

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

AIR BALANCE SCHEDULE

SUPPLY AIR UNIT	OUTSIDE AIRFLOW (CFM)	RETURN AIRFLOW (CFM)	SUPPLY AIRFLOW (CFM)	OA/SA %	EXHAUST AIR UNIT	EXHAUST AIRFLOW (CFM)
RTU-1	602	2,398	3,000	20.00%	KEF-1	1600
RTU-2	601	2,399	3,000	20.00%	KEF-2	775
DOAS-1	2,250	0	2,250	100.0%	EF-1, EF-2	300
TOTAL	3,453	4,797	8,250	41.8%	TOTAL	2,675
RESULTING BUILDING PRESSURIZATION						778 CFM

THE BUILDING HVAC SYSTEM SHALL BE BALANCED BY NATIONAL TAB HIRED BY THE OWNER. CONTACT Dan Hertenstein - National TAB at: 816-215-1593 - DAN@NATIONALTAB.COM

THE RTU SUPPLY FANS SHALL OPERATE IN SINGLE ZONE VAV MODE WITH 2 STAGES OF FAN CONTROL. LOW SPEED SHALL BE USED DURING PERIODS OF LOW COOLING LOAD AND VENTILATION ONLY OPERATION PER 2018 IECC REQUIREMENTS.

THE ECONOMIZER DAMPERS SHALL HAVE TWO POSITIONS DEPENDENT ON THE FAN SPEED TO MAINTAIN CONSTANT OUTDOOR AIR VOLUME AND BUILDING PRESSURE. REFER TO THE BUILDING AIR BALANCE SCHEDULE ON SHEET M2.

THE UNIT SHALL HAVE ITS FRESH AIR HEATING OPTION ENABLED TO HEAT VENTILATION AIR TO A NEUTRAL VALUE DURING COLD WEATHER OPERATION. REFER TO THE MANUFACTURERS PROGRAMMING DOCUMENTATION FOR SETUP INSTRUCTIONS.

OUTDOOR AIR CALCULATIONS

UNIT	Area (sqft)	OCCUPANCY CLASSIFICATION	Occupant Density #/1000 sqft	People outdoor airflow rate in breathing zone, (Rp) cfm/person	Area outdoor airflow rate in breathing zone, (Ra) cfm/sqft	Exhaust airflow rate cfm/sqft	Breathing zone outdoor airflow (Vbz) (E2)	Zone air distribution effectiveness (Ez)	Zone outdoor airflow (cfm)	
RTU-1	1950	Dining rooms	70	7.5	0.18		952	0.8	1190	
	175	Corridors	0	0	0.06		10	0.8	15	
									Total	1203

MECHANICAL PLAN NOTES:

- 1 HOOD SHALL BE PROVIDED WITH FACTORY PRE-WIRE PACKAGE AND A PRE-ENGINEERED UL-300 FIRE SUPPRESSION SYSTEM. SEE HOOD DRAWINGS FOR DETAILS.
- 2 LOCATION OF MANUAL PULL STATION. INSTALL PER THE MANUFACTURERS REQUIREMENTS.
- 3 LOCATION OF RTU AND DOAS THERMOSTATS. GC TO LABEL EACH THERMOSTAT.
- 4 LOCATION OF RTU/DOAS TEMPERATURE AND HUMIDITY SENSOR MOUNTED 7'-0" AFF.
- 5 ALL KITCHEN DUCTWORK IS INTENDED TO BE ROUTED UNDER OR BETWEEN TRUSSES. COORDINATE EXACT ROUTING WITH TRUSSES DURING INSTALLATION.
- 6 EXHAUST HOOD PROVIDED BY OTHERS. INSTALLED BY THIS CONTRACTOR PER THE MANUFACTURERS INSTRUCTIONS.
- 7 TRANSITION AND CONNECT 10"Ø GREASE DUCT TO EXHAUST HOOD WITH AS SHOWN. ROUTE DUCT UP AND CONNECT TO EXHAUST FAN. OFFSET AS NECESSARY TO MISS ROOF STRUCTURE, AND TO MAINTAIN 10'-0" CLEARANCE FROM ALL OUTDOOR AIR INTAKES, AND 5'-0" FROM PARAPET WALLS. ALL GREASE DUCT IS TO BE INSTALLED WITH DUCT WRAP AS DETAILED AND PER THE MANUFACTURERS REQUIREMENTS FOR 0" CLEARANCE TO COMBUSTIBLES.
- 8 TRANSITION AND CONNECT 14"Ø GREASE DUCT TO COLLAR ON EXHAUST HOOD. ROUTE DUCT UP AND CONNECT TO EXHAUST FAN. OFFSET AS NECESSARY TO MISS ROOF STRUCTURE, AND TO MAINTAIN 10'-0" CLEARANCE FROM ALL OUTDOOR AIR INTAKES, AND 5'-0" FROM PARAPET WALLS. REFER TO DETAIL ON SHEET M2. ALL GREASE DUCT IS TO BE INSTALLED WITH DUCT WRAP AND ACCESS DOORS AS DETAILED AND PER THE MANUFACTURERS REQUIREMENTS FOR 0" CLEARANCE TO COMBUSTIBLES.
- 9 COORDINATE DUCT ROUTING WITH LIGHTING.
- 10 EXPOSED DUCTWORK SHALL BE OF PAINTLOCK CONSTRUCTION AND PAINTED PER THE DIRECTION OF ARCHITECT.
- 11 RETURN AIR DUCT LOCATED BETWEEN ROOF TRUSSES. OPEN END OF DUCTWORK TURNED UP TOWARD STRUCTURE WITH A MINIMUM 8" CLEARANCE TO DECK. SUPPORT EXHAUST FAN FROM STRUCTURE AS REQUIRED BY THE MANUFACTURER.
- 12 GC TO INSTALL CAPTIVE AIRE WBE WINDBAND EXTENSION FOR KEF-2 PROVIDED BY KITCHEN EQUIPMENT SUPPLIER.
- 13 CONDENSING UNIT ON ROOF. CONNECT REFRIGERANT PIPING AS REQUIRED BY THE MANUFACTURER. SEE ARCHITECTURAL PLANS FOR MOUNTING DETAIL.
- 14 RETURN DUCT TO BE ROUTED BETWEEN JOISTS, AS HIGH AS STRUCTURE WILL ALLOW.
- 15 ROUTE 10"Ø EXHAUST DUCT UP THROUGH ROOF TO ROOF CAP. MAINTAIN 10'-0" CLEARANCE TO ALL OUTDOOR AIR INTAKES.
- 16 TRANSITION AND CONNECT TO EXISTING DUCT DROPS AS REQUIRED.
- 17 INSTALL BOTTOM OF HEATER 16" AFF.

MECHANICAL GENERAL NOTES:

1. COORDINATE ALL WORK WITH OTHER TRADES AND EXISTING CONDITIONS AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACES AVAILABLE, AND WITHOUT INTERFERENCES.
2. THIS CONTRACTOR SHALL PERFORM ALL WORK INDICATED AND/OR AS REQUIRED FOR THE PROPER INSTALLATION AND OPERATION OF THE MECHANICAL SYSTEMS.
3. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF DIFFUSERS.
4. INSTALL ALL DUCT, PIPE, ETC. AS HIGH AS POSSIBLE.
5. DUCT SIZES SHOWN ARE ACTUAL SHEET METAL SIZES AND INCLUDE A 1/2 INCH ALLOWANCE FOR DUCT LINER WHERE APPLICABLE.
6. PROVIDE FLEXIBLE CONNECTION BETWEEN DUCTWORK AND ROOFTOP UNITS, EXHAUST FANS, AND OTHER MOTORIZED EQUIPMENT.
7. NO DUCT SHALL BE ROUTED OVER THE TOP OF ELECTRICAL PANELS.
8. ALL EXPOSED DUCT WORK SHALL BE PAINTED. REFER TO ARCHITECTURAL PLANS FOR DETAILS.

BC PROJECT #: 23673
 MISSOURI PE COA #2009003629

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ROOFTOP UNIT SCHEDULE																				
MARK	MFG	MODEL NO.	NOM. TONS	EVAP. CFM	EXT. STATIC P. IN. WG. (NOTE 2)	COOLING			HEATING (GAS)		ELECTRICAL			MINIMUM OUTDOOR AIR (CFM)	TOTAL WEIGHT (LBS)	IEER	FREQN	NOTES		
						TOTAL BTUH	SENS. BTUH	AMB.	EVAP. EAT DB/WB	BTUH INFLT	BTUH OUTPUT	VOLT/Φ/HZ	BLOWER MOTOR						MIN. MCA (AMPS)	MIN. MOCF (AMPS)
RTU-1	CARRIER	48HCFE09	7.5	3,000	1.0	89,500	66,900	105	80/67	240,000	195,000	208/3/60	3 HP	42	50	602	1,300	13	R-410a	1,2,3,4,5,6,7
RTU-2	CARRIER	48HCFE09	7.5	3,000	1.0	89,500	66,900	105	80/67	240,000	195,000	208/3/60	3 HP	42	50	602	1,300	13	R-410a	1,2,3,4,5,6,7

- NOTES:**
- PROVIDE DIGITAL CONTROLS, OUTDOOR AIR ECONOMIZER WITH DRY BULB CONTROL, BAROMETRIC RELIEF DAMPER, TIME DELAY ON COMPRESSOR RE-START, CRANKCASE HEATER, BAROMETRIC RELIEF DAMPER, HOT GAS REHEAT FOR DEHUMIDIFICATION, DRAIN PAN OVERFLOW SWITCH, FRESH AIR TEMPERING KIT, HINGED ACCESS DOORS, SMOKE DETECTOR MOUNTED IN RETURN, AND STANDARD COOLING DOWN TO 0°F FOR EACH UNIT. OUTDOOR AIR DAMPER TO FULLY CLOSE ON FAN SHUTDOWN FOR ALL UNITS.
 - EXTERNAL STATIC PRESSURE LISTED REPRESENTS STATIC PRESSURE REQUIRED FOR DUCTWORK AND DIFFUSERS OUTSIDE THE HVAC UNIT COMPLETELY INDEPENDENT OF ANY PRESSURE DROP THROUGH THE HVAC EQUIPMENT INCLUDING BUT NOT LIMITED TO FILTERS, COILS AND ECONOMIZERS. THE FAN AND MOTOR SHALL BE SIZED APPROPRIATELY TO MEET THIS DEFINITION OF EXTERNAL STATIC PRESSURE.
 - PROVIDE COMMERCIAL 7-DAY PROGRAMMABLE HEAT/COOL/AUTO CHANGEOVER THERMOSTAT WITH ECONOMIZER OUTPUT AND REMOTE, TEMPERATURE SENSOR FOR EACH UNIT (HONEYWELL VISION PRO 8000 OR EQUAL), ECONOMIZER/OUTDOOR AIR DAMPER IS TO CLOSE DURING UNOCCUPIED HOURS.
 - PROVIDE CURB ADAPTER.
 - PROVIDE HAIL GUARDS FOR EACH UNIT.
 - PROVIDE FACTORY INSTALLED UNIT MOUNTED CIRCUIT BREAKERS.
 - MECHANICAL CONTRACTOR SHOULD CLEAN OR PROVIDE ALL NEW FILTERS ON DAY OF TURNOVER.

SEE SHEETS M301 AND M302 FOR OWNER PROVIDED, GENERAL CONTRACTOR INSTALLED DOAS UNIT INFORMATION.

EXHAUST FAN SCHEDULE									
MARK	MFG	MODEL	CFM	EXTERNAL STATIC P. IN. WG.	RPM	ELECTRICAL		FAN TYPE	NOTES
						VOLT/Φ/HZ	WATT		
EF-1	COOK	GC-166	150	0.25	1,100	120/1/60	51 W	CEILING EXH.	1
EF-2	↓	GC-166	150	↓	1,100	↓	51 W	↓	1

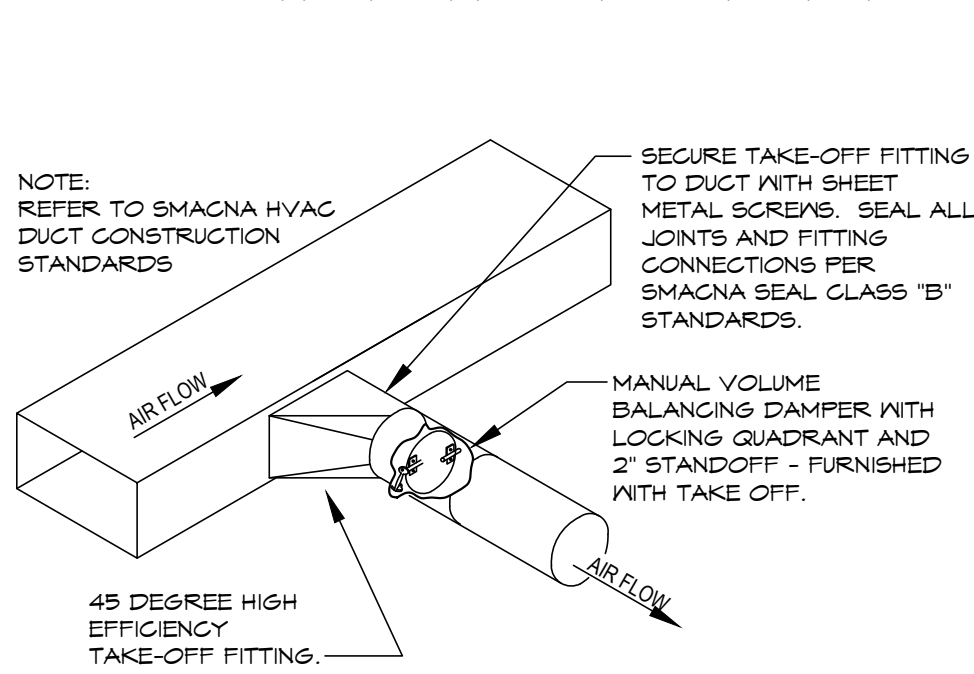
- NOTES:**
- PROVIDE CEILING GRILLE, INTEGRAL BACK DRAFT DAMPER, AND ROOF CAP.

