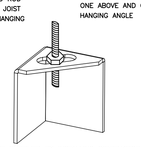
ND-2 HANGING ANGLE DETAIL

1/2" DIA. ALL THREAD ROD CONNECTED TO ROOF JOIST THROUGH ANOTHER HANGING ANGLE

1/2" DIA. HEAVY DUTY NUT ONE ABOVE AND ONE BELOW HANGING ANGLE



*ROD AND NUTS TO BE SUPPLIED BY INSTALLING CONTRACTOR
HANGING ANGLE IS PRE-PUNCHED AT FACTORY

HANGING ANGLE LOCATIONS

HOOD STYLE	DIM FROM REAR	DIM FROM FRONT (24"H)	DIM FROM FRONT (30"H)
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/LIN.FT. (LOAD)

SUPPLY CFM=EXHAUST CFM X PERCENTAGE REQUIRED

TOTAL DUCT AREA=144 X $\frac{\text{CFM}}{\text{FPM(*)}}$

DUCT LENGTH= $\frac{\text{TOTAL DUCT AREA}}{\text{DUCT DEPTH}}$

*CAPTIVE-AIRE DUCT CONNECTION SIZES ARE CALCULATED USING AN EXHAUST VELOCITY OF 1500-1800 FPM AND A SUPPLY VELOCITY OF 300-400 FPM.

BUILDING CODES

CAPTIVE-AIRE HOODS ARE BUILT IN COMPLIANCE WITH:

ETL LISTED #3054804-001 & #3054804-002

UL STANDARD 710

Intertek

BUILT IN ACCORDANCE WITH NFPA No. 96

Listed under ETL File number 3054804-001/002

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

1. ALL ELECTRICAL "FIELD" CONNECTIONS AND RELATED INTERCONNECTIONS BY ELECTRICAL CONTRACTORS.
2. ALL PLUMBING "FIELD" CONNECTIONS AND RELATED INTERCONNECTIONS BY PLUMBING CONTRACTORS.
3. HANGING BRACKETS LOCATED AND WELDED AS SHOWN ON PLANS. ALL OTHER HANGER MATERIALS PROVIDED BY INSTALLING CONTRACTORS.
4. ALL CONNECTIONS FROM CAPTIVE-AIRE DUCT PER MECHANICAL CONTRACTOR'S PLANS.
5. COOKING EQUIPMENT TO SHUTOFF IN EVENT OF FIRE.
6. EXHAUST FANS TO TURN ON IN EVENT OF FIRE.
7. ALL LIGHTS FIXTURE SHOWN INSTALLED BY CAPTIVE-AIRE ARE FACTORY PREWIRED. INTERCONNECTIONS BETWEEN HOODS AND TO SWITCHES BY ELECTRICAL CONTRACTORS.
8. LAMPS FOR LIGHT FIXTURES BY INSTALLING CONTRACTORS.
9. SEISMIC RESTAINTS ARE RESPONSIBILITY OF INSTALLING CONTRACTOR.
10. INSTALLING CONTRACTORS ASSUME ALL RELATED REPONSIBILITY FOR VERIFICATION OF DIMENSIONAL DATA CONTAINED ON THESE DOCUMENTS FOR ACCURACY, INTEGRATION, AND ADMINISTRATION OF CODE REQUIREMENTS IN EFFECT PRIOR TO ANY RELEASE FOR PRODUCTION OF EQUIPMENT SHOWN.

BALANCE

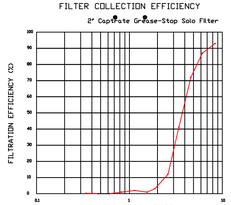
11. KITCHEN HOODS MUST BE BALANCED WITH KITCHEN.
12. KITCHEN SHALL BE NEGATIVE WITH RESPECT TO DINING AREA.
13. RESTAURANT SHALL BE POSITIVE WITH RESPECT TO AMBIENT PRESSURE.

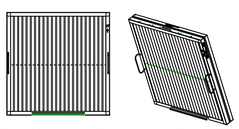
ADDITIONAL

14. WRITTEN HOOD DIMENSIONS HAVE PRECEDENCE OVER SCALE.
15. SIGNED AND "APPROVED" COPIES OF THIS DOCUMENT MUST BE RECEIVED BY THE FACTORY PRIOR TO COMMENCEMENT OF FABRICATION.

FILTER DETAIL

FILTER COLLECTION EFFICIENCY





CaptiveAire Captrate Solo Filter
ETL Listed Grease Extracting Filters
Made From 430 Stainless Steel

HOOD INFORMATION - JOB#5254570

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

HOOD INFORMATION

HOOD NO	TAG	FILTER(S) TYPE	QTY	HEIGHT	LENGTH	EFFICIENCY @ 7 MICRONS	LIGHT(S) QTY	TYPE	WIRE GUARD	LOCATION	SIZE	UTILITY CABINET(S) FIRE SYSTEM TYPE	SIZE	ELECTRICAL MODEL #	SWITCHES QUANTITY	FIRE SYSTEM PIPING	HOOD HANGING WEIGHT
1	GRIDDLE HD	CAPTRATE SOLO FILTER	5	16"	16"	85% SEE FILTER SPEC	2	RECESSED ROUND	NO	LEFT	12"x54"x24"			DCV-2011	1 LIGHT 1 FAN	NO	510 LBS
2	FRY HD	CAPTRATE SOLO FILTER	3	16"	16"	85% SEE FILTER SPEC	2	RECESSED ROUND	NO							NO	339 LBS

HOOD OPTIONS

HOOD NO	TAG	OPTION
1	GRIDDLE HD	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.
2	FRY HD	FIELD WRAPPER 18.00" HIGH FRONT, LEFT, RIGHT.
		LEFT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS.
		RIGHT VERTICAL END PANEL 27" TOP WIDTH, 21" BOTTOM WIDTH, 80" HIGH INSULATED 430 SS.

SPECIFICATION: CAPTRATE® GREASE-STOP® SOLO FILTER

THE CAPTRATE GREASE-STOP SOLO 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.

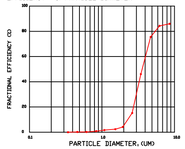
FILTER IS STAINLESS STEEL CONSTRUCTION, AND SIZED TO FIT INTO STANDARD 2-INCH DEEP HOOD CHANNEL(S).

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

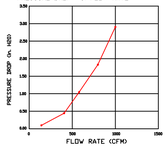
GREASE EXTRACTION EFFICIENCY PERFORMANCE SHALL REMOVE AT LEAST 75% OF GREASE PARTICLES FIVE MICRONS IN SIZE, AND 85% GREASE PARTICLES SEVEN MICRONS IN SIZE AND LARGER, WITH A CORRESPONDING PRESSURE DROP NOT TO EXCEED 1.0 INCHES OF WATER GAUGE.

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

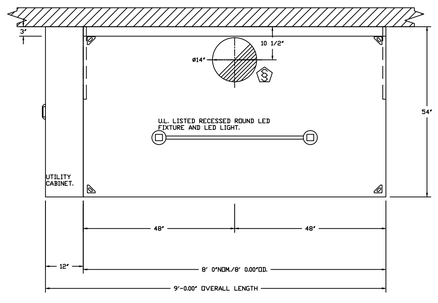
EFFICIENCY VS. PARTICLE DIAMETER



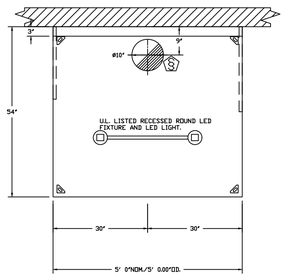
PRESSURE DROP VS. FLOW RATE



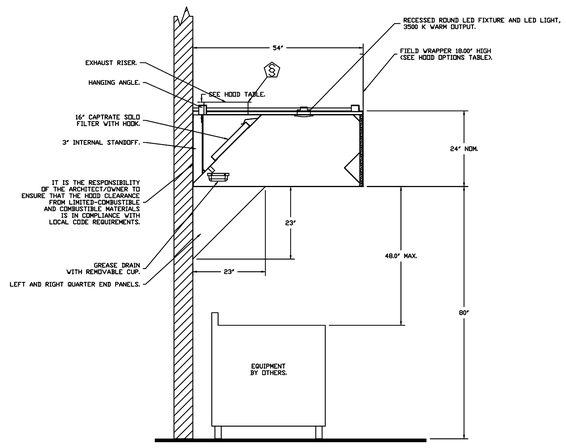
CAPTRATE FILTERS ARE BUILT IN COMPLIANCE WITH.
NFPA #96.
NSF STANDARD #2.
UL STANDARD #1046.
INT. MECH. CODE (IMC).
ULC-S649.



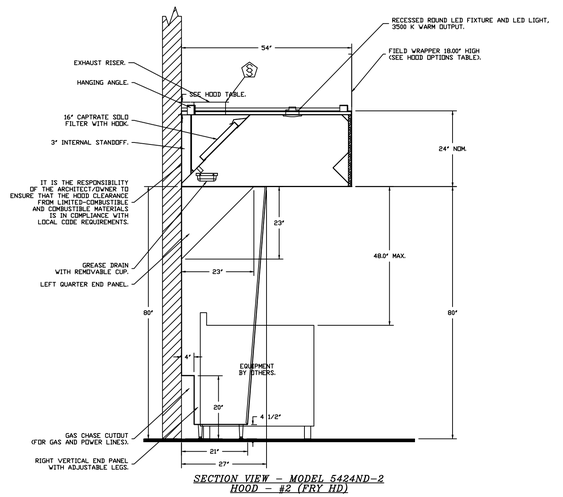
PLAN VIEW - HOOD #1 (GRIDDLE HD)
8' 0.00" LONG 5424ND-2



PLAN VIEW - HOOD #2 (FRY HD)
5' 0.00" LONG 5424ND-2



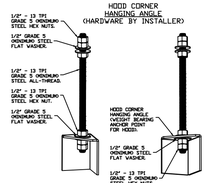
SECTION VIEW - MODEL 5424ND-2
HOOD - #1 (GRIDDLE HD)



SECTION VIEW - MODEL 5424ND-2
HOOD - #2 (FRY HD)

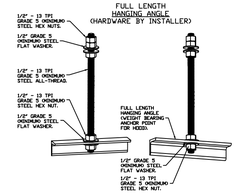
PATENT NUMBERS

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 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.



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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 ☐
Revise and Resubmit ☐

SIGNATURE _____
Your Title _____ Date _____

*** NOTE ***

ALL WALLS AND STRUCTURES THAT COME WITHIN 18" OF HOOD MUST BE METAL STUDS AND SHEETROCK. WOOD STUDS OR ANY OTHER COMBUSTIBLE MATERIAL WITHIN 18" OF HOOD NO 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

	DESCRIPTION	DATE:
△		
△		
△		
△		

CAPTIVE-AIRE
HBT Foodservice
www.captiveaire.com
104 W 9th St Suite 204, Kansas City, MO, 64105 PHONE: (816) 221-8575 FAX: (816) 221-8311 EMAIL: reg98@captiveaire.com

Freddy's - Jasper, AL
JASPER, AL, 35501

DATE: 8/19/2022

DWG.#: 5254570

DRAWN BY: michael.co

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

MASTER DRAWING

SHEET NO. 1

ADDITIONAL NOTES:

CONTRACTOR SHALL NOT ORDER ANY EQUIPMENT UNTIL DRAWINGS AND EQUIPMENT SUBMITTALS HAVE BEEN REVIEWED AND FINAL APPROVAL HAS BEEN OBTAINED FROM THE HEALTH DEPARTMENT AND LOCAL AUTHORITY HAVING REVIEW/APPROVAL RESPONSIBILITY FOR THIS PROJECT.

ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE DESIGN DRAWINGS. ANY FIELD CHANGES MUST BE APPROVED BY THE ARCHITECT OR ENGINEER PRIOR TO INSTALLATION. CONTRACTOR SHALL PAY IN ADVANCE FOR ALL COSTS ASSOCIATED WITH DRAWING REVISIONS REQUIRED BY FIELD CHANGES MADE WITHOUT PRIOR APPROVAL BY THE ARCHITECT OR ENGINEER.

HVAC TEST & BALANCE AND COMMISSIONING:

THE OWNER WILL HIRE AND PAY NATIONAL TRUE-TEST, INC. TO FIELD VERIFY THAT THE HVAC SYSTEMS, DUCTS, CONTROLS, HOODS AND VENTILATION SYSTEMS, ETC. HAVE BEEN INSTALLED, PROGRAMMED, BALANCED AND ARE FULLY OPERATIONAL AS DESIGNED AND SPECIFIED.

NATIONAL TRUE-TEST, INC.
www.NationalTrue-Test.com, (205)681-9050
5757 Carrington Lake Parkway, Trussville, AL 35173
Billy C. Bivens, III President

DISCREPANCIES WILL BE CORRECTED BY THE CONTRACTOR AT THEIR EXPENSE.

FURTHER WORK BY NATIONAL TRUE-TEST (OR ANY COMMISSIONING COMPANY OR AGENT) REQUIRED TO TROUBLE SHOOT OR VERIFY THAT THE SYSTEMS ARE FULLY OPERATIONAL &/OR THE DISCREPANCIES HAVE BEEN PROPERLY CORRECTED WILL BE PAID FOR BY THE CONTRACTOR.

PACKAGED ROOFTOP OUTSIDE AIR UNIT SCHEDULE

SYMBOL	MANUFACTURER/ MODEL NO.	SERVICE	SUPPLY CFM	O.A. CFM			ESP (IN. W.C.)	SUPPLY FAN						COOLING CAPACITY				HOT GAS REHEAT				NAT. GAS HEAT		FILTERS	ELECTRICAL						NOTES
				MIN	MAX	100%		HP	TYPE	DRIVE	RPM	VIBRATION ISOLATION		EDB (°F)	EWB (°F)	LDB (°F)	LWB (°F)	DISCHARGE	CAPACITY			INPUT (MBH)	OUTPUT (MBH)		UNIT MCA	UNIT MOCP	(VOLTS/PH/HZ)	DISCONNECT	MOTOR STARTER	
												TYPE	DEFL. (IN.)					DB	WB	DESIRED	MAX									
DOAS-1	CASRTU3-I.200-15-15T-DOAS	KITCHEN	2100	605	2100	2100	0.5	2.0	DDP	DIRECT	–	3	0.75	83	78	54	51	70.0	57.7	38.2 MBH	129.6 MBH	169.2	137.0	2" PLEATED MEDIA	59.2	60	208/3/60	BY ELEC.	BUILT-IN	SEE BELOW
DOAS-2	CASRTU3-I.200-24-12.5T-DOAS	DINING	4800	650	720	4800	0.5	5.0	DDP	DIRECT	–	3	0.75	83	78	55	55	70.0	60.6	80.3 MBH	101.0 MBH	128.4	104.0	2" PLEATED MEDIA	68.8	80	208/3/60	BY ELEC.	BUILT-IN	SEE BELOW

NOTES:

1. INVERTER SCROLL COMPRESSOR WITH INTEGRATED OIL SENSOR. DIGITAL OR STAGED SCROLL NOT AN APPROVED EQUAL
2. DIRECT DRIVE PLENUM BLOWER. BELT DRIVEN BLOWERS ARE NOT ACCEPTABLE
3. INTEGRATED MONITORING VIA CELLULAR CONNECTION BY MANUFACTURER
4. REFRIGERATION PRESSURE MONITORING ON HIGH AND LOW PRESSURE SIDE OF SYSTEM INCLUDED THROUGH DIGITAL INTERFACE
5. EC MOTOR CONDENSING FANS
6. ELECTRONIC EXPANSION VALVE. TXV NOT ACCEPTABLE
7. SUCTION LINE ACCUMULATOR
8. FACTORY COMMISSIONING WITH 5 YEAR PARTS WARRANTY, 25 YEAR WARRANTY ON STAINLESS STEEL HEAT EXCHANGER
9. AVERAGING INTAKE, EVAP AND DISCHARGE TEMPERATURE SENSORS (DISCHARGE SENSOR TO BE FACTORY MOUNTED WITHIN UNIT)
10. 2" EXTERIOR DUAL-WALL CONSTRUCTION W/ R-13 INSULATION-MINIMUM 20GA EXTERIOR W/ 14GA BASE
11. 81% EFFICIENT FURNACE, WITH MODULATING INDUCER TO MAINTAIN CONSTANT COMBUSTION EFFICIENCY ACROSS FIRING RANGE. 6:1 TURNDOWN WITH NG AND 5:1 TURNDOWN WITH LP
12. SUPPLY CFM MONITORING INTEGRAL TO UNIT WITH CFM MEASUREMENT INCLUDED THROUGH DIGITAL INTERFACE
13. FULLY MODULATING HOT GAS REHEAT
14. HAIL GUARD FOR CONDENSING COIL
15. DOWN DISCHARGE/DOWN RETURN
16. 15 DEGREE LOW AMBIENT OPERATION
17. RTU ECONOMIZER WITH DIFFERENTIAL ENTHALPY CONTROL
18. BAROMETRIC RELIEF DAMPER
19. SEE CAPTIVEAIRE DRAWINGS FOR ADDITIONAL OPTIONS AND FEATURES.

NOTE:
HVAC ROOFTOP UNITS AND CURBS ARE FURNISHED BY OWNER, INSTALLED BY CONTRACTOR.

KITCHEN EXHAUST HOOD SCHEDULE

SYMBOL	MANUFACTURER/ MODEL NO.	SERVICE	EXHAUST AIR		MAKEUP AIR		TYPE	1 CANOPY DIMENSIONS (IN.)			ELECTRICAL		NOTES
			CFM	SP (IN. W.C.)	CFM	AC CFM		LENGTH	WIDTH	HEIGHT	(VOLTS/PH/HZ)	MARINE LIGHTS	
KH-1	CAPTIVE AIRE 5424 ND-2-PSP-F	MAIN COOK LINE	1600	0.734	–	–	CANOPY EXHAUST	108	54	24	120/1/60	2	TYPE 430 WELDED STAINLESS STEEL, U.L. 710 LISTED, NSF APPROVED & NFPA-96 COMPLIANT, 450°F
KH-2	CAPTIVE AIRE 5424 ND-2-PSP-F	FRYERS	775	0.436	–	–	CANOPY EXHAUST	60	54	24	120/1/60	2	TYPE 430 WELDED STAINLESS STEEL, U.L. 710 LISTED, NSF APPROVED & NFPA-96 COMPLIANT, 450°F

COORDINATE EXACT HOOD DIMENSIONS WITH ARCHITECTURAL DRAWINGS.
HOODS SHALL OVERHANG COOKING EQUIPMENT 6 INCHES ON ALL OPEN SIDES AND SHALL EXTEND FROM 6'-6" AFF TO 2" ABOVE CEILING. PROVIDE SS CLOSURE PANELS AS REQUIRED.
KITCHEN HOODS SHALL BE FURNISHED BY OWNER AND INSTALLED BY G.C.
AIR FLOW QUANTITIES MUST BE EQUAL TO BASIS OF DESIGN.

