CV.
2	HD2-CTR	FIELD WRAPPER 17.00' HIGH FRONT.
		INSULATION FOR BACK OF HOOD. SENSDR-CV.
		FIELD WRAPPER 17.00' HIGH FRONT, RIGHT.
3	HD3-RGHT	BALANCE DAMPERS. INSULATION FOR BACK OF HOOD.
		RIGHT VERTICAL END PANEL 27' TOP WIDTH, 21' BOTTOM WIDTH, 80' HIGH INSULATED 430 SS.
		SENSDR-CV.

CAPTIVEAIRE SYSTEMS RECOMMENDS THE USE OF LISTED, PRE-FABRICATED ROUND GREASE EXHAUST DUCT TO REDUCE STATIC PRESSURE IN THE SYSTEM, MINIMIZE INSTALLATION AND INSPECTION TIMES, AND ENSURE DUCT IS LIQUID TIGHT

HVAC DISTRIBUTION NOTE
HIGH VELOCITY DIFFUSERS OR HVAC RETURNS SHOULD NOT BE PLACED WITHIN TEN (10) FEET OF THE EXHAUST HOOD. PERFORATED DIFFUSERS ARE RECOMMENDED.

PERFORATED SUPPLY PLENUM(S)

HOOD NO	TAG	POS	LENGTH	WIDTH	HEIGHT	TYPE	RISER(S)			
							WIDTH	LENG	CFM	SP
1	HD1-LEFT	Front	120'	16'	6'	MUA	12"	28"	924	0.270"
							12"	28"	924	0.270"
2	HD2-CTR	Front	126'	16'	6'	MUA	12"	28"	864	0.238"
							12"	28"	864	0.238"
3	HD3-RGHT	Front	132'	16'	6'	MUA	12"	28"	823	0.201"
							12"	28"	823	0.201"

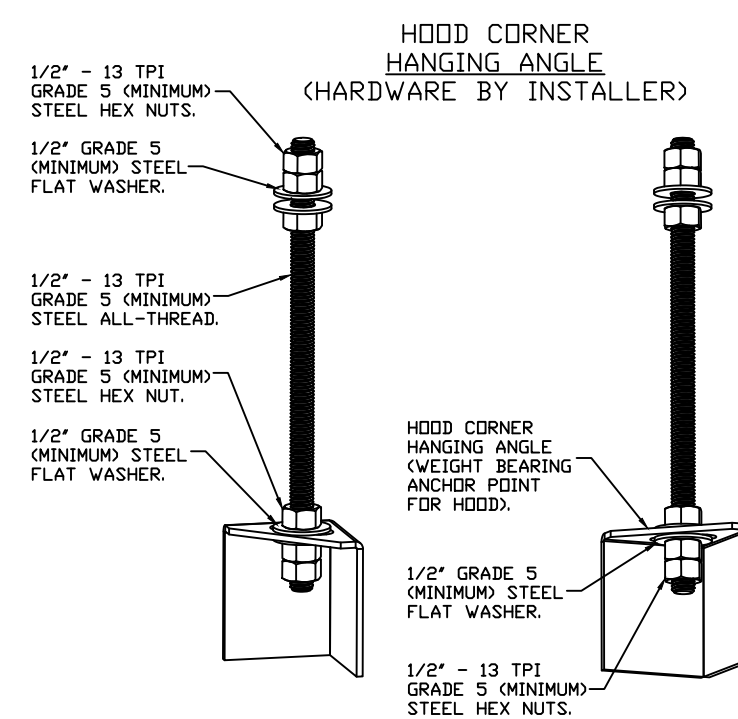
WALL-MOUNT UTILITY CABINET

HOOD NO	LOCATION	SIZE	UTILITY CABINET(S)				WEIGHT
			FIRE SYSTEM	ELECTRICAL	SWITCHES	QUANTITY	
1	WALL MNT	12"x54"x24"	TANK FS	4.0/4.0	DCV-1111_MA4	1 LIGHT 1 FAN	340.00 LBS

CLEARANCE TO COMBUSTIBLES

HOODS #	SURFACE	*CLEARANCE
1,2	TOP	18"
	FRONT	0"
	BACK	0"
	LEFT	18"
3	RIGHT	18"
	TOP	18"
	FRONT	0"
	BACK	0"
	LEFT	18"
	RIGHT	0"

- *0" CLEARANCE TO COMBUSTIBLES CONFORMS TO UL710 STANDARD.
- HOOD MOUNTED UTILITY CABINETS REQUIRE 36" SERVICE CLEARANCE.



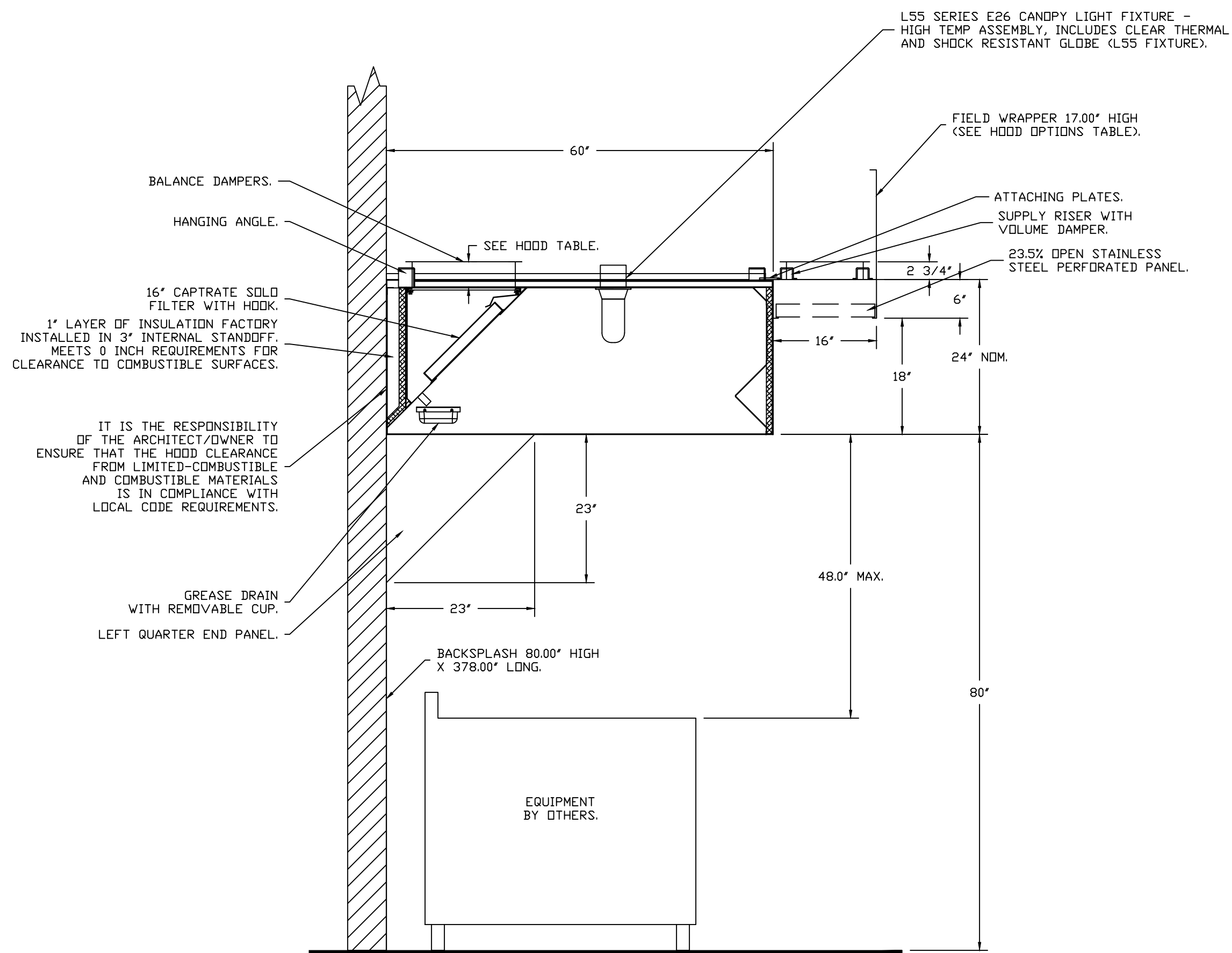
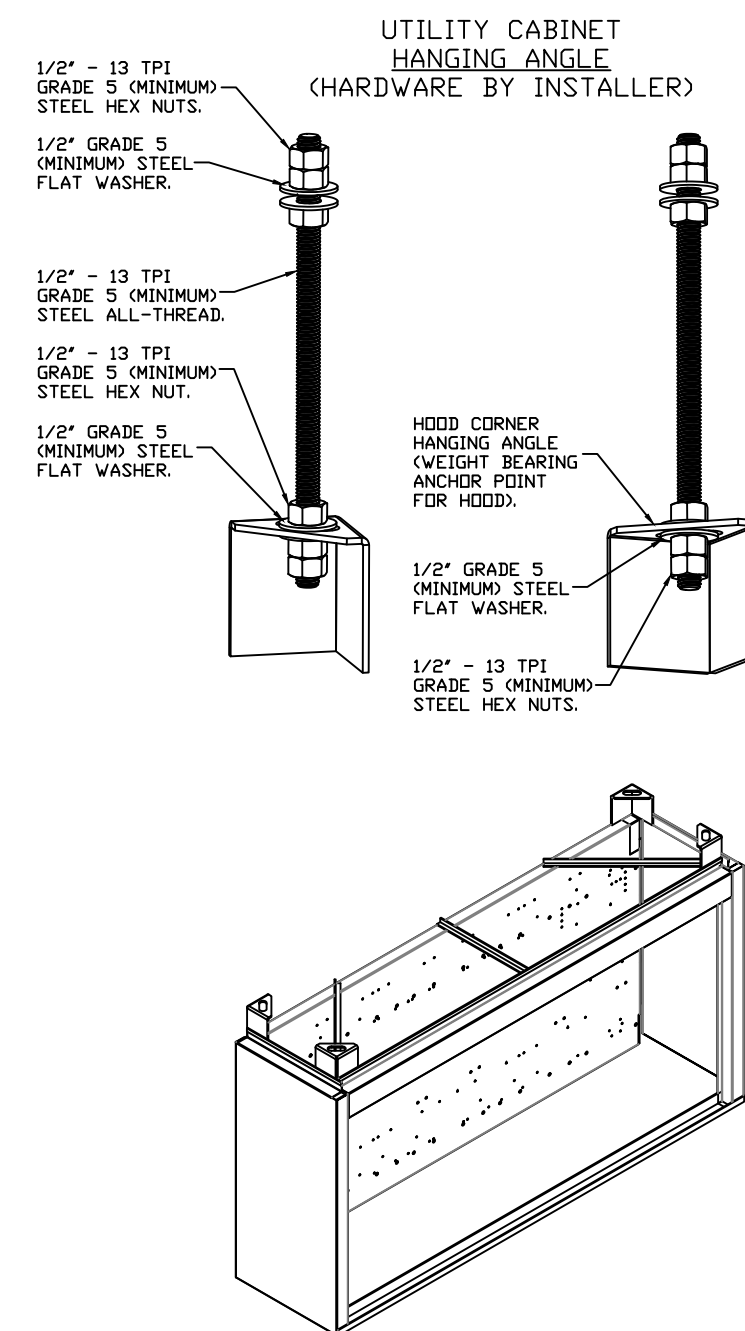
ASSEMBLY INSTRUCTIONS

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.

WALL-MOUNT UTILITY CABINET ASSEMBLY INSTRUCTIONS

CABINET TO BE HUNG BY OTHERS. SEE UTILITY CABINET SCHEDULE FOR CABINET SIZE.

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 UTILITY CABINET HANGING ANGLES AND ABOVE CEILING ANCHORS. MAINTAIN 1/4" OF EXPOSED THREADS BENEATH BOTTOM HEX NUT. TORQUE ALL HEX NUTS TO 57 FT-LBS.



SECTION VIEW - MODEL 6024ND-2-PSP-F HOOD - #1 (HD1-LEFT)

REVISIONS

DESCRIPTION	DATE

CAPTIVEAIRE

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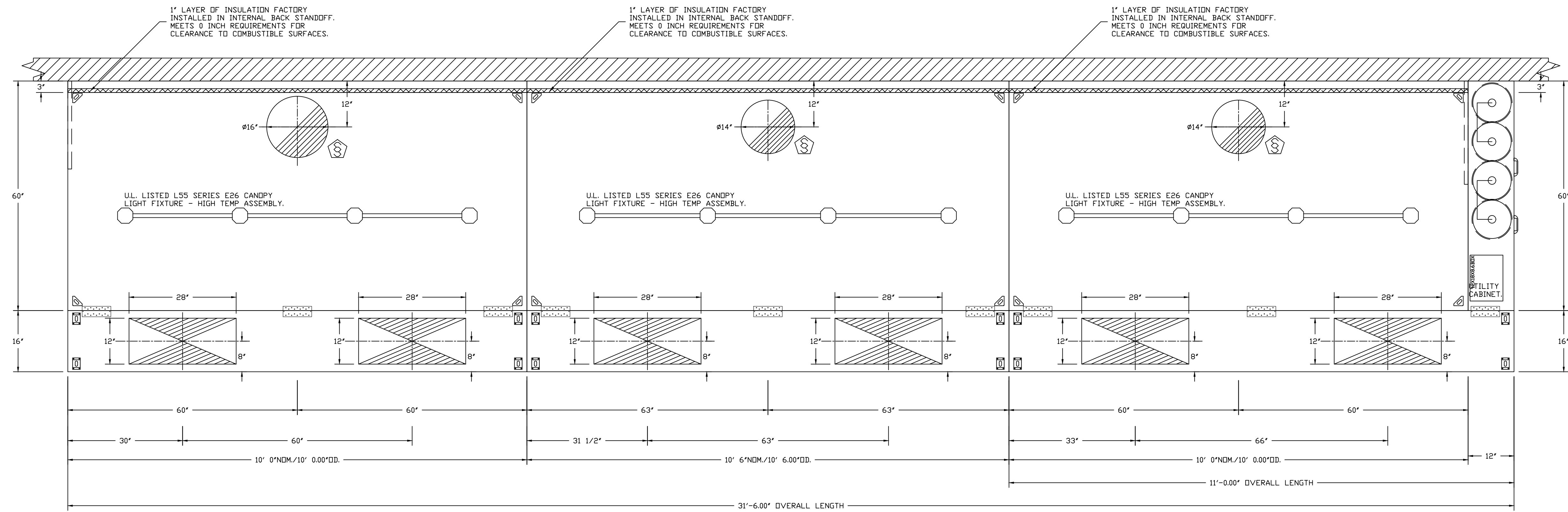
www.captiveaire.com

ASBUILT

Carmelos V2 (Dad Fellows) ASBUILT
434 MADISON AVENUE,
Covington, KY, 41011

DATE: 8/19/2024
DWG#: 6984457
DRAWN BY: BCF
SCALE: NOT TO SCALE
MASTER DRAWING

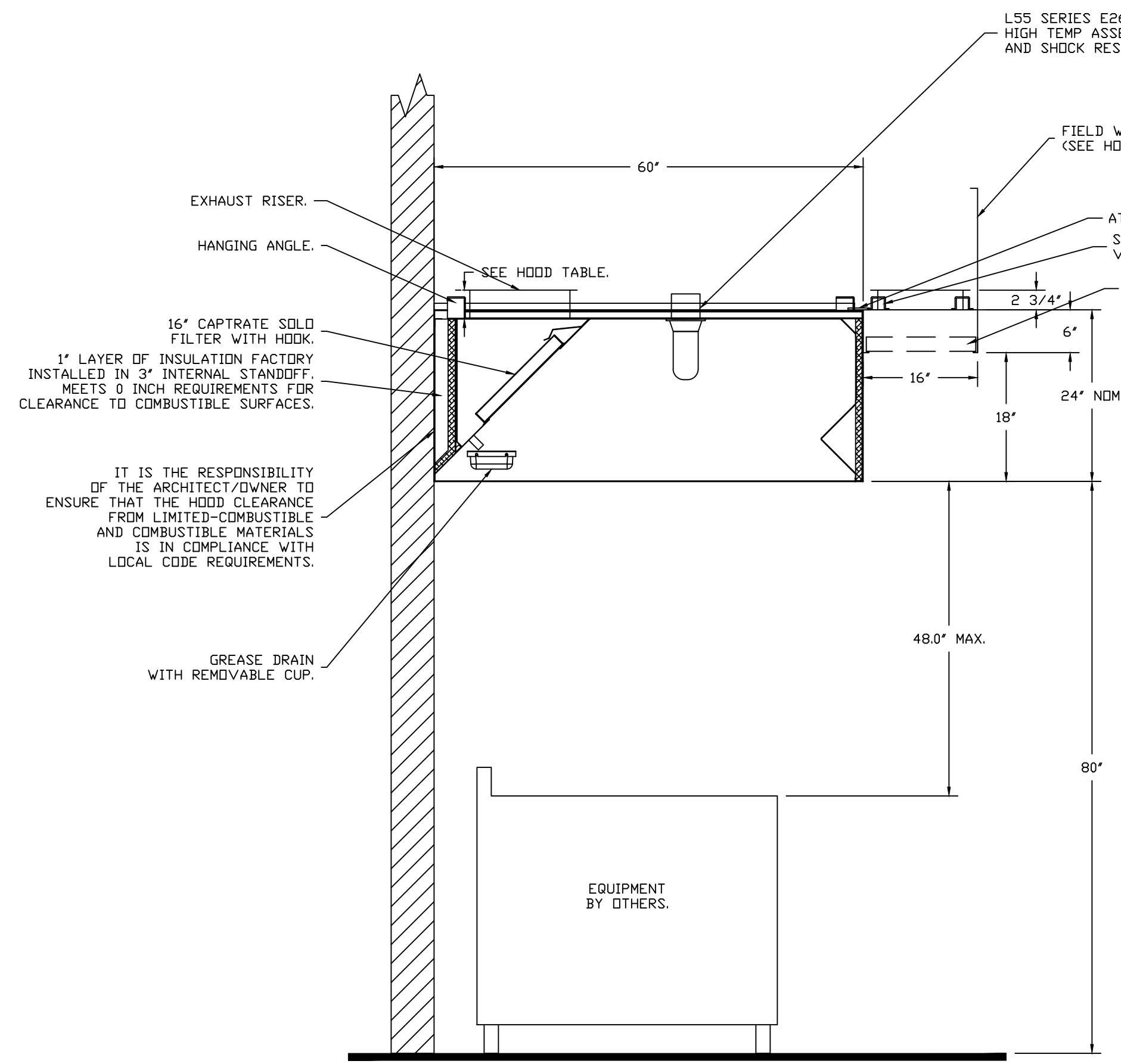
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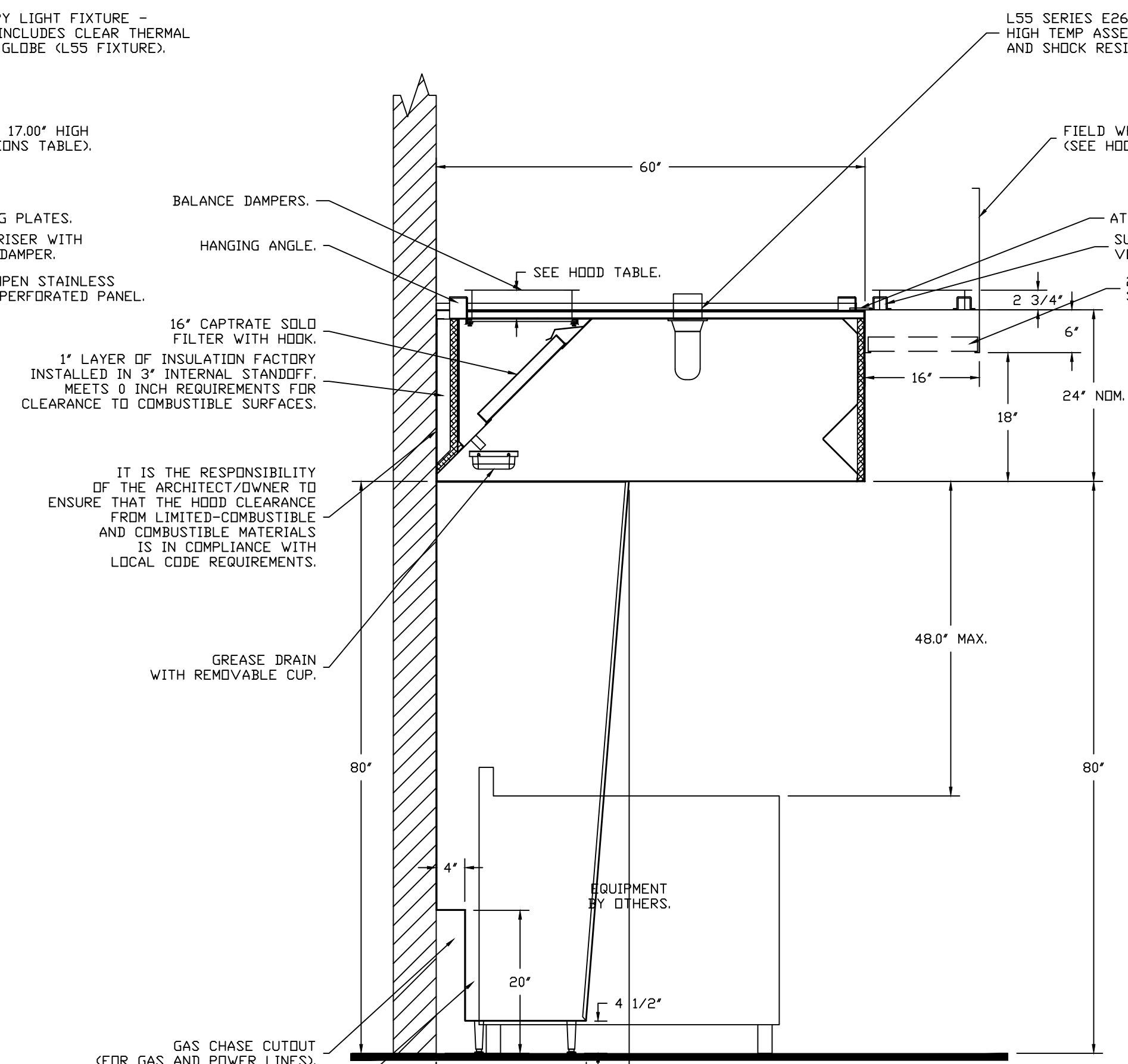
PLAN VIEW - HOOD #1 (HD1-LEFT)
10' 0.00" LONG 6024ND-2-PSP-F