DIFFUSER SCHEDULE						
MARK	MFG	MODEL	NECK SIZE	FACE SIZE	FINISH	REMARKS
SD-1	TITUS	TMR	12"Ø	22"Ø	WHITE	FIELD PREP FOR PAINTING
SD-2	↓	TMS/3	12"Ø	24"X24"	↓	↓
SD-3	↓	PAR/3	↓	↓	↓	RETURN - NO DEFLECTOR
SD-4	↓	T35Q4	8"Ø	↓	↓	THERMAL VAV DIFFUSER
SD-5	↓	TMS/3	6"Ø	12"X12"	↓	WITH O.B. DAMPER AND TRM KIT
SD-6	↓	↓	8"Ø	12"X12"	↓	WITH TRM KIT
RG-1	AMER. LOUVER CO.	STRATUS	20"X20"	24"X24"	↓	SEE NOTE 1.
RG-2	TITUS	350RL	8"X8"	↓	↓	↓
RG-3	↓	PAR/3	10"X22"	12"X24"	↓	↓

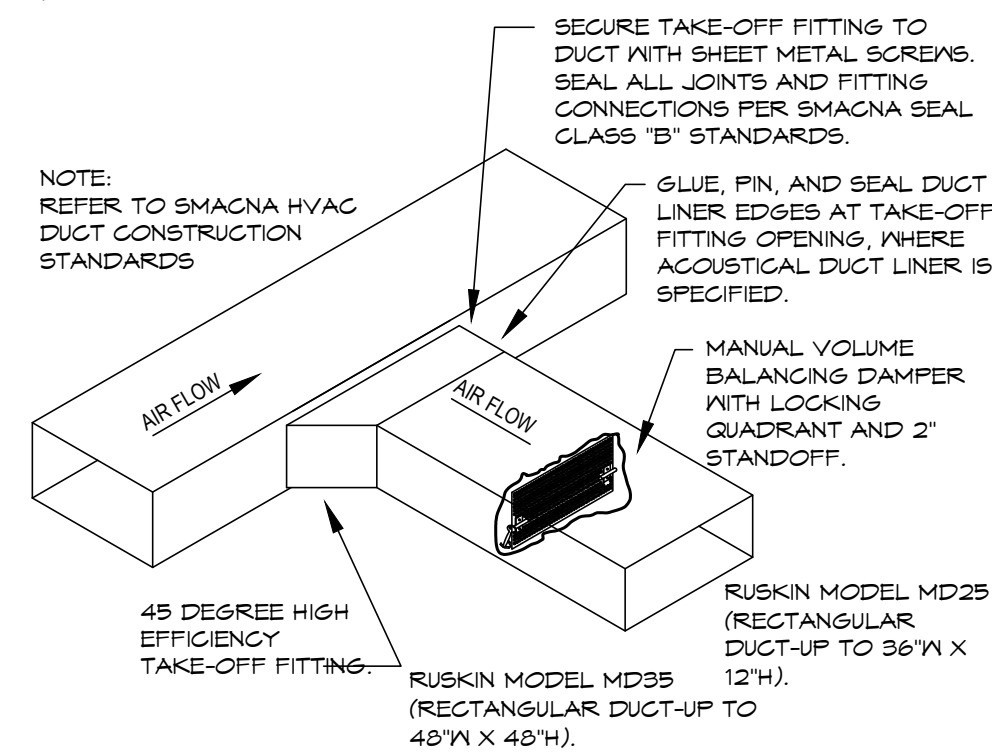
- NOTES:**
- RETURN GRILL TO BE PLASTIC FILTER RETURN, FILTER TO BE AMERICAN AIR FILTER (AAF) FRONTLINE GREEN 1", WITH AAF AMERIFRAME SIZE 20X20X1.

ELECTRIC WALL HEATER SCHEDULE						
MARK	MFG	MODEL NO.	BTUH	ELECTRICAL		NOTES
				VOLT/Φ/HZ	WATTS	
WH-1	RAYWALL	F3316T2SRPQ	13,640	208/1/60	4 KW	1,2

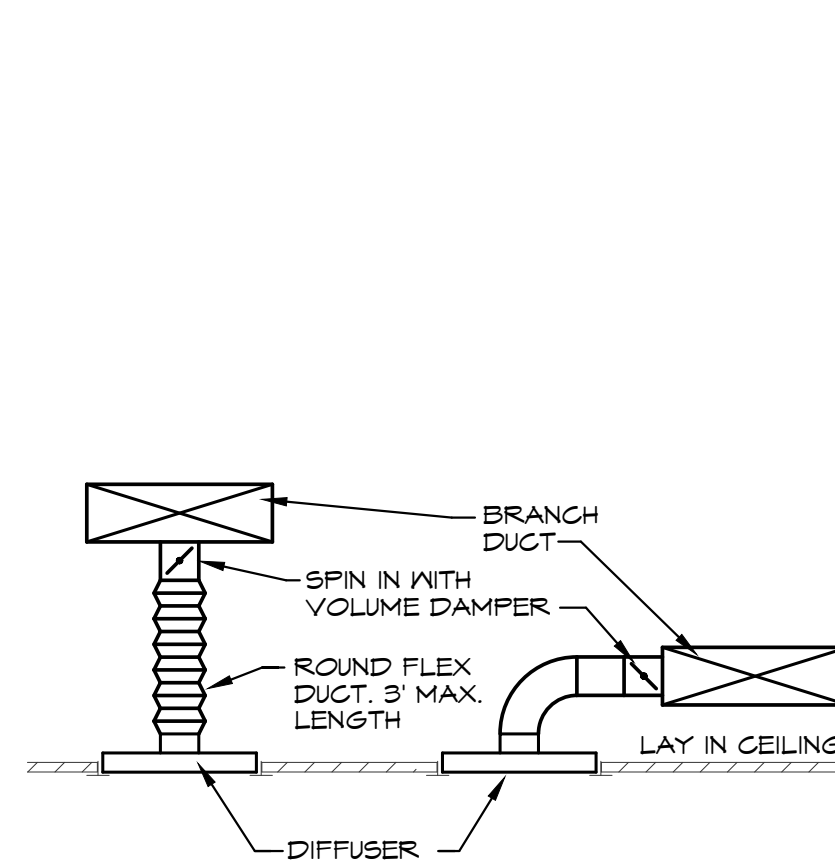
- NOTES:**
- UNITS SHALL BE SURFACE MOUNTED, WITH SUMMER FAN SWITCH
 - PROVIDE INTEGRAL DISCONNECT & INTEGRAL THERMOSTAT FOR EACH UNIT.



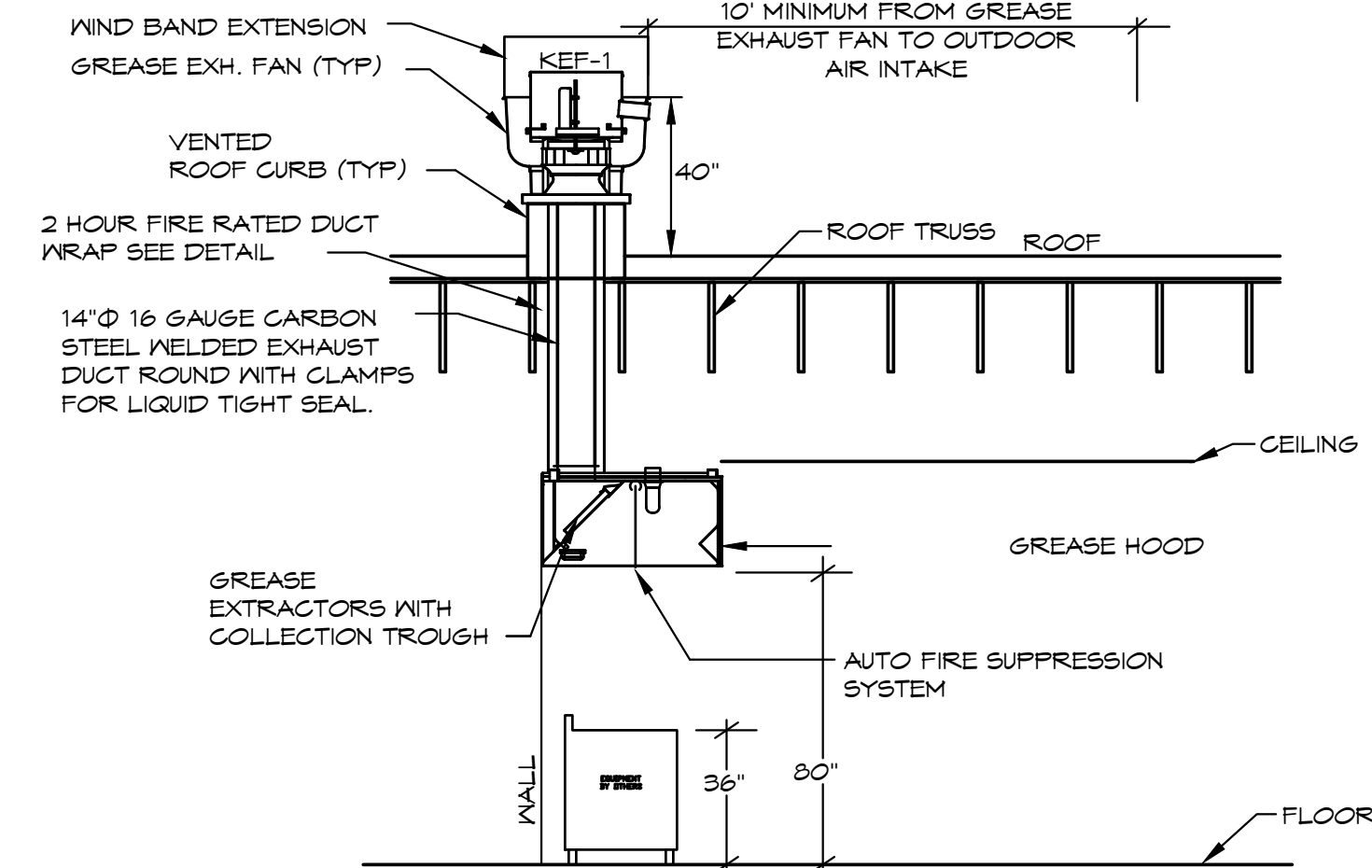
ROUND DUCT TAKE OFF DETAIL
SCALE: NONE



RECTANGULAR DUCT TAKE OFF DETAIL
SCALE: NONE



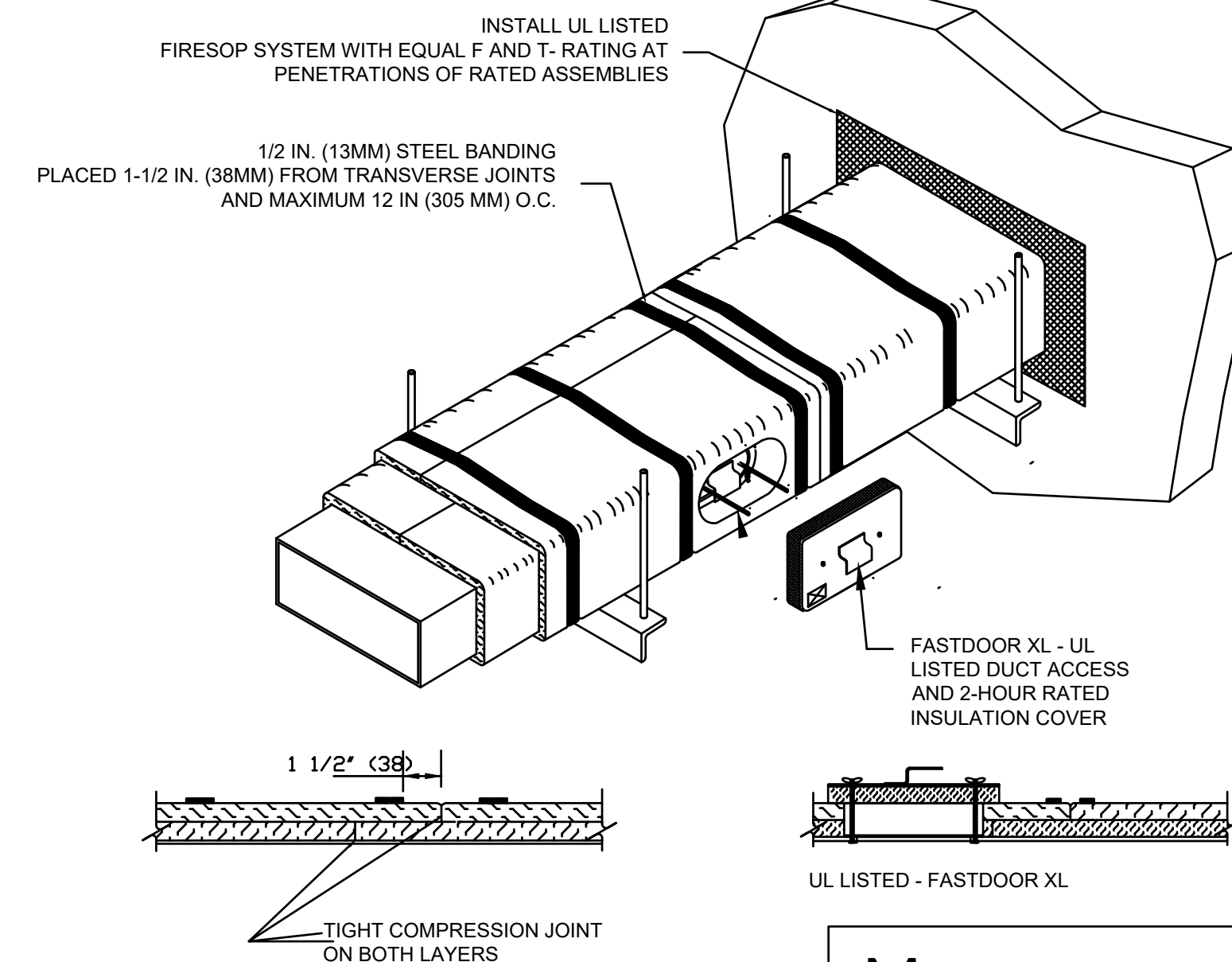
DIFFUSER DETAIL
SCALE: NONE



GREASE HOOD DETAIL

FIRE RATED ENCLOSURE - GREASE DUCTS

- THERMAL CERAMICS FIREMASTER FASTWRAP XL IS TESTED TO ASTM E2336 AND UL LISTED PER HNK7.G18 TO PROVIDE ZERO CLEARANCE TO COMBUSTIBLES AND TO PROVIDE A 1- OR 2- HOUR ENCLOSURE. THROUGH PENETRATIONS FIRESTOP SYSTEMS ARE TESTED IN ACCORDANCE WITH ASTM E 814 (UL 1479). ICC-ES APPROVAL PER REPORT ESR 2213 OR ESR 2832.
- COMPLIANT TO THE FOLLOWING CODES:
NFPA 96
INTERNATIONAL MECHANICAL CODES
UNIFORM MECHANICAL CODE
CALIFORNIA MECHANICAL CODE
- INSULATION APPLIED IN TWO LAYERS WITH TIGHT COMPRESSION JOINT ON BOTH LAYERS AT ALL JOINTS.
- MINIMUM 16 GAUGE CARBON STEEL (OR 18 GAGE STAINLESS STEEL) RECTANGULAR OR ROUND GREASE EXHAUST DUCT
- INSTALL UL LISTED AND LIQUID TIGHT THERMAL CERAMICS FASTDOOR XL ACCESS DOORS AT ALL CHANGES IN DIRECTION AND AT MINIMUM EVERY 20 FT ON HORIZONTAL RUNS.
- SUPPORT HANGER SYSTEMS DO NOT NEED TO BE WRAPPED PROVIDED THE HANGER RODS ARE MINIMUM OF 3/8 IN. DIAMETER AND SUPPORTS ARE MINIMUM 2 X 2 X 1/8 IN. STEEL ANGLE OR SMACNA EQUIVALENT SUPPORT SYSTEM.
- THERMAL CERAMICS DUCT WRAP SHALL BE INSTALLED DIRECTLY ONTO THE DUCT AND APPLIED FROM THE HOOD CONNECTION TO THE CONNECTION TO THE FAN.
- THERMAL CERAMICS DUCT ENCLOSURE SYSTEM SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS AND UL LISTINGS.



