

CERTIFICATION

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John K. Neville
JANUARY 01, 2022
EXPIRES 06/30/2026

FORD'S GARAGE
LEXINGTON
140 Rojay Dr. Lexington, KY 40503

PROJECT # 25009

STATUS/ISSUE	
PERMIT SET	03/12/25

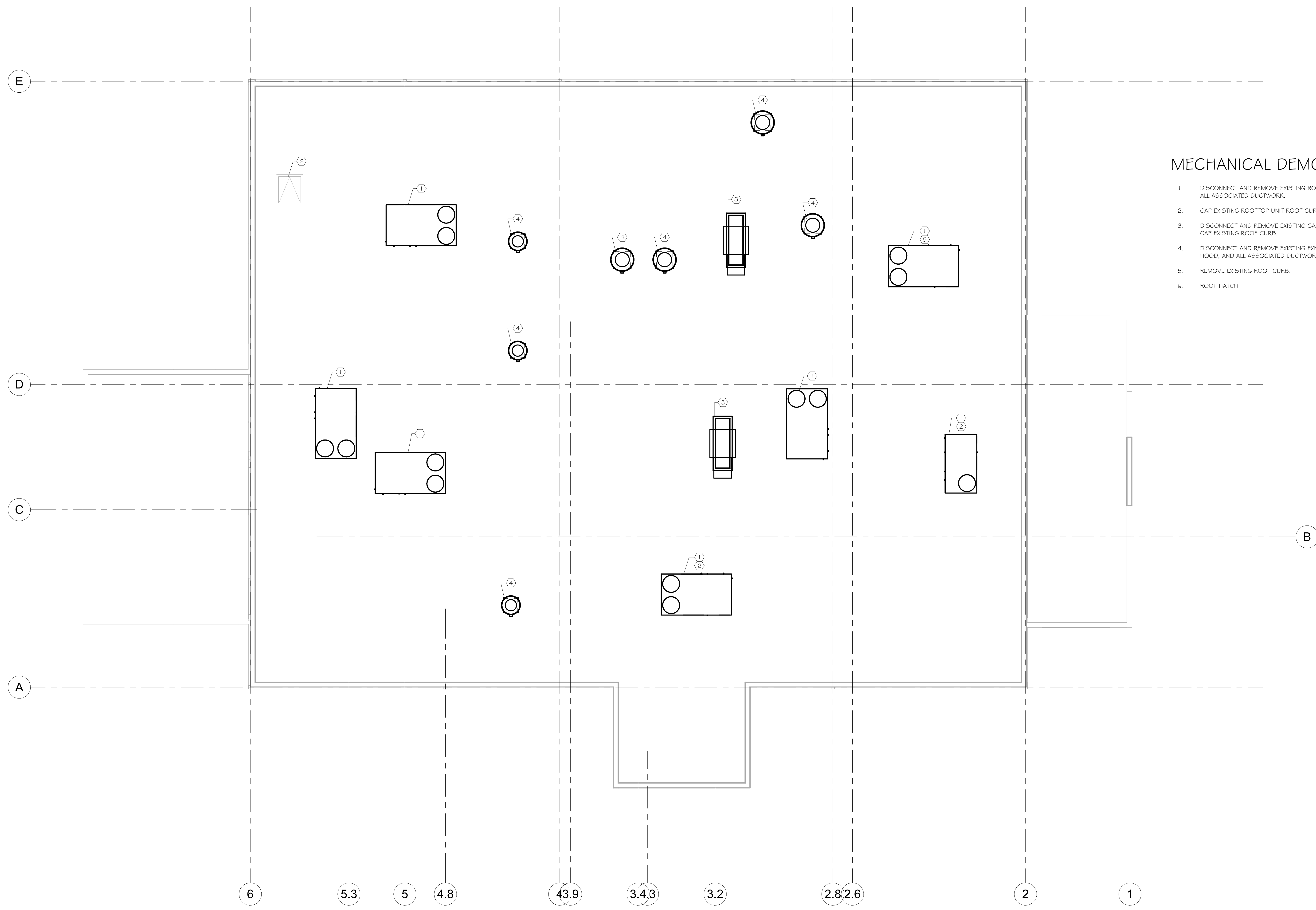
REVISION SCHEDULE		
NO.	ISSUE	DATE

MECHANICAL
DEMOLITION PLAN

M001

MECHANICAL DEMOLITION NOTES

1. DISCONNECT AND REMOVE EXISTING ROOFTOP UNIT. REMOVE ALL ASSOCIATED DUCTWORK.
2. CAP EXISTING ROOFTOP UNIT ROOF CURB.
3. DISCONNECT AND REMOVE EXISTING GAS MAKEUP AIR UNIT. CAP EXISTING ROOF CURB.
4. DISCONNECT AND REMOVE EXISTING EXHAUST FAN, EXHAUST HOOD, AND ALL ASSOCIATED DUCTWORK.
5. REMOVE EXISTING ROOF CURB.
6. ROOF HATCH



1 MECHANICAL DEMOLITION PLAN
3/16" = 1'-0"



MECHANICAL PLAN NOTES

1. 10" EXHAUST DUCT UP THROUGH ROOF
2. 6" EXHAUST DUCT UP THROUGH ROOF
3. SEE CAPTIVAIRE DRAWINGS FOR HOOD/EXHAUST DETAILS
4. RETURN GRILLE ON DUCT DROP 13' AFF

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MECHANICAL PLAN

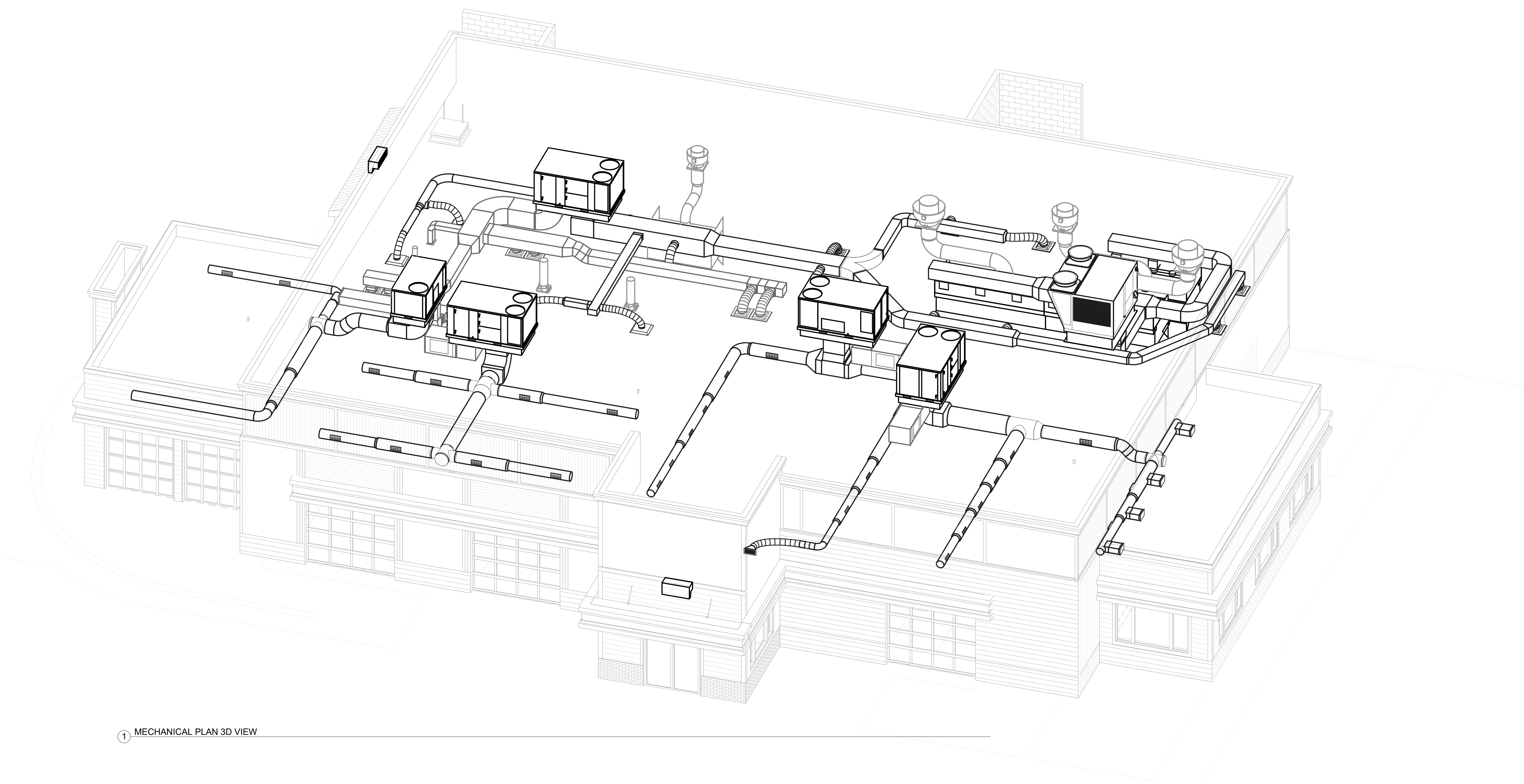
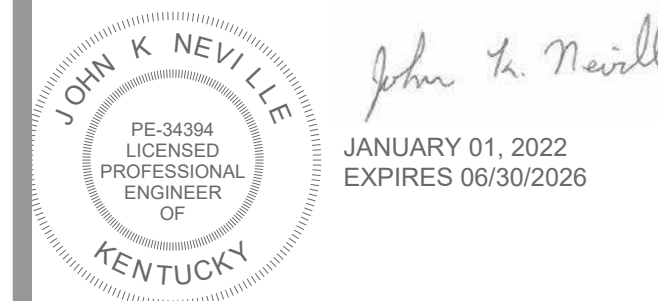
1 MECHANICAL PLAN
3/16" = 1'-0"



M100

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1 MECHANICAL PLAN 3D VIEW

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MECHANICAL PLAN
 3D



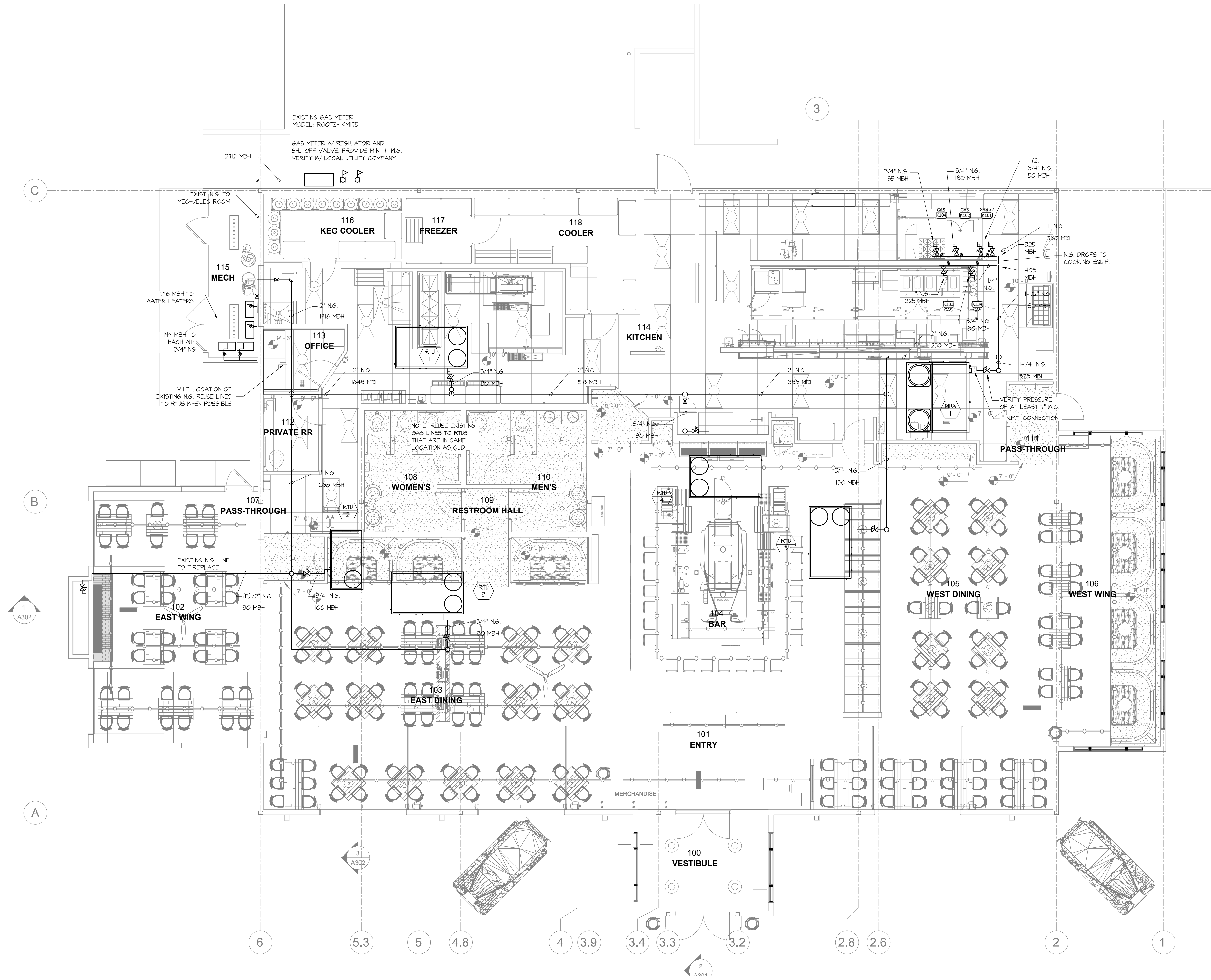
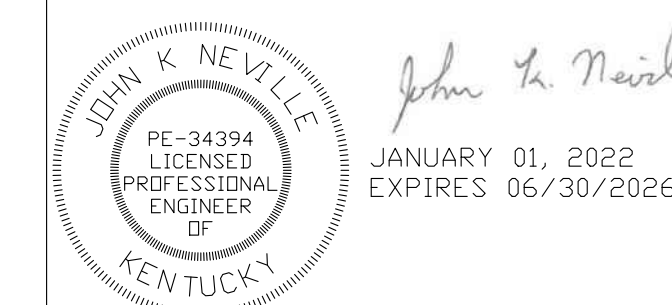
M101

CERTIFICATION

EXPIRES 12/31/25

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KITCHEN EQUIPMENT GAS ROUGH-IN SCHEDULE

ITEM NO.	QTY	EQUIPMENT CATEGORY	GAS SIZE (IN)	MBH	PLUMBING REMARKS
K101	1	CONNECTION OVER GAS	3/4"	18	1 LONG CONNECTIONS: 100,000 TOTAL MBH
K102	1	HOT PLATE, GAS, COUNTERTOP	3/4"	18	
K103	1	REFRESHALIZER, WATER TANK, GAS	3/4"	55	18 BRAN TO FLOOR SINK
K104	1	FRYER BATTERY, GAS	1"	225	18 SPEC
K134	1	FRYER BATTERY, GAS	3/4"	170	18 RFG02

GAS EQUIPMENT LIST

EQUIP.	QTY.	MBH	TOTAL	
RTU-1	1	130	130	
RTU-2	1	108	108	
RTU-3	1	130	130	
RTU-4	1	130	130	
RTU-5	1	130	130	
MAU-1	1	528	528	HVAC
K101	2	50	100	1,156
K102	1	180	180	
K104	1	55	55	
K133	1	225	225	KITCHEN
K134	1	170	170	730
WH-1	4	199	796	
FIREPLACE	1	30	30	
TOTAL			2,712	

LONGEST RUN CALCULATED AT 160'

1 GAS PLAN
SCALE: 3/16" = 1'-0"

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ROOFTOP UNIT SCHEDULE (RTU-)

TAG	SERVICE	NOMINAL TONS	FAN				COOLING				HEATING			ELECTRICAL			O.A. (CFM)	UNIT WEIGHT (LBS)	MANUFACTURER	MODEL NUMBER	NOTES	
			CFM	E.S.P.	HP	DRIVE	SENS. (MBH)	TOTAL (MBH)	ENT. AIR DB/WB	SEER	REF-454B (LBS)	INPUT (MBH)	OUTPUT (MBH)	HEATING STAGES	VOLT.	MCA						MOCF
RTU-1	(114) KITCHEN	10.0	3,950	1.5"	3.0	BELT	95.9	124.5	80/61	11.0	20-8	130.0	105.0	2	208/3/60	51.0	60	25	1224	LENNOX	K6C12054MS1Y	1
RTU-2	(102) EAST WING	4.0	1500	0.75"	0.5	DIRECT	36.3	49.7	80/61	11.0	9-13	108.0	86.0	1 2	208/3/60	20.0	30	510	716	LENNOX	K6B04854DM1Y	1
RTU-3	(103) EAST DINING	7.5	2,940	1.5"	3.0	BELT	68.5	95.1	80/61	11.0	15-4	130.0	105.0	2	230/3/60	42.0	50	1010	1126	LENNOX	K6C09254MS1Y	1
RTU-4	(104) BAR	7.5	3,000	1.5"	3.0	BELT	68.5	95.1	80/61	11.0	15-4	130.0	105.0	2	230/3/60	42.0	50	930	1126	LENNOX	K6C09254MS1Y	1
RTU-5	(105/106) WEST DINING/WEST WING	10.0	3,900	1.5"	3.0	BELT	95.9	124.5	80/61	11.0	20-8	130.0	105.0	2	208/3/60	51.0	60	1260	1224	LENNOX	K6C12054MS1Y	1

NOTES:
1. GAS/ELECTRIC ROOFTOP UNIT WITH 14" HIGH INSULATED ONE PIECE ROOF CURB, ECONOMIZER, AND BAROMETRIC RELIEF. ECONOMIZER TO HAVE LOW LEAK DAMPERS TO MEET ICC 2021 REQUIREMENTS. UNIT WEIGHT DOES NOT INCLUDE CURB OR ECONOMIZER.

EXHAUST FAN SCHEDULE (EF-)

TAG	SERVICE	CFM	S.F.	H.P.	R.P.M.	VOLTAGE	WEIGHT	MANUFACTURER	MODEL #	NOTES
EF-1	(108) MEN'S RESTROOM	266	375'	89 W	1500	120/1/60	24	COOK	GC 422	1
EF-6	(110) WOMEN'S RESTROOM	338	375'	114 W	1600	120/1/60	26	COOK	GC 522	1
EF-3	(112) PRIVATE RESTROOM	75	375'	33 W	900	120/1/60	12	COOK	GC 146	1

NOTES:
1. CEILING MOUNTED EXHAUST FAN WITH INTEGRAL BACKDRAFT DAMPER AND DISCONNECT. SUPPORT FROM STRUCTURE ABOVE WITH NEOPRENE VIBRATION ISOLATORS.

GRILLE, REGISTER, AND DIFFUSER SCHEDULE

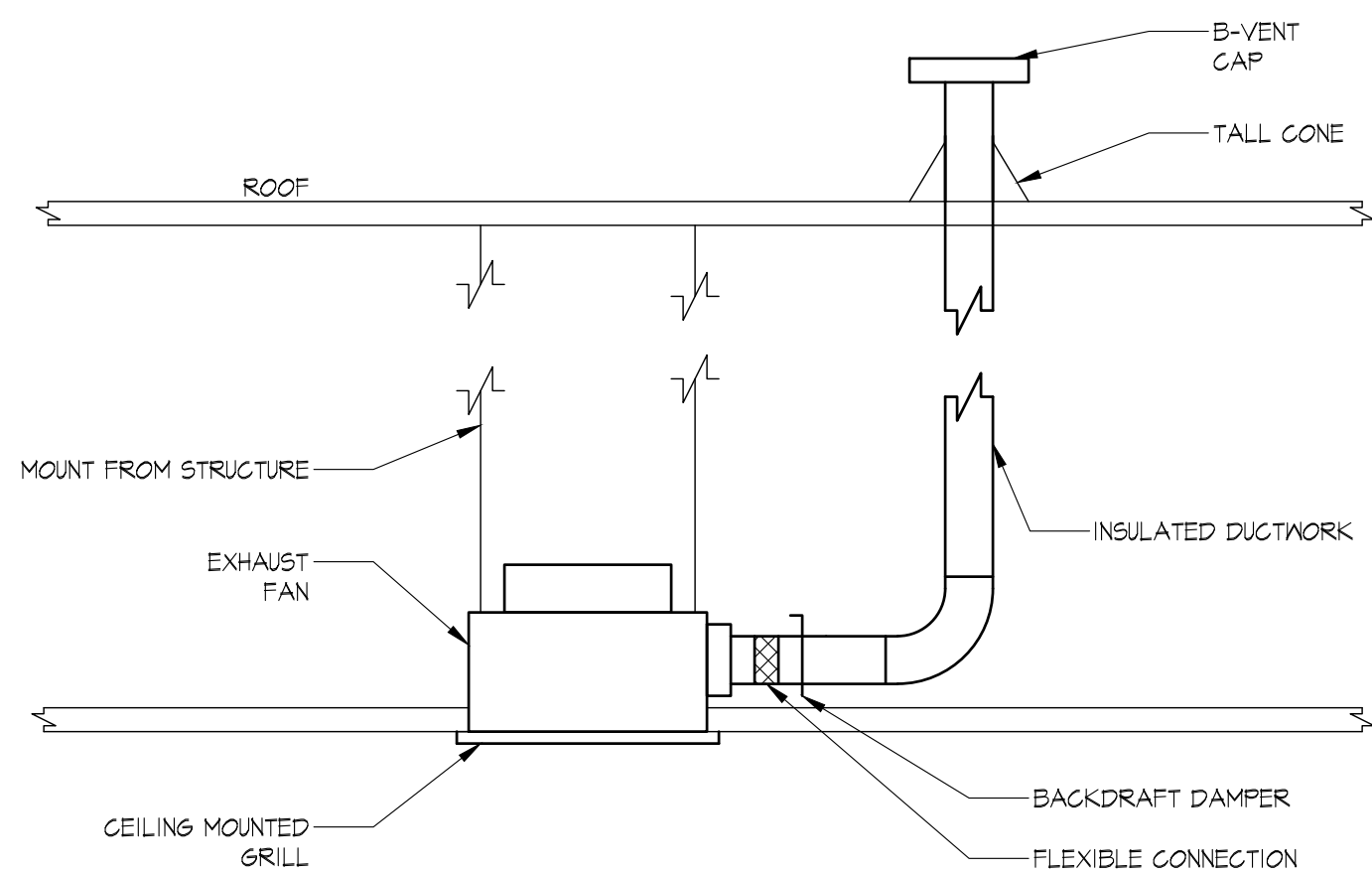
TAG	SERVICE	TYPE	NK SIZE	MATERIAL	OBD	MANUFACTURER	MODEL	NOTES
S-1	SUPPLY	LOUVERED SUPPLY DIFFUSER (24X24)	8"ø	STEEL	NO	TITUS	TMS	1
S-2	SUPPLY	DOUBLE DEFLECTION SUPPLY REGISTER	VARIABLES	STEEL	NO	TITUS	300FL	1
S-3	SUPPLY	PLAQUE SUPPLY DIFFUSER (24X24)	10"ø	STEEL	NO	TITUS	OMNI	1
R-1	RETURN	RETURN GRILLE	VARIABLES	ALUMINUM	NO	TITUS	350FS	1
R-2	RETURN	PERFORATED RETURN DIFFUSER (24X24)	12"ø	STEEL	NO	TITUS	PAR	1

NOTES:
1. FURNISH AND INSTALL VOLUME DAMPER FOR AIR FLOW BALANCING PURPOSES IN EACH DUCT TAKE-OFF TO A DIFFUSER, REGISTER OR GRILLE.