PLAN VIEW - HOOD #2 (HD2-CTR)
10' 6.00" LONG 6024ND-2-PSP-F

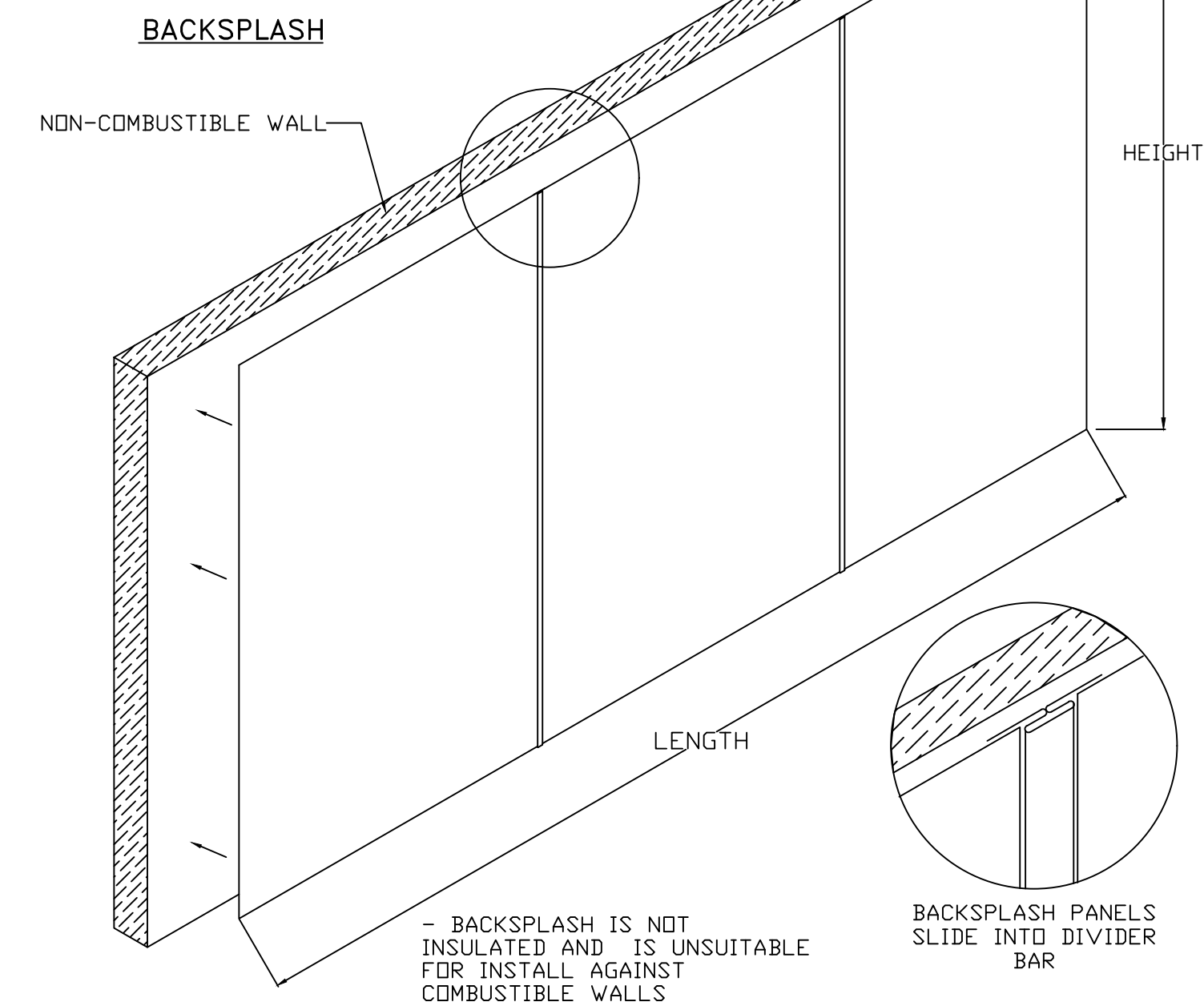
PLAN VIEW - HOOD #3 (HD3-RGHT)
10' 0.00" LONG 6024ND-2-PSP-F



SECTION VIEW - MODEL 6024ND-2-PSP-F
HOOD - #2 (HD2-CTR)



SECTION VIEW - MODEL 6024ND-2-PSP-F
HOOD - #3 (HD3-RGHT)



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CAPTIVE AIR

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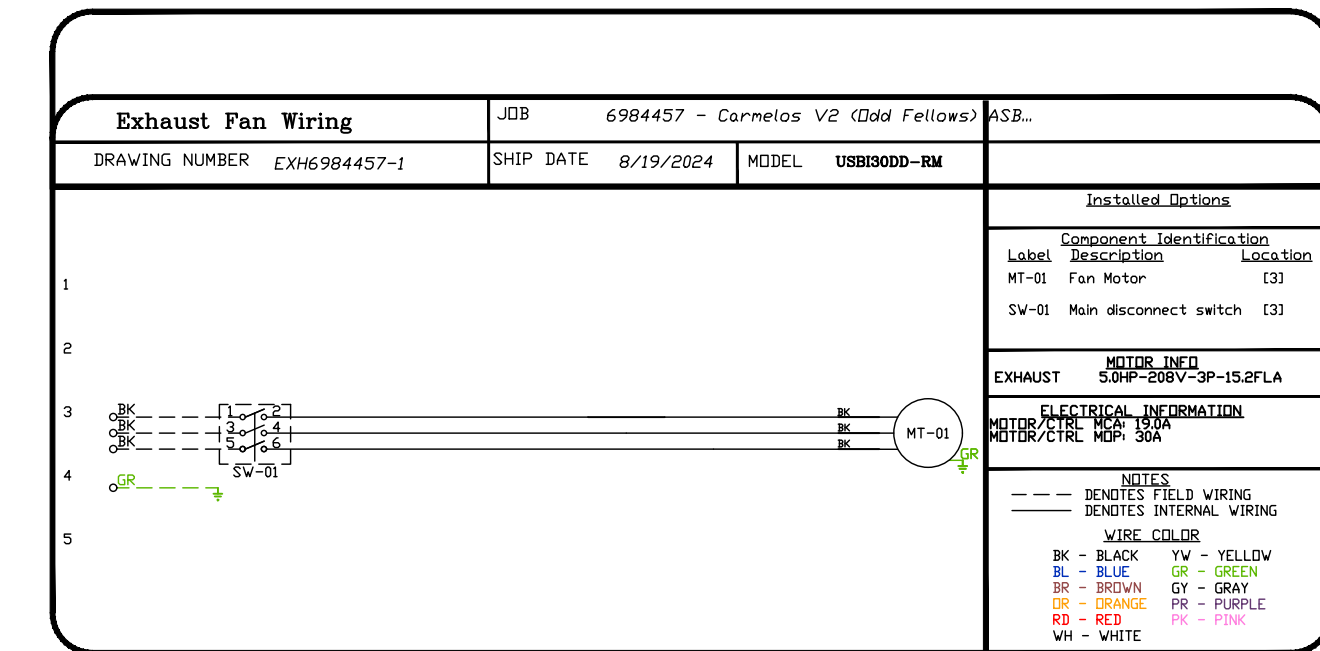
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EXHAUST FAN INFORMATION – JOB#6984457

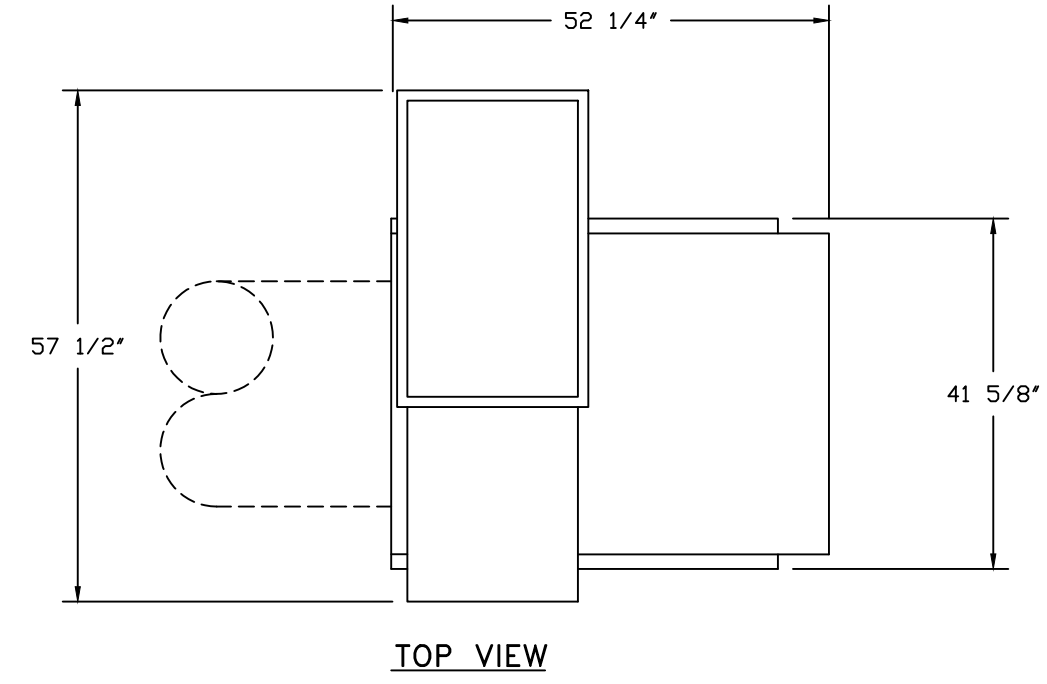
FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	MANUFACTURER	CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	DISCHARGE VELOCITY	WEIGHT (LBS)	SDNES
1	KEF1	1	USB130DD-RM	CAPTIVEAIRE	6000	1.800	885	DDP,PREMIUM	5.000	3.1620	3	208	15.2	1403 FPM	1028	26.8

FAN OPTIONS

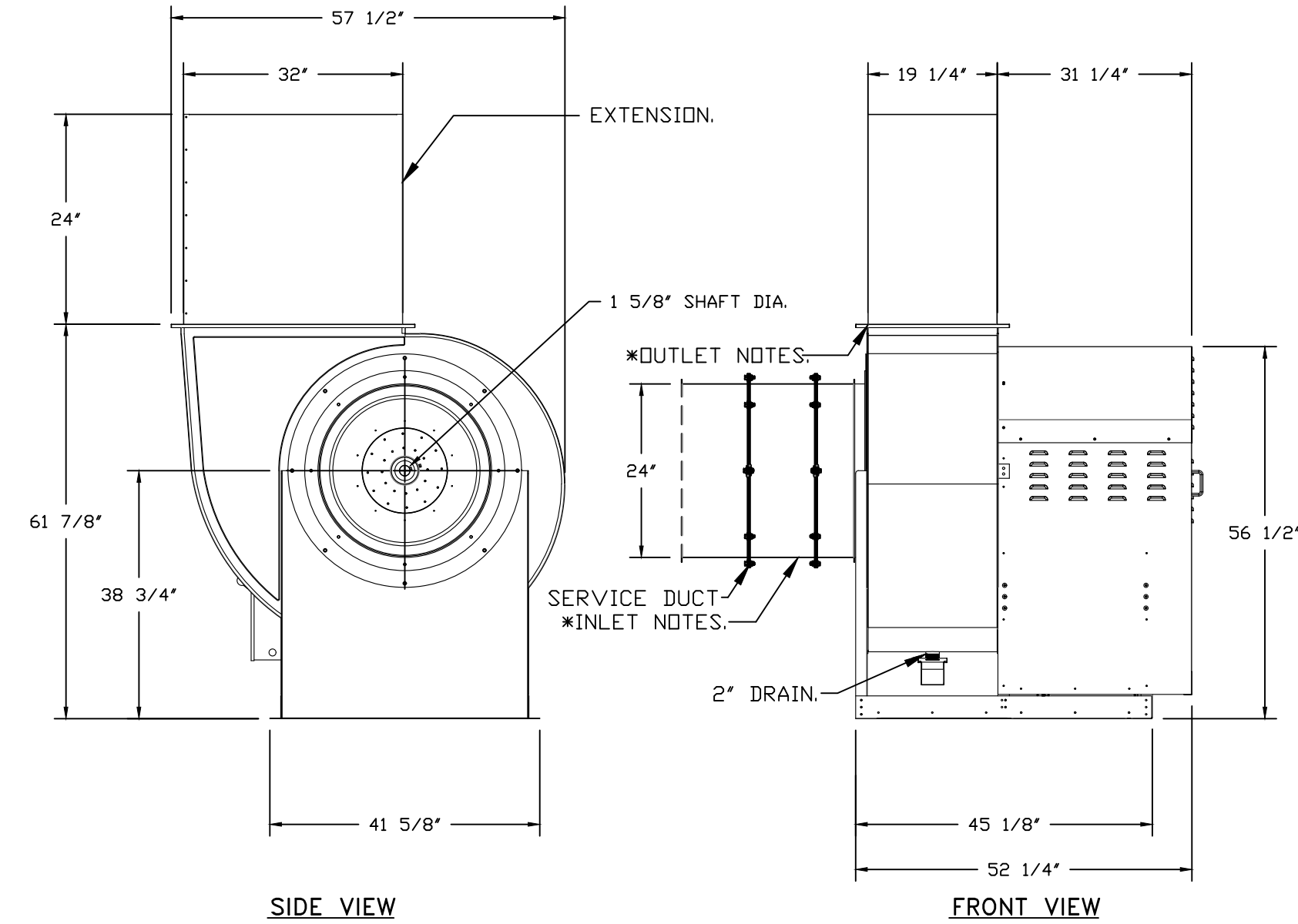
FAN UNIT NO	TAG	QTY	DESCRIPTION
1	KEF1	1	B130 – INLET SERVICE DUCT CONNECTION, USED TO CONNECT TO STANDARD 24" GREASE DUCT OR FIELD WELDED DUCT. INCLUDES (2) 7" RISERS BOLTED TO STANDARD INLET RISER
		1	UTILITY SET GREASE CUP
		1	B130 – 24" DISCHARGE EXTENSION
		1	B1 – DISCHARGE ORIENTATION VERTICAL UPPER LEFT – CW INLET SIDE
		1	B130 – INLET CONNECTION STANDARD 24" FLANGED GREASE DUCT
		1	2 YEAR PARTS WARRANTY
2	SF1	1	CHILLED WATER MODULE –3,000 TO 7,000 CFM (25 TON) NOT STOCKED. ALLOW 5-6 WEEKS LEAD TIME. TEMPERATURE CONTROLS, MIXING VALVES, THERMOSTATS, AND FREEZE PROTECTION BY OTHERS. CUSTOM COIL
		1	MOTORIZED BACKDRAFT DAMPER FOR SIZE 3 HOUSING – MEETS AMCA CLASS 1A RATING
		1	INSULATION OPTION FOR VBANK FILTER SECTION
		1	A3 INDOOR HANGING OPTION – INCLUDES 2 HSA200 HANGING SPRING ISOLATORS PER UNI-STRUT
		1	INSULATED BLOWER SECTION SIZE 3 COMMERCIAL MODULAR
		1	HOT WATER COIL SECTION A3-2 ROW. TEMPERATURE CONTROLS, MIXING VALVES, THERMOSTATS, AND FREEZE PROTECTION BY OTHERS. CUSTOM COIL
		1	SHIP MODULES SEPARATE
		1	SEPARATE 120V WIRING PACKAGE (REQUIRED AND USED ONLY FOR DCV OR PREWIRE WITH VFD) – THREE PHASE ONLY
		1	SIZE 3 COOLING COIL MOISTURE ELIMINATOR OPTION – ALLOWS COOLING COIL FACE VELOCITY TO INCREASE TO 650 FPM – INCREASES COOLING COIL MAX CFM TO 8150 CFM
		1	LOAD REACTOR MOUNTED IN FAN
		1	2 YEAR PARTS WARRANTY



FAN #1 USB130DD-RM-S – EXHAUST FAN (KEF1)



TOP VIEW



SIDE VIEW

FRONT VIEW

FEATURES:

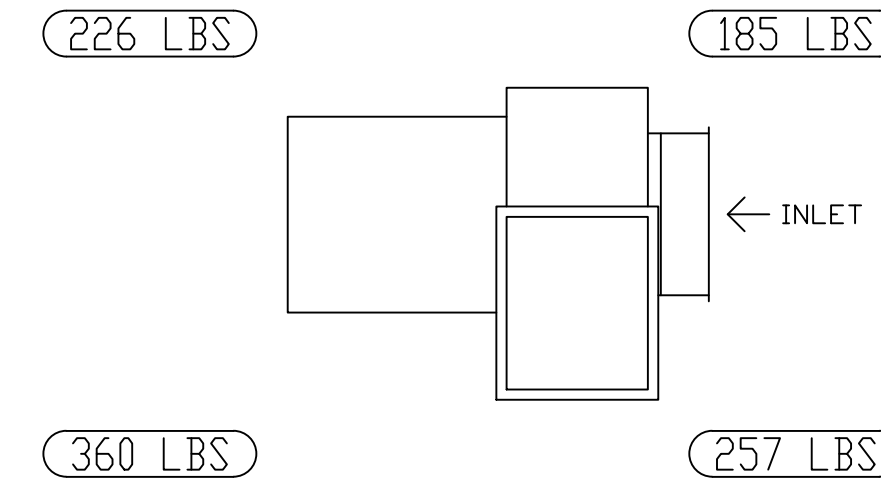
- RROF MOUNTED FANS.
- UL705.
- UL762 AND ULC-S645 (RESTAURANT MODEL).
- HIGH HEAT OPERATION DIRECT DRIVE 350°F (176°C).
- HEAT SLINGER.
- NEMA 3R SAFETY DISCONNECT SWITCH.
- GREASE CLASSIFICATION TESTING.
- 2" DRAIN.
- MOTOR WEATHER COVER.
- FULLY SEALED SCROLL HOUSING.
- SCROLL ACCESS DOOR.
- FLANGE 2".

OPTIONS

- B130 – INLET SERVICE DUCT CONNECTION, USED TO CONNECT TO STANDARD 24" GREASE DUCT OR FIELD WELDED DUCT. INCLUDES (2) 7" RISERS BOLTED TO STANDARD INLET RISER.
- UTILITY SET GREASE CUP.
- B130 – 24" DISCHARGE EXTENSION.
- B1 – DISCHARGE ORIENTATION VERTICAL UPPER LEFT – CW INLET SIDE.
- B130 – INLET CONNECTION STANDARD 24" FLANGED GREASE DUCT.
- 2 YEAR PARTS WARRANTY.