EXHAUST FAN SCHEDULE

SYMBOL	MANUFACTURER/ MODEL NO.	CFM	SP (IN. W.C.)	RPM	MAX. SONES	LOCATION	TYPE	DRIVE	VIBRATION ISOLATION		ELECTRICAL			NOTES
									TYPE	DEFL. (IN.)	MOTOR HP	(VOLTS/PH/HZ)	DISCONNECT	MOTOR STARTER	
KEF-1	CAPTIVE AIRE DUB9HFA	1600	1.2	1351	15.5	ROOF	CENTRIFUGAL UPBLAST	DIRECT	–	–	0.75	115/1/60	NEMA-1	BUILT IN	UL-762 LABELED, HINGED CURB CAP, VENTED ROOF CURB, SEE DETAIL
KEF-2	CAPTIVE AIRE DU50HFA	775	1.25	1532	16.6	ROOF	CENTRIFUGAL UPBLAST	DIRECT	–	–	1/2	115/1/60	NEMA-1	BUILT IN	UL-762 LABELED, HINGED CURB CAP, VENTED ROOF CURB, SEE DETAIL
EF-1	COOK GC-168	150	0.375	1160	4	CEILING	CENTRIFUGAL	DIRECT	–	–	50 W	120/1/60	BUILT-IN	BUILT-IN	ROOF CURB AND ROOF CAP, SCR SPEED CONTROLLER, MDW MOTION SENSOR
EF-2	COOK GC-168	90	0.375	1000	4	CEILING	CENTRIFUGAL	DIRECT	–	–	50 W	120/1/60	BUILT-IN	BUILT-IN	SCR SPEED CONTROLLER, MDW MOTION SENSOR

APPROVED MANUFACTURERS FOR EF-1 & 2 ARE GREENHECK, BREIDERT, COOK, AND TWIN CITY.
KEF-1 & 2 FURNISHED BY HOOD SUPPLIER, INSTALLED BY G.C.
ROOF CURBS FOR HOOD EXHAUST FANS KEF-1 & KEF-2 SHALL BE SIZED TO ACCOMMODATE TWO LAYERS OF FIRE RATED DUCT WRAP.

AIR DEVICE SCHEDULE

SYMBOL	MANUFACTURER/ MODEL NO.	TYPE	BORDER	CONSTRUCTION	SIZE (IN.)		FINISH	ACCESSORIES				NOTES
					NECK	FACE		EQUALIZING GRID	OBD	FIRE DAMPER	EXTRACTOR	
CDA	TITUS TDC-03	SQUARE LOUVERED FACE	LAY-IN	STEEL	AS NOTED	24x24	WHITE	YES	NO	AS NOTED	NO	INSULATED BACK
CDB	TITUS 250	SQUARE – ADJ. CURVED BLADE	SURFACE MOUNT	STEEL	AS NOTED	--	WHITE	YES	NO	AS NOTED	NO	4-WAY BLOW PATTERN
CDR	TITUS TMRA	ROUND LOUVERED FACE	SURFACE MOUNT	STEEL	AS NOTED	--	WHITE	YES	NO	AS NOTED	NO	ADJUSTABLE
PCD	TITUS PCS-AA	PERFORATED FACE	LAY-IN	ALUMINUM	AS NOTED	24x24	WHITE	YES	YES	AS NOTED	NO	ADJUSTABLE BLADES, INSULATED BACK
SRA	TITUS 300 RS	SIDEWALL DOUBLE DEFLECTION	SURFACE MOUNT	STEEL	AS NOTED	--	WHITE	NO	YES	AS NOTED	NO	SHORT FRONT BLADES
LDA	TITUS TBDI-30	PLENUM SLOT THREE 3/4" SLOTS	LAY-IN	STEEL	12"ø	48"	WHITE	--	--	NO	--	INSULATED PLENUM, PATTERN CONTROLLERS, FLAT BLACK FINISH ON INTERIOR PARTS
RGA	TITUS 50FF	EGGCRATE 1/2" GRID	LAY-IN	ALUMINUM	AS NOTED	24x24	WHITE	--	NO	AS NOTED	--	HINGED FACE TO ACCEPT 1" FILTER
RGB	TITUS 350 RL	FIXED BLADE 35°, 3/4" CENTERS	SURFACE MOUNT	STEEL	AS NOTED	--	WHITE	--	NO	AS NOTED	--	--

APPROVED MANUFACTURERS ARE TITUS, TUTTLE & BAILEY, KRUEGER, PRICE AND METALAIR

FLY FAN SCHEDULE

SYMBOL	MANUFACTURER/ MODEL NO.	AIR FLOW	LENGTH (IN.)	MAX. SOUND LEVEL (DB)	LOCATION	DRIVE	VIBRATION ISOLATION		ELECTRICAL				NOTES
							TYPE	DEFL. (IN.)	MOTOR HP	(VOLTS/PH/HZ)	DISCONNECT	MOTOR STARTER	
FF-1	POWERED AIRE RBT 1-36	2899 CFM	36	63	KITCHEN	DIRECT	2	0.25	3/4	208/1/60	DIV 16	BUILT-IN	DOOR SWITCH, NO HEAT, U.L. LISTED, NSF APPROVED
FF-2	READY ACCESS AA-100	600 FPM	22	–	KITCHEN	DIRECT	2	0.25	–	120/1/60	DIV 16	BUILT-IN	DOOR SWITCH, U.L. LISTED, THRU-WALL MOUNTING

1

THERMOSTAT SCHEDULE

MARK	SERVES	SUPPLY FAN		COOLING SETPOINT		HEATING SETPOINT		HUMIDITY SETPOINT	
		ON (DAYTIME)	AUTO (NIGHT SETBACK)	DAYTIME	NIGHT SETBACK	DAYTIME	NIGHT SETBACK	DAYTIME	NIGHT SETBACK
DOAS-1	KITCHEN	9AM-11PM	11PM-9AM	70°	73°	67°	65°	-	-
DOAS-2	DINING	9AM-11PM	11PM-9AM	72°	75°	70°	67°	50% RH	60% RH

IT IS THE MECHANICAL CONTRACTOR'S RESPONSIBILITY TO PROGRAM ALL THERMOSTATS AND CONTROLLERS TO THIS SCHEDULE AND THESE SETPOINTS AND TO VERIFY PROPER OPERATION.

HVAC SPECIFICATIONS

1. Contractor shall visit the site and verify existing conditions prior to bidding or beginning work.
2. Obtain permits and notify authorities for inspections.
3. Perform all work in accordance with:
   A. International Mechanical Code – 2015
   B. International Energy Conservation Code – 2015
   C. National Fire Protection Association (NFPA) Applicable Sections
   D. Sheet Metal and Air Conditioning Contractor's National Association (SMACNA)
   E. Manufacturer's Standardization Society of the Valve and Fittings Industry, Inc. (MSS)
   F. Owner's Criteria for Mechanical and Plumbing Work
4. Provide 1 year comprehensive warranty (materials and labor) for all work in this contract.
5. Install Fire-Stopping for all penetrations of fire rated partitions and floors.
6. Repair all areas damaged by performing work under this contract.
7. Provide record "As-built" prints to the owner and local building officials.
8. Drawings are diagrammatic only. Due to the small scale of the plans and unforseen existing conditions they do not show every offset, bend, or fitting necessary for the complete installation in the space provided. All locations for mechanical work shall be coordinated with existing conditions and the work of other trades. Where conflicts occur they shall be resolved prior to the installation of the work involved.
9. Refer to Architectural Reflected Ceiling Plan for exact locations of all ceiling diffusers, registers and grilles.
10. Arrange for and schedule inspections in a timely manner with the construction schedule. Inspections shall be scheduled minimum 24 hours in advance.
11. All work shall be First Class with emphasis on Neatness and Workmanship.
12. Install all equipment in accordance with the manufacturer's recommendations.
13. Test & Balance work shall be provided by an Independent Certified Test and Balance Agency (hired by the Owner) in accordance with NEBB and/or AABC specifications and shall include the following as a minimum:

    For Each New HVAC Unit:
    1. Supply, Return and Outside Air CFM
    2. Unit Inlet and Discharge Static Pressure (external to unit)
    3. Cooling Mode: EDB, EWB, LDB, LWB and corresponding Outside Ambient DB and WB temperatures
    4. Heating Mode: EDB, LDB and corresponding Outside Ambient DB temperature

    For Each Air Device: Final balanced CFM and Design CFM

    System shall be balanced within 10% or the air flow quantities specified on the drawings.
14. Low Pressure Ductwork:
    A. Low pressure ductwork shall be Galvanized Steel Sheetmetal fabricated and installed in accordance with SMACNA HVAC Duct Construction Standards, Metal and Flexible and TIMA Duct Construction Manual.
    B. Ducts 18 inches and larger on any side shall be stiffened by beading on min. 12 inch centers or shall be cross-broken.
    C. Make rectangular branch connections using 45° fitting with volume damper per detail.
    D. Provide conical spin-in fittings with balancing dampers at each diffuser run-out unless shown otherwise.
    E. Flexible duct connectors on supply run-outs shall be U.L. 181 listed as Class 1 Air Duct. Lengths shall not exceed 6 ft. and bends shall not exceed 45°. Flexmaster Type 3 or equal by Thermaflex.
    F. Seal all transverse and longitudinal seams with Duct Sealer.
    G. Provide transitions from run-out size to air device neck size where required.
    H. Provide duct access doors for each fire damper or other duct mounted equipment requiring service access. Access doors shall be double-latch with 3/4"x1/8" neoprene seals at connections to duct and at door-to-frame connection.
    I. Dimensions shown for ductwork are clear inside dimensions. Where lined ductwork is used (Return Air only) increase the dimensions of duct to allow for insulation as necessary.
    J. Provide flexible connectors between ductwork and motorized equipment for vibration isolation.
15. Exposed Spiral Ductwork:
    A. Exposed Spiral ductwork shall be round spiral lock-seam galvanized steel sheetmetal (double-wall) (ASTM A 527) rated for 4 inches W.C. and 4000 ft. per minute. Provide with "Paint-Grip" finish.
    B. Elbows shall be long radius die stamped or 5-piece gored.
    C. Branch connections shall be conical or 45° laterals. Refer to notes on plans.
    D. Connectors may be slip-fit type. All connectors shall be sealed with duct sealer.
    E. Acceptable manufacturers include Eastern Sheet Metal, Inc., Semco, Spiral Pipe of Texas and United McGill.
    F. Extra care shall be taken to insure that exposed ductwork is neat and free of dents, scratches and other visible blemishes. Damaged ductwork shall be replaced at no additional cost to the Owner.
16. Exposed Rectangular Ductwork:
    A. Exposed ductwork shall be rectangular galvanized steel sheetmetal, lined with 1" thick fiberglass liner as specified above.
    B. Extra care shall be taken to insure that exposed ductwork is neat and free of dents, scratches and other visible blemishes. Damaged ductwork shall be replaced at no additional cost to the Owner.
17. Kitchen Hood Grease Exhaust Ductwork:
    A. Kitchen Hood Grease Exhaust Ductwork shall be provided by the Kitchen Equipment Supplier.
    B. Ducts shall be completely insulated with 2 Hour Fire Rated wrap from hood connection thru roof penetration. Certainteed FlameChek or approved equal.
18. Duct Insulation:
    A. Supply ductwork and Outside Air ductwork shall be completely insulated with min. 2" thick, 3/4 pcf fiberglass duct wrap with aluminum or FSK vapor barrier (min. R-5). Joints and seams in concealed ductwork shall be sealed with Duct Sealer. Supply ductwork installed outside of the building insulation envelope shall be increased to 3" thickness (min. R-8).
    B. Return ductwork shall be internally lined with 1.5" fiberglass duct liner (min. R-5). Liner shall have anti-microbial coating. Return ductwork installed outside of the building insulation envelope shall also be wrapped with 2" thick duct insulation (total min. R-8).
19. Dampers:
    A. Fire Dampers (1 1/2 hour): U.L. 555 labeled, Style B or C. Ruskin DIBD2 or approved equal. Install in accordance with manufacturer's instructions.
    B. Single Blade Volume Dampers: 22 gauge galvanized steel (blade and frame), maximum 12" high blade. Blade edges shall be crimped or reinforced. End bearings shall be molded synthetic. Damper lever shall indicate the open and closed positions. Provide extension bracket for insulated ductwork. Dampers shall be Ruskin MD25 or MDRS25 or approved equal.
    C. Multi-Blade Volume Dampers: 16 gauge galvanized steel (blades and frame), maximum 8" wide blades, opposed blade action. Blade edges shall be crimped or reinforced. End bearings shall be molded synthetic. Damper lever shall indicate open and closed positions. Provide extension bracket for insulated ductwork. Dampers shall be Ruskin MD35 or approved equal.
    D. Motorized Control Dampers: Heavy gauge extruded aluminum construction with max. 6" wide airfoil blades, neoprene blade edge seals, metal compressible jamb seals, and molded synthetic end bearings. Damper assembly shall be Low Leakage type, AMCA certified and rated for 5.2 CFM per SF at 4 inches w.c. static pressure. Action shall be opposed blade for modulating control and parallel blade for two-position control. Dampers shall be Ruskin CD50 or approved equal.
20. Ceiling Air Devices: Diffusers, Grilles and Registers are identified on the plan by type, size and air flow quantities (CFM) inside the "octagonal" symbols. Air devices shall be suitable for the ceiling types to be mounted in. Refer to "Air Device Schedule" for specification of each type.
21. Kitchen Exhaust Hoods:
    A. Kitchen hoods shall be constructed entirely of 18 gauge. type 304 stainless steel with welded joints and seams to make liquid tight. All exterior surfaces shall be highly polished. Grease filters shall be stainless steel, washable, U.L. Classified and shall drain to grease trough with removable grease drawer.
    B. Vapor-Proof U.L. Listed marine lights on max. 3 ft. centers shall be factory wired to a junction box on top of the hood in accordance with N.E.C. requirements.
    C. A fully recessed control panel on the face of the hood shall control hood lights, exhaust fan, and makeup air unit (where applicable).
    D. Hood shall be equiped with factory installed Ansul R102 wet chemical fire suppression system, U.L. approved for installation over food service equipment. System shall include control panel, agent cannister, and remote mechanical pull station. Fire suppression system shall be interlocked with gas safety shutoff valve (furnished by plumber), and electrical shunt trip breaker (furnished by electrician). Conceal all conduit in wall.
    E. Hood assembly shall be fabricated in accordance with NFPA 96, shall be U.L. listed and NSF approved.
22. Mount thermostats 48" AFF and room temperature sensors 72" AFF. Coordinate exact location with Architect. Run wiring in conduit from the wall box to above the ceiling and where exposed. Use only plenum rated wiring.
23. Cooling Coil Condensate Drain Piping: Type L hard drawn copper tubing with solder joints or Sch. 40 PVC.

1
24. Controls:
    A. All control wiring shall be plenum rated cable. Run in conduit from wall mounted devices to above ceiling and where exposed. Install per NEC and Div. 16 requirements.
    B. Provide 7-day programmable thermostat with remote room sensor to control each AC unit.
    C. Provide Duct Smoke Detectors for each unit for automatic shutdown. Provide for remote anunciation.
    D. AC unit supply fans shall run continuously during occupied time period and intermittently during unoccupied times. Motorized O.A. dampers shall close when supply fan is "OFF".
    E. interlock kitchen hood exhaust fans and DOAS-1 with hood mounted switches. Upon activation of hood fire suppression system the hood exhaust fans shall continue to run. Refer to Captiveaire drawings for detailed hood controls sequence.
    F. Economizer controllers shall modulate O.A. damper and Return air damper for each unit inversely between min. set position and 100% O.A. position upon a call for cooling when the enthalpy of the outside air is lower than the return air. Economizer mode shall only be available while hoods are in operation (occupied time periods).
    G. Dehumidification cycle including hot gas reheat coil shall be activated when the space relative humidity rises above setpoint (50% RH adj.). Unit shall operate in full cooling coil as required to maintain space relative humidity at setpoint, and hot gas reheat coil shall activate to maintain space temperature at setpoint.
    H. Outside Air Controls:
       1. DOAS-1
          a. Occupied Time Periods: Interlock unit controls with Hood Switch to operate at 100% O.A. setting when hood exhaust fans are "ON". When hood exhaust fans are "OFF", the O.A. damper shall adjust to min. set position to maintain required ventilation rate. Reference Captiveaire drawings for more detailed hood exhaust fan controls sequence.
          b. Unoccupied Time Periods: Motorized O.A. damper shall remain closed during unoccupied time periods.
       2. DOAS-2
          a. Occupied Time Periods: CO2 sensor with integral digital controller shall modulate O.A. damper between min. set position and max. set position to maintain space CO2 level below setpoint (1000 ppm).
          b. Unoccupied Time Periods: Motorized O.A. damper shall remain closed during unoccupied time periods.
    H. Toilet Exhaust Fans EF-1 & 2 shall each be controlled by a room motion sensor. Upon activation of sensor fan shall run for period of 30 minutes (adjustable).

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PROJECT TITLE
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Highway 78
Jasper, AL 35501

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DATE: 13 MAY 2022
DRAWN BY: TLM
REVIEWED BY: KRM

REVISIONS

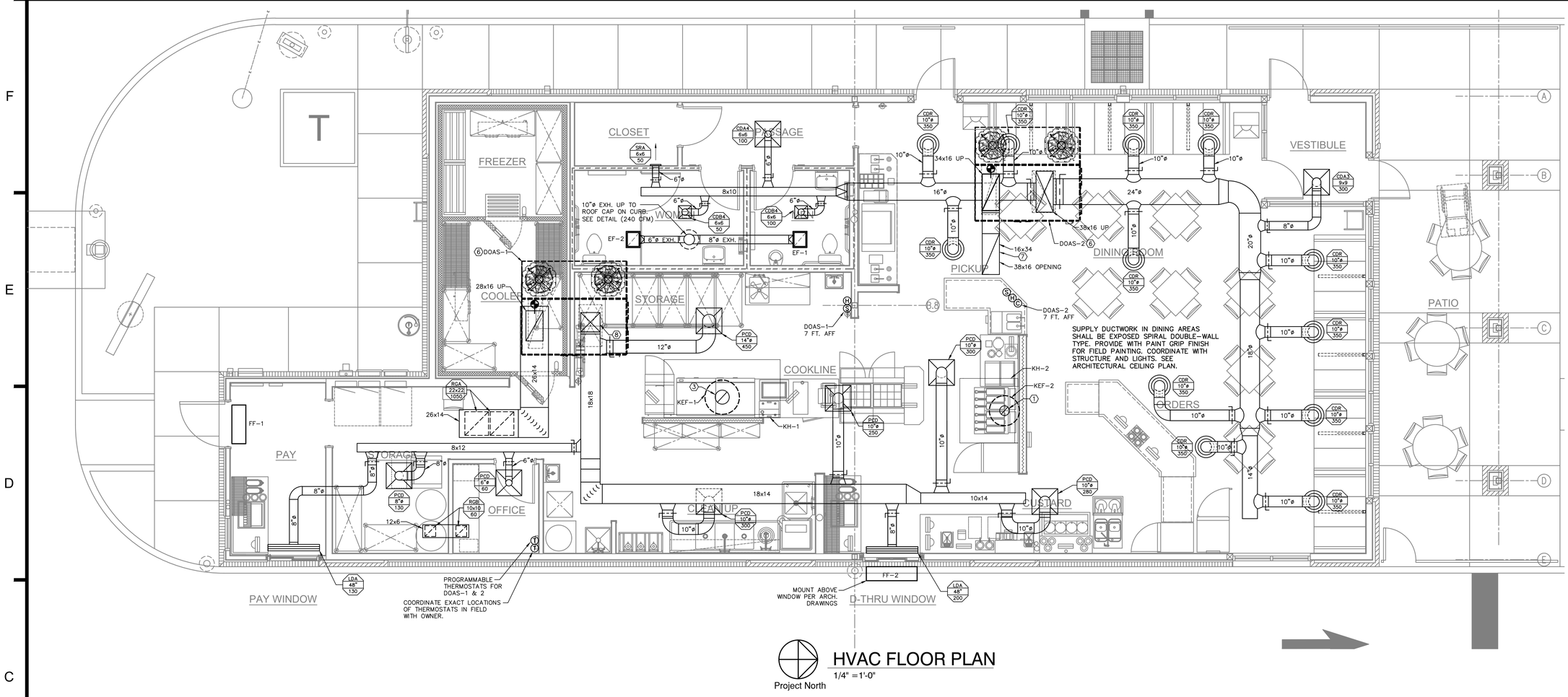
NO	DATE	Description
1	09/15/22	OWNER REQUESTED REVISIONS

