



### Product Data

<b>Project Name:</b>	Sharonville Convention Center Expansion	<b>Submittal Code:</b>	230000.00-PD-02	<b>REV:</b> 00
<b>Document Set:</b>	Bid/Construction			
<b>KLH Project #:</b>	21108.00-Bid	<b>Received Date:</b>	10/10/2022	
<b>Section Name:</b>	Unknown			
<b>Section Number:</b>	230000.00			
<b>Submitted By:</b>	Megen Construction			
<b>Authored By:</b>	Driekast Piping Corp			
<b>Client Name:</b>	CT Consultants, Inc.			

SUBMITTAL REVIEW

Exceptions Noted

By: Daniel R. Sharp      Date: 10/17/2022

ENGINEER'S REVIEW IS FOR GENERAL CONFORMANCE WITH THE CONTRACT DOCUMENTS. COMMENTS DO NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR REMAINS RESPONSIBLE FOR ACCURACY OF QUANTITIES, DIMENSIONS, DETAILS AND COORDINATION WITH OTHER TRADES.

#### General

- 1.1 KLH takes no exceptions to the Kitchen Hoods, Fans, and Makeup Air units.
- 1.2 KLH did not review the ductwork included in this submittal. The ductwork on the KLH design drawings has been revised to coordinate with building structure and other utilities. The Mechanical Contractor shall review the revised drawings in Bulletin 7 for Kitchen Hood exhaust duct size and routing.

#### **End of Submittal Review**

**Note:** Additional submittals are not required where "Exceptions Noted" is indicated. It will be assumed however that all necessary corrections will be executed. Provide as-built record copies within OM Manuals at project close-out (not before) for all affected submittals.

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**Megen Construction**  
 11130 Ashburn Road  
 Cincinnati, Ohio 45240  
 P: (513) 742-9191

**Project: C475 Sharonville Convention Center  
 Expansion**  
 11355 Chester Road  
 Cincinnati, Ohio 45246

## Submittal #2300000-02.00 - KEF & KMAU (SD) 2300000 -

<b>Revision</b>	00	<b>Submittal Manager</b>	Ian Getz (Megen Construction)
<b>Status</b>	In Review	<b>Date Created</b>	Oct 10, 2022
<b>Issue Date</b>	Oct 10, 2022	<b>Spec Section</b>	2300000 -
<b>Responsible Contractor</b>	Driekast (HVAC)	<b>Received From</b>	
<b>Received Date</b>		<b>Submit By</b>	
<b>Final Due Date</b>	Oct 25, 2022	<b>Lead Time</b>	
		<b>Cost Code</b>	
<b>Location</b>		<b>Type</b>	
<b>Approvers</b>	Construction Administrators (KLH Engineers), Brian Sabla (CT Consultants)		
<b>Ball in Court</b>	Construction Administrators (KLH Engineers)		
<b>Distribution</b>	Brian Sabla (CT Consultants)		
<b>Description</b>			

### Submittal Workflow

Name	Sent Date	Due Date	Returned Date	Response	Attachments
General Information Attachments					<a href="#">230000-SD-00 KEF &amp; KMUA (SD).pdf</a>
Construction Administrators	Oct 10, 2022	Oct 25, 2022		Pending	
Brian Sabla		Oct 25, 2022		Pending	



**HOOD INFORMATION - JOB#4103500**

HOOD NO	TAG	MODEL	MANUFACTURER	LENGTH	MAX COOKING TEMP	TYPE	APPLIANCE DUTY	DESIGN CFM/FT	TOTAL EXH CFM	EXHAUST PLENUM RISER(S)						HOOD CONSTRUCTION	HOOD CONFIG		SWITCHES		
										WIDTH	LENG	HEIGHT	DIA	CFM	VEL		SP	END TO END	RDW	QUANTITY	LOCATION
1	Front Hood Left K22	5424 ND-2	CAPTIVEAIRE	12' 0"	600 DEG	I	HEAVY	200	2400			4'	16'	2400	1719	-0.797'	430 SS WHERE EXPOSED	LEFT	FRONT		
2	Front Hood Right K22	5424 ND-2	CAPTIVEAIRE	12' 0"	600 DEG	I	HEAVY	225	2700			4'	18'	2700	1528	-0.771'	430 SS WHERE EXPOSED	RIGHT	FRONT		
3	Back Hood Right K22	5424 ND-2	CAPTIVEAIRE	11' 4"	450 DEG	I	MEDIUM	150	1700			4'	14'	1700	1590	-0.558'	430 SS WHERE EXPOSED	RIGHT	BACK		
4	Back Hood Left K22	6624 ND-2	CAPTIVEAIRE	7' 2"	450 DEG	I	MEDIUM	151	1080			4'	14'	1080	1010	-0.279'	430 SS WHERE EXPOSED	LEFT	BACK		
5	Dishwasher (K21)	3624 VHB-G-ND	CAPTIVEAIRE	9' 6"	700 DEG	II	N/A	151	1430			4'	10'	715	1311	-0.128'	304 SS 100%	ALONE	ALONE	1 FAN	FRONT LEFT FACE

FOR QUESTIONS, CALL THE  
 Florida Gulf Coast Office  
 REGION 62  
 PHONE: (813) 435-3388  
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REVISIONS	
DESCRIPTION	DATE

**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	FIRE SYSTEM TYPE	SIZE			ELECTRICAL MODEL #	SWITCHES QUANTITY
1	Front Hood Left K22	CAPTRATE SOLO FILTER	9	20"	16"	85% SEE FILTER SPEC	5	RECESSED ROUND	NO						YES	701 LBS	
2	Front Hood Right K22	CAPTRATE SOLO FILTER	9	20"	16"	85% SEE FILTER SPEC	5	RECESSED ROUND	NO	RIGHT	12"x54"x24"	ANSUL R-102	3.0/3.0	DCV-1011	1 LIGHT 1 FAN	YES	854 LBS
3	Back Hood Right K22	CAPTRATE SOLO FILTER	8	20"	16"	85% SEE FILTER SPEC	5	RECESSED ROUND	NO	RIGHT	12"x54"x24"	ANSUL R-102	3.0	DCV-1011	1 LIGHT 1 FAN	YES	873 LBS
4	Back Hood Left K22	CAPTRATE SOLO FILTER	5	20"	16"	85% SEE FILTER SPEC	4	RECESSED ROUND	NO						YES	538 LBS	
5	Dishwasher (K21)						0								NO	288 LBS	

**HOOD OPTIONS**

HOOD NO	TAG	OPTION
1	Front Hood Left K22	FIELD WRAPPER 20.00' HIGH FRONT, LEFT.
		LEFT QUARTER END PANEL 23' TOP WIDTH, 0' BOTTOM WIDTH, 23' HIGH 430 SS.
		BALANCE DAMPERS.
		INSULATION FOR TOP OF HOOD.
		STRUCTURAL FRONT PANEL.
2	Front Hood Right K22	FIELD WRAPPER 20.00' HIGH FRONT, RIGHT.
		RIGHT QUARTER END PANEL 23' TOP WIDTH, 0' BOTTOM WIDTH, 23' HIGH 430 SS.
		BALANCE DAMPERS.
		INSULATION FOR TOP OF HOOD.
		STRUCTURAL FRONT PANEL.
3	Back Hood Right K22	FIELD WRAPPER 20.00' HIGH FRONT, RIGHT.
		BALANCE DAMPERS.
		INSULATION FOR TOP OF HOOD.
		STRUCTURAL FRONT PANEL.
		INSULATION FOR BACK OF HOOD.
4	Back Hood Left K22	FIELD WRAPPER 20.00' HIGH FRONT, LEFT.
		BACK STANDOFF (FLAT) 2" WIDE 86" LONG.
		LEFT QUARTER END PANEL 23' TOP WIDTH, 0' BOTTOM WIDTH, 23' HIGH 430 SS.
		BALANCE DAMPERS.
		INSULATION FOR TOP OF HOOD.
5	Dishwasher (K21)	FIELD WRAPPER 20.00' HIGH FRONT, LEFT, RIGHT.

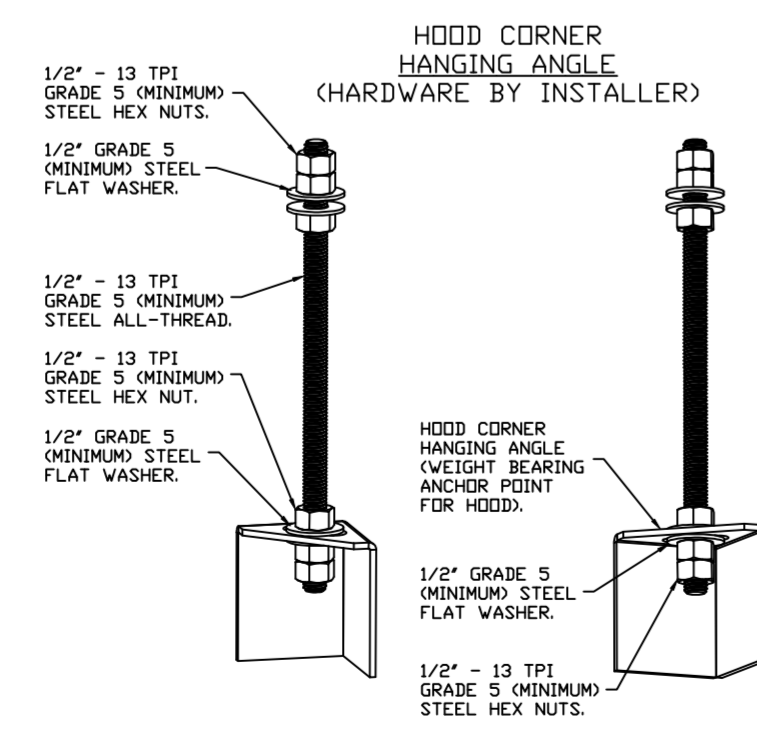
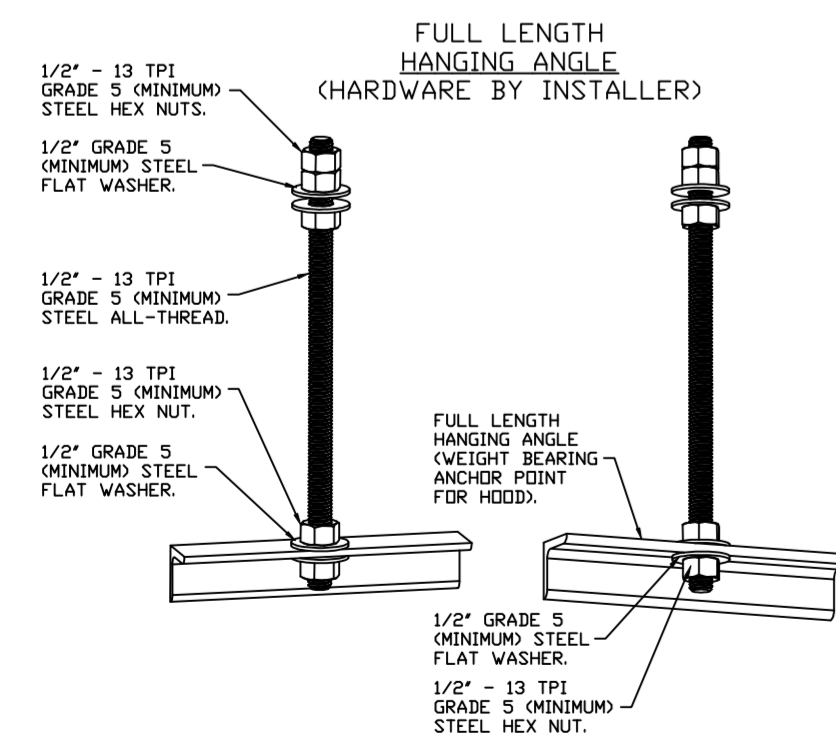
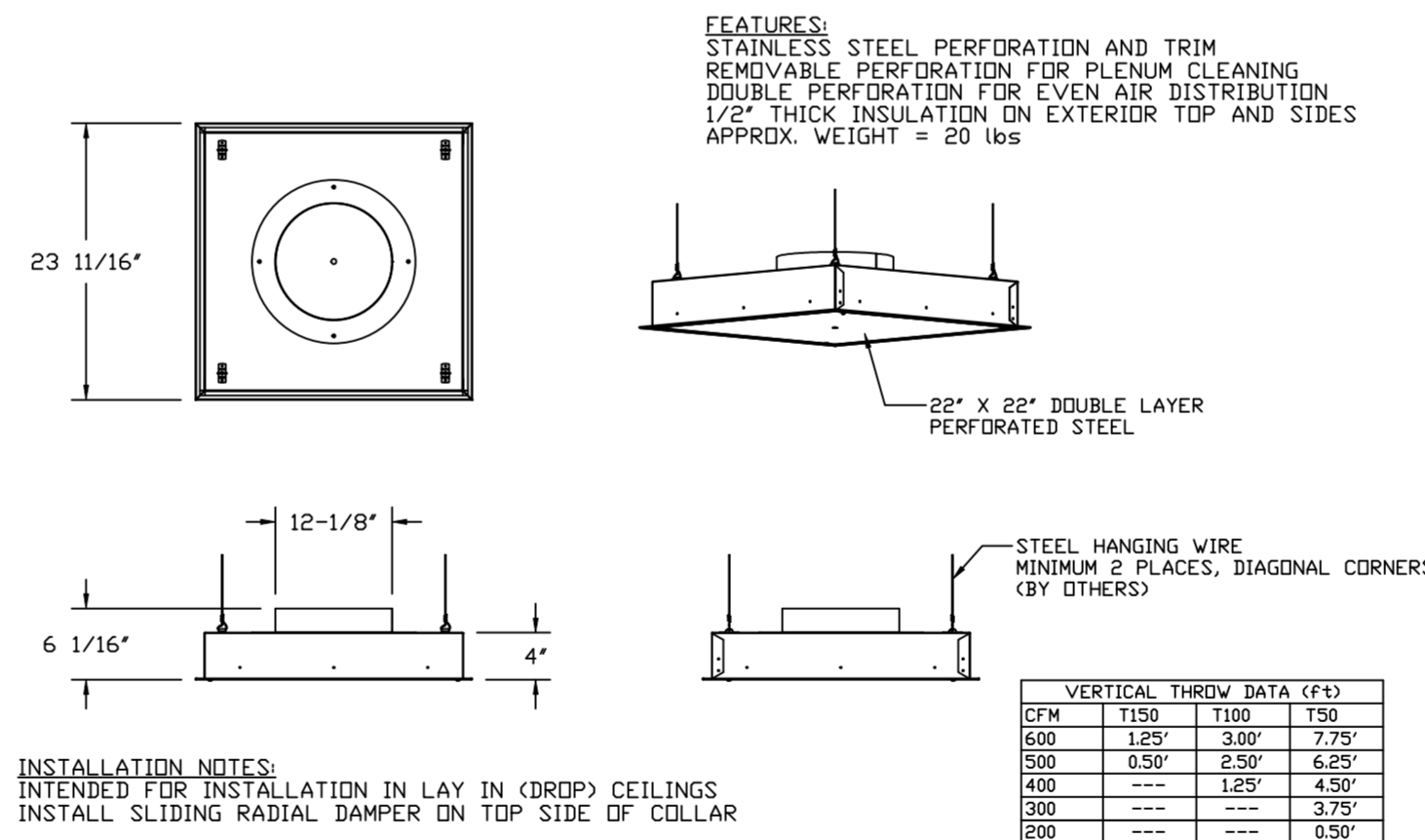
**FIRE SYSTEM INFORMATION - JOB#4103500**

FIRE SYSTEM NO	TAG	TYPE	SIZE	FLOW POINTS	INSTALLATION	
					SYSTEM	LOCATION ON HOOD
1	FS-1 FRONT HOOD	ANSUL R102	3.0/3.0	7	FIRE CABINET RIGHT	RIGHT, HOOD 2
2	FS-2 BACK HOOD	ANSUL R102	3.0	5	FIRE CABINET RIGHT	RIGHT, HOOD 3

**GAS VALVE(S)**

FIRE SYSTEM NO	TAG	TYPE	SIZE	SUPPLIED BY
1	FS-1 FRONT HOOD	MECHANICAL	2.000	DISTRIBUTOR
2	FS-2 BACK HOOD	MECHANICAL	2.000	DISTRIBUTOR

**QTY 17-DROP-IN PERFORATED SUPPLY PLENUM DIFFUSER (DI-PSP)**



**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 ABOVE CEILING ANCHORS. SINGLE HEX NUT BENEATH HANGING ANGLE IS ACCEPTABLE FOR FULL LENGTH HANGING ANGLES. MAINTAIN 1/4" OF EXPOSED THREADS BENEATH BOTTOM HEX NUT. TORQUE ALL HEX NUTS TO 57 FT-LBS.