* INLET/OUTLET NOTES:
LENGTH OF THE STRAIGHT DUCT ON THE INLET AND OUTLET TO BE 3 TIMES THE EQUIVALENT DUCT DIAMETER BEFORE CONNECTING TO ANY FITTINGS SUCH AS ELBOWS TO AVOID SYSTEM EFFECT.

UNIT PLAN VIEW CORNER WEIGHTS:



CORNER WEIGHTS ARE CALCULATED BASED ON VERTICAL DISCHARGE. SUPPORT DUCT PROPERLY BEFORE FAN TO ENSURE CORNER WEIGHTS ARE NOT AFFECTED.

NORMAL TEMPERATURE TEST DIRECT DRIVE
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 350°F (176°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

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Carmelos V2 (Odd Fellows) ASBUILT
434 MADISON AVENUE,
Covington, KY, 41011

DATE: 8/19/2024

DWG.#: 6984457

DRAWN BY: BCF

SCALE: NOT TO SCALE

MASTER DRAWING

SHEET NO. 4

MUA FAN INFORMATION - JOB#6984457

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	BLOWER	HOUSING	MIN CFM	DESIGN CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	MCA	MOCF	WEIGHT (LBS)	SONES
2	SF1	1	A3-24D	24MF-3-MDD	A3	3000	7000	0.250	1553	DDP, PREMIUM	10.000	7.2170	3	460	12.2	15.3A	25A	1609	27.5

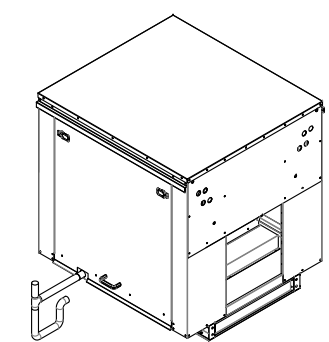
COILS - JOB#6984457

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	TOTAL CAPACITY	SENSIBLE CAPACITY	LATENT CAPACITY	ENTERING DB TEMP	LEAVING DB TEMP	ENTERING FLUID TEMP	LEAVING FLUID TEMP	FLUID FLOW RATE	TOTAL CAPACITY	SENSIBLE CAPACITY
2	SF1	CHILLED WATER AND HDT WATER	7000	89.0°F	74.0°F	67.5°F	65.0°F	50.0°F	61.0°F	42.4 GAL/MIN	233.8 MBH	164.2 MBH	69.6 MBH	10.0°F	70.6°F	180.0°F	163.0°F	55.4 GAL/MIN	460.4 MBH	460.4 MBH

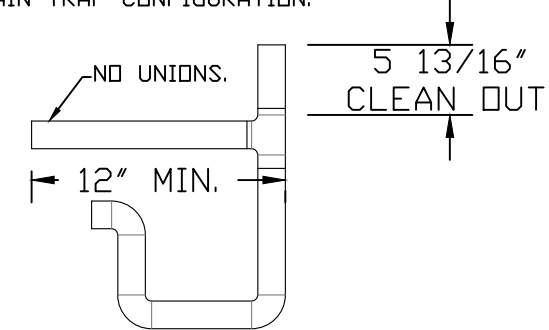
FAN ACCESSORIES

FAN UNIT NO	TAG	EXHAUST			SUPPLY			
		GREASE CUP	GRAVITY DAMPER	WALL MOUNT	SIDE DISCHARGE	GRAVITY DAMPER	MOTORIZED DAMPER	WALL MOUNT
1	KEF1	YES			YES			YES
2	SF1							

TYPICAL DRAIN TRAP INSTALL

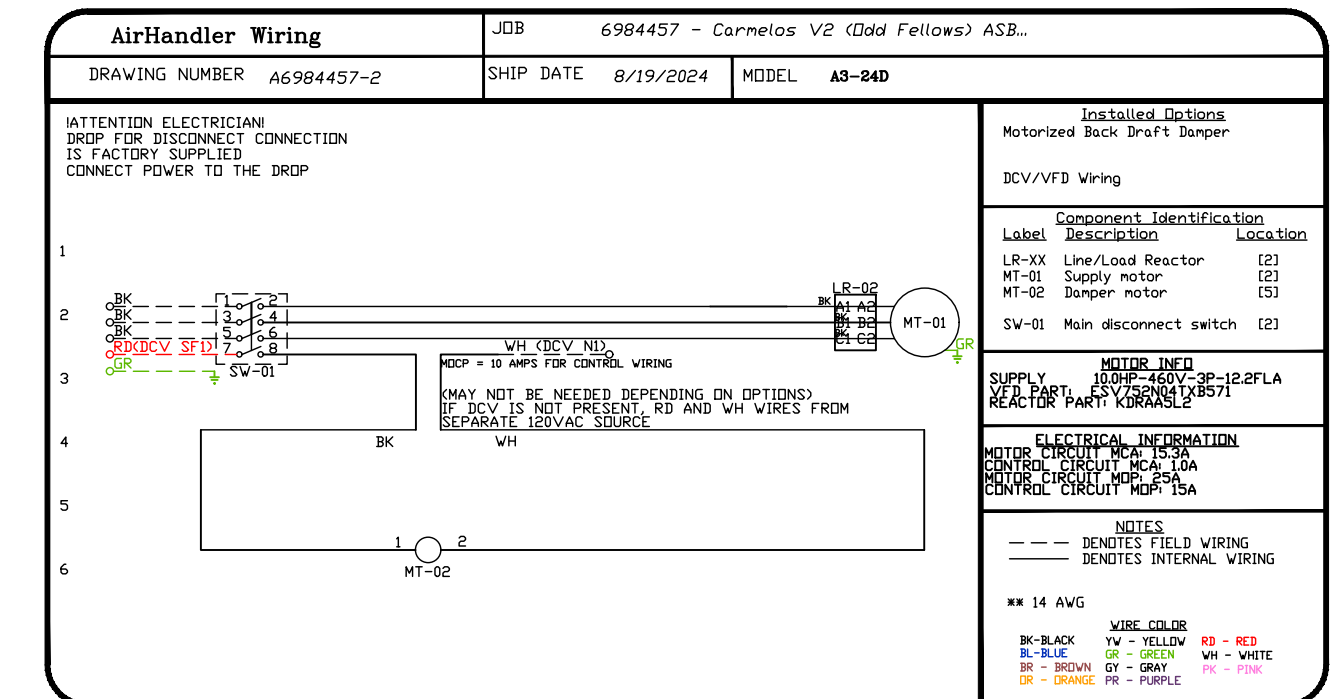


RECOMMENDED COOLING COIL DRAIN TRAP CONFIGURATION



- NOTES:**
 1) 1" DIAMETER PVC PIPE ONLY.
 2) USE ONLY LOW PROFILE COUPLINGS.
 3) ADD CLEAN OUT AS SHOWN.

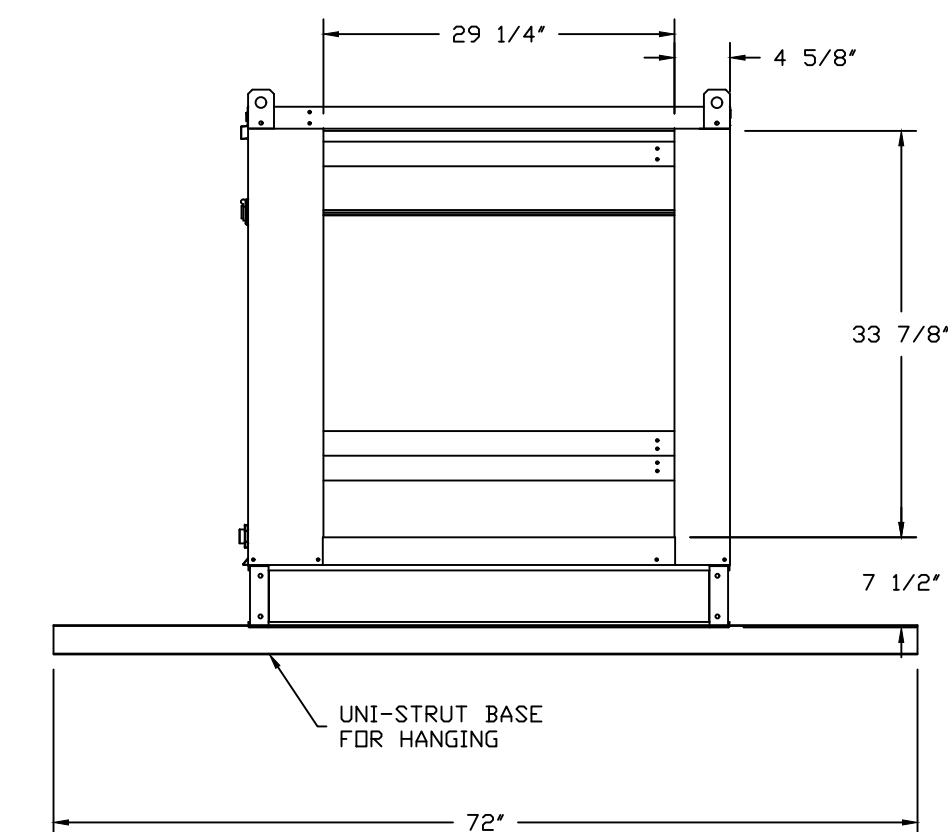
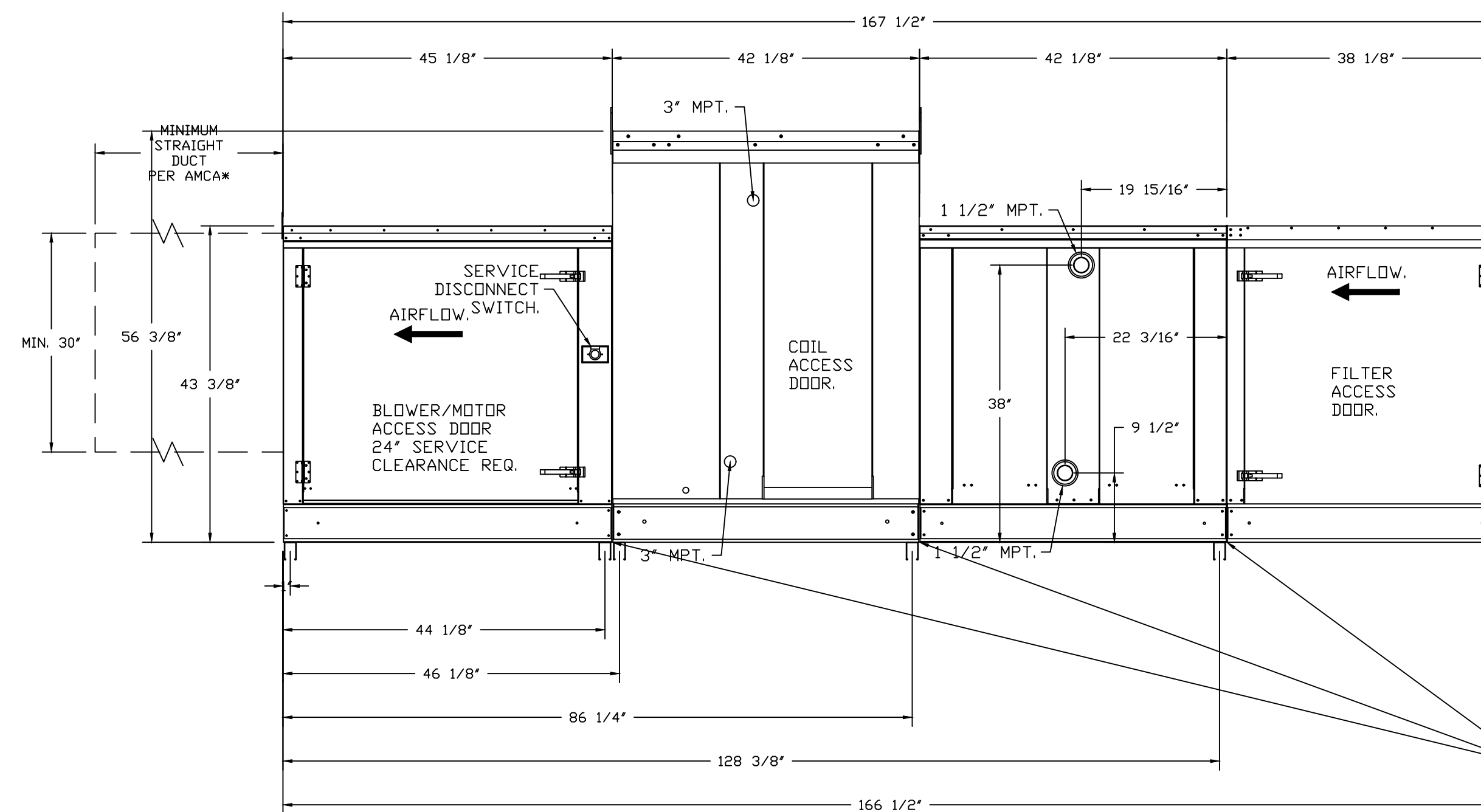
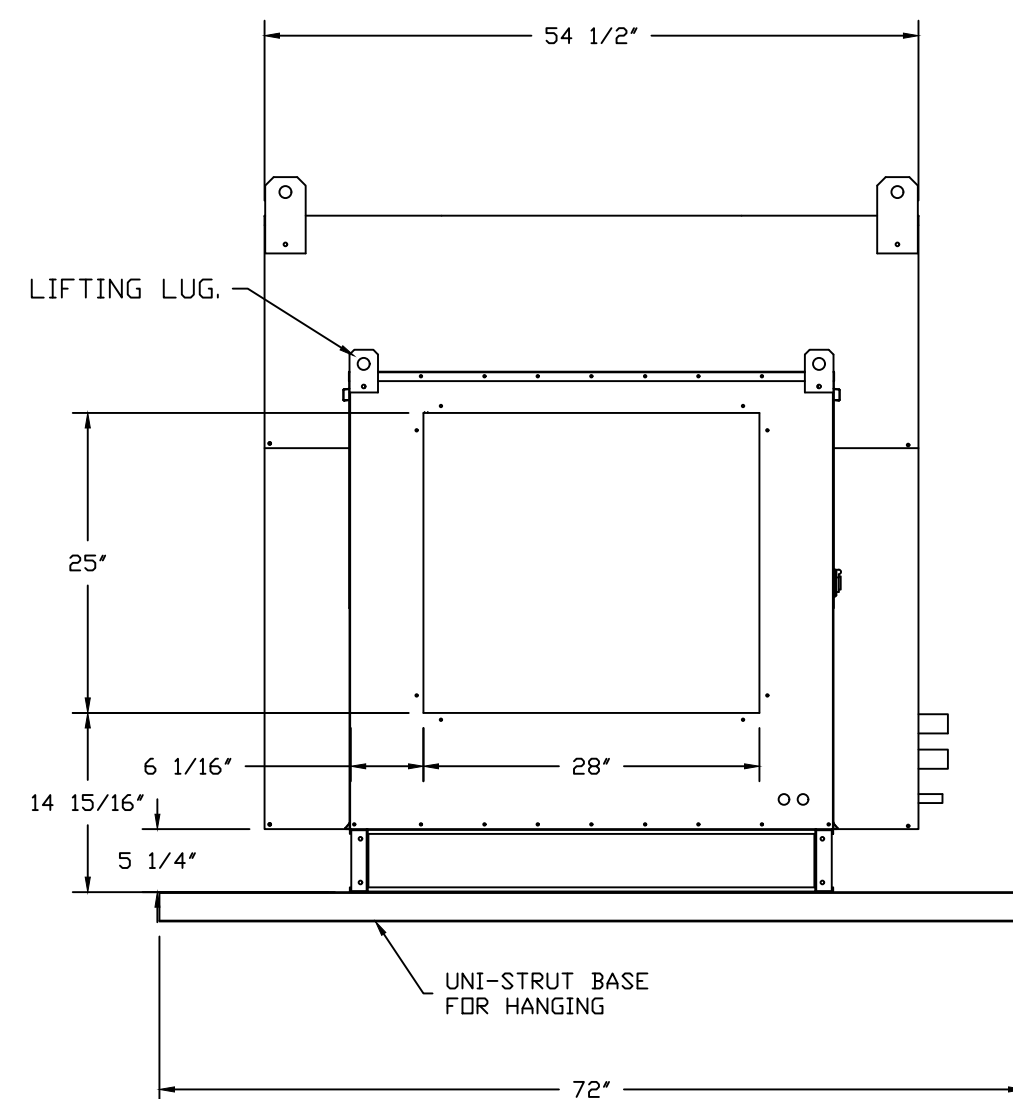
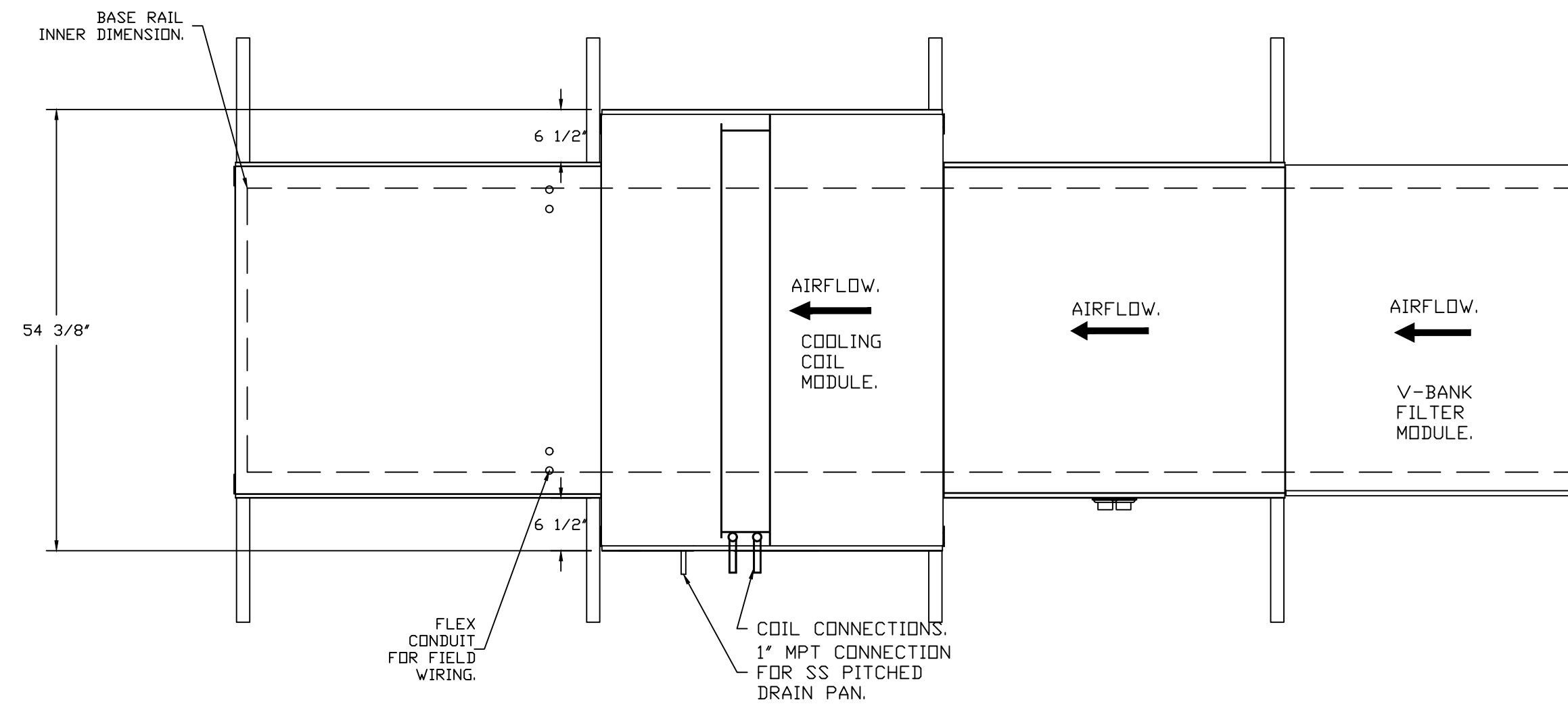
WATER FLOW CONTROL VALVES, DRAINS AND PRESSURE RELIEF BY OTHERS.