ISSUED for CONSTRUCTION

SHEET TITLE
HVAC SCHEDULES & SPECIFICATIONS

DRAWING NUMBER
M1.0

PROJECT NUMBER
202119



HVAC FLOOR PLAN

1/4" = 1'-0"

Project North

HVAC LEGEND

14x10	RECTANGULAR DUCTWORK (14" SIDE DRAWN)
12"ø	RIGID, ROUND DUCTWORK (12" DIAMETER)
	FLEXIBLE DUCTWORK
	EXISTING DUCTWORK
	MANUAL VOLUME DAMPER
FD	FIRE DAMPER AND ACCESS DOOR
	45° BRANCH CONNECTION WITH VOLUME DAMPER
	CONICAL SPIN-IN FITTING WITH BUTTERFLY DAMPER
	SQUARE-TO-ROUND DUCT TRANSITION
	DUCT TRANSITION (30° MAXIMUM)
	RECTANGULAR 90° ELBOW WITH TURNING VANES
	ROUND 90° DUCT ELBOW
R	REFRIGERANT PIPING (SUCTION AND LIQUID LINE)
D	CONDENSATE DRAIN PIPING
	EXIST. PIPING TO BE REMOVED
	BALL VALVE
	GATE VALVE
T	REMOTE PROGRAMMABLE ROOM THERMOSTAT
S	ROOM TEMPERATURE SENSOR
C	DIGITAL CO2 SENSOR
H	DIGITAL ROOM HUMIDITY SENSOR
	DUCT SMOKE DETECTOR
(X)	EXISTING

TAGGED DRAWING NOTES

1. 10"ø STAINLESS STEEL GREASE EXHAUST DUCT PROVIDED BY KITCHEN SUPPLIER FROM KEF-2 DOWN TO HOOD EXHAUST CONNECTION. DUCT SHALL BE WRAPPED WITH 2 HR. FIRE RATED DUCT WRAP FROM HOOD CONNECTION UP TO ROOF PENETRATION. SEE EXHAUST FAN DETAIL. TRANSITION AS REQUIRED. (775 CFM)
2. –
3. 14"ø STAINLESS STEEL GREASE EXHAUST DUCT PROVIDED BY KITCHEN SUPPLIER FROM KEF-1 DOWN TO HOOD EXHAUST CONNECTION. DUCT SHALL BE WRAPPED WITH 2 HR. FIRE RATED DUCT WRAP FROM HOOD CONNECTION UP TO ROOF PENETRATION. SEE EXHAUST FAN DETAIL. TRANSITION AS REQUIRED. (1600 CFM)
4. –
5. –
6. COORDINATE EXACT LOCATIONS OF ROOFTOP UNITS AND MAKEUP AIR UNIT WITH ROOF STRUCTURE. SEE STRUCTURAL DRAWINGS. OFFSET AND TRANSITION DUCTS AS REQUIRED TO PASS BETWEEN ROOF TRUSSES/JOISTS AND CONNECT TO RTU DUCT CONNECTIONS. TRANSITION WITHIN ROOF CURB AS NEEDED. (TYP.)
7. RUN RETURN DUCT BETWEEN ROOF TRUSSES. PROVIDE OPENING IN TOP OF DUCT. (SEE PLAN FOR SIZES).
8. 18x18 SUPPLY DUCT UP BETWEEN TRUSSES. TRANSITION INSIDE CURB TO UNIT CONNECTION SIZES.

GENERAL NOTES

THESE NOTES APPLY TO ALL HVAC DRAWINGS

1. DRAWINGS ARE DIAGRAMMATIC ONLY AND DO NOT SHOW ALL DETAILS, OFFSETS NOR CHANGES IN ELEVATIONS NECESSARY FOR COMPLETE INSTALLATION.
2. PROVIDE NECESSARY OFFSETS IN PIPING AND DUCTWORK AS RQUIRED TO ACCOMODATE WORK. CONTRACTOR SHALL COORDINATE WITH OTHER TRADES AND ALLOW FOR ANY CONFLICTS ENCOUNTERED.
3. DUCT SIZES SHOWN ARE CLEAR INSIDE DIMENSIONS. INCREASE OVERALL DIMENSIONS AS REQUIRED TO ALLOW FOR INSULATION THICKNESS.
4. CONDENSATE DRAIN LINES AND AUXILIARY CONDENSATE DRAIN LINES SHALL BE 1" SIZE UNLESS NOTED OTHERWISE. DISCHARGE INTO ROOF DRAIN OR GUTTER.
5. FLEXIBLE DUCT RUNOUTS SHALL NOT EXCEED 6 FT. IN LENGTH. BENDS SHALL NOT EXCEED 45°.
6. TRANSITION TO EQUIPMENT DUCT CONNECTIONS AS REQUIRED.
7. MAINTAIN MIN. 10 FT. CLEARANCE BETWEEN ALL OUTSIDE AIR INTAKES AND ALL EXHAUST DISCHARGE LOCATIONS AND/OR PLUMBING VENTS.
8. MAINTAIN REQUIRED CLEARANCES FROM COMBUSTIBLE AND NON-COMBUSTIBLE MATERIALS FOR KITCHEN HOOD EXHAUST DUCTWORK.
9. MAINTAIN MIN. 5 FT. CLEARANCE BETWEEN ROOF MOUNTED EQUIPMENT AND PARAPET WALLS.
10. COORDINATE EXACT LOCATIONS OF ALL ROOF MOUNTED EQUIPMENT AND ROOF PENETRATIONS WITH STRUCTURAL DRAWINGS. ADJUST DUCTWORK AS REQUIRED TO FIT BETWEEN TRUSSES.
11. CEILING DIFFUSERS IN KITCHEN AREAS SHALL DIRECT AIR FLOW AWAY FROM HOODS.
12. DUCTWORK SHALL NOT BE INSTALLED ABOVE ELECTRICAL PANELS.

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REVISIONS

NO	DATE	Description
1	09/15/22	OWNER REQUESTED REVISIONS REVISE ENTIRE SHEET

ISSUED for CONSTRUCTION

SHEET TITLE

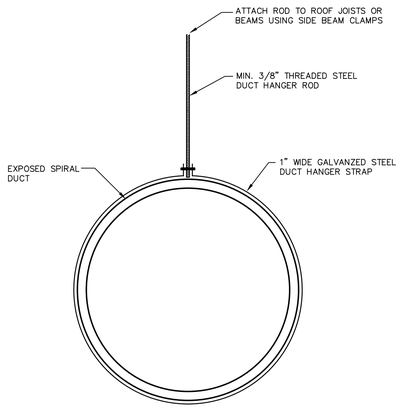
HVAC FLOOR PLAN

DRAWING NUMBER

M2.0

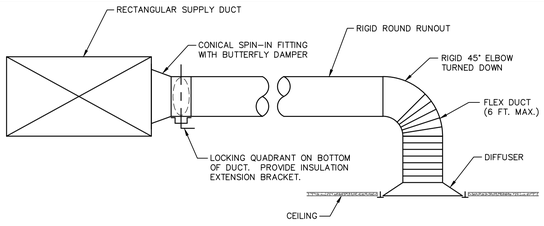
PROJECT NUMBER

202119

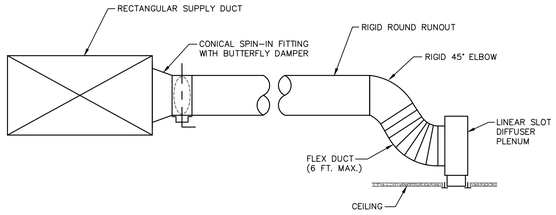


NOTE:
DUCT STRAPS SHALL BE KEPT STRAIGHT, TIGHT AND WITHOUT DENTS, KINKS OR OTHER VISIBLE INPERFECTIONS. SUPPORT CLIPS SHALL BE LOCATED ON THE TOP SIDE ONLY.

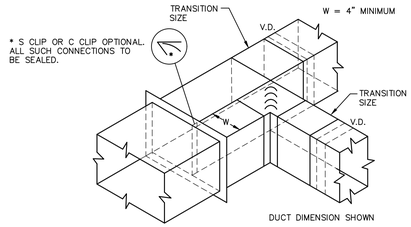
EXPOSED SPIRAL DUCT HANGER DETAIL
NO SCALE



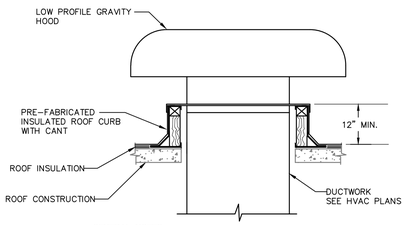
DIFFUSER RUN-OUT DETAIL
NO SCALE



TYPICAL LINEAR SLOT DIFFUSER RUN-OUT DETAIL
NO SCALE



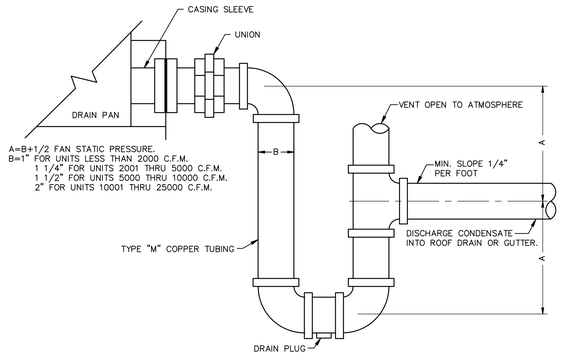
PROPORTIONAL SPLITTER DETAIL
NO SCALE



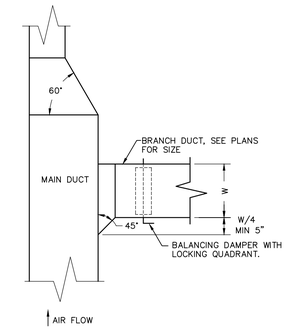
GENERAL NOTES:

1. PREFABRICATED ROOF CURB INSULATION SHALL BE NOT LESS THAN 1 1/2 IN. THICK.
2. SEE SPECIFICATIONS FOR HOOD PERFORMANCE CRITERIA.
3. REFER TO ARCHITECTURAL DRAWINGS FOR ROOFING REQUIREMENTS INCLUDING INSULATION, FLASHING, ETC.
4. SECURE HOOD TO ROOF CURB IN ACCORDANCE WITH THE REQUIREMENTS OF THE BUILDING CODE.

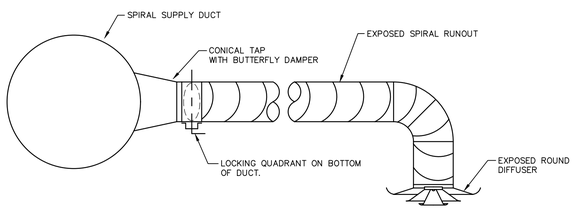
GRAVITY ROOF HOOD DETAIL
NO SCALE



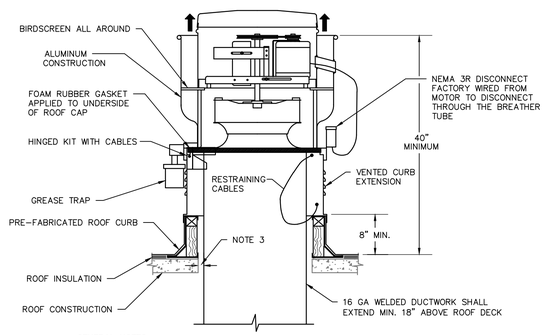
AIR CONDITIONING UNIT DRAIN TRAP DETAIL
NO SCALE



45° BRANCH DUCT CONNECTION DETAIL
RECTANGULAR BRANCH
NO SCALE



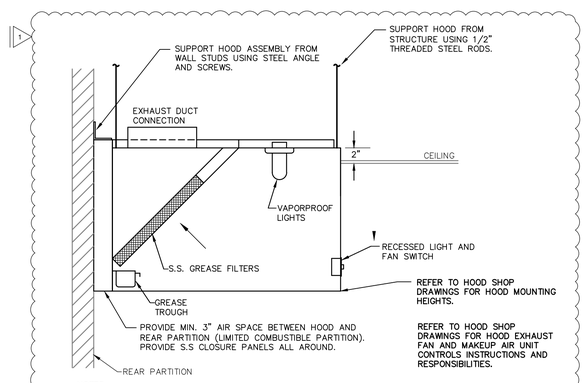
EXPOSED DIFFUSER RUN-OUT DETAIL
NO SCALE



GENERAL NOTES:

1. PREFABRICATED ROOF CURB INSULATION SHALL BE NOT LESS THAN 1 1/2 IN. THICK.
2. SEE EXHAUST FAN SCHEDULE FOR PERFORMANCE CRITERIA.
3. EXHAUST DUCT SHALL MAINTAIN A CLEARANCE OF 18 INCHES TO COMBUSTIBLE MATERIALS, 3 INCHES TO COMBUSTIBLE MATERIALS PROTECTED WITH MATERIALS AS APPROVED FOR 1 HOUR FIRE RESISTANCE ON THE DUCT SIDE.

KITCHEN HOOD EXHAUST FAN DETAIL
NO SCALE



NOTES:

1. HOOD SHALL BE CONSTRUCTED ENTIRELY OF TYPE 304 POLISHED STAINLESS STEEL, 18 GAUGE.
2. HOOD SHALL BE U.L. LISTED AND CONSTRUCTED IN ACCORDANCE WITH NFPA 96.
3. PROVIDE WITH FACTORY PREPIPED U.L. LISTED ANSUL R-102 WET CHEMICAL FIRE SUPPRESSION SYSTEM INCLUDING AUTOMATIC AND REMOTE ACTUATED CONTROLS.
4. PROVIDE REQUIRED CLEARANCES BETWEEN GREASE DUCT SYSTEM (INCLUDING HOOD AND DUCTS) AND BUILDING CONSTRUCTION IN ACCORDANCE WITH THE 2015 IMC AND NFPA-96. REQUIRED CLEARANCES ARE 3" TO LIMITED COMBUSTIBLE CONSTRUCTION AND 18" TO COMBUSTIBLE CONSTRUCTION. COORDINATE WITH ARCHITECTURAL DRAWINGS.

KITCHEN EXHAUST HOOD DETAIL
COMPENSATING TYPE
NO SCALE

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SHEET TITLE
HVAC DETAILS

DRAWING NUMBER
M3.0

PROJECT NUMBER
202119

COMcheck Software Version 4.1.5.4

Mechanical Compliance Certificate

Project Information

Energy Code:	2015 IECC
Project Title:	Freddy's
Location:	Jasper, Alabama
Climate Zone:	3a
Project Type:	New Construction

Construction Site:
Hwy 78
Jasper, AL 35501

Owner/Agent:
Bill Pyle
Bama Custard, LLC
800 Shades Creek Pkwy
Birmingham, AL 35209
3166502286

Designer/Contractor:
Gary Nash
Studio 2H Design, LLC
1721 4th Ave North
Birmingham, AL 35203
205-264-9988
gary@studio2hd.com

Additional Efficiency Package(s)

Credits: 1.0 Required 1.0 Proposed
Reduced Lighting Power, 1.0 credit

Mechanical Systems List

Quantity — System Type & Description

1 DOAS-1 (Single Zone):
Heating: 1 each - Central Furnace, Gas, Capacity = 137 kBtu/h
Proposed Efficiency = 80.00% Et, Required Efficiency: 80.00 % Et or 78% AFUE
Cooling: 1 each - Single Package DX Unit, Capacity = 186 kBtu/h, Air-Cooled Condenser, Air Economizer
Proposed Efficiency = 10.80 EER, Required Efficiency: 10.80 EER + 12.2 IEER
Fan System: FAN SYSTEM 1 | Kitchen -- Compliance (Motor nameplate HP method) : Passes

Fans:
FAN 1 Supply, Constant Volume, 2100 CFM, 2.0 motor nameplate hp, 60.0 fan efficiency grade

1 DOAS-2 (Single Zone):
Heating: 1 each - Central Furnace, Gas, Capacity = 104 kBtu/h
Proposed Efficiency = 80.00% Et, Required Efficiency: 80.00 % Et or 78% AFUE
Cooling: 1 each - Single Package DX Unit, Capacity = 141 kBtu/h, Air-Cooled Condenser, Air Economizer
Proposed Efficiency = 10.80 EER, Required Efficiency: 10.80 EER + 12.2 IEER
Fan System: FAN SYSTEM 2 | Dining -- Compliance (Motor nameplate HP method) : Passes

Fans:
FAN 2 Supply, Constant Volume, 4800 CFM, 5.0 motor nameplate hp, 60.0 fan efficiency grade

1 Water Heater 1:
Gas Storage Water Heater, Capacity: 80 gallons, Input Rating: 200 kBtu/h w/ Circulation Pump
Proposed Efficiency: 94.00 % Et, Required Efficiency: 80.00 % Et

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2015 IECC requirements in COMcheck Version 4.1.5.4 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Kenneth R. Michaels, P.E. - Engineer — Name - Title
Signature
9/15/22 — Date

OUTSIDE AIR CALCULATIONS - RTU-1

Space	Area (ft²)	EMO (P/1000 ft²)	Occupancy (People)	(cfm/person)	(cfm)	(cfm/ft²)	(cfm)	OA Required (cfm)	EXHAUST AIR REQUIREMENTS (cfm/ft²)	(cfm)	(ACH)	(cfm)	EA Required (cfm)
Dining Room	877	70	62	7.5	465	0.18	158	623	0	0	0	0	0
Vestibule	51	0	0	0	0	0.06	4	4	0	0	0	0	0
Passage	67	0	0	0	0	0.06	5	5	0	0	0	0	0
Storage (RR)	39	0	0	0	0	0.06	3	3	0	0	0	0	0
Men	58	0	0	0	0	0	0	0	0	0	0	0	140
Women	101	0	0	0	0	0	0	0	0	0	0	0	70
Orders	82	0	2	5	10	0.06	5	15	0	0	0	0	0
Totals	1,275		64					650					210

Note: O.A. for restrooms provided by transfer air per paragraph 403.2.2 of the 2015 IMC.

OUTSIDE AIR CALCULATIONS - RTU-2

Space	Area (ft²)	EMO (P/1000 ft²)	Occupancy (People)	(cfm/person)	(cfm)	(cfm/ft²)	(cfm)	OA Required (cfm)	EXHAUST AIR REQUIREMENTS (cfm/ft²)	(cfm)	(ACH)	(cfm)	EA Required (cfm)
Pay	99	0	1	5	5	0.06	6	11	0	0	0	0	0
Custard	176	0	3	0	0	0.7	124	124	0	0	0	0	0
Cookline	400	0	5	0	0	0.7	280	280	0	0	0	0	0
Clean Up	215	0	2	0	0	0.7	151	151	0	0	0	0	0
Office	47	5	1	5	5	0.06	3	8	0	0	0	0	0
Cooler/Freezer	222	0	0	0	0	0.06	14	14	0	0	0	0	0
Storage (Cookline)	58	0	0	0	0	0.06	4	4	0	0	0	0	0
Storage (Drive Thru)	169	0	0	0	0	0.06	11	11	0	0	0	0	0
Totals	1,386		12					603					0

Note: O.A. for restrooms provided by transfer air per paragraph 403.2.2 of the 2015 IMC.