Morgan ThermalCeramics
P.O. Box 923
Augusta, Georgia 30903-0923
Phone: (706) 560-4038

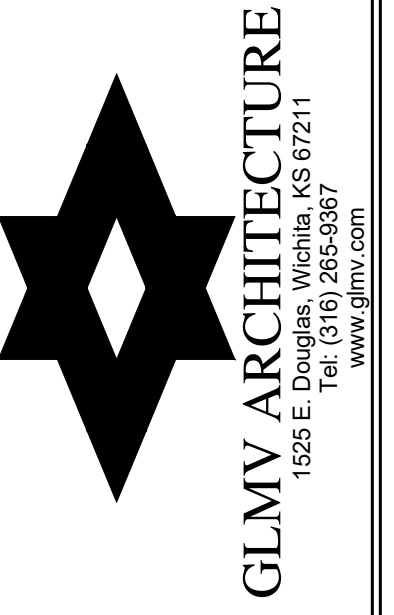
NATIONAL ACCOUNT INFORMATION

FREDDY'S FROZEN CUSTARD HAS NATIONAL ACCOUNT AGREEMENTS FOR ROOF TOP UNITS WITH TRANE, CARRIER, AND YORK. NO ALTERNATE MANUFACTURERS ARE ALLOWED.

FOR TRANE EQUIPMENT EQUAL TO THE UNITS SPECIFIED CONTACT:
JUSTIN BARNES, TRANE ACCOUNT MANAGER - NATIONAL ACCOUNTS, (303) 228-2896
JDBARNES@TRANE.COM

FOR CARRIER EQUIPMENT CONTACT:
TERRI BURNS, ACCOUNT ORDER MANAGER, (315) 432-3653
nationalaccounts@carrier.com

FOR YORK EQUIPMENT CONTACT:
DAVID WALMSEY, ACCOUNT ORDER MANAGER, (714)-573-5125
david.walmsley@jci.com



FREDDY'S FROZEN CUSTARD
677 GRAVOIS BLUFFS BLVD.
FENTON, MO 63026



02132R23006
PLAN SET REVISION

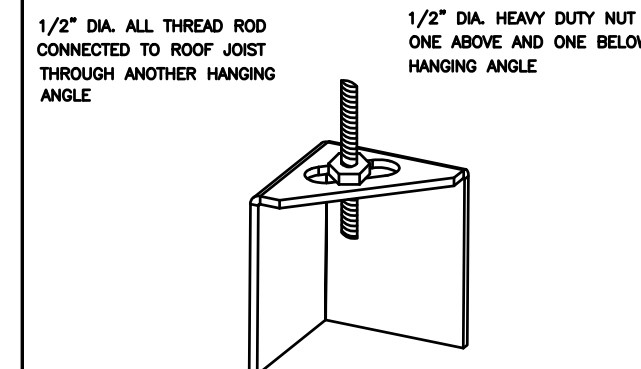
CONTRACT DATE
11/15/2023

SHEET NO.
MECHANICAL
SCHEDULES AND
DETAILS
M200

BC PROJECT #: 23673
MISSOURI PE COA #2009003629
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ND-2 HANGING ANGLE DETAIL



HANGING ANGLE LOCATIONS

HOOD STYLE	DIM FROM REAR	DIM FROM FRONT (24\"/>	
CANOPY ND2	4.166"	2.246"	2.246"
ND2-PSP-F	4.166"	2.246"	2.246"
BACKSHELF BD-2	4.166"	2.246"	-
VHB/VHB-G	36"X36"	42"X42"	48"X48"
FRONT/BACK DIMS BY SIZE	2.246"	2.246"	2.246"

CALCULATIONS UTILIZED

EXHAUST CFM=LENGTH OF HOOD X CFM/INCH (LOAD)
 SUPPLY CFM=EXHAUST CFM X PERCENTAGE REQUIRED
 TOTAL DUCT AREA=144 X CFM
 DUCT LENGTH= TOTAL DUCT AREA / DUCT DEPTH

BUILDING CODES

CAPTIVE-AIRE HOODS ARE BUILT IN COMPLIANCE WITH:

Listed under ETL File number 3054604-001/002

CLEARANCE TO COMBUSTIBLES

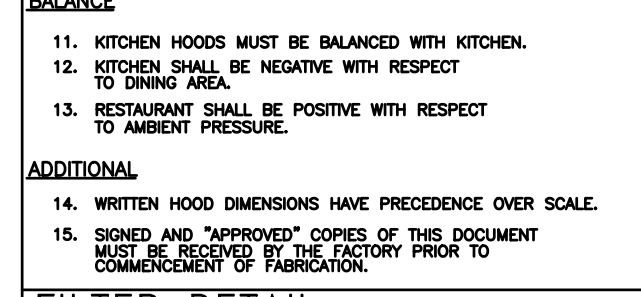
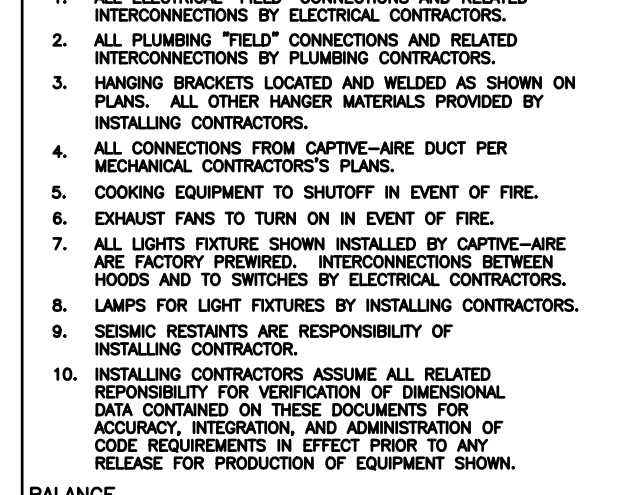
CAPTIVE-AIRE HOODS HAVE OPTIONAL CLEARANCE REDUCTION SYSTEMS AVAILABLE AS FOLLOWS:

MATERIAL	CLEARANCE REDUCTION SYSTEM
NON-COMBUSTIBLE	NONE REQUIRED
LIMITED-COMBUSTIBLE	3" UNINSULATED STANDOFF
COMBUSTIBLE	1" INSULATED STANDOFF

GENERAL NOTES

- INSTALLATION**
- ALL ELECTRICAL "FIELD" CONNECTIONS AND RELATED INTERCONNECTIONS BY ELECTRICAL CONTRACTORS.
 - ALL PLUMBING "FIELD" CONNECTIONS AND RELATED INTERCONNECTIONS BY PLUMBING CONTRACTORS.
 - HANGING BRACKETS LOCATED AND WELDED AS SHOWN ON PLANS. ALL OTHER HANGER MATERIALS PROVIDED BY INSTALLING CONTRACTORS.
 - ALL CONNECTIONS FROM CAPTIVE-AIRE HOOD DUCT PER MECHANICAL CONTRACTOR'S PLANS.
 - COOKING EQUIPMENT TO SHUTOFF IN EVENT OF FIRE.
 - EXHAUST FANS TO TURN ON IN EVENT OF FIRE.
 - ALL LIGHTS FIXTURE SHOWN INSTALLED BY CAPTIVE-AIRE ARE FACTORY PREWIRED. INTERCONNECTIONS BETWEEN HOODS AND TO SWITCHES BY ELECTRICAL CONTRACTORS.
 - LAMPS FOR LIGHT FIXTURES BY INSTALLING CONTRACTORS.
 - SEISMIC RESTRAINTS ARE RESPONSIBILITY OF INSTALLING CONTRACTOR.
 - INSTALLING CONTRACTORS ASSUME ALL RELATED RESPONSIBILITY FOR VERIFICATION OF DIMENSIONAL DATA CONTAINED ON THESE DRAWINGS FOR ACCURACY, INTEGRATION, AND ADMINISTRATION OF CODE REQUIREMENTS IN EFFECT PRIOR TO ANY RELEASE FOR PRODUCTION OF EQUIPMENT SHOWN.
- BALANCE**
- KITCHEN HOODS MUST BE BALANCED WITH KITCHEN.
 - KITCHEN SHALL BE NEGATIVE WITH RESPECT TO DRINK AREA.
 - RESTAURANT SHALL BE POSITIVE WITH RESPECT TO AMBIENT PRESSURE.
- ADDITIONAL**
- WRITTEN HOOD DIMENSIONS HAVE PRECEDENCE OVER SCALE.
 - SIGNED AND "APPROVED" COPIES OF THIS DOCUMENT MUST BE RECEIVED BY THE FACTORY PRIOR TO COMMENCEMENT OF FABRICATION.

FILTER DETAIL



HOOD INFORMATION - JOB#6275392

HOOD NO	TAG	MODEL	MANUFACTURER	LENGTH	MAX COOKING TEMP	TYPE	APPLIANCE DUTY	DESIGN CFM/FT	TOTAL EXH CFM	EXHAUST PLENUM RISERS(S)				HOOD CONSTRUCTION	HOOD CONFIG END TO END	HOOD CONFIG ROW	
										WIDTH	LENG	HEIGHT	DIA				
1	ITEM 33A	5424 ND-2	CAPTIVEAIRE	8' 0"	450 DEG	I	MEDIUM	200	1600	4"	14"	1600	1497	-0.734"	430 SS	ALONE	FRONT
2	ITEM 33B	5424 ND-2	CAPTIVEAIRE	5' 0"	450 DEG	I	MEDIUM	155	775	4"	10"	775	1421	-0.436"	430 SS	ALONE	ALONE

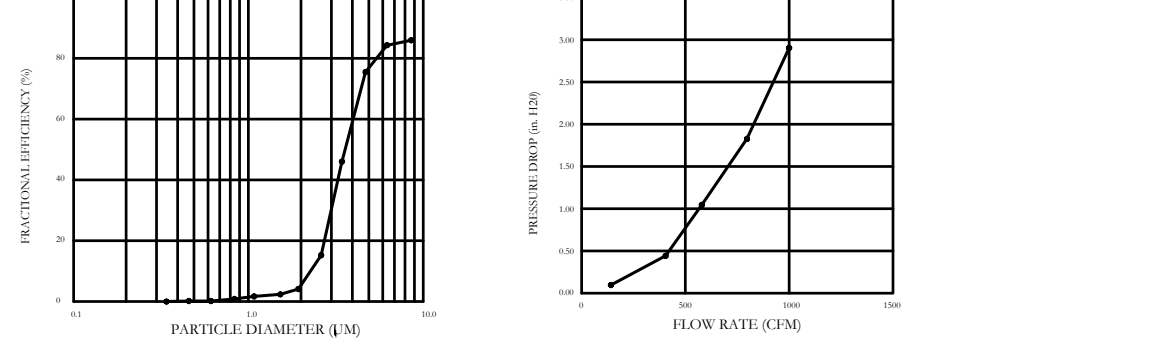
HOOD NO	TAG	TYPE	FILTER(S)				LIGHT(S)				UTILITY CABINET(S)				FIRE SYSTEM	HOOD WEIGHT
			QTY	HEIGHT	LENGTH	EFFICIENCY @ 7 MICRONS	QTY	TYPE	LOCATION	SIZE	TYPE	SIZE	MODEL #	QUANTITY		
1	ITEM 33A	CAPTRATE SOLID FILTER	5	16"	16"	85% SEE FILTER SPEC	2	RECESSED ROUND	NO	LEFT	18"X54"X24"				NO	598 LBS
2	ITEM 33B	CAPTRATE SOLID FILTER	3	16"	16"	85% SEE FILTER SPEC	2	RECESSED ROUND	NO						NO	357 LBS

HOOD OPTIONS

HOOD NO	TAG	OPTION
1	ITEM 33A	FIELD WRAPPER 18.00" HIGH FRONT, LEFT, RIGHT. LEFT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS. RIGHT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS. INSULATION FOR TOP OF HOOD. INSULATION FOR BACK OF HOOD. RISER SENSOR INSTALL 3IN DBL.
2	ITEM 33B	FIELD WRAPPER 18.00" HIGH FRONT, LEFT, RIGHT. RIGHT END PANEL 27" TOP WIDTH, 24" BOTTOM WIDTH, 39.5" HIGH 430 SS. LEFT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS. INSULATION FOR TOP OF HOOD. INSULATION FOR BACK OF HOOD. RISER SENSOR INSTALL 6IN PLEN.