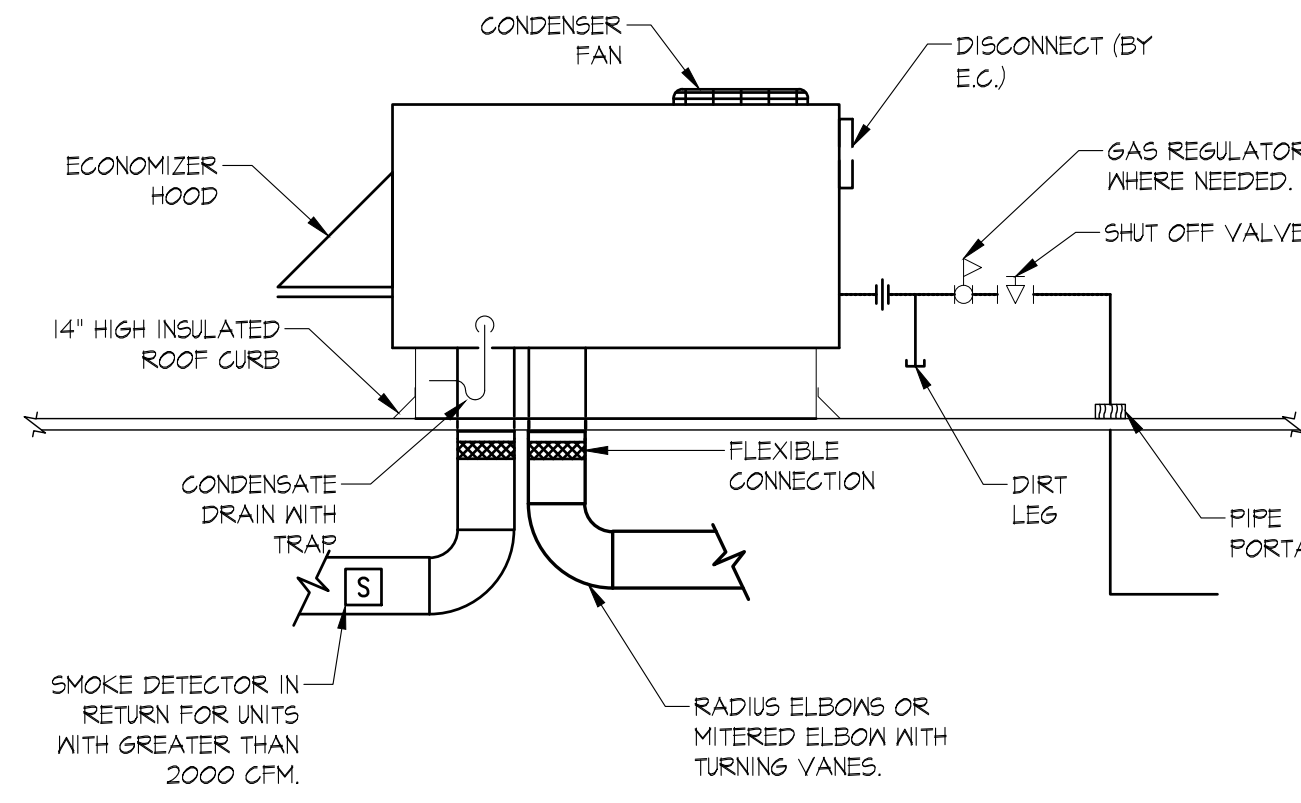
ELECTRIC UNIT HEATER SCHEDULE (EUH-)

TAG	LOCATION	HEATING DATA		ELECTRICAL		MANUFACTURER	MODEL	NOTES
		TOTAL MBH	KVA	VOLTS/PH/Hz	AMPS			
EUH-1	(100) VESTIBULE	20.5	6.0	208/3	16.7	SCHMANK	ESS-6051-20	1
EUH-2	(115) MECH	20.5	6.0	208/3	16.7	SCHMANK	ESS-6051-20	1

NOTES:
1. SUSPENDED INFARED UNIT HEATERS. MARINE GRADE ALUMINUM ALLOY WITH BLACK POWDER FINISH, OVERHEAT PROTECTION, WALL MOUNTED DISCONNECT SWITCH



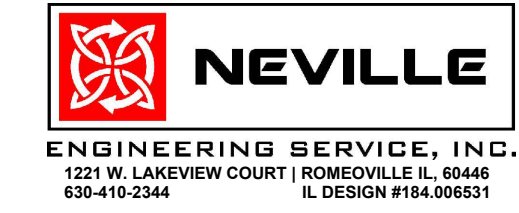
2 CEILING MOUNTED EXHAUST FAN
M200 NO SCALE



1 ROOFTOP UNIT INSTALLATION DETAIL
M200 NO SCALE

MECHANICAL GENERAL NOTES

- 1. CODES**
THE WORK SHALL COMPLY WITH ALL APPLICABLE LOCAL, MUNICIPAL, AND NATIONAL CODES. WHERE THE CONSTRUCTION DOCUMENTS INDICATE MORE RESTRICTIVE REQUIREMENTS THE CONSTRUCTION DOCUMENTS SHALL GOVERN. HOWEVER, THE CONSTRUCTION DOCUMENTS SHALL NOT BE INTERPRETED AS AUTHORITY TO VIOLATE A CODE OR REGULATION.
- 2. DRAWINGS AND SPECIFICATIONS**
THE CONTRACTOR SHALL BE RESPONSIBLE FOR READING AND COMPLYING WITH BOTH THE DRAWINGS AND SPECIFICATIONS. IN THE EVENT OF A CONFLICT OR INCONSISTENCY BETWEEN THE DRAWINGS, NOTES, SPECIFICATIONS, OR CODES, THE REFERENCE WHICH PROVIDES THE MORE COMPLETE OR HIGHER STANDARD SHALL PREVAIL.
- 3. INTERPRETATION OF THE DOCUMENTS**
CAREFULLY COMPARE THE DRAWINGS AND SPECIFICATIONS, CHECKING MEASUREMENTS AND CONDITIONS UNDER WHICH THIS INSTALLATION IS TO BE MADE. FOR CLARIFICATION BETWEEN VARIOUS DRAWINGS, BETWEEN DRAWINGS OR SPECIFICATION, OR BETWEEN SECTIONS OF THE SPECIFICATION, THE MATTER SHALL BE REFERRED TO THE ENGINEER BEFORE ANY WORK IS EXECUTED. THE CONTRACTOR SHALL STATE IN THEIR PROPOSAL ANY EXCEPTIONS NECESSARY TO MAKE THIS A COMPLETE, READY TO USE INSTALLATION. IF NOT STATED IN THE PROPOSAL, IT WILL NOT BE CONSIDERED EXTRA.
- 4. MECHANICAL DRAWINGS**
THE MECHANICAL DRAWINGS ARE DIAGRAMMATIC AND SHALL NOT BE SCALED. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL DOORS, WALLS, FURNITURE, EQUIPMENT, ETC. THE LOCATION OF DUCTWORK AND PIPING SYSTEM COMPONENTS ARE SCHEMATIC. THE EXACT LOCATION OF THESE SYSTEM COMPONENTS SHALL BE DETERMINED BY THE CONTRACTOR IN THE FIELD. THE CONTRACTOR SHALL CONFIRM THE DIMENSIONS OF THE ACTUAL EQUIPMENT TO BE SUPPLIED FOR THIS PROJECT, AND VERIFY CLEARANCES PRIOR TO STARTING WORK.
- 5. SITE EXAMINATION**
BEFORE SUBMITTING A BID, THE CONTRACTOR SHALL VISIT THE SITE, EXAMINE THE PREMISES, AND MAKE A THOROUGH SURVEY OF THE EXISTING CONDITIONS. THE SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE. NO CONSIDERATION OR ALLOWANCE WILL BE GRANTED FOR FAILURE TO VISIT THE SITE OR FOR LATER CLAIMS FOR LABOR, EQUIPMENT, MATERIALS REQUIRED, OR FOR DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN HAD SUCH AN SITE EXAMINATION BEEN MADE.
- 6. COORDINATION WITH OTHER TRADES**
THE MECHANICAL CONTRACTOR SHALL OBTAIN A COMPLETE SET OF ARCHITECTURAL AND ENGINEERING DOCUMENTS AND COORDINATE WITH ELECTRICAL, PLUMBING, ARCHITECTURAL, AND OTHER TRADES FOR EXACT DIMENSIONS, CLEARANCES, EQUIPMENT LOCATIONS, AND OTHER ADDITIONAL SCOPES OF WORK THAT MAY NOT BE SHOWN ON THE MECHANICAL PLANS.
- 7. PERMITS, APPLICATIONS AND RELEASES**
THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, INSPECTIONS, APPLICATIONS, RELEASES AND FEES REQUIRED BY LOCAL, STATE AND FEDERAL AGENCIES FOR THE EXECUTION OF THIS WORK. SCHEDULING OF ALL REQUIRED INSPECTIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- 8. FIRE STOPPING**
ALL PENETRATIONS IN WALL, FLOOR OR CEILING SHALL BE SUITABLY CLOSED UP AND SEALED WITH AN INTUMESCENT FIRE STOPPING COMPOUND LISTED IN THE MOST RECENT FACTORY MUTUAL RESEARCH CORPORATION (FMRC) APPROVAL GUIDE. FIRE STOPPING PRODUCTS SHALL BE MANUFACTURED BY 3M CO.
- 9. OWNER FURNISHED EQUIPMENT**
EQUIPMENT THAT WILL BE FURNISHED BY THE OWNER WILL BE INDICATED ON A SEPARATE SCHEDULE. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER FOR DELIVERY SCHEDULES. THE CONTRACTOR IS TO ASSURE THAT ON SITE STORAGE MAY NOT BE AVAILABLE WHEN COORDINATING DELIVERY OF EQUIPMENT. THE CONTRACTOR, IN COORDINATION WITH THE OWNER'S REPRESENTATIVE, WILL INSPECT THE DELIVERY FOR ACCURACY AND SHIPMENT DAMAGE AND ACCEPTING THE EQUIPMENT. THE CONTRACTOR SHALL BE RESPONSIBLE TO STORE, PROTECT AND ULTIMATELY INSTALL THE EQUIPMENT.
- 10. EQUIPMENT**
ALL MATERIALS AND EQUIPMENT USED IN THIS INSTALLATION SHALL BE NEW, AND HAVE THE APPROPRIATE UL LISTING AND LABEL.
- 11. MISCELLANEOUS SUPPORTING MEMBERS**
ALL ANGLES CHANNELS, AND OTHER MISCELLANEOUS STEEL, BOLTS, RODS, ETC., REQUIRED TO SUPPORT LIGHT FIXTURE, CONDUIT, RACEWAY, LADDER TRAY, OR OTHER ELECTRICAL EQUIPMENT OR DEVICES SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
- 12. SAFETY**
THE CONTRACTOR SHALL TAKE ALL STEPS NECESSARY TO ENSURE THE SAFETY OF THE OWNER'S EMPLOYEES, BUILDING EMPLOYEES AND GUESTS, AS WELL AS THEIR OWN WORKERS, BY ADEQUATELY PROTECTING ANY EXPOSED LIVE CONDUCTORS, OR DEVICES THROUGHOUT THE COURSE OF THIS WORK.
- 13. MANUFACTURER'S INSTALLATION INSTRUCTIONS**
THE MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR EACH MECHANICAL APPLIANCE OR PIECE OF EQUIPMENT SHALL BE AVAILABLE TO BUILDING DEPARTMENT INSPECTORS AT THE JOB SITE FOR EACH INSPECTION. LISTING AND LABELING SHALL ALSO BE MADE AVAILABLE.
- 14. TEST AND BALANCE REPORTS**
MECHANICAL SYSTEM SHALL BE BALANCED BY AN APPROVED METHOD. PROVIDE A TEST AND BALANCE REPORT TO THE MUNICIPALITY PRIOR TO THE FINAL INSPECTION FOR THEIR FILE. ALSO PROVIDE A REPORT TO THE INSPECTOR AND A REPORT ON SITE FOR FINAL MECHANICAL INSPECTION. SUCH BALANCING SHALL VERIFY THAT THE VENTILATION SYSTEM IS CAPABLE OF SUPPLYING AND EXHAUSTING THE AIRFLOW RATES REQUIRED BY IMC SECTIONS 403.3 AND 403.3.1.2.



9800 Crosspoint Blvd. STE 200
Indianapolis, IN 46256
Email: info@4021architecture.com
www.4021architecture.com

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IMC VENTILATION SCHEDULE

ROOM NO.	ROOM NAME	FLOOR AREA (S.F.)	NO. OF PEOPLE / FIXTURES	CODE REQUIRED OUTSIDE AIRFLOW RATE			CODE REQUIRED VENTILATION			ACTUAL			SYSTEM		
				PEOPLE (Rp)	AREA (Ra)	EXHAUST AIR (CFM/SF)	OUTSIDE AIR (Vbz)	OUTSIDE AIR (Voz)	EXHAUST AIR (CFM)	SUPPLY	EXHAUST	(ZP)	ROOM FUNCTION	SUPPLY	EXH
100	VESTIBULE	181	2	0.0	0.06	-	11	14	-	200	-	0.068	ENTRY	RTU-4	-
101	ENTRY	308	3	0.0	0.06	-	18	23	-	180	-	0.128	ENTRY	RTU-4	-
102	EAST WING	575	40	7.5	0.18	-	405	506	-	1,500	-	0.338	DINING AREA	RTU-2	-
103	EAST DINING	1,137	79	7.5	0.18	-	801	1,001	-	2,940	-	0.340	DINING AREA	RTU-3	-
104	BAR	1,014	71	7.5	0.18	-	714	893	-	2,620	-	0.341	BAR AREA	RTU-4	-
105	WEST DINING	981	69	7.5	0.18	-	691	864	-	2,700	-	0.320	DINING AREA	RTU-5	-
106	WEST WING	447	31	7.5	0.18	-	315	394	-	1,200	-	0.328	DINING AREA	RTU-5	-
107	PASS-THROUGH	45	0	-	-	-	-	-	-	-	-	-	CORRIDOR	-	-
108	WOMEN'S RESTROOM	170	0	-	-	75/WC	-	-	225	200	270	-	RESTROOM	RTU-1	-
109	RESTROOM HALL	30	0	-	-	-	-	-	-	-	-	-	CORRIDOR	-	-
110	MEN'S RESTROOM	184	0	-	-	75/WC	-	-	300	200	340	-	RESTROOM	RTU-1	-
111	PASS-THROUGH	49	0	-	-	-	-	-	-	-	-	-	CORRIDOR	-	-
112	PRIVATE RESTROOM	63	0	-	-	75/WC	-	-	75	-	75	-	RESTROOM	RTU-1	-
113	OFFICE	66	1	5.0	0.06	-	9	11	-	150	-	0.075	OFFICE	RTU-1	-
114	KITCHEN	2,084	42	-	-	0.7	-	-	1,459	9,300	5,900	-	KITCHEN	RTU-1*	KEF SYS
115	MECH	122	0	-	-	-	-	-	-	-	-	-	UTILITY ROOM	-	-
116	KEG COOLER	138	0	-	-	-	-	-	-	-	-	-	STORAGE	-	-
117	FREEZER	70	0	-	-	-	-	-	-	-	-	-	STORAGE	-	-
118	COOLER	213	0	-	-	-	-	-	-	-	-	-	STORAGE	-	-
TOTALS		7,877	338	-	-	-	2,964	3,705	2,059	21,190	6,585	-	-	-	-

NOTES:
1. EVERY OCCUPIED SPACE SHALL BE VENTILATED BY MECHANICAL MEANS IN ACCORDANCE WITH SECTION 403 OF THE INTERNATIONAL MECHANICAL CODE.
2. ALL AREAS NOT NOTED IN THIS SCHEDULE ARE NOT IN THE MECHANICAL CONTRACT.

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MECHANICAL DETAILS & SCHEDULES

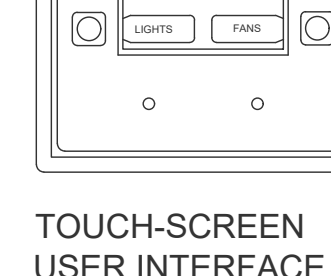
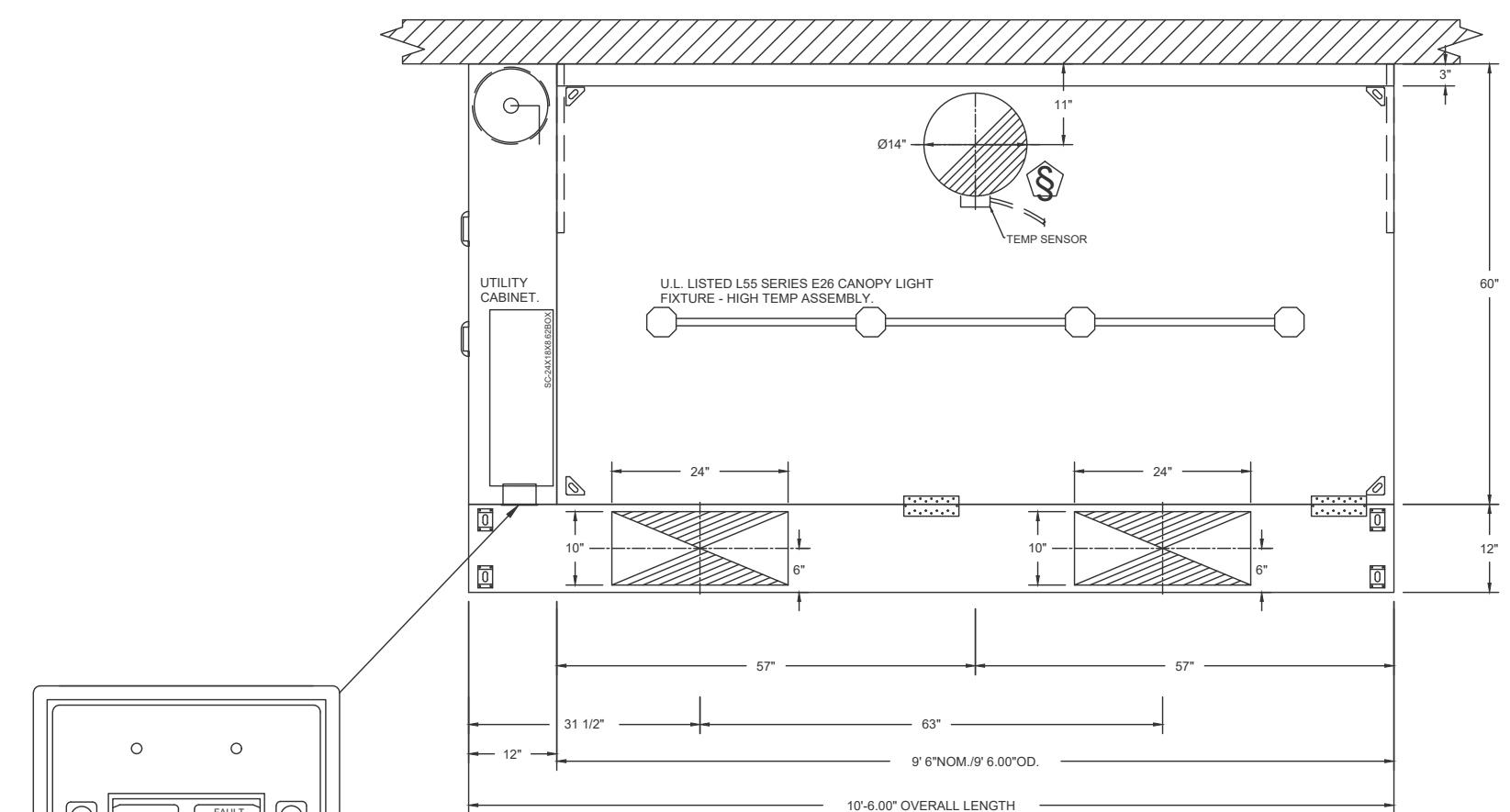
M200

HOOD INFORMATION - JOB#7328399										EXHAUST PLENUM				TOTAL SUPPLY CFM		HOOD CONSTRUCTION		HOOD CONFIG	
HOOD NO	TAG	MODEL	MANUFACTURER	LENGTH	MAX COOKING TEMP	TYPE	APPLIANCE DUTY	DESIGN CFM/FIT	TOTAL ESH CFM	WIDTH	LENG	HEIGHT	DIA	CFM	VEL	SP	WHERE EXPOSED	END TO END	ROW
1	K240	6030 ND-2-PSP-F	CAPTIVEAIRE	9' 6"	450 DEG	I	MEDIUM	174	1660	4"	14"	14"	1650	1543	-0.560"	1300	430 SS	ALONE	ALONE
2	K255	4830 VHB-G	CAPTIVEAIRE	7' 0"	700 DEG	II	N/A	100	700	4"	10"	700	1283	-0.094"	0	304 SS	100%	ALONE	ALONE

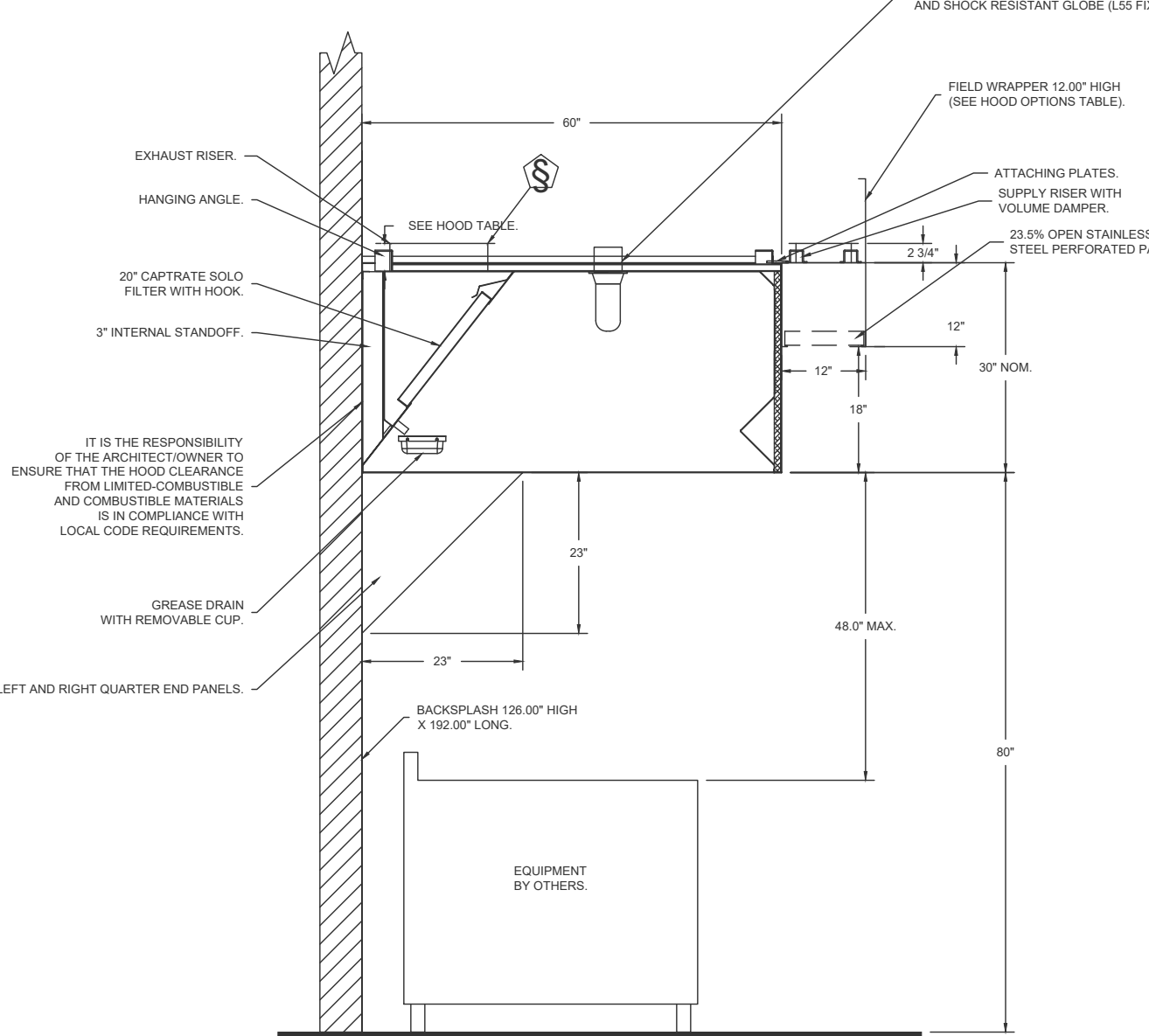
HOOD INFORMATION										UTILTY CABINET(S)			FIRE SYSTEM HANGING		HOOD SYSTEM HANGING				
HOOD NO	TAG	TYPE	QTY	HEIGHT	LENGTH	EFFICIENCY @ 7 MICRONS	QTY	TYPE	WIRE GUARD	LOCATION	SIZE	TYPE	SIZE	MODEL #	QUANTITY	1 LIGHT	1 FAN	YES	874 LBS
1	K240	CAPTIVEAIRE SOLID FILTER	7	20"	16"	85% SEE FILTER SPEC	4	LSS SERIES E26	NO	LEFT	12"X60"X30"	TANK FS	4.0	DCV-3111	1	1	1	YES	874 LBS
2	K255						0											NO	248 LBS

HOOD OPTIONS		OPTION
HOOD NO	TAG	OPTION
1	K240	FIELD WRAPPER 12.00" HIGH FRONT, LEFT, RIGHT. BACKSLASH 126.00" HIGH X 192.00" LONG 430 SS VERTICAL. RIGHT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS. LEFT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS. FIELD WRAPPER 12.00" HIGH FRONT, LEFT, RIGHT.