AIR BALANCE SCHEDULE

MARK	SERVES	A/C SYSTEM SUPPLY AIR CFM	A/C SYSTEM RETURN AIR CFM	A/C SYSTEM OUTSIDE AIR CFM	KITCHEN HOODS EXHAUST CFM	KITCHEN HOODS MAKE-UP CFM	GEN. EXH. EXHAUST CFM
DOAS-1	KITCHEN	2100	0	2100			
DOAS-2	DINING	4800	4080	720			
KEF-1	KH-1				1600	0	
KEF-2	KH-2				775	0	
EF-1	WOMEN						90
EF-2	MEN						150
	TOTALS	6900	4080	2820	2375	0	240

AIR BALANCE CALCULATION

OUTSIDE AIR THRU A/C SYSTEM (MIN.):	2820
MAKE-UP AIR THRU KITCHEN EXH. HOOD:	0
TOTAL OUTSIDE AIR:	2820
EXHAUST AIR FROM KITCHEN EXH. HOODS:	2375
EXHAUST AIR GENERAL EXHAUST:	240
TOTAL EXHAUST AIR:	2615
TOTAL OUTSIDE AIR:	2820
TOTAL EXHAUST AIR:	-2615
NET POSITIVE BUILDING PRESSURE (MIN.):	+ 205

*EXCESS AIR REILEF THROUGH RTU BAROMETRIC DAMPERS.

MICHAELS ENGINEERING, LLC
MECHANICAL CONSULTING & DESIGN
3305 PARK LANE DRIVE ◇ BIRMINGHAM, ALABAMA 35226
(205)979-1232 ◇ www.michaelsengineering.net

PROJECT TITLE

Freddy's FROZEN CUSTARD & STEAKBURGERS

JASPER, AL

Highway 78
Jasper, AL 35501

SEAL

STUDIO 2H DESIGN, LLC
1721 4th AVENUE NORTH
SUITE 101
BIRMINGHAM, AL 35203
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OFFICE: 205-264-9988
FAX: 205-264-9992

NOT FOR CONSTRUCTION ☐
RELEASED FOR CONSTRUCTION ■

DATE: 13 MAY 2022

DRAWN BY: TLM

REVIEWED BY: KRM

REVISIONS

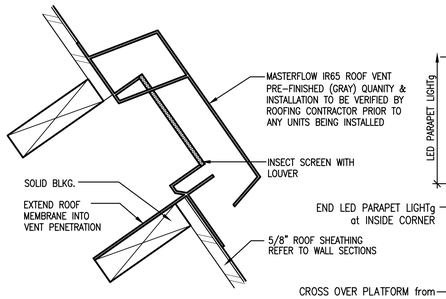
NO	DATE	Description
1	09/15/22	OWNER REQUESTED REVISIONS

ISSUED for CONSTRUCTION

SHEET TITLE
HVAC CALCULATIONS & COMCHECK

DRAWING NUMBER
M4.0

PROJECT NUMBER
202119



1 VENT DETAIL
SCALE: 3" = 1'-0"

A ROOF PLAN
SCALE: 1/4" = 1'-0"

PROJECT NORTH

GENERAL ROOF NOTES:

1. THE NEW ROOF MEMBRANE IS A 50 MIL REINFORCED THERMOPLASTIC ROOFING MEMBRANE SYSTEM AS MANUFACTURED BY DURO-LAST ROOFING, INC. EXPOSED FACE COLOR: WHITE – NO EXCEPTIONS

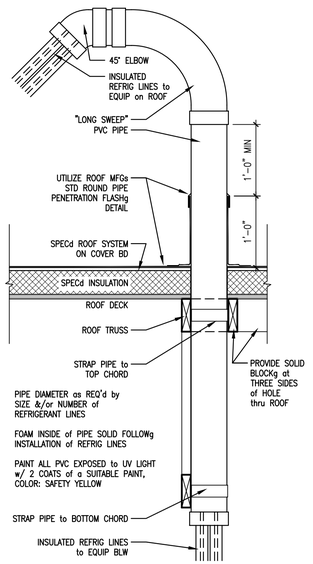
CRRC PROD. ID	MANUF.: BRAND MODEL
1610-0001	DURO-LAST ROOFING INC. DURO-LAST WHITE

SOLAR REFLECTANCE		THERMAL EMITTANCE		SRI	
INITIAL	3 YEAR	INITIAL	3 YEAR	INITIAL	3 YEAR
0.88	0.68	0.87	0.84	111	82

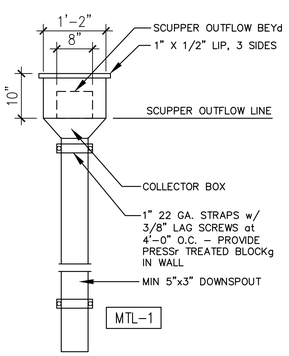
1. PROVIDE RIGID ROOF INSULATION COMPOSED OF EITHER A CLOSED CELL POLYISOCYANURATE OR EXPANDED POLYSTYRENE (EPS) FOAM CORE BONDED TO A FIBER REINFORCED GLASS OR FELT FACER. PROVIDE MINIMUM PERFORMANCE VALUE(S) as INDICATED in ENERGY CODE INFO on SHT A0.
2. ROOF SYSTEM SHALL BE MECHANICALLY FASTENED AND FIELD SEAMS HEAT WELDED PER MANUFACTURER'S SPECIFICATIONS. FASTENERS: FACTORY-COATED STEEL FASTENERS AND METAL PLATES MEETING FMG 4470, DESIGNED FOR FASTENING SUBSTRATE PANELS TO SUBSTRATE AND ACCEPTABLE TO ROOFING SYSTEM MANUFACTURER.
3. PROVIDE AND INSTALL NEW FACTORY FORMED SLIP RESISTANT WALKWAY PADS MADE FROM ROOFING MEMBRANE MATERIAL ON ROOF FROM LADDER ACCESS AREA TO, BETWEEN AND AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT. INSTALL PER MANUFACTURERS'S INSTALLATION INSTRUCTIONS, SOLIDLY SECURED TO ROOF.
4. PROVIDE TEST ON ROOF. DAMP AREAS MUST BE CUT OUT, REMOVED, FILLED AND REROOFED.
5. VERIFY ALL DIMENSIONS, EQUIPMENT CONFIGURATIONS AND LOCATIONS, EXISTING CONDITIONS AND ALL INFORMATION GIVEN OR NOT GIVEN ON DRAWINGS. CONTRACTOR SHALL VERIFY CONDITIONS ON SITE AND SHALL BE RESPONSIBLE FOR QUANTITIES, DIMENSIONS AND EXISTING CONDITIONS RELATED TO THE WORK REQUIRED UNDER THIS CONTRACT. FAILURE TO DO SO WILL NOT BE CAUSE FOR ADDITIONAL FUNDS OR CHANGE ORDERS FOR ITEMS NOT INCLUDED IN CONTRACTORS BID.
6. THE ROOF ASSEMBLY SHALL COMPLY WITH UL-I 90 AND FM CLASS "B" RATINGS INCLUDING BUT NOT LIMITED TO COPINGS, FLASHING, PARAPET WALL COVERINGS, AND ENTIRE ROOF SURFACE.
7. ALL ROOF CRICKETS ARE TO BE BUILT WITH TAPERED RIGID INSULATION & PROVIDE THE SLIP SHEET, PER MANUFACTURE'S RECOMMENDATIONS, ROOFING TO POSITIVE 1/4" PER FOOT SLOPE TO THE ROOF SCUPPERS. INSULATION SHALL BE APPROVED BY ROOFING MANUFACTURER AS COMPATIBLE WITH ROOFING ASSEMBLY.
8. ALL MECHANICAL EQUIPMENT OPENINGS TO BE COORDINATED WITH MECHANICAL AND/OR ALL OTHER RELATED DRAWINGS
9. TALL PARAPET WALLS TO RECEIVE VERTICAL APPLICATION OF MEMBRANE ROOFING SYSTEM SECURED TO PLYWOOD DECKg/SHEATHg. ROOFING INSTALLER SHALL PROVIDE MANUFACTURERS GUARANTEE OF COMPLETE ROOFING SYSTEM, INCLUDING ALL FLASHING, COPINGS AND PARAPET ASSEMBLIES.

ALL VERTICAL APPLICATIONS SHALL BE FULLY ADHERED to the SUBSTRATE (1)

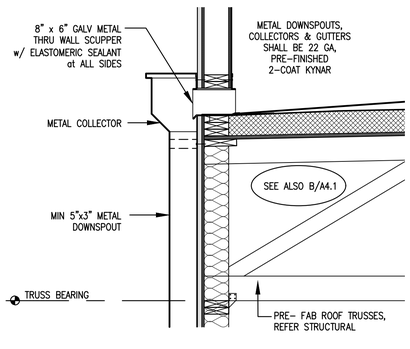
11. INSTALLER QUALIFICATIONS: A QUALIFIED INSTALLER, CERTIFIED AS A 'MASTER INSTALLER' BY THE ROOFING SYSTEM MANUFACTURER, APPROVED BY MANUFACTURER TO INSTALL MANUFACTURER'S PRODUCTS AND IS ELIGIBLE TO RECEIVE MANUFACTURERS WARRANTY.
12. ALL CURB AND EQUIPMENT FLASHING SHALL BE A PRODUCT OF DURO-LAST ROOFING INC. FLASHING & COPING CAP SHALL BE INSTALLED PER ROOFING MANUFACTURE'S CRITERIA TO PROVIDE FULL MANUFACTURE'S GUARANTEE OF COMPLETE ROOFING ASSEMBLY.
13. THE ROOFING CONTRACTOR IS TO COORDINATE ALL ROOF PENETRATIONS WITH ALL OTHER TRADES TO PROVIDE PROPER FLASHING AND COMPLETE, WEATHER-TIGHT ROOF. ALSO INCLUDES PENETRATION FOR THE SIRIUS ANTENNA AND WIRE PROVIDED BY OWNER AND INSTALLED PER MFGR SPECS BY ROOFING CONTRACTOR.
14. PROVIDE A COPING CAP WITH FRONT AND BACK DRIP EDGES ALONG ENTIRE PARAPET WALL. REFER EXTERIOR ELEVATIONS AND WALL SECTIONS. ("DURO-LAST" ALUM. REGAL RED)
15. THE ROOF STRUCTURE SHALL NOT BE USED FOR STOCK-PILING OF EQUIPMENT OR MATERIALS UNLESS APPROVED BY THE ARCHITECT, STRUCTURAL ENGINEER AND THE TRUSS MANUFACTURER.



4 REFIG PIPE PENETRATION
SCALE: 1" = 1'-0"



2 ELEV at SCUPPER
SCALE: 1/2" = 1'-0"



3 SECTION at SCUPPER
SCALE: 1/2" = 1'-0"

J GC PROVIDE WEATHERPROOF, SURFACE MTD J-BOXES for LED PARAPET LIGHT SYSTEM

GC PROVIDE 1/2" CONDUIT in PARAPET WALL CONNECTg J-BOXES

ROOFER PROVIDE WEATHERPROOF PENETRATIONS in ACCORDANCE w/ THE ROOF MFG as REQd to MAINTAIN WARRANTY

SEE ALSO SHT A2.1, WALL SECTIONS & ELEC DWGs, COORD w/ LIGHTg VENDOR

NOTE:
GENERAL CONTRACTOR TO VERIFY LOCATION OF R.T.U.'s. MECHANICAL EQUIPMENT OPENINGS SHALL BE COORDINATED WITH ALL OTHER TRADES

NOTE:
DIMENSIONS ARE FROM FACE OF STUD TO FACE OF STUD UNLESS OTHERWISE NOTED.

PROJECT TITLE

Freddy's FROZEN CUSTARD & STEAKBURGERS

JASPER, A L

Highway 78
Jasper, AL 35501

SEAL

STATE OF ALABAMA
GARY A. NASH
NO. 4085
BIRMINGHAM, ALABAMA
REGISTERED ARCHITECT

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OFFICE: 205-264-9988

NOT FOR CONSTRUCTION ☐
RELEASED FOR CONSTRUCTION ■

DATE: 13 MAY 2022

DRAWN BY: GAN

REVIEWED BY: GAN

REVISIONS

NO	DATE	Description
1	12 SEP 2022	OWNER REQ'd REVs

ISSUED for CONSTRUCTION

SHEET TITLE
ROOF PLAN & DETAILS

DRAWING NUMBER
A3

PROJECT NUMBER
202119

EXHAUST FAN INFORMATION – JOB#5254570

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	EF-1 (GRIDDLE)	1	CASRE18DD	CAPTIVEAIRE	1600	1.400	1095	DDP,PREMIUM	1.000	0.6250	3	208	3.8	928 FPM	282	15.479575219348
2	EF-2 (FRYER)	1	DUS0HFA	CAPTIVEAIRE	775	1.250	1532	TEAD-ECM	0.500	0.3950	1	115	6.3	295 FPM	105	16.362717095652

DOAS/RTU FAN SCHEDULE – JOB#5254570

FAN UNIT NO	TAG	QTY	DOAS/RTU MODEL #	MANUFACTURER	BLOWER	RETURN AIR CFM	MAX OUTSIDE AIR CFM	TOTAL CFM	WEIGHT (LBS)	ESP	ELECTRICAL HP	PHASE	VOLT	MCA	MOCP
3	DOAS-1	1	CASRTU3-1.200-15-15T-DOAS	CAPTIVEAIRE	15P-3	0	2100	2100	2432	0.500	2.00	3	208	59.2A	60A
4	DOAS-2 (DINING)	1	CASRTU3-1.200-24-12.5T-DOAS	CAPTIVEAIRE	24MF-3-RTU	4080	720	4800	2375	0.500	5.00	3	208	68.8A	80A

FAN UNIT NO	COOLING INFORMATION: OUTSIDE AIR DB	OUTSIDE AIR WB	MIXED AIR DB	MIXED AIR WB	LEAVING AIR DB	LEAVING AIR WB	LEAVING AIR DP	CAPACITY TOTAL	CAPACITY SENS.	IEER	ISMRE
3	82.8°F	77.8°F	82.8°F	77.8°F	53.6°F	50.9°F	48.8°F	186.0 MBH	65.4 MBH	18.8	5.7
4	82.8°F	77.8°F	76.2°F	64.8°F	54.9°F	54.8°F	54.8°F	140.6 MBH	108.9 MBH	21.3	4.1

FAN UNIT NO	REHEAT INFORMATION: DISCHARGE DB	CAPACITY WB	CAPACITY DESIRED	CAPACITY MAX	MOISTURE REMOVAL RATE	GAS HEAT INFORMATION: GAS TYPE	INPUT BTUs	OUTPUT BTUs	TEMP RISE	NOTES
3	70.0°F	57.7°F	38.2 MBH	129.6 MBH	108.6 LBS/HR	NATURAL	169158	137018	56°F	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15
4	70.0°F	60.6°F	80.3 MBH	101 MBH	29.0 LBS/HR	NATURAL	128395	104000	19°F	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18

NOTES:
1. INVERTER SCROLL COMPRESSOR WITH INTEGRATED OIL SENSOR. DIGITAL OR STAGED SCROLL NOT AN APPROVED EQUAL
2. DIRECT DRIVE PLENUM BLOWER. BELT DRIVEN BLOWERS ARE NOT ACCEPTABLE
3. INTEGRATED MONITORING VIA CELLULAR CONNECTION BY MANUFACTURER
4. REFRIGERATION PRESSURE MONITORING ON HIGH AND LOW PRESSURE SIDE OF SYSTEM INCLUDED THROUGH DIGITAL INTERFACE
5. EC MOTOR CONDENSING FANS
6. ELECTRONIC EXPANSION VALVE. TXV NOT ACCEPTABLE
7. SUCTION LINE ACCUMULATOR
8. FACTORY COMMISSIONING WITH 5 YEAR PARTS WARRANTY, 25 YEAR WARRANTY ON STAINLESS STEEL HEAT EXCHANGER
9. AVERAGING INTAKE, EVAP AND DISCHARGE TEMPERATURE SENSORS (DISCHARGE SENSOR TO BE FACTORY MOUNTED WITHIN UNIT)
10. 2" EXTERIOR DUAL-WALL CONSTRUCTION W/ R-13 INSULATION-MINIMUM 20GA EXTERIOR W/ 14GA BASE
11. 81% EFFICIENT FURNACE, WITH MODULATING INDUCER TO MAINTAIN CONSTANT COMBUSTION EFFICIENCY ACROSS FIRING RANGE. 6:1 TURNDOWN WITH NG AND 5:1 TURNDOWN WITH LP
12. SUPPLY CFM MONITORING INTEGRAL TO UNIT WITH CFM MEASUREMENT INCLUDED THROUGH DIGITAL INTERFACE
13. FULLY MODULATING HOT GAS REHEAT
14. HAIL GUARD FOR CONDENSING COIL
15. DOWN DISCHARGE/DOWN RETURN
16. 15 DEGREE LOW AMBIENT OPERATION
17. RTU ECONOMIZER WITH DIFFERENTIAL ENTHALPY CONTROL
18. BAROMETRIC RELIEF DAMPER

FAN OPTIONS

FAN UNIT NO	TAG	QTY	DESCRIPTION
1	EF-1 (GRIDDLE)	1	UTILITY SET GREASE CUP
		1	RE18 - DISCHARGE EXTENSION ASSEMBLY WITH HARDWARE
		1	2 YEAR PARTS WARRANTY
2	EF-2 (FRYER)	1	GREASE BOX
		1	UPBLAST FAN WHEEL ACCESS PORT
		1	36" TALL STRAIGHT WIND BAND EXTENSION 13 (SHIPS LOOSE)
		1	FAN BASE CERAMIC SEAL - SHIP LOOSE - FOR GREASE DUCTS
		1	ECM WIRING PACKAGE - PWM SIGNAL FROM ECPM03 PREWIRE (TELCO MOTOR), CCW ROTATION
		1	2 YEAR PARTS WARRANTY
3	DOAS-1	1	INLET PRESSURE GAUGE, 0-35"
		1	MANIFOLD PRESSURE GAUGE, 0 TO 10" WC, 1 FURNACE
		1	RTU TOTAL CFM MONITORING
		1	SINGLE POINT ELECTRICAL CONNECTION FOR RTU. 750VA TRANSFORMER USED. IF A NON-DCV PREWIRE CONTROLS THIS UNIT, THE #28, #47, "MA", OR "E2" PREWIRE OPTION MUST BE SELECTED. DOES NOT PROVIDE SUPPLY STARTER IN PREWIRE
		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	VFD FACTORY MOUNTED AND WIRED IN RTU COMMERCIAL CONTROL VESTIBULE
		1	REMOTE TEMPERATURE AND HUMIDITY SPACE SENSOR
		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	RTU3 CURB DUCT HANGER
		1	OCCUPIED SCHEDULING
		1	CLOGGED FILTER SWITCH - NOTIFICATION ON HMI
		1	RTU INTAKE/RETURN DAMPER - SCHEDULED DA PERCENTAGE CONTROL
		1	RTU3 HAIL GUARD
		1	RTU3 DOWN RETURN
		1	VAV PACKAGE W/ 0-10VDC INPUT CONTROL (571 VFD INCLUDED)
		1	RTU RETURN MOUNTED SMOKE DETECTOR AND SAMPLING TUBE - FACTORY INSTALLED
		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)
4	DOAS-2 (DINING)	1	INLET PRESSURE GAUGE, 0-35"
		1	MANIFOLD PRESSURE GAUGE, 0 TO 10" WC, 1 FURNACE
		1	RTU TOTAL CFM MONITORING
		1	SHIP LOOSE GAS STRAINER 3/4"
		1	SINGLE POINT ELECTRICAL CONNECTION FOR RTU. 750VA TRANSFORMER USED. IF A NON-DCV PREWIRE CONTROLS THIS UNIT, THE #28, #47, "MA", OR "E2" PREWIRE OPTION MUST BE SELECTED. DOES NOT PROVIDE SUPPLY STARTER IN PREWIRE
		1	CASLINK BUILDING MONITORING SYSTEM - INTERNET OR CELLULAR CONNECTION REQUIRED
		1	LOW AMBIENT COOLING OPERATION - DOWN TO 0F AMBIENT
		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	VFD FACTORY MOUNTED AND WIRED IN RTU COMMERCIAL CONTROL VESTIBULE
		1	REMOTE TEMPERATURE AND HUMIDITY SPACE SENSOR
		1	12.5 TON MODULATING COOLING OPTION, 208/230V. R410A REFRIGERANT, VARIABLE SPEED COMPRESSOR, ECM CONDENSING FANS
		1	12.5 TON MODULATING REHEAT OPTION - SPACE DEWPOINT CONTROL
		1	RTU ECONOMIZER - DIFFERENTIAL ENTHALPY CONTROL
		1	RTU3 ECONOMIZER BAROMETRIC RELIEF
		1	RTU3 HAIL GUARD
		1	RTU RETURN MOUNTED SMOKE DETECTOR AND SAMPLING TUBE - FACTORY INSTALLED
		1	CLOGGED FILTER SWITCH - NOTIFICATION ON HMI
		1	RTU INTAKE/RETURN DAMPER - MANUAL CONTROL VIA HMI
		1	RTU3 DOWN RETURN
		1	VAV PACKAGE W/ MANUAL/DDC CONTROL (571 VFD INCLUDED)
		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)