FAN #2 A3-24D - SUPPLY FAN (SF1)

- UNTEMPERED SUPPLY UNIT WITH 24" MIXED FLOW DIRECT DRIVE FAN IN SIZE #3 HOUSING.
- V-BANK EZ FILTERS - INDOOR.
- SIDE DISCHARGE - AIR FLOW RIGHT -> LEFT.
- CW COIL MODULE FOR SIZE 3 MODULAR FANS - 3,000 THRU 7,000 CFM (SWG1104A-43.5X42.0) NOT STOCKED. ALLOW 5-6 WEEKS LEAD TIME. TEMPERATURE CONTROLS, MIXING VALVES, THERMOSTATS, AND FREEZE PROTECTION BY OTHERS.
- MOTORIZED BACK DRAFT DAMPER 30" X 30" FOR SIZE 3 UNTEMPERED UNITS W/EXTENDED SHAFT, STANDARD GALVANIZED CONSTRUCTION, 3/4" REAR FLANGE, LOW LEAKAGE, NFBUP-S ACTUATOR INCLUDED.
- "INSULATION" FOR V-BANK INTAKE OPTION.
- INDOOR HANGING CRADLE FOR THE SIZE 3 UNTEMPERED UNIT. 2 HSA200 HANGING ISOLATORS PER UNI-STRUT INCLUDED.
- INSULATED BLOWER HOUSING SIZE 3 COMMERCIAL MODULAR.
- HOT WATER COIL MODULE FOR SIZE 3 MODULAR FANS - 9,530 CFM @ 70DEG TEMP RISE (720,470 BTU'S) COIL = 5MS1302A-30.0X30.5. OPPOSITE AIRFLOW REQUIRES SPECIAL ORDER COIL WITH EXTENDED LEAD-TIME. TEMPERATURE CONTROLS, MIXING VALVES, THERMOSTATS, AND FREEZE PROTECTION BY OTHERS.
- SHIP MODULES SEPARATE OPTION FOR MODULAR UNITS.
- 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.
- SIZE 3 MOISTURE ELIMINATOR OPTION FOR DX COILS, MPUS, AND CHILLED WATER COILS - ALLOWS COOLING COIL FACE VELOCITY TO INCREASE TO 650 FPM. INCREASES COOLING COIL MAX CFM TO 8150 CFM.
- MOUNT LOAD REACTOR IN FAN.
- HINGED DOUBLE WALL INSULATED DOOR ASSEMBLY (BURNER/BLOWER SECTION).
- 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 DRAMATICALLY 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 30" x 30".



MUA SHIPS AS MODULES UNIT IS SEPARATED AT THESE LOCATIONS FOR EASE OF SHIPPING AND INSTALLATION. ASSEMBLY AT THESE LOCATIONS IS REQUIRED IN THE FIELD.

REVISIONS

NO.	DESCRIPTION	DATE



Carmelos V2 (Dad Fellows) ASBUILT
 434 MADISON AVENUE,
 Covington, KY, 41011

DATE: 8/19/2024
DWG.#: 6984457
DRAWN BY: BCF
SCALE: NOT TO SCALE
MASTER DRAWING

SHEET NO.
 5

DUCTWORK #1 PARTS - JOB#6984457 DR-GREASE-INSIDE

TAG	PART #	CFM	SP	WEIGHT	VELOCITY	QTY	DESCRIPTION
P1	DW1404LT	1942	-0.0019	2.25	1816.63	1	SINGLE WALL DUCT 14" DIAMETER, 4' LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P2	DW1418AJDKIT	1942	-0.0051	11.56	1816.63	1	SINGLE WALL DUCT ADJUSTABLE, 14" DIAMETER, 17.5' LONG, FLANGE AT ONE END WITH A 14" ADJUSTABLE COLLAR - STAINLESS STEEL.
P3	DW1445ASY	1942	-0.0542	7.22	1816.63	1	SINGLE WALL DUCT 45 DEGREE ELBOW, 14" DUCT, ASSEMBLY.
P4	DW1407LT	1942	-0.0036	3.63	1816.63	1	SINGLE WALL DUCT 14" DIAMETER, 7' LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P5	DW1415AJDKIT	1942	-0.0034	14.25	1816.63	1	SINGLE WALL DUCT ADJUSTABLE, 14" DIAMETER, 14.50' LONG, FLANGE AT ONE END WITH A 14" ADJUSTABLE COLLAR - STAINLESS STEEL.
P6	DW14SUBRASY			2.96		1	DUCT SUPPORT BRACKET KIT, 14" DUCT, USED FOR HANGING DUCT. 12 GA STEEL, CLEAR ZINC COATING. - 2 RINGS, 4 BRACKETS, & HARDWARE BAG 2.
P7	DW1490ASY	1942	-0.1895	10.62	1816.63	1	SINGLE WALL DUCT 90 DEGREE ELBOW, 14" DUCT, ASSEMBLY.
P8	DW14055LT	1942	-0.0025	2.75	1816.63	1	SINGLE WALL DUCT 14" DIAMETER, 5.5' LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P9	DW1412AJDKIT	1942	-0.0025	8.56	1816.63	1	SINGLE WALL DUCT ADJUSTABLE, 14" DIAMETER, 11.5' LONG, FLANGE AT ONE END WITH A 14" ADJUSTABLE COLLAR - STAINLESS STEEL.
P10	DW1416ADPEC13	1942	-0.01	7.53	1816.63	1	SINGLE WALL DUCT ECCENTRIC ADAPTER, 14" DUCT DIA TO 16" DUCT DIA, ASSEMBLY - 430 STAINLESS STEEL.
P11	DW1622ADPEC21	1942	-0.049	16.02	1390.86	1	SINGLE WALL DUCT ECCENTRIC ADAPTER, 16" DUCT DIA TO 22" DUCT DIA, ASSEMBLY - 430 STAINLESS STEEL.
P12	DW22TEASY	4142	-0.2494	30.55	1569.05	1	SINGLE WALL DUCT TEE, 22" DUCT, ASSEMBLY.
P13	DW1622ADPEC21	2200	-0.063	16.02	1575.63	1	SINGLE WALL DUCT ECCENTRIC ADAPTER, 16" DUCT DIA TO 22" DUCT DIA, ASSEMBLY - 430 STAINLESS STEEL.
P14	DW1604C2D	2200	-0.001	2.73	1575.63	1	SINGLE WALL DUCT OFF SET COLLAR - 16" DIAMETER DUCT - 1/2" PITCH.
P15 ASSEMBLED W/P27	DW16TEASY	2200	-0.009	19.23	1575.63	1	SINGLE WALL DUCT TEE, 16" DUCT, ASSEMBLY.
P16	DW1635LT	2200	-0.0111	18.67	1575.63	1	SINGLE WALL DUCT 16" DIAMETER, 35' LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P17	DW1648AJDKIT	2200	-0.0079	30.39	1575.63	1	SINGLE WALL DUCT ADJUSTABLE, 16" DIAMETER, 47.5' LONG, FLANGE AT ONE END WITH A 16" ADJUSTABLE COLLAR - STAINLESS STEEL.
P18	DW1604C2D	2200	-0.001	2.73	1575.63	1	SINGLE WALL DUCT OFF SET COLLAR - 16" DIAMETER DUCT - 1/2" PITCH.
P19 ASSEMBLED W/P20	DW16TEASY	2200	-0.1184	19.23	1575.63	1	SINGLE WALL DUCT TEE, 16" DUCT, ASSEMBLY.
P20 ASSEMBLED W/P19 D=5	DW1617ADKIT			4.59		1	DUCT ACCESS DOOR WITH HANDLE & GREASE DAM, FOR 16" DUCT USE 17" DOOR. STAINLESS STEEL.
P21	DW1629LT	2200	-0.0093	15.68	1575.63	1	SINGLE WALL DUCT 16" DIAMETER, 29' LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P22	DW1630AJDKIT	2200	-0.0057	20.06	1575.63	1	SINGLE WALL DUCT ADJUSTABLE, 16" DIAMETER, 29.5' LONG, FLANGE AT ONE END WITH A 16" ADJUSTABLE COLLAR - STAINLESS STEEL.
P23	DW1690ASY	2200	-0.0962	13.00	1575.63	1	SINGLE WALL DUCT 90 DEGREE ELBOW, 16" DUCT, ASSEMBLY.
P24	DW1617LT	2200	-0.0057	9.24	1575.63	1	SINGLE WALL DUCT 16" DIAMETER, 17' LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P25	DW1624AJDKIT	2200	-0.0043	16.63	1575.63	1	SINGLE WALL DUCT ADJUSTABLE, 16" DIAMETER, 23.5' LONG, FLANGE AT ONE END WITH A 16" ADJUSTABLE COLLAR - STAINLESS STEEL.
P26	DW16SUBRASY			3.18		1	DUCT SUPPORT BRACKET KIT, 16" DUCT, USED FOR HANGING DUCT. 12 GA STEEL, CLEAR ZINC COATING. - 2 RINGS, 4 BRACKETS, & HARDWARE BAG 2.
P27 ASSEMBLED W/P15 D=1	DW1617ADKIT			4.59		1	DUCT ACCESS DOOR WITH HANDLE & GREASE DAM, FOR 16" DUCT USE 17" DOOR. STAINLESS STEEL.
P28	DW2204C2D	4142	-0.001	3.79	1569.05	1	SINGLE WALL DUCT OFF SET COLLAR - 22" DIAMETER DUCT - 1/2" PITCH.
P29	DW2223LT	4142	-0.0043	17.08	1569.05	1	SINGLE WALL DUCT 22" DIAMETER, 23' LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P30	DW2224AJDKIT	4142	-0.0027	22.83	1569.05	1	SINGLE WALL DUCT ADJUSTABLE, 22" DIAMETER, 23.5' LONG, FLANGE AT ONE END WITH A 22" ADJUSTABLE COLLAR - STAINLESS STEEL.
P31	DW22SUBRASY			3.80		1	DUCT SUPPORT BRACKET KIT, 22" DUCT, USED FOR HANGING DUCT. 12 GA STEEL, CLEAR ZINC COATING. - 2 RINGS, 4 BRACKETS, & HARDWARE BAG 2.
P32	DW22SUBRASY			3.80		1	DUCT SUPPORT BRACKET KIT, 22" DUCT, USED FOR HANGING DUCT. 12 GA STEEL, CLEAR ZINC COATING. - 2 RINGS, 4 BRACKETS, & HARDWARE BAG 2.
P33	DW2204C2D	4142	-0.001	3.79	1569.05	1	SINGLE WALL DUCT OFF SET COLLAR - 22" DIAMETER DUCT - 1/2" PITCH.
P34	DW2226ADPEC17	4142	-0.012	16.12	1569.05	1	SINGLE WALL DUCT ECCENTRIC ADAPTER, 22" DUCT DIA TO 26" DUCT DIA, ASSEMBLY - 430 STAINLESS STEEL.
P35	DW26TEASY	5992	-0.3254	38.09	1625.17	1	SINGLE WALL DUCT TEE, 26" DUCT, ASSEMBLY.
P36	DW2026ADPEC21	1850	-0.011	19.38	847.98	1	SINGLE WALL DUCT ECCENTRIC ADAPTER, 20" DUCT DIA TO 26" DUCT DIA, ASSEMBLY - 430 STAINLESS STEEL.
P37	DW1420ADPEC21	1850	-0.103	14.35	1730.57	1	SINGLE WALL DUCT ECCENTRIC ADAPTER, 14" DUCT DIA TO 20" DUCT DIA, ASSEMBLY - 430 STAINLESS STEEL.
P38	DW1490ASY	1850	-0.1032	10.62	1730.57	1	SINGLE WALL DUCT 90 DEGREE ELBOW, 14" DUCT, ASSEMBLY.
P39	DW1423LT	1850	-0.0104	10.97	1730.57	1	SINGLE WALL DUCT 14" DIAMETER, 23' LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P40	DW1424AJDKIT	1850	-0.0056	14.56	1730.57	1	SINGLE WALL DUCT ADJUSTABLE, 14" DIAMETER, 23.5' LONG, FLANGE AT ONE END WITH A 14" ADJUSTABLE COLLAR - STAINLESS STEEL.
P41 ASSEMBLED W/P56	DW26TEASY	5992	-0.006	38.09	1625.17	1	SINGLE WALL DUCT TEE, 26" DUCT, ASSEMBLY.
P42	DW2604C2D	5992	-0.001	4.44	1625.17	1	SINGLE WALL DUCT OFF SET COLLAR - 26" DIAMETER DUCT - 1/2" PITCH.
P43	DW2647LT	5992	-0.007	40.55	1625.17	1	SINGLE WALL DUCT 26" DIAMETER, 47' LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P44	DW26SUBRASY			4.22		1	DUCT SUPPORT BRACKET ASSEMBLY, 26" DUCT, USED FOR HANGING DUCT. 12 GA STEEL, CLEAR ZINC COATING. - 2 RINGS, 4 BRACKETS, & HARDWARE.
P45	DW2648AJDKIT	5992	-0.004	48.77	1625.17	1	SINGLE WALL DUCT ADJUSTABLE, 26" DIAMETER, 47.5' LONG, FLANGE AT ONE END WITH A 26" ADJUSTABLE COLLAR - STAINLESS STEEL.
P46	DW2647LT	5992	-0.007	40.55	1625.17	1	SINGLE WALL DUCT 26" DIAMETER, 47' LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P47	DW2615ASY	5992	-0.0652	12.54	1625.17	1	SINGLE WALL DUCT 15 DEGREE ELBOW, 26" DUCT, ASSEMBLY.
P48	DW2617LT	5992	-0.0028	15.20	1625.17	1	SINGLE WALL DUCT 26" DIAMETER, 17' LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P49	DW2630AJDKIT	5992	-0.0022	32.17	1625.17	1	SINGLE WALL DUCT ADJUSTABLE, 26" DIAMETER, 29.5' LONG, FLANGE AT ONE END WITH A 26" ADJUSTABLE COLLAR - STAINLESS STEEL.
P50	DW26SUBRASY			4.22		1	DUCT SUPPORT BRACKET ASSEMBLY, 26" DUCT, USED FOR HANGING DUCT. 12 GA STEEL, CLEAR ZINC COATING. - 2 RINGS, 4 BRACKETS, & HARDWARE.
P51	DW2615ASY	5992	-0.05	12.54	1625.17	1	SINGLE WALL DUCT 15 DEGREE ELBOW, 26" DUCT, ASSEMBLY.
P52 ASSEMBLED W/P55	DW26TEASY	5992	-0.006	38.09	1625.17	1	SINGLE WALL DUCT TEE, 26" DUCT, ASSEMBLY.
P53	DW2604C2D	5992	-0.001	4.44	1625.17	1	SINGLE WALL DUCT OFF SET COLLAR - 26" DIAMETER DUCT - 1/2" PITCH.
P54	DW2426ADP13	5992	-0.003	12.52	1907.31	1	SINGLE WALL DUCT ADAPTER, 24" DUCT DIA TO 26" DUCT DIA, ASSEMBLY - 430 STAINLESS STEEL.
SYSTEM AT P54			-2.0787	0.00			
P55 ASSEMBLED W/P52 D=1	DW2627ADKIT			10.22		1	DUCT ACCESS DOOR WITH HANDLE & GREASE DAM, FOR 26" DUCT USE 27" DOOR. STAINLESS STEEL.
P56 ASSEMBLED W/P41 D=1	DW2627ADKIT			10.22		1	DUCT ACCESS DOOR WITH HANDLE & GREASE DAM, FOR 26" DUCT USE 27" DOOR. STAINLESS STEEL.
	3M-2000PLUS			0.80		20	DUCT - 3M FIRE BARRIER 2000 PLUS SILICONE - USED AS SEALANT TO SEAL DUCT JOINTS.
	DW14CLASY			1.06		13	DUCT "V" CLAMP WITH NEW DESIGN 14 GA BRACKETS, 14" DUCT, ASSEMBLY.
	DW16CLASY			1.18		15	DUCT "V" CLAMP WITH NEW DESIGN 14 GA BRACKETS, 16" DUCT, ASSEMBLY.
	DW20CLASY			1.41		1	DUCT "V" CLAMP WITH NEW DESIGN 14 GA BRACKETS, 20" DUCT, ASSEMBLY.
	DW22CLASY			1.50		7	DUCT "V" CLAMP WITH NEW DESIGN 14 GA BRACKETS, 22" DUCT, ASSEMBLY.
	DW24CLASY			1.65		1	DUCT "V" CLAMP WITH NEW DESIGN 14 GA BRACKETS, 24" DUCT, ASSEMBLY.
	DW26CLASY			1.77		16	DUCT "V" CLAMP WITH NEW DESIGN 14 GA BRACKETS, 26" DUCT, ASSEMBLY.
ADDITIONAL PARTS							
	CLIPS	SEAL-50-50		0.50		1	DUCT - FIRE BARRIER WRAP STAINLESS STEEL BANDING SEAL .5" WIDTH. QUANTITY OF 50.
	SS BANDING	BANDING5		5.00		7	DUCT - FIRE BARRIER WRAP STAINLESS STEEL BANDING .5" WIDTH - 200 FT PER ROLL.
	TAPE	TAPEALUM		0.25		4	DUCT - FIRE BARRIER WRAP ALUMINUM FOIL TAPE - 3" X 150' ROLL.
	WRAP	735602000		52.00		7	DUCT - DUCT INSULATION FOR ZERO CLEARANCE TO COMBUSTIBLES - 300" X 24" X 1-1/2" ROLL. UNIFRAX FyreWRAP ELITE 15.
	TOTAL WEIGHT			1281.69			

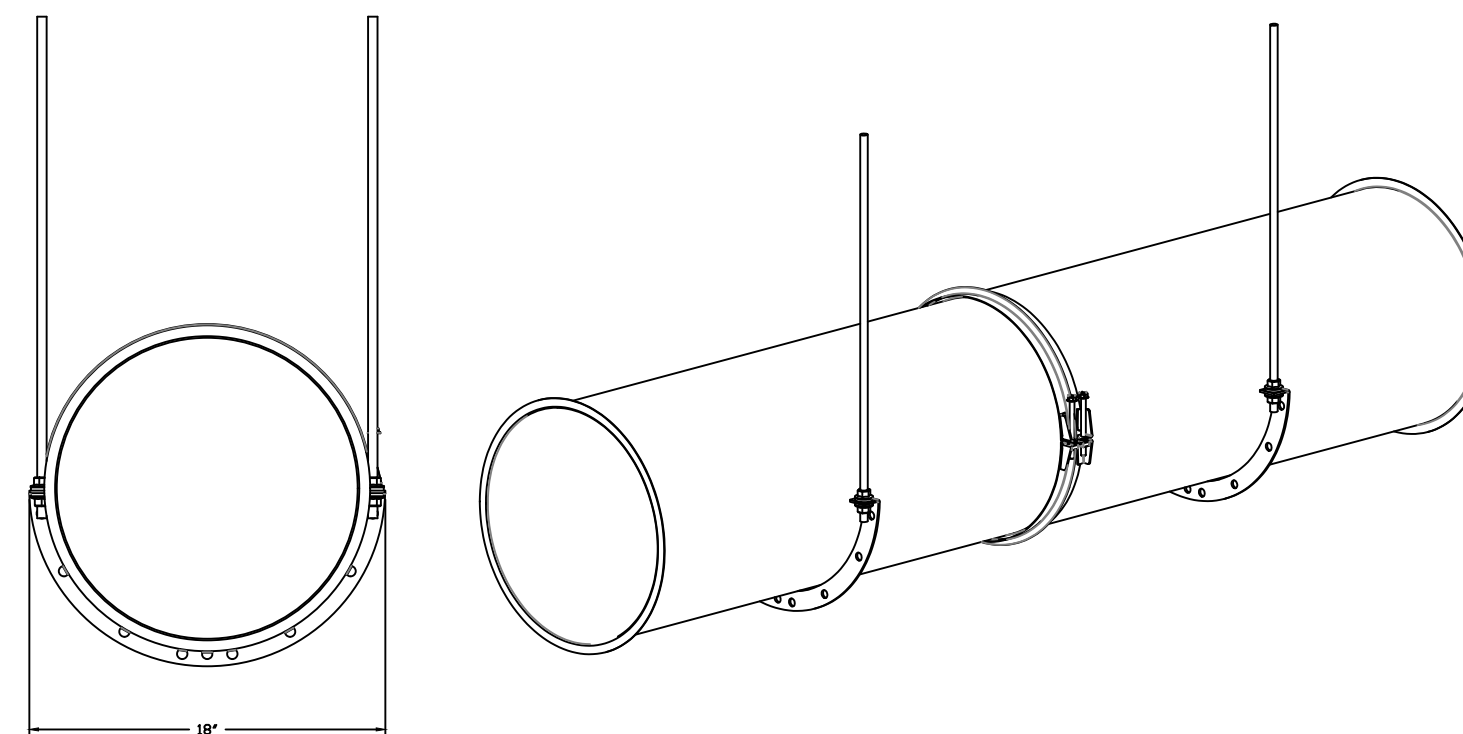
SINGLE WALL FACTORY BUILT DUCTWORK

- ALL DUCTWORK IS REQUIRED TO BE INSTALLED WITH THE MAXIMUM SUPPORT SPACING LISTED BELOW.
- FOR A COMPLETE LIST OF APPROVED SUPPORT METHODS, SEE THE INSTALLATION AND OPERATION MANUAL.
- DUCTWORK SHALL SLOPE NOT LESS THAN 1/16" PER LINEAR FOOT TOWARDS THE HOOD OR AN APPROVED GREASE COLLECTION RESERVOIR.
- WHERE HORIZONTAL DUCTS EXCEED 75 FEET IN LENGTH, THE SLOPE SHALL NOT BE LESS THAN 3/16" PER LINEAR FOOT.