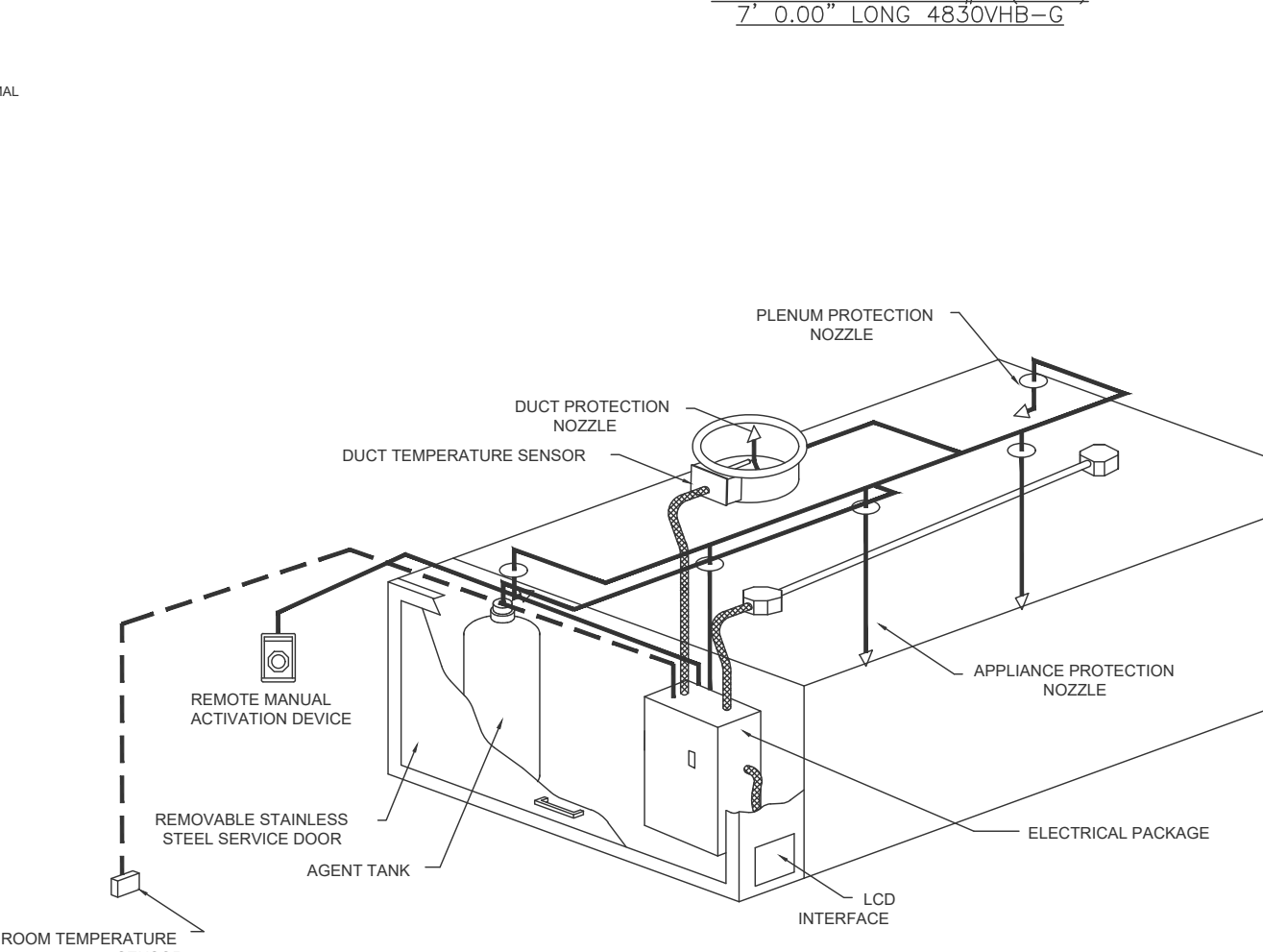
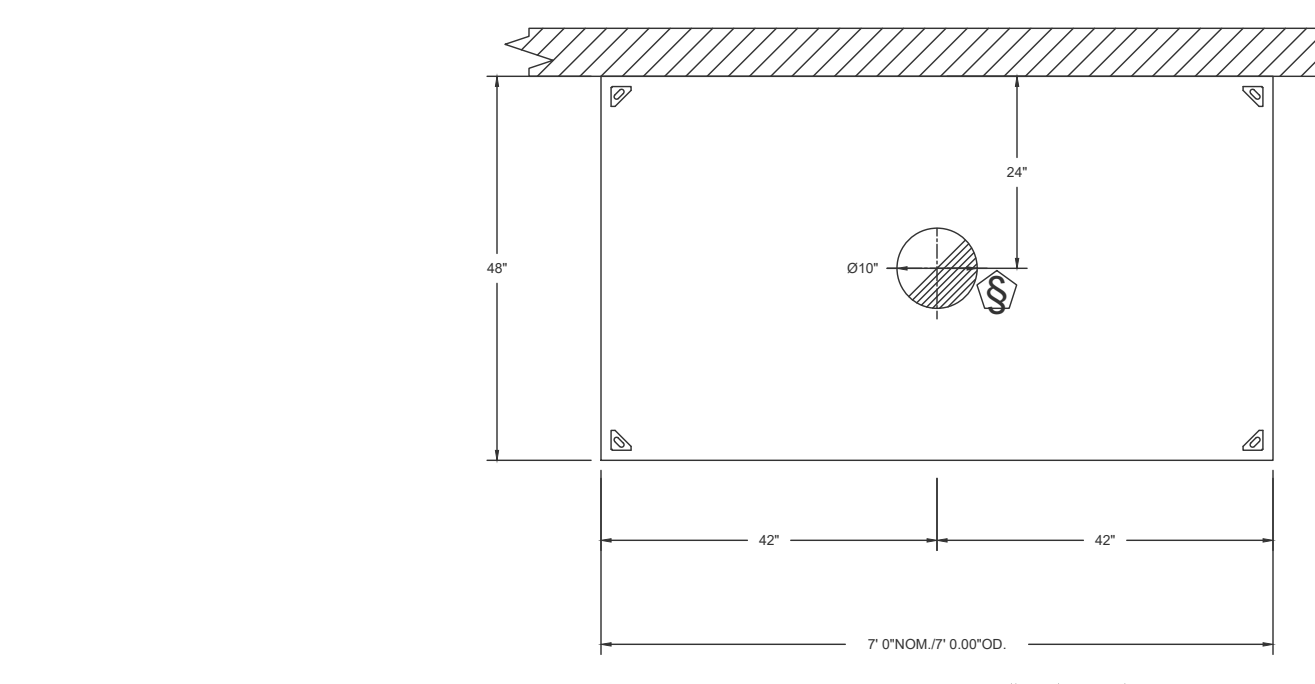
PERFORATED SUPPLY PLENUM(S)											
HOOD NO	TAG	POS	LENGTH	WIDTH	HEIGHT	TYPE	WIDTH	LENG	DIA	CFM	SP
1	K240	Front	126"	12"	12"	MUA	10"	24"	650	0.194"	
						MUA	10"	24"	650	0.194"	



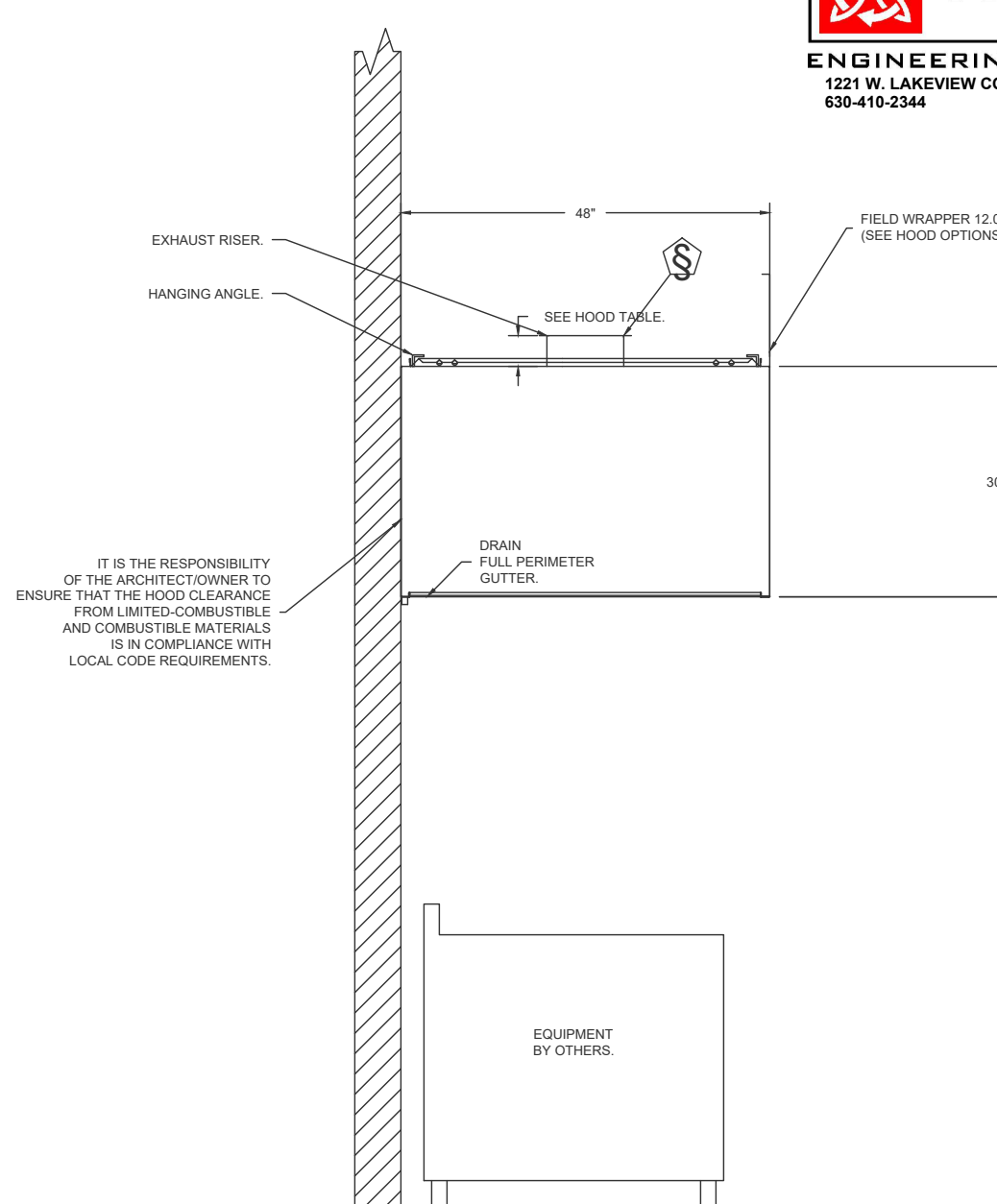
ELECTRICAL PACKAGE - JOB#7328399									
NO	TAG	PACKAGE #	LOCATION	SWITCHES	OPTION	FANS CONTROLLED			
1		DCV-3111	UTILTY CABINET LEFT	1 LIGHT	SMART CONTROLS DCV	REF-1 (K240) EXHAUST 1 0.700 115 8.9 REF-2 (K240) EXHAUST 2 2.000 208 8.3 REF-3 (K240) EXHAUST 3 2.000 208 8.3 REF-4 (K240) EXHAUST 4 2.000 208 8.3 MUA-1 SUPPLY 3 7.500 208 21.1			



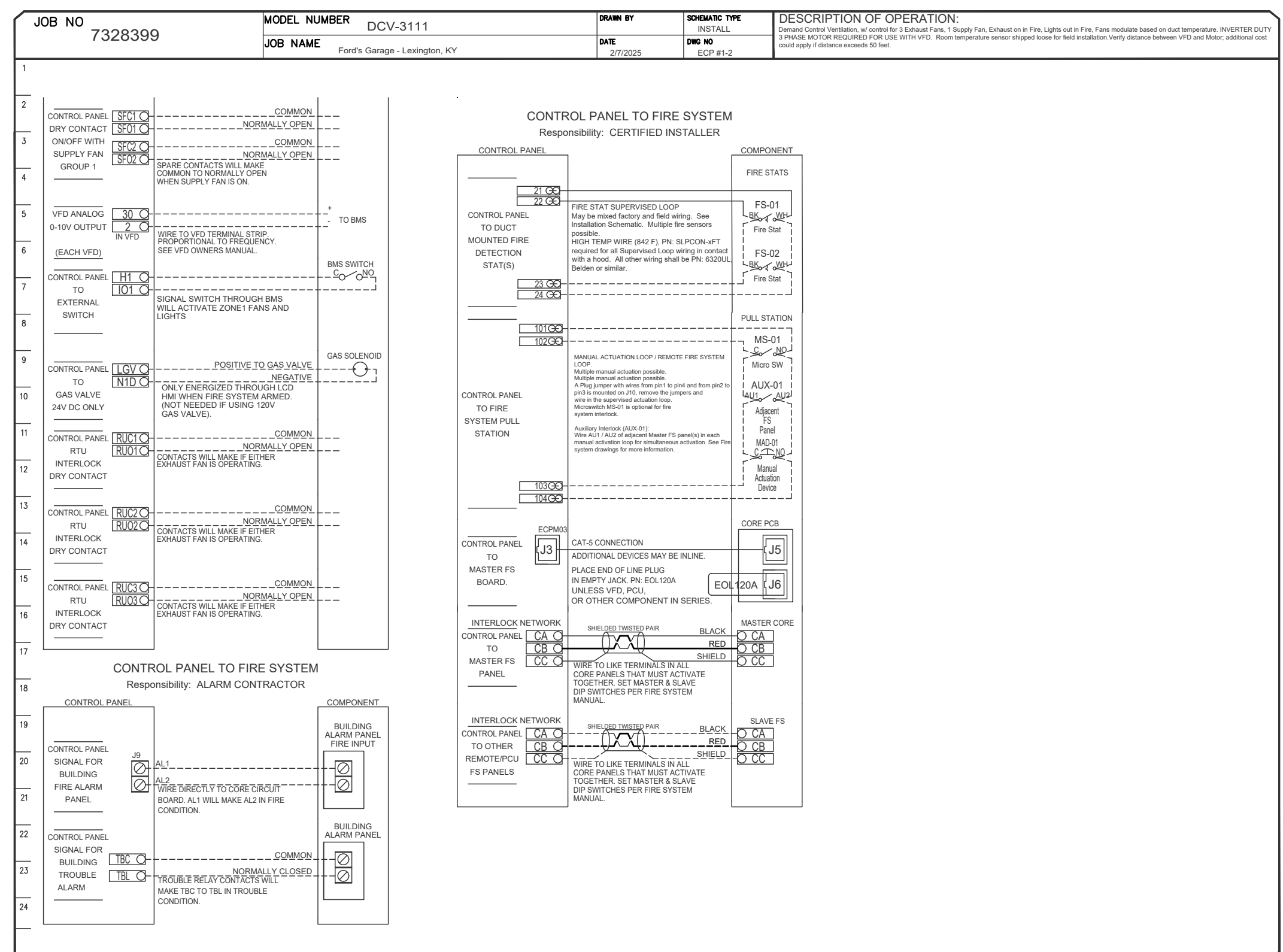
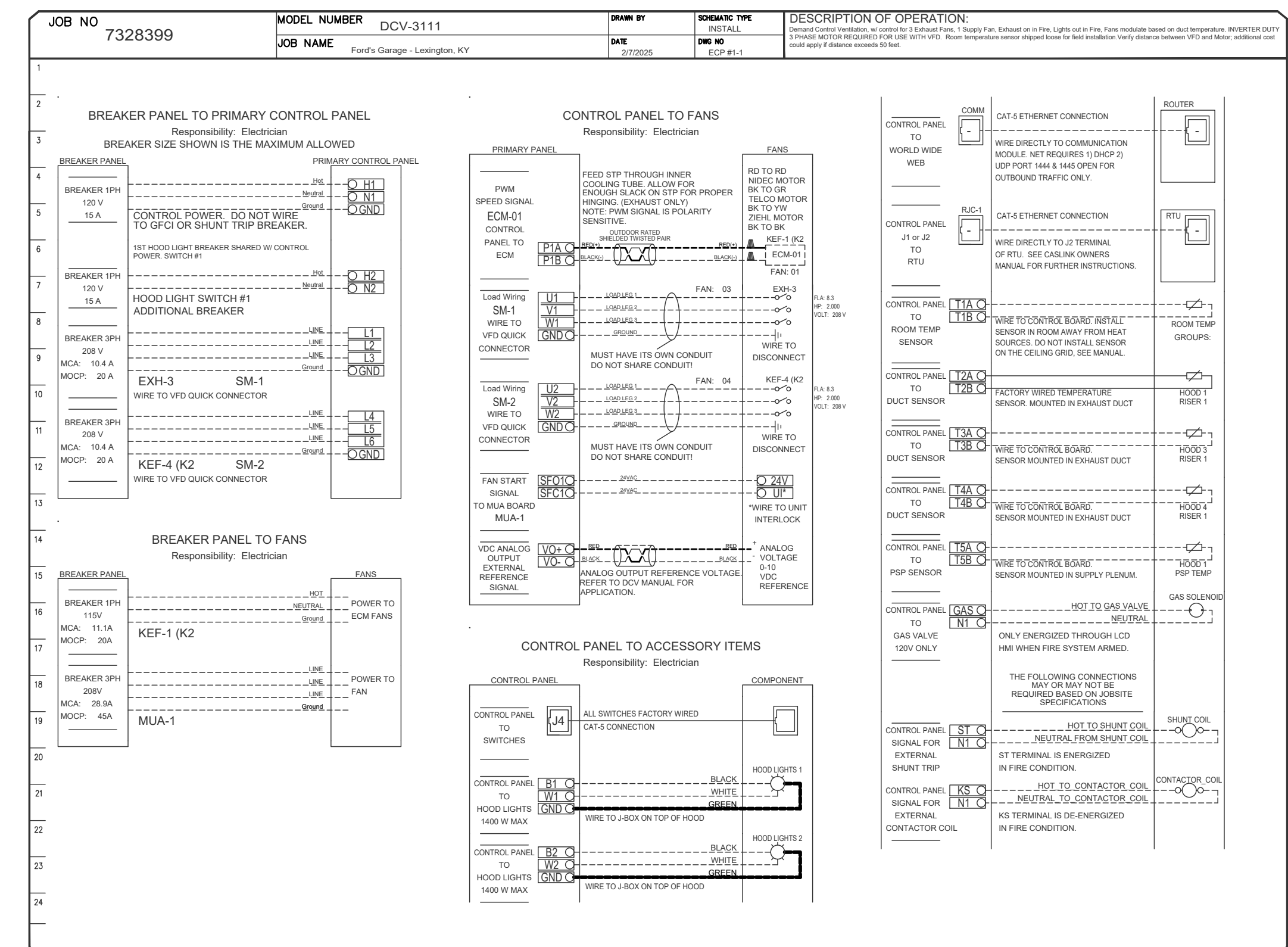
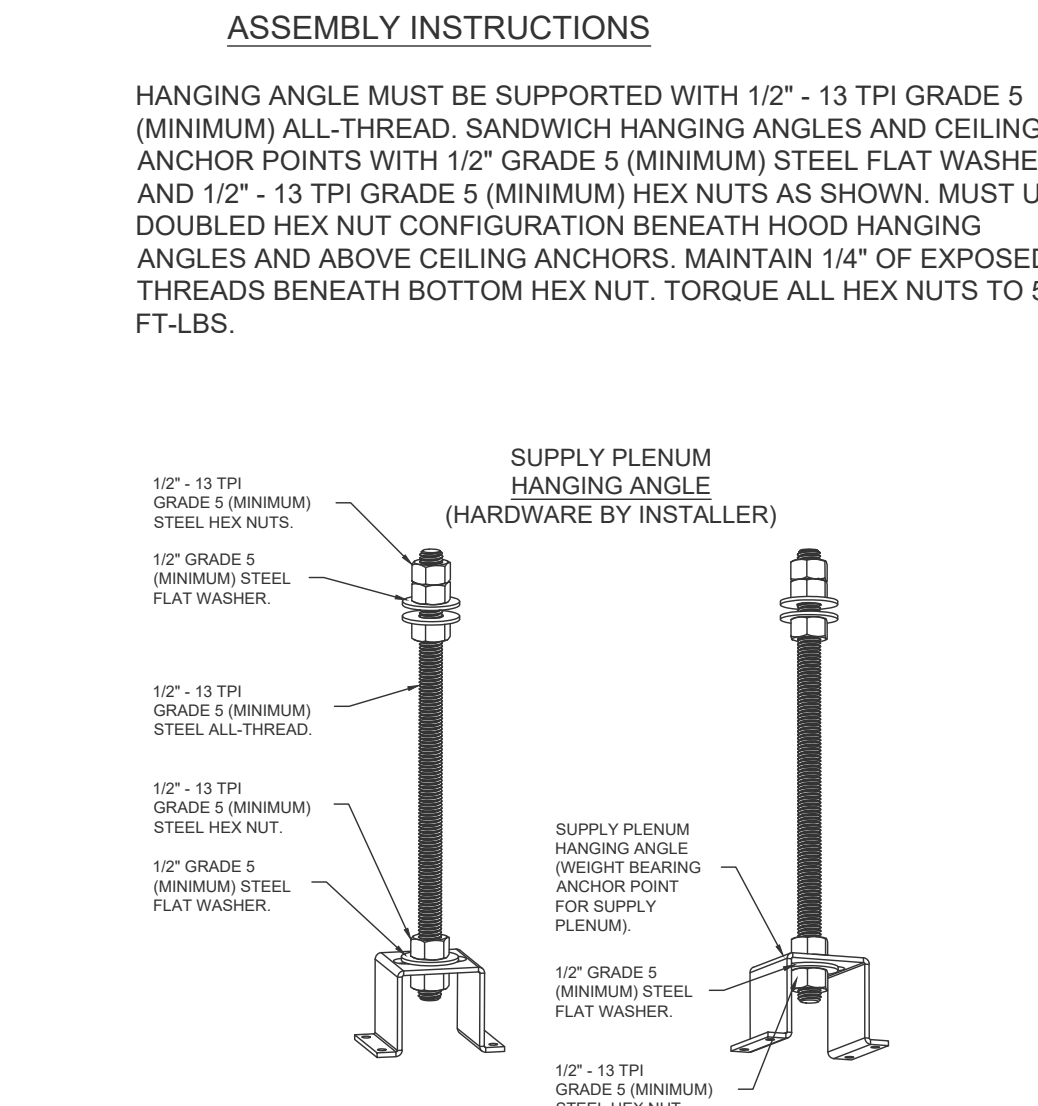
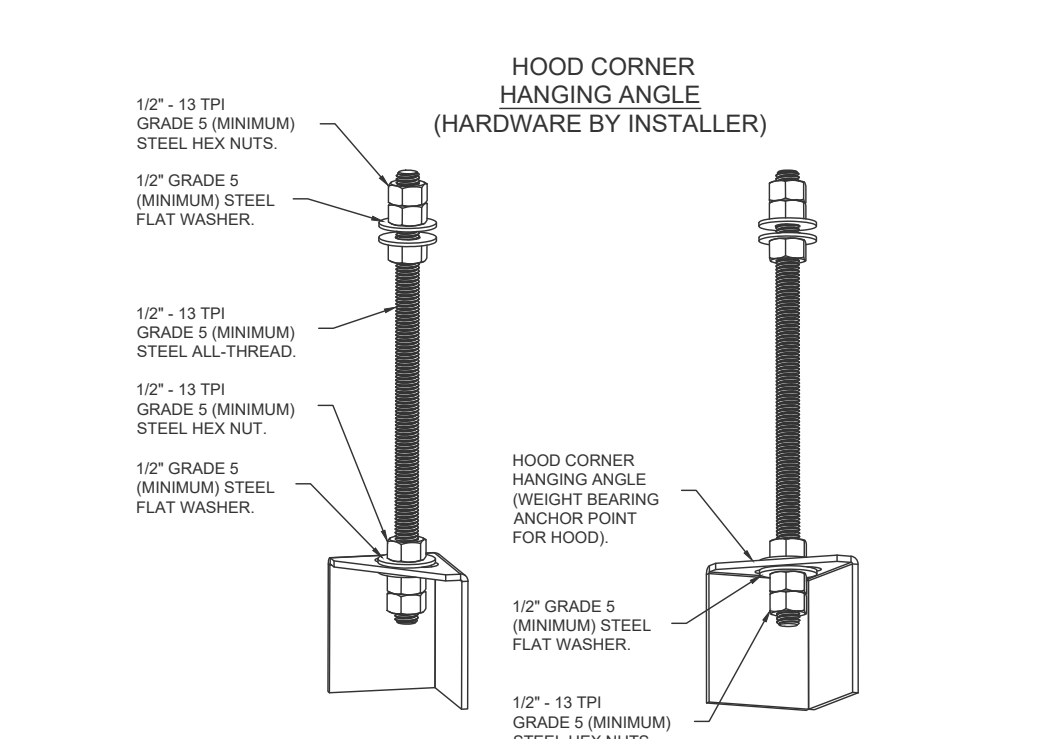
SECTION VIEW - MODEL 6030ND-2-PSP-F HOOD - #1 (K240)