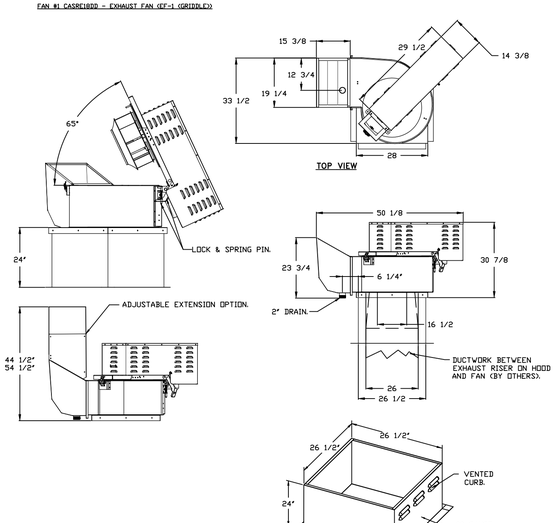
FAN ACCESSORIES

FAN UNIT NO	TAG	EXHAUST: GREASE CUP	EXHAUST: GRAVITY DAMPER	EXHAUST: WALL MOUNT	SUPPLY: SIDE DISCHARGE	SUPPLY: GRAVITY DAMPER	SUPPLY: MOTORIZED DAMPER	SUPPLY: WALL MOUNT
1	EF-1 (GRIDDLE)	YES						
2	EF-2 (FRYER)	YES						

CURB ASSEMBLIES

NO	ON FAN	TAG	WEIGHT	ITEM	SIZE
1	# 1	EF-1 (GRIDDLE)	38 LBS	CURB	26.500"W X 26.500"L X 24.000"H ALONG LENGTH, RIGHT VENTED HINGED.
2	# 2	EF-2 (FRYER)	31 LBS	CURB	19.500"W X 19.500"L X 28.000"H ALONG LENGTH, RIGHT VENTED HINGED.
3	# 3	DOAS-1	78 LBS	CURB	59.500"W X 91.000"L X 14.000"H ALONG WIDTH, RIGHT INSULATED.
4	# 4	DOAS-2 (DINING)	78 LBS	CURB	59.500"W X 91.000"L X 14.000"H ALONG WIDTH, RIGHT INSULATED.

FAN #1 CASRE18DD - EXHAUST FAN (EF-1 (GRIDDLE))



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.

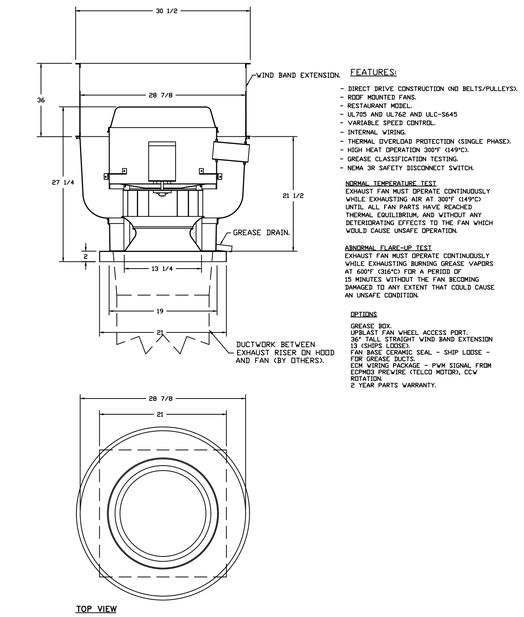
NORMAL TEMPERATURE TEST DIRECT DRIVE
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

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 DUS0HFA - EXHAUST FAN (EF-2 (FRYER))



FEATURES:

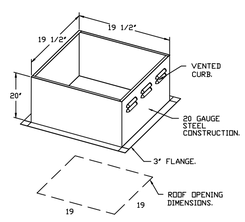
- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL705 AND UL762 AND ULC-S645
- VARIABLE SPEED CONTROL.
- INTERNAL WIRING.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).
- HIGH HEAT OPERATION 300°F (149°C).
- GREASE CLASSIFICATION TESTING.
- NEMA 3R SAFETY DISCONNECT SWITCH.

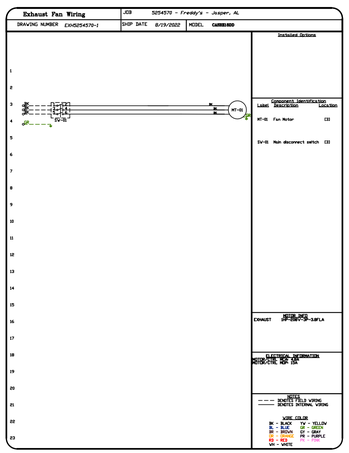
NORMAL TEMPERATURE TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

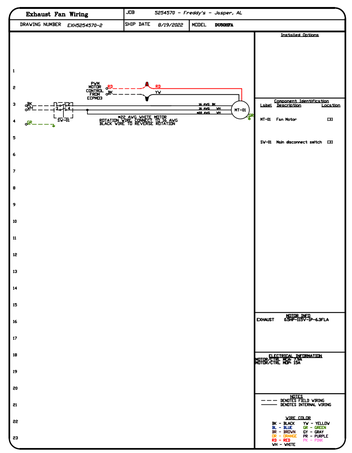
ABNORMAL FLARE-UP TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING BURNING GREASE VAPORS AT 600°F (316°C) FOR A PERIOD OF 15 MINUTES WITHOUT THE FAN BECOMING DAMAGED TO ANY EXTENT THAT COULD CAUSE AN UNSAFE CONDITION.

OPTIONS

GREASE BOX.
UPBLAST FAN WHEEL ACCESS PORT.
36" TALL STRAIGHT WIND BAND EXTENSION 13 (SHIPS LOOSE).
FAN BASE CERAMIC SEAL - SHIP LOOSE - FOR GREASE DUCTS.
ECM WIRING PACKAGE - PWM SIGNAL FROM ECPM03 PREWIRE (TELCO MOTOR), CCW ROTATION.
2 YEAR PARTS WARRANTY.







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Freddy's - Jasper, AL
JASPER, AL, 35501

DATE: 8/19/2022

DWG.#: 5254570

DRAWN BY: michael.co

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

MASTER DRAWING

SHEET NO. 2

FAN #3 CASRTU3-I.200-15-15T-DOAS - HEATER (DOAS-1)

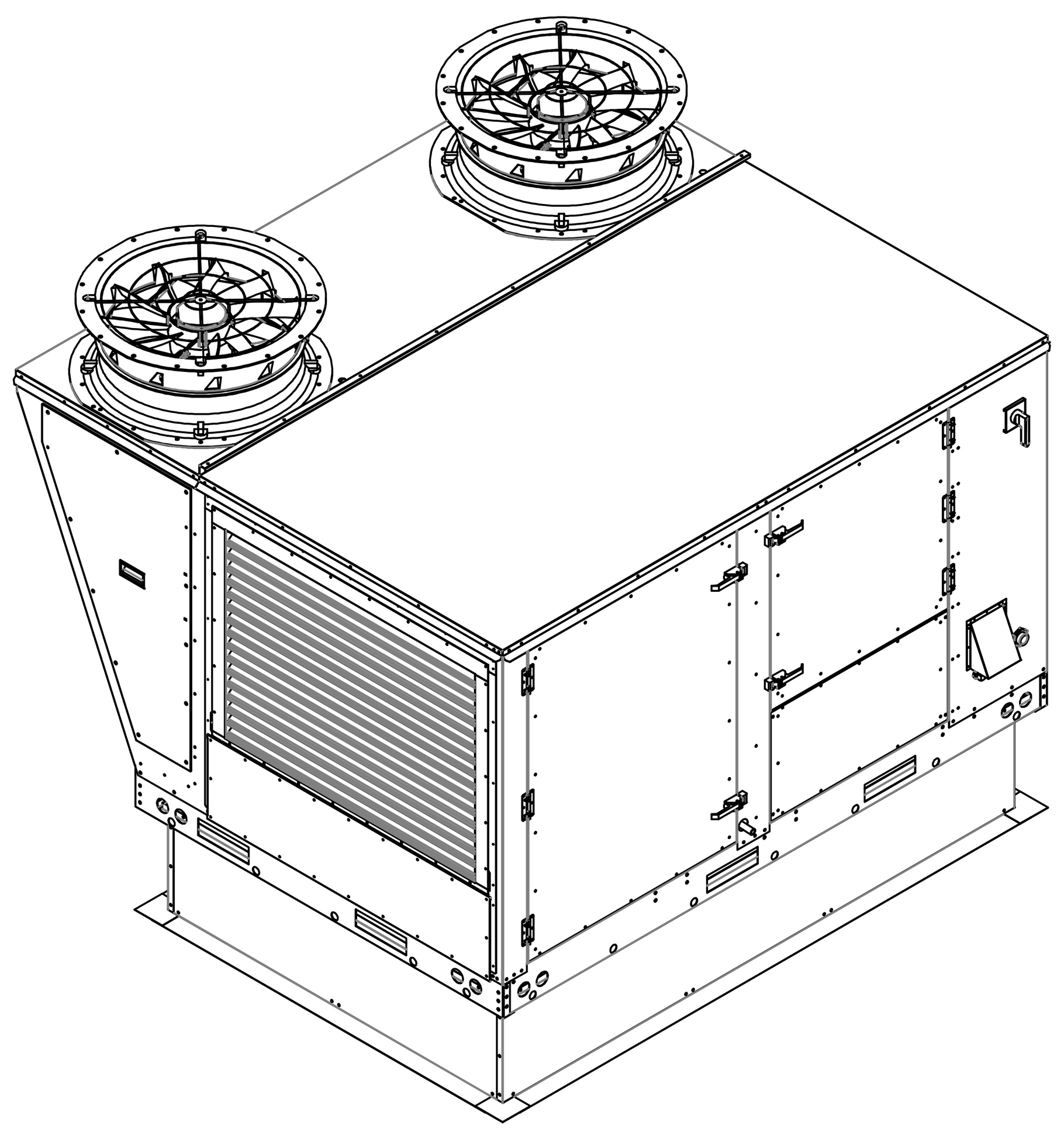
NOTES:

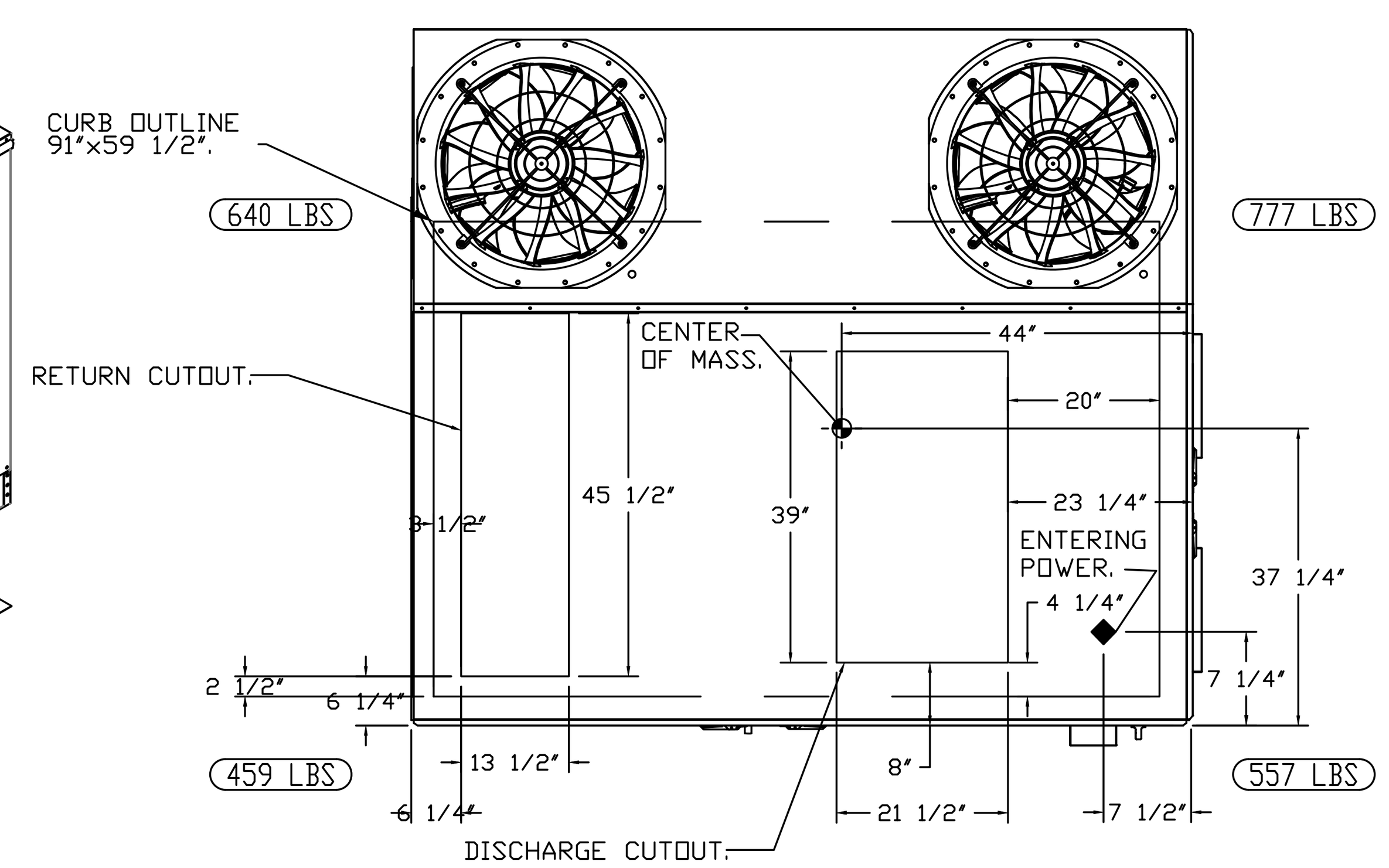
1. DO NOT OBSTRUCT OUTSIDE AIR INLET, OUTSIDE AIR COIL OR OUTSIDE AIR FAN.
2. (   ) DENOTES CORNER WEIGHT.
3. ROOF OPENING MUST BE 2" SMALLER THAN CURB DIMENSIONS IN BOTH DIRECTIONS.

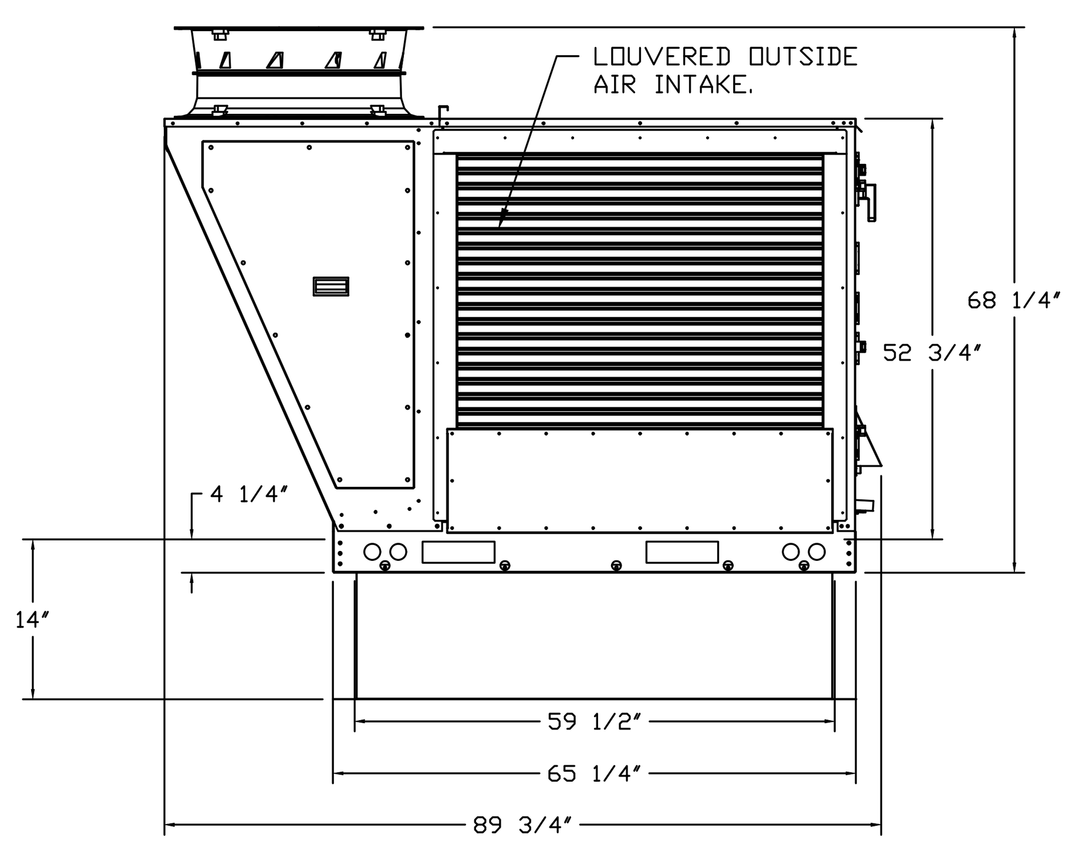
*NOTE: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE AS OUTLINED IN AMCA PUBLICATION 201. WHEN USING RECTANGULAR DUCTWORK, ELBOWS MUST BE RADIUS THROAT, RADIUS BACK WITH TURNING VANES. FLEXIBLE DUCTWORK AND SQUARE 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".