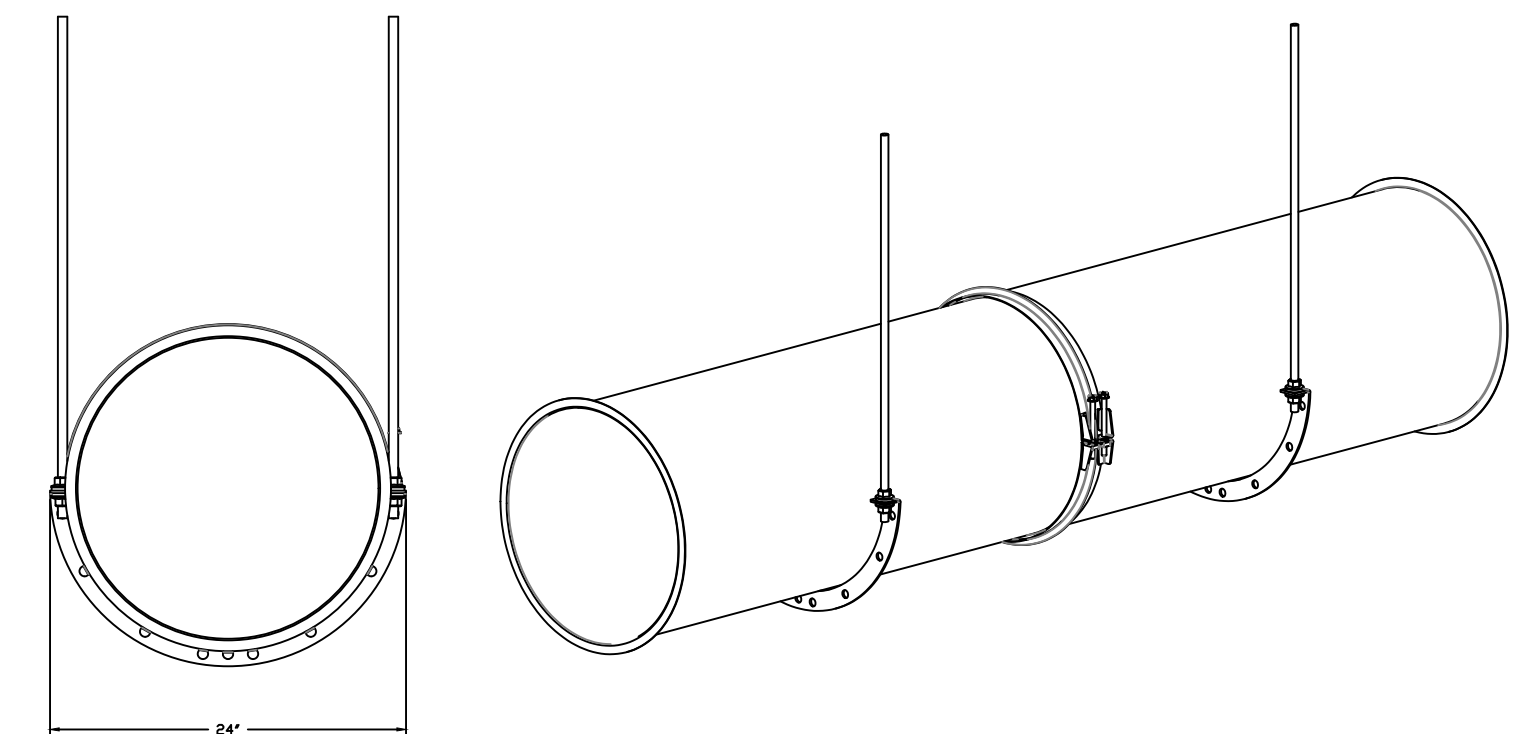
DUCT DIAMETER	HORIZONTAL SUPPORT (FT)	VERTICAL WALL SUPPORT (FT)	VERTICAL CURB SUPPORT (FT)
14"	10'	10'	24'
16"	10'	10'	24'
22"	10'	10'	24'
26"	10'	10'	24'

SUPPORT SYSTEM DETAILS #1

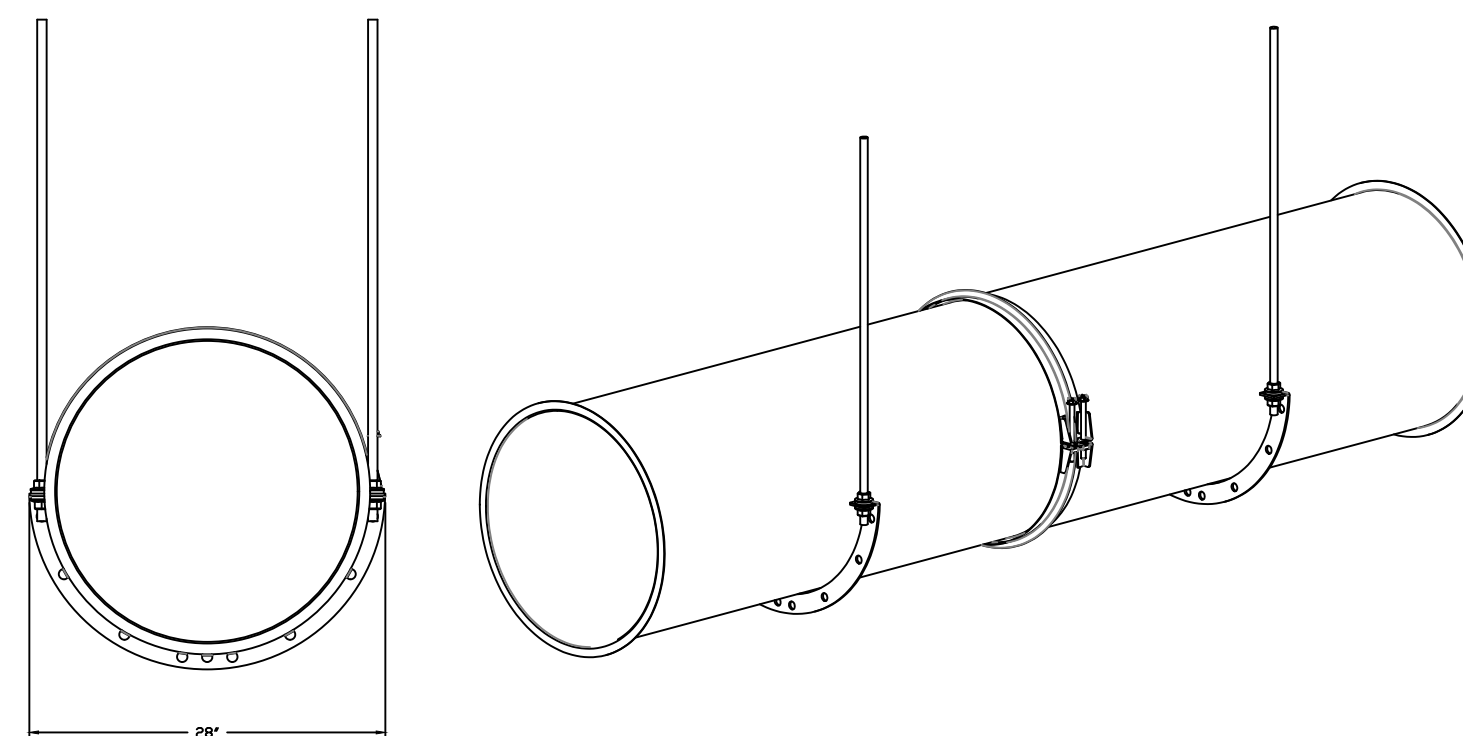
DW16SUBRASY - HORIZONTAL SUPPORT



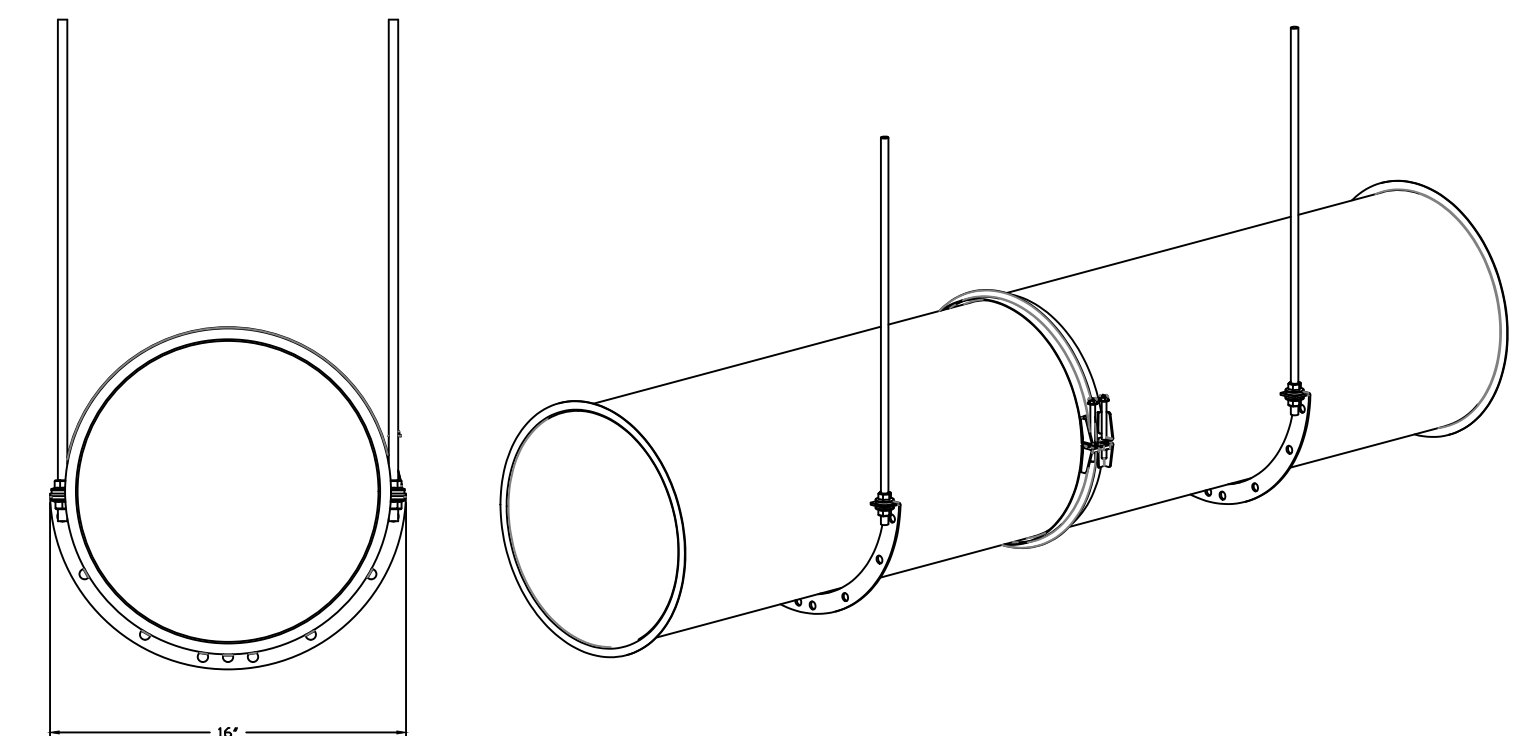
DW22SUBRASY - HORIZONTAL SUPPORT



DW26SUBRASY - HORIZONTAL SUPPORT



DW14SUBRASY - HORIZONTAL SUPPORT



REVISIONS

DESCRIPTION	DATE

CAPTIVE AIR SOLUTIONS

1929 East Kemper Rd., Ste. 4210, Cincinnati, OH, 45246 PHONE: (513) 860-5555 EMAIL: reg120@captiveair.com

Carmelos V2 (Dodd Fellows) ASBUILT

434 MADISON AVENUE,
Covington, KY, 41011

DATE: 8/19/2024

DWG #: 6984457

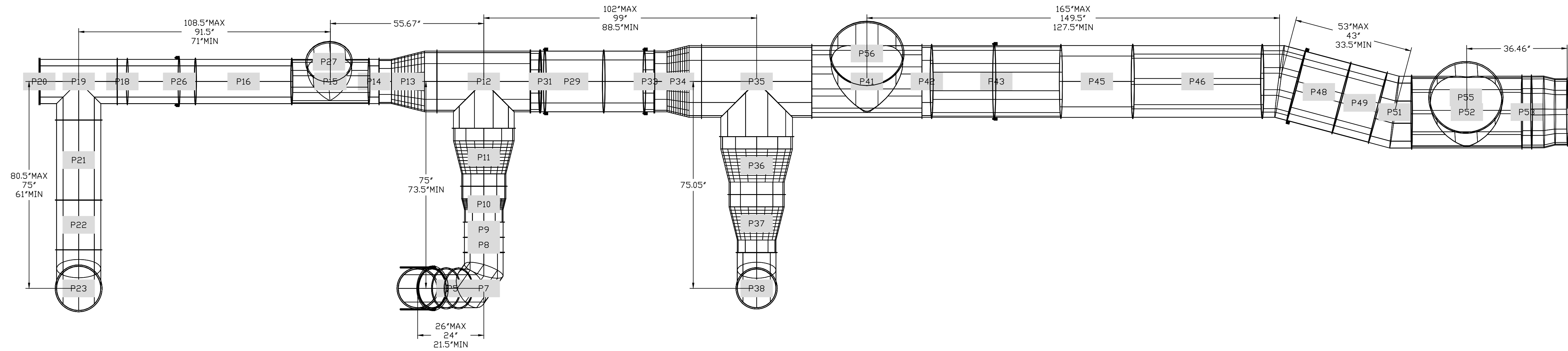
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SCALE: NOT TO SCALE