TYPICAL UL-300 FIRE SYSTEM LAYOUT
TYPICAL HOOD CONTROL PANEL INSTALLATION



SECTION VIEW - MODEL 4830VHB-G HOOD - #2 (K255)



FORD'S GARAGE
LEXINGTON
140 Rojay Dr. Lexington, KY 40503

PROJECT# 25009	
STATUS/ISSUE	
PERMIT SET	03/12/2025
REVISION SCHEDULE	
NO.	DATE

MECHANICAL HOOD DETAILS

M210

HOOD INFORMATION - JOB#7928399

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 CORNERS		
										WIDTH	LENG	HEIGHT	DIA			CFM	VEL	SP
3	K245L	6030 ND-2-PSP-F	CAPTIVEAIRE	12' 0"	600 DEG	1	HEAVY	229	2750	4"	18"	2750	1556	-0.800"	2200	430 SS WHERE EXPOSED	LEFT	ALONE
4	K245R	6030 ND-2-PSP-F	CAPTIVEAIRE	13' 0"	600 DEG	1	HEAVY	231	3000	4"	18"	3000	1698	-0.905"	2400	430 SS WHERE EXPOSED	RIGHT	ALONE

HOOD INFORMATION

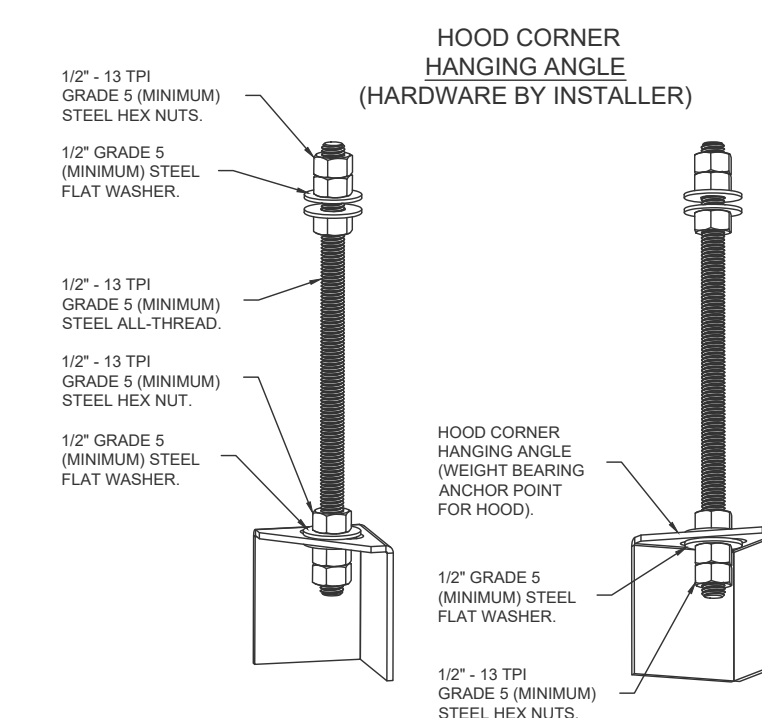
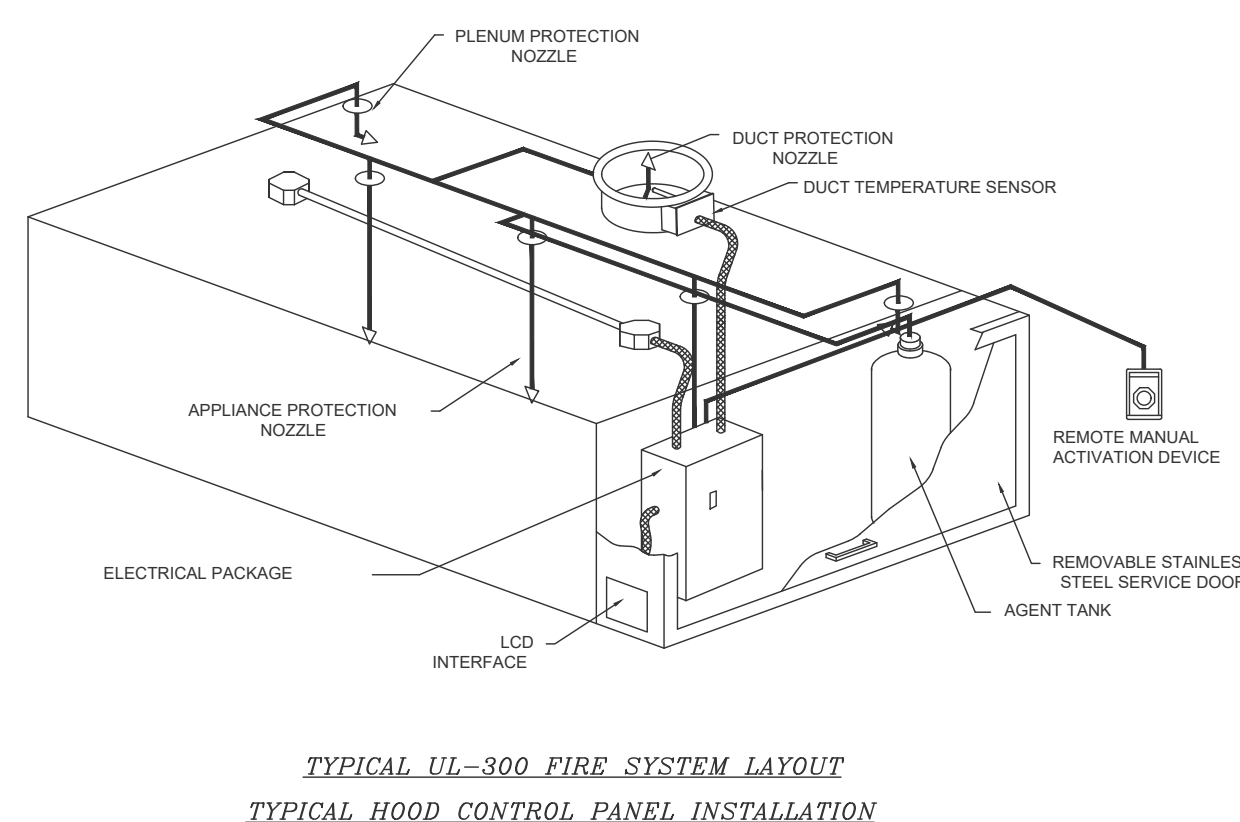
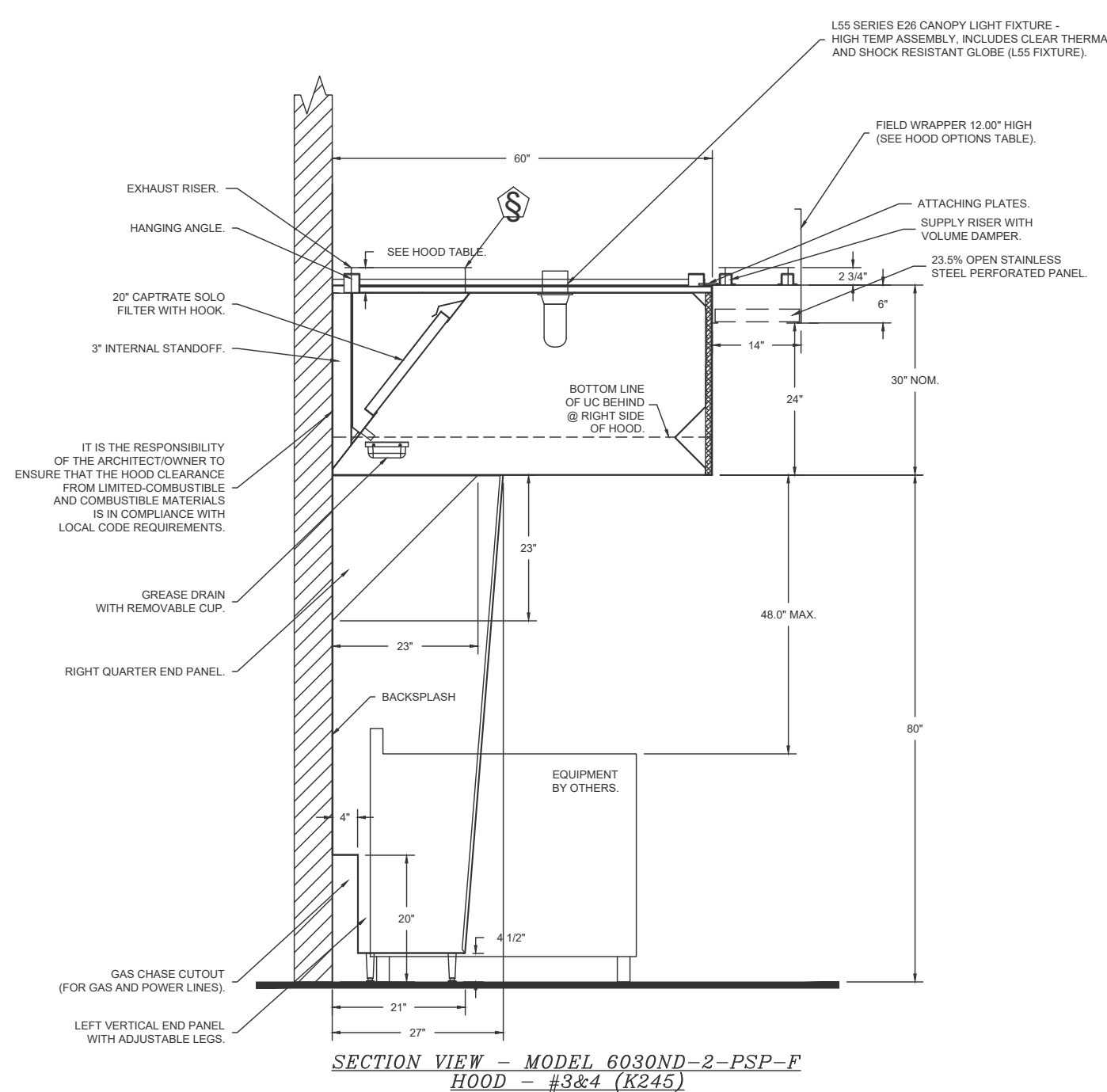
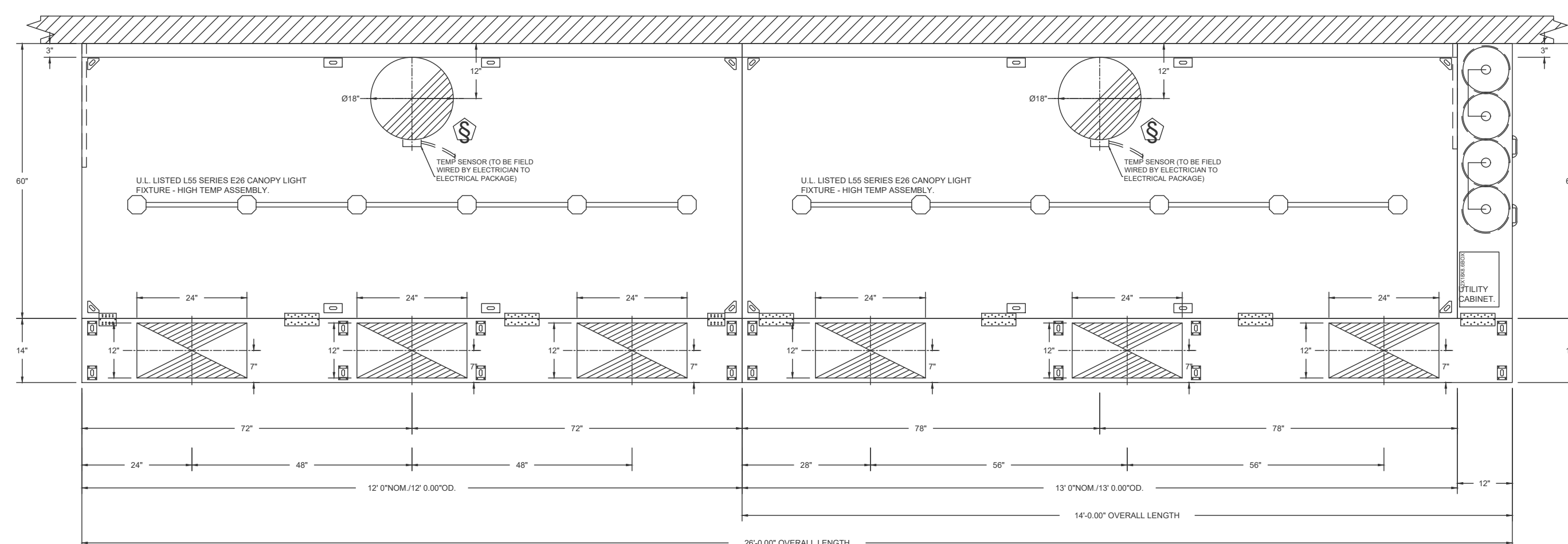
HOOD NO	TAG	TYPE	QTY	HEIGHT	EFFICIENCY @ 7 MICRONS	QTY	TYPE	WIRE GUARD	LOCATION	SIZE	FIRE SYSTEM		ELECTRICAL	SWITCHES	FIRE SYSTEM HANGING PIPING	HOOD WEIGHT
											TYPE	SIZE				
3	K245L	CAPTRATE SOLO FILTER	9	20"	16"	85% SEE FILTER SPEC	6	L55 SERIES E26	NO						YES	800 LBS
4	K245R	CAPTRATE SOLO FILTER	9	20"	16"	85% SEE FILTER SPEC	6	L55 SERIES E26	NO	RIGHT	12"X60"X24"	TANK FS	4.04 0.14 0.4 0		YES	1296 LBS

HOOD OPTIONS

HOOD NO	TAG	OPTION
3	K245L	FIELD WRAPPER 12.00" HIGH FRONT, LEFT BACKSPLASH 126.00" HIGH X 341.00" LONG 430 SS VERTICAL STRUCTURAL FRONT PANEL LEFT VERTICAL END PANEL 27" TOP WIDTH, 21" BOTTOM WIDTH, 80" HIGH INSULATED 430 SS
4	K245R	FIELD WRAPPER 12.00" HIGH FRONT, LEFT, RIGHT RIGHT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS STRUCTURAL FRONT PANEL

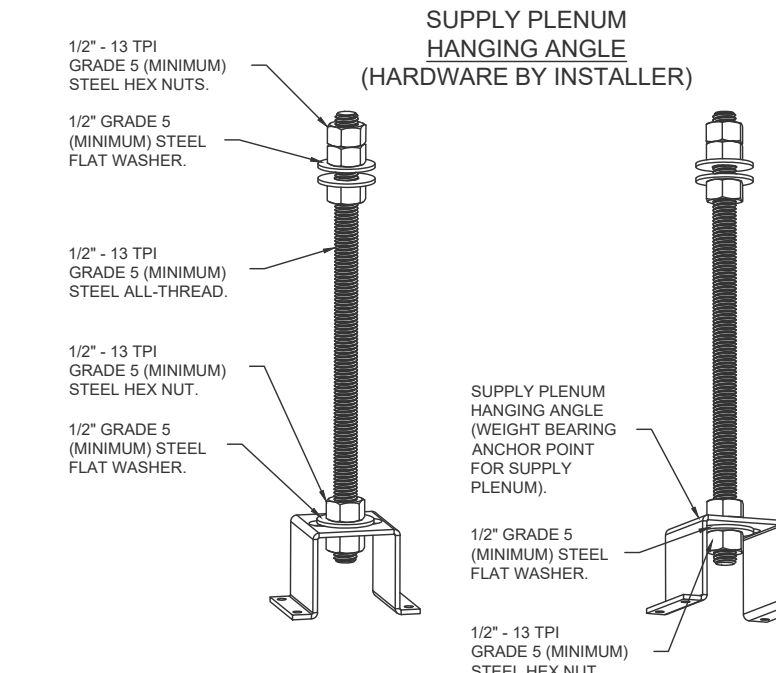
PERFORATED SUPPLY PLENUM(S)

HOOD NO	TAG	POS	LENGTH	WIDTH	HEIGHT	TYPE	RISER(S)			
							WIDTH	LENG	DIA	CFM
3	K245L	Front	144"	14"	6"	MJA	12"	24"	733	0.236"
3	K245L	Front	144"	14"	6"	MJA	12"	24"	733	0.236"
3	K245L	Front	144"	14"	6"	MJA	12"	24"	733	0.236"
3	K245L	Front	144"	14"	6"	MJA	12"	24"	800	0.240"
4	K245R	Front	168"	14"	6"	MJA	12"	24"	800	0.240"
4	K245R	Front	168"	14"	6"	MJA	12"	24"	800	0.240"



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.



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 PSP HANGING ANGLES. MAINTAIN 1/4" OF EXPOSED THREADS BENEATH BOTTOM HEX NUT. TORQUE ALL HEX NUTS TO 57 FT-LBS.

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.

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.

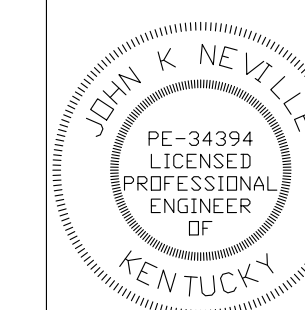
DURING THE SDV, CAS SERVICE WILL ADDRESS ANY DISCREPANCY THAT IS THE FAULT OF THE MANUFACTURER. SHOULD A RETURN TRIP BE REQUIRED, THE GENERAL CONTRACTOR AND APPROPRIATE SALES OFFICE WILL BE NOTIFIED. THERE WILL BE NO ADDITIONAL CHARGES FOR MANUFACTURER DISCREPANCIES.