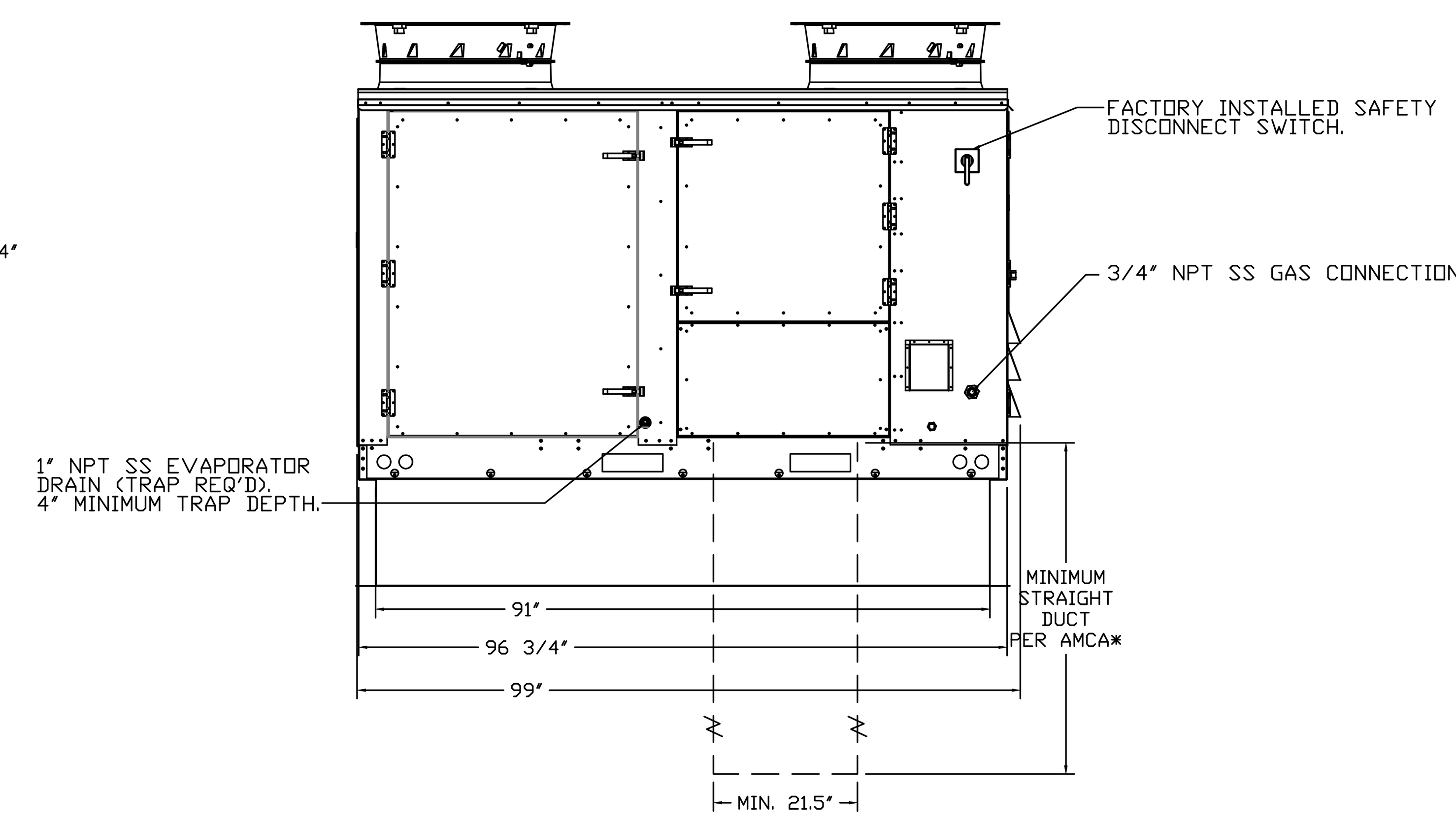
OPTIONS

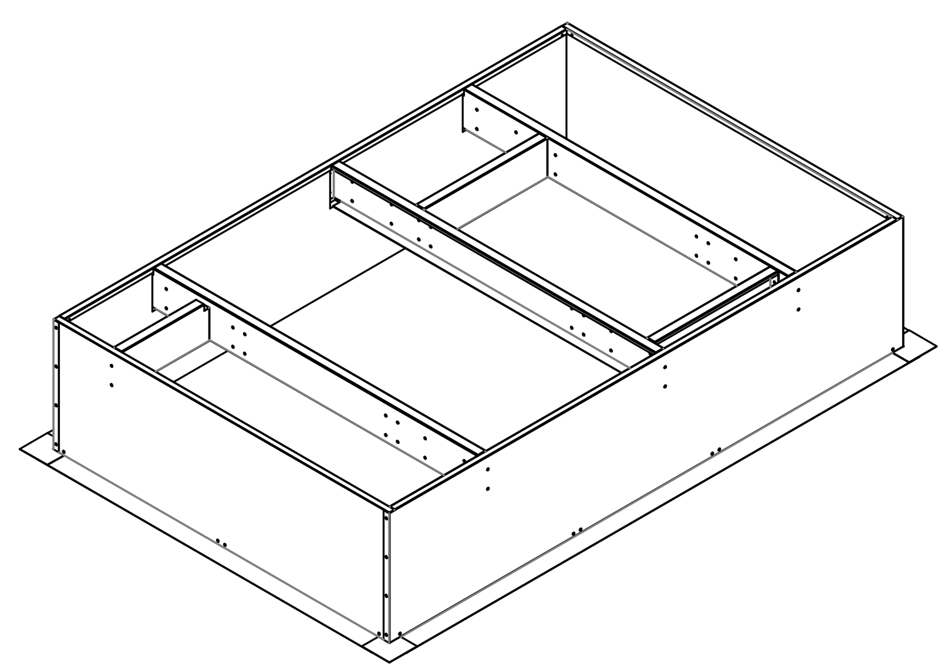
1. INLET PRESSURE GAUGE, 0-35".
2. MANIFOLD PRESSURE GAUGE, 0 TO 10" WC, 1 FURNACE.
3. RTU TOTAL CFM MONITORING.
4. SINGLE POINT ELECTRICAL CONNECTION FOR RTU. 750VA TRANSFORMER USED. IF A NON-DCV PREWIRE CONTROLS THIS UNIT, THE #28, #47, "MA", OR "E2" PREWIRE OPTION MUST BE SELECTED. DOES NOT PROVIDE SUPPLY STARTER IN PREWIRE.
5. CASLINK BUILDING MONITORING SYSTEM - INTERNET OR CELLULAR CONNECTION REQUIRED.
6. RTU3 DOWN DISCHARGE.
7. 2" MERV 13 FILTERS FOR RTU3 (QTY. 4).
8. 2" MERV 8 FILTERS FOR RTU3 (QTY. 4).
9. OVERHEAT STAT.
10. VFD FACTORY MOUNTED AND WIRED IN RTU COMMERCIAL CONTROL VESTIBULE.
11. REMOTE TEMPERATURE AND HUMIDITY SPACE SENSOR.
12. 15 TON MODULATING COOLING OPTION, 208/230V. R410A REFRIGERANT, VARIABLE SPEED COMPRESSOR, ECM CONDENSING FANS.
13. 15 TON MODULATING REHEAT OPTION - SPACE DEWPOINT CONTROL.
14. RTU3 CURB DUCT HANGER.
15. OCCUPIED SCHEDULING.
16. CLOGGED FILTER SWITCH - NOTIFICATION ON HMI.
17. RTU INTAKE/RETURN DAMPER - SCHEDULED OA PERCENTAGE CONTROL.
18. RTU3 HAIL GUARD.
19. RTU3 DOWN RETURN.
20. VAV PACKAGE W/ 0-10VDC INPUT CONTROL (571 VFD INCLUDED).
21. RTU RETURN MOUNTED SMOKE DETECTOR AND SAMPLING TUBE - FACTORY INSTALLED.
22. 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).

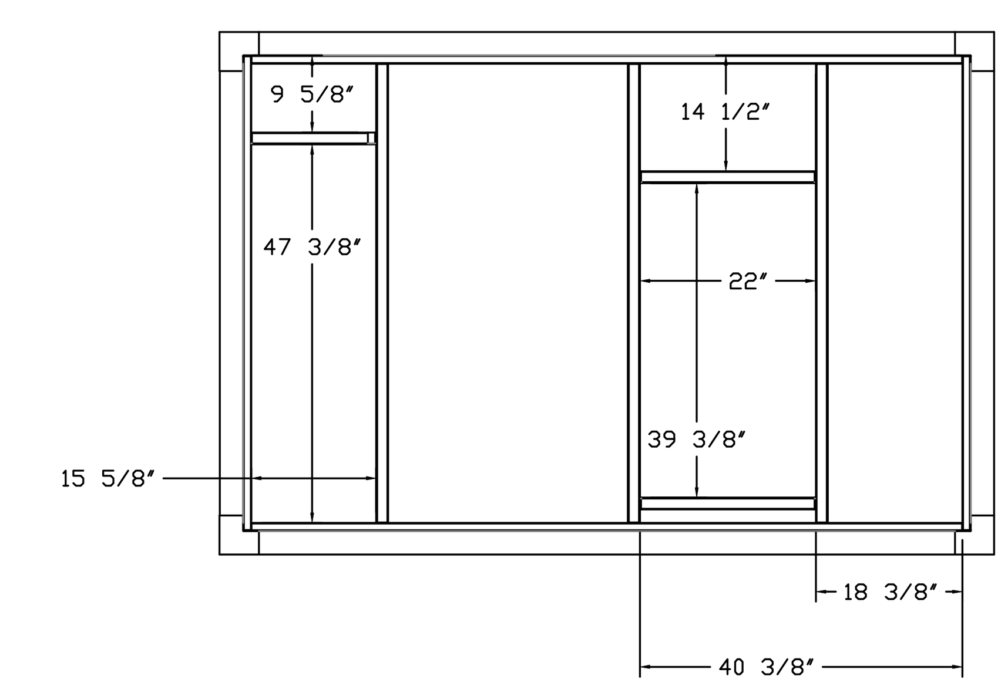


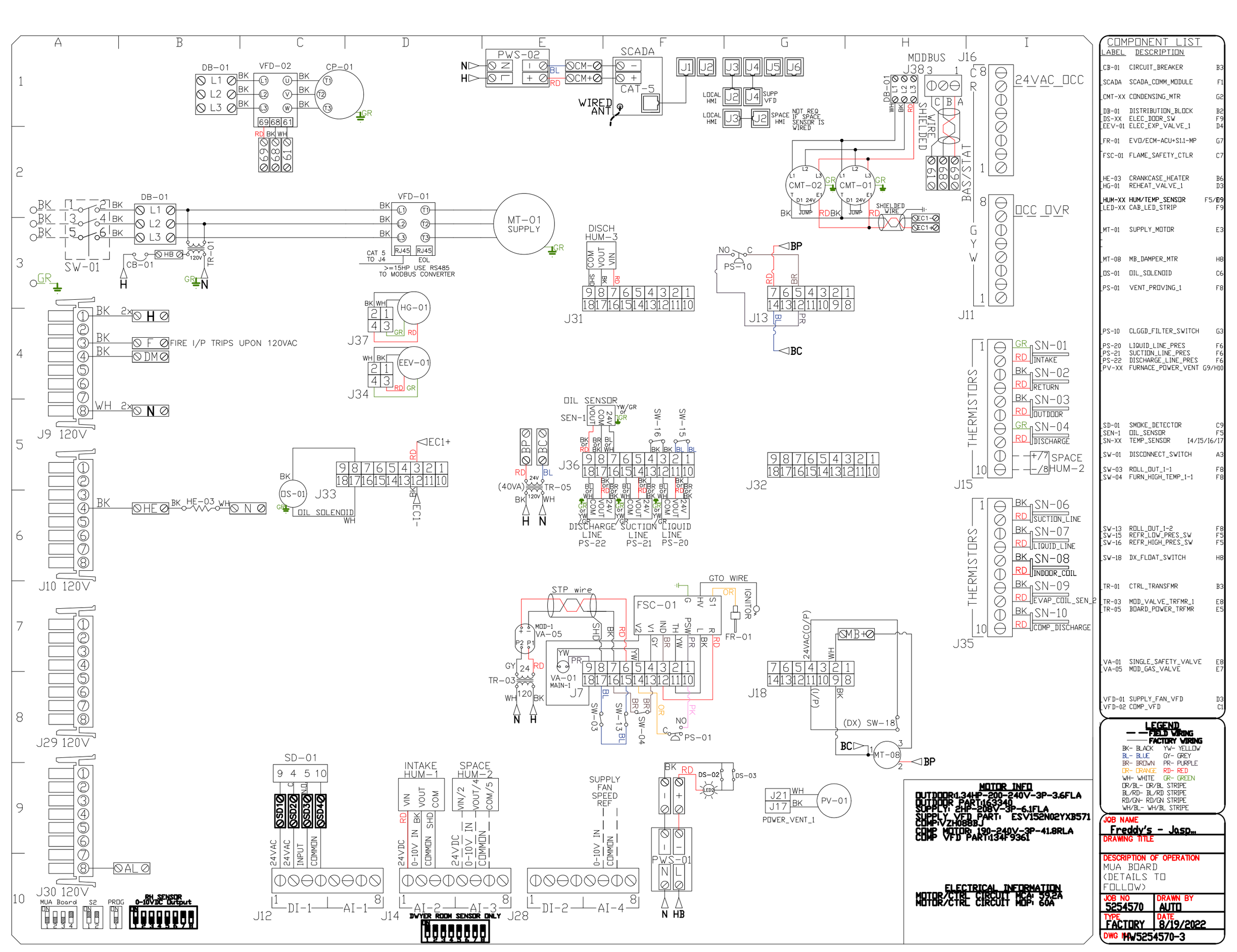


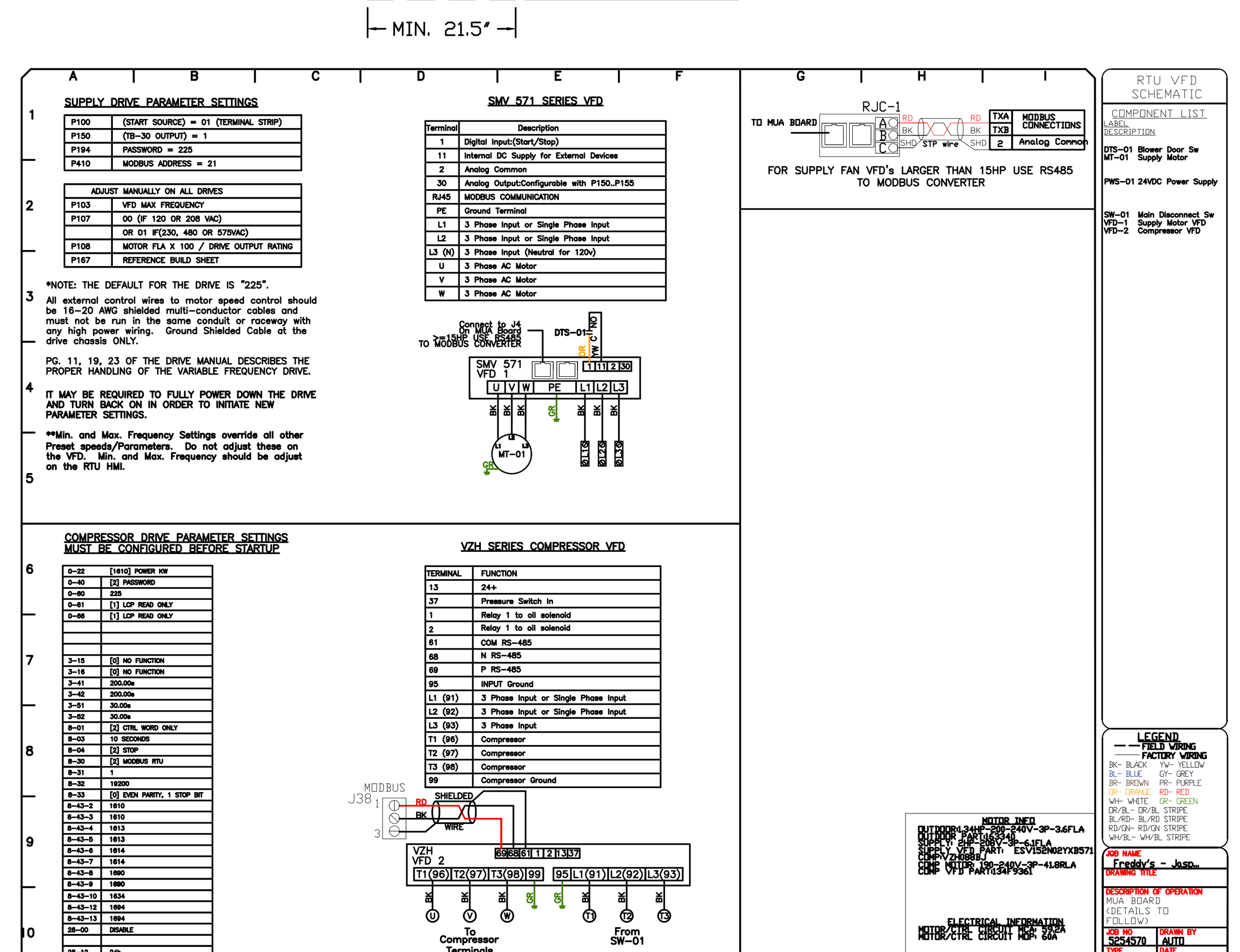


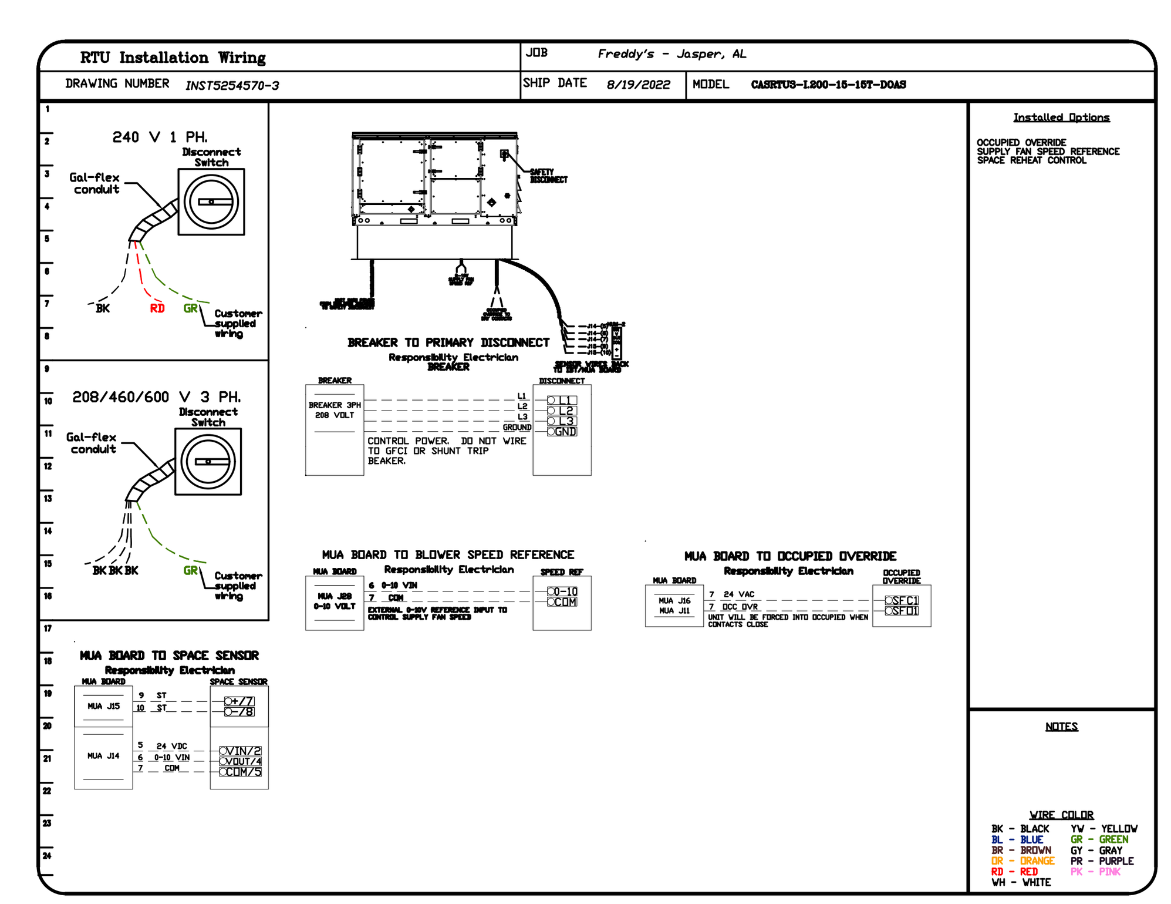












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Freddy's - Jasper, AL
JASPER, AL, 35501

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DWG.#: 5254570

DRAWN BY: michael.co

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

MASTER DRAWING

SHEET NO. 3

FAN #4 CASRTU3-I.200-24MF-12.5T-DOAS - HEATER (DOAS-2 (DINING))

NOTES:

1. DO NOT OBSTRUCT OUTSIDE AIR INLET, OUTSIDE AIR COIL OR OUTSIDE AIR FAN.
2. (   ) DENOTES CORNER WEIGHT.
3. ROOF OPENING MUST BE 2" SMALLER THAN CURB DIMENSIONS IN BOTH DIRECTIONS.