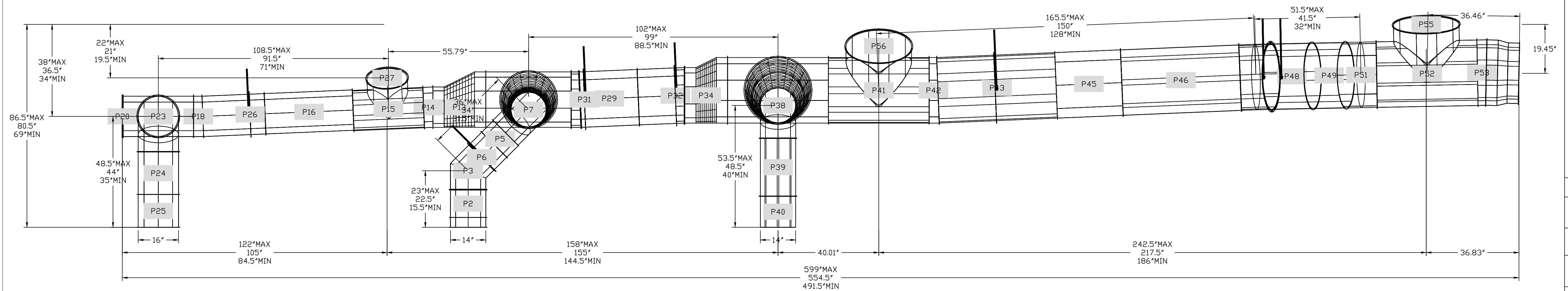
MASTER DRAWING

SHEET NO. 6

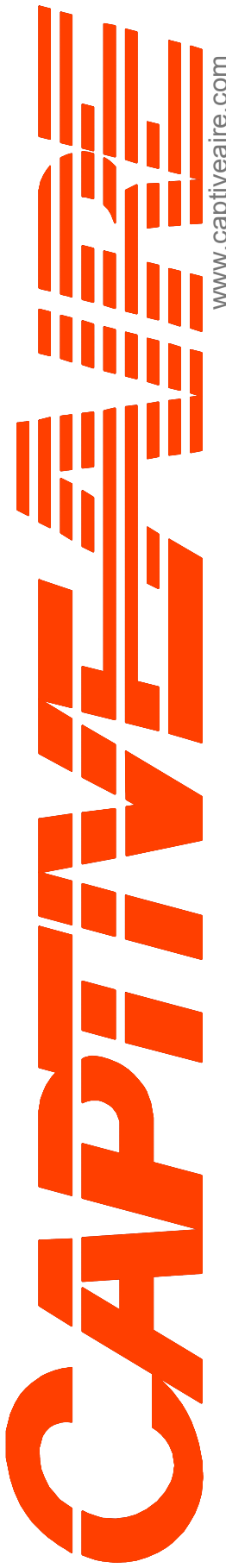
DUCTWORK #1 TOP VIEW
DR-GREASE-INSIDE



DUCTWORK #1 FRONT VIEW
DR-GREASE-INSIDE



REVISIONS	
DESCRIPTION	DATE



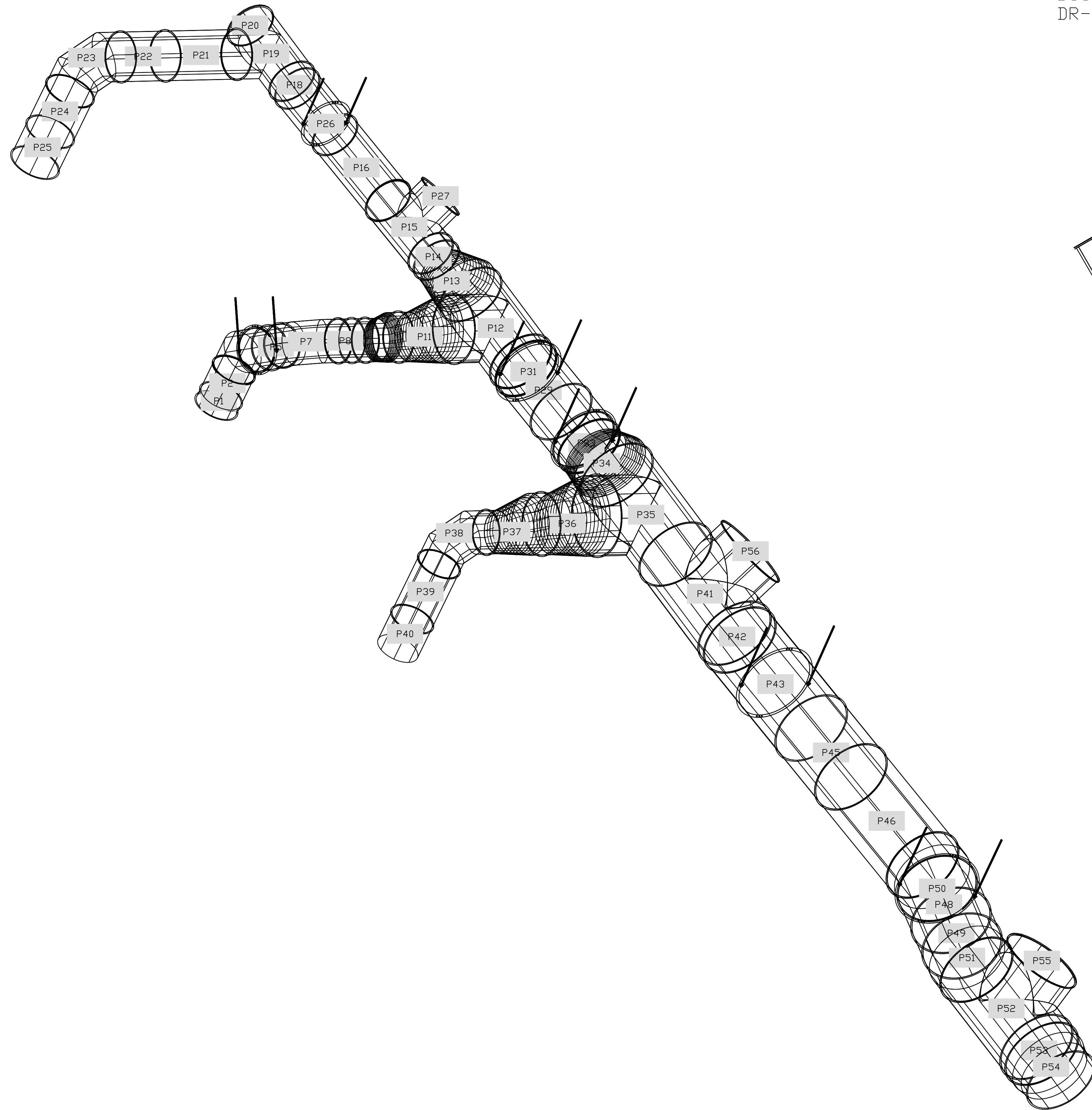
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Carmelos V2 (Odd Fellows) ASBUILT
434 MADISON AVENUE,
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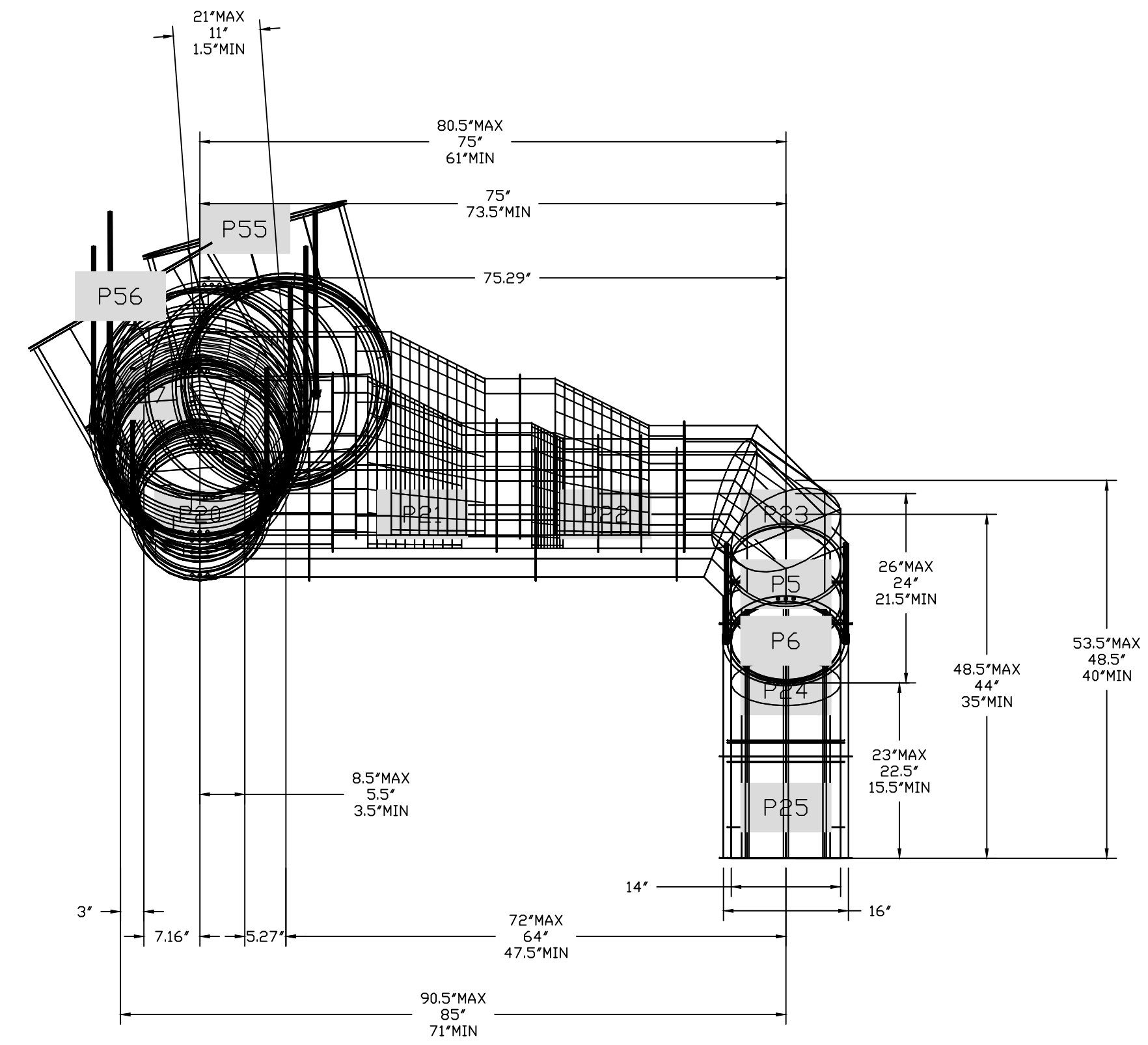
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MASTER DRAWING

SHEET NO.
7

DUCTWORK #1 SE VIEW
DR-GREASE-INSIDE



DUCTWORK #1 SIDE VIEW
DR-GREASE-INSIDE



REVISIONS	
DESCRIPTION	DATE



 Air Solutions
 www.captiveair.com
 1329 East Kemper Rd., Ste. 4210, Cincinnati, OH, 45246 PHONE: (513) 860-5555 EMAIL: reg120@captiveair.com

Carmelos V2 (Odd Fellows) ASBUILT
 434 MADISON AVENUE,
 Covington, KY, 41011

DATE: 8/19/2024
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DUCTWORK #2 PARTS - JOB#6984457 DR-GREASE OUTSIDE

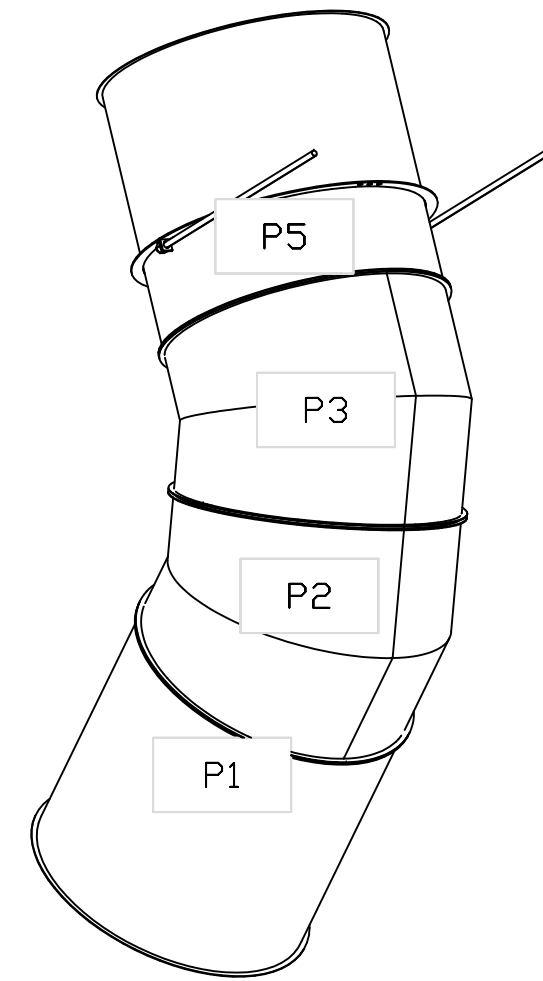
TAG	PART #	CFM	GPM	ZONE	COVEREDBY	SP	WEIGHT	VELOCITY	QTY	DESCRIPTION
P1	DW2423LT						18.63		1	SINGLE WALL DUCT 24" DIAMETER, 23" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P2	DW2430ASY						12.84		1	SINGLE WALL DUCT 30 DEGREE ELBOW, 24" DUCT, ASSEMBLY.
P3	DW2430ASY						12.84		1	SINGLE WALL DUCT 30 DEGREE ELBOW, 24" DUCT, ASSEMBLY.
P4	DW2423LT						18.63		1	SINGLE WALL DUCT 24" DIAMETER, 23" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P5	DW24SUBRASY						4.00		1	DUCT SUPPORT BRACKET KIT, 24" DUCT, USED FOR HANGING DUCT. 12 GA STEEL, CLEAR ZINC COATING. - 2 RINGS, 4 BRACKETS, & HARDWARE BAG 2.
	3M-2000PLUS						0.80		2	DUCT - 3M FIRE BARRIER 2000 PLUS SILICONE - USED AS SEALANT TO SEAL DUCT JOINTS.
	DW24CLASY						1.65		5	DUCT "V" CLAMP WITH NEW DESIGN 14 GA BRACKETS, 24" DUCT, ASSEMBLY.
TOTAL WEIGHT							76.79			

SINGLE WALL FACTORY BUILT DUCTWORK

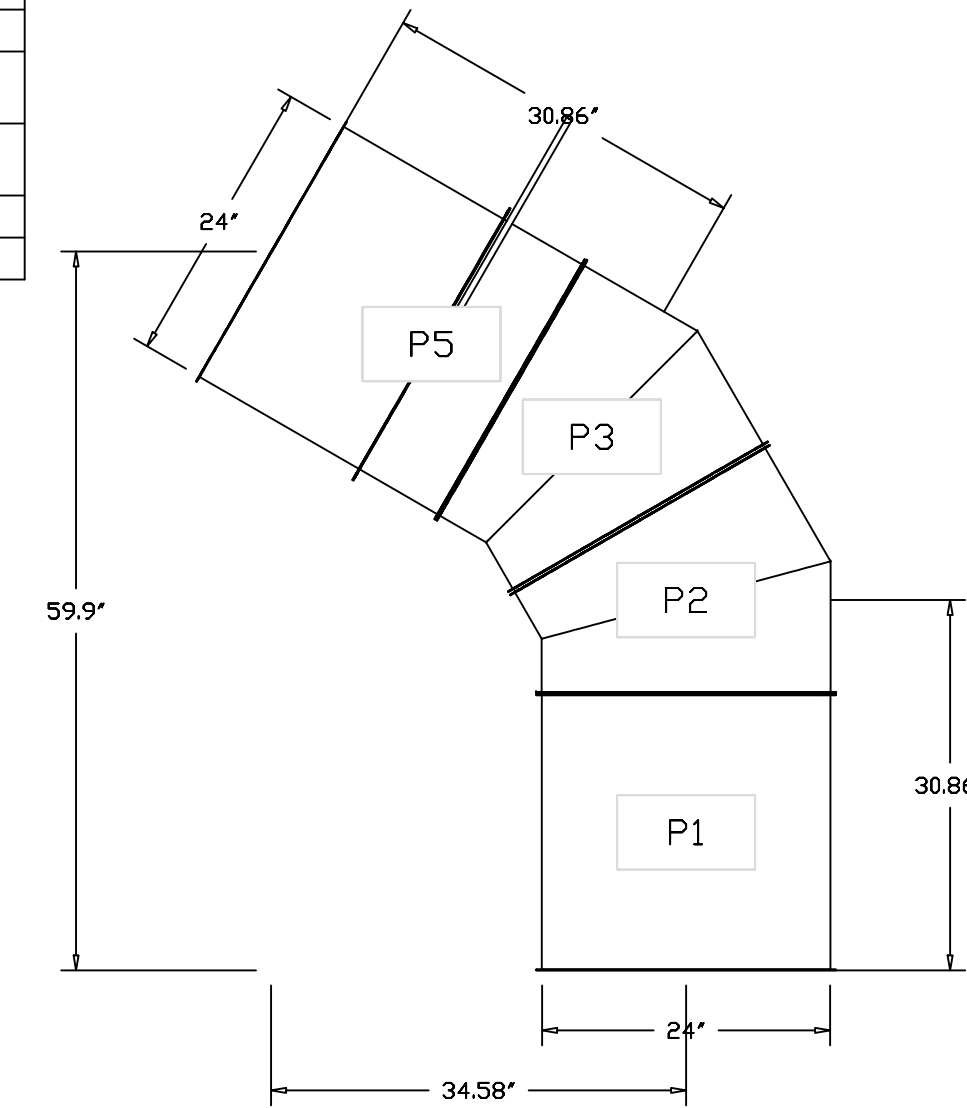
- ALL DUCTWORK IS REQUIRED TO BE INSTALLED WITH THE MAXIMUM SUPPORT SPACING LISTED BELOW.
- FOR A COMPLETE LIST OF APPROVED SUPPORT METHODS, SEE THE INSTALLATION AND OPERATION MANUAL.
- DUCTWORK SHALL SLOPE NOT LESS THAN 1/16" PER LINEAR FOOT TOWARDS THE HOOD OR AN APPROVED GREASE COLLECTION RESERVOIR.
- WHERE HORIZONTAL DUCTS EXCEED 75 FEET IN LENGTH, THE SLOPE SHALL NOT BE LESS THAN 3/16" PER LINEAR FOOT.

DUCT DIAMETER	HORIZONTAL SUPPORT (FT)	VERTICAL WALL SUPPORT (FT)	VERTICAL CURB SUPPORT (FT)
24"	10'	10'	24'

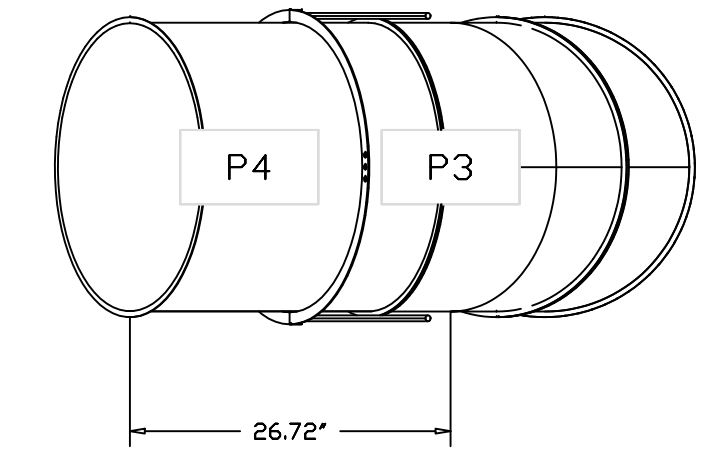
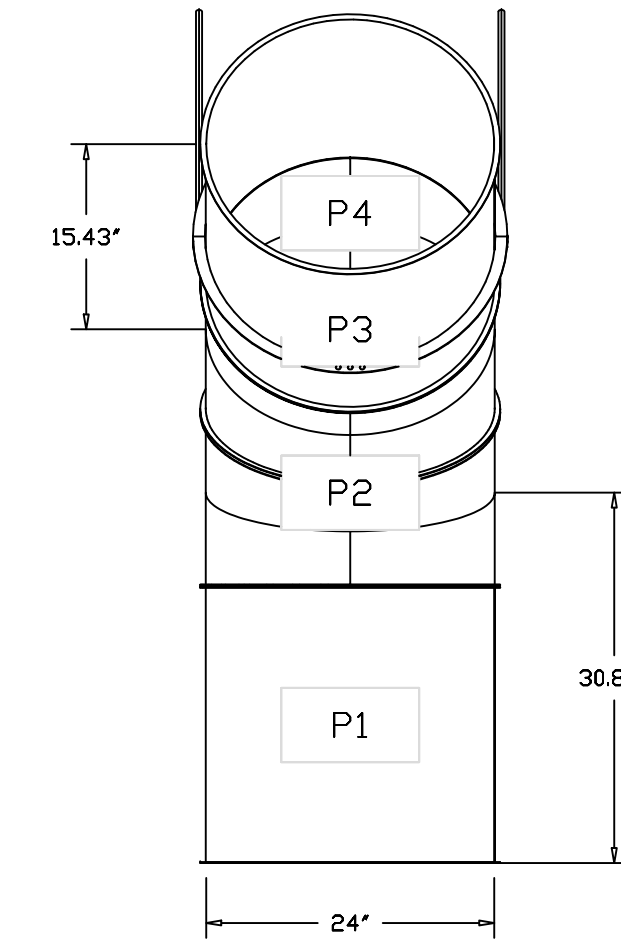
DUCTWORK #2 SE VIEW DR-GREASE OUTSIDE



DUCTWORK #2 FRONT VIEW DR-GREASE OUTSIDE

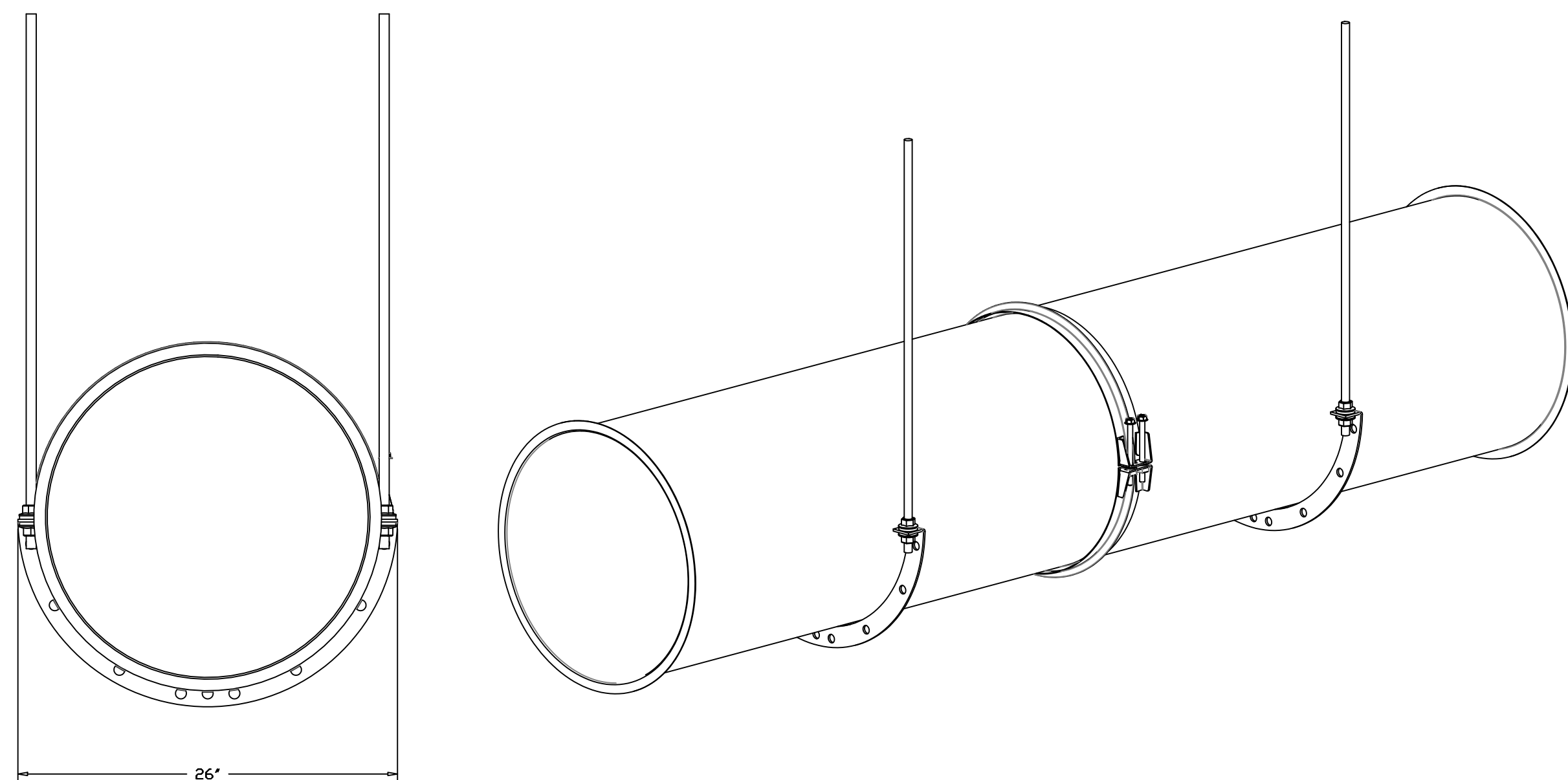


DUCTWORK #2 SIDE VIEW DUCTWORK #2 TOP VIEW DR-GREASE OUTSIDE



SUPPORT SYSTEM DETAILS #2

DW24SUBRASY - HORIZONTAL SUPPORT



REVISIONS

DESCRIPTION	DATE

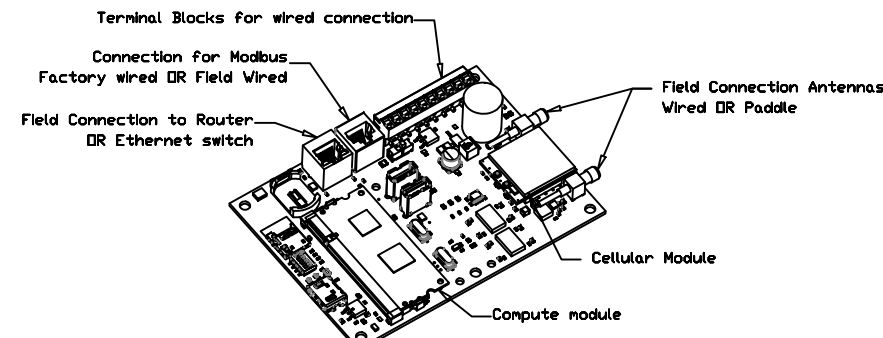
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ELECTRICAL PACKAGE - JOB#6984457