CERTIFICATION

EXPIRES 12/31/25

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John K. Neville
JANUARY 01, 2022
EXPIRES 06/30/2026

FORD'S GARAGE
LEXINGTON
140 Rojay Dr. Lexington, KY 40503

PROJECT# 25009

STATUS/ISSUE
PERMIT SET 03/12/2025

REVISION SCHEDULE
NO. DATE

MECHANICAL HOOD DETAILS

M212

EXHAUST FAN INFORMATION - JOB#7328399

FAN UNIT NO.	TAG	QTY	FAN UNIT MODEL #	MANUFACTURER	CFM	ESP	RPM	MOTOR ENCL.	HP	BHP	PHASE	VOLT	FLA	DISCHARGE VELOCITY	WEIGHT (LBS)	SONES
1	KEF-1 (K240)	1	DUBSHFA	CAPTIVEAIRE	1650	1.000	1334	TEAO-ECM	0.750	0.4150	1	115	8.9	522 FPM	50	11.5
2	KEF-2 (K255)	1	DUS3HFA	CAPTIVEAIRE	700	0.500	1455	TEAO-ECM	0.333	0.1850	1	115	4.3	347 FPM	69	14.6
3	KEF-3 (K245L)	1	DU180HFA	CAPTIVEAIRE	2750	1.250	1208	OOP-PREMIUM	2.000	1.2120	3	208	8.3	635 FPM	164	17.2
4	KEF-4 (K245R)	1	DU180HFA	CAPTIVEAIRE	3000	1.250	1250	OOP-PREMIUM	2.000	1.3560	3	208	8.3	693 FPM	184	18.8

DOAS/RTU FAN SCHEDULE - JOB#7328399

FAN UNIT NO.	TAG	QTY	DOAS/RTU MODEL #	FAN INFORMATION										ELECTRICAL INFORMATION										COOLING INFORMATION										REHEAT INFORMATION										GAS HEAT INFORMATION										A.I.L. MINIMUM ROOM VOLUME			NOTES
				MANUFACTURER	BLOWER	RETURN AIR CFM	MAX OUTSIDE AIR CFM	TOTAL CFM	WEIGHT (LBS)	ESP	HP	PHASE	VOLT	MCA	MCCP	DB	WB	DB	WB	DB	WB	DP	TOTAL	SENS.	IEER	EMER	DISCHARGE DB	WB	DESIRED	MAX	MOISTURE REMOVAL RATE	GAS TYPE	INPUT BTU/h	OUTPUT BTU/h	TEMP RISE	REQUIRED INPUT GAS PRESSURE	ROOM AREA (FT ²)	AIRFLOW (CFM)	HEIGHT (FT)																		
5	MUA-1	1	CAS-HVAC3-1485-24-12-ST-MPU	CAPTIVEAIRE	24MF-3-RTU	0	5900	5900	2614	0.650	7.50	3	208	76.4A	90A	87.4°F	77.0°F	87.4°F	77.0°F	75.0°F	75.0°F	68.7°F	149.4 MBH	75.7 MBH	21.3	4.1	-1.0°F	-1.0°F	31 MBH	0 MBH	66.6 LBS/HR	NATURAL	52690	42670	72°F	7 IN. W.C. - 14 IN. W.C.	348.9	872	10	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16																	

NOTES:

- INVERTER SCROLL COMPRESSOR WITH INTEGRATED OIL SENSOR. DIGITAL OR STAGED SCROLL NOT AN APPROVED EQUAL.
- DIRECT DRIVE PLENUM BLOWER. BELT DRIVEN BLOWERS ARE NOT ACCEPTABLE.
- INTEGRATED MONITORING VIA CELLULAR CONNECTION BY MANUFACTURER.
- REFRIGERATION PRESSURE MONITORING ON HIGH AND LOW PRESSURE SIDE OF SYSTEM INCLUDED THROUGH DIGITAL INTERFACE.
- EC MOTOR CONDENSING FANS.
- ELECTRONIC EXPANSION VALVE. TXV NOT ACCEPTABLE.
- SUCTION LINE ACCUMULATOR.
- FACTORY COMMISSIONING WITH 5 YEAR PARTS WARRANTY. 25 YEAR WARRANTY ON STAINLESS STEEL HEAT EXCHANGER.
- AVERAGING INTAKE, EVAP AND DISCHARGE TEMPERATURE SENSORS (DISCHARGE SENSOR TO BE FACTORY MOUNTED WITHIN UNIT).
- EXTERIOR DUAL-WALL CONSTRUCTION W/ R-13 INSULATION-MINIMUM 20GA EXTERIOR W/ 14GA BASE.
- 81% EFFICIENT FURNACE WITH MODULATING INDUCER TO MAINTAIN CONSTANT COMBUSTION EFFICIENCY ACROSS FIRING RANGE. 12:1 TURNDOWN WITH NG AND 10:1 TURNDOWN WITH LP.
- SUPPLY CFM MONITORING INTEGRAL TO UNIT WITH CFM MEASUREMENT INCLUDED THROUGH DIGITAL INTERFACE.
- FULLY MODULATING HOT GAS REHEAT.
- 15 DEGREE LOW AMBIENT OPERATION.
- DOWN DISCHARGE/NO RETURN.
- MINIMUM ROOM AREA ASSUMED 10' SUPPLY DIFFUSER HEIGHT AND IS CALCULATED PER UL60335-2-40 4TH ED. VALUES BASED ON FACTORY CHARGE. ACTUAL SITE CHARGE MAY DIFFER.

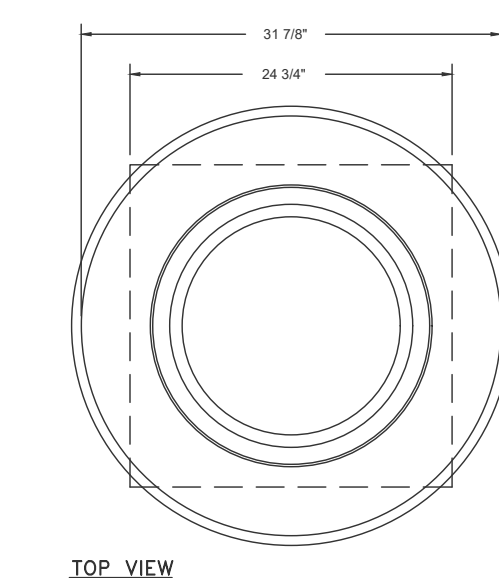
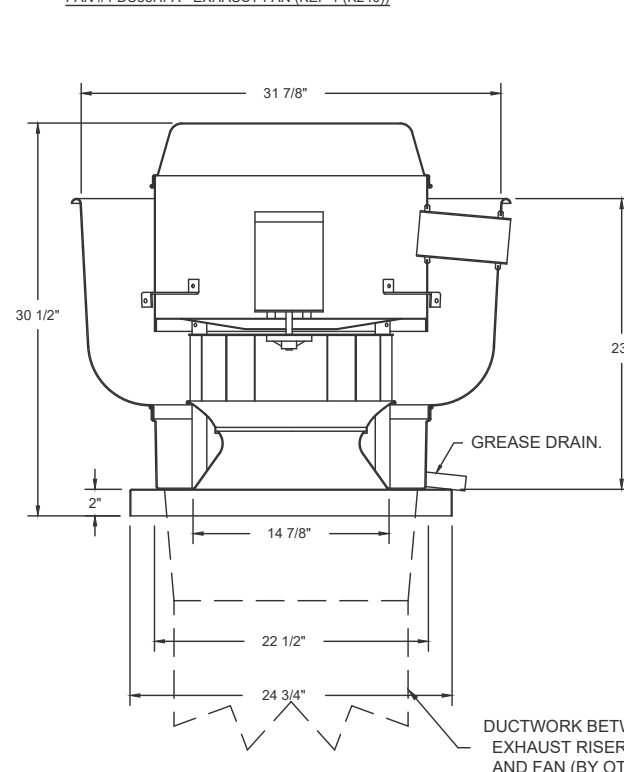
FAN OPTIONS

FAN UNIT NO.	TAG	QTY	DESCRIPTION
1	KEF-1 (K240)	1	GREASE BOX
		1	FAN BASE CERAMIC SEAL - DU089HFA - INSTALLED AT PLANT - FOR GREASE DUCTS
		1	ECM WIRING PACKAGE - PWM SIGNAL FROM ECM03 PREWIRE (TELCO MOTOR), COW ROTATION
		1	2 YEAR PARTS WARRANTY
		1	FAN BASE CERAMIC SEAL - DU089HFA - INSTALLED AT PLANT - FOR GREASE DUCTS
2	KEF-2 (K255)	1	SCALY BRD SCREEN
		1	15800 DAMPER
		1	ECM WIRING PACKAGE - MANUAL OR 0-10VDC REFERENCE SPEED CONTROL - RTC- (TELCO MOTOR), COW ROTATION
		1	2 YEAR PARTS WARRANTY
		1	GREASE BOX
3	KEF-3 (K245L)	1	FAN BASE CERAMIC SEAL - DU089HFA - INSTALLED AT PLANT - FOR GREASE DUCTS
		1	2 YEAR PARTS WARRANTY
		1	GREASE BOX
		1	FAN BASE CERAMIC SEAL - DU089HFA - INSTALLED AT PLANT - FOR GREASE DUCTS
		1	2 YEAR PARTS WARRANTY
4	KEF-4 (K245R)	1	FAN BASE CERAMIC SEAL - DU089HFA - INSTALLED AT PLANT - FOR GREASE DUCTS
		1	2 YEAR PARTS WARRANTY
		1	INLET PRESSURE GAUGE, 0-30"
		1	MANIFOLD PRESSURE GAUGE, 0 TO 10" WG, 1 FURNACE
		1	COOLING OVERRISE
5	MUA-1	1	SHIP LOOSE GAS STRAINER 1"
		1	CASLINK BUILDING MONITORING SYSTEM - INTERNET OR CELLULAR CONNECTION REQUIRED
		1	CONSTRUCTION MODE - MODIFIES START-UP SETTINGS TO ALLOW TEMPERING A BUILDING STILL UNDER CONSTRUCTION
		1	RTU BLOWER DOOR SWITCH
		1	RTU DOWN DISCHARGE, 685 MBH
		1	2" MERV 8 FILTERS FOR RTUS (QTY. 4)
		1	TOTAL CFM MONITORING
		1	12.5 TON MODULATING COOLING OPTION, 208/230V, R454B REFRIGERANT, VARIABLE SPEED COMPRESSOR, ECM CONDENSING FANS
		1	LOW AMBIENT COOLING OPERATION - DOWN TO 0F AMBIENT
		1	IR484B LEAK DETECTOR OPTION FOR RTUS
		1	RTU FIXED 100% OA INTAKE CONTROL
		1	DISCHARGE FIRESTAT SET TO 240°F
		1	INTAKE FIRESTAT SET TO 135°F
		1	RTU NO RETURN - 100% OA - MPU
		1	RTU CURB DUCT HANGER
1	SIZE 3 MOISTURE ELIMINATOR FOR SIZE 3, 12.5 TON RTU. NO REHEAT		
1	RTU SIZE 3 INTAKE HOOD, SHIPPED LOOSE		
1	SINGLE POINT ELECTRICAL CONNECTION FOR RTU 750VA TRANSFORMER USED IF A NON-DV PREWIRE CONTROL IS THIS UNIT. THE 80, 84, 88, OR 12" PREWIRE OPTION MUST BE SELECTED. DOES NOT PROVIDE SUPPLY STARTER IN PREWIRE		
1	VAV PACKAGE W/ 0-10VDC INPUT CONTROL (571 VFD INCLUDED)		
1	VFD FACTORY MOUNTED AND WIRED IN RTU COMMERCIAL CONTROL VESTIBULE		
1	5 YEAR ENTIRE UNIT PARTS WARRANTY, 10 YEAR ENTIRE UNIT PARTS WARRANTY WITH REMOTE MONITORING AND CAPTIVEAIRE SERVICE CONTRACT, 25 YEAR STAINLESS STEEL FURNACE PARTS WARRANTY (SEE ADDITIONAL DETAILS)		
1	EXTERIOR GAS CONNECTION PROVIDED BY FACTORY WITH QUICK SEAL AND ANTI-ROTATION BRACKET		

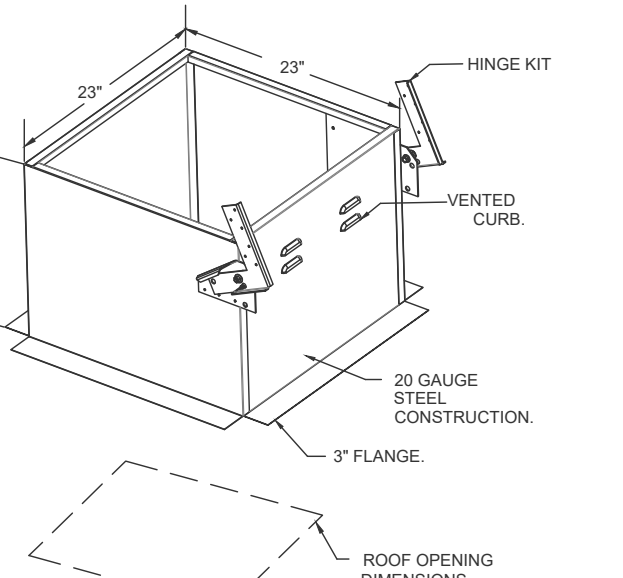
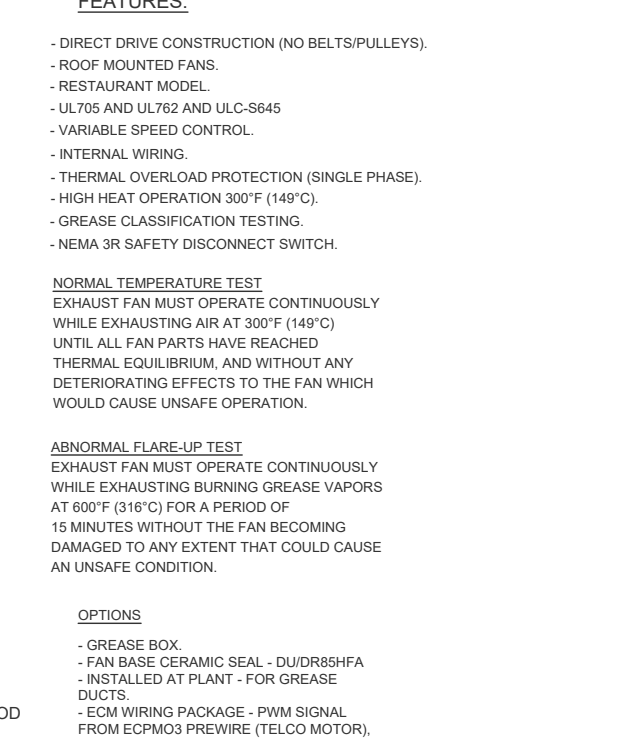
CURB ASSEMBLIES

NO.	ON FAN	TAG	WEIGHT	ITEM	SIZE
1	#1	KEF-1 (K240)	44 LBS	CURB	23.000"W X 23.000"H X 26.000"H - VENTED HINGED.
2	#2	KEF-2 (K255)	27 LBS	CURB	19.500"W X 19.500"H X 20.000"H - VENTED.
3	#3	KEF-3 (K245L)	34 LBS	CURB	26.500"W X 26.500"H X 26.000"H - VENTED HINGED.
4	#4	KEF-4 (K245R)	34 LBS	CURB	26.500"W X 26.500"H X 26.000"H - VENTED HINGED.
5	#5	MUA-1	130 LBS	CURB	59.500"W X 91.000"H X 20.000"H - INSULATED.

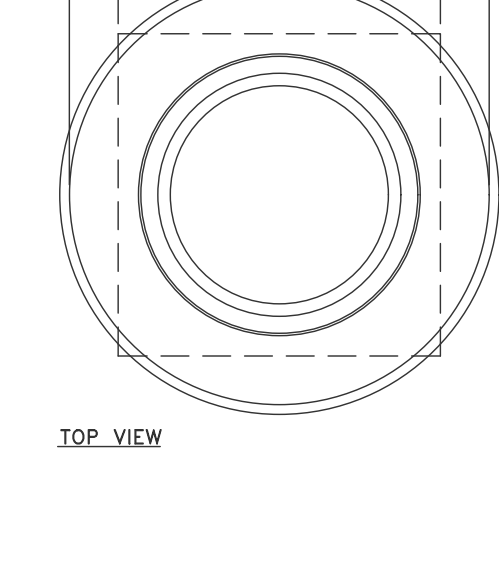
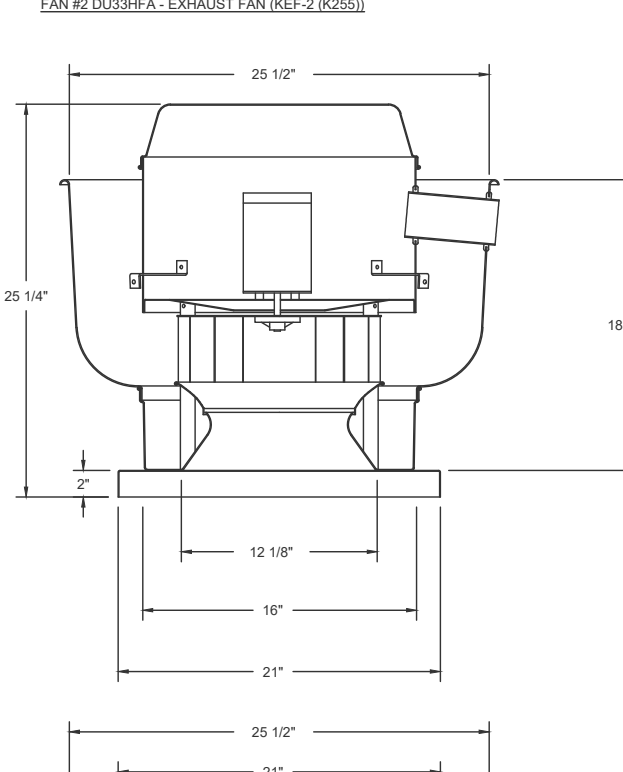
FAN #1 (K240) - EXHAUST FAN (KEF-1 (K240))



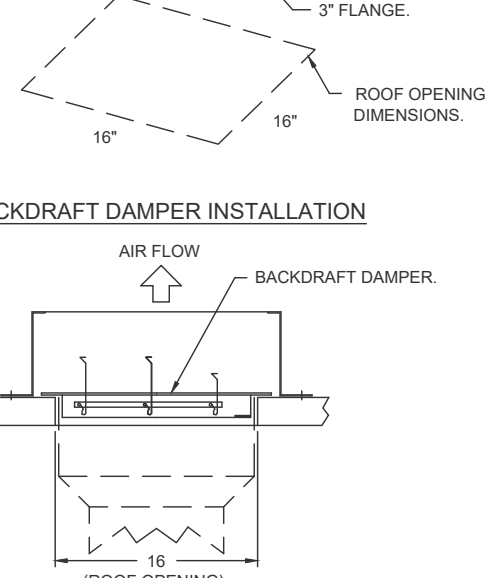
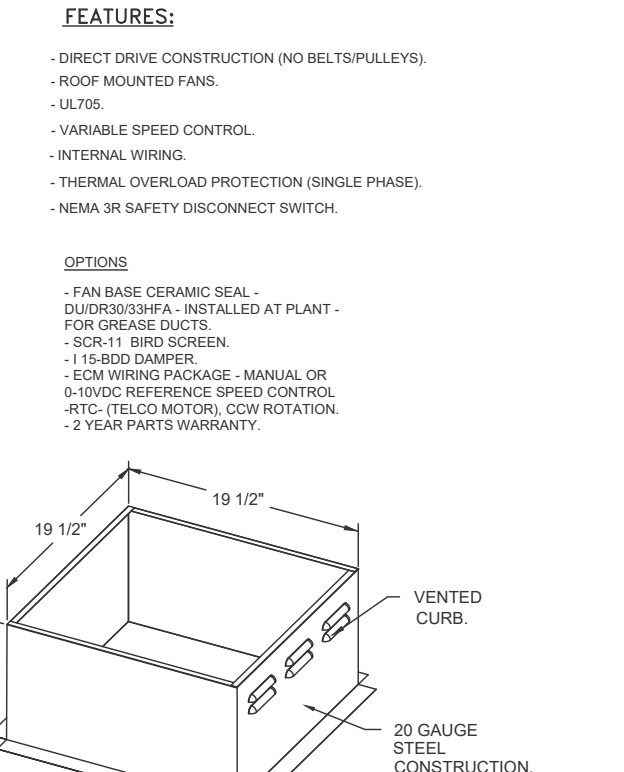
FAN #2 (K255) - EXHAUST FAN (KEF-2 (K255))



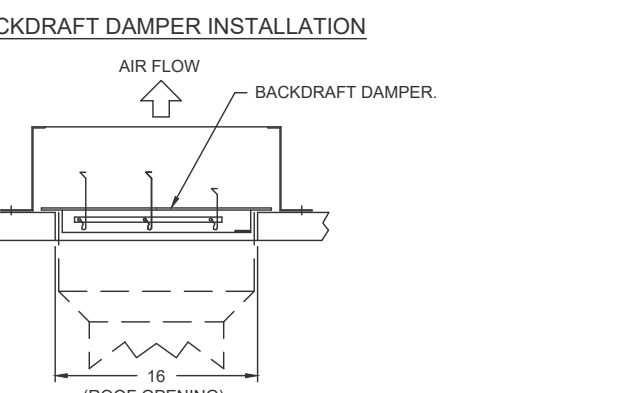
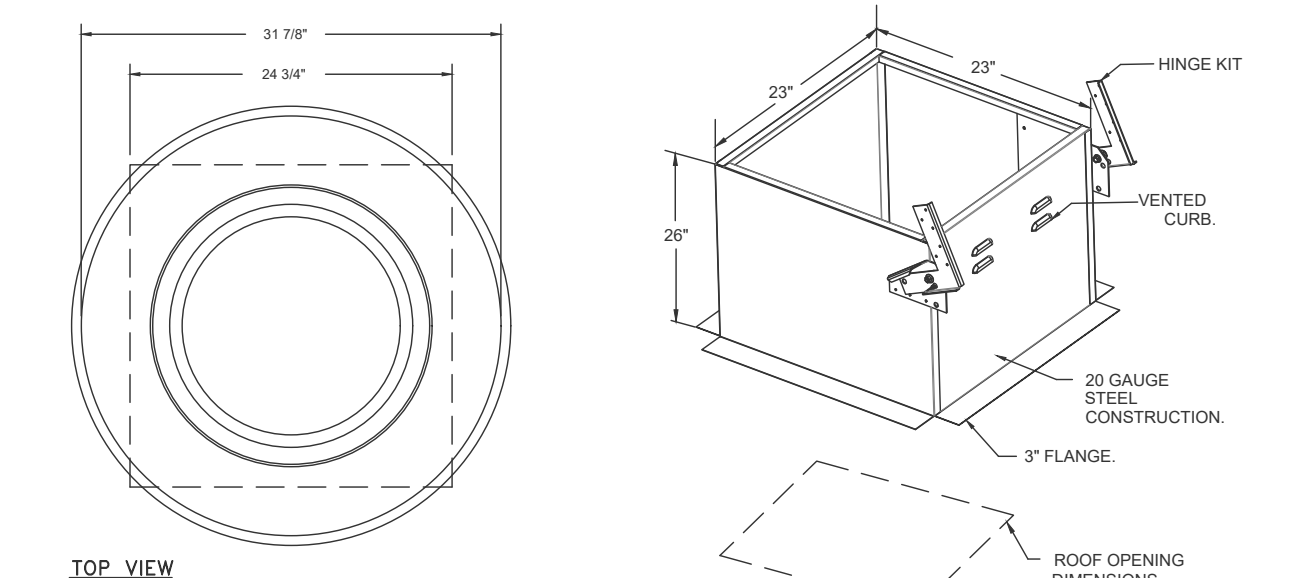
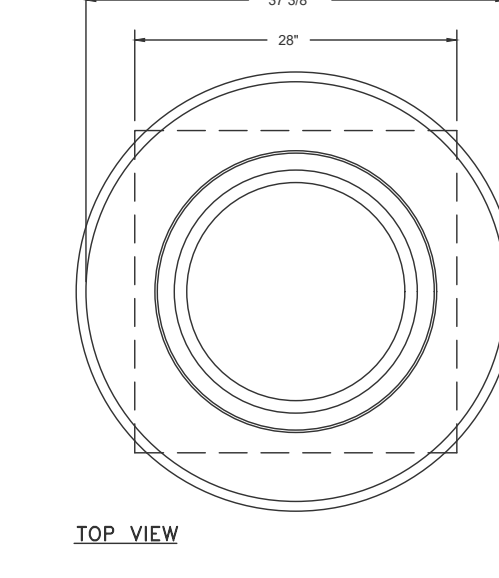
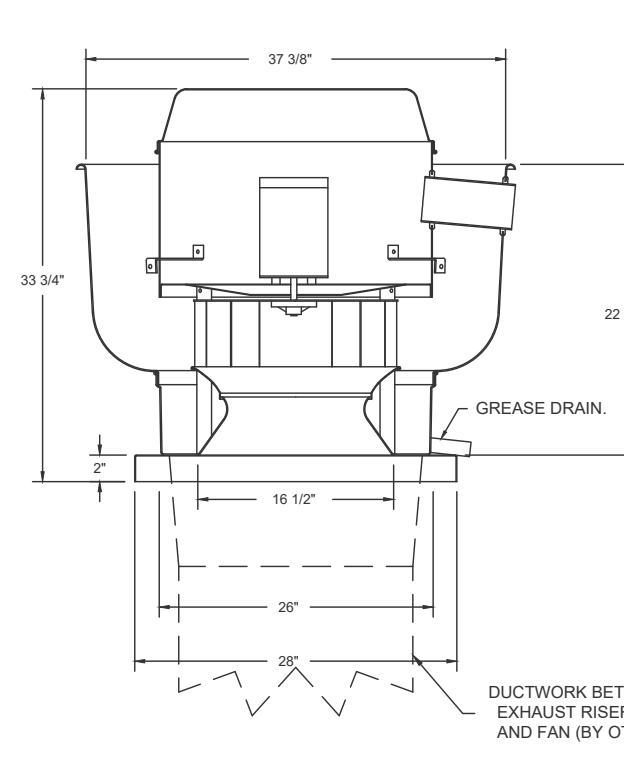
FAN #3 (K245L) - EXHAUST FAN (KEF-3 (K245L))