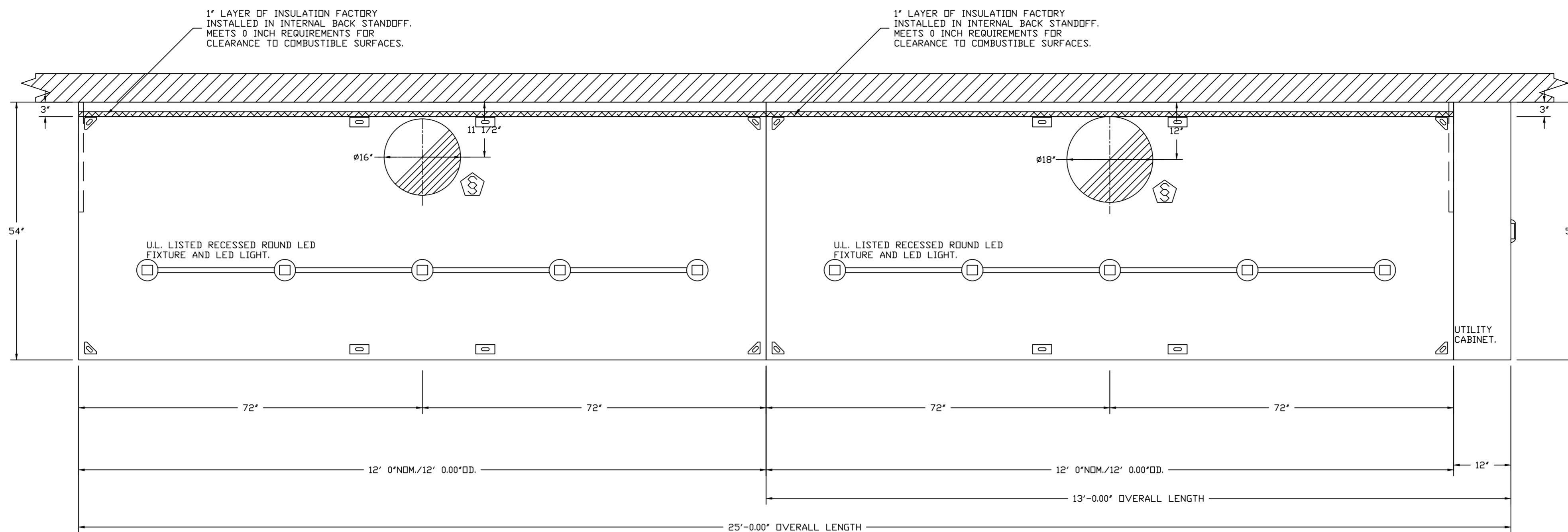
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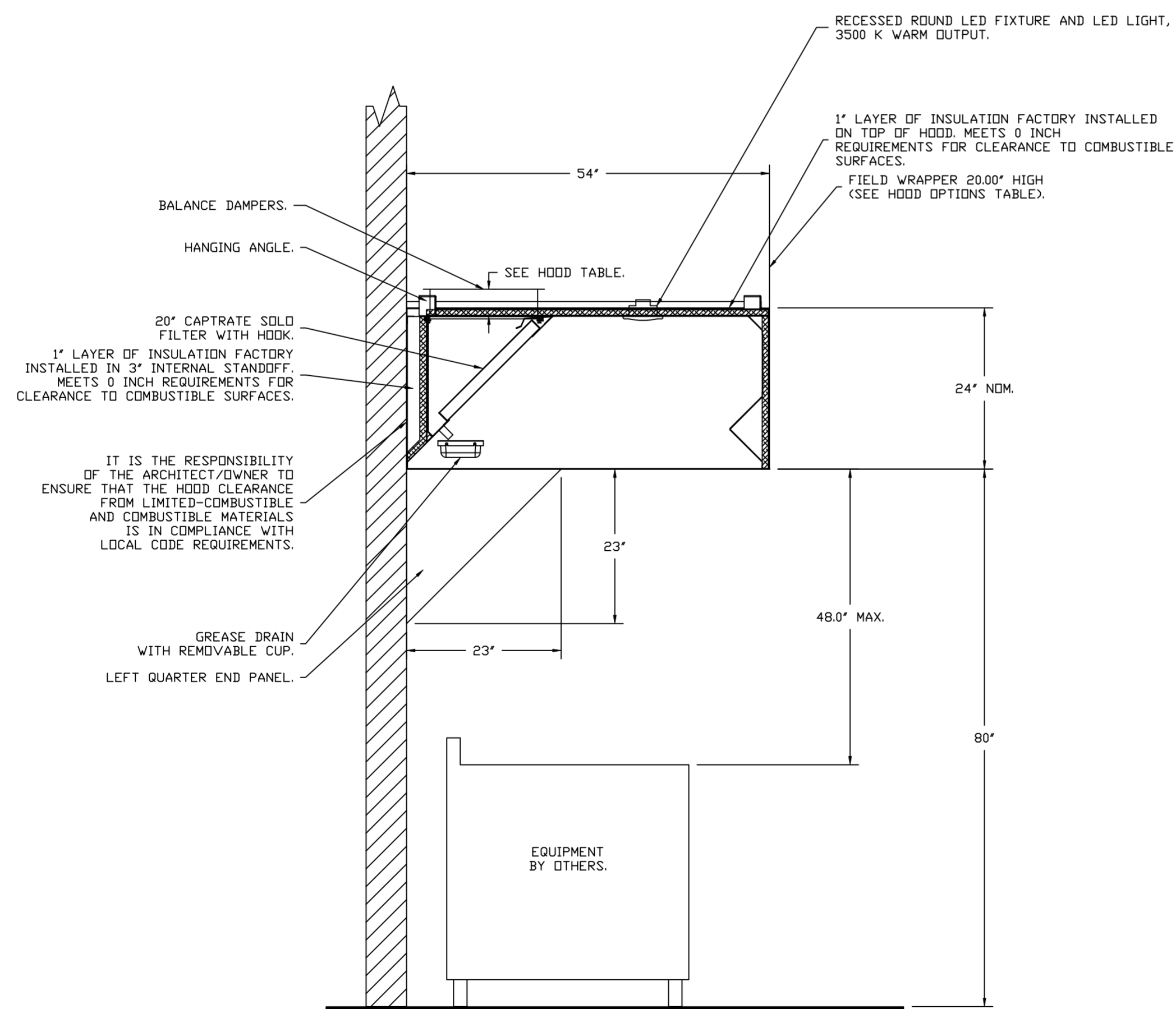
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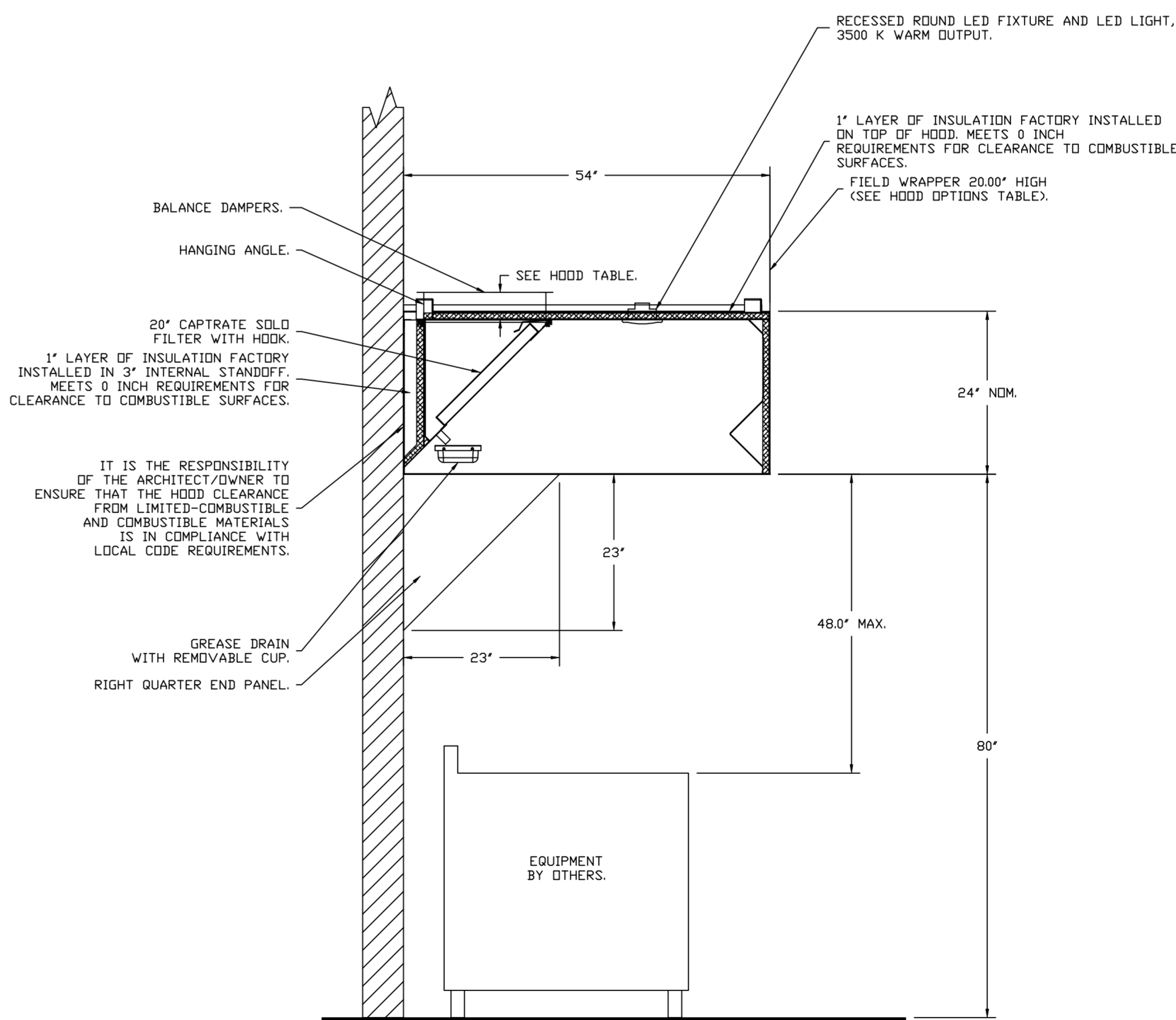


PLAN VIEW - HOOD #1 (Front Hood Left K22)  
 12'-0.00" LONG 5424ND-2  
 NOTE: ADDITIONAL HANGING ANGLES PROVIDED FOR HOODS 12' AND LONGER.

PLAN VIEW - HOOD #2 (Front Hood Right K22)  
 12'-0.00" LONG 5424ND-2  
 NOTE: ADDITIONAL HANGING ANGLES PROVIDED FOR HOODS 12' AND LONGER.




SECTION VIEW - MODEL 5424ND-2  
 HOOD - #1 (Front Hood Left K22)



SECTION VIEW - MODEL 5424ND-2  
 HOOD - #2 (Front Hood Right K22)

REVISIONS	
DESCRIPTION	DATE

  
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 4519 George Road, Suite 150, Tampa, FL 33634 PHONE: (813) 435-3388 FAX: (813) 747-5642 EMAIL: reg62@captive.com

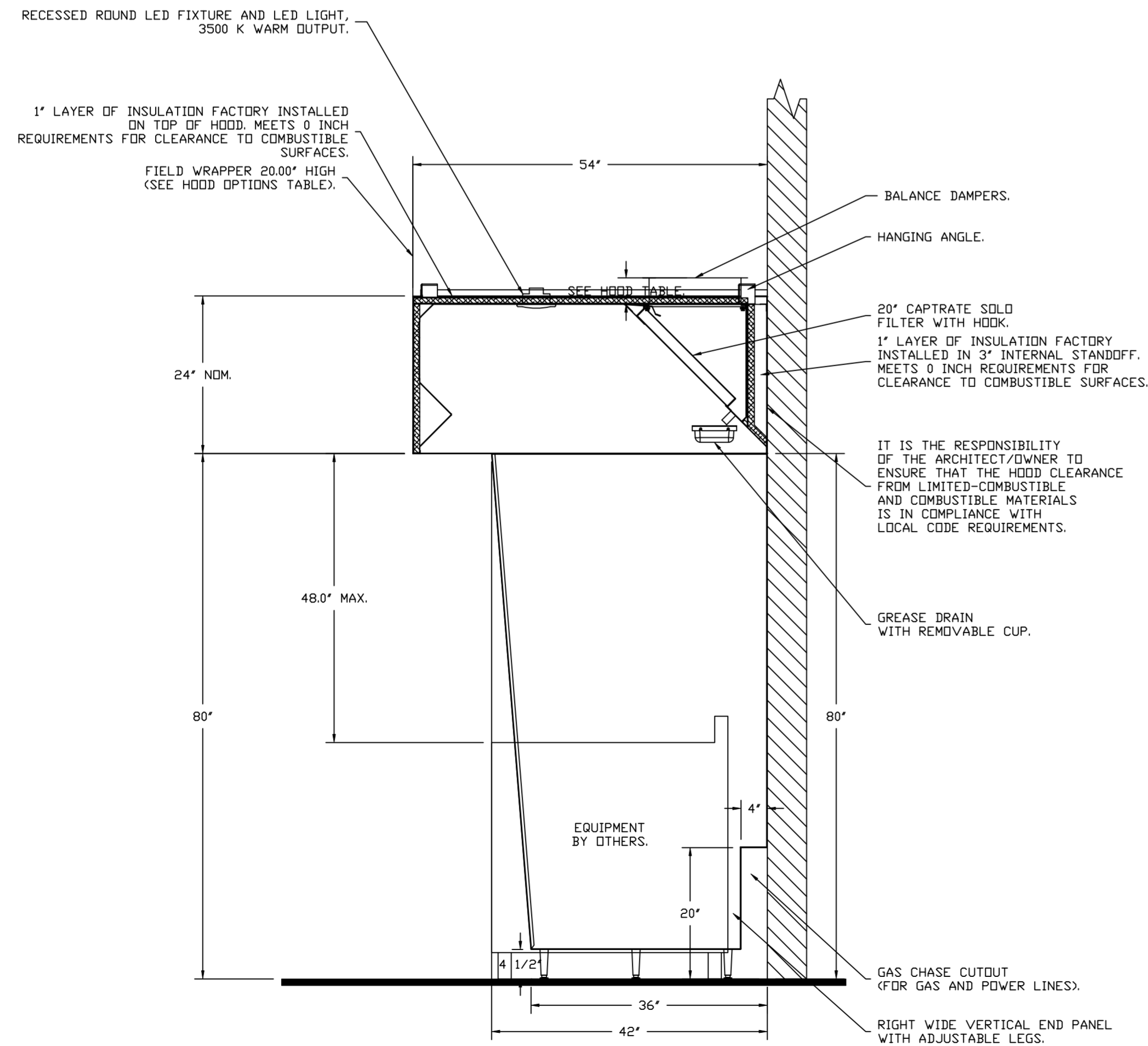
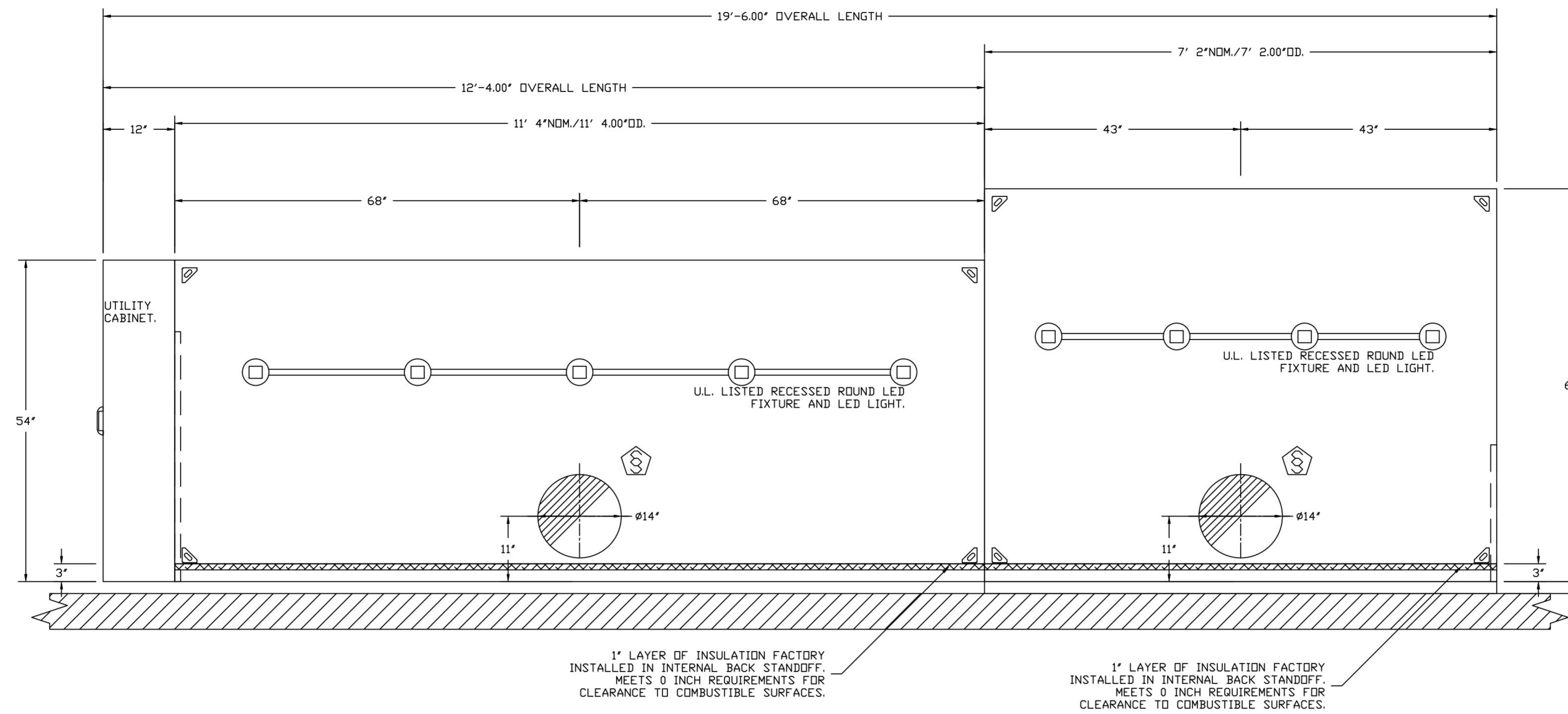
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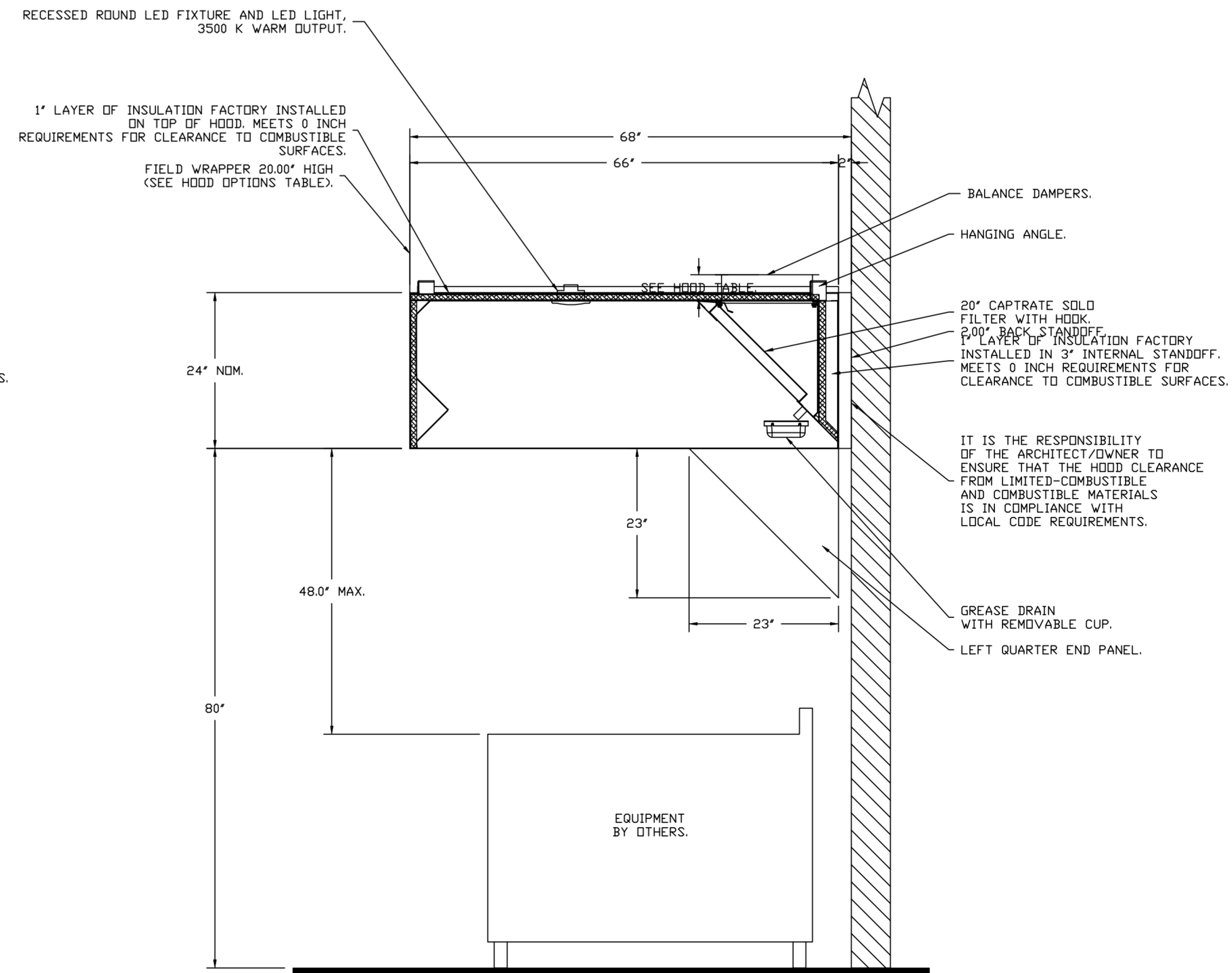
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PLAN VIEW - HOOD #3 (Back Hood Right K22)  
11' 4.00" LONG 5424ND-2

PLAN VIEW - HOOD #4 (Back Hood Left K22)  
7' 2.00" LONG 6624ND-2



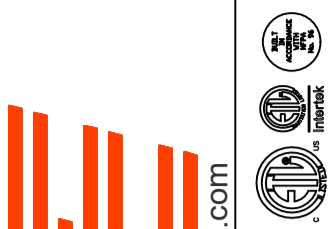
SECTION VIEW - MODEL 5424ND-2  
HOOD - #3 (Back Hood Right K22)



SECTION VIEW - MODEL 6624ND-2  
HOOD - #4 (Back Hood Left K22)