NO	TAG	PACKAGE #	LOCATION	SWITCHES		OPTION	FANS CONTROLLED					
				LOCATION	QUANTITY		FAN TAG	TYPE	HP	VOLT	FLA	
1	EMS1	DCV-1111_MA4	WALL UTILITY CABINET LEFT	UTILITY CABINET RIGHT	1 LIGHT	SMART CONTROLS DCV	SF1	SUPPLY	3	10,000	460	12.2
				HOOD # 1	1 FAN							

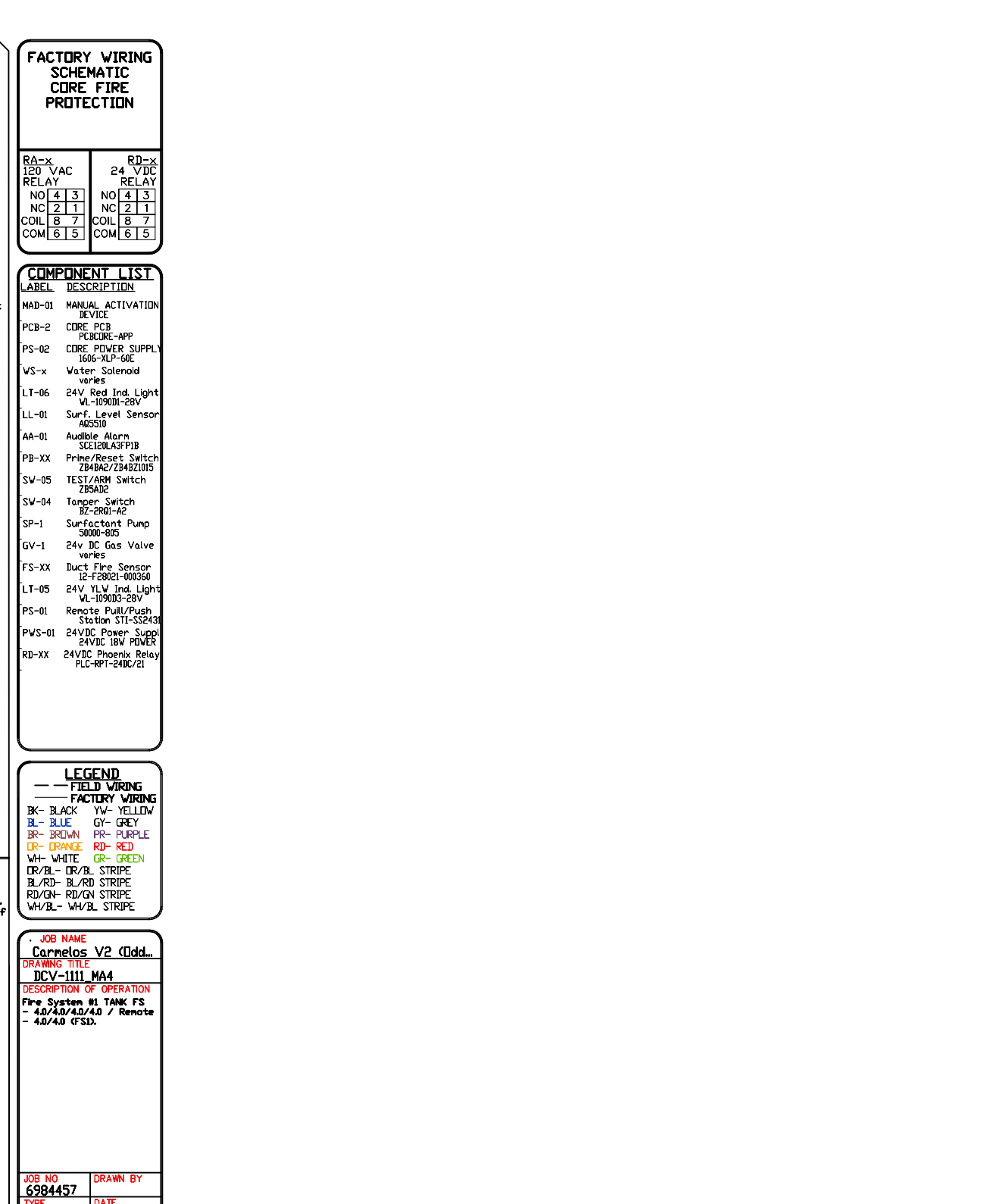
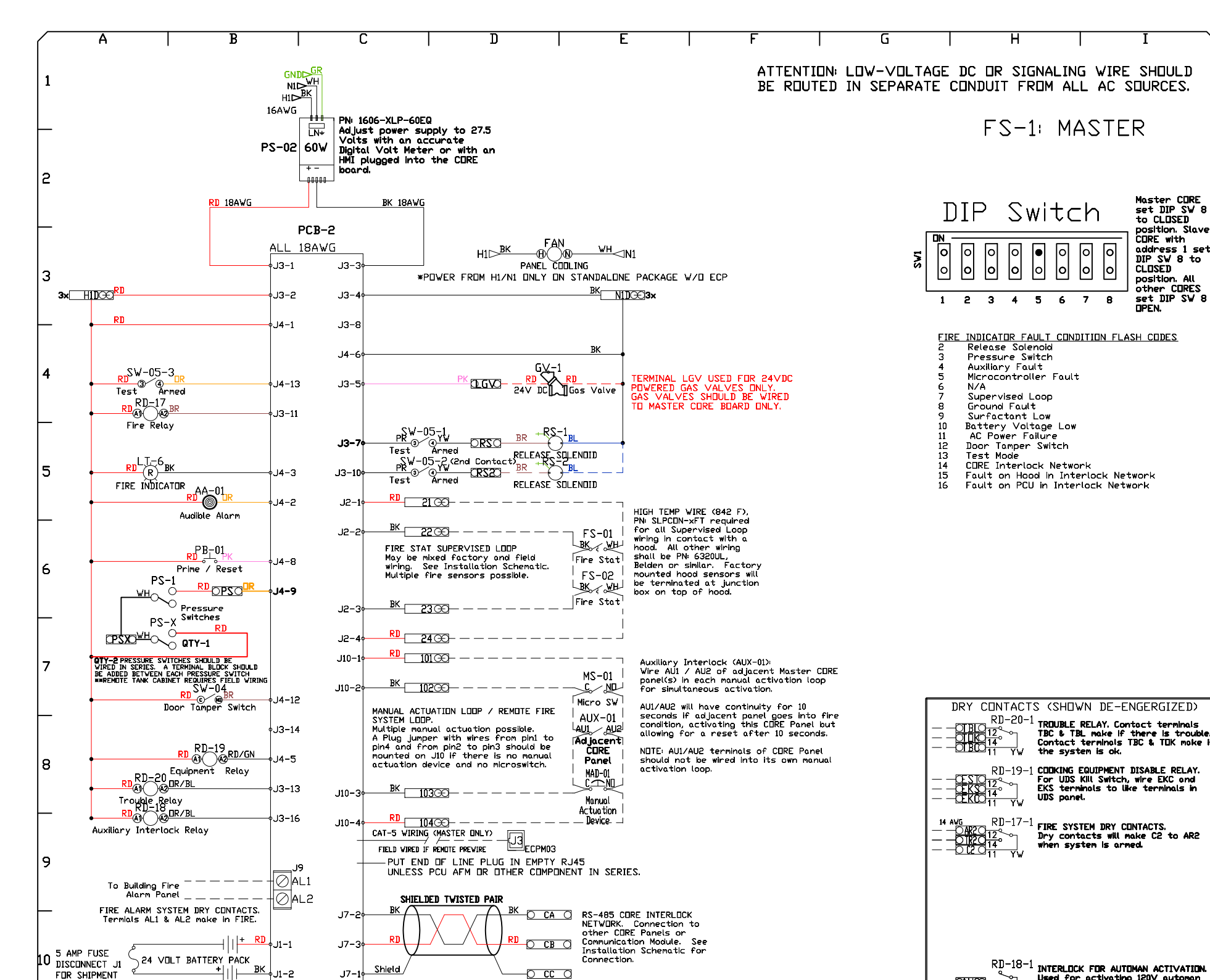
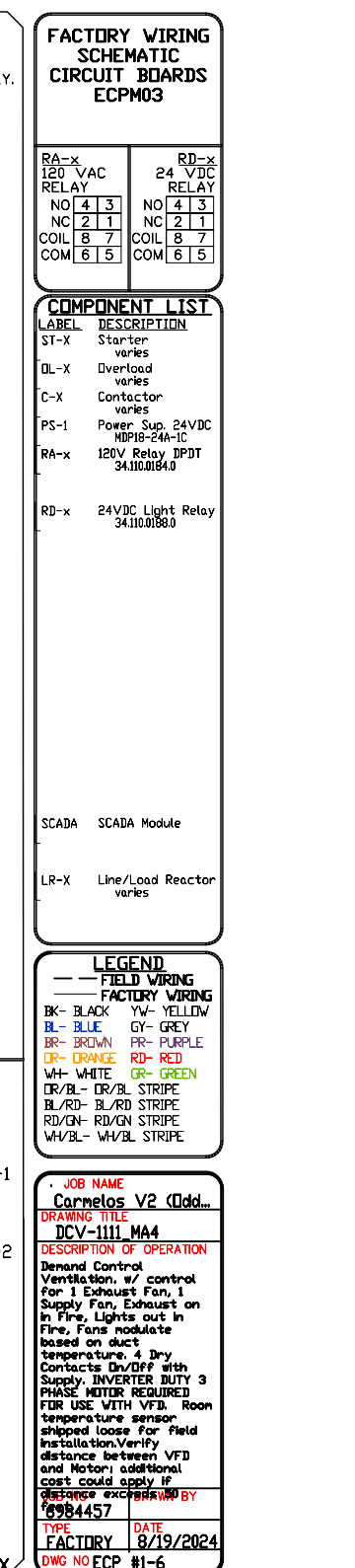
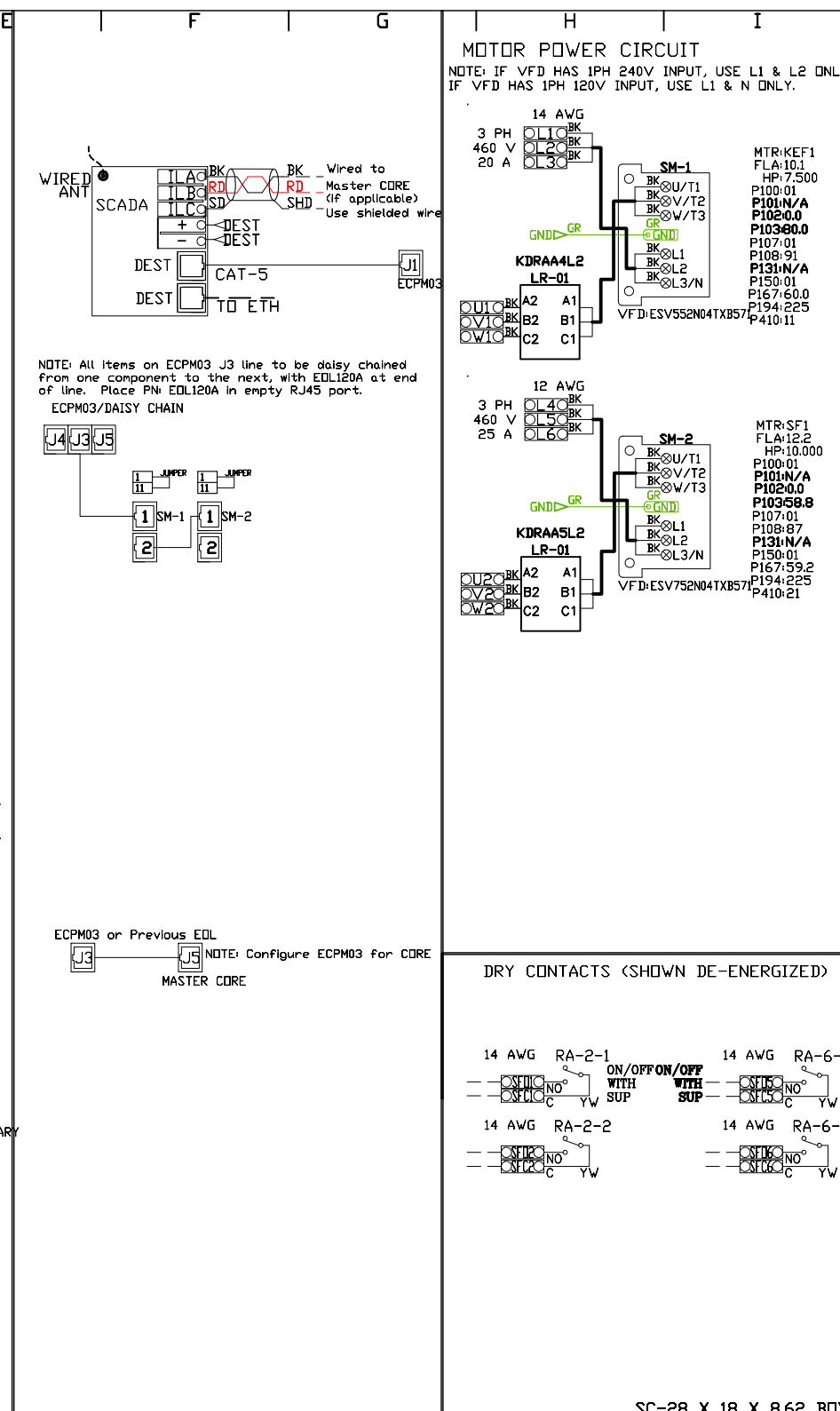
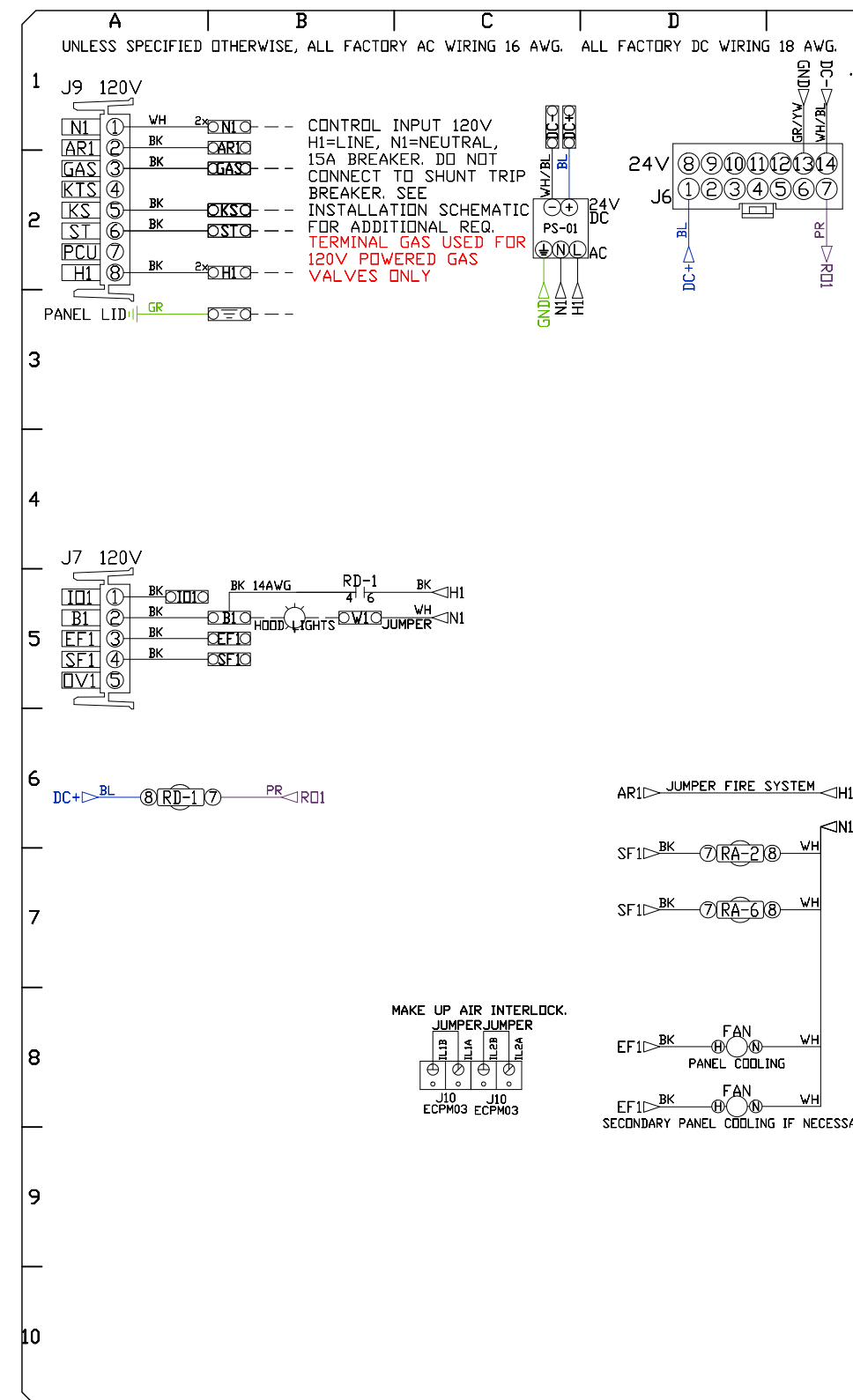
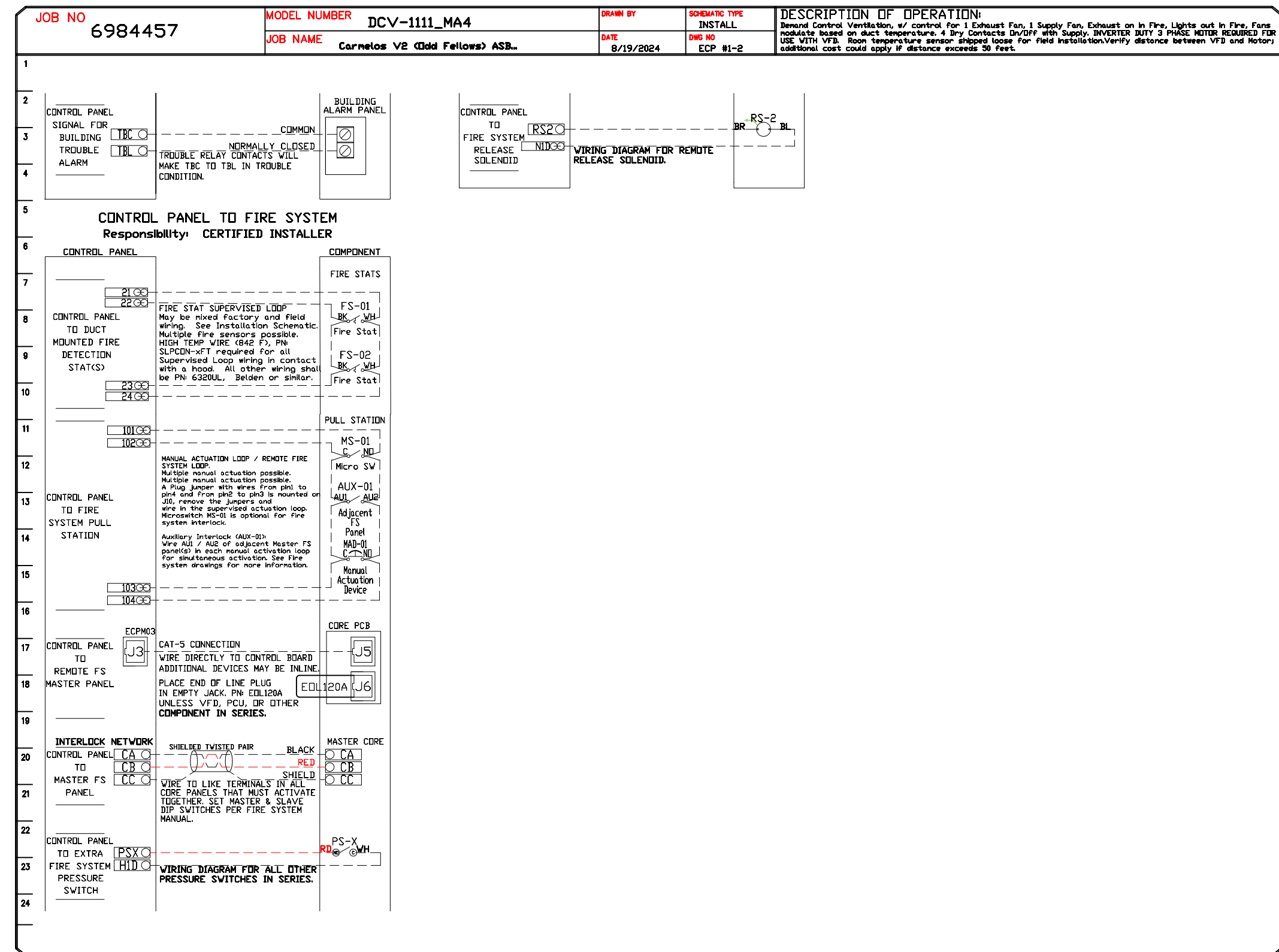
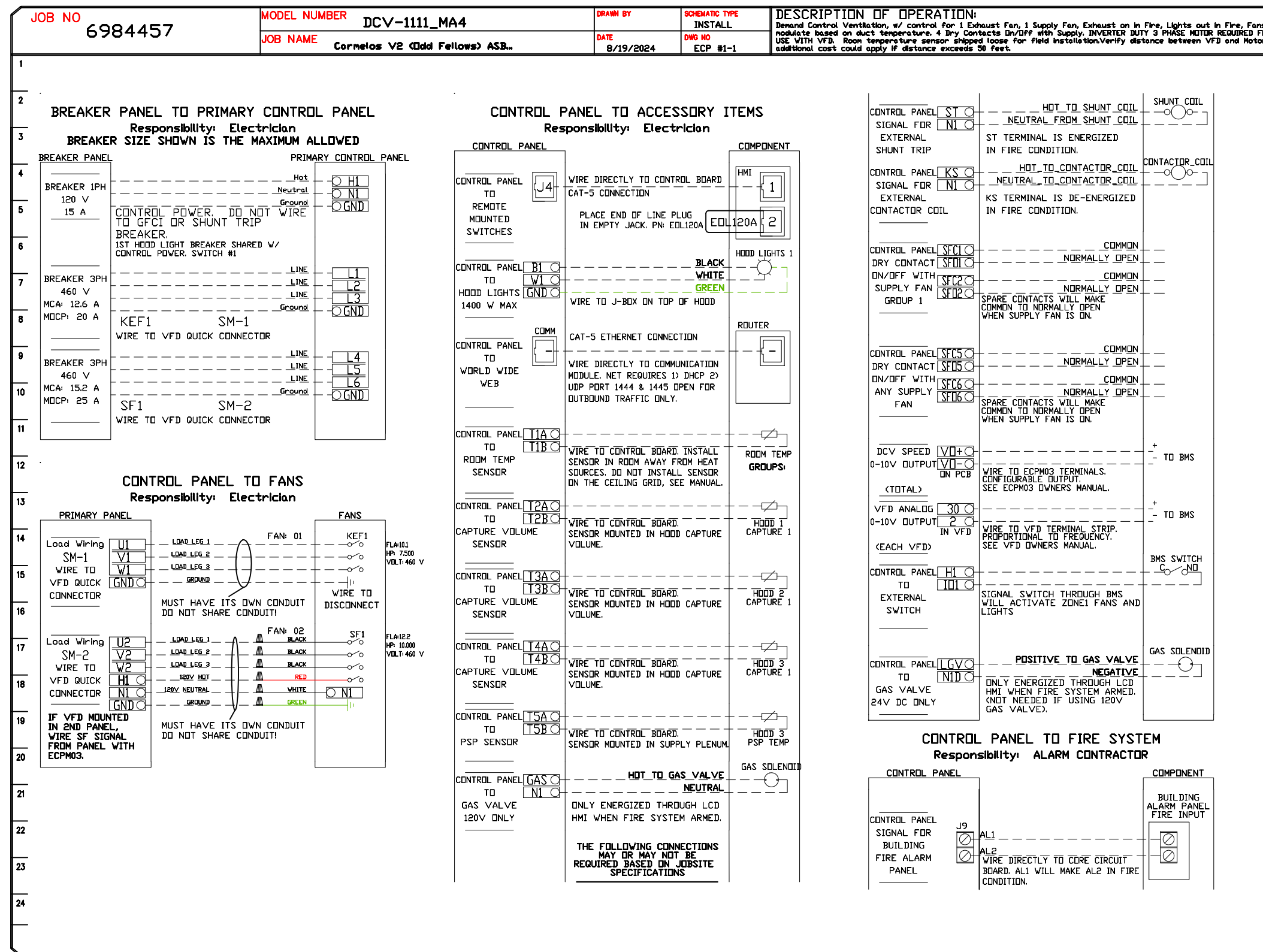