SPECIFICATION: CAPTRATE GREASE-STOP SOLID FILTER

THE CAPTRATE GREASE-STOP SOLID FILTER IS A SINGLE-STAGE FILTER FEATURING A UNIQUE S-Baffle DESIGN IN CONJUNCTION WITH A SLOTTED REAR Baffle DESIGN, TO DELIVER EXCEPTIONAL FILTRATION EFFICIENCY. FILTER IS STAINLESS STEEL CONSTRUCTION, AND SIZED TO FIT INTO STANDARD 2-INCH DEEP HOOD CHANNEL(S). UNITS SHALL INCLUDE STAINLESS STEEL HANDLES AND A FASTENING DEVICE TO SECURE THE TWO COMPONENTS WHEN ASSEMBLED. GREASE EXTRACTION EFFICIENCY PERFORMANCE SHALL REMOVE AT LEAST 75% OF GREASE PARTICLES FIVE MICRONS IN SIZE, AND 85% GREASE PARTICLES SEVEN MICRONS IN SIZE AND LARGER, WITH A CORRESPONDING PRESSURE DROP NOT TO EXCEED 1.0 INCHES OF WATER GAUGE. THE CAPTRATE GREASE-STOP SOLID WAS TESTED TO ASTM STANDARD ASTM F2019-05. MANUFACTURER APPROVED FOR USE IN SOLID FUEL APPLICATIONS AS A SPARK ARRESTER. EFFICIENCY VS. PARTICLE DIAMETER. PRESSURE DROP VS. FLOW RATE.

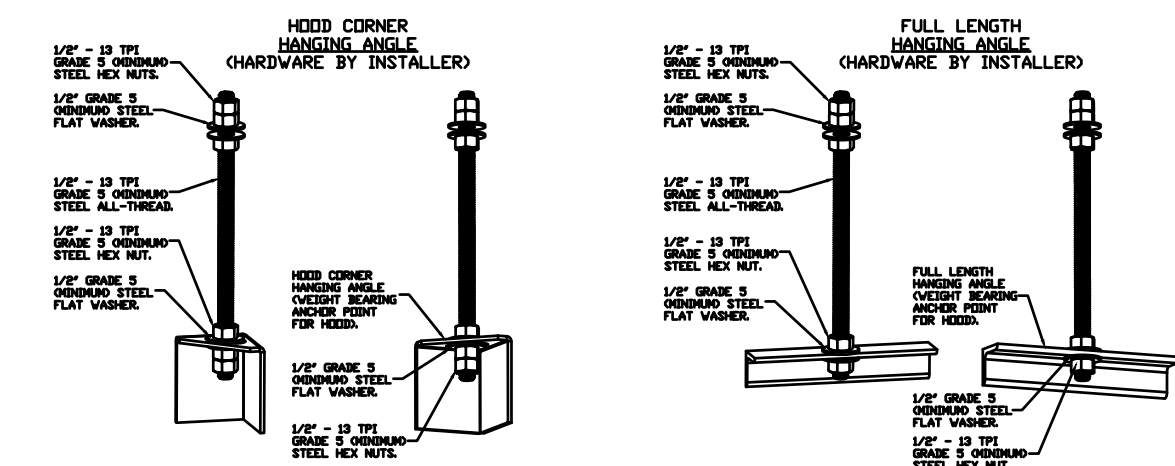
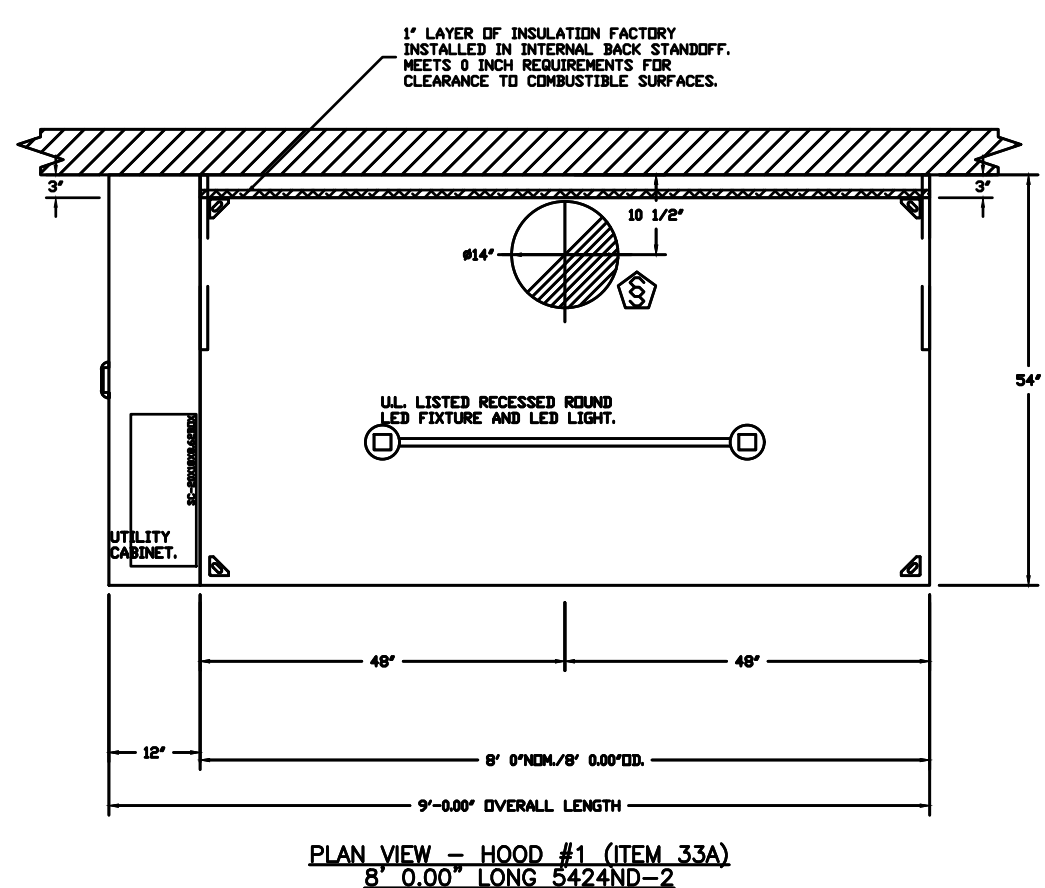


CAPTIVE FILTERS ARE BUILT IN COMPLIANCE WITH:

- NSF #69.
- UL STANDARD #106.
- INT. MECH. CODE (IMC).
- ULC-S649.

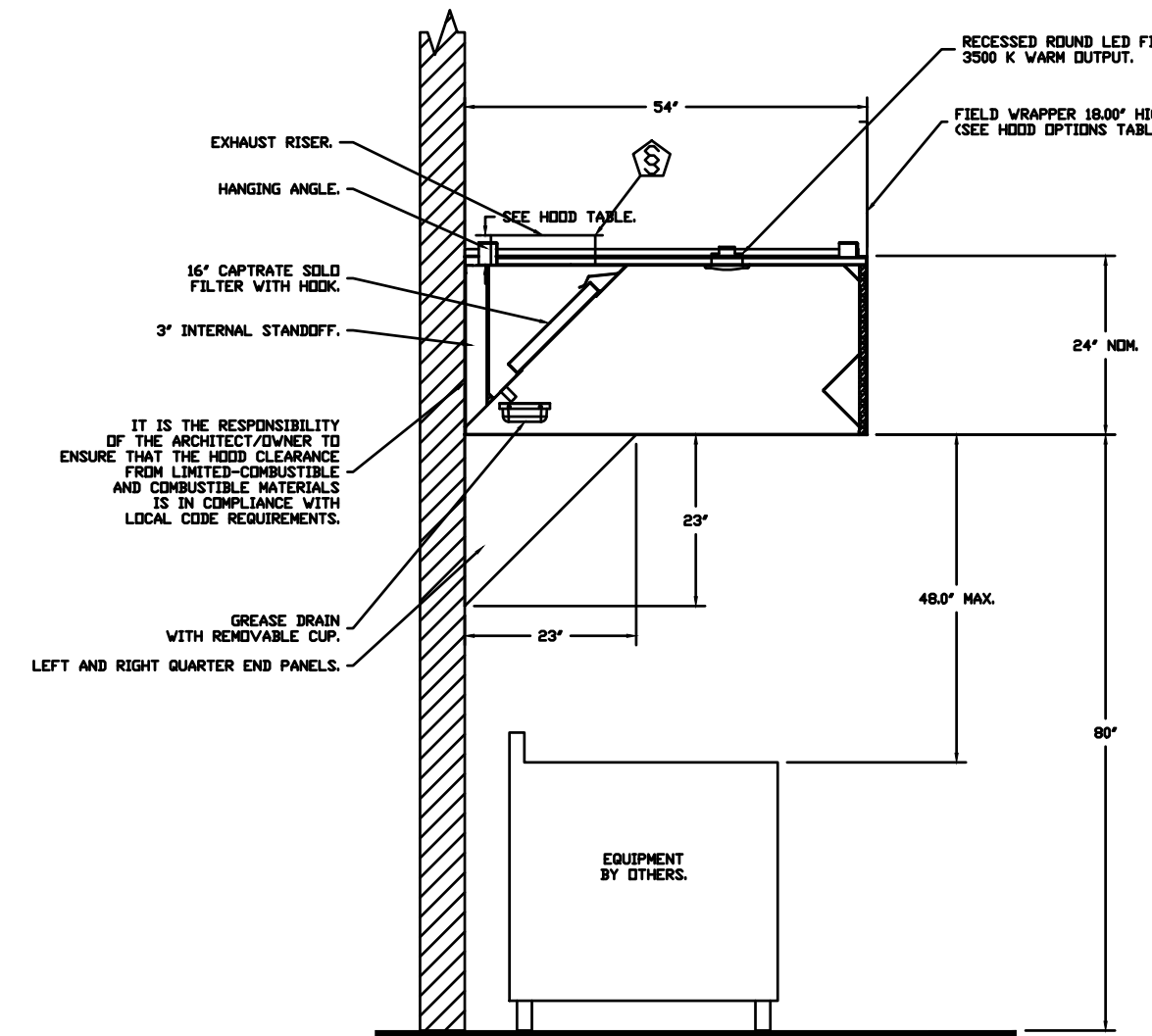
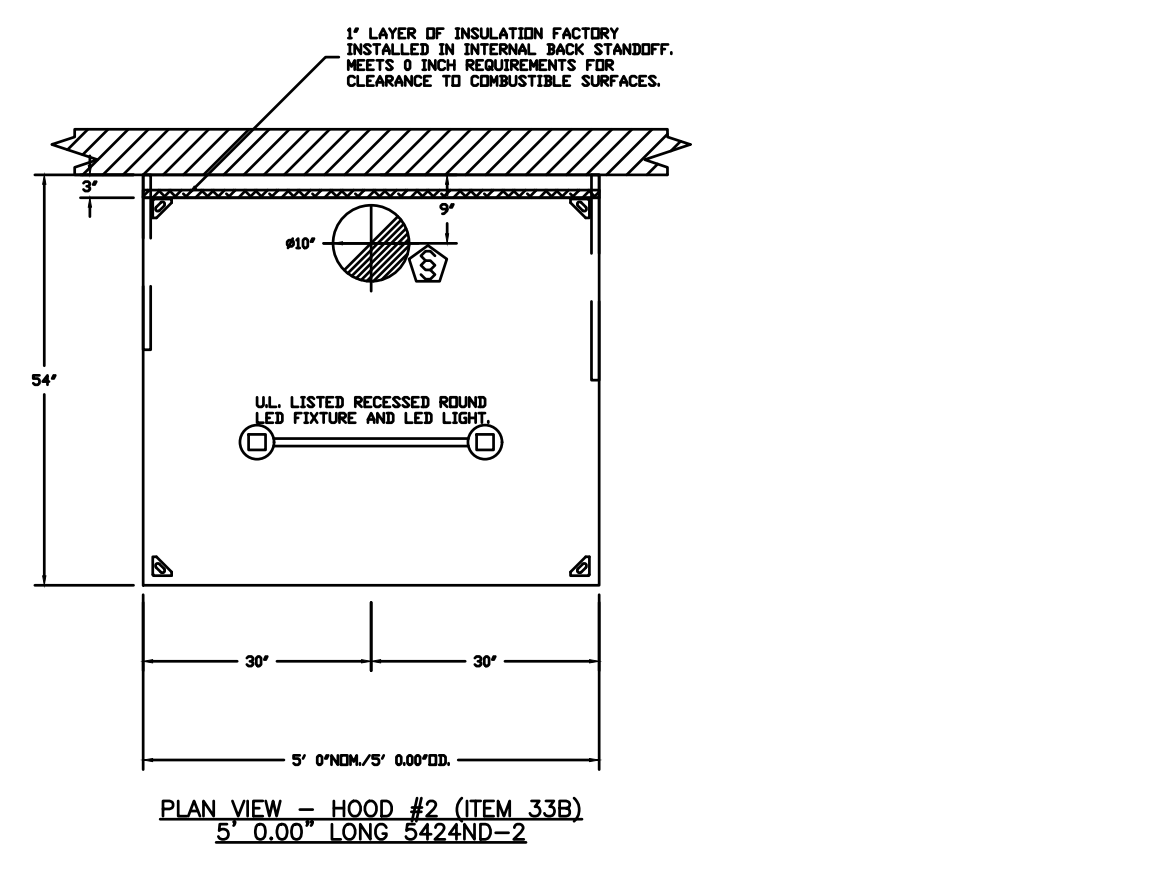
PATENT NUMBERS

EXHAUST HOODS ND-2/BD-2/SND-2 (CANADA) - CA PATENT 2520435 C.