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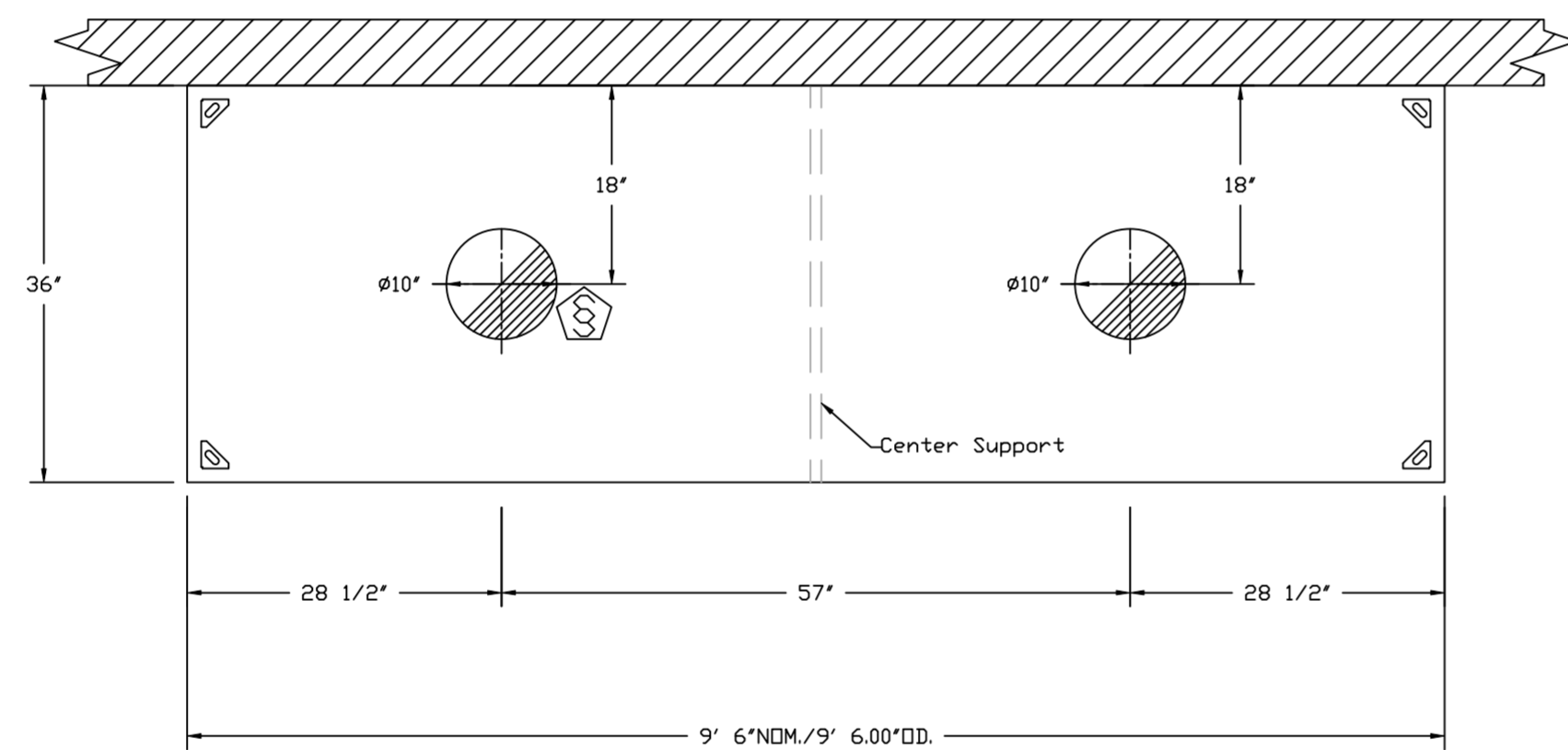
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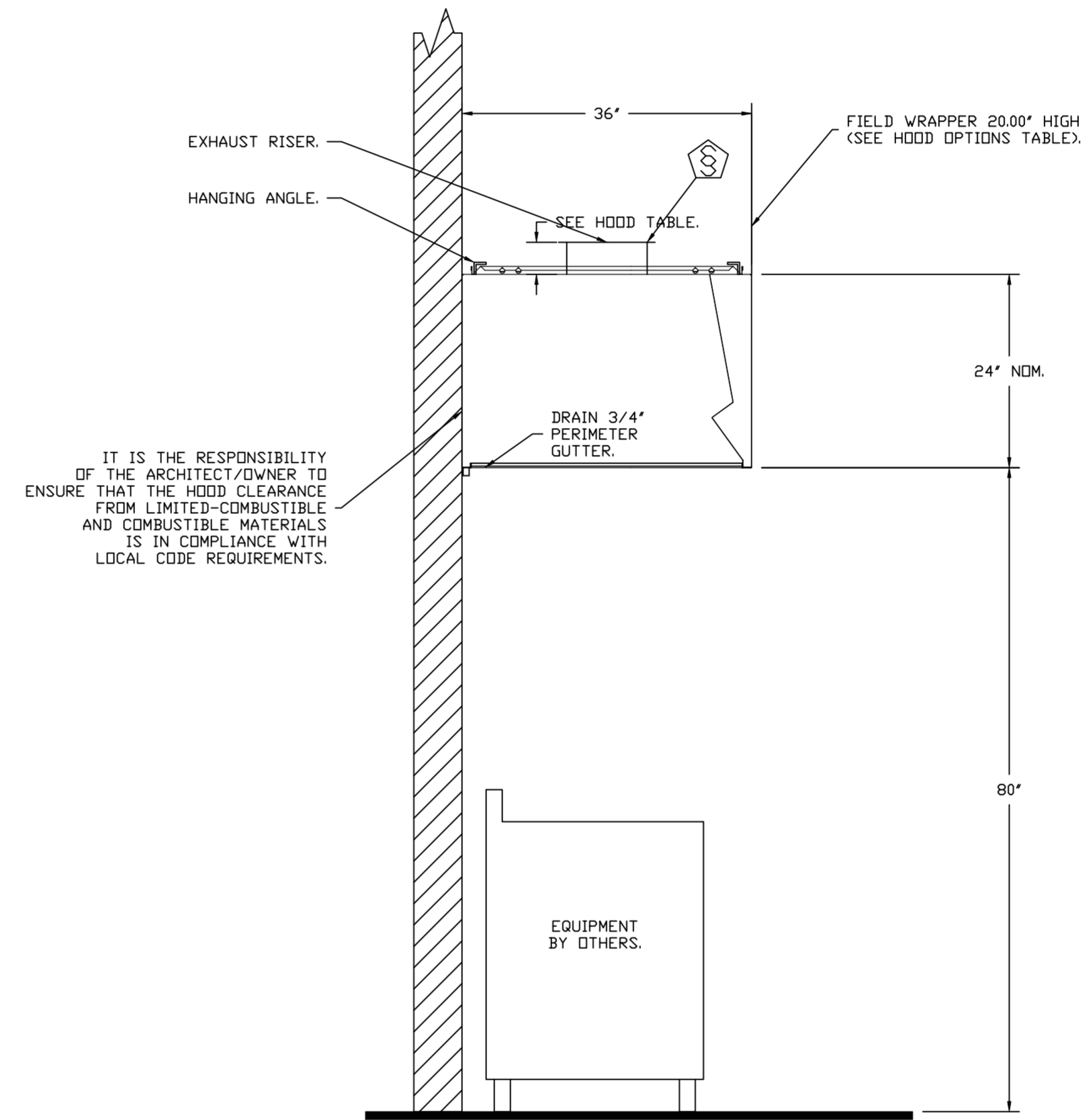
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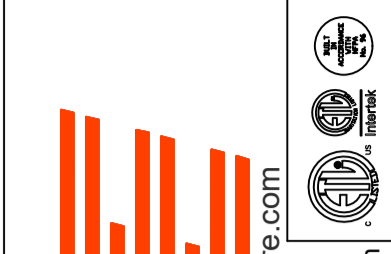


PLAN VIEW - HOOD #5 (Dishwasher (K21))  
9' 6.00" LONG 3624VHB-G-ND



SECTION VIEW - MODEL 3624VHB-G-ND  
HOOD - #5 (Dishwasher (K21))

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

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**EXHAUST FAN INFORMATION – JOB#4103500**

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	EF-1 FRONT HOODS	1	USB124DD-RM	CAPTIVEAIRE	5100	3.500	1364	TEFC,PREMIUM	10.000	5.6500	3	460	12.0	1690 FPM	761	36
2	EF-2 BACK HOODS	1	USB118DD-RM	CAPTIVEAIRE	2780	1.600	1289	TEFC,PREMIUM	3.000	1.2090	3	460	4.3	1425 FPM	396	18.6
3	EF-3 DISHWASHER	1	USB113DD-RM	CAPTIVEAIRE	1430	1.000	1494	TEAD-ECM	1.000	0.4470	1	277	5.2	1252 FPM	206	12.4

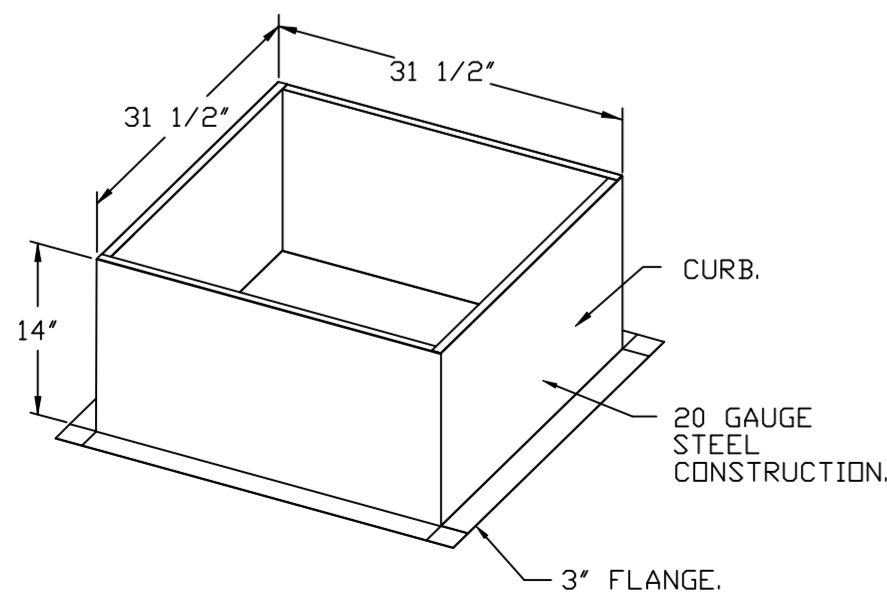
**FAN OPTIONS**

FAN UNIT NO	TAG	QTY	DESCRIPTION
1	EF-1 FRONT HOODS	1	UTILITY SET GREASE CUP
		1	B124 - 24" DISCHARGE EXTENSION
		1	BI - DISCHARGE ORIENTATION VERTICAL UPPER LEFT - CW INLET SIDE
		1	B124 - INLET CONNECTION STANDARD 24" FLANGED GREASE DUCT
		1	UTILITY SET - SPRING VIBRATION ISOLATORS - B124 THRU B130 / EQUIVALENT SIZED
		1	UTILITY SET / SIF 24-30 + FILTER BANK - INDOOR/OUTDOOR USE
		1	LOAD REACTOR MOUNTED IN FAN
		1	LINE REACTOR MOUNTING BRACKET FOR DIRECT DRIVE FANS (UP TO 25 HP)
		1	2 YEAR PARTS WARRANTY
		1	UTILITY SET GREASE CUP
2	EF-2 BACK HOODS	1	B118 - 24" DISCHARGE EXTENSION
		1	BI - DISCHARGE ORIENTATION VERTICAL UPPER LEFT - CW INLET SIDE
		1	B118 - INLET CONNECTION STANDARD 20" FLANGED GREASE DUCT
		1	UTILITY SET - SPRING VIBRATION ISOLATORS - B118 / EQUIVALENT SIZED UTILITY SET - INDOOR/OUTDOOR USE
		1	LOAD REACTOR MOUNTED IN FAN
		1	LINE REACTOR MOUNTING BRACKET FOR DIRECT DRIVE FANS (UP TO 25 HP)
		1	2 YEAR PARTS WARRANTY
		1	UTILITY SET GREASE CUP
		1	B113 - 24" DISCHARGE EXTENSION
		1	BI - DISCHARGE ORIENTATION VERTICAL UPPER LEFT - CW INLET SIDE
3	EF-3 DISHWASHER	1	B113 - INLET CONNECTION STANDARD 14" FLANGED GREASE DUCT
		1	ECM WIRING PACKAGE - MANUAL OR 0-10VDC REFERENCE SPEED CONTROL (TELCO MOTOR), CCW ROTATION
		1	UTILITY SET - SPRING VIBRATION ISOLATORS - B111 THRU B115 / EQUIVALENT SIZED
		1	UTILITY SET - INDOOR/OUTDOOR USE
		1	2 YEAR PARTS WARRANTY

**CURB ASSEMBLIES**

NO	ON FAN	TAG	WEIGHT	ITEM	SIZE
1	# 1	EF-1 FRONT HOODS	31 LBS	RAIL	4.000"W X 60.000"L X 10.000"H ALONG WIDTH, RIGHT COMES AS A SET OF 2.
2	# 2	EF-2 BACK HOODS	25 LBS	RAIL	4.000"W X 48.000"L X 10.000"H ALONG WIDTH, RIGHT COMES AS A SET OF 2.
3	# 3	EF-3 DISHWASHER	19 LBS	RAIL	4.000"W X 36.000"L X 10.000"H ALONG WIDTH, RIGHT COMES AS A SET OF 2.
6		DUCT ROOF CURBS	29 LBS	CURB	31.500"W X 31.500"L X 14.000"H ALONG LENGTH, RIGHT.

CURB #6 (DUCT ROOF CURBS) CRB31.5X14E

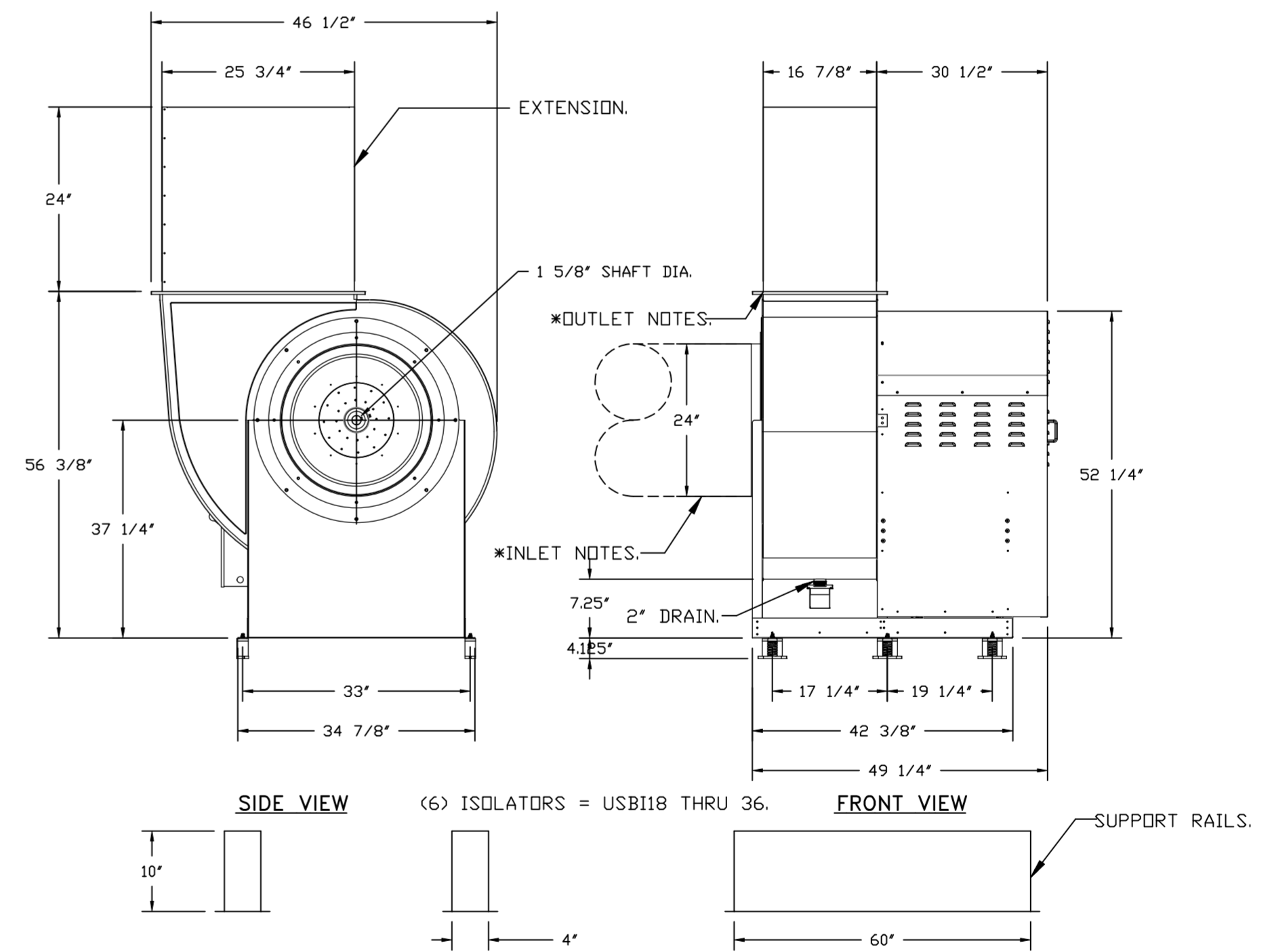
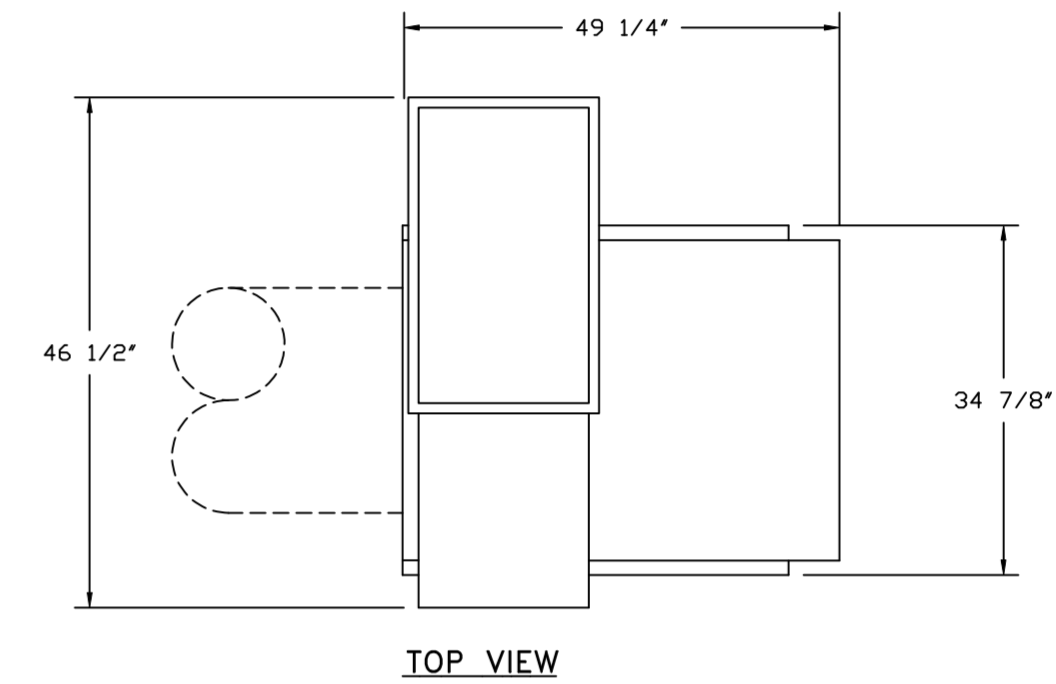


**FEATURES: 24DD-RM-S - EXHAUST FAN (EF-1 FRONT HOODS)**

- ROOF 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**

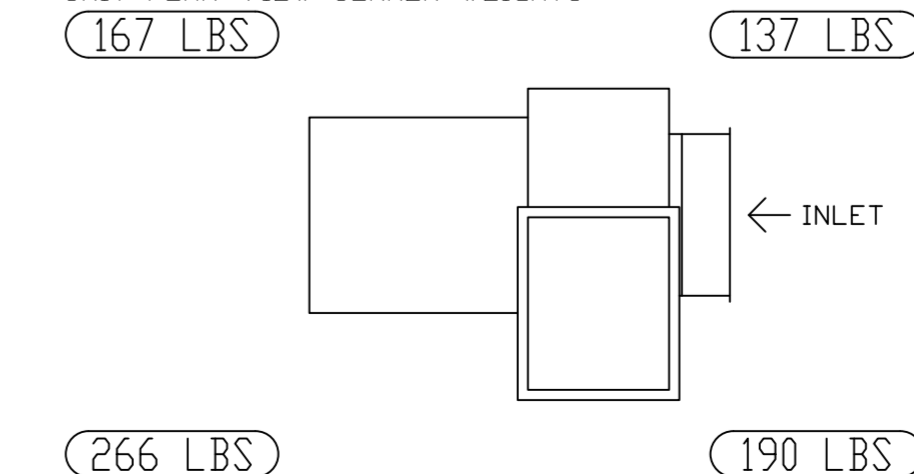
- UTILITY SET GREASE CUP.
- B124 - 24" DISCHARGE EXTENSION.
- BI - DISCHARGE ORIENTATION VERTICAL UPPER LEFT - CW INLET SIDE.
- B124 - INLET CONNECTION STANDARD 24" FLANGED GREASE DUCT.
- UTILITY SET - SPRING VIBRATION ISOLATORS - B124 THRU B130 / EQUIVALENT SIZED UTILITY SET / SIF 24-30 + FILTER BANK - INDOOR/OUTDOOR USE.
- LOAD REACTOR MOUNTED IN FAN.
- LINE REACTOR MOUNTING BRACKET FOR DIRECT DRIVE FANS (UP TO 25 HP).
- 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.

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.