FAN #4 (K245R) - EXHAUST FAN (KEF-4 (K245R))

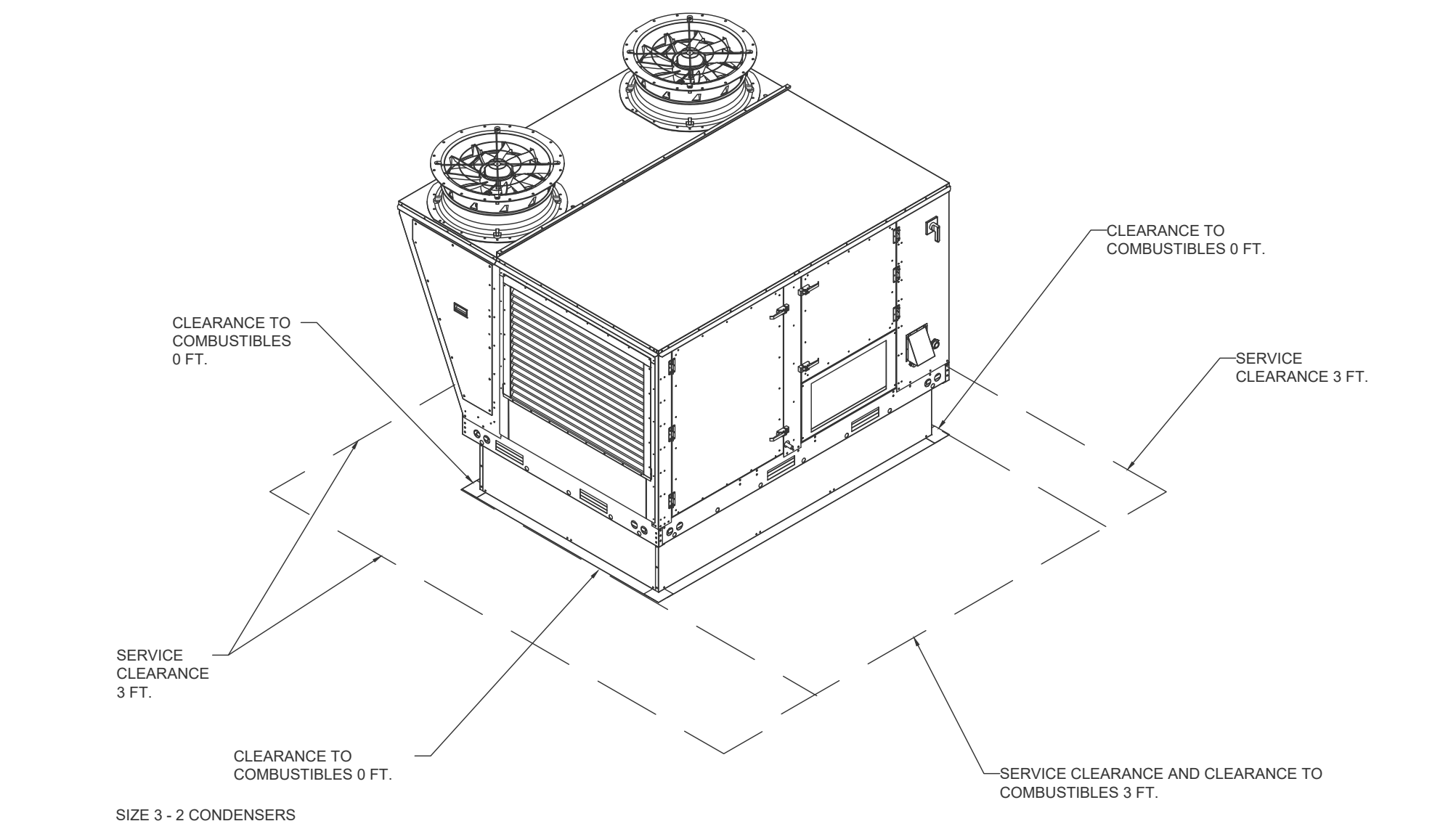
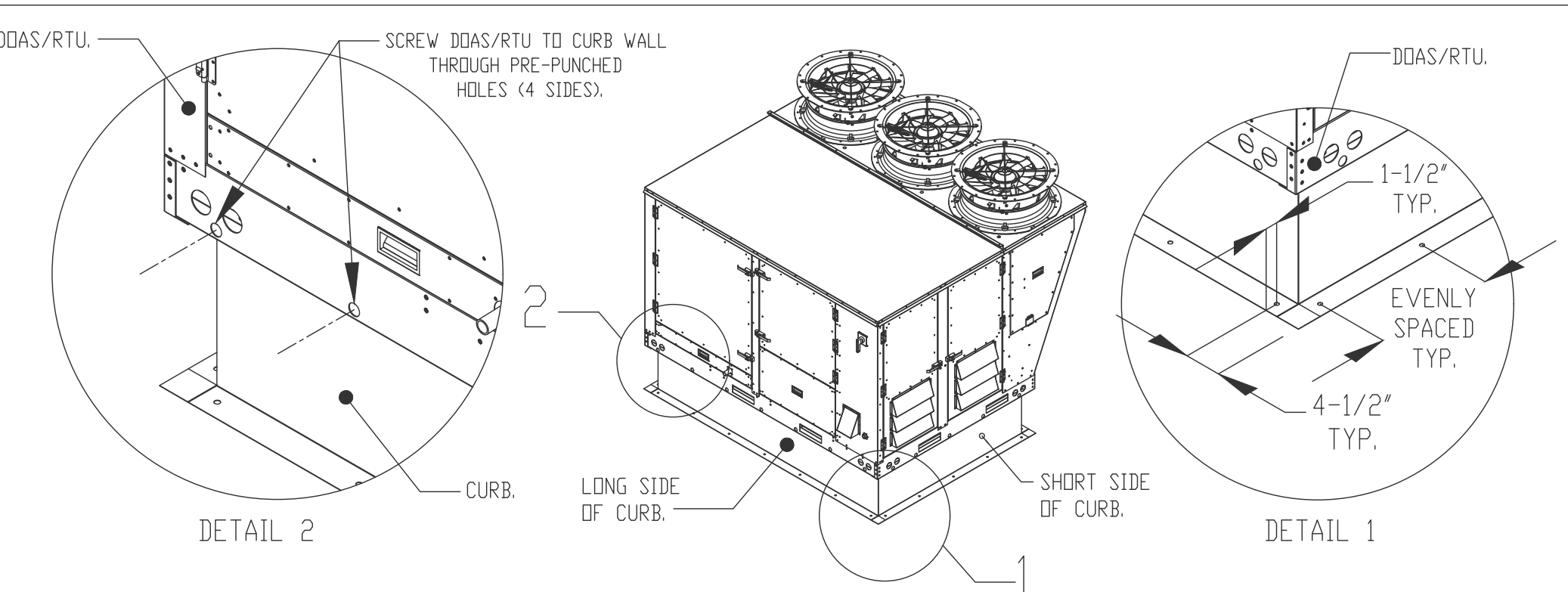


MUA-1 (K245R) - EXHAUST FAN (MUA-1 (K245R))



TYPICAL MUA ROOF MOUNTING INSTALLATION INSTRUCTIONS

- SECURE THE CURB TO THE ROOF FRAMING MEMBERS BY DRILLING 1/4" PILOT HOLES IN THE CURB FLANGES AT LOCATIONS SHOWN IN THE DIAGRAM BELOW, USING 3/8" X 2" ZINC PLATED STEEL LAG BOLTS, AND ZINC PLATED WASHERS. SCREW THROUGH THE CURB FLANGES AND INTO THE ROOF FRAMING MEMBERS. A MINIMUM OF (5) LAG BOLTS ON EACH SHORT SIDE, AND (7) LAG BOLTS ON EACH LONG SIDE IS REQUIRED.
- SECURE THE UNIT BASE TO THE SIDE WALLS OF THE CURB USING (24) 1/4"-14 X 2" SELF-DRILLING, STEEL ZINC PLATED SCREWS. PRE-PUNCHED HOLES HAVE BEEN PROVIDED FOR EACH SCREW LOCATION.

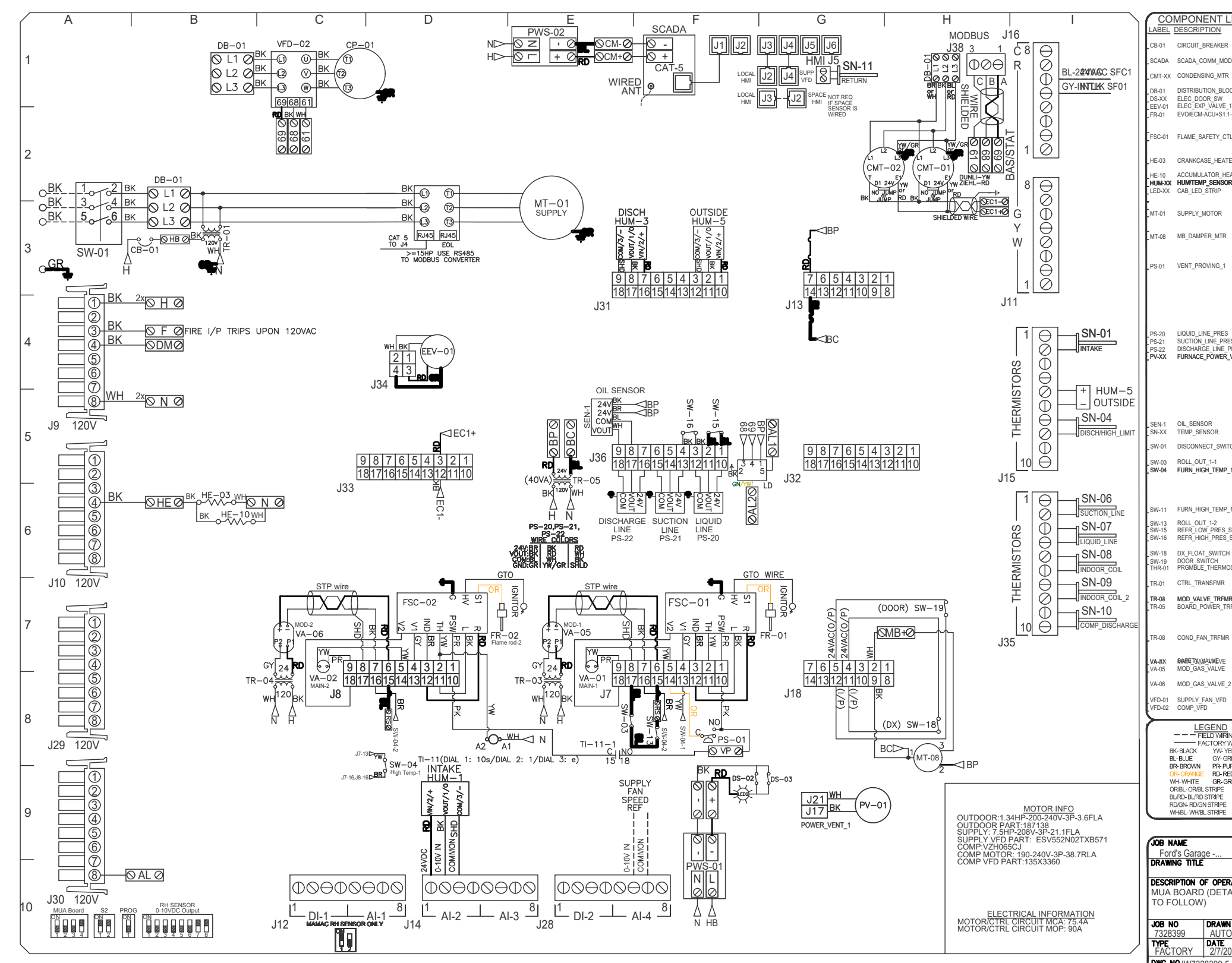
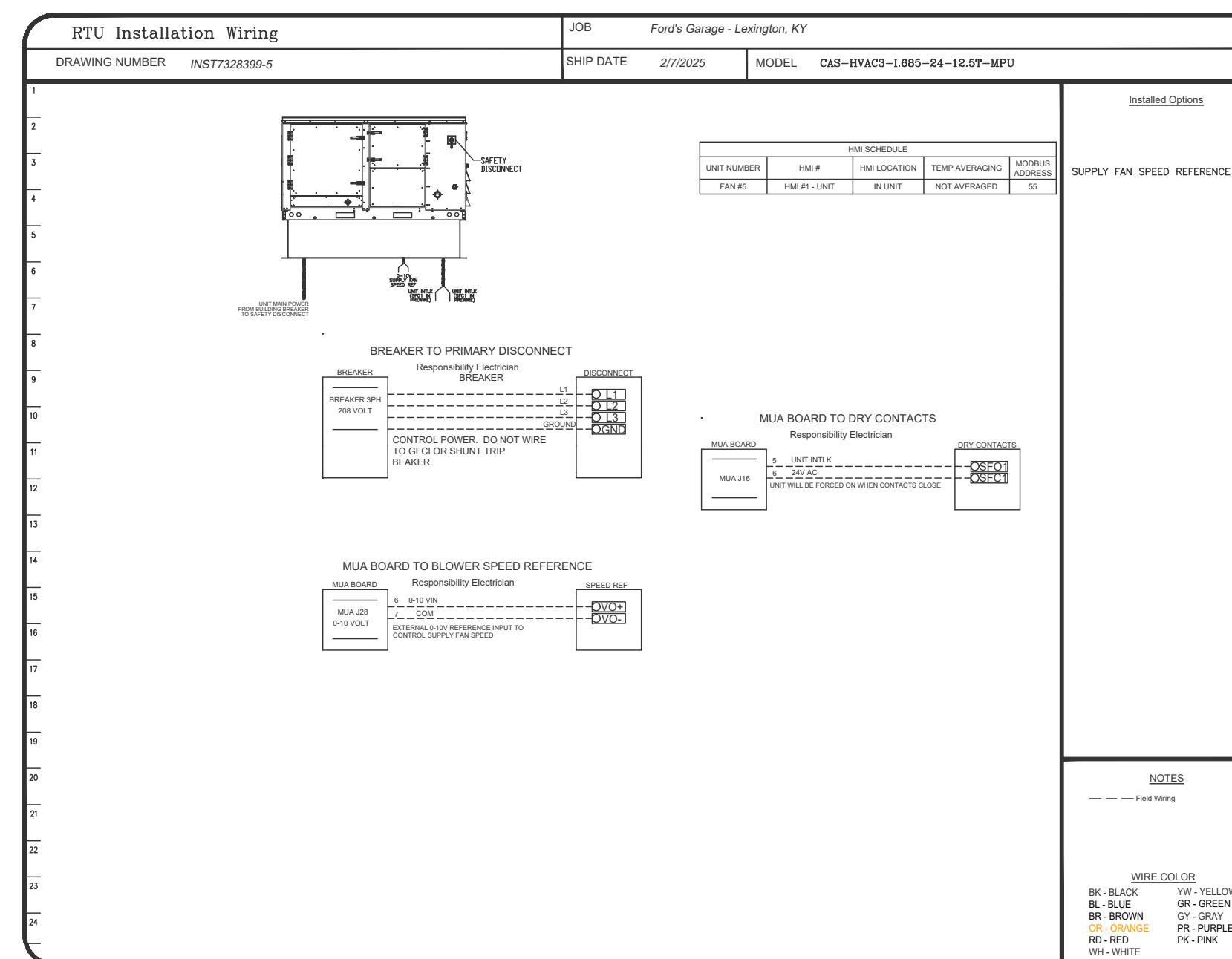
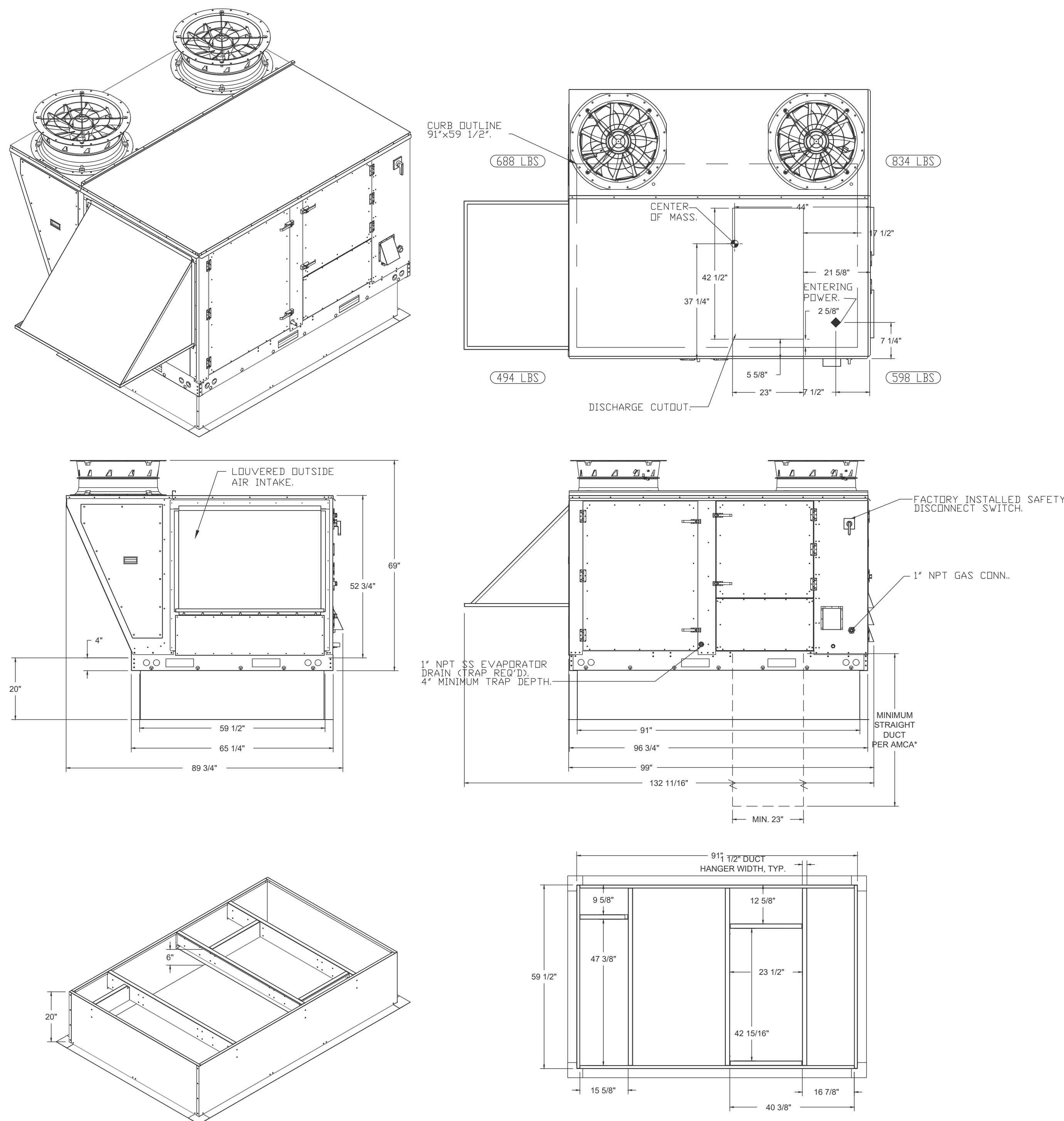
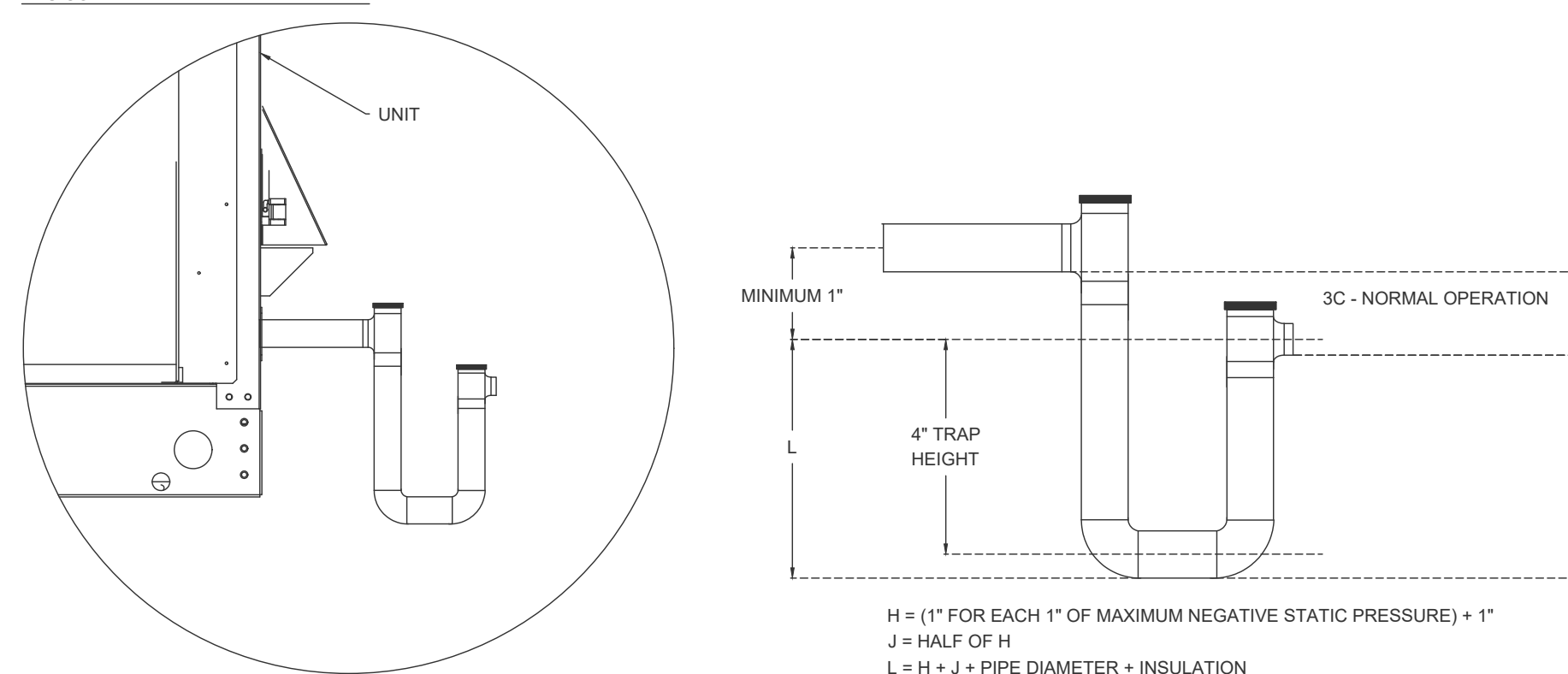


FAN #5 CAS-HVAC3-I.685-24MF-12.5T-MPU - HEATER (MUA-1)

- NOTES:
- DO NOT OBSTRUCT OUTSIDE AIR INLET, OUTSIDE AIR COIL OR OUTSIDE AIR FAN.
 - DENOTES CORNER WEIGHT.
 - ROOF OPENING MUST BE 2" SMALLER THAN CURB DIMENSIONS IN BOTH DIRECTIONS.
 - CONNECTION FROM BREAKER TO UNITS SAFETY DISCONNECT SWITCH TO BE COPPER WIRE ONLY.
 - EXTERIOR GAS CONNECTION PROVIDED BY FACTORY WITH QUICK SEAL AND ANTI-ROTATION BRACKET.