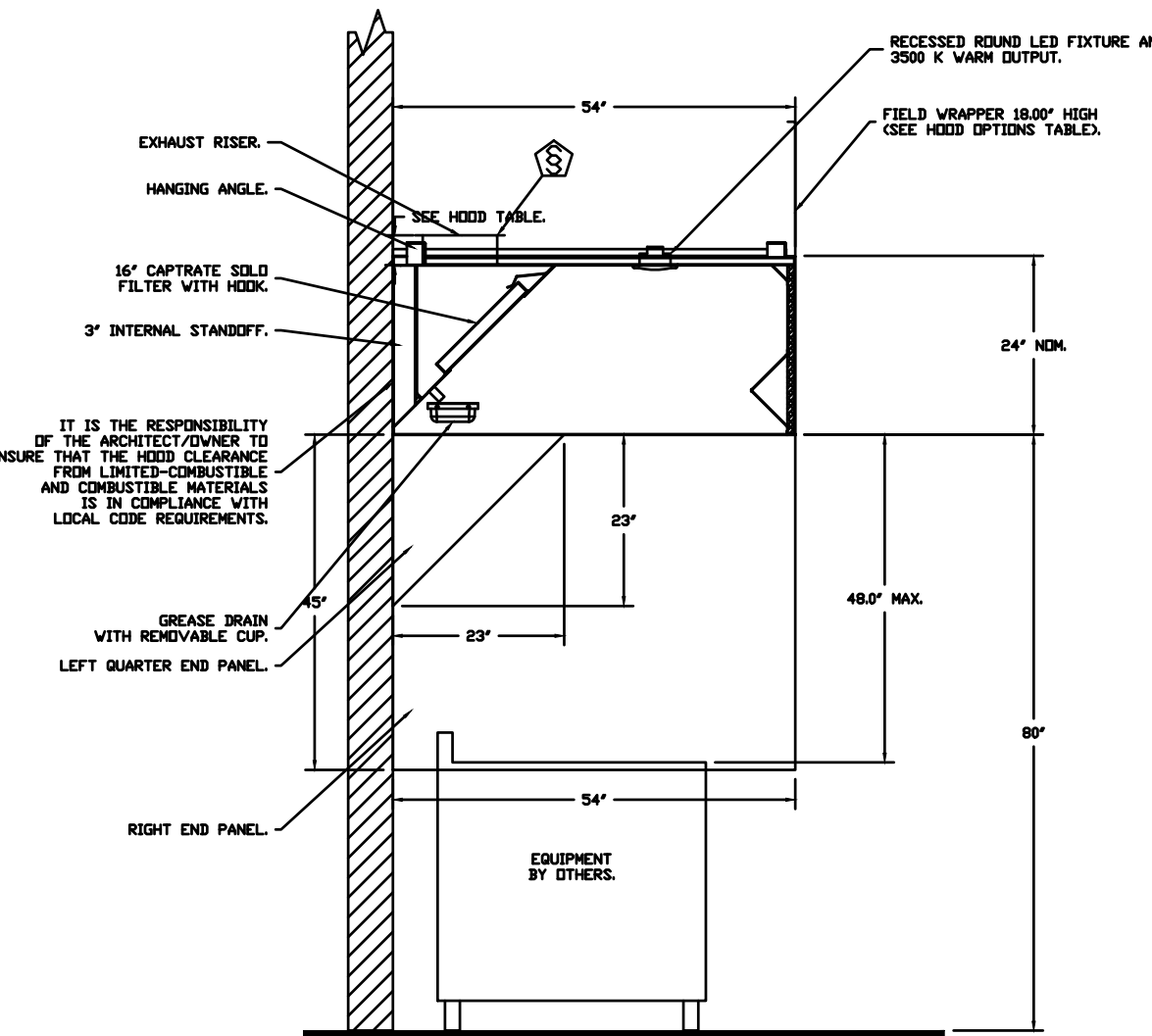


ASSEMBLY INSTRUCTIONS

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



SECTION VIEW - MODEL 5424ND-2 HOOD - #1 (ITEM 33A)



SECTION VIEW - MODEL 5424ND-2 HOOD - #2 (ITEM 33B)

FOR QUESTIONS, CALL THE KANSAS CITY REGIONAL OFFICE
 1126 SWIFT STREET, KANSAS CITY, MO 64116
 PHONE: (816) 221-8575
 FAX: (816) 221-8311

CUSTOMER APPROVAL TO MANUFACTURE:

Approved as Noted
 Approved with NO Exception Taken
 Revised and Resubmit
 SIGNATURE _____
 Your Title _____ Date _____

***** NOTE *****
 ALL WALLS AND STRUCTURES THAT COME WITHIN 18" OF HOOD MUST BE METAL STUDS AND SHEETROCK. HOOD STUDS OR ANY OTHER COMBUSTIBLE MATERIAL WITHIN 18" OF HOOD NOT ALLOWED.

***** NOTE *****
 HOOD MANUFACTURER RECOMMENDS NO RETURNS OR 4-WAY DIFFUSERS WITHIN 10 FEET OF HOOD IN ALL DIRECTION.

***** NOTE *****
 MAKEUP AIR SHALL BE DELIVERED INTO SPACE IN MANNER THAT WILL NOT DISRUPT HOODS ABILITY TO CAPTURE AND CONTAIN.

REVISIONS

NO.	DESCRIPTION	DATE

CAPTIVE
 HET Foodservice
 104 W 9th St Suite 204, Kansas City, MO, 64105 PHONE: (816) 221-8575 FAX: (816) 221-8311 EMAIL: reg@captivaire.com www.captiveaire.com

Freddy's - Fenton, MO
 FENTON, MO, 63099

DATE: 10/13/2023
 DWG.#: 6275392
 DRAWN BY: michael.co
 SCALE: 1/2" = 1'-0"
 MASTER DRAWING
 SHEET NO. 1

BC PROJECT #: 23673
 MISSOURI PE COA #2009003629

BC ENGINEERS INCORPORATED
 5720 Reeder Shawnee, KS 66203 (913)262-1772

GLMV ARCHITECTURE
 1526 E. Douglas, Wichita, KS 67211
 Tel: (316) 265-9387
 www.glmv.com

FREDDY'S FROZEN CUSTARD
 677 GRAVOIS BLUFFS BLVD.
 FENTON, MO 63026

11/15/2023
 ERIK B. KNUDSEN
 REGISTERED PROFESSIONAL ENGINEER
 NUMBER PE-2004026504

02132R23006
 PLAN SET REVISION

CONTRACT DATE 11/15/2023
 SHEET NO. MECHANICAL HOOD PLANS
M300

EXHAUST FAN INFORMATION - JOB#6275392

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	ITEM 74.1	1	CASRE18DD	CAPTIVEAIRE	1600	1.400	1105	DD, PREMIUM	1.000	0.6270	3	208	3.8	928 FPM	282	15.7
2	ITEM 74.2	1	DJ50HFA	CAPTIVEAIRE	775	1.250	1932	TEAD-ECM	0.500	0.3950	1	115	6.3	295 FPM	102	16.4

DOAS/RTU FAN SCHEDULE - JOB#6275392

FAN UNIT NO	TAG	QTY	DOAS/RTU MODEL #	MANUFACTURER	FAN INFORMATION										ELECTRICAL INFORMATION										COOLING INFORMATION										REHEAT INFORMATION										GAS HEAT INFORMATION										NOTES
					BLOWER	RETURN AIR CFM	MAX OUTSIDE AIR CFM	TOTAL CFM	WEIGHT (LBS)	ESP	HP	PHASE	VOLT	MCA	MDCP	OUTSIDE AIR DB	OUTSIDE AIR WB	MIXED AIR DB	MIXED AIR WB	LEAVING AIR DB	LEAVING AIR WB	DP	TOTAL CAPACITY	DEER	ISMRE	DISCHARGE DB	DISCHARGE WB	DESIRED MAX	MOISTURE REMOVAL RATE	GAS TYPE	INPUT BTUS	OUTPUT BTUS	TEMP RISE	REQUIRED INPUT GAS PRESSURE																					
3	ITEM 74.3	1	CASRTU3-1250-18-15T	CAPTIVEAIRE	18P-3	0	2250	2250	2520	0.500	2.00	3	208	59.2A	60A	86.2°F	79.2°F	86.2°F	79.2°F	57.6°F	55.4°F	54.0°F	186.0 MBH	68.1 MBH	18.8	5.7	70.0°F	60.1°F	30.7 MBH	129.6 MBH	106.2 LBS/HR	NATURAL	229009	185497	69°F	7 IN. W.C. - 14 IN. W.C.	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15																		

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).
- 2" EXTERIOR DUAL-WALL CONSTRUCTION W/ R-13 INSULATION-MINIMUM 250A EXTERIOR W/ 14GA BASE.
- BIX EFFICIENT FURNACE, WITH MODULATING INDUCER TO MAINTAIN CONSTANT COMBUSTION EFFICIENCY ACROSS FIRING RANGE. 64 TURNDOWN WITH NG AND 50 TURNDOWN WITH LP.
- SUPPLY CFM MONITORING INTEGRAL TO UNIT WITH CFM MEASUREMENT INCLUDED THROUGH DIGITAL INTERFACE.
- FULLY MODULATING HOT GAS REHEAT.
- HALL GUARD FOR CONDENSING COIL.
- DOWN DISCHARGE/DOWN RETURN.

FAN OPTIONS

FAN UNIT NO	TAG	QTY	DESCRIPTION
1	ITEM 74.1	1	UTILITY SET GREASE CUP
		1	RE18 - DISCHARGE EXTENSION ASSEMBLY WITH HARDWARE
		1	2 YEAR PARTS WARRANTY
2	ITEM 74.2	1	GREASE BOX
		1	UPPLAST FAN WHEEL ACCESS PORT
		1	36" TALL STRAIGHT WIND BAND EXTENSION 13 (SHIPS LOOSE)
3	ITEM 74.3	1	GUY LINE EYE BOLTS - USED FOR 3 GUY LINE TIE OFF POINTS
		1	ECM WIRING PACKAGE - PWM SIGNAL FROM ECM#3 PREVIRE (TELCD MOTOR), CCV ROTATION
		1	2 YEAR PARTS WARRANTY
		1	INLET PRESSURE GAUGE, 0-35"
		1	MANIFOLD PRESSURE GAUGE, 0 TO 10" WC, 1 FURNACE
		1	SHIP LOOSE GAS STRAINER 1"
		1	SINGLE POINT ELECTRICAL CONNECTION FOR RTU, 750VA TRANSFORMER USED. IF A NON-DCV PREVIRE CONTROLS THIS UNIT, THE #88, #47, #44, OR #22 PREVIRE OPTION MUST BE SELECTED. DOES NOT PROVIDE SUPPLY STARTER IN PREVIRE.
		1	CASLINK BUILDING MONITORING SYSTEM - INTERNET OR CELLULAR CONNECTION REQUIRED
		1	RTU3 DOWN DISCHARGE
		1	2" MERV 13 FILTERS FOR RTU3 (QTY. 4)
		1	2" MERV 8 FILTERS FOR RTU3 (QTY. 4)
		1	OVERHEAT STAT
		1	24VAC FIRE INPUT
		1	RTU3 DOWN RETURN
		1	RTU RETURN MOUNTED SMOKE DETECTOR AND SAMPLING TUBE - FACTORY INSTALLED
1	OCCUPIED SCHEDULING		
1	CLOGGED FILTER SWITCH - NOTIFICATION ON HMI		
1	15 TON MODULATING COOLING OPTION, 208/230V, R410A REFRIGERANT, VARIABLE SPEED COMPRESSOR, ECM CONDENSING FANS		
1	15 TON MODULATING REHEAT OPTION - SPACE DEWPOINT CONTROL		
1	RTU INTAKE/RETURN DAMPER - MANUAL CONTROL VIA HMI		
1	RTU3 HALL GUARD		
1	RTU3 CURB DUCT HANGER		
1	UNIT MOUNTED VFD CONFIGURED FOR DCV		
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)		