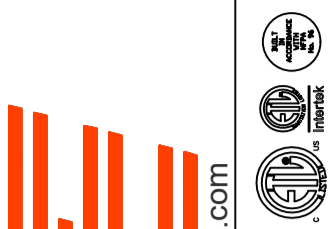
UNIT PLAN VIEW CORNER WEIGHTS:



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

**REVISIONS**

DESCRIPTION	DATE



**CAPTIVE AIR**  
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SCALE: 3/4" = 1'-0"

MASTER DRAWING

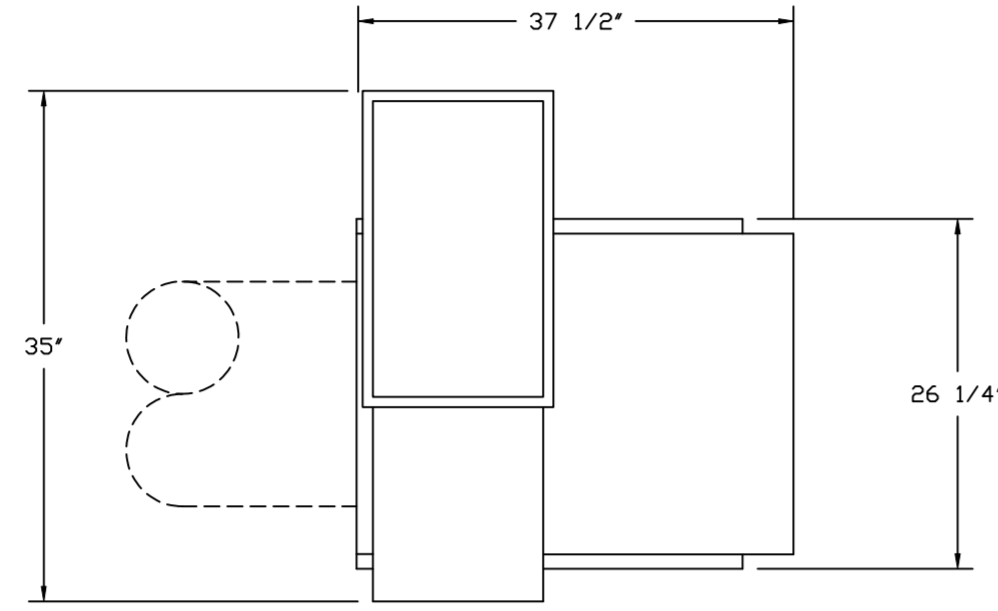
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**FEATURES:**18DD-RM - EXHAUST FAN (EF-2 BACK HOODS)

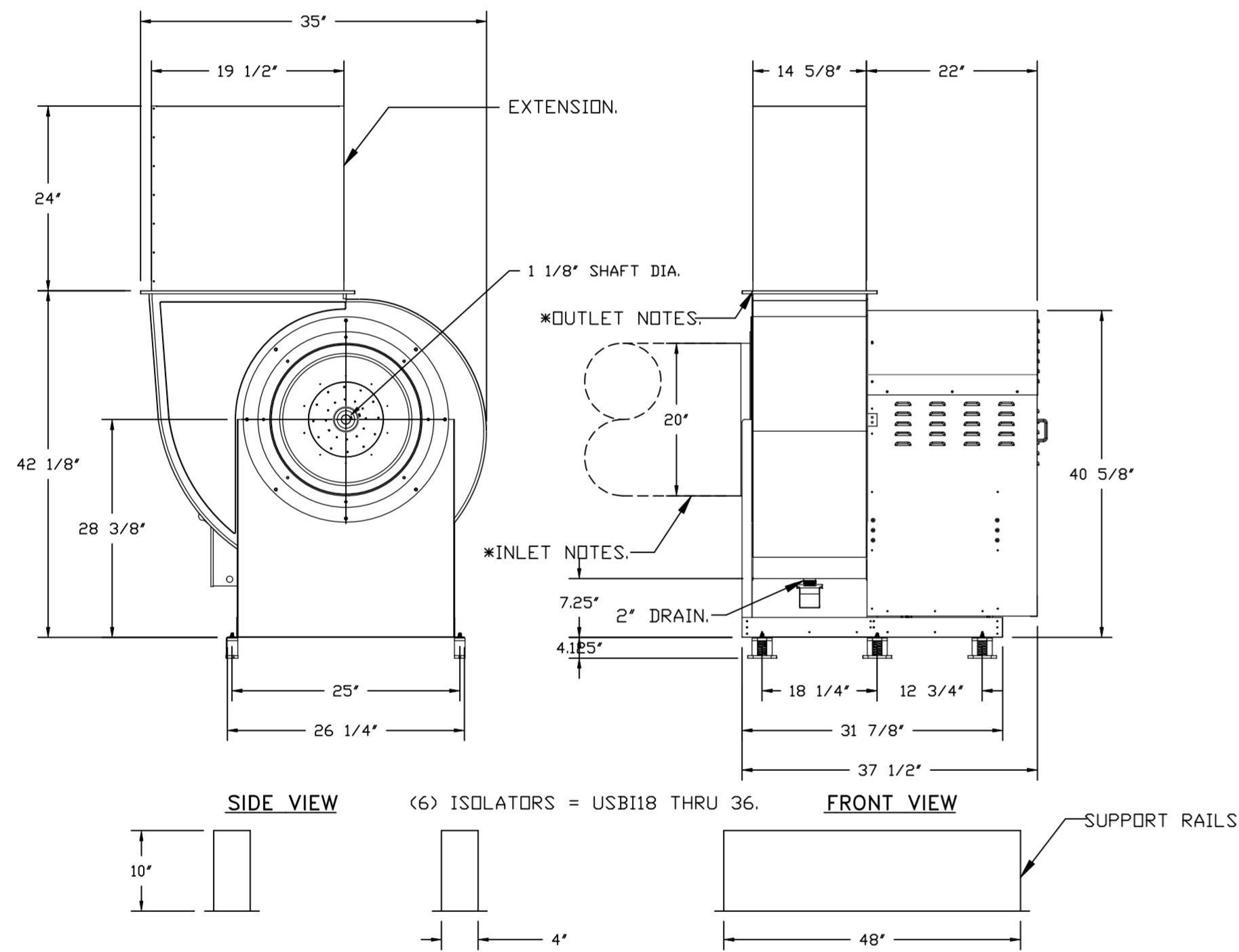
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- HEAT SLINGER.
- NEMA 3R SAFETY DISCONNECT SWITCH.
- GREASE CLASSIFICATION TESTING.
- 2" DRAIN.
- MOTOR WEATHER COVER.
- FULLY SEALED SCROLL HOUSING.
- SCROLL ACCESS DOOR.
- FLANGE 1 1/4".

**OPTIONS**

- UTILITY SET GREASE CUP.
- B118 - 24" DISCHARGE EXTENSION.
- B1 - DISCHARGE ORIENTATION VERTICAL UPPER LEFT - CW INLET SIDE.
- B118 - INLET CONNECTION STANDARD 20" FLANGED GREASE DUCT.
- UTILITY SET - SPRING VIBRATION ISOLATORS - B118 / EQUIVALENT SIZED.
- UTILITY SET - INDOOR/OUTDOOR USE.
- LOAD REACTOR MOUNTED IN FAN.
- LINE REACTOR MOUNTING BRACKET FOR DIRECT DRIVE FANS (UP TO 25 HP).
- 2 YEAR PARTS WARRANTY.



TOP VIEW

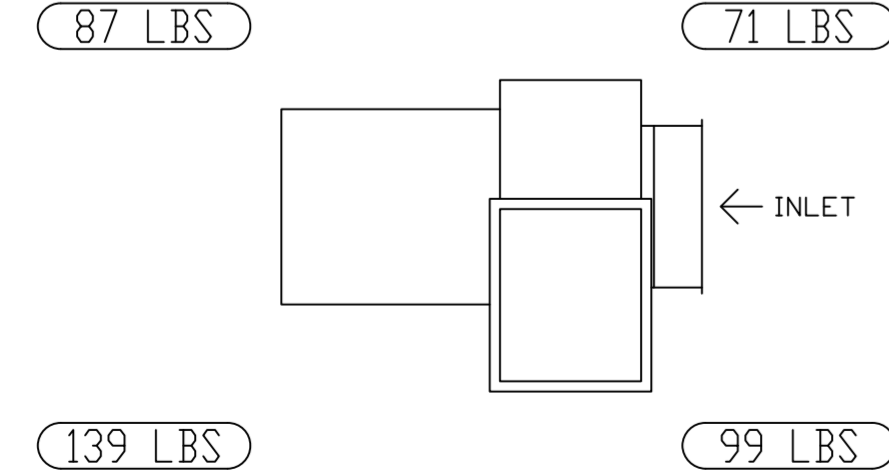


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LENGTH OF THE STRAIGHT DUCT ON THE INLET AND OUTLET TO BE 3 TIMES THE EQUIVALENT DUCT DIAMETER BEFORE CONNECTING TO ANY FITTINGS SUCH AS ELBOWS TO AVOID SYSTEM EFFECT.

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.

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

UNIT PLAN VIEW CORNER WEIGHTS:

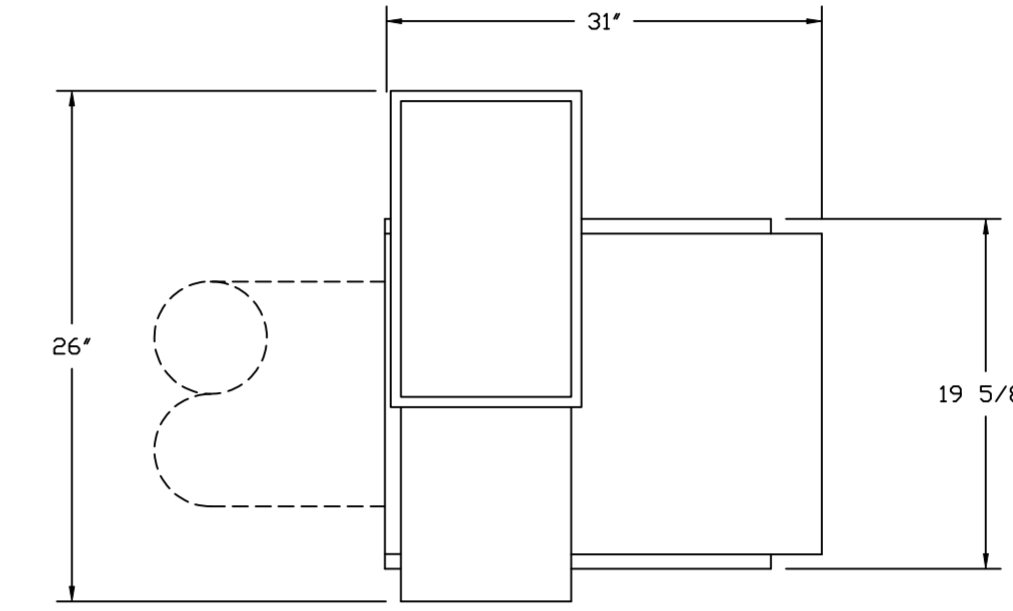


**FEATURES:**13DD-RM - EXHAUST FAN (EF-3 DISHWASHER)

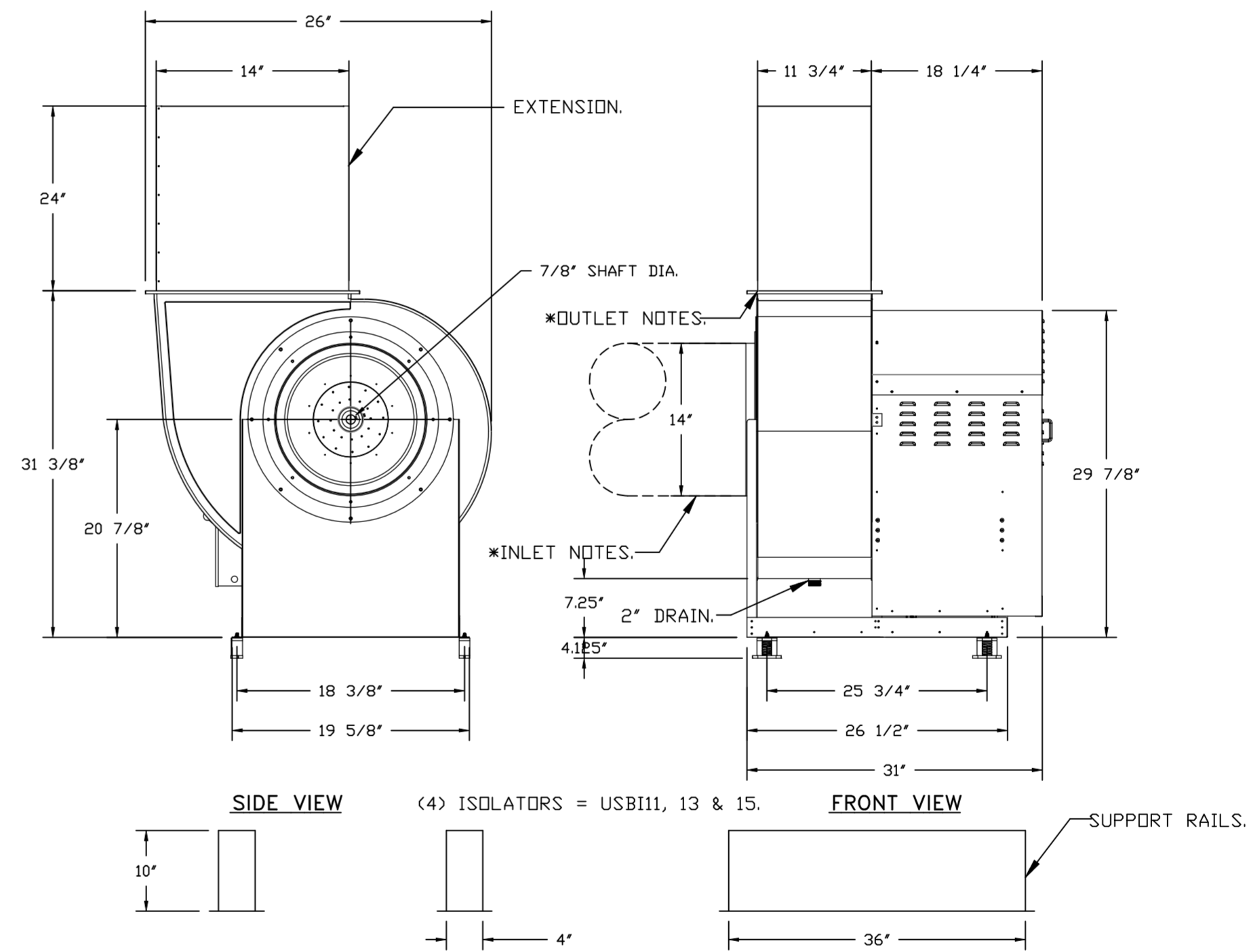
- ROOF MOUNTED FANS.
- UL705.
- UL762 AND ULC-S645 (RESTAURANT MODEL).
- HIGH HEAT OPERATION DIRECT DRIVE 350°F (176°C).
- HEAT SLINGER.
- NEMA 3R SAFETY DISCONNECT SWITCH.
- GREASE CLASSIFICATION TESTING.
- 2" DRAIN.
- MOTOR WEATHER COVER.
- FULLY SEALED SCROLL HOUSING.
- SCROLL ACCESS DOOR.
- FLANGE 1 1/4".

**OPTIONS**

- B113 - 24" DISCHARGE EXTENSION.
- B1 - DISCHARGE ORIENTATION VERTICAL UPPER LEFT - CW INLET SIDE.
- B113 - INLET CONNECTION STANDARD 14" FLANGED GREASE DUCT.
- ECM WIRING PACKAGE - MANUAL OR 0-10VDC REFERENCE SPEED CONTROL (TELCO MOTOR), CCW ROTATION.
- UTILITY SET - SPRING VIBRATION ISOLATORS - B111 THRU B115 / EQUIVALENT SIZED UTILITY SET - INDOOR/OUTDOOR USE.
- 2 YEAR PARTS WARRANTY.



TOP VIEW

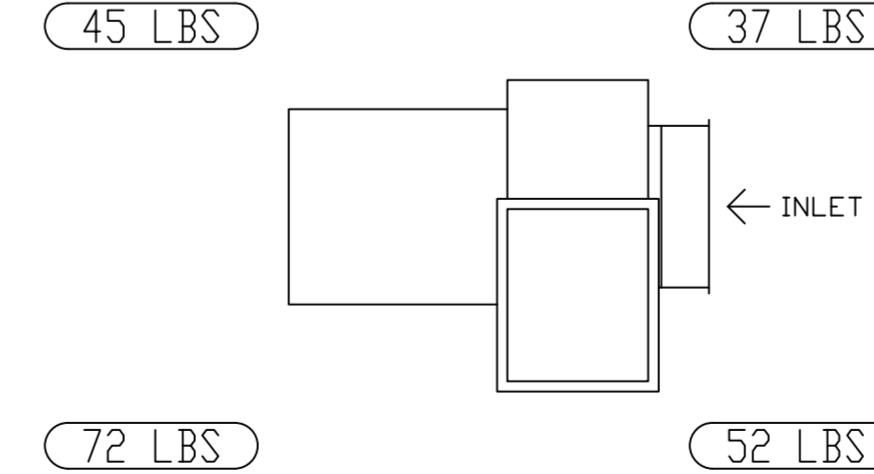


\* INLET/OUTLET NOTES:  
LENGTH OF THE STRAIGHT DUCT ON THE INLET AND OUTLET TO BE 3 TIMES THE EQUIVALENT DUCT DIAMETER BEFORE CONNECTING TO ANY FITTINGS SUCH AS ELBOWS TO AVOID SYSTEM EFFECT.

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.

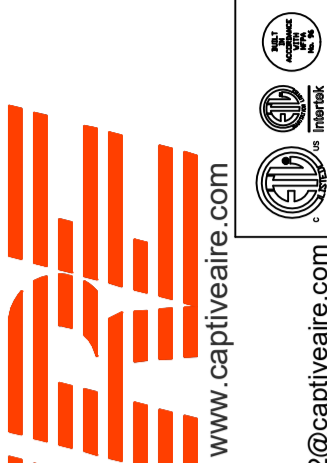
CORNER WEIGHTS ARE CALCULATED BASED ON VERTICAL DISCHARGE. SUPPORT DUCT PROPERLY BEFORE FAN TO ENSURE CORNER WEIGHTS ARE NOT AFFECTED.

UNIT PLAN VIEW CORNER WEIGHTS:



**REVISIONS**

DESCRIPTION	DATE:



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

MASTER DRAWING

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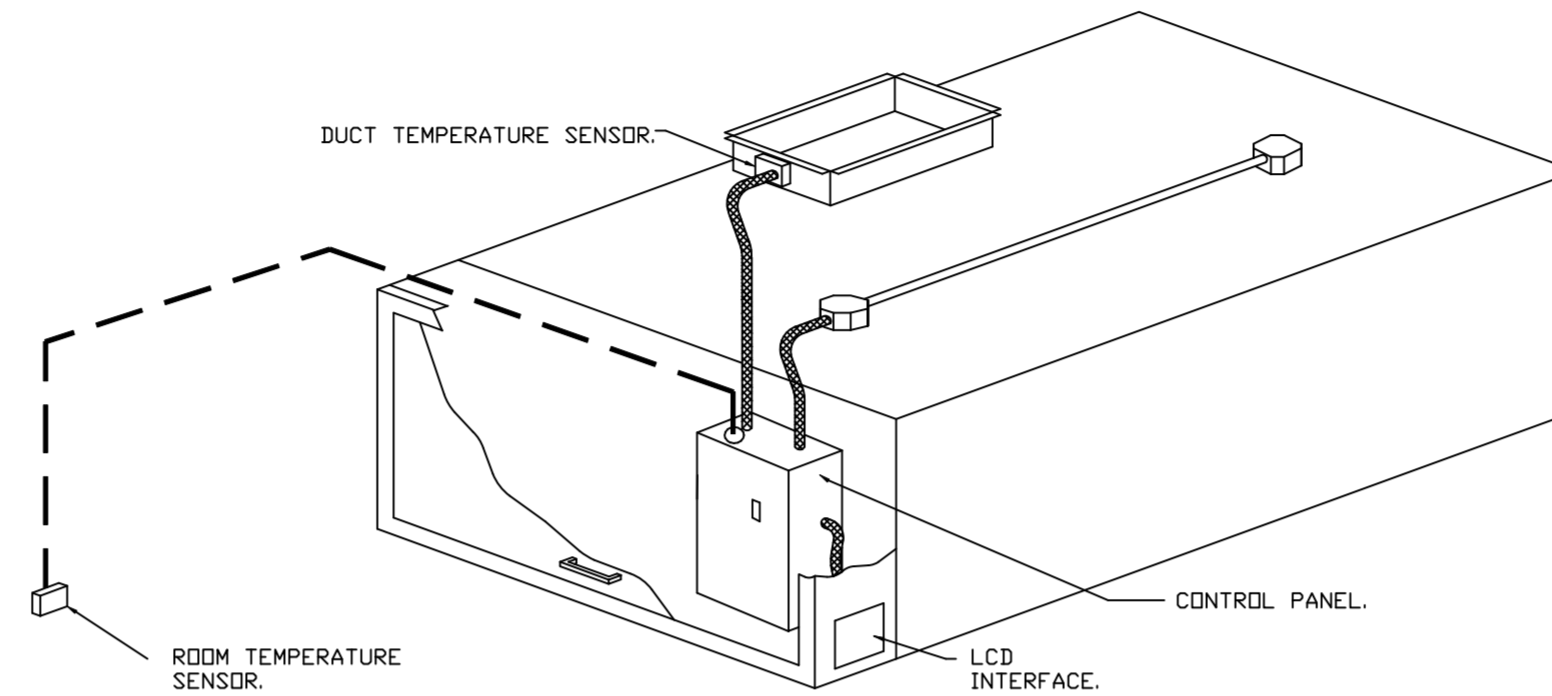


**ELECTRICAL PACKAGE – JOB#4103500**

NO	TAG	PACKAGE #	LOCATION	SWITCHES		OPTION	FANS CONTROLLED					
				LOCATION	QUANTITY		FAN TAG	TYPE	#	HP	VOLT	FLA
1	ECP-1	DCV-1011	UTILITY CABINET RIGHT	04 – UTILITY CABINET RIGHT	1 LIGHT	SMART CONTROLS DCV	EF-1 Front Hoods	EXHAUST	3	10,000	460	12.0
				HOOD # 2	1 FAN							
2	ECP-2	DCV-1011	UTILITY CABINET RIGHT	04 – UTILITY CABINET RIGHT	1 LIGHT	SMART CONTROLS DCV	EF-2 Back Hoods	EXHAUST	3	3,000	460	4.3
				HOOD # 3	1 FAN							
3	SW- Dishwa	Switches		01 – FACE MOUNT LEFT SIDE OF HOOD	1 FAN							

**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 403.2.8 (2015).
- 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:
  - ON/OFF PUSH BUTTON FAN & LIGHT SWITCH ACTIVATION.
  - INTEGRATED GAS VALVE RESET FOR ELECTRONIC GAS VALVES (NO RESET RELAY REQUIRED).
  - VFD FAULT DISPLAY WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
  - DUCT TEMPERATURE SENSOR FAILURE DETECTION WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
  - MIS-WIRED DUCT TEMPERATURE SENSOR DETECTION WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
  - A SINGLE LOW VOLTAGE CAT-5 RJ45 WIRING CONNECTION.
  - AN ENERGY SAVINGS INDICATOR THAT UTILIZES MEASURED KWH FROM THE VFDS.