CASlink Monitor and Control

Hood control panel to support communications to cloud-based Building Management System.
 - Hood Control Panel to allow cloud-based Building Management System to monitor real time parameters outlined as MONITOR in the points list.
 - Hood Control Panel to allow cloud-based Building Management System to control parameters outlined as CONTROL in the points list.
 - Hood Control Panel to allow cloud-based Building Management System to implement SYSTEM ECONOMIZER control strategies for fully integrated Building Management.

MONITORING AND CONTROL POINTS LIST

DCV Packages	Function	SC Packages	Function
Room Temperature	MONITOR	Room Temperature(s)	MONITOR
Duct Temperature(s)	MONITOR	Duct Temperature(s)	MONITOR
MUA Discharge Temperature	MONITOR	MUA Discharge Temperature	MONITOR
Kitchen RTU Discharge Temperature	MONITOR	Kitchen RTU Discharge Temperature	MONITOR
Fan Speed	MONITOR	Controller Faults	MONITOR
Fan Amperage	MONITOR	Fan Faults	MONITOR
Fan Power	MONITOR	Fan Status	MONITOR
VFD Faults	MONITOR	PCU Faults	MONITOR
Controller Faults	MONITOR	PCU Filter Clog Percentages	MONITOR
Fan Faults	MONITOR	Fine Condition	MONITOR
Fan Status	MONITOR	COSE Fire System	MONITOR
PCU Faults	MONITOR	Building Pressure	MONITOR
PCU Filter Clog Percentages	MONITOR	Fans Button(s)	MONITOR & CONTROL
Fine Condition	MONITOR	Light Button(s)	MONITOR & CONTROL
COSE Fire System	MONITOR	Wash Button	MONITOR & CONTROL
Building Pressure	MONITOR		
Prep Time Button	MONITOR & CONTROL		
Fans Button	MONITOR & CONTROL		
Light Button	MONITOR & CONTROL		
Wash Button	MONITOR & CONTROL		



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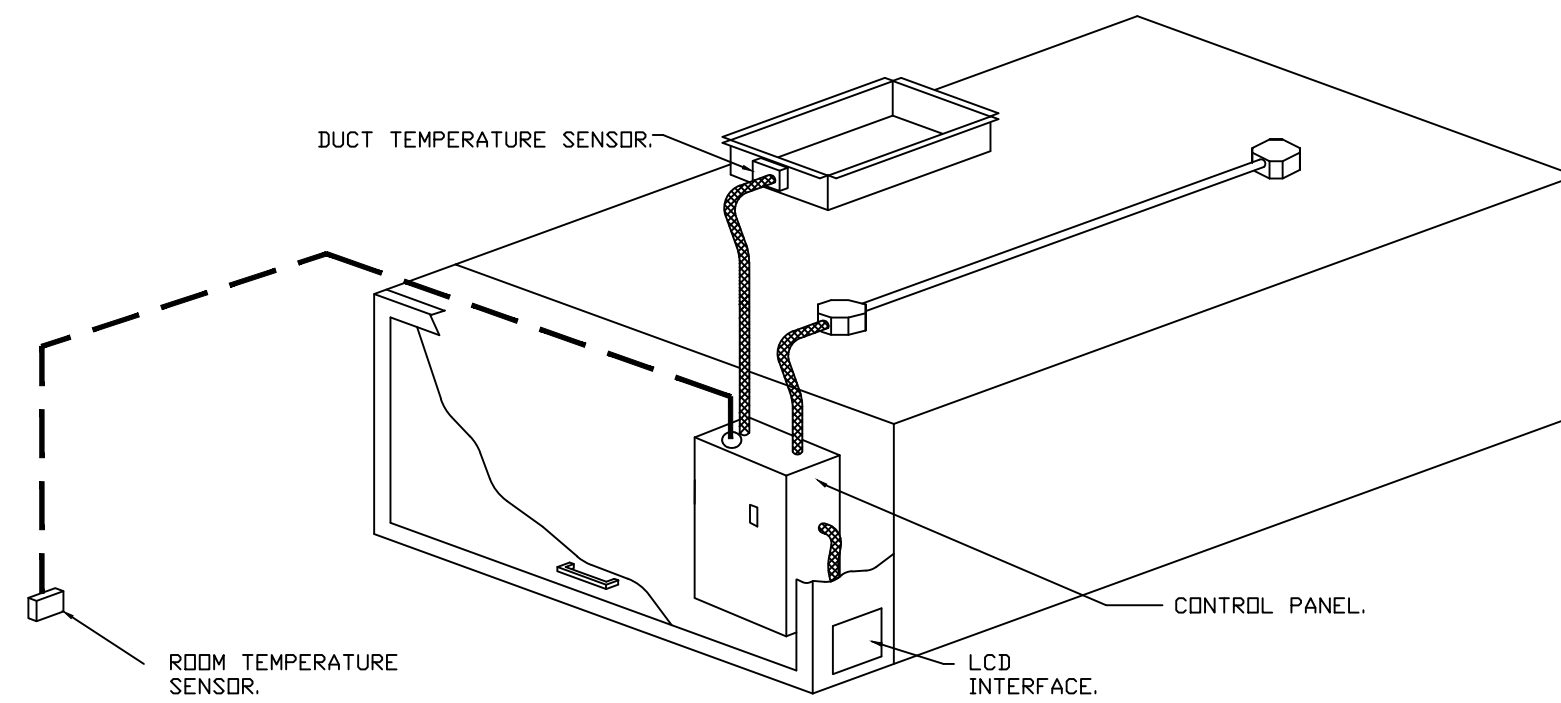
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 DWG# 6984457
 DRAWN BY: BCF
 SCALE: 3/4" = 1'-0"
 MASTER DRAWING

SHEET NO. 10

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DEMAND CONTROL VENTILATION HOOD CONTROL PANEL SPECIFICATIONS:

- CONTROLS SHALL BE LISTED BY ETL (UL 508A) AND SHALL COMPLY WITH DEMAND VENTILATION SYSTEM TURNDOWN REQUIREMENTS OUTLINED IN IECC 403.7.5 (2021).
- THE CONTROL ENCLOSURE SHALL BE NEMA 1 RATED AND LISTED FOR INSTALLATION INSIDE OF THE EXHAUST HOOD UTILITY CABINET. THE CONTROL ENCLOSURE MAY BE CONSTRUCTED OF STAINLESS STEEL OR PAINTED STEEL.
- TEMPERATURE PROBE(S) LOCATED IN THE EXHAUST DUCT RISER(S) SHALL BE CONSTRUCTED OF STAINLESS STEEL.
- A DIGITAL CONTROLLER SHALL BE PROVIDED TO ACTIVATE THE HOOD EXHAUST FANS DYNAMICALLY BASED ON A FIXED DIFFERENTIAL BETWEEN THE AMBIENT AND DUCT TEMPERATURES SENSORS. THIS FUNCTION SHALL MEET THE REQUIREMENTS OF IMC 507.1.1.
- A DIGITAL CONTROLLER SHALL PROVIDE ADJUSTABLE HYSTERESIS SETTINGS TO PREVENT CYCLING OF THE FANS AFTER THE COOKING APPLIANCES HAVE BEEN TURNED OFF AND/OR THE HEAT IN THE EXHAUST SYSTEM IS REDUCED.
- A DIGITAL CONTROLLER SHALL PROVIDE AN ADJUSTABLE MINIMUM FAN RUN-TIME SETTING TO PREVENT FAN CYCLING.
- VARIABLE FREQUENCY DRIVES (VFDs) SHALL BE PROVIDED FOR FANS AS REQUIRED. THE DIGITAL CONTROLLER SHALL MODULATE THE VFDs BETWEEN A MINIMUM SETPOINT AND A MAXIMUM SETPOINT ON DEMAND. THE DUCT TEMPERATURE SENSOR INPUT(S) TO THE DIGITAL CONTROLLER SHALL BE USED TO CALCULATE THE SPEED REFERENCE SIGNAL.
- THE VFD SPEED RANGE OF OPERATION SHALL BE FROM 0% TO 100% FOR THE SYSTEM, WITH THE ACTUAL MINIMUM SPEED SET AS REQUIRED TO MEET MINIMUM VENTILATION REQUIREMENTS.
- AN INTERNAL ALGORITHM TO THE DIGITAL CONTROLLER SHALL MODULATE SUPPLY FAN VFD SPEED PROPORTIONAL TO ALL EXHAUST FANS THAT ARE LOCATED IN THE SAME FAN GROUP AS THE SUPPLY FAN.
- THE SYSTEM SHALL OPERATE IN PREP MODE DURING LIGHT COOKING LOAD OR COOL DOWN MODE WHEN SUFFICIENT HEAT REMAINS UNDERNEATH THE HOOD SYSTEM AFTER COOKING OPERATIONS HAVE COMPLETED. OPERATION DURING EITHER OF THESE PERIODS WILL DISABLE THE SUPPLY FANS AND PROVIDE AN EXHAUST FAN SPEED THAT IS EQUAL TO THE MINIMUM VENTILATION REQUIREMENT.
- A DIGITAL CONTROLLER SHALL DISABLE THE SUPPLY FAN(S), ACTIVATE THE EXHAUST FAN(S), ACTIVATE THE APPLIANCE SHUNT TRIP, AND DISABLE AN ELECTRIC GAS VALVE AUTOMATICALLY WHEN FIRE CONDITION IS DETECTED ON A COVERED HOOD.
- A DIGITAL CONTROLLER SHALL ALLOW FOR EXTERNAL BMS FAN CONTROL VIA DRY CONTACT (EXTERNAL CONTROL SHALL NOT OVERRIDE FAN OPERATION LOGIC AS REQUIRED BY CODE).
- AN LCD INTERFACE SHALL BE PROVIDED WITH THE FOLLOWING FEATURES:
 - A. ON/OFF PUSH BUTTON FAN & LIGHT SWITCH ACTIVATION.
 - B. INTEGRATED GAS VALVE RESET FOR ELECTRONIC GAS VALVES (NO RESET RELAY REQUIRED).
 - C. VFD FAULT DISPLAY WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
 - D. DUCT TEMPERATURE SENSOR FAILURE DETECTION WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
 - E. MIS-WIRED DUCT TEMPERATURE SENSOR DETECTION WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
 - F. A SINGLE LOW VOLTAGE CAT-5 RJ45 WIRING CONNECTION.
 - G. AN ENERGY SAVINGS INDICATOR THAT UTILIZES MEASURED KWH FROM THE VFDs.



TYPICAL HOOD CONTROL PANEL INSTALLATION

SEQUENCE OF OPERATIONS:

- THE HOOD CONTROL PANEL IS CAPABLE OF OPERATING IN ONE OR MORE OF THE FOLLOWING STATES AT ANY GIVEN TIME:
- **AUTOMATIC:** THE SYSTEM OPERATES BASED ON THE DIFFERENTIAL BETWEEN ROOM TEMPERATURE AND THE TEMPERATURE AT THE HOOD CAVITY OR EXHAUST DUCT COLLAR. FANS ACTIVATE AT A CONFIGURABLE TEMPERATURE DIFFERENTIAL THRESHOLD. DEPENDING ON THE JOB CONFIGURATION EACH FAN ZONE CAN BE CONFIGURED AS STATIC OR DYNAMIC. THESE TERMS REFER TO WHETHER A VARIABLE MOTOR (SUCH AS EC MOTORS OR VFD DRIVEN MOTORS) MODULATE WITH TEMPERATURE. IF THE PANEL IS EQUIPPED WITH VARIABLE SPEED FANS AND THE ZONE IS DEFINED AS 'DYNAMIC', THESE WILL MODULATE WITHIN A USER-DEFINED RANGE BASED ON THE TEMPERATURE DIFFERENTIAL. PANELS EQUIPPED WITH VARIABLE SPEED FANS AND A FAN ZONE DEFINED AS 'STATIC', FANS WILL RUN AT A SET SPEED CALCULATED FOR THE DRIVE. DEMAND CONTROL VENTILATION SYSTEMS ARE CAPABLE OF MODULATING EXHAUST AND MAKE UP AIR FAN SPEEDS PER THE REQUIREMENTS OUTLINED IN IECC 403.7.5 (2021).
 - **MANUAL:** THE SYSTEM OPERATES BASED ON HUMAN INPUT FROM AN HMI.
 - **SCHEDULE:** A WEEKLY SCHEDULE CAN BE SET TO RUN FANS FOR A SPECIFIED PERIOD THROUGHOUT THE DAY. THERE ARE THREE OCCUPIED TIMES PER DAY TO ALLOW FOR THE USER TO SET UP A TIME THAT IS SUITABLE TO THEIR NEEDS. ANY TIME THAT IS WITHIN THE DEFINED OCCUPIED TIME, THE SYSTEM WILL RUN AT MODULATION MODE AND FOLLOW THE FAN PROCEDURE ALGORITHM BASED ON TEMPERATURE DURING THIS TIME. DURING UNOCCUPIED TIME, THE SYSTEM WILL HAVE AN EXTRA OFFSET TO PREVENT UNINTENDED ACTIVATION OF THE SYSTEM DURING A TIME WHERE THE SYSTEM IS NOT BEING OCCUPIED.
 - **OTHER:** THE SYSTEM OPERATES BASED ON THE INPUT FROM AN EXTERNAL SOURCE (DDC, BMS OR HARD-WIRED INTERLOCK).
 - **FIRE:** UPON ACTIVATION OF THE HOOD FIRE SUPPRESSION SYSTEM, THE EXHAUST FAN WILL COME ON OR CONTINUE TO RUN, THE HOOD MAKEUP AIR WILL SHUTDOWN, AND A SIGNAL WILL BE SENT FOR ACTIVATING THE SHUNT TRIP BREAKER PROVIDED BY THE ELECTRICIAN. FUEL GAS WILL SHUT OFF VIA A MECHANICAL/ELECTRICAL GAS VALVE ACTUATED BY THE HOOD FIRE SUPPRESSION SYSTEM.

SYSTEM DESIGN VERIFICATION (SDV)

IF ORDERED, CAS SERVICE WILL PERFORM A SYSTEM DESIGN VERIFICATION (SDV) ONCE ALL EQUIPMENT HAS HAD A COMPLETE START UP PER THE OPERATION AND INSTALLATION MANUAL. TYPICALLY, THE SDV WILL BE PERFORMED AFTER ALL INSPECTIONS ARE COMPLETE.

ANY FIELD RELATED DISCREPANCIES THAT ARE DISCOVERED DURING THE SDV WILL BE BROUGHT TO THE ATTENTION OF THE GENERAL CONTRACTOR AND CORRESPONDING TRADES ON SITE. THESE ISSUES WILL BE DOCUMENTED AND FORWARDED TO THE APPROPRIATE SALES OFFICE. IF CAS SERVICE HAS TO RESOLVE A DISCREPANCY THAT IS A FIELD ISSUE, THE GENERAL CONTRACTOR WILL BE NOTIFIED AND BILLED FOR THE WORK. SHOULD A RETURN TRIP BE REQUIRED DUE TO ANY FIELD RELATED DISCREPANCY THAT CANNOT BE RESOLVED DURING THE SDV, THERE WILL BE ADDITIONAL TRIP CHARGES.

DURING THE SDV, CAS SERVICE WILL ADDRESS ANY DISCREPANCY THAT IS THE FAULT OF THE MANUFACTURER. SHOULD A RETURN TRIP BE REQUIRED, THE GENERAL CONTRACTOR AND APPROPRIATE SALES OFFICE WILL BE NOTIFIED. THERE WILL BE NO ADDITIONAL CHARGES FOR MANUFACTURER DISCREPANCIES.

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