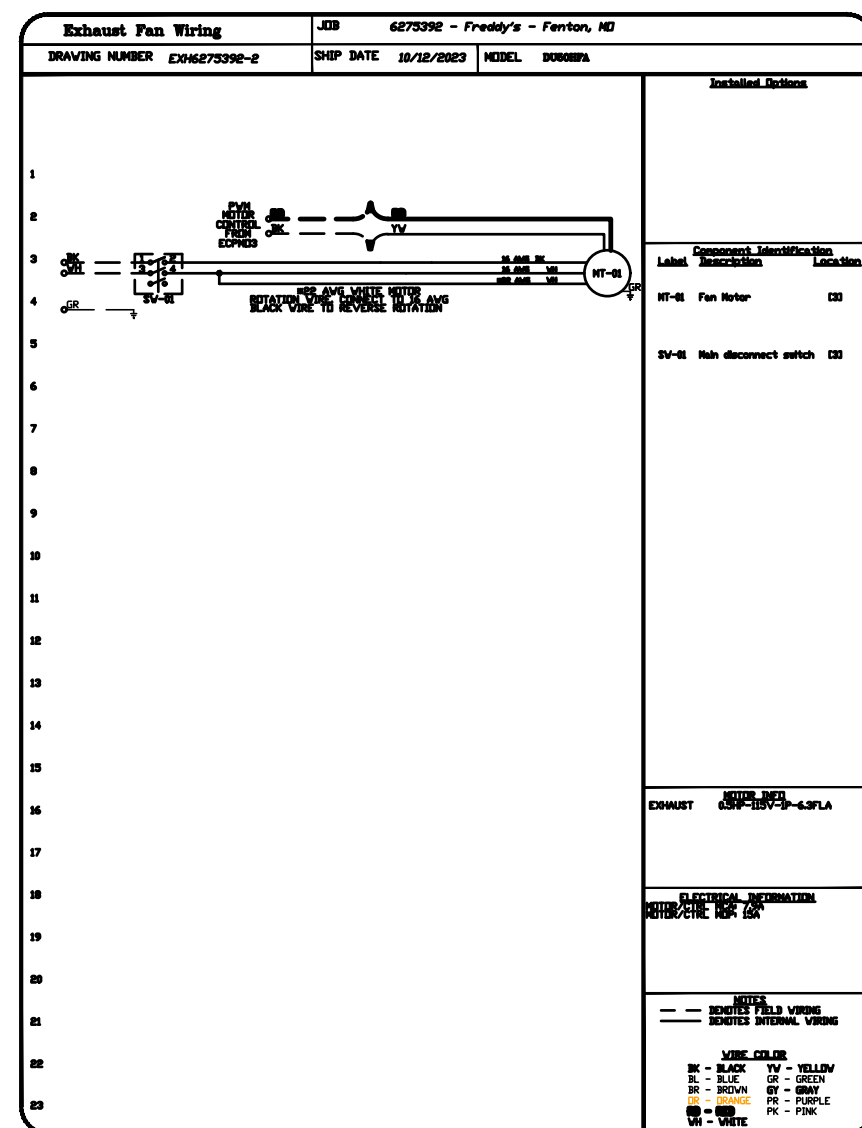
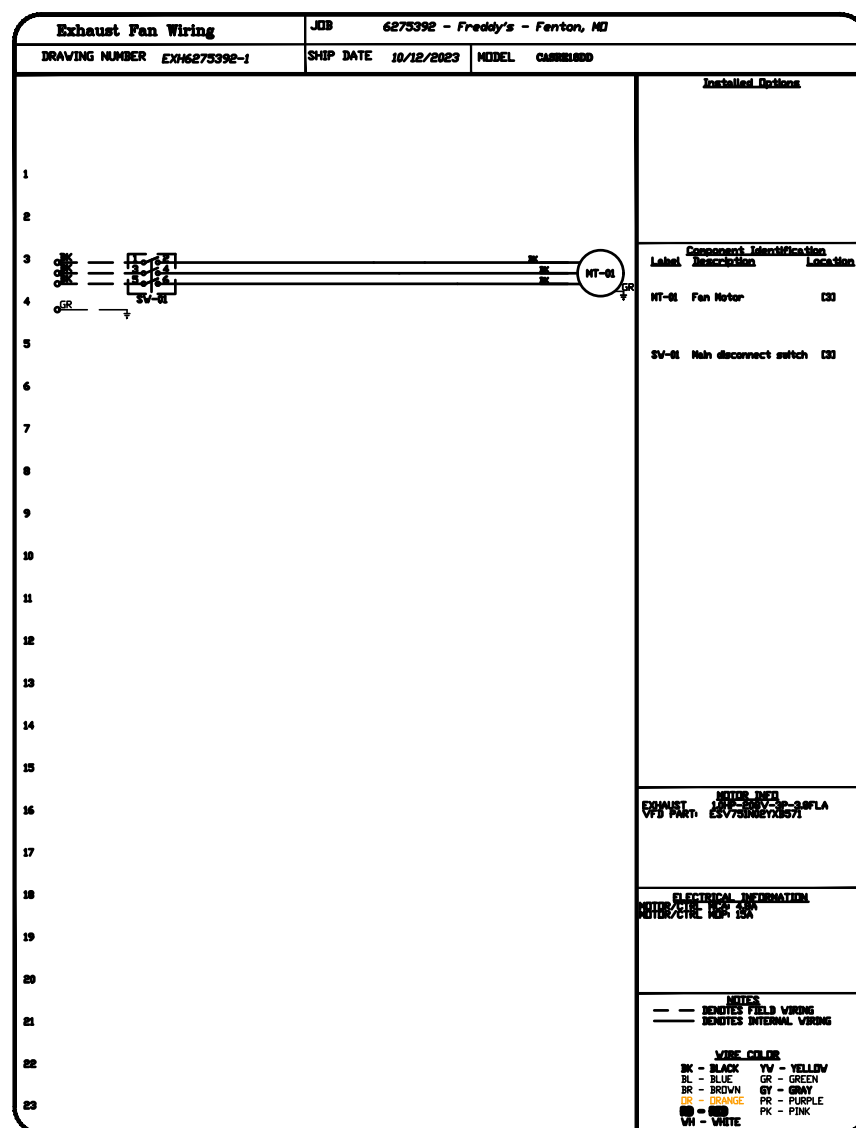
FAN ACCESSORIES

FAN UNIT NO	TAG	EXHAUST	SUPPLY
1	ITEM 74.1	YES	NO
2	ITEM 74.2	YES	NO

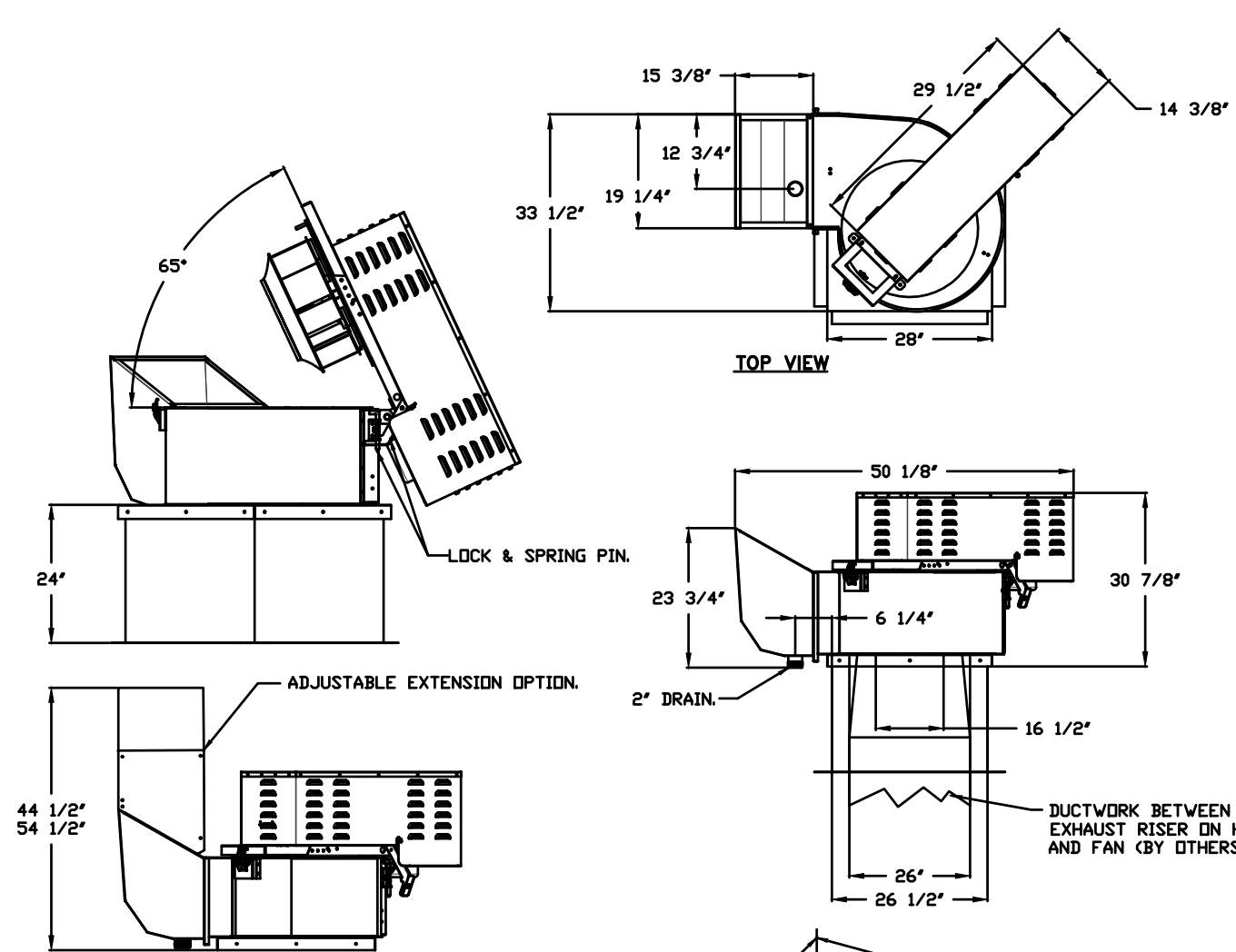
CURB ASSEMBLIES

NO	FAN	TAG	WEIGHT	ITEM	SIZE
1	# 1	ITEM 74.1	92 LBS	CURB	26.500"W X 26.500"L X 24.000"H VENTED HINGED.
2	# 2	ITEM 74.2	31 LBS	CURB	19.500"W X 19.500"L X 20.000"H VENTED HINGED.
3	# 3	ITEM 74.3	104 LBS	CURB	59.500"W X 91.000"L X 14.000"H INSULATED.

UNIT NUMBER	HMI #	HMI LOCATION	TEMP AVERAGING	MODBUS ADDRESS
FAN #3	HMI #1 - UNIT HMI #1	MOUNTED IN UNIT	NOT AVERAGED	55
FAN #3	HMI #2 - SPACE HMI #1	KITCHEN	AVERAGED	56
FAN #3	HMI #3 - SPACE HMI #2	OFFICE	NOT AVERAGED	57



FAN #1 CASRE18DD - EXHAUST FAN (ITEM 74.1)



FEATURES:

- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL762 AND ULC-S645.
- HIGH HEAT OPERATION DIRECT DRIVE 300°F (149°C).
- HEAT SLINGER.
- GREASE CLASSIFICATION TESTING.
- TILT OUT WHEEL.
- LOCKING PIN FOR POWER PACK.
- MOTOR WEATHER COVER.
- INTERLOCKED DISCONNECT SWITCH.
- NEMA 4X SAFETY DISCONNECT SWITCH.

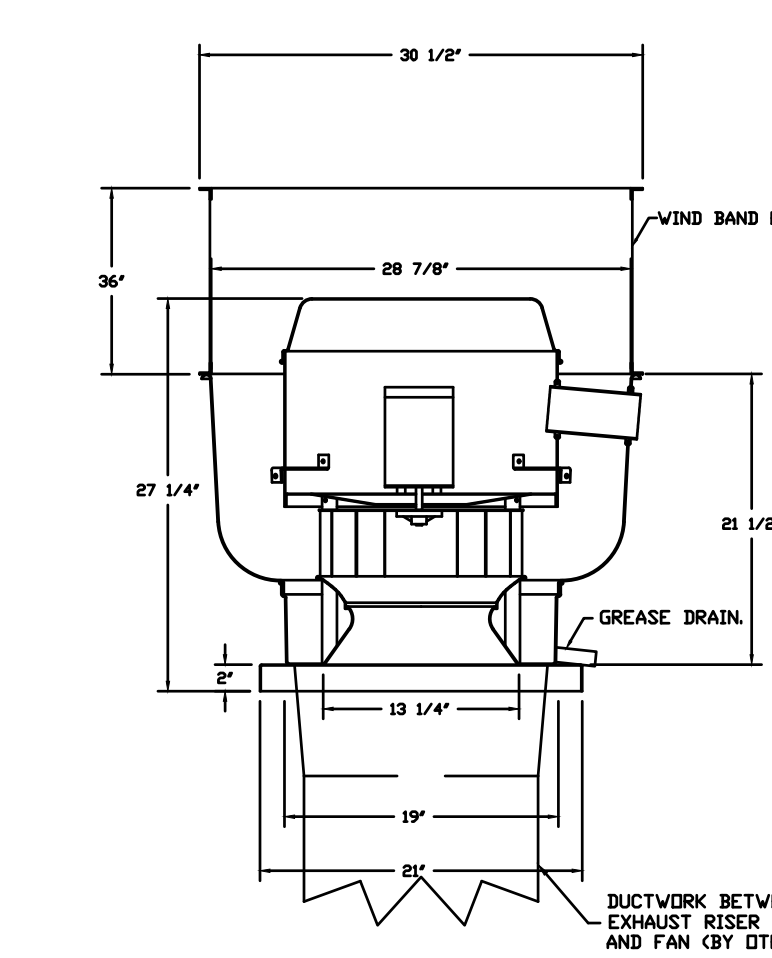
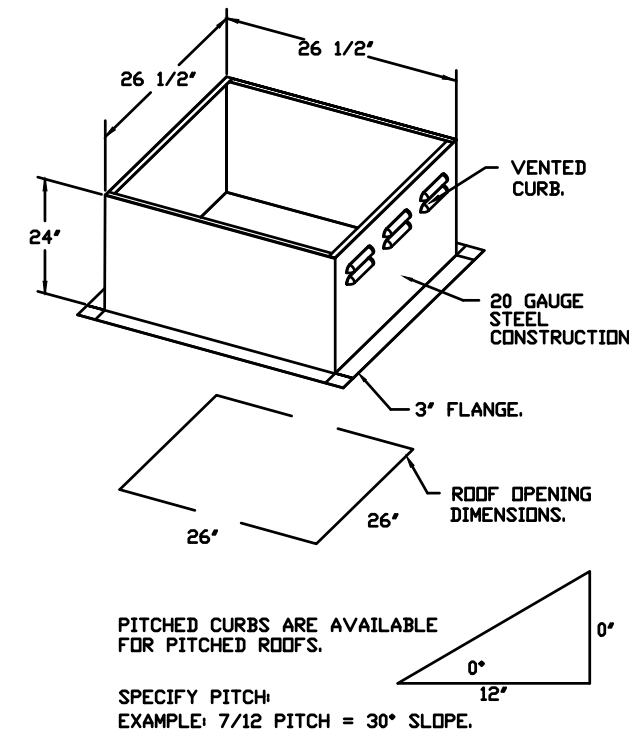
NORMAL TEMPERATURE TEST DIRECT DRIVE EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETRIMENTARY EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

ABNORMAL FLARE-UP TEST BELT & DIRECT DRIVE EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING BURNING GREASE VAPORS AT 600°F (316°C) FOR A PERIOD OF 15 MINUTES WITHOUT THE FAN BECOMING DAMAGED TO ANY EXTENT THAT COULD CAUSE AN UNSAFE CONDITION.

OPTIONS

- UTILITY SET GREASE CUP
- RE18 - DISCHARGE EXTENSION ASSEMBLY WITH HARDWARE.
- 2 YEAR PARTS WARRANTY.

FAN #2 DJ50HFA - EXHAUST FAN (ITEM 74.2)



FEATURES:

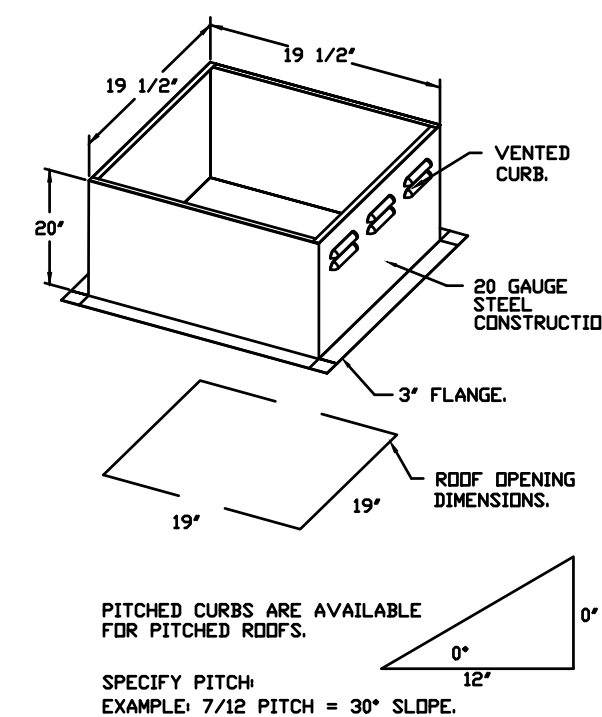
- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL705 AND UL762 AND ULC-S645
- VARIABLE SPEED CONTROL.
- INTERNAL WIRING.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).
- HIGH HEAT OPERATION 300°F (149°C).
- GREASE CLASSIFICATION TESTING.
- NEMA 4X SAFETY DISCONNECT SWITCH.