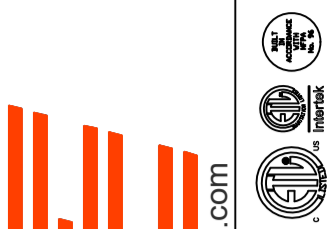
**TYPICAL HOOD CONTROL PANEL INSTALLATION**

**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 403.2.8.
  - **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.

**REVISIONS**

DESCRIPTION	DATE:



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4103500

**DRAWN BY:** EEM-62

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

**MASTER DRAWING**

**SHEET NO.**  
9



DUCTWORK #1 PARTS - JOB#4103500 DUCT-DISHWASHER

TAG	PART #	CFM	GPM	ZONE	COVEREDBY	SP	WEIGHT	VELOCITY	QTY	DESCRIPTION
P1	DW1014ADP	715				-0.05	6.17	1310.93	1	SINGLE WALL DUCT ADAPTER, 10" DUCT DIA TO 14" DUCT DIA, ASSEMBLY.
P2	DW1490ASY	715				-0.0195	10.62	668.84	1	SINGLE WALL DUCT 90 DEGREE ELBOW, 14" DUCT, ASSEMBLY.
P3	DW1411LT	715				-0.0006	5.46	668.84	1	SINGLE WALL DUCT 14" DIAMETER, 11" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P4	DW1418AJDKIT	715				-0.0004	11.56	668.84	1	SINGLE WALL DUCT ADJUSTABLE, 14" DIAMETER, 17.5" LONG, FLANGE AT ONE END WITH A 14" ADJUSTABLE COLLAR - STAINLESS STEEL.
P5	DW147EASY	1430		1		-0.215	15.95	1337.68	1	SINGLE WALL DUCT TEE, 14" DUCT, ASSEMBLY.
P6	DW1417LT	715				-0.0011	8.22	668.84	1	SINGLE WALL DUCT 14" DIAMETER, 17" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P7	DW1424AJDKIT	715				-0.0009	14.56	668.84	1	SINGLE WALL DUCT ADJUSTABLE, 14" DIAMETER, 23.5" LONG, FLANGE AT ONE END WITH A 14" ADJUSTABLE COLLAR - STAINLESS STEEL.
P8	DW14SUBRASY						2.96		1	DUCT SUPPDRT BRACKET KIT, 14" DUCT, USED FOR HANGING DUCT. 12 GA STEEL, CLEAR ZINC COATING. - 2 RINGS, 4 BRACKETS, & HARDWARE BAG 2.
P9	DW1490ASY	715				-0.026	10.62	668.84	1	SINGLE WALL DUCT 90 DEGREE ELBOW, 14" DUCT, ASSEMBLY.
P10	DW14090SLT	715				-0.0006	10.85	668.84	1	SINGLE WALL DUCT 14" DIAMETER, 9.50" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P11	DW1418AJDKIT	715				-0.0004	11.56	668.84	1	SINGLE WALL DUCT ADJUSTABLE, 14" DIAMETER, 17.5" LONG, FLANGE AT ONE END WITH A 14" ADJUSTABLE COLLAR - STAINLESS STEEL.
P12	DW1490ASY	715				-0.0195	10.62	668.84	1	SINGLE WALL DUCT 90 DEGREE ELBOW, 14" DUCT, ASSEMBLY.
P13	DW1014ADP	715				-0.05	6.17	1310.93	1	SINGLE WALL DUCT ADAPTER, 10" DUCT DIA TO 14" DUCT DIA, ASSEMBLY.
P14	DW1447LT	1430				-0.0125	21.79	1337.68	1	SINGLE WALL DUCT 14" DIAMETER, 47" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P15	DW1447LT	1430				-0.0125	21.79	1337.68	1	SINGLE WALL DUCT 14" DIAMETER, 47" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P16	DW1447LT	1430				-0.0125	21.79	1337.68	1	SINGLE WALL DUCT 14" DIAMETER, 47" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P17	DW1447LT	1430				-0.0125	21.79	1337.68	1	SINGLE WALL DUCT 14" DIAMETER, 47" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P18	DW1447LT	1430				-0.0125	21.79	1337.68	1	SINGLE WALL DUCT 14" DIAMETER, 47" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P19	DW1447LT	1430				-0.0125	21.79	1337.68	1	SINGLE WALL DUCT 14" DIAMETER, 47" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P20	DW1447LT	1430				-0.0125	21.79	1337.68	1	SINGLE WALL DUCT 14" DIAMETER, 47" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P21	DW1448AJDKIT	1430				-0.0074	26.62	1337.68	1	SINGLE WALL DUCT ADJUSTABLE, 14" DIAMETER, 47.5" LONG, FLANGE AT ONE END WITH A 14" ADJUSTABLE COLLAR - STAINLESS STEEL.
P22	DW14SUBRASY						2.96		1	DUCT SUPPDRT BRACKET KIT, 14" DUCT, USED FOR HANGING DUCT. 12 GA STEEL, CLEAR ZINC COATING. - 2 RINGS, 4 BRACKETS, & HARDWARE BAG 2.
P23	DW14SUBRASY						2.96		1	DUCT SUPPDRT BRACKET KIT, 14" DUCT, USED FOR HANGING DUCT. 12 GA STEEL, CLEAR ZINC COATING. - 2 RINGS, 4 BRACKETS, & HARDWARE BAG 2.
P24	DW14SUBRASY						2.96		1	DUCT SUPPDRT BRACKET KIT, 14" DUCT, USED FOR HANGING DUCT. 12 GA STEEL, CLEAR ZINC COATING. - 2 RINGS, 4 BRACKETS, & HARDWARE BAG 2.
P25	DW14SUBRASY						2.96		1	DUCT SUPPDRT BRACKET KIT, 14" DUCT, USED FOR HANGING DUCT. 12 GA STEEL, CLEAR ZINC COATING. - 2 RINGS, 4 BRACKETS, & HARDWARE BAG 2.
P26	DW1490ASY	1430				-0.051	10.62	1337.68	1	SINGLE WALL DUCT 90 DEGREE ELBOW, 14" DUCT, ASSEMBLY.
P27	DW1411LT	1430				-0.0031	5.46	1337.68	1	SINGLE WALL DUCT 14" DIAMETER, 11" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P28	DW1424AJDKIT	1430				-0.0039	14.56	1337.68	1	SINGLE WALL DUCT ADJUSTABLE, 14" DIAMETER, 23.5" LONG, FLANGE AT ONE END WITH A 14" ADJUSTABLE COLLAR - STAINLESS STEEL.
P29	DW1447LT	1430				-0.0126	21.79	1337.68	1	SINGLE WALL DUCT 14" DIAMETER, 47" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P30	DW1447LT	1430				-0.0126	21.79	1337.68	1	SINGLE WALL DUCT 14" DIAMETER, 47" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P31	DW1447LT	1430				-0.0126	21.79	1337.68	1	SINGLE WALL DUCT 14" DIAMETER, 47" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P32	DW1447LT	1430				-0.0126	21.79	1337.68	1	SINGLE WALL DUCT 14" DIAMETER, 47" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P33	DW1447LT	1430				-0.0126	21.79	1337.68	1	SINGLE WALL DUCT 14" DIAMETER, 47" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P34	DW1447LT	1430				-0.0126	21.79	1337.68	1	SINGLE WALL DUCT 14" DIAMETER, 47" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P35 ASSEMBLED W/P37	DW1447LT	1430				-0.0126	21.79	1337.68	1	SINGLE WALL DUCT 14" DIAMETER, 47" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P36	DW14VESU18						22.58		1	DUCT VERTICAL SUPPORT KIT, 14" DUCT, 18" CLEARANCE TO COMBUSTIBLES. PARTS ARE ZINC COATED. HARDWARE KIT #3 USED ON DWXXVESU & DWXXVESU18.
P37 ASSEMBLED W/P35,P38	DW3114TPDB	1430					22.90	1337.68	1	DUCT TO CURB TRANSITION DOWN TURN, 31-1/2" CURB TO 14" DUCT, 16 GA ALUMINIZED. NON-STANDARD PART. NOT FOR USE WITH EXHAUST FANS.
P38 ASSEMBLED W/P37	DW14RISER	1430				-0.001	2.25	1337.68	1	SINGLE WALL DUCT RISER FOR WELDED HOODS, 14" DIA DUCT. STAINLESS STEEL.
P39	DW1411LT	1430				-0.0032	5.46	1337.68	1	SINGLE WALL DUCT 14" DIAMETER, 11" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P40	DW1418AJDKIT	1430				-0.0018	11.56	1337.68	1	SINGLE WALL DUCT ADJUSTABLE, 14" DIAMETER, 17.5" LONG, FLANGE AT ONE END WITH A 14" ADJUSTABLE COLLAR - STAINLESS STEEL.
P41	DW14VESU18						22.58		1	DUCT VERTICAL SUPPORT KIT, 14" DUCT, 18" CLEARANCE TO COMBUSTIBLES. PARTS ARE ZINC COATED. HARDWARE KIT #3 USED ON DWXXVESU & DWXXVESU18.
P42	DW1490ASY	1430				-0.051	10.62	1337.68	1	SINGLE WALL DUCT 90 DEGREE ELBOW, 14" DUCT, ASSEMBLY.
P43	DW1445ASY	1430				-0.068	7.22	1337.68	1	SINGLE WALL DUCT 45 DEGREE ELBOW, 14" DUCT, ASSEMBLY.
P44	DW1417LT	1430				-0.0047	8.22	1337.68	1	SINGLE WALL DUCT 14" DIAMETER, 17" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P45	DW1424AJDKIT	1430				-0.0033	14.56	1337.68	1	SINGLE WALL DUCT ADJUSTABLE, 14" DIAMETER, 23.5" LONG, FLANGE AT ONE END WITH A 14" ADJUSTABLE COLLAR - STAINLESS STEEL.
P46	DW1445ASY	1430				-0.034	7.22	1337.68	1	SINGLE WALL DUCT 45 DEGREE ELBOW, 14" DUCT, ASSEMBLY.
P47	DW1430ASY	1430				-0.0355	6.28	1337.68	1	SINGLE WALL DUCT 30 DEGREE ELBOW, 14" DUCT, ASSEMBLY.
P48	DW1417LT	1430				-0.0044	8.22	1337.68	1	SINGLE WALL DUCT 14" DIAMETER, 17" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P49	DW1424AJDKIT	1430				-0.0026	14.56	1337.68	1	SINGLE WALL DUCT ADJUSTABLE, 14" DIAMETER, 23.5" LONG, FLANGE AT ONE END WITH A 14" ADJUSTABLE COLLAR - STAINLESS STEEL.
P50	DW1430ASY	1430				-0.0325	6.28	1337.68	1	SINGLE WALL DUCT 30 DEGREE ELBOW, 14" DUCT, ASSEMBLY.
P51	DW1417LT	1430				-0.0047	8.22	1337.68	1	SINGLE WALL DUCT 14" DIAMETER, 17" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
SYSTEM AT P51						-0.9045	0.00			
P52	DW1424AJDKIT	1430				-0.0033	14.56	1337.68	1	SINGLE WALL DUCT ADJUSTABLE, 14" DIAMETER, 23.5" LONG, FLANGE AT ONE END WITH A 14" ADJUSTABLE COLLAR - STAINLESS STEEL.
SYSTEM AT P52						-0.9045	0.00			
P53	DW14SUBRASY						2.96		1	DUCT SUPPDRT BRACKET KIT, 14" DUCT, USED FOR HANGING DUCT. 12 GA STEEL, CLEAR ZINC COATING. - 2 RINGS, 4 BRACKETS, & HARDWARE BAG 2.
P54	DW14SUBRASY						2.96		1	DUCT SUPPDRT BRACKET KIT, 14" DUCT, USED FOR HANGING DUCT. 12 GA STEEL, CLEAR ZINC COATING. - 2 RINGS, 4 BRACKETS, & HARDWARE BAG 2.
	3M-2000PLUS						0.80		12	DUCT - 3M FIRE BARRIER 2000 PLUS SILICONE - USED AS SEALANT TO SEAL DUCT JOINTS.
	DW10CLASY						0.82		2	DUCT *V* CLAMP WITH NEW DESIGN 14 GA BRACKETS, 10" DUCT, ASSEMBLY.
	DW14CLASY						1.06		43	DUCT *V* CLAMP WITH NEW DESIGN 14 GA BRACKETS, 14" DUCT, ASSEMBLY.
TOTAL WEIGHT							755.51			

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)
5"	10'	10'	24'
6"	10'	10'	24'
7"	10'	10'	24'
8"	10'	10'	24'
10"	10'	10'	24'
12"	10'	10'	24'
14"	10'	10'	24'
16"	10'	10'	24'
18"	10'	10'	24'
20"	10'	10'	24'
22"	10'	10'	24'
24"	10'	10'	24'
26"	10'	10'	24'
28"	10'	10'	24'
30"	10'	10'	24'
32"	10'	10'	24'
34"	10'	10'	24'
36"	10'	10'	24'

DO NOT LEAK TEST USING SMOKE BOMBS CONTAINING CHLORINES/CHLORIDES. CONSULT WITH CAPTIVEAIRE FOR PROPER LEAK TESTING METHODS.

**REVISIONS**

DESCRIPTION	DATE



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CINCINNATI, OH, 45246

**DATE:** 4/20/2022

**DWG.#:** 4103500

**DRAWN BY:** EEM-62

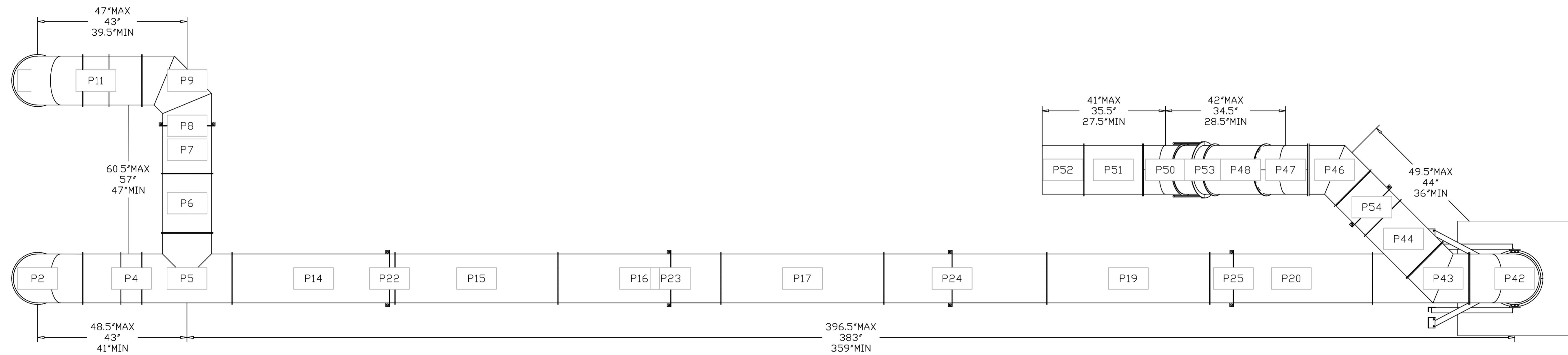
**SCALE:** 3/4" = 1'-0"

**MASTER DRAWING**

**SHEET NO.**

11

DUCTWORK #1 TOP VIEW  
DUCT-DISHWASHER



REVISIONS	
DESCRIPTION	DATE



Florida Gulf Coast Office  
www.captiveair.com  
4819 George Road, Suite 160, Tampa, FL 33634 PHONE: (813) 435-3388 FAX: (813) 747-5642 EMAIL: reg62@captiveair.com

Sharonville Conv. Center - Cincinnati, OH (Full)  
11355 Chester Rd,  
CINCINNATI, OH, 45246

DATE: 4/20/2022

DWG.#:  
4103500

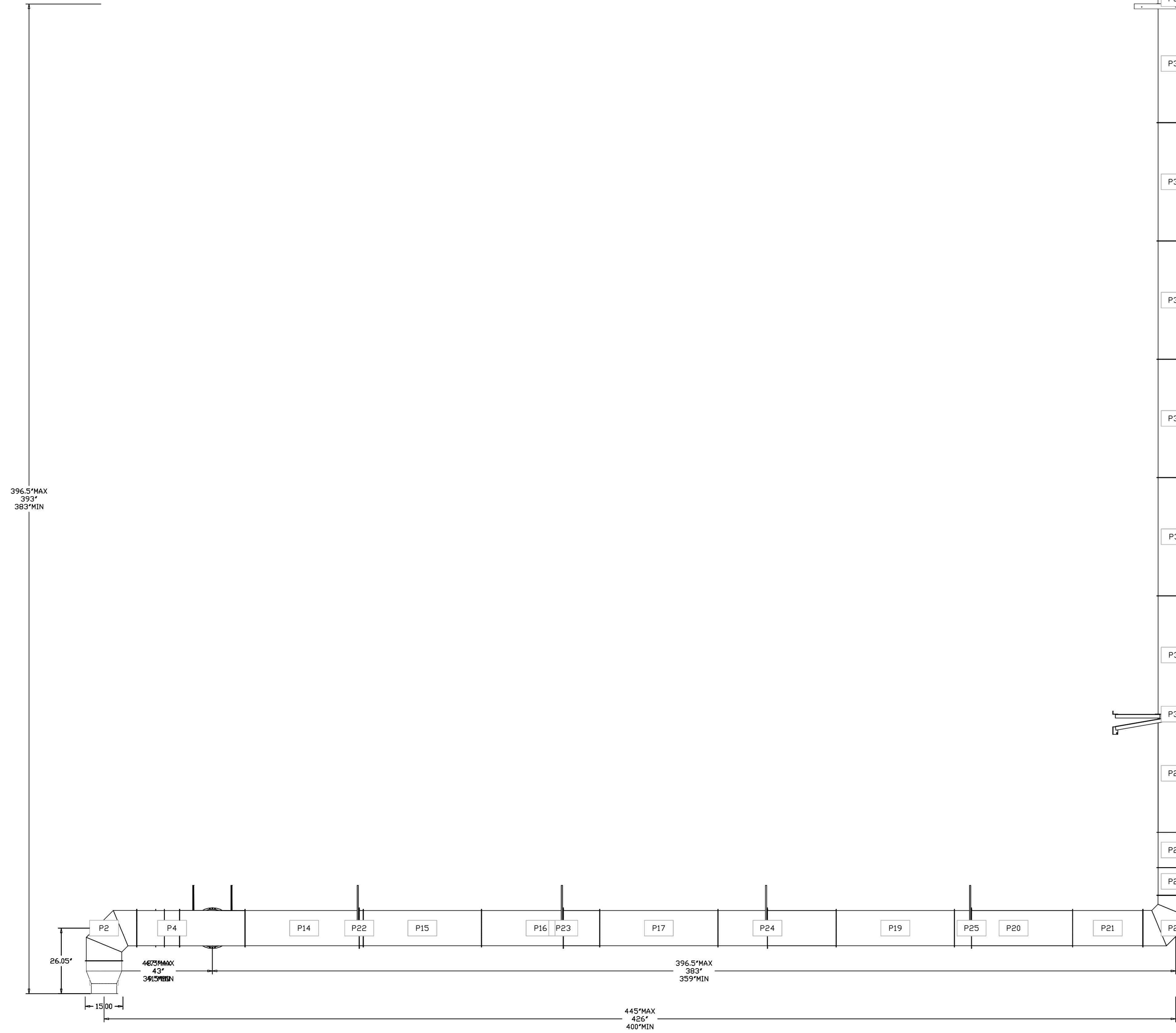
DRAWN BY:  
EEM-62

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

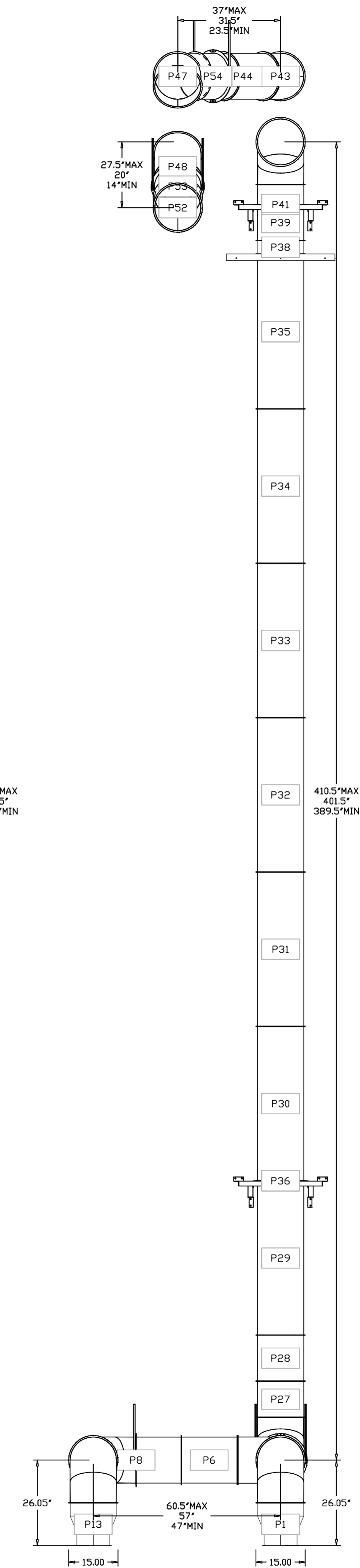
MASTER DRAWING

SHEET NO.  
12

DUCTWORK #1 FRONT VIEW  
DUCT-DISHWASHER



DUCTWORK #1 SIDE VIEW  
DUCT-DISHWASHER



REVISIONS	
DESCRIPTION	DATE

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Florida Gulf Coast Office  
4619 George Road, Suite 150, Tampa, FL 33634 PHONE: (813) 435-3388 FAX: (813) 747-5642 EMAIL: reg62@captiveair.com