*NOTE: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE AS OUTLINED IN AMCA PUBLICATION 201. WHEN USING RECTANGULAR DUCTWORK, ELBOWS MUST BE RADIUS THROAT, RADIUS BACK WITH TURNING VANES. FLEXIBLE DUCTWORK AND SQUARE THROAT/SQUARE BACK ELBOWS SHOULD NOT BE USED. ANY TRANSITION AND/OR TURNS IN THE DUCTWORK WILL CAUSE SYSTEM EFFECT. SYSTEM EFFECT WILL DRASTICALLY INCREASE STATIC PRESSURE AND REDUCE AIRFLOW. DO NOT RELY ON UNIT TO SUPPORT DUCT IN ANY WAY. FAILURE TO PROPERLY SIZE DUCTWORK MAY CAUSE SYSTEM EFFECTS AND REDUCE PERFORMANCE OF THE EQUIPMENT. SUGGESTED STRAIGHT DUCT SIZE IS 23" x 39".

RTU CONDENSATE DRAIN TRAP DETAIL



FORD'S GARAGE
LEXINGTON
140 Rojay Dr. Lexington, KY 40503

PROJECT# 25009

STATUS/ISSUE

PERMIT SET 03/12/2025

REVISION SCHEDULE

NO. DATE

MECHANICAL HOOD DETAILS

M213

SPECIFICATIONS

SCOPE: THIS SPECIFICATION REQUIRES ALL MATERIALS, EQUIPMENT, AND LABOR NECESSARY TO MAKE A COMPLETE AND ACCEPTABLE MECHANICAL INSTALLATION AS SPECIFIED HEREIN AND SHOWN ON DRAWINGS. PROVIDE ALL ITEMS, ARTICLES, OPERATIONS, OR METHODS LISTED, MENTIONED, OR SCHEDULED HEREIN OR ON THE DRAWINGS, INCLUDING ALL LABOR, MATERIALS, EQUIPMENT, AND INCIDENTALS NECESSARY AND REQUIRED FOR COMPLETION OF THE WORK.

REGULATIONS, CODES, AND STANDARDS: CURRENT CODE REQUIREMENTS SHALL BE SATISFIED, WHERE REQUIRED, WHERE REQUIRED BY LOCAL, STATE, OR FEDERAL AUTHORITY HAVING JURISDICTION, NO EQUIPMENT WILL BE ACCEPTED UNLESS IT BEARS THE ACCEPTANCE LABEL OF AN APPROPRIATE TESTING AGENCY.

SHOP DRAWINGS: ASUBMIT TO THE PROJECT ENGINEER FOR APPROVAL. SHOP DRAWINGS FOR ALL EQUIPMENT LISTED IN THE CONSTRUCTION DOCUMENTS IN ACCORDANCE WITH THE GENERAL CONDITIONS AND SUPPLEMENTARY CONDITIONS. ALLOW 10 BUSINESS DAYS FOR REVIEW BY ARCHITECT/ENGINEER. SUBMITTALS SHALL INCLUDE AS A MINIMUM THE FOLLOWING:

- PRODUCT DATA:** MANUFACTURER'S LITERATURE DESCRIBING ITEM, MODEL NUMBERS PROPOSED SHALL BE IDENTIFIED WHEN THE LITERATURE DESCRIBES MORE THAN (1) ITEM.
- OPERATION CURVES:** FOR ALL FANS SHOWING CAPACITIES, PRESSURES, HORSEPOWER, AND EFFICIENCY SHALL BE PROVIDED.
- MANUFACTURER'S SUBMITTAL:** SHOWING ELECTRICAL AND MECHANICAL REQUIREMENTS AND CONNECTION LOCATIONS SHALL BE PROVIDED.
- MAINTENANCE DATA:** SUBMIT MAINTENANCE DATA AND PARTS LIST FOR EACH TYPE OF EQUIPMENT REQUIRING PERIODIC MAINTENANCE.

ALL SHOP DRAWINGS SUBMITTED SHALL BE STAMPED, DATED, AND SIGNED BY THE CONTRACTOR TO CERTIFY THAT THEY HAVE BEEN CHECKED BY HIM AS TO CAPACITIES, DIMENSIONS, SPACE REQUIREMENTS AND LIMITATIONS, AND ANY AND ALL OTHER REQUIREMENTS, AND FOUND ACCEPTABLE. APPROVAL OF SHOP DRAWINGS BY THE PROJECT ENGINEER SHALL NOT RELIEVE CONTRACTOR FROM FULFILLING OPERATIONAL REQUIREMENTS, OR FURNISHING ALL MATERIAL AND EQUIPMENT SPECIFIED OR NOTED, WHETHER OR NOT SPECIFICALLY SHOWN ON THE SHOP DRAWINGS. THE QUANTITY TO BE SUBMITTED SHALL BE THE NUMBER REQUIRED BY THE GENERAL CONTRACTOR.

AS-BUILT DRAWINGS: THE CONTRACTOR SHALL SUBMIT AT COMPLETION ONE (1) SET OF MARKED-UP CONTRACT DRAWINGS WHICH SHOW ALL MODIFICATIONS TO THE CONTRACT AND CHANGES OF LOCATIONS, MATERIALS, OR CONFIGURATIONS. THIS SET SHALL BE SUBMITTED WITH THE OPERATING MANUALS TO THE PROJECT ENGINEER.

OPERATING MANUALS: PROVIDE THREE (3) MANUALS, EACH WITH A COMPLETE SET OF COPIES OF SHOP DRAWINGS REQUIRED FOR THE PROJECT AS WELL AS VALVE CHARTS, MANUFACTURER'S TESTING, CLEANING, AND MAINTENANCE INSTRUCTIONS, LIST OF MATERIALS FOR MAINTENANCE PARTS LIST, WIRING DIAGRAMS, AND NAME AND ADDRESS OF AUTHORIZED SERVICE ORGANIZATIONS AND SUPPLIERS. INFORMATION SHALL BE BOUND IN 8 1/2"X11" THREE-RING LOOSE-LEAF BINDER, AND INDEXED IN ACCORDANCE WITH THESE SPECIFICATIONS. BINDER COVER SHALL IDENTIFY JOB NAME, DATE, AND NAME AND ADDRESS OF CONTRACTOR, ARCHITECT, AND ENGINEER. MANUALS SHALL BE SUBMITTED TO THE PROJECT ENGINEER FOR REVIEW OF MATERIAL PRIOR TO THE FINAL INSPECTION. MANUALS WILL BE RETURNED TO THE CONTRACTOR FOR THE SUBMITTAL TO THE OWNER AT THE TIME OF SYSTEM INSTRUCTION.

SYSTEM START-UP: AT A TIME SET BY THE CONTRACTOR AND AGREED TO BY THE OWNER, ARRANGE TO PLACE EQUIPMENT IN OPERATION. HAVE A FACTORY AUTHORIZED TECHNICIAN ASSIST IN THE EQUIPMENT START-UP AND MAKE NECESSARY ADJUSTMENTS TO PROVE SATISFACTORY OPERATION PRIOR TO TURNING FACILITY OVER TO OWNER. ALL EQUIPMENT SHALL BE RUN FOR THREE 8-HOUR TEST PERIODS, ANY IRREGULARITIES, FAULTY EQUIPMENT, ETC., SHALL BE REPAIRED PRIOR TO FINAL INSPECTION AND ACCEPTANCE. AFTER TESTING, ALL EQUIPMENT SHALL BE FRESHLY OILED, FILTERS REPLACED WITH CLEAN MEDIA, AND INSTALLATION COMPLETELY FINISHED PRIOR TO ACCEPTANCE.

OWNER INSTRUCTION: CONTRACTOR SHALL ARRANGE, IN WRITING, WITH THE OWNER, PRIOR TO FINAL INSPECTION, A DATE OR DATES TO INSTRUCT THE OWNER, AND THE OWNER'S DESIGNATED REPRESENTATIVES, IN THE OPERATION AND MAINTENANCE OF THE SYSTEM.

FINAL INSPECTION: UPON COMPLETION OF ALL WORK, THE CONTRACTOR SHALL SUBMIT FOR APPROVAL THE FOLLOWING DATA:

- BALANCE REPORTS
- MAINTENANCE MANUALS

AFTER RECEIVING APPROVAL OF THE ABOVE, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IN WRITING AND MAKE ARRANGEMENTS FOR A FINAL INSPECTION. AFTER THE FINAL INSPECTION IS MADE, THE CONTRACTOR WILL RECEIVE A LIST OF ITEMS REQUIRING ADJUSTMENT, CORRECTION, REPLACEMENT, OR COMPLETION. THE CONTRACTOR SHALL COMPLY COMPLETELY WITH ALL THE LISTED REQUIREMENTS WITHIN THIRTY (30) DAYS OF THE RECEIPT OF LIST. SHOULD THE CONTRACTOR FAIL TO PERFORM WITHIN THIS TIME LIMIT, THE PROJECT ENGINEER AND/OR OWNER RESERVES THE RIGHT TO HAVE THE WORK COMPLETED BY OTHERS AND THE COST DEDUCTED FROM THE CONTRACT PRICE.

DISPOSAL: ALL MATERIALS AND EQUIPMENT SHOWN, OR INDICATED TO BE REMOVED AND NOT REINSTALLED OR RELOCATED, SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE OWNER'S PROPERTY UNLESS SPECIFIED TO THE CONTRARY.

GUARANTEE: THE CONTRACTOR SHALL GUARANTEE ALL WORKMANSHIP AND MATERIALS SUPPLIED BY HIM FOR ONE (1) YEAR AFTER ACCEPTANCE OF THE WORK IN HIS CONTRACT. IF, DURING THE GUARANTEE PERIOD, ANY DEFECTS OF FAULTY MATERIALS ARE FOUND, HE SHALL CORRECT IMMEDIATELY AND REPAIR ANY DAMAGE TO OTHER MATERIALS OR INSTALLATIONS CAUSED BY THE DEFECT.

EXTENDED WARRANTIES: WHEN EQUIPMENT IS FURNISHED BY THE CONTRACTOR, OR MANUFACTURER, WITH A WARRANTY LONGER THAN ONE (1) YEAR, THE CONTRACTOR SHALL PROVIDE THE OWNER WITH A COPY ALONG WITH RECEIPTS OR OTHER DOCUMENTS NECESSARY FOR FUTURE WARRANTY REPAIRS, UNLESS OTHERWISE REQUIRED. EXTENDED WARRANTIES ARE FOR EQUIPMENT ONLY, NOT MATERIALS OR LABOR TO INSTALL.

MATERIALS AND EQUIPMENT: ALL EQUIPMENT AND MATERIALS TO BE INCORPORATED IN THIS CONTRACT WORK SHALL BE NEW AND OF THE MAKES AND TYPES AS SPECIFIED AND CONTRACTED FOR. NO REMOVED EQUIPMENT SHALL BE RE-INSTALLED OR RE-USED.

PROPOSED EQUIPMENT AND MATERIALS: THIS CONTRACTOR SHALL SUBMIT A COMPLETE LIST OF PROPOSED EQUIPMENT AND MATERIALS, DESIGNATING MANUFACTURER'S NAME AND MODEL NUMBER OR TYPE, FOR PROJECT ENGINEER'S APPROVAL. CONTRACTOR SHALL MAKE SUCH SUBMITTAL WITHIN 15 DAYS AFTER NOTICE TO PROCEED AND BEFORE ORDERING ANY MATERIAL OR EQUIPMENT. APPROVAL OF SUCH A LIST SHALL, IN NO WAY, RELIEVE THE CONTRACTOR FROM RESPONSIBILITY OF SUBMITTING SHOP DRAWINGS, NOR SHALL IT CONSTITUTE FINAL APPROVAL. SHOULD THE SHOP DRAWINGS BE FOUND TO BE PARTIALLY OR WHOLLY NOT IN FULL AGREEMENT WITH SPECIFICATION REQUIREMENTS.

MECHANICAL SIGNS AND LABELS: WHERE SPECIFIED, THESE SHALL BE 1/8" THICK PLASTIC LAMINATE WITH ENGRAVED LETTERING AND ADHESIVE BACKING. ADDITIONALLY THEY SHALL BE FUNCHED FOR MECHANICAL FASTENERS, UNLESS OTHERWISE SPECIFIED, COLOR SHALL BE BLACK WITH WHITE LETTERING.

INSTALLATION: INSTALLATION OF ALL MATERIAL, ITEMS OR EQUIPMENT AS SHOWN ON DRAWINGS OR DESCRIBED IN SPECIFICATIONS SHALL CONFORM AS NEARLY AS POSSIBLE TO MANUFACTURER'S RECOMMENDED PROCEDURE. UNLESS DESIGNATED OTHERWISE, SHOULD SELECTION OF APPROVED ALTERNATE EQUIPMENT REQUIRE REVISIONS, THIS CONTRACTOR SHALL MAKE ALL CHANGES TO ACCOMMODATE SUCH EQUIPMENT. CONTRACTOR SHALL PREPARE DRAWINGS OF REVISIONS FOR APPROVAL BY PROJECT ENGINEER PRIOR TO BEGINNING WORK. CHANGES AND DRAWINGS SHALL BE MADE AT NO CHANGE IN CONTRACT AMOUNT.

REGULATIONS, CODES AND STANDARDS: THIS CONTRACTOR SHALL OBTAIN ALL PERMITS AND LICENSES AND PAY ALL FEES IN CONNECTION WITH SAME FOR WORK PERFORMED UNDER DIVISION 15.

IDENTIFICATION: ACCESS PANELS SHALL HAVE ENGRAVED PLASTIC MARKERS INDICATING WHAT ACCESS DOOR IS PROVIDED FOR. PIPING SHALL HAVE MARKERS NEAR EACH BRANCH VALVE AND PIECE OF EQUIPMENT AND WHERE PIPE PASSES THROUGH WALLS, FLOORS, AND CEILINGS. SPACE MARKERS AT A MAXIMUM 25' INTERVALS.

OPENINGS, CHASES AND RECESSES: THIS CONTRACTOR SHALL GIVE GENERAL CONTRACTOR, IN SUFFICIENT TIME, ALL DIMENSIONS NEEDED FOR THE PROPER CONSTRUCTION AND LOCATION OF FORMS, CHASES AND OTHER OPENINGS WHICH MAY BE REQUIRED FOR THE INSTALLATION OF ALL EQUIPMENT, PIPE, DUCTS AND MATERIALS UNDER THIS CONTRACT.

PROTECTION OF EQUIPMENT: PROTECT AGAINST INJURY FROM WEATHER ALL BUILDING MATERIALS, SUPPLIES, TOOLS, EQUIPMENT AND FIXTURES INSTALLED OR TO BE INSTALLED, WITH SUITABLE AND SUBSTANTIAL COVERS. COST OF REPLACING OR REPAIRING EQUIPMENT AND FIXTURES MADE NECESSARY BY FAILURE TO PROVIDE SUITABLE PROTECTION SHALL BE PAID BY THIS CONTRACTOR. RESPONSIBILITY FOR THE CARE AND PROTECTION OF MECHANICAL EQUIPMENT AND WORK SHALL REMAIN WITH THIS CONTRACTOR UNTIL IT HAS BEEN TESTED AND ACCEPTED. PROTECT EQUIPMENT OUTLETS, PIPE, DUCT, AND CONDUIT OPENINGS WITH TEMPORARY PLUGS, CAPS, OR APPROVED DEVICES.

PROTECT DEVICES: ALL GEARS, BELTS, AND MOVING PARTS ARE TO BE AMPLY PROTECTED BY SUBSTANTIAL, NEAT, AND APPROVED PERMANENT GUARDS, CASINGS, OR RAILINGS AS THE CASE MAY REQUIRE AND IN SUCH MANNER AS TO FULLY COMPLY WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.

CLEANING: AFTER ALL FIXTURES, MATERIALS, AND APPARATUS HAVE BEEN SET AND READY FOR USE, AND BEFORE THIS CONTRACTOR LEAVES THE JOB, HE SHALL THOROUGHLY CLEAN ALL EQUIPMENT FURNISHED AND SET BY HIM REMOVING ALL STICKERS, RUST STAINS, GREASE, CEMENT, AND OTHER FOREIGN MATTER OR DISCOLORATION ON EQUIPMENT, LEAVING EVERY PART IN ACCEPTABLE CONDITION READY FOR USE. CONTRACTOR SHALL REMOVE FROM THE SITE ALL DEBRIS RESULTING FROM HIS WORK, LEAVING BUILDING IN CLEAN CONDITION, SUITABLE FOR OCCUPANCY. VACUUM CLEAN INTERIOR OF ALL AIR HANDLING UNITS BEFORE COMPLETION AND PROVIDE NEW FILTERS JUST BEFORE TURNING OVER TO OWNER.

ACTIVE UTILITIES: WHEN ENCOUNTERED IN WORK, PROTECT, BRACE, AND SUPPORT EXISTING ACTIVE SEWERS, GAS, ELECTRIC, AND OTHER SERVICES WHERE REQUIRED FOR PROPER EXECUTION OF WORK. IF EXISTING ACTIVE UTILITIES ARE ENCOUNTERED THAT ARE NOT INDICATED, AND WHICH REQUIRE RELOCATION, MAKE REQUEST IN WRITING FOR DETERMINATION. DO NOT PROCEED WITH WORK UNTIL WRITTEN DIRECTIONS ARE RECEIVED. DO NOT PREVENT OR DISTURB OPERATION OF ACTIVE SERVICES THAT ARE TO REMAIN.

INACTIVE UTILITIES: WHEN ENCOUNTERED IN WORK, REMOVE, CAP, OR PLUS INACTIVE SERVICES. NOTIFY UTILITY COMPANIES OR MUNICIPAL AGENCIES HAVING JURISDICTION, PROTECT OR REMOVE THESE SERVICES AS DIRECTED.

INTERRUPTION OF UTILITIES: WHERE WORK MAKES TEMPORARY SHUTDOWN OF SERVICES UNAVOIDABLE, SHUT DOWN AT NIGHT, OR AT SUCH TIMES AS APPROVED BY OWNER, WHICH WILL CAUSE LEAST INTERFERENCE WITH ESTABLISHED OPERATING ROUTINE. ARRANGE TO WORK CONTINUOUSLY, INCLUDING OVERTIME IF REQUIRED, SO AS TO MAKE THE SHUTDOWN OF SERVICES THE LEAST AMOUNT OF TIME.

GAS PIPING: GAS PIPING SHALL BE STEEL PIPE WITH MALLEABLE-IRON FITTINGS AND THREADED JOINTS FOR PIPE SIZES 2" AND SMALLER AND STEEL PIPE WITH WROUGHT-STEEL FITTINGS AND WELDED JOINTS FOR SIZES 2-1/2" AND LARGER. PIPE SHALL BE ASTM A 53/A 53M, BLACK STEEL, SCHEDULE 40. MALLEABLE-IRON THREAD FITTINGS SHALL BE ASTM B16.3, CLASS 150 STANDARD PATTERN. WROUGHT-STEEL WELDING FITTINGS SHALL BE ASTM A 234/A 234M FOR BUTT WELDING AND SOCKET WELDING. INDOOR MOVABLE-APPLIANCE FLEXIBLE CONNECTORS TO COMPLY WITH ANSI Z21.75. PROVIDE DIRTLEGS, INJON, AND ONE-PIECE BRONZE BALL VALVES AT ALL EQUIPMENT CONNECTIONS. PROVIDE PRESSURE REGULATORS AT ALL DROPS IN PRESSURE. ALL PIPING ON ROOF TO BE SUPPORTED BY MICRO ADJUSTABLE PIPE SUPPORTS. ROLLER PAINT ALL EXTERIOR GAS PIPING WITH TWO COATS GREY OIL-BASED ENAMEL PAINT. PREPARE SURFACE BY SCRAPING OR BRUSHING ANY LOOSE PAINT OR DEBRIS. TYP.

ALL NEW GAS PIPING SHALL BE TESTED IN ACCORDANCE WITH SECTION 406 OF THE IFGC. THE SYSTEM SHALL BE PURGED, VISUALLY AND PRESSURE TESTED. SOAP TESTING IS NOT ACCEPTABLE. MECHANICAL GAUGES USED TO MEASURE TEST PRESSURES SHALL HAVE A RANGE SUCH THAT THE HIGHEST END OF THE SCALE IS NOT GREATER THAN FIVE TIMES THE TEST PRESSURE. THE TEST SHALL BE WITNESSED AND REPORT PROVIDED. PROVIDE 25 PSI GAS TEST FOR THE NEW GAS PIPING AT THE TIME OF ROUGH INSPECTION.