NORMAL TEMPERATURE TEST EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETRIMENTARY EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

ABNORMAL FLARE-UP TEST EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING BURNING GREASE VAPORS AT 600°F (316°C) FOR A PERIOD OF 15 MINUTES WITHOUT THE FAN BECOMING DAMAGED TO ANY EXTENT THAT COULD CAUSE AN UNSAFE CONDITION.

OPTIONS

- GREASE BOX.
- UPPLAST FAN WHEEL ACCESS PORT.
- 36" TALL STRAIGHT WIND BAND EXTENSION 13 (SHIPS LOOSE).
- GUY LINE EYE BOLTS - USED FOR 3 GUY LINE TIE OFF POINTS.
- ECM WIRING PACKAGE - PWM SIGNAL FROM ECM#3 PREVIRE (TELCD MOTOR), CCV ROTATION.
- 2 YEAR PARTS WARRANTY.



Freddy's - Fenton, MO
FENTON, MO, 63099

DATE: 10/13/2023

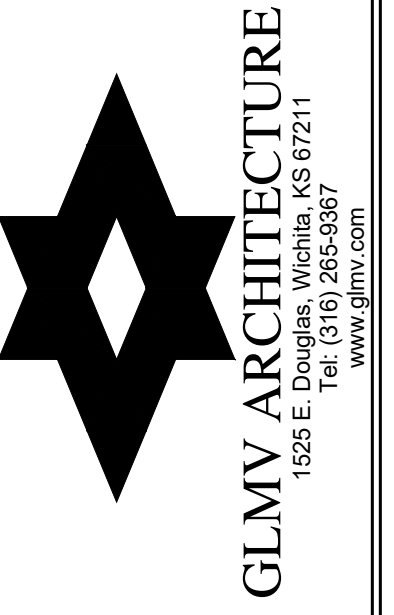
DWG.#: 6275392

DRAWN BY: michael.co

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

MASTER DRAWING

SHEET NO. 2



FREDDY'S FROZEN CUSTARD
677 GRAVOIS BLUFFS BLVD.
FENTON, MO 63026



02132R23006

PLAN SET REVISION

CONTRACT DATE 11/15/2023

SHEET NO. MECHANICAL HOOD PLANS
M400

BC PROJECT #: 23673
MISSOURI PE COA #2009003629