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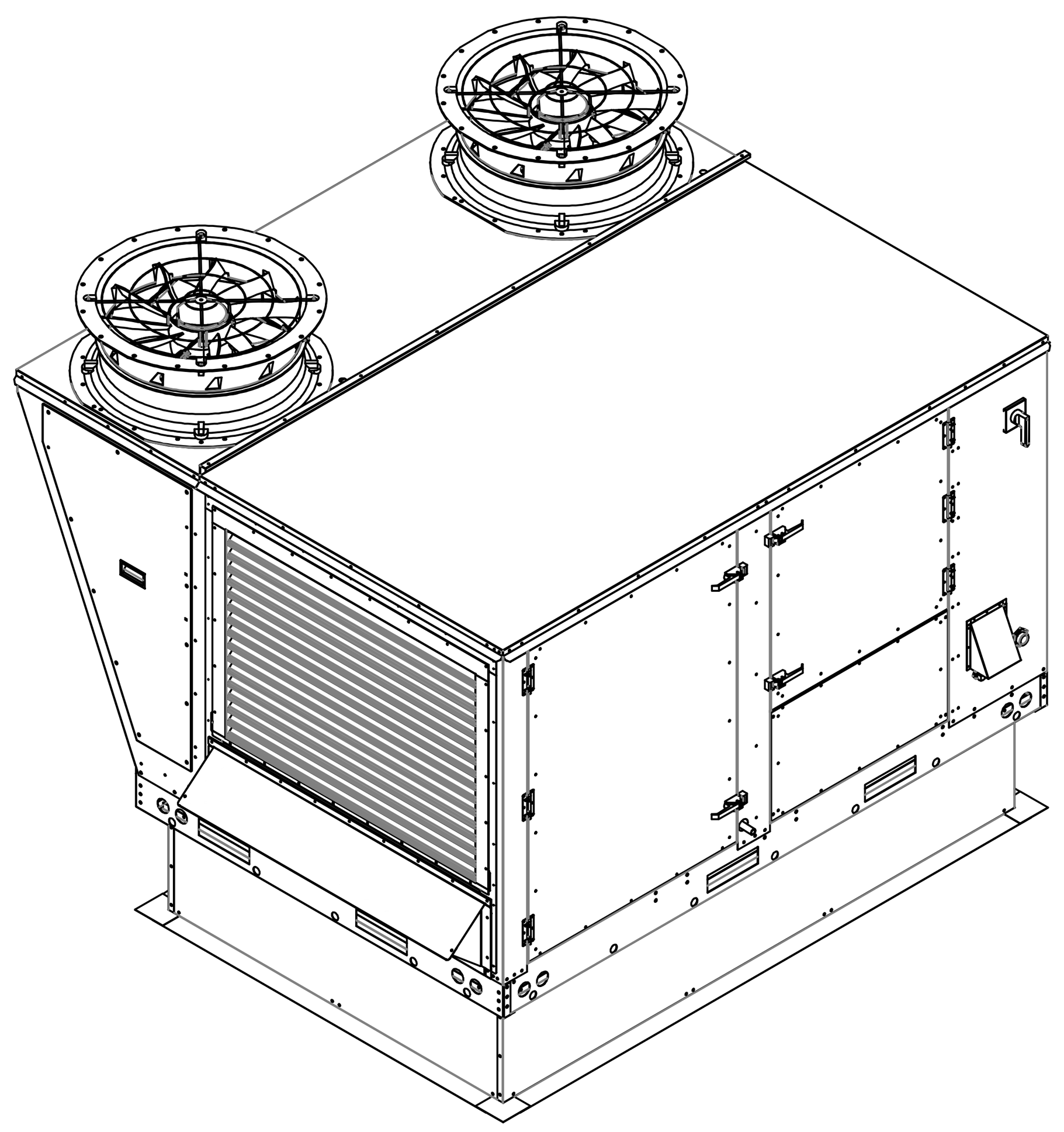