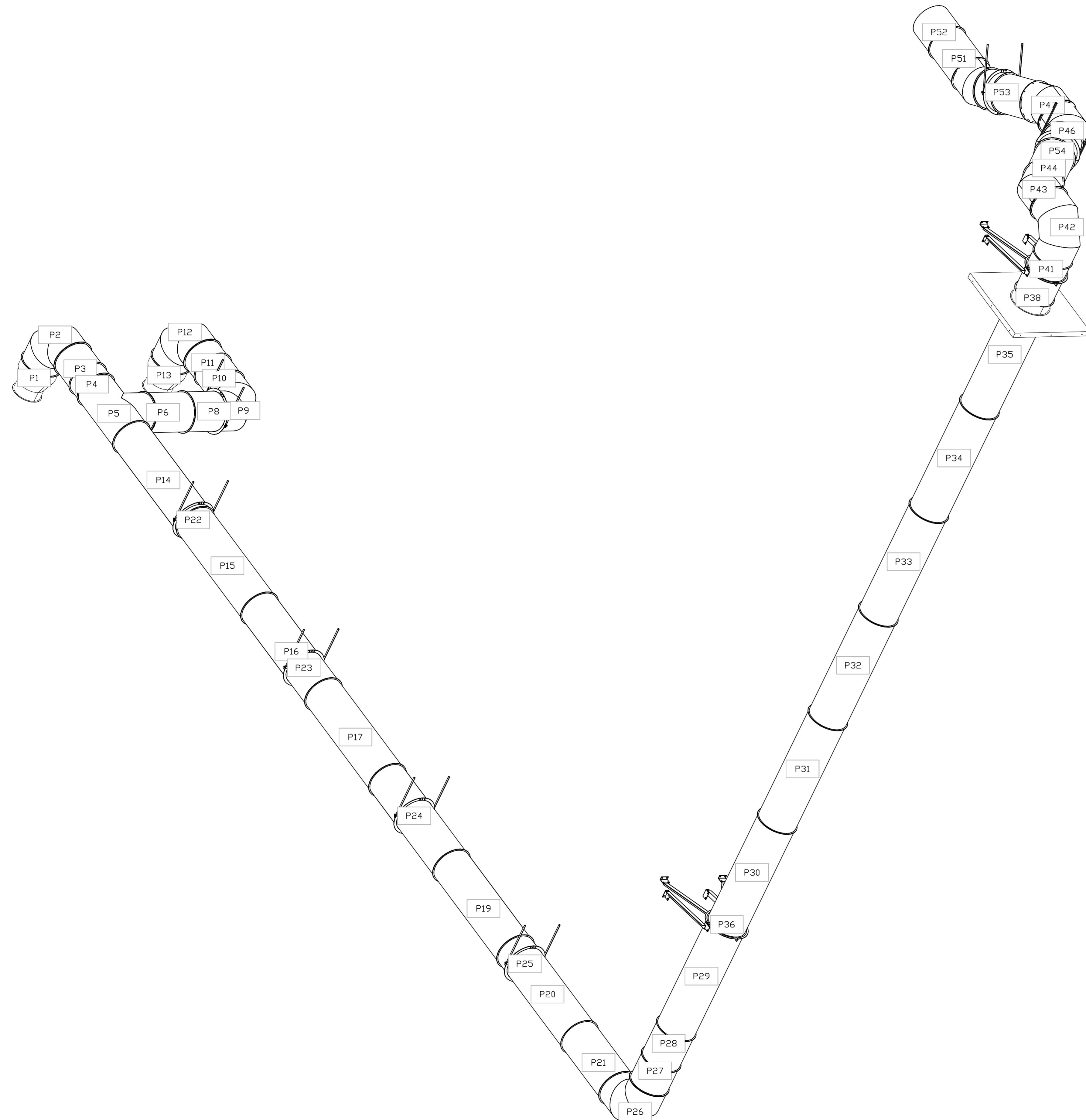
# CAPTIVE AIR

Sharonville Conv. Center - Cincinnati, OH (Full)  
11355 Chester Rd,  
CINCINNATI, OH, 45246

DATE: 4/20/2022  
DWG.#: 4103500  
DRAWN BY: EEM-62  
SCALE: NOT TO SCALE  
MASTER DRAWING

SHEET NO.  
13

DUCTWORK #1 SE VIEW  
 DUCT-DISHWASHER



REVISIONS	
DESCRIPTION	DATE


  
 Florida Gulf Coast Office  
 www.captivea.com  
 4619 George Road, Suite 150, Tampa, FL, 33634 PHONE: (813) 435-3388 FAX: (813) 747-5642 EMAIL: reg62@captivea.com

Sharonville Conv. Center - Cincinnati, OH (Full)  
 11355 Chester Rd,  
 CINCINNATI, OH, 45246

DATE: 4/20/2022  
 DWG. #: 4103500  
 DRAWN BY: EEM-62  
 SCALE: NOT TO SCALE  
 MASTER DRAWING

SHEET NO.  
 14

DUCTWORK #2 PARTS - JOB#4103500 DOUBLE WALL DUCT-BACK HOOD

TAG	PART #	CFM	GPM	ZONE	COVEREDBY	SP	WEIGHT	VELOCITY	QTY	DESCRIPTION
P1	DW1418DWRNDADP2ASY-2R-S	1700				-0.034	19.03	1590.25	1	DOUBLE WALL DUCT - 14" X 18" RND2RND ADAPTER - 32 LAYERS REDUCED CLEARANCE - 18" X 22" STAINLESS STEEL OUTER SHELL.
P2	DW1890DWASY-2R-S	1700				-0.0435	45.59	962.00	1	DOUBLE WALL DUCT - 18" INNER 90 DUCT - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER SHELL.
P3 ASSEMBLED W/P4	DW18DWTEASY-2R-S	1700		1		-0.0725	55.68	962.00	1	DOUBLE WALL DUCT - 18" INNER TEE DUCT - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER SHELL.
P4 ASSEMBLED W/P3 D=S	DW18DWACCDORCOV-2R-S						26.16		1	DOUBLE WALL DUCT - 18" INNER ACCESS DOOR & 22" ACCESS DOOR COVER WITH CLAMPS - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER SHELL.
P5	DW1845DWASY-2R-S	1700				-0.0375	26.22	962.00	1	DOUBLE WALL DUCT - 18" INNER 45 DUCT - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER SHELL.
P6	DW1845DWASY-2R-S	1700				-0.0104	26.22	962.00	1	DOUBLE WALL DUCT - 18" INNER 45 DUCT - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER SHELL.
P7	DW1835DWLT-2R-S	1700				-0.0027	57.50	962.00	1	DOUBLE WALL DUCT - 18" INNER DUCT, 35' LONG - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER SHELL.
P8	DW1827DWAJD-2R-S	1700				-0.0013	62.85	962.00	1	DOUBLE WALL ADJUSTABLE DUCT - 18" INNER DUCT - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER SHELL. MIN LENGTH = 11' / MAX LENGTH = 24.5' / ADJUSTMENT = 13.5' / ADJUSTABLE SECTION MAY NEED TO BE CUT. INCLUDES SINGLE AND DOUBLE WALL *V* CLAMPS.
P9	DW2226SADKIT						8.80		1	DUCT - HORIZONTAL SADDLE SUPPORT KIT, USED WITH 22" OD - INCLUDES UNI-STRUT CUT TO LENGTH, DW2226SAD, & HARDWARE BAG 4.
P10	DW2226SADKIT						8.80		1	DUCT - HORIZONTAL SADDLE SUPPORT KIT, USED WITH 22" OD - INCLUDES UNI-STRUT CUT TO LENGTH, DW2226SAD, & HARDWARE BAG 4.
P11	DW18DWTEASY-2R-S	2780		1		-0.2536	55.68	1573.16	1	DOUBLE WALL DUCT - 18" INNER TEE DUCT - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER SHELL.
P12	DW1890DWASY-2R-S	1080				-0.018	45.59	611.15	1	DOUBLE WALL DUCT - 18" INNER 90 DUCT - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER SHELL.
P13	DW1418DWRNDADP2ASY-2R-S	1080				-0.014	19.03	1010.28	1	DOUBLE WALL DUCT - 14" X 18" RND2RND ADAPTER - 32 LAYERS REDUCED CLEARANCE - 18" X 22" STAINLESS STEEL OUTER SHELL.
P14	DW1847DWAJD-2R-S	2780				-0.008	107.98	1573.16	1	DOUBLE WALL ADJUSTABLE DUCT - 18" INNER DUCT - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER SHELL. MIN LENGTH = 11' / MAX LENGTH = 48.5' / ADJUSTMENT = 30.5' / ADJUSTABLE SECTION MAY NEED TO BE CUT. INCLUDES SINGLE AND DOUBLE WALL *V* CLAMPS.
P15	DW2226SADKIT						8.80		1	DUCT - HORIZONTAL SADDLE SUPPORT KIT, USED WITH 22" OD - INCLUDES UNI-STRUT CUT TO LENGTH, DW2226SAD, & HARDWARE BAG 4.
P16	DW2226SADKIT						8.80		1	DUCT - HORIZONTAL SADDLE SUPPORT KIT, USED WITH 22" OD - INCLUDES UNI-STRUT CUT TO LENGTH, DW2226SAD, & HARDWARE BAG 4.
P17 ASSEMBLED W/P18	DW18DWTEASY-2R-S	2780		1		-0.212	55.68	1573.16	1	DOUBLE WALL DUCT - 18" INNER TEE DUCT - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER SHELL.
P18 ASSEMBLED W/P17 D=S	DW18DWACCDORCOV-2R-S						26.16		1	DOUBLE WALL DUCT - 18" INNER ACCESS DOOR & 22" ACCESS DOOR COVER WITH CLAMPS - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER SHELL.
P19	DW1835DWLT-2R-S	2780				-0.0077	57.50	1573.16	1	DOUBLE WALL DUCT - 18" INNER DUCT, 35' LONG - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER SHELL.
P20	DW1847DWAJD-2R-S	2780				-0.0063	107.98	1573.16	1	DOUBLE WALL ADJUSTABLE DUCT - 18" INNER DUCT - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER SHELL. MIN LENGTH = 11' / MAX LENGTH = 48.5' / ADJUSTMENT = 30.5' / ADJUSTABLE SECTION MAY NEED TO BE CUT. INCLUDES SINGLE AND DOUBLE WALL *V* CLAMPS.
P21	DW22DWVESU						116.40		1	DOUBLE WALL DUCT VERTICAL SUPPORT KIT, 22" SHELL, FOR REDUCED AND ZERO CLEARANCE. PARTS ARE ZINC COATED. HARDWARE KIT #7 FOR ASSEMBLY. MOUNTING HARDWARE SOLD SEPARATELY PER WALL CONSTRUCTION.
P22	DW1847DWLT-2R-S	2780				-0.01	77.59	1573.16	1	DOUBLE WALL DUCT - 18" INNER DUCT, 47' LONG - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER SHELL.
P23	DW1847DWLT-2R-S	2780				-0.01	77.59	1573.16	1	DOUBLE WALL DUCT - 18" INNER DUCT, 47' LONG - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER SHELL.
P24	DW1847DWLT-2R-S	2780				-0.01	77.59	1573.16	1	DOUBLE WALL DUCT - 18" INNER DUCT, 47' LONG - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER SHELL.
P25 ASSEMBLED W/P26	DW18DWTEASY-2R-S	2780		1		-0.006	55.68	1573.16	1	DOUBLE WALL DUCT - 18" INNER TEE DUCT - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER SHELL.
P26 ASSEMBLED W/P25 D=T	DW18DWACCDORCOV-2R-S						26.16		1	DOUBLE WALL DUCT - 18" INNER ACCESS DOOR & 22" ACCESS DOOR COVER WITH CLAMPS - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER SHELL.
P27	DW1847DWLT-2R-S	2780				-0.01	77.59	1573.16	1	DOUBLE WALL DUCT - 18" INNER DUCT, 47' LONG - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER SHELL.
P28	DW1847DWLT-2R-S	2780				-0.01	77.59	1573.16	1	DOUBLE WALL DUCT - 18" INNER DUCT, 47' LONG - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER SHELL.
P29 ASSEMBLED W/P30	DW182150DWLTP-2R-S	2780				-0.005	35.34	1573.16	1	DOUBLE WALL DUCT - 18" INNER DUCT, 21.5' LONG - 2 LAYERS REDUCED CLEARANCE - 22" STAINLESS STEEL OUTER SHELL - USED WITH TRANSITION PLATE.
P30 ASSEMBLED W/P29,P31	DW3118TPDB	2780					19.31	1573.16	1	DUCT TO CURB TRANSITION DOWN TURN, 31-1/2" CURB TO 18" DUCT, 16 GA ALUMINIZED. NON-STANDARD PART. NOT FOR USE WITH EXHAUST FANS.
P31 ASSEMBLED W/P30	DW18RISER	2780				-0.001	2.89	1573.16	1	SINGLE WALL DUCT RISER FOR WELDED HOODS, 18" DIA DUCT. STAINLESS STEEL.
P32	DW1811LT	2780				-0.0026	6.99	1573.16	1	SINGLE WALL DUCT 18" DIAMETER, 11' LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P33	DW1818AJDKIT	2780				-0.0014	14.83	1573.16	1	SINGLE WALL DUCT ADJUSTABLE, 18" DIAMETER, 17.5' LONG, FLANGE AT ONE END WITH A 18" ADJUSTABLE COLLAR - STAINLESS STEEL.
P34 ASSEMBLED W/P45	DW18TEASY	2780		1		-0.077	22.75	1573.16	1	SINGLE WALL DUCT TEE, 18" DUCT, ASSEMBLY.
P35	DW1811LT	2780				-0.0022	6.99	1573.16	1	SINGLE WALL DUCT 18" DIAMETER, 11' LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P36	DW1824AJDKIT	2780				-0.0028	18.70	1573.16	1	SINGLE WALL DUCT ADJUSTABLE, 18" DIAMETER, 23.5' LONG, FLANGE AT ONE END WITH A 18" ADJUSTABLE COLLAR - STAINLESS STEEL.
P37	DW1830ASY	2780				-0.091	8.68	1573.16	1	SINGLE WALL DUCT 30 DEGREE ELBOW, 18" DUCT, ASSEMBLY.
P38	DW1811LT	2780				-0.0026	6.99	1573.16	1	SINGLE WALL DUCT 18" DIAMETER, 11' LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P39	DW1818AJDKIT	2780				-0.0014	14.83	1573.16	1	SINGLE WALL DUCT ADJUSTABLE, 18" DIAMETER, 17.5' LONG, FLANGE AT ONE END WITH A 18" ADJUSTABLE COLLAR - STAINLESS STEEL.
P40	DW1830ASY	2780				-0.0475	8.68	1573.16	1	SINGLE WALL DUCT 30 DEGREE ELBOW, 18" DUCT, ASSEMBLY.
P41 ASSEMBLED W/P43	DW18TEASY	2780		1		-0.006	22.75	1573.16	1	SINGLE WALL DUCT TEE, 18" DUCT, ASSEMBLY.
P42	DW1820ADP	2780				-0.004	13.20	1573.16	1	SINGLE WALL DUCT ADAPTER, 18" DUCT DIA TO 20" DUCT DIA, ASSEMBLY.
SYSTEM AT P42						-1.548	0.00			
P43 ASSEMBLED W/P41 D=T	DW1819ADKIT						5.55		1	DUCT ACCESS DOOR WITH HANDLE & GREASE DAM, FOR 18" DUCT USE 19" DOOR. STAINLESS STEEL.
P44	DW18SUBRASY						3.38		1	DUCT SUPPORT BRACKET KIT, 18" DUCT, USED FOR HANGING DUCT. 12 GA STEEL, CLEAR ZINC COATING. - 2 RINGS, 4 BRACKETS, & HARDWARE BAG 2.
P45 ASSEMBLED W/P34 D=S	DW1819ADKIT						5.55		1	DUCT ACCESS DOOR WITH HANDLE & GREASE DAM, FOR 18" DUCT USE 19" DOOR. STAINLESS STEEL.
	3M-2000PLUS						0.80		13	DUCT - 3M FIRE BARRIER 2000 PLUS SILICONE - USED AS SEALANT TO SEAL DUCT JOINTS.
	DW18CLASY						1.30		13	DUCT *V* CLAMP WITH NEW DESIGN 14 GA BRACKETS, 18" DUCT, ASSEMBLY.
	DW18DWCLASY-2R-S						8.70		14	DUCT - 18" DUCT - 22" DOUBLE *V* CLAMP - 2R INSULATION & SINGLE *V* CLAMP INCLUDED - REDUCED CLEARANCE.
	DW20CLASY						1.41		1	DUCT *V* CLAMP WITH NEW DESIGN 14 GA BRACKETS, 20" DUCT, ASSEMBLY.
TOTAL WEIGHT							1784.16			

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)
5"	10'	10'	24'
6"	10'	10'	24'
7"	10'	10'	24'
8"	10'	10'	24'
10"	10'	10'	24'
12"	10'	10'	24'
14"	10'	10'	24'
16"	10'	10'	24'
18"	10'	10'	24'
20"	10'	10'	24'
22"	10'	10'	24'
24"	10'	10'	24'
26"	10'	10'	24'
28"	10'	10'	24'
30"	10'	10'	24'
32"	10'	10'	24'
34"	10'	10'	24'
36"	10'	10'	24'

DOUBLE 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 ENTIRE 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.

HORIZONTAL	
DUCT DIAMETER	SUPPORT SPACING (FT)
5"	7'
6"	7'
7"	7'
8"	7'
10"	7'
12"	7'
14"	7'
16"	7'
18"	5'
20"	5'
22"	5'
24"	5'
26"	5'
28"	5'
30"	5'
32"	5'
34"	5'
36"	5'

TYPE	VERTICAL		
	WALL SUPPORT (FT)	CURB SUPPORT (FT)	FLOOR SUPPORT (FT)
2R & 2R HT (5'-16')	20'	24'	24'
2R (18')	18'	24'	24'
3R & 3Z (5'-24')	10'	24'	24'
3Z (26' -36')	10'	20'	20'

DO NOT LEAK TEST USING SMOKE BOMBS CONTAINING CHLORINES/CHLORIDES. CONSULT WITH CAPTIVEAIRE FOR PROPER LEAK TESTING METHODS.