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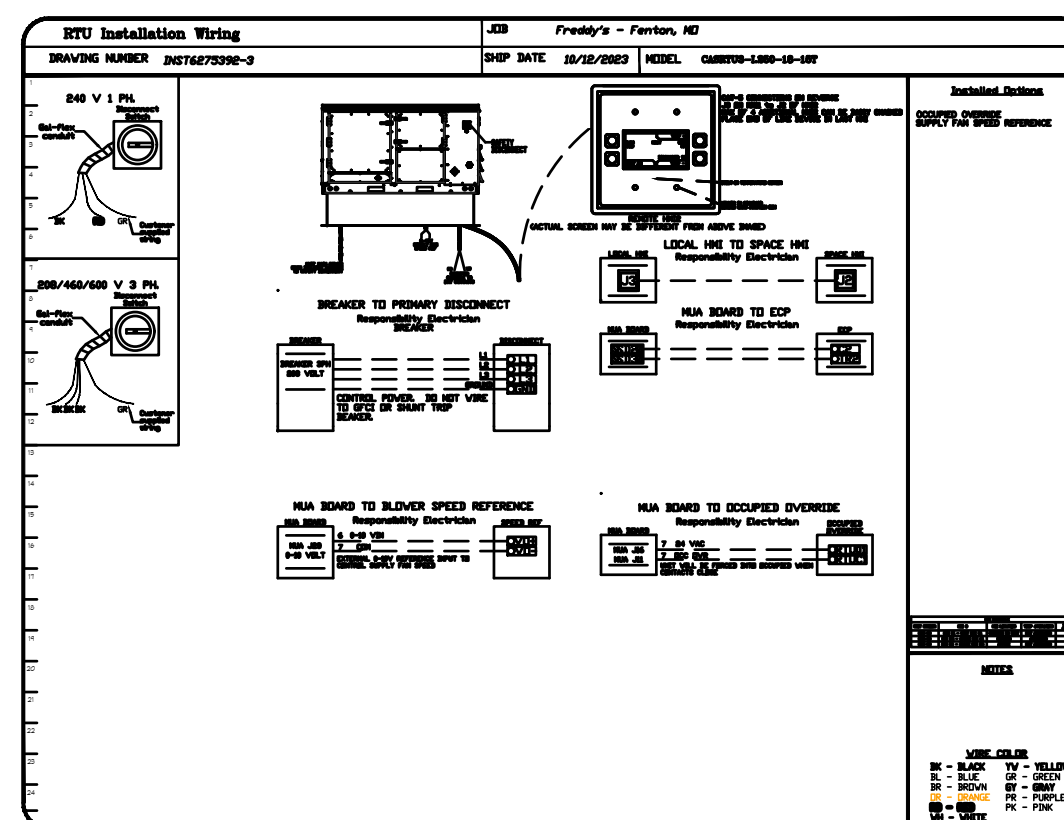
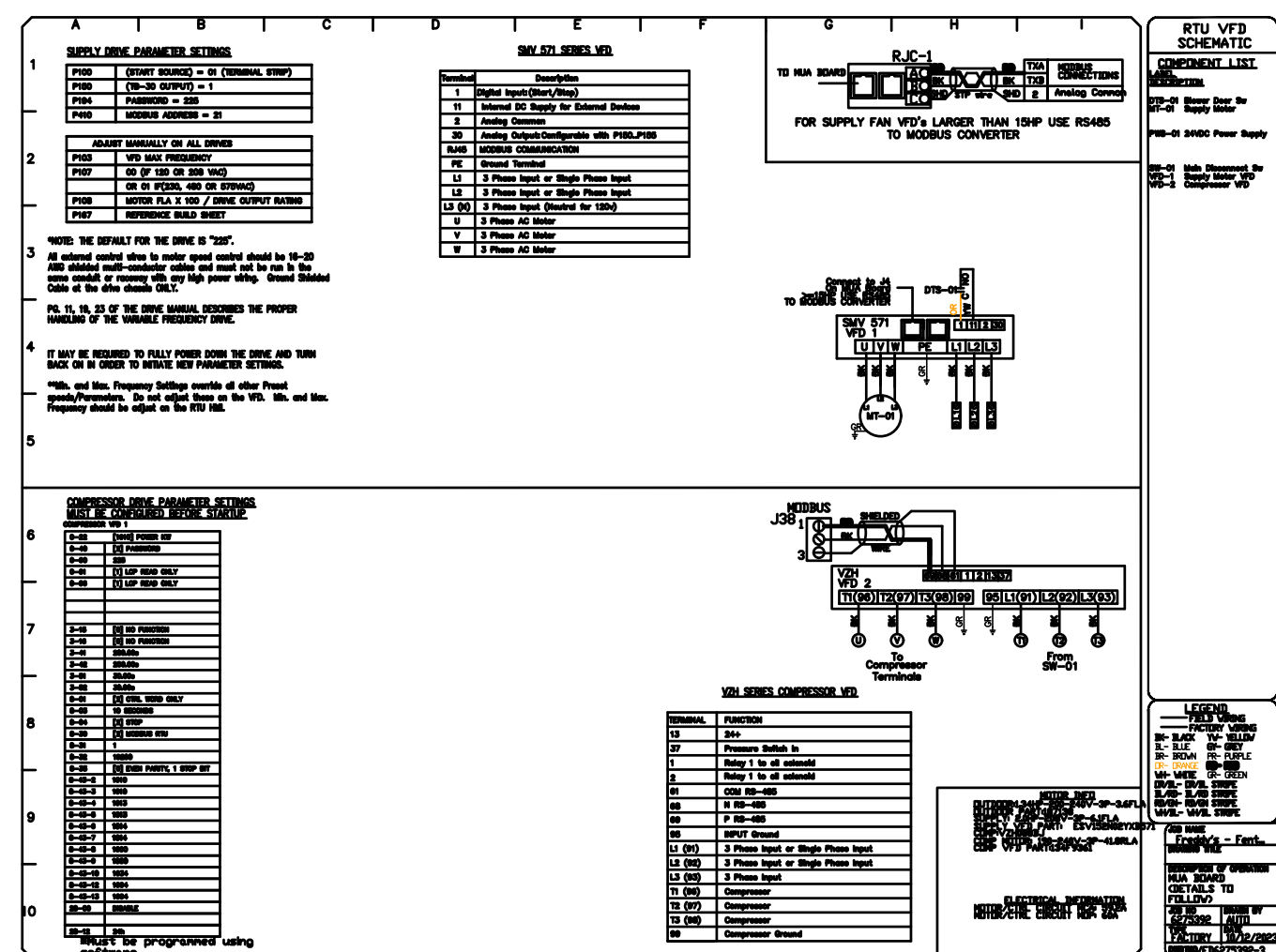
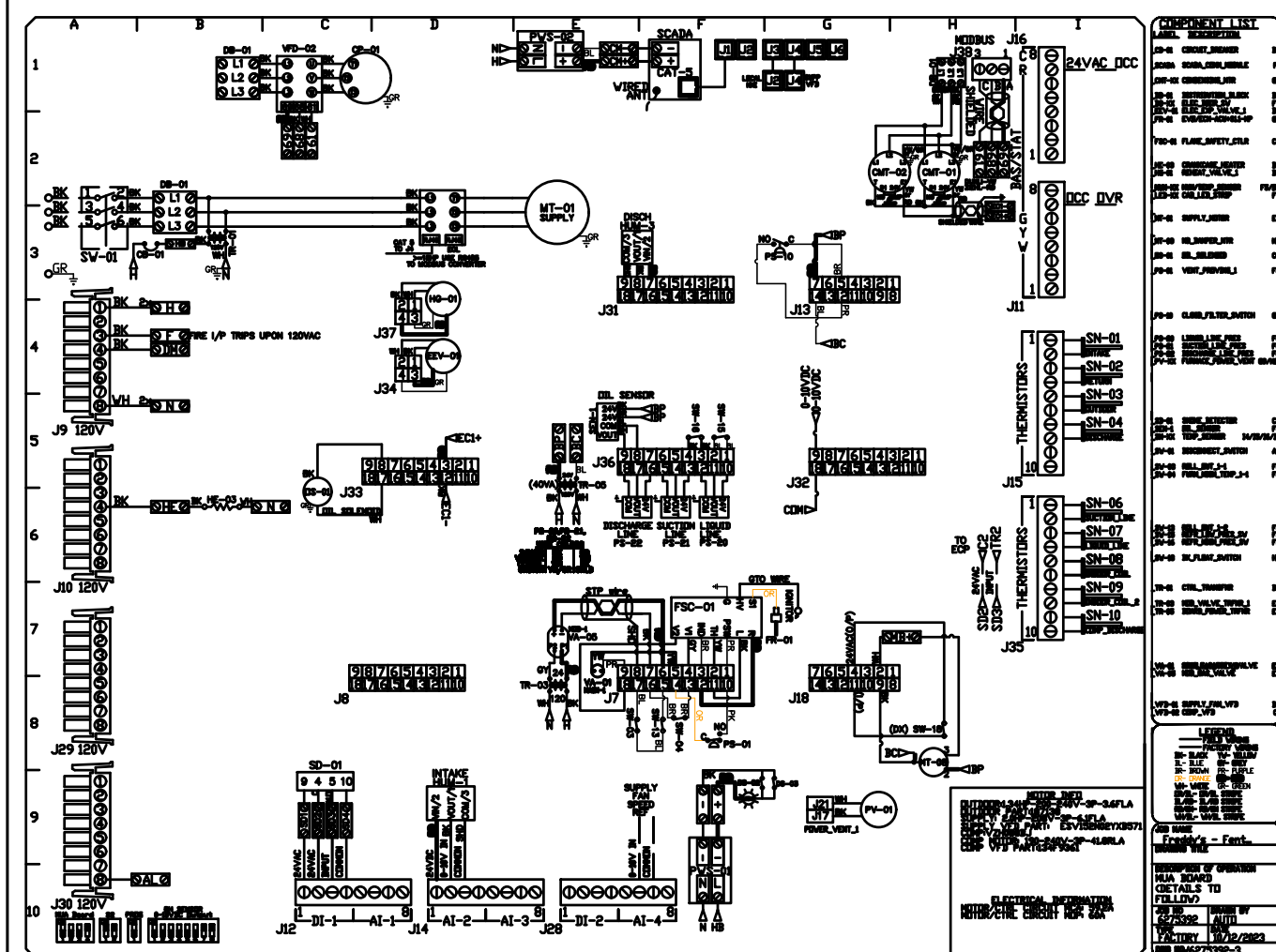
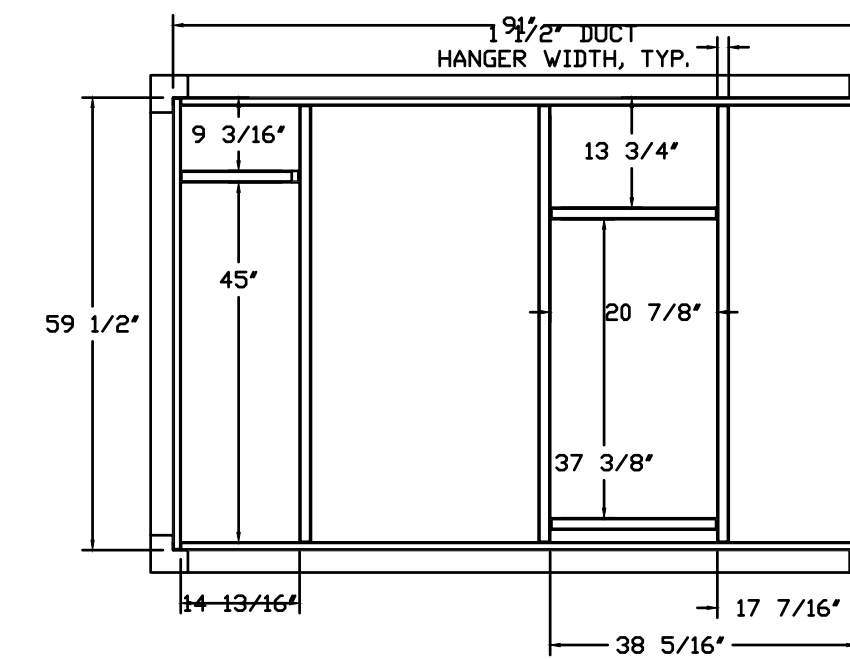
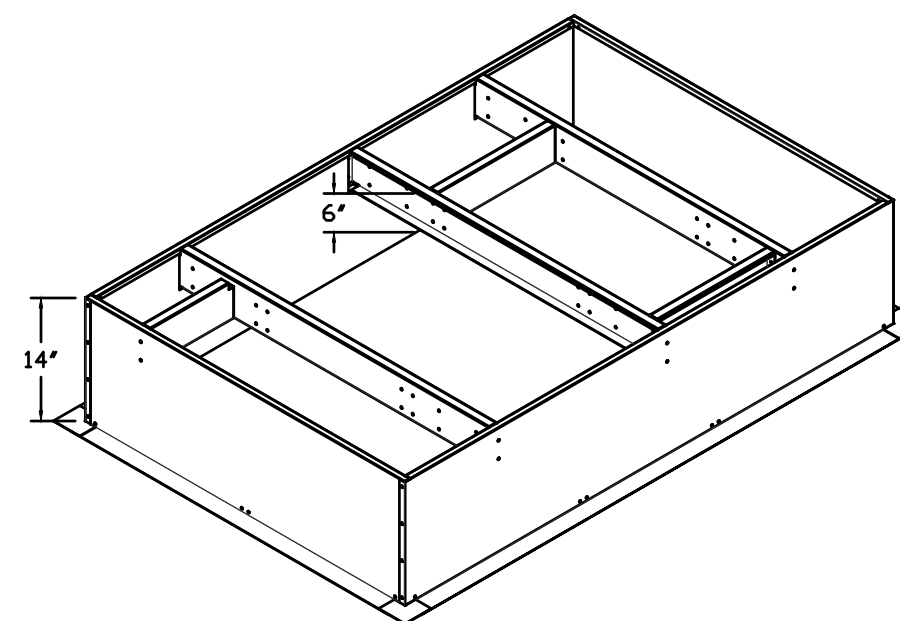
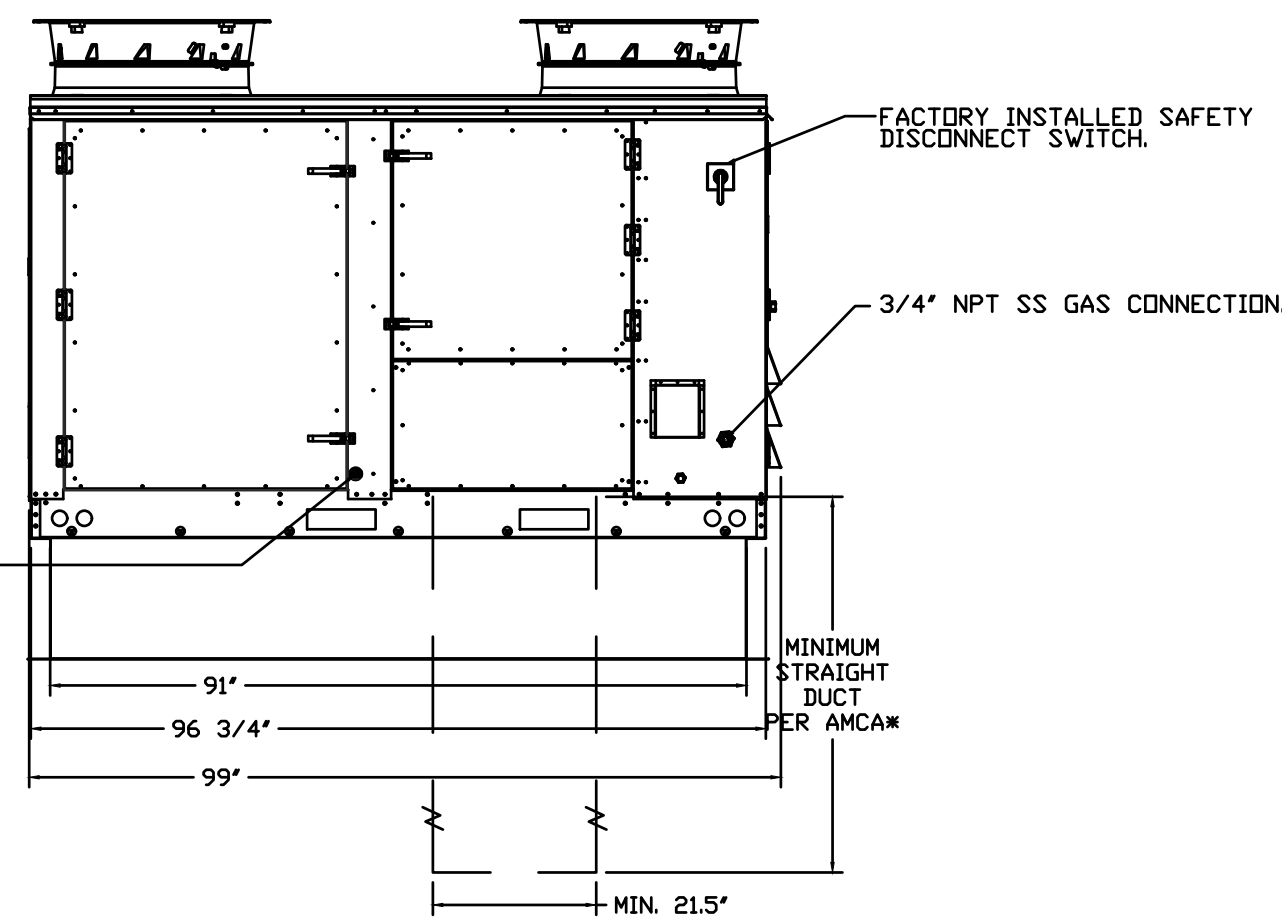
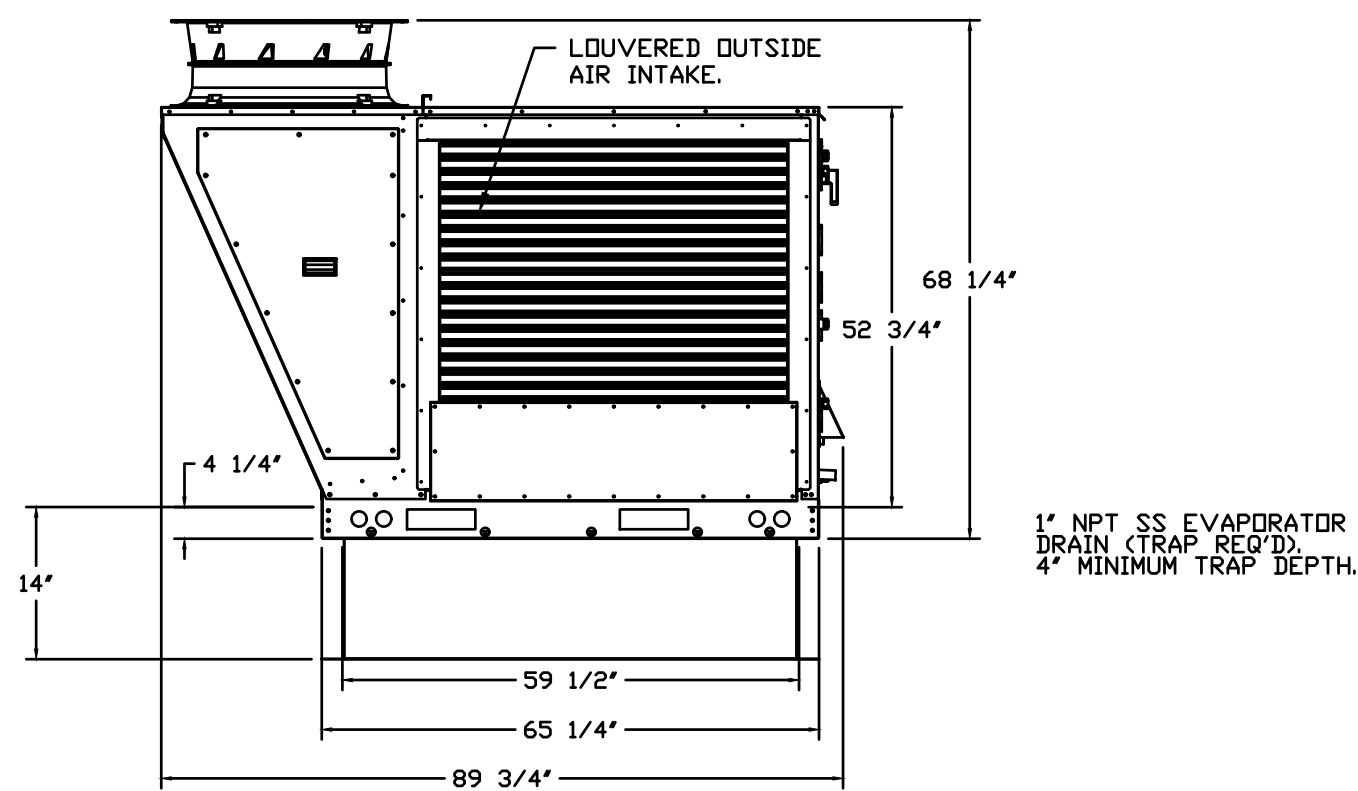
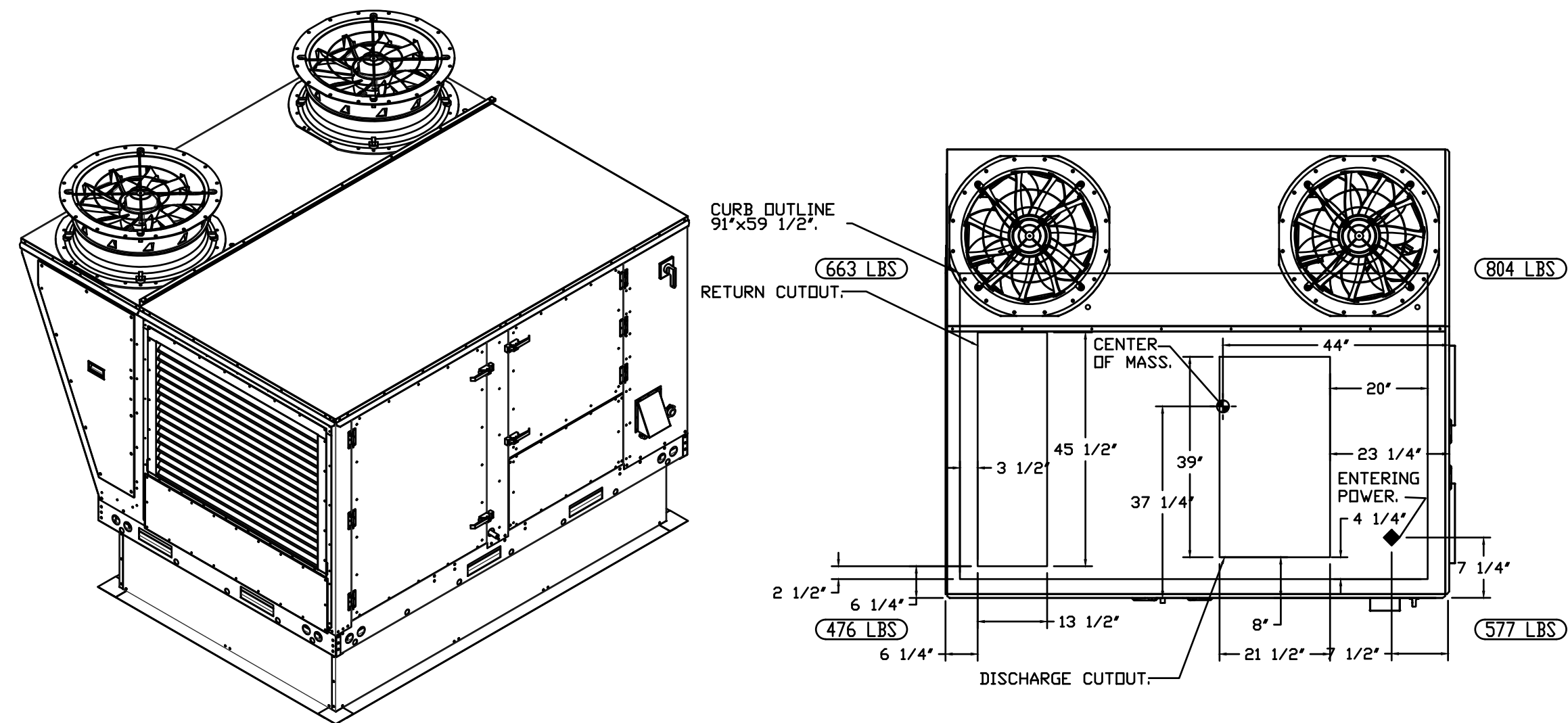


FAN #3 CASRTU3-1.250-18-15T - HEATER (ITEM 74.3)

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.

*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 21.5" x 39".



REVISIONS	
DESCRIPTION	DATE

www.captiveair.com
reg98@captiveair.com

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CAPTIVE
HBT Foodservice

Freddy's - Fenton, MO
FENTON, MO, 63099

DATE: 10/13/2023
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MASTER DRAWING

SHEET NO. 3

BC PROJECT #: 23673
MISSOURI PE COA #2009003629

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11/15/2023
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PLAN SET REVISION

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SHEET NO.
MECHANICAL HOOD
PLANS
M500