ANY BURIED GAS PIPING TRENCHED LESS THAN 36" BELOW GRADE SHALL BE PE PIPE AND PE FITTINGS JOINED BY HEAT FUSION OR MECHANICAL COUPLINGS.

PACKAGE ROOFTOP UNITS: PROVIDE FACTORY-FABRICATED AND FACTORY-TESTED AIR HANDLING UNITS AS INDICATED, OF SIZES AND CAPACITIES AS SCHEDULED. CASING SHALL BE CONSTRUCTED OF 16-GA MINIMUM MILL GALVANIZED OR BONDED STEEL, DESIGNED TO WITHSTAND SPECIFIED OPERATING PRESSURES. PROVIDE CASING PANELS AND/OR ACCESS DOORS THAT ARE EASILY AND QUICKLY REMOVABLE FOR INSPECTION AND ACCESS TO INTERNAL PARTS. PROVIDE SINGLE ZONE UNITS CONSISTING OF FAN SECTION, INDIRECT FIRED LP GAS FIRED HEAT EXCHANGER, DX COIL SECTION, FILTER SECTION, ADJUSTABLE FAN MOTOR MOUNTING, AND DRAIN PAN. PROVIDE DRAIN PAN LOCATED UNDER COOLING COIL SECTION. PROVIDE DRAIN CONNECTIONS IN DRAIN PAN ON EACH SIDE AT LOW POINTS. INSULATE UNIT CASING FROM AIR ENTRANCE TO COILS, TO AIR OUTLET FROM UNIT. INSULATION SHALL HAVE FIRE-RETARDING CHARACTERISTICS COMPLYING WITH NFPA 90A, PROVIDE HIGH EFFICIENCY MOTOR AND ONE SPARE SET OF BELTS AND FILTERS. UNITS SHALL COMPLY WITH ARI 430, NFPA 90A, UL, AND AMCA STANDARDS.

APPROVED MANUFACTURERS ARE CARRIER, TRANE, LENNOX, YORK

DIRECT GAS-FIRED MAKEUP AIR UNITS: FAN SHALL BE 640 GALVANIZED STEEL, ROOF MOUNTED, BELT DRIVE, FORWARD CURVED FILTERED SUPPLY FAN. FAN SHALL BE LISTED BY ETL AND CONFORMS TO UL105. THE FAN SHALL BE CONSTRUCTED OF HEAVY GAUGE 640 GALVANIZED STEEL. DOORS ARE REMOVABLE FOR EASY ACCESS TO INTERIOR COMPONENTS. INTAKE HOOD SHALL BE DESIGNED WITH LARGE INTAKE AREA TO ASSURE LOW PRESSURE DROP AND MAXIMUM WEATHER RESISTANCE. WEATHER HOOD SHALL INCLUDE 2" WASHABLE FILTERS AND INLET SCREEN. THE BASE SHALL BE CONSTRUCTED OF GALVANIZED STEEL AND STRUCTURAL REINFORCED. FORWARD CURVED CENTRIFUGAL BLONER, BALANCED IN TWO PLANES AND DONE IN ACCORDANCE WITH AMCA STANDARD 204-06. THE WHEEL BLADES SHALL BE AERODYNAMICALLY DESIGNED TO MINIMIZE TURBULENCE, INCREASE EFFICIENCY AND REDUCE NOISE. MOTORS SHALL BE HEAVY DUTY BALL BEARING TYPE AND FURNISHED AT THE SPECIFIED VOLTAGE, PHASE AND ENCLOSURE. MOTOR MOUNTING PLATE SHALL BE CONSTRUCTED OF HEAVY GAUGE GALVANIZED STEEL AND SHALL BE DESIGNED TO PROVIDE EASY ADJUSTMENT OF BELT TENSION. SHAFTS SHALL BE PRECISION GRIND AND POLISHED. HEAVY DUTY, PRE-LUBRICATED BEARINGS SHALL BE SELECTED FOR A MINIMUM LIFE IN EXCESS OF 200,000 HOURS OPERATION AT MAXIMUM CATALOGUED OPERATING SPEED. BELTS SHALL BE OIL AND HEAT RESISTANT, NON-STATIC TYPE. DRIVES SHALL BE CAST TYPE, PRECISION MACHINED AND KEYS AND SECURED ATTACHED TO THE FAN AND MOTOR SHAFTS. DRIVES SHALL BE SIZED FOR A MINIMUM OF 150% OF THE INSTALLED MOTOR HORSEPOWER. ACCEPTABLE MANUFACTURERS ARE CAPTIVE AIRE, MODINE, AND RENZOR.

EXHAUST FANS: PROVIDE STANDARD PREFABRICATED IN-LINE EXHAUST FANS OF TYPE AND SIZE INDICATED, MODIFIED AS NECESSARY TO COMPLY WITH REQUIREMENTS AND AS REQUIRED TO COMPLETE INSTALLATION. PROVIDE FACTORY-WIRED NON-FUSIBLE TYPE DISCONNECT SWITCH AND THERMAL OVERLOAD PROTECTION.

APPROVED MANUFACTURERS ARE GREENHEG, LOREN COOK, PENN VENTILATOR, TWIN CITY FANS, AND ACME

UTILITY SET KITCHEN EXHAUST FANS: FAN SHALL BE ALUMINUM AND GALVANIZED STEEL, ROOF MOUNTED, BELT DRIVEN, CENTRIFUGAL UP BLAST RESTAURANT UTILITY EXHAUST VENTILATOR. ENGINEERED TO DISCHARGE GREASE LADEIN VAPORS, FUMES AND OTHER CONTAMINANTS VERTICALLY AWAY FROM THE BUILDING. ETL LISTED AND COMPLY WITH UL105 AND T62. FAN SHALL BE CONSTRUCTED OF ALUMINIZED AND GALVANIZED STEEL. FAN SCROLL SHALL BE CONTINUOUSLY SEALED WITH A LISTED INTUMESCENT TO PREVENT GREASE LEAKAGE AND BLOCAGE OF THE DRAIN. THE BASE SHALL BE CONSTRUCTED OF GALVANIZED STEEL. BACKWARD INCLINED CENTRIFUGAL FAN WHEEL. MOTORS SHALL BE HEAVY DUTY BALL BEARING TYPE, MOUNTED OUT OF THE AIRSTREAM AND FURNISHED AT THE SPECIFIED VOLTAGE, PHASE AND ENCLOSURE. SHAFTS SHALL BE HEAVY DUTY SELECTED FOR A MINIMUM LIFE IN EXCESS OF 200,000 HOURS OF OPERATION. FULLY WELDED 2" GREASE DRAIN IN THE DISCHARGE SCROLL WITH REMOVABLE GREASE TROUGH. UNIT SHALL CONTAIN SAFETY DISCONNECT SWITCH. APPROVED MANUFACTURES, CAPTIVE AIRE, GREENHEG, LOREN COOK, AND PENN VENTILATOR.

AIR DISTRIBUTION: PROVIDE AND INSTALL ALL RIGID DUCTWORK AS SHOWN ON THE DRAWINGS AND AS HEREIN SPECIFIED. CONSTRUCT DUCTWORK AND APPARATUS CASINGS OF GALVANIZED STEEL CONFORMING TO SMACNA "LOW PRESSURE DUCT CONSTRUCTION STANDARDS 2020". CONSTRUCT DIVIDED FLOW FITTINGS WITH SADDLE TAP WELDED TO DUCT FITTING BODY. ALL CONNECTIONS SHALL BE BELL-MOUTHED AND SMOOTH WITH LONG RADIIUS BENDS.

INSULATED FLEXIBLE DUCT SHALL BE INSULATED, SOUND ATTENUATING, LOW VELOCITY TYPE, AND SHALL COMPLY WITH NFPA 90A AND 90B, AND BE US 18) CLASS LABELED. DUCT SHALL BE FACTORY FORMED COMPOSED OF A SPIRAL WOUND, CORROSION RESISTANT WIRE BONDED TO AN INNER FABRIC LINER, INSULATED WITH FIBERGLASS WITH A C FACTOR OF 0.23 OR LESS, AND WITH AN OUTER VAPOR BARRIER OF FIBERGLASS REINFORCED METALIZED FILM, OUTER VAPOR BARRIER CONSTRUCTED OF POLYETHYLENE IS NOT ACCEPTABLE. THE DUCT SHALL BE RATED FOR 6" OF POSITIVE PRESSURE AND SHALL NOT EXCEED 6' IN LENGTH.

PROVIDE MANUAL, SINGLE, OR MULTI-BLADE BALANCING DAMPERS AS INDICATED CONSTRUCTED IN ACCORDANCE WITH SMACNA STANDARDS. DAMPERS SHALL HAVE A PROTECTIVE COAT OF RED ZINC CHROMATE PRIMER OVER A BOND COAT.

PROVIDE MANUFACTURED TURNING VANES IN ALL ELBOYS CONSTRUCTED OF 1/2" WIDE CURVED BLADES SET AT 94° O.C., SUPPORTED WITH BARS PERPENDICULAR TO BLADES SET AT 2" O.C. AND SET INTO SIDE STRIPS SUITABLE FOR MOUNTING IN DUCTWORK.

PROVIDE FLEXIBLE DUCT CONNECTIONS WHEREVER DUCTWORK CONNECTS TO VIBRATION ISOLATED EQUIPMENT AND WHERE SHOWN OR NOTED, CONSTRUCT FLEXIBLE CONNECTIONS OF NEOPRENE-COATED FLAMEPROOF FABRIC CRIMPED INTO DUCT FLANGES FOR ATTACHMENT TO DUCT AND EQUIPMENT. PROVIDE ADEQUATE JOINT FLEXIBILITY TO ALLOW FOR THERMAL, AXIAL, TRANSVERSE, AND TORSIONAL MOVEMENT, AND ALSO CAPABLE OF ABSORBING VIBRATIONS OF CONNECTED EQUIPMENT.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE MISCELLANEOUS ITEMS NECESSARY TO PROVIDE A COMPLETE AND PROPER INSTALLATION IN THE TYPES OF WALLS AND CEILINGS USED IN THE PROJECT AS SHOWN IN THE GENERAL CONSTRUCTION PLANS.

PROVIDE MANUFACTURER'S STANDARD CEILING AIR DIFFUSERS AND GRILLES WHERE SHOWN, OF SIZE, SHAPE, CAPACITY, AND TYPE INDICATED; CONSTRUCTED OF MATERIALS AND COMPONENTS AS INDICATED, AND AS REQUIRED FOR COMPLETE INSTALLATION. PROVIDE DIFFUSERS AND GRILLES WITH BORDER STYLES THAT ARE COMPATIBLE WITH ADJACENT CEILING SYSTEMS, AND THAT ARE SPECIFICALLY MANUFACTURED TO FIT INTO THE CEILING MODULE WITH ACCURATE FIT AND ADEQUATE SUPPORT.

KITCHEN EXHAUST DUCT
EXHAUST DUCTS SERVING TYPE I EXHAUST HOODS SHALL BE MADE OF CARBON SHEET STEEL, MINIMUM 16 GA WITH WELDED SEAMS AND JOINTS. INSTALL KITCHEN HOOD EXHAUST DUCTS WITHOUT DIPS AND TRAPS THAT MAY HOLD GREASE, AND SLOPED A MINIMUM OF 2 PERCENT TO DRAIN GREASE BACK TO THE HOOD. INSTALL FIRE-RATED ACCESS PANEL ASSEMBLIES AT EACH CHANGE IN DIRECTION AND AT MAXIMUM INTERVALS OF 20 FEET AND NOT MORE THAN 10 FEET FROM CHANGES IN DIRECTION GREATER THAN 45 DEGREES. GASKETS/SEALING MATERIALS RATED FOR NOT LESS THAN FIFTEEN HUNDRED DEGREES FAHRENHEIT (800F).

PRIOR TO USE OR CONCEALMENT OF ANY PORTION OF A GREASE DUCT, A LEAKAGE TEST SHALL BE PERFORMED IN THE PRESENCE OF THE CODE OFFICIAL. DUCTS ARE CONSIDERED CONCEALED IF IN SHAFTS OR COVERED WITH WRAPS OR COATINGS.

DISHWASHER EXHAUST DUCT

- TYPE 304 STAINLESS-STEEL SHEET, 2D FINISH WITH WELDED SEAMS AND FLANGED JOINTS WITH WATERIGHT EPDM GASKETS.
- PRESSURE CLASS: NEGATIVE 2-INCH WG
- MINIMUM SMACNA SEAL CLASS: WELDED SEAMS, JOINTS, AND PENETRATIONS.
- SMACNA LEAKAGE CLASS: 3

DUCT INSULATION AND ACOUSTICAL LINING:

FURNISH AND INSTALL INSULATION AND/OR LINING WHERE SHOWN ON PLANS OR SPECIFIED BELOW. ALL DUCT SIZES NOTED ON DRAWINGS ARE AIRWAY SIZES WITHOUT SOUND LINING INCLUDED; ADJUST SHEET METAL SIZES ACCORDINGLY. INSULATION PRODUCTS SHALL BE MANUFACTURED BY ONE OF THE FOLLOWING MANUFACTURERS:

- MANVILLE CORP.
- OVENS-CORNING FIBERGLASS CORP.
- CERTAIN-TEED CORP.
- KNAUF

A. DUCT SOUND LINING:

- RECTANGULAR SUPPLY, EXHAUST, RETURN AND RELIEF AIR DUCTS: 1" FLEXIBLE GLASS FIBER TYPE, 1.5 PCF DENSITY, SURFACES EXPOSED TO AIR STREAM SHALL BE COATED TO PREVENT EROSION OF GLASS FIBERS.
- DUCT LINER SHALL HAVE A MAXIMUM FLOW-SPREAD INDEX OF 25 AND SMOKE-DEVELOPED INDEX OF 50 WHEN TESTED ACCORDING TO ASTM E 84, MEET THE REQUIREMENTS OF NFPA 90A, AND SHALL BE LABELED BY UL.
- ALL DUCTWORK DIMENSIONS SHOWN ON PLANS ARE CLEAR INSIDE DIMENSIONS.

B. DUCT INSULATION:

- ALL CONCEALED SUPPLY DUCTWORK NOT SOUND LINED AND RUN-OUTS TO AIR DIFFUSERS: 1-1/2" FLEXIBLE GLASS FIBER WITH ALL SERVICE VAPOR BARRIER JACKET, MINIMUM 0.15 PCF DENSITY.
- ALL INTERIOR EXHAUST AIR DUCTWORK BETWEEN BACKDRAFT DAMPER AND DISCHARGE OF BUILDING: 1-1/2" FLEXIBLE GLASS FIBER WITH ALL SERVICE VAPOR BARRIER JACKET, MINIMUM 0.15 PCF DENSITY.
- INSULATED FLEXIBLE DUCT: UL 18) CLASS 1) 2-PLY VINYL FILM, BLACK POLYMER FILM, MULTIPLE LAYERS OF ALUMINUM LAMINATE, OR ALUMINUM LAMINATE AND POLYESTER FILM WITH LATEX ADHESIVE, SUPPORTED BY HELICALLY WOUND, SPRING-STEEL WIRE; FIBROUS-GLASS INSULATION, POLYETHYLENE OR ALUMINIZED VAPOR BARRIER FILM. ALL SUPPLY AND RETURN AIR DUCTWORK CONNECTIONS TO EACH AIR SUPPLY OUTLET AND RETURN INLET: 5' LENGTH MAXIMUM LENGTH, AND NOT PENETRATE WALLS, FLOORS, OR CEILINGS.
- ALL COVERINGS OVER ACCESS PANELS SHALL BE REMOVABLE. MARK KITCHEN HOOD EXHAUST DUCT ACCESS PANELS WITH "ACCESS PANEL, DO NOT OBSTRUCT". METAL CORNER BEADS SHALL BE INSTALLED ON ALL EXPOSED DUCTS LESS THAN EIGHT FEET ABOVE FLOOR.
- FIRE-RATED BLANKET: HIGH-TEMPERATURE FLEXIBLE, BLANKET INSULATION WITH FSK JACKET THAT IS TESTED AND CERTIFIED TO PROVIDE A 2-HOUR FIRE RATING BY AN NRTL, ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.

C. GREASE DUCT INSULATION:

- GREASE DUCT SHALL BE INSULATION WITH FLEXIBLE BLANKET COMPOSED OF HIGH TEMPERATURE FIBERS GLASSIFIED FOR APPLICATIONS TO 240F AND FULLY ENCAPSULATED IN A DURABLE GLASS FIBER REINFORCED FOIL FACING. UL LISTED FOR 1 AND 2 HOUR FIRE RESISTIVE ENCLOSURE PROTECTION, ZERO CLEARANCE FOR KITCHEN EXHAUST DUCTS. 1-1/2" THICK, 6 PCF DENSITY.
- SYSTEM REQUIRES TWO LAYERS OF INSULATION APPLIED DIRECTLY TO THE DUCT WITH TIGHT BUTT JOINTS AT ALL SEAMS ON BOTH LAYERS. THE FIRST LAYER OF INSULATION IS CUT TO A LENGTH SUFFICIENT TO WRAP AROUND THE DUCT AND PROVIDE A TIGHT BUTT JOINT WHERE THE BLANKET ENDS MEET. ADJACENT BLANKETS ON THE FIRST LAYER ARE BUTTED TIGHTLY TOGETHER WITH LONGITUDINAL SEAMS OFFSET MINIMUM 6". THE SECOND LAYER OF INSULATION IS INSTALLED IN THE SAME METHOD AS THE FIRST LAYER, WITH SEAMS BETWEEN LAYERS OFFSET A MINIMUM OF 6". BANDING AND/OR PINNING IS USED TO PERMANENTLY SECURE THE INSULATION TO THE DUCT.
- PRODUCTS TO INCLUDE FIREMASTER FASTWRAP XL BY MORGAN THERMAL CERAMICS. OTHER PRODUCTS ACCEPTABLE BY SUBMITTAL.

TEST AND BALANCE

TEST AND ADJUST ALL MECHANICAL SYSTEMS AND EQUIPMENT TO ASSURE PROPER BALANCE AND OPERATION. PERFORM TESTS IN ACCORDANCE WITH NEBB OR AABC, AND ASHRAE STANDARDS. SUBMIT COMPLETED TEST AND BALANCE REPORT TO OWNER'S REPRESENTATIVE. BALANCE CONTRACTOR SHALL BE AN INDEPENDENT CERTIFIED TEST AND BALANCE CONTRACTOR, WITH NEBB OR AABC CERTIFICATION. BALANCE ALL SYSTEMS TO WITHIN 5% OF AIRFLOWS INDICATED ON DRAWINGS, AND REPORT ALL DISCREPANCIES TO HVAC INSTALLER FOR CORRECTION. MARK FINAL BALANCE POSITIONS ON DAMPERS WITH PERMANENT MARKER.

ENERGY CODE

ALL MECHANICAL SYSTEMS TO MEET THE REQUIREMENTS OF THE 2021 IECC.

DEMAND CONTROL VENTILATION PROVIDED FOR SPACES GREATER THAN 500 S.F. AND GREATER THAN 15 PEOPLE PER 1,000 S.F. OCCUPANT DENSITY AND SERVED BY SYSTEMS WITH AIR SIDE ECONOMIZER, AUTO MODULATING OUTSIDE AIR DAMPER CONTROL, OR DESIGN AIRFLOW GREATER THAN 3,000 CFM.

SUPPLY AND RETURN AIR DUCTS AND FLENNIS SHALL BE INSULATED WITH A MINIMUM OF R-6 INSULATION WHERE LOCATED IN UNCONDITIONED SPACES AND WHERE LOCATED OUTSIDE THE BUILDING WITH A MINIMUM OF R-12 INSULATION.

LONGITUDINAL AND TRANSVERSE JOINTS, SEAMS AND CONNECTIONS OF SUPPLY AND RETURN DUCTS OPERATING AT A STATIC PRESSURE LESS THAN OR EQUAL TO 2 INCHES WATER GAUGE SHALL BE SECURELY FASTENED AND SEALED WITH WELDS, GASKETS, MASTICS, MASTIC-PLUS-EMBEDDED/FABRIC SYSTEMS OR TAPES INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTION.

PROVIDE BALANCING DAMPERS AT EACH BRANCH DUCT.

PROVIDE OAM INSTRUCTIONS FOR SYSTEMS AND EQUIPMENT TO THE BUILDING OWNER OR DESIGNATED REPRESENTATIVE. MANUALS TO BE PROVIDED WITHIN 90 DAYS OF SYSTEM ACCEPTANCE.

HVAC SYSTEMS AND EQUIPMENT CAPACITY DOES NOT EXCEED CALCULATED LOADS.

HEATING AND COOLING TO EACH ZONE IS CONTROLLED BY A THERMOSTAT CONTROL. MINIMUM ONE HUMIDITY CONTROL DEVICE PER INSTALL HUMIDIFICATION/DEHUMIDIFICATION SYSTEM. THERMOSTATIC CONTROLS TO HAVE A 5F DEADBAND, WHERE A ZONE HAS A SEPARATE HEATING AND A SEPARATE COOLING THERMOSTATIC CONTROL LOCATED WITHIN THE ZONE, A LIMIT SWITCH, MECHANICAL STOP OR DIRECT DIGITAL CONTROL SYSTEM WITH SOFTWARE PROGRAMMING SHALL BE PROVIDED WITH THE CAPABILITY TO PREVENT THE HEATING SET POINT FROM EXCEEDING THE COOLING SET POINT AND TO MAINTAIN A DEADBAND. EACH ZONE SHALL BE PROVIDED WITH THERMOSTATIC SETBACK CONTROLS THAT ARE CONTROLLED BY EITHER AN AUTOMATIC TIME CLOCK OR PROGRAMMABLE CONTROL SYSTEM. AUTOMATIC START CONTROLS SHALL BE PROVIDED FOR EACH HVAC SYSTEM. THE CONTROLS SHALL BE CAPABLE OF AUTOMATICALLY ADJUSTING THE DAILY START TIME OF THE HVAC SYSTEM IN ORDER TO BRING EACH SPACE TO THE DESIRED OCCUPIED TEMPERATURE IMMEDIATELY PRIOR TO SCHEDULED OCCUPANCY.

SYSTEM COMMISSIONING: PRIOR TO FINAL INSPECTION, CONTRACTOR MUST PROVIDE A SYSTEM COMMISSIONING REPORT.



ENGINEERING SERVICE, INC.
121 W. LAWRENCE COURT | FROWVILLE, IL 62441
IL LICENSE #184-006631
630-410-2344



9800 Crosspoint Blvd, STE 200
Indianapolis, IN 46256
Email: info@4021architecture.com
www.4021architecture.com

CERTIFICATION

EXPIRES 12/31/25

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FORD'S GARAGE LEXINGTON
140 Rojay Dr. Lexington, KY 40503

PROJECT# 25009

STATUS/ISSUE	
PERMIT SET	03/12/2025
REVISION SCHEDULE	
NO.	DATE

MECHANICAL SPECIFICATIONS

M300