**REVISIONS**

DESCRIPTION	DATE

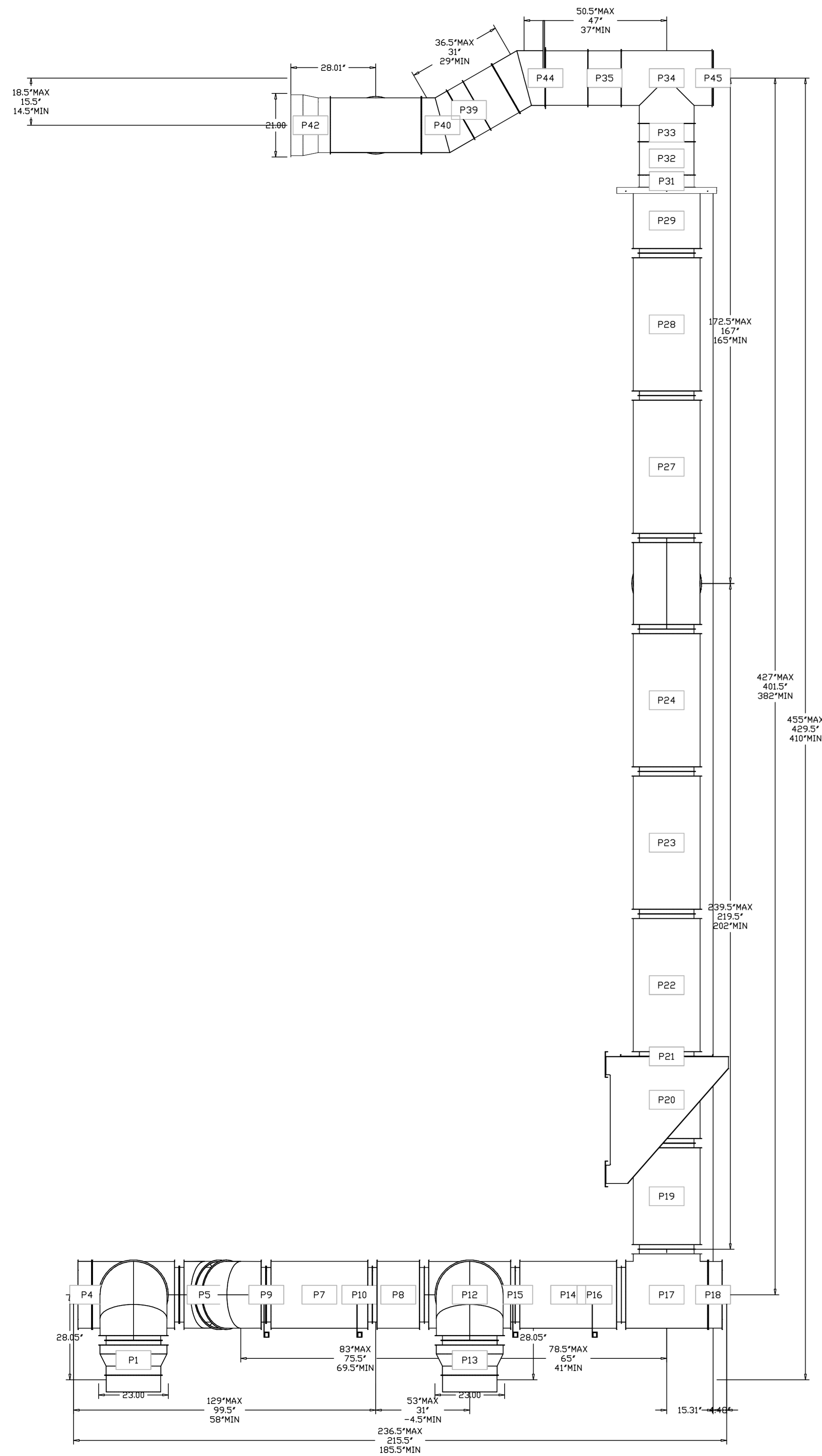
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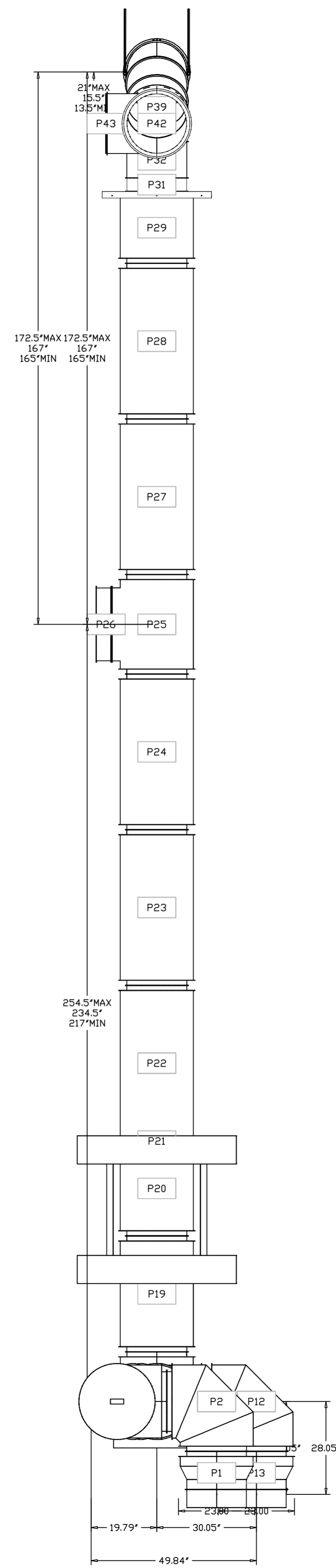
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**SHEET NO.**  
15

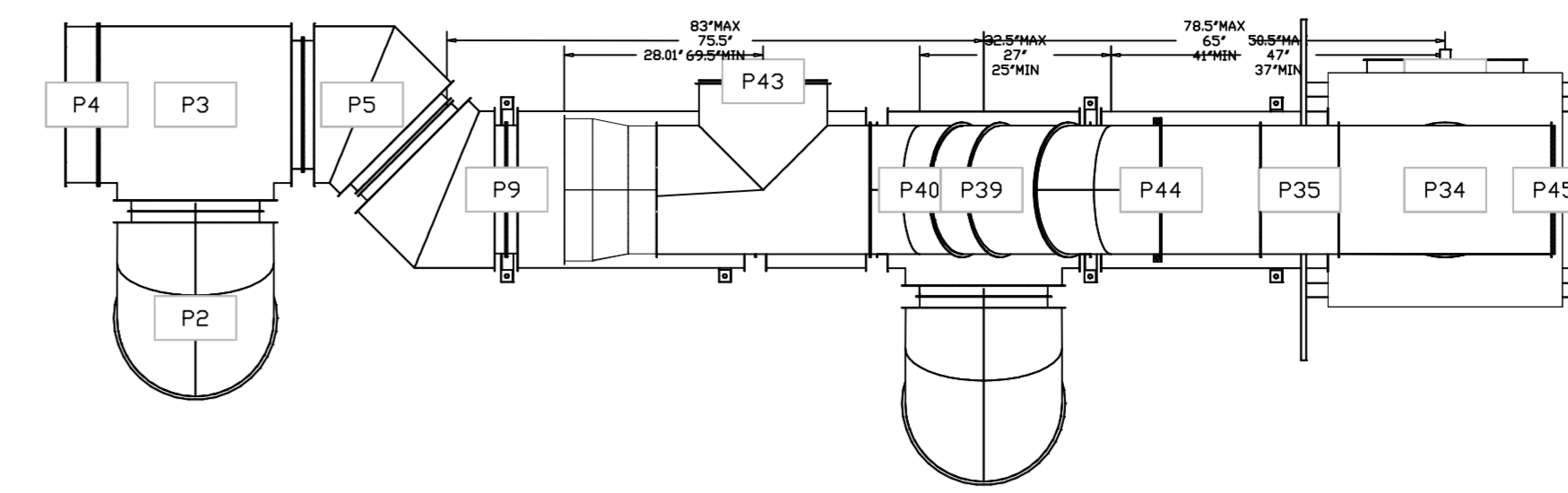
DUCTWORK #2 FRONT VIEW  
DUCT-BACK HOOD



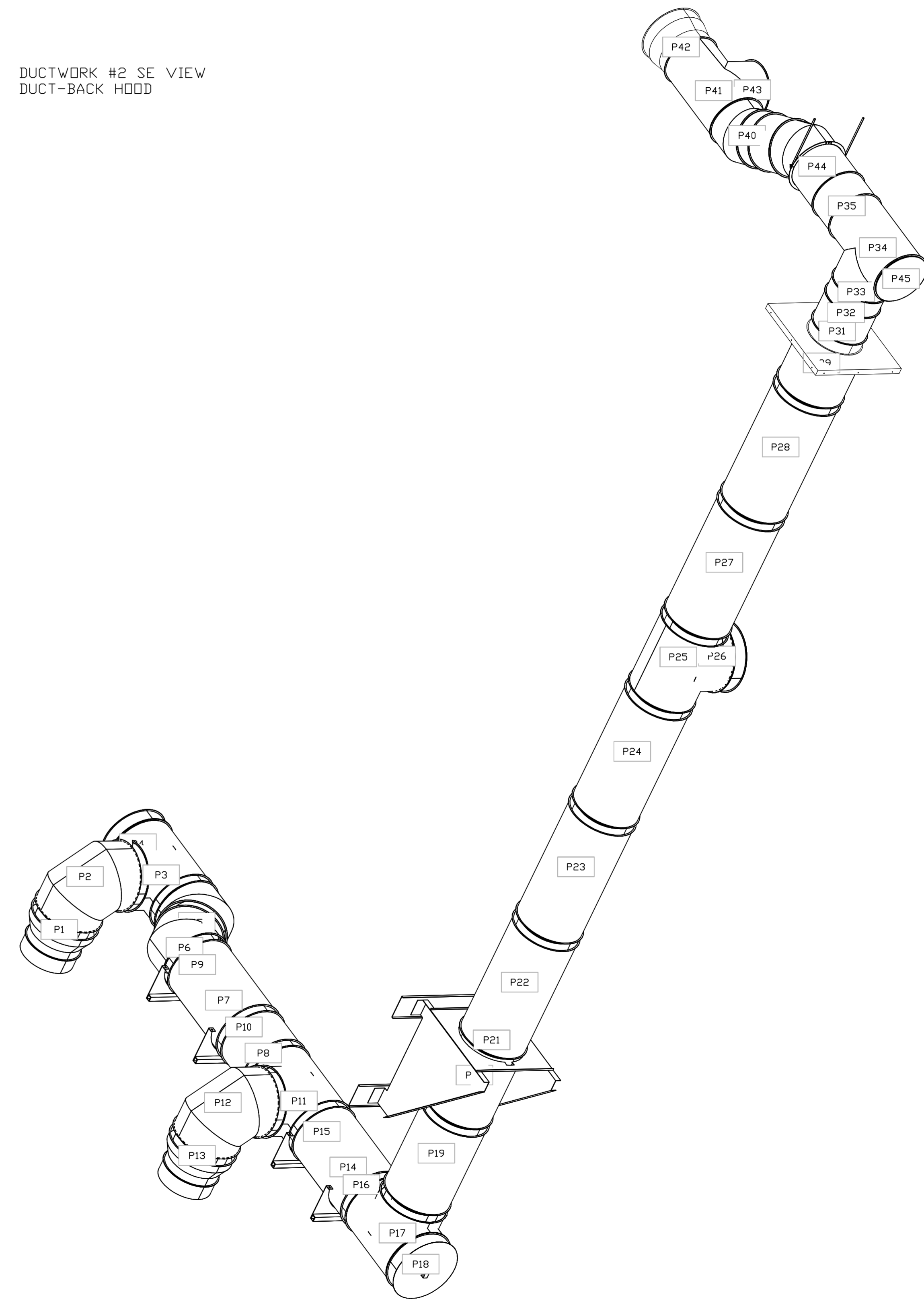
DUCTWORK #2 SIDE VIEW  
DUCT-BACK HOOD



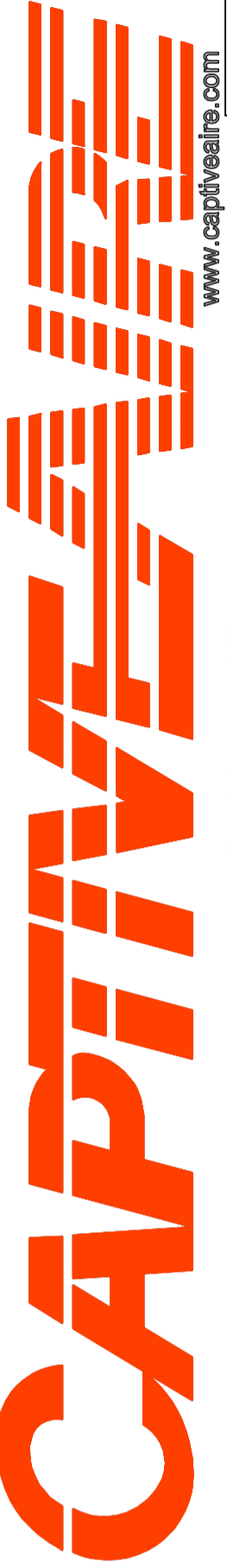
DUCTWORK #2 TOP VIEW  
DUCT-BACK HOOD



DUCTWORK #2 SE VIEW  
DUCT-BACK HOOD



REVISIONS	
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SHEET NO.  
 16

DUCTWORK #3 PARTS - JOB#4103500 DOUBLE WALL DUCT-FRONT HOOD

DUCTWORK #3 PARTS - JOB#4103500 DOUBLE WALL DUCT-FRONT HOOD

TAG	PART #	CFM	GPM	ZONE	COVEREDBY	SP	WEIGHT	VELOCITY	QTY	DESCRIPTION
P1	DW1620WRNDADP3ASY-3R-S	2400					-0.03	27.18	1718.87	1 DOUBLE WALL DUCT - 16" X 20" RND2RND ADAPTER - 3 LAYERS REDUCED CLEARANCE - 22" X 26" STAINLESS STEEL OUTER SHELL.
P2	DW2045DWASY-3R-S	2400					-0.0192	34.37	1100.08	1 DOUBLE WALL DUCT - 20" INNER 45 DUCT - 3 LAYERS REDUCED CLEARANCE - 26" STAINLESS STEEL OUTER SHELL.
P3	DW20DWTEASY-3R-S	2400		1			-0.0765	71.05	1100.08	1 DOUBLE WALL DUCT - 20" INNER TEE DUCT - 3 LAYERS REDUCED CLEARANCE - 26" STAINLESS STEEL OUTER SHELL.
P4	DW20DWACCDORCDV-3R-S							36.85		1 DOUBLE WALL DUCT - 20" INNER ACCESS DOOR & 26" ACCESS DOOR COVER WITH CLAMPS - 3 LAYERS REDUCED CLEARANCE - 26" STAINLESS STEEL OUTER SHELL.
P5	DW2047DWLT-3R-S	2400					-0.0046	93.60	1100.08	1 DOUBLE WALL DUCT - 20" INNER DUCT, 47" LONG - 3 LAYERS REDUCED CLEARANCE - 26" STAINLESS STEEL OUTER SHELL.
P6	DW2035DWLT-3R-S	2400					-0.0034	69.78	1100.08	1 DOUBLE WALL DUCT - 20" INNER DUCT, 35" LONG - 3 LAYERS REDUCED CLEARANCE - 26" STAINLESS STEEL OUTER SHELL.
P7	DW2047DWAJD-3R-S	2400					-0.0029	133.40	1100.08	1 DOUBLE WALL ADJUSTABLE DUCT - 20" INNER DUCT - 3 LAYERS REDUCED CLEARANCE - 26" STAINLESS STEEL OUTER SHELL. MIN LENGTH = 11" / MAX LENGTH = 48.5" / ADJUSTMENT = 30.5" / ADJUSTABLE SECTION MAY NEED TO BE CUT. INCLUDES SINGLE AND DOUBLE WALL "V" CLAMPS.
P8	DW2630SADKIT							10.46		1 DUCT - HORIZONTAL SADDLE SUPPORT KIT, USED WITH 26" DD - INCLUDES UNI-STRUT CUT TO LENGTH, DW2630SAD, & HARDWARE BAG 4.
P9	DW2630SADKIT							10.46		1 DUCT - HORIZONTAL SADDLE SUPPORT KIT, USED WITH 26" DD - INCLUDES UNI-STRUT CUT TO LENGTH, DW2630SAD, & HARDWARE BAG 4.
P10	DW2630SADKIT							10.46		1 DUCT - HORIZONTAL SADDLE SUPPORT KIT, USED WITH 26" DD - INCLUDES UNI-STRUT CUT TO LENGTH, DW2630SAD, & HARDWARE BAG 4.
P11	DW2630SADKIT							10.46		1 DUCT - HORIZONTAL SADDLE SUPPORT KIT, USED WITH 26" DD - INCLUDES UNI-STRUT CUT TO LENGTH, DW2630SAD, & HARDWARE BAG 4.
P12	DW20DWTEASY-3R-S	5100		1			-0.756	71.05	2337.67	1 DOUBLE WALL DUCT - 20" INNER TEE DUCT - 3 LAYERS REDUCED CLEARANCE - 26" STAINLESS STEEL OUTER SHELL.
P13	DW2045DWASY-3R-S	2700					-0.0245	34.37	1237.59	1 DOUBLE WALL DUCT - 20" INNER 45 DUCT - 3 LAYERS REDUCED CLEARANCE - 26" STAINLESS STEEL OUTER SHELL.
P14	DW1820WRNDADP3ASY-3R-S	2700					-0.004	29.16	1527.89	1 DOUBLE WALL DUCT - 18" X 20" RND2RND ADAPTER - 3 LAYERS REDUCED CLEARANCE - 24" X 26" STAINLESS STEEL OUTER SHELL. STANDARD ADAPTER. NON STANDARD 2 WEEK LEAD TIME.
P15	DW2045DWASY-3R-S	5100					-0.4087	34.37	2337.67	1 DOUBLE WALL DUCT - 20" INNER 45 DUCT - 3 LAYERS REDUCED CLEARANCE - 26" STAINLESS STEEL OUTER SHELL.
P16	DW20DWTEASY-3R-S	5100		1			-0.348	71.05	2337.67	1 DOUBLE WALL DUCT - 20" INNER TEE DUCT - 3 LAYERS REDUCED CLEARANCE - 26" STAINLESS STEEL OUTER SHELL.
P17	DW20DWACCDORCDV-3R-S							36.85		1 DOUBLE WALL DUCT - 20" INNER ACCESS DOOR & 26" ACCESS DOOR COVER WITH CLAMPS - 3 LAYERS REDUCED CLEARANCE - 26" STAINLESS STEEL OUTER SHELL.
P18	DW2047DWAJD-3R-S	5100					-0.015	133.40	2337.67	1 DOUBLE WALL ADJUSTABLE DUCT - 20" INNER DUCT - 3 LAYERS REDUCED CLEARANCE - 26" STAINLESS STEEL OUTER SHELL. MIN LENGTH = 11" / MAX LENGTH = 48.5" / ADJUSTMENT = 30.5" / ADJUSTABLE SECTION MAY NEED TO BE CUT. INCLUDES SINGLE AND DOUBLE WALL "V" CLAMPS.
P19	DW2630SADKIT							10.46		1 DUCT - HORIZONTAL SADDLE SUPPORT KIT, USED WITH 26" DD - INCLUDES UNI-STRUT CUT TO LENGTH, DW2630SAD, & HARDWARE BAG 4.
P20	DW2630SADKIT							10.46		1 DUCT - HORIZONTAL SADDLE SUPPORT KIT, USED WITH 26" DD - INCLUDES UNI-STRUT CUT TO LENGTH, DW2630SAD, & HARDWARE BAG 4.
P21	DW2090DWASY-3R-S	5100					-0.354	60.13	2337.67	1 DOUBLE WALL DUCT - 20" INNER 90 DUCT - 3 LAYERS REDUCED CLEARANCE - 26" STAINLESS STEEL OUTER SHELL.
P22	DW2047DWAJD-3R-S	5100					-0.013	133.40	2337.67	1 DOUBLE WALL ADJUSTABLE DUCT - 20" INNER DUCT - 3 LAYERS REDUCED CLEARANCE - 26" STAINLESS STEEL OUTER SHELL. MIN LENGTH = 11" / MAX LENGTH = 48.5" / ADJUSTMENT = 30.5" / ADJUSTABLE SECTION MAY NEED TO BE CUT. INCLUDES SINGLE AND DOUBLE WALL "V" CLAMPS.
P23	DW26DWVESU							119.34		1 DOUBLE WALL DUCT VERTICAL SUPPORT KIT, 26" SHELL, FOR REDUCED AND ZERO CLEARANCE. PARTS ARE ZINC COATED. HARDWARE KIT #7 FOR ASSEMBLY. MOUNTING HARDWARE SOLD SEPARATELY PER WALL CONSTRUCTION.
P24	DW2035DWLT-3R-S	5100					-0.015	69.78	2337.67	1 DOUBLE WALL DUCT - 20" INNER DUCT, 35" LONG - 3 LAYERS REDUCED CLEARANCE - 26" STAINLESS STEEL OUTER SHELL.
P25	DW2047DWLT-3R-S	5100					-0.0201	93.60	2337.67	1 DOUBLE WALL DUCT - 20" INNER DUCT, 47" LONG - 3 LAYERS REDUCED CLEARANCE - 26" STAINLESS STEEL OUTER SHELL.
P26	DW2035DWLT-3R-S	5100					-0.015	69.78	2337.67	1 DOUBLE WALL DUCT - 20" INNER DUCT, 35" LONG - 3 LAYERS REDUCED CLEARANCE - 26" STAINLESS STEEL OUTER SHELL.
P27	DW20DWTEASY-3R-S	5100		1			-0.014	71.05	2337.67	1 DOUBLE WALL DUCT - 20" INNER TEE DUCT - 3 LAYERS REDUCED CLEARANCE - 26" STAINLESS STEEL OUTER SHELL.
P28	DW20DWACCDORCDV-3R-S							36.85		1 DOUBLE WALL DUCT - 20" INNER ACCESS DOOR & 26" ACCESS DOOR COVER WITH CLAMPS - 3 LAYERS REDUCED CLEARANCE - 26" STAINLESS STEEL OUTER SHELL.
P29	DW2047DWLT-3R-S	5100					-0.02	93.60	2337.67	1 DOUBLE WALL DUCT - 20" INNER DUCT, 47" LONG - 3 LAYERS REDUCED CLEARANCE - 26" STAINLESS STEEL OUTER SHELL.
P30	DW2047DWLT-3R-S	5100					-0.02	93.60	2337.67	1 DOUBLE WALL DUCT - 20" INNER DUCT, 47" LONG - 3 LAYERS REDUCED CLEARANCE - 26" STAINLESS STEEL OUTER SHELL.
P31	DW202150DWLTP-3R-S	5100					-0.009	43.54	2337.67	1 DOUBLE WALL DUCT - 20" INNER DUCT, 21.5" LONG - 3 LAYERS REDUCED CLEARANCE - 26" STAINLESS STEEL OUTER SHELL - USED WITH TRANSITION PLATE.
P32	DW3120TPDB	5100						21.88	2337.67	1 DUCT TO CURB TRANSITION DOWN TURN, 31-1/2" CURB TO 20" DUCT, 16 GA ALUMINIZED. NON-STANDARD PART. NOT FOR USE WITH EXHAUST FANS.
P33	DW20RISER	5100					-0.002	3.21	2337.67	1 SINGLE WALL DUCT RISER FOR WELDED HOODS, 20" DIA DUCT. STAINLESS STEEL.
P34	DW2011LT	5100					-0.0045	7.77	2337.67	1 SINGLE WALL DUCT 20" DIAMETER, 11" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P35	DW2018AJDKIT	5100					-0.0025	16.46	2337.67	1 SINGLE WALL DUCT ADJUSTABLE, 20" DIAMETER, 17.5" LONG, FLANGE AT ONE END WITH A 20" ADJUSTABLE COLLAR - STAINLESS STEEL.
P36	DW20TEASY	5100		1			-0.177	26.16	2337.67	1 SINGLE WALL DUCT TEE, 20" DUCT, ASSEMBLY.
P37	DW2045ASY	5100					-0.222	11.92	2337.67	1 SINGLE WALL DUCT 45 DEGREE ELBOW, 20" DUCT, ASSEMBLY.
P38	DW2029LT	5100					-0.0123	19.42	2337.67	1 SINGLE WALL DUCT 20" DIAMETER, 29" LONG, FLANGE AT BOTH ENDS. STAINLESS STEEL.
P39	DW2030AJDKIT	5100					-0.0077	25.05	2337.67	1 SINGLE WALL DUCT ADJUSTABLE, 20" DIAMETER, 29.5" LONG, FLANGE AT ONE END WITH A 20" ADJUSTABLE COLLAR - STAINLESS STEEL.
P40	DW2045ASY	5100					-0.102	11.92	2337.67	1 SINGLE WALL DUCT 45 DEGREE ELBOW, 20" DUCT, ASSEMBLY.
P41	DW2030ASY	5100					-0.0484	10.00	2337.67	1 SINGLE WALL DUCT 30 DEGREE ELBOW, 20" DUCT, ASSEMBLY.
P42	DW2030ASY	5100					-0.0476	10.00	2337.67	1 SINGLE WALL DUCT 30 DEGREE ELBOW, 20" DUCT, ASSEMBLY.
P43	DW20TEASY	5100		1			-0.014	26.16	2337.67	1 SINGLE WALL DUCT TEE, 20" DUCT, ASSEMBLY.
P44	DW2024ADP	5100					-0.034	14.00	2337.67	1 SINGLE WALL DUCT ADAPTER, 20" DUCT DIA TO 24" DUCT DIA, ASSEMBLY.
SYSTEM AT P44								-3.4812	0.00	
P45	DW2021ADKIT							6.59		1 DUCT ACCESS DOOR WITH HANDLE & GREASE DAM, FOR 20" DUCT USE 21" DOOR. STAINLESS STEEL.
P46	DW20SUBRASY							3.58		1 DUCT SUPPORT BRACKET KIT, 20" DUCT, USED FOR HANGING DUCT. 12 GA STEEL, CLEAR ZINC COATING. - 2 RINGS, 4 BRACKETS, & HARDWARE BAG 2.
P47	DW2021ADKIT							6.59		1 DUCT ACCESS DOOR WITH HANDLE & GREASE DAM, FOR 20" DUCT USE 21" DOOR. STAINLESS STEEL.
P48	DW20SUBRASY							3.58		1 DUCT SUPPORT BRACKET KIT, 20" DUCT, USED FOR HANGING DUCT. 12 GA STEEL, CLEAR ZINC COATING. - 2 RINGS, 4 BRACKETS, & HARDWARE BAG 2.
	3M-2000PLUS							0.80	13	DUCT - 3M FIRE BARRIER 2000 PLUS SILICONE - USED AS SEALANT TO SEAL DUCT JOINTS.
	DW20CLASY							1.41	13	DUCT "V" CLAMP WITH NEW DESIGN 14 GA BRACKETS, 20" DUCT, ASSEMBLY.

TAG	PART #	CFM	GPM	ZONE	COVEREDBY	SP	WEIGHT	VELOCITY	QTY	DESCRIPTION
	DW20DWCLASY-3R-S						11.34		14	DUCT - 20" DUCT - 26" DOUBLE "V" CLAMP - 3R INSULATION & SINGLE "V" CLAMP INCLUDED - REDUCED CLEARANCE.
	DW24CLASY						1.65		1	DUCT "V" CLAMP WITH NEW DESIGN 14 GA BRACKETS, 24" DUCT, ASSEMBLY.
TOTAL WEIGHT							2237.34			

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)
5"	10'	10'	24'
6"	10'	10'	24'
7"	10'	10'	24'
8"	10'	10'	24'
10"	10'	10'	24'
12"	10'	10'	24'
14"	10'	10'	24'
16"	10'	10'	24'
18"	10'	10'	24'
20"	10'	10'	24'
22"	10'	10'	24'
24"	10'	10'	24'
26"	10'	10'	24'
28"	10'	10'	24'
30"	10'	10'	24'
32"	10'	10'	24'
34"	10'	10'	24'
36"	10'	10'	24'

DOUBLE 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 ENTIRE 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.

HORIZONTAL	
DUCT DIAMETER	SUPPORT SPACING (FT)
5"	7'
6"	7'
7"	7'
8"	7'
10"	7'
12"	7'
14"	7'
16"	7'
18"	5'
20"	5'
22"	5'
24"	5'
26"	5'
28"	5'
30"	5'
32"	5'
34"	5'
36"	5'

VERTICAL			
TYPE	WALL SUPPORT (FT)	CURB SUPPORT (FT)	FLOOR SUPPORT (FT)
2R & 2R HT (5'-16")	20'	24'	24'
2R (18")	18'	24'	24'
3R & 3Z (5'-24")	10'	24'	24'
3Z (26" -36")	10'	20'	20'

DO NOT LEAK TEST USING SMOKE BOMBS CONTAINING CHLORINES/CHLORIDES. CONSULT WITH CAPTIVEAIRE FOR PROPER LEAK TESTING METHODS.

REVISIONS

DESCRIPTION	DATE



Florida Gulf Coast Office  
 4519 George Road, Suite 150, Tampa, FL 33634  
 PHONE: (813) 435-3388 FAX: (919) 747-5642 EMAIL: reg2@captiveaire.com

Sharonville Conv. Center - Cincinnati, OH (Full)  
 11355 Chester Rd,  
 CINCINNATI, OH, 45246

DATE: 4/20/2022

DWG.#: 4103500

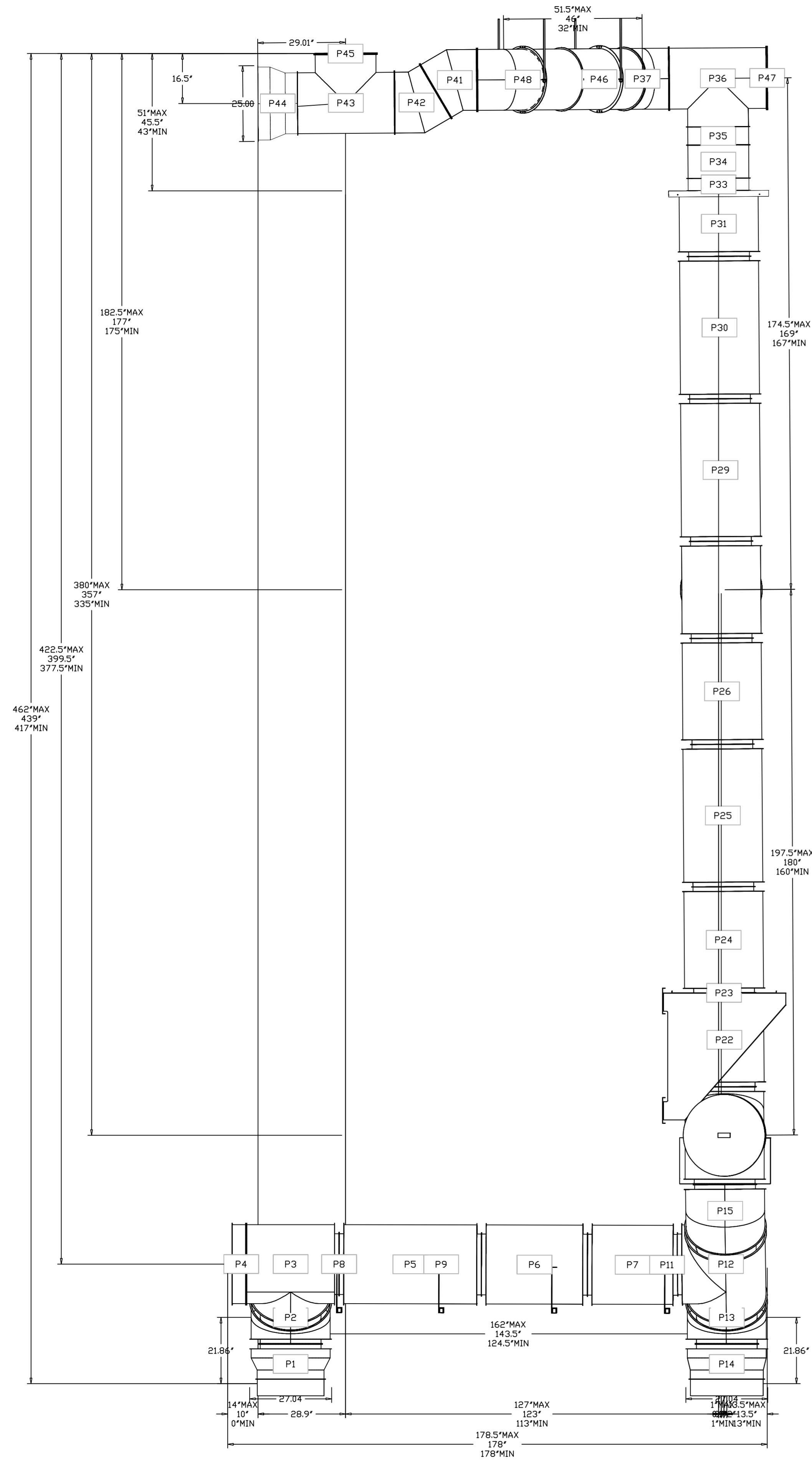
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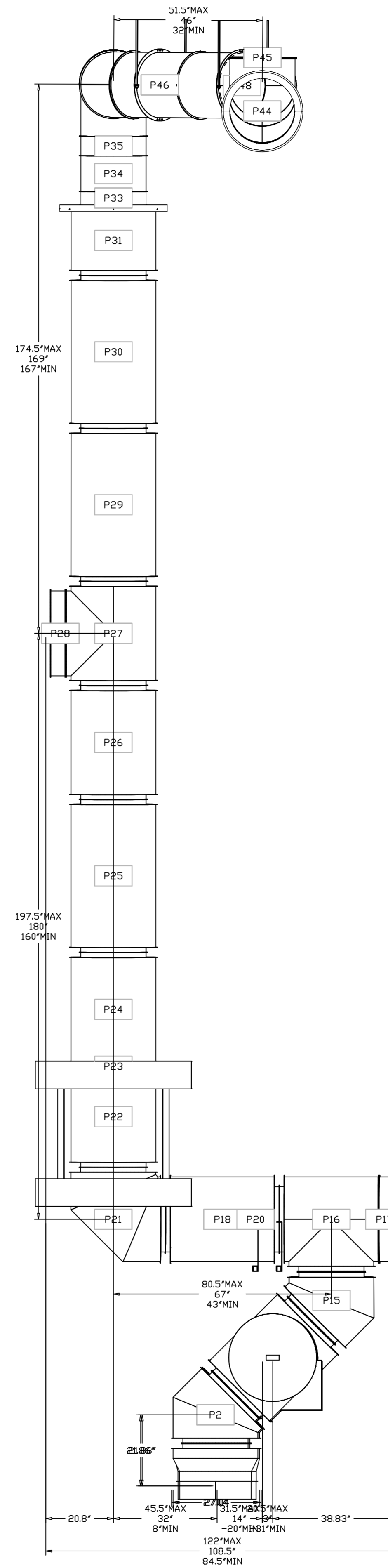
MASTER DRAWING

SHEET NO. 17

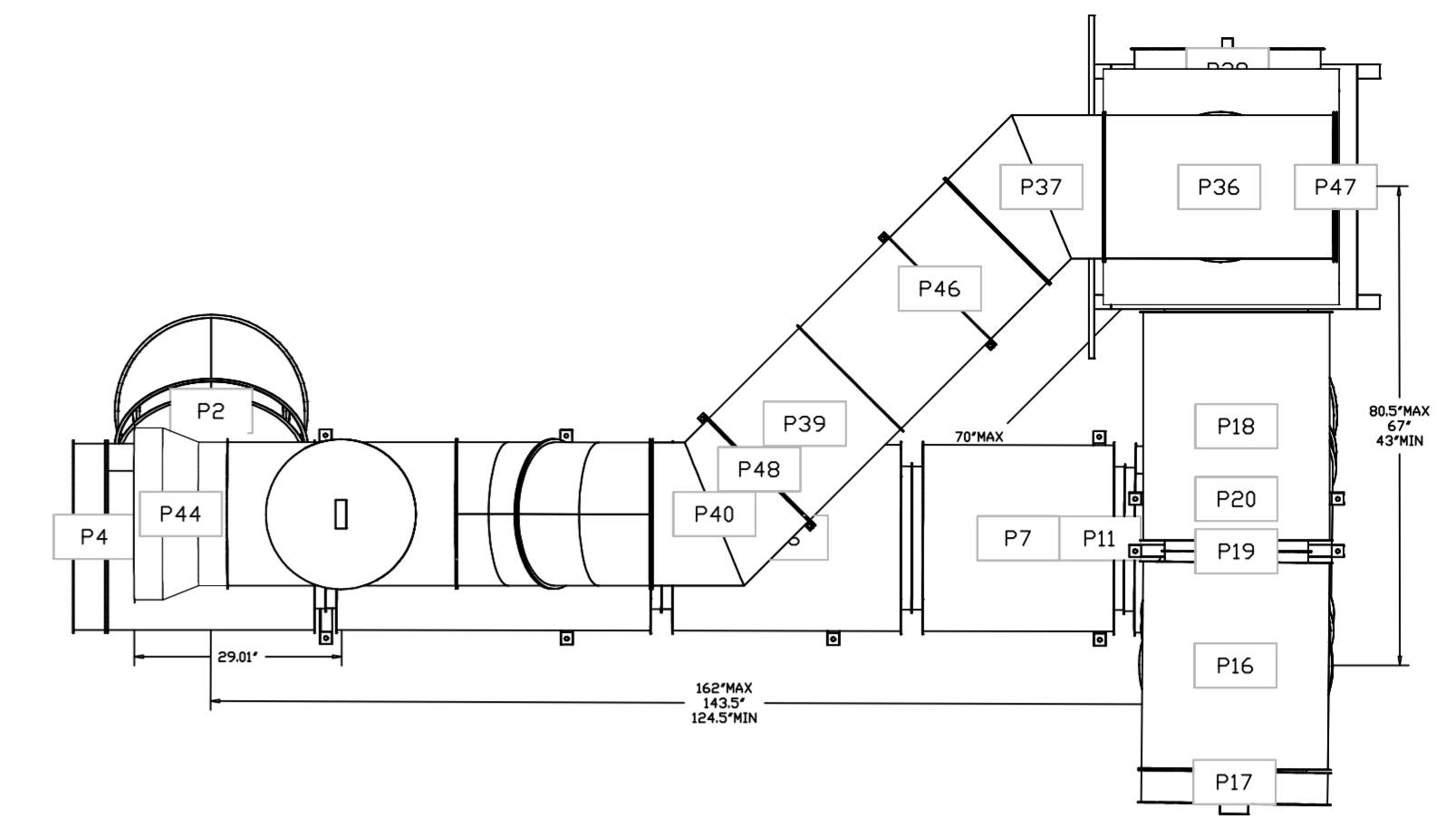
DUCTWORK #3 FRONT VIEW  
DUCT-FRONT HOOD



DUCTWORK #3 SIDE VIEW  
DUCT-FRONT HOOD



DUCTWORK #3 TOP VIEW  
DUCT-FRONT HOOD



REVISIONS

NO.	DESCRIPTION	DATE

www.captiveair.com

Florida Gulf Coast Office

4619 George Road, Suite 150, Tampa, FL 33634 PHONE: (813) 435-3388 FAX: (813) 747-5642 EMAIL: reg62@captiveair.com

# CAPTIVE AIR

Sharonville Conv. Center - Cincinnati, OH (Full)

11355 Chester Rd,  
CINCINNATI, OH, 45246

DATE: 4/20/2022

DWG. NO.: 4103500

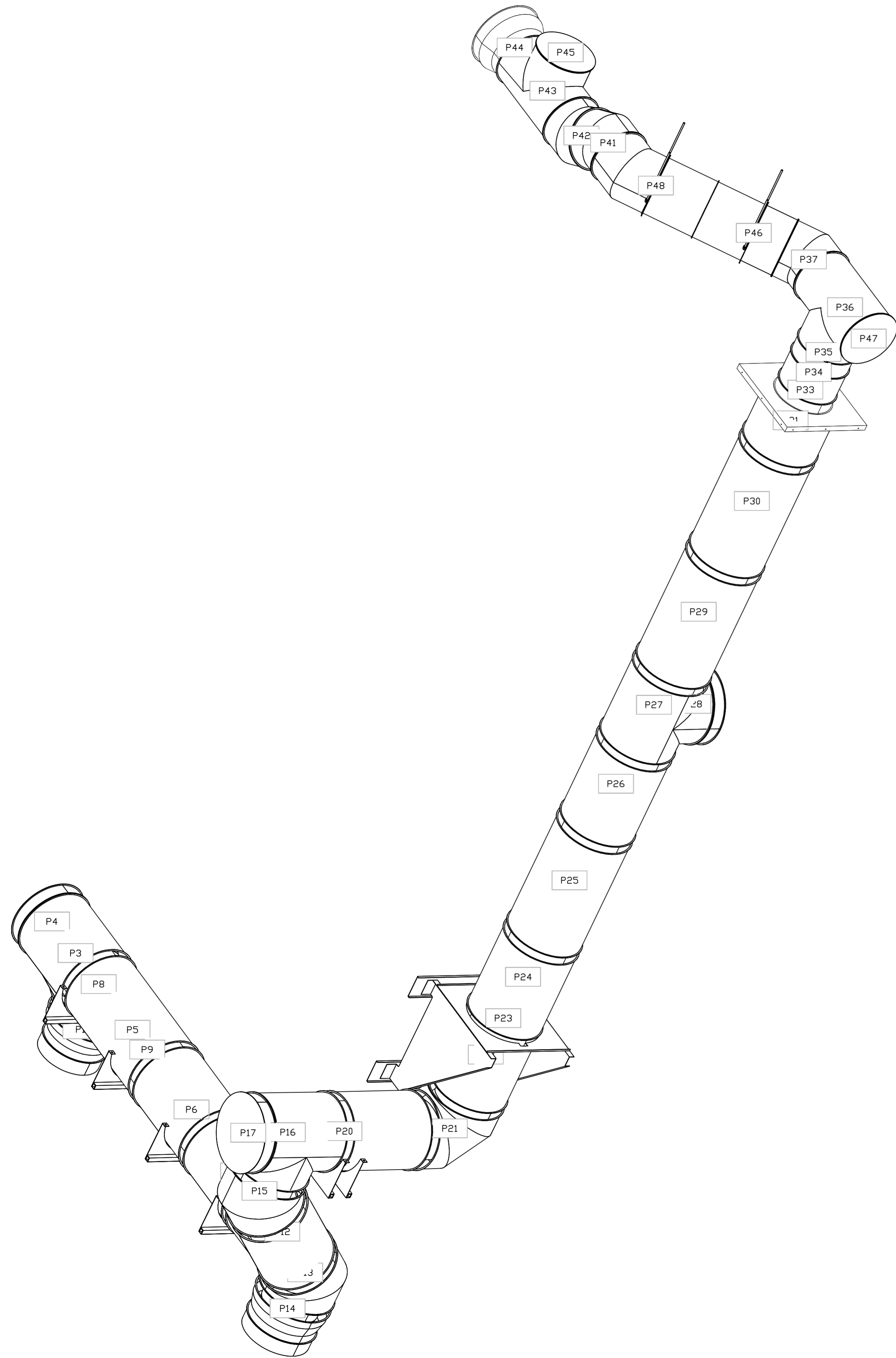
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MASTER DRAWING

SHEET NO. 18

DUCTWORK #3 SE VIEW  
 DUCT-FRONT HOOD



REVISIONS	
DESCRIPTION	DATE

Florida Gulf Coast Office  
 www.captiveair.com  
 4619 George Road, Suite 150, Tampa, FL 33634 PHONE: (813) 435-3388 FAX: (813) 747-5642 EMAIL: reg62@captiveair.com

Sharonville Conv. Center - Cincinnati, OH (Full) 11355 Chester Rd, CINCINNATI, OH, 45246	DATE: 4/20/2022 DWG. #: 4103500 DRAWN BY: EEM-62 SCALE: NOT TO SCALE MASTER DRAWING
SHEET NO. 19	