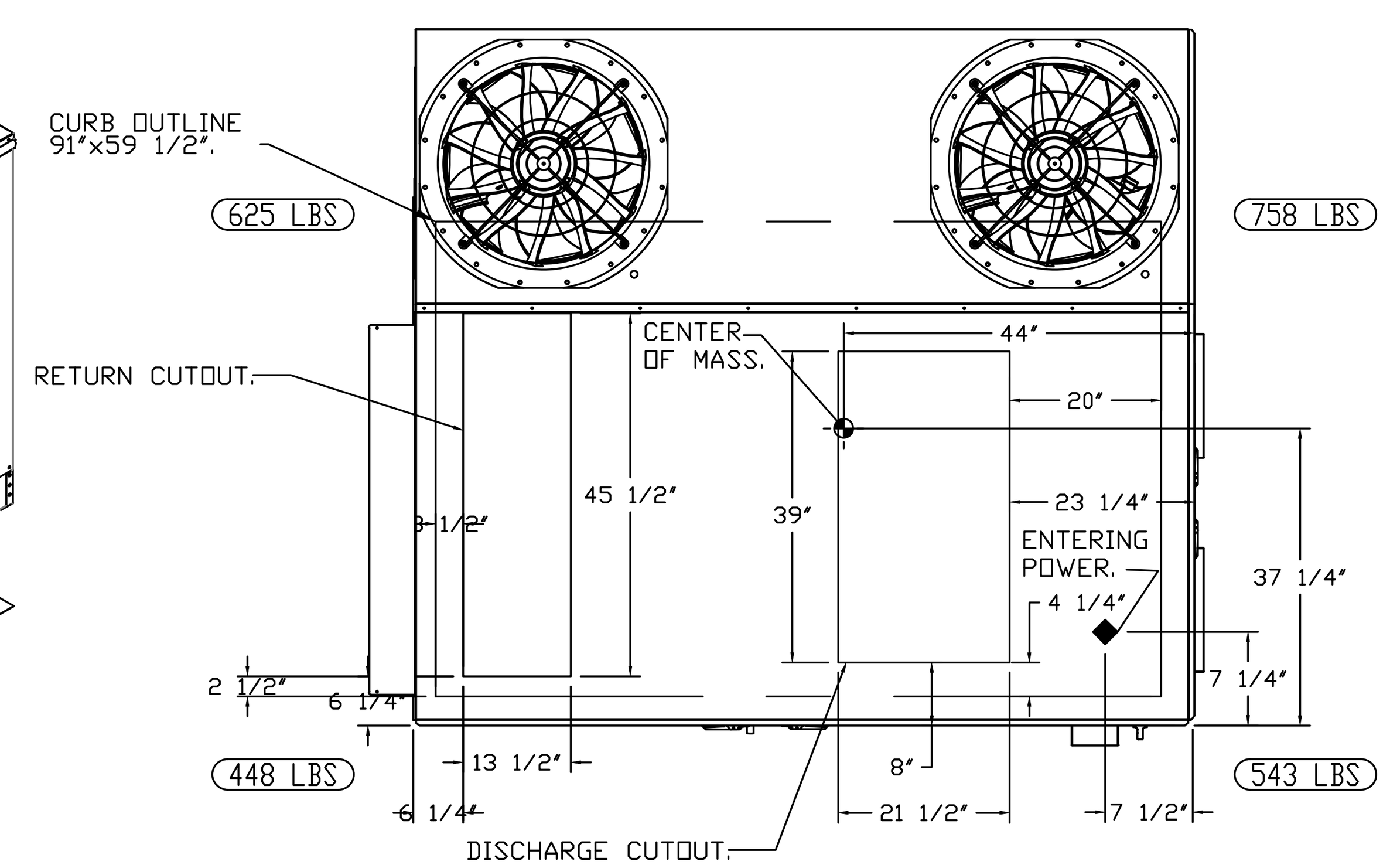

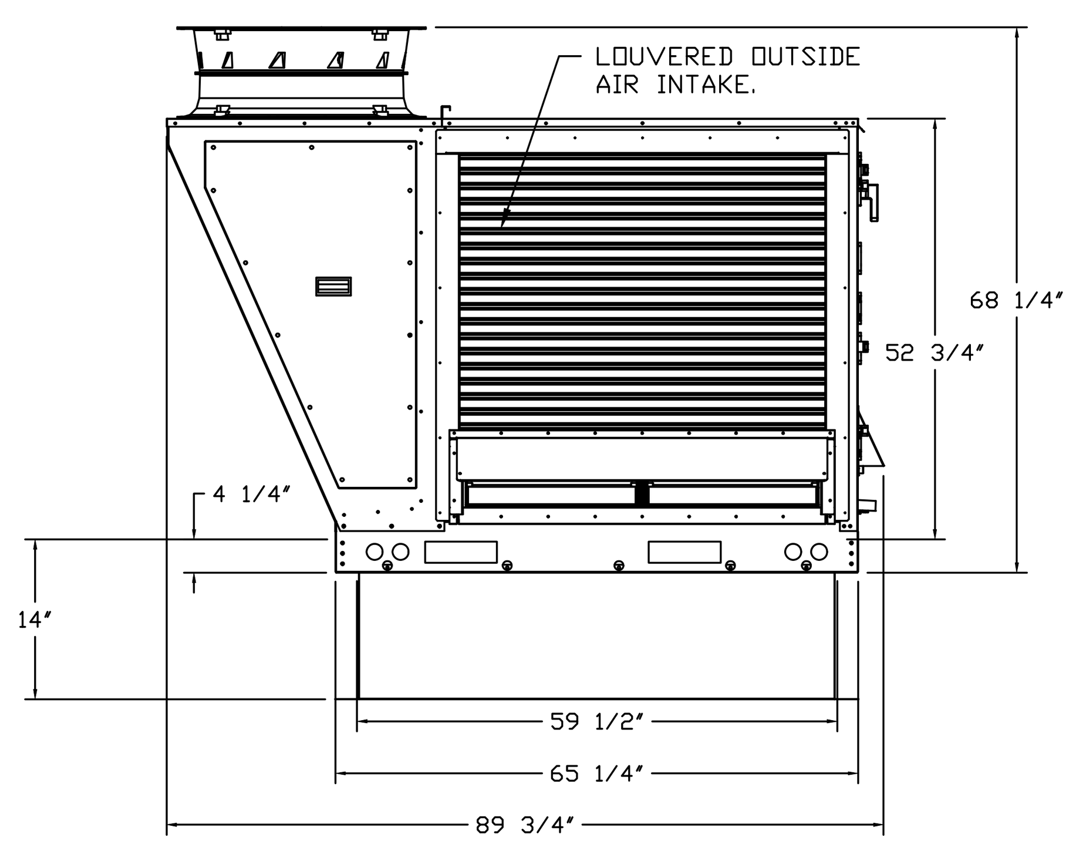

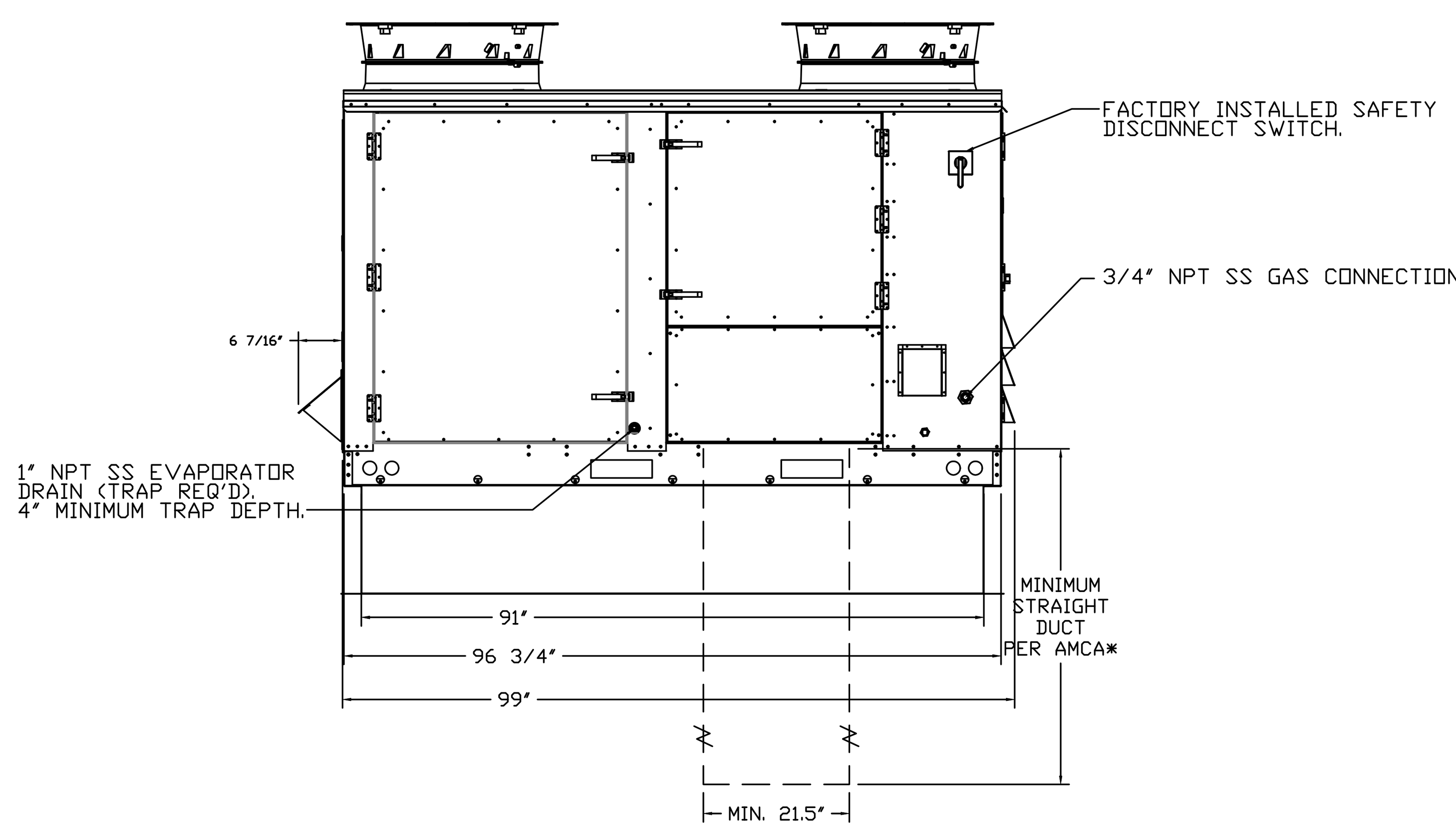

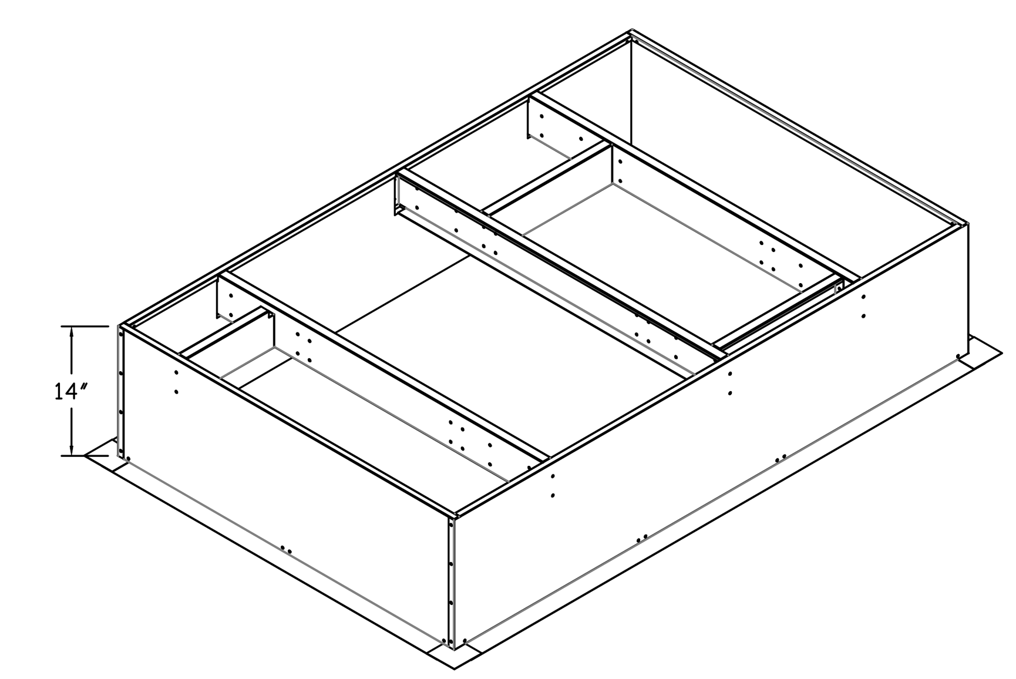

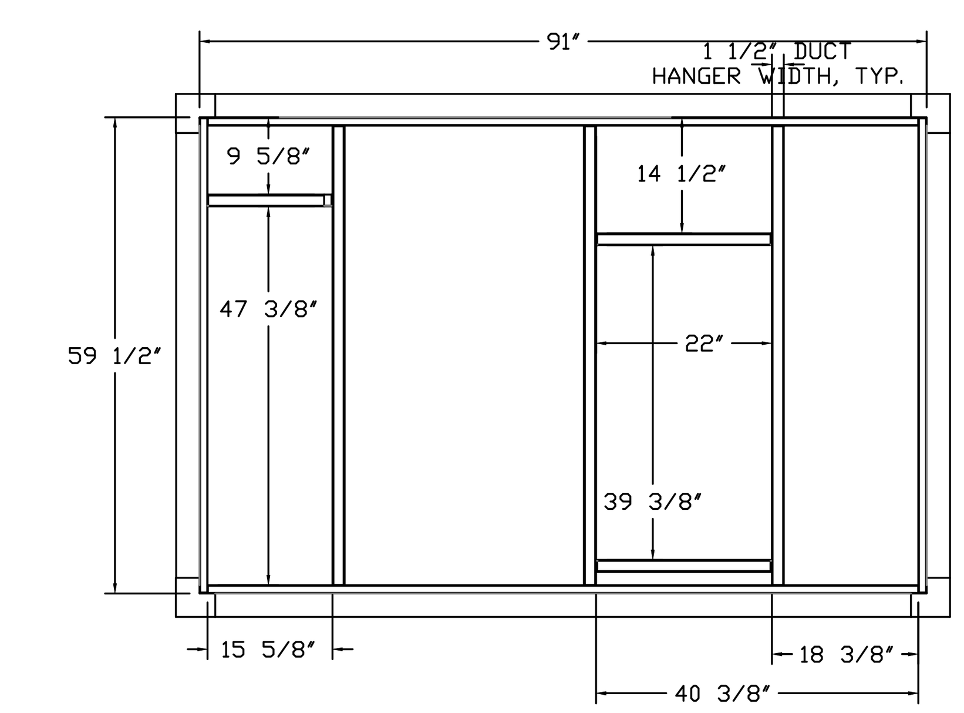

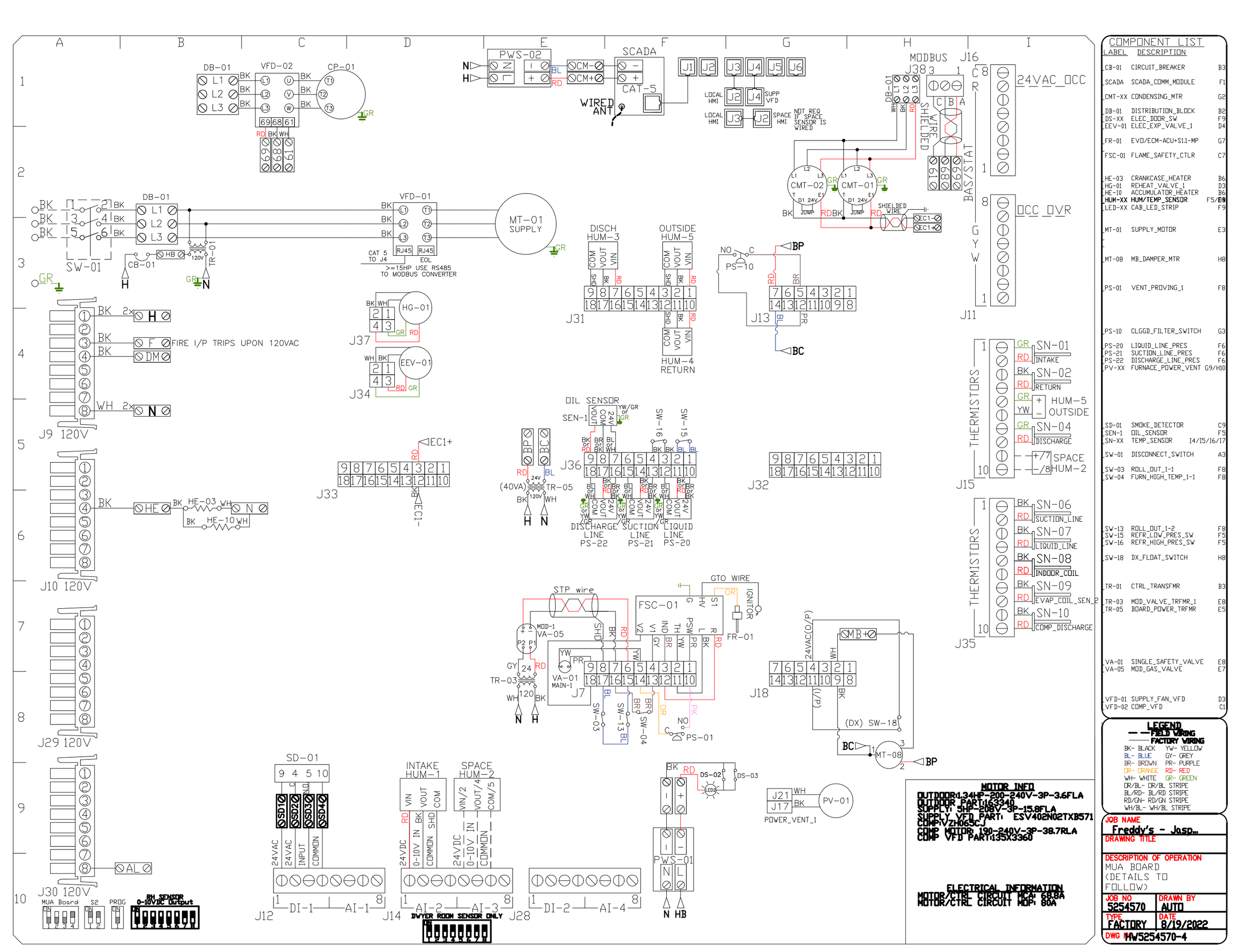

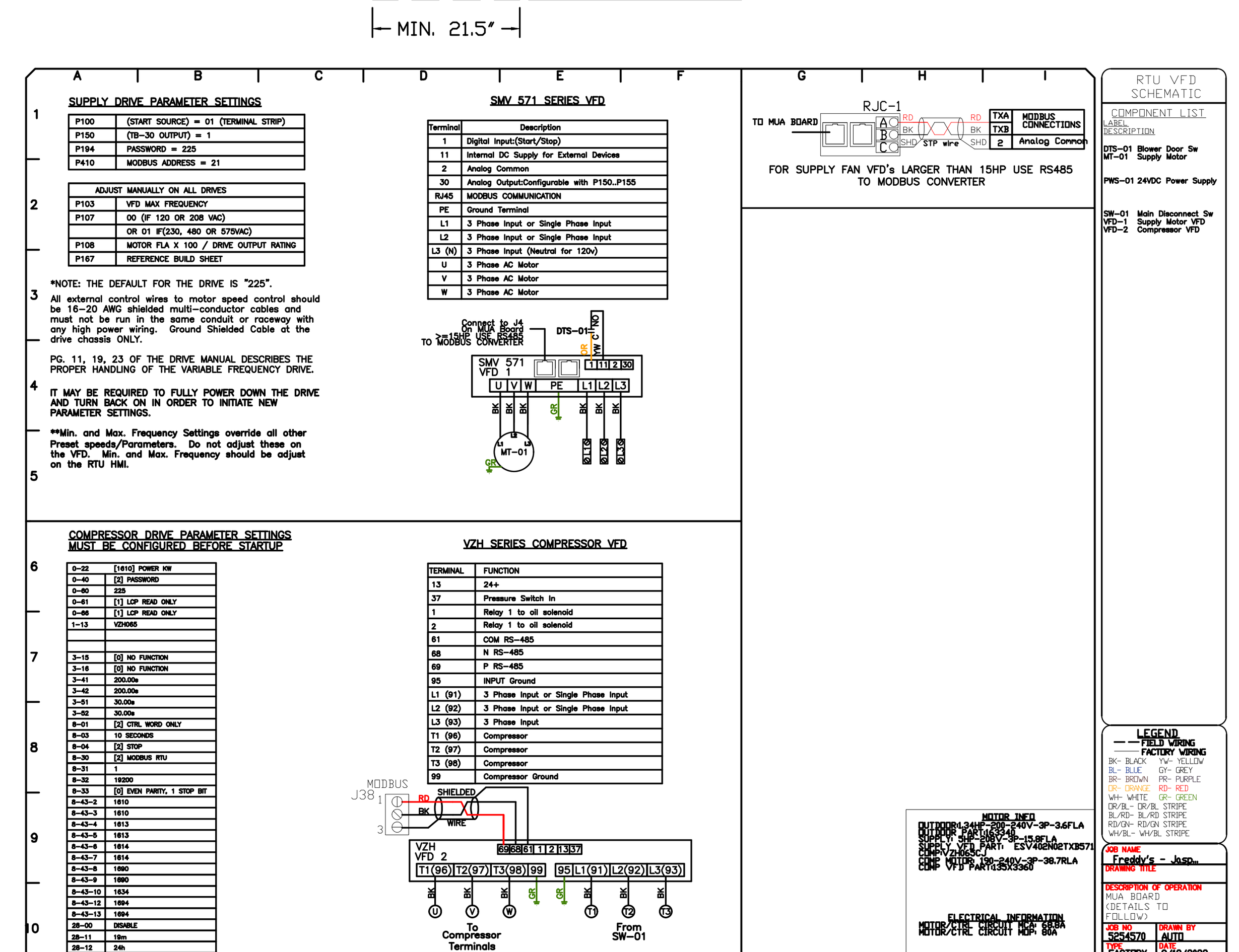

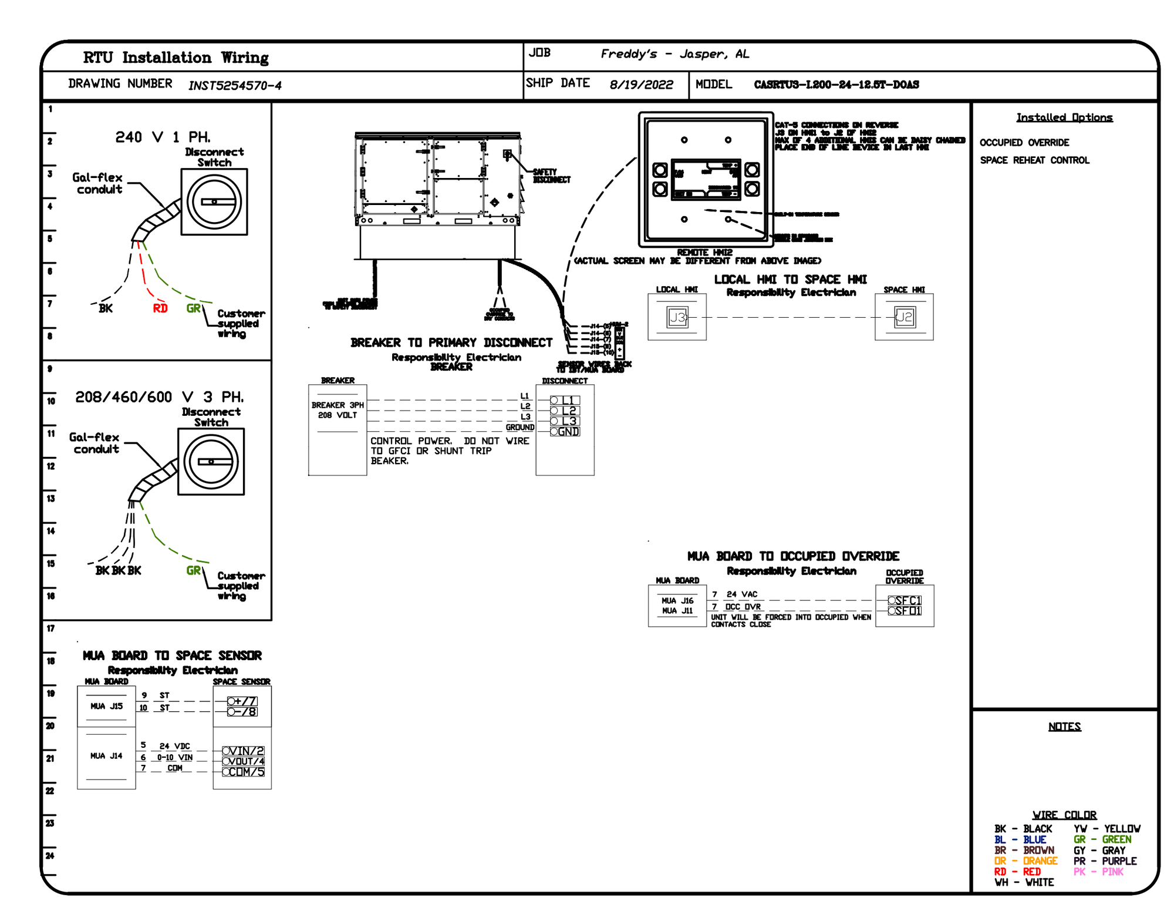

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JASPER, AL, 35501

DATE: 8/19/2022

DWG.#: 5254570

DRAWN BY: michael.co

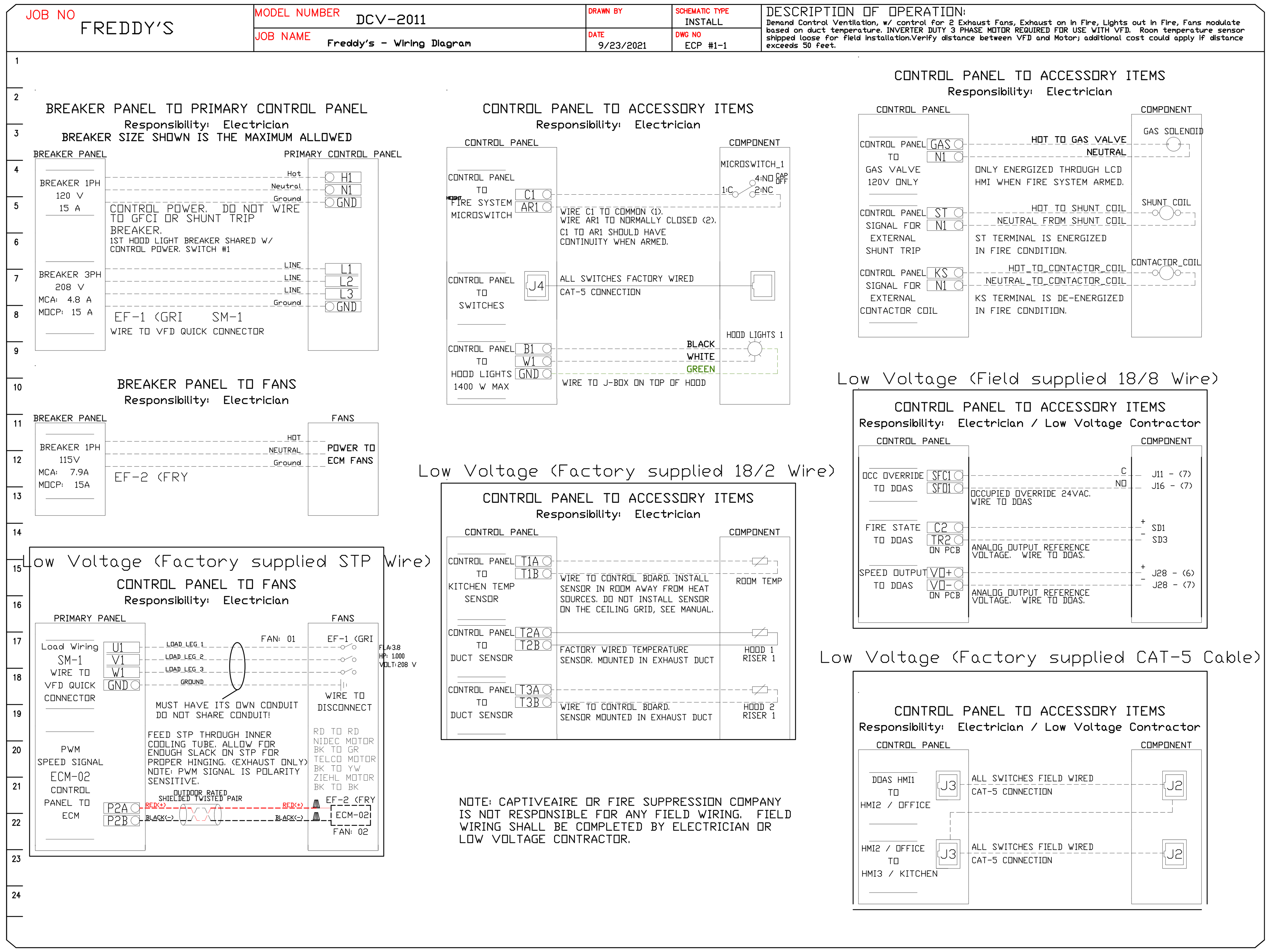
SCALE: 1/2" = 1'-0"

MASTER DRAWING

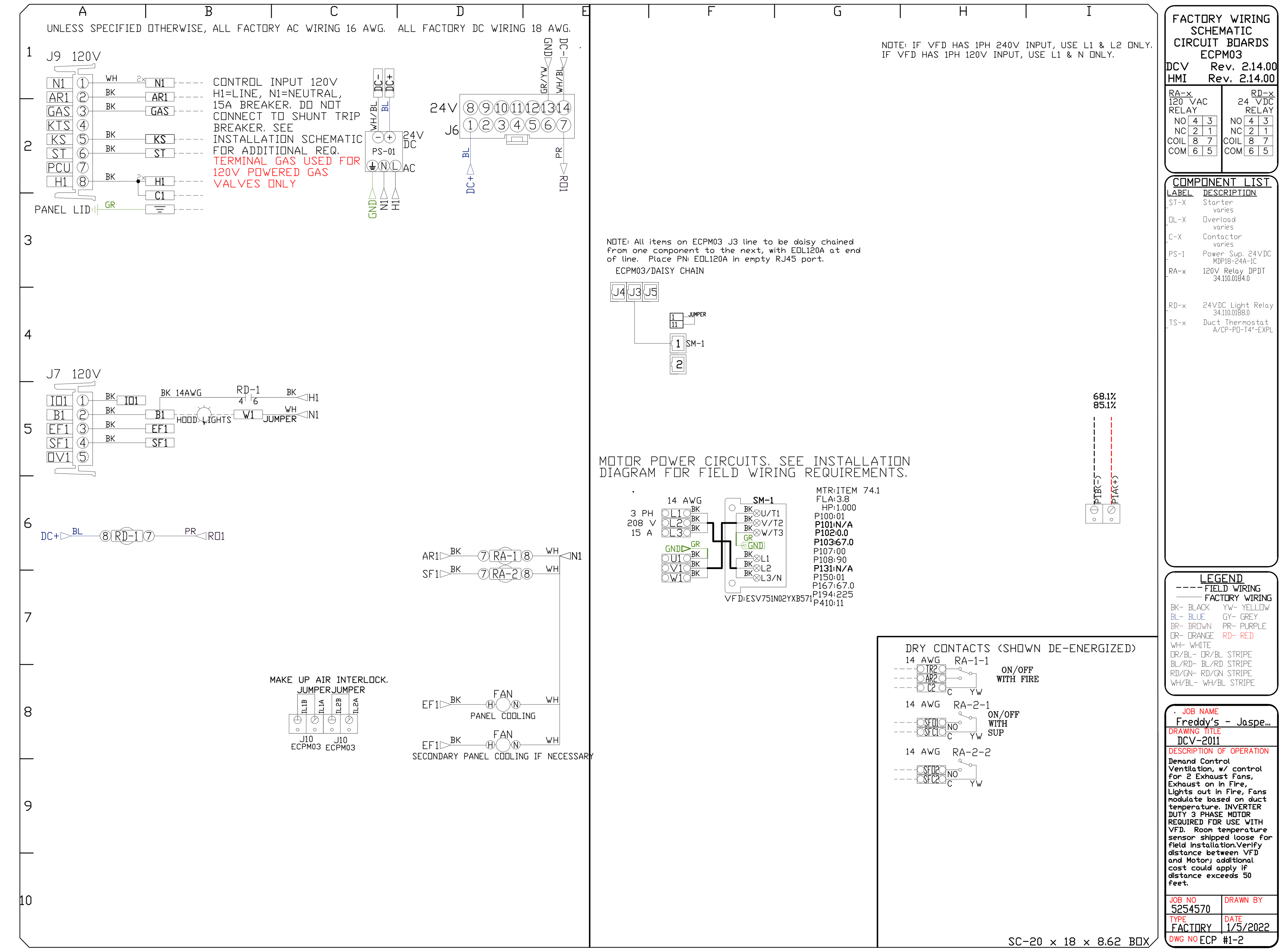
SHEET NO. 4

ELECTRICAL PACKAGE – JOB#5254570

NO	TAG	PACKAGE #	LOCATION	SWITCHES		OPTION	FANS CONTROLLED					
				LOCATION	QUANTITY		FAN TAG	TYPE	φ	HP	VOLT	FLA
1	ECP-1	DCV-2011	UTILITY CABINET LEFT	03 – UTILITY CABINET LEFT	1 LIGHT	SMART CONTROLS DCV	EF-1 (GRIDDLE)	EXHAUST	3	1.000	208	3.8
				HOOD # 1	1 FAN		EF-2 (FRYER)	EXHAUST	1	0.500	115	6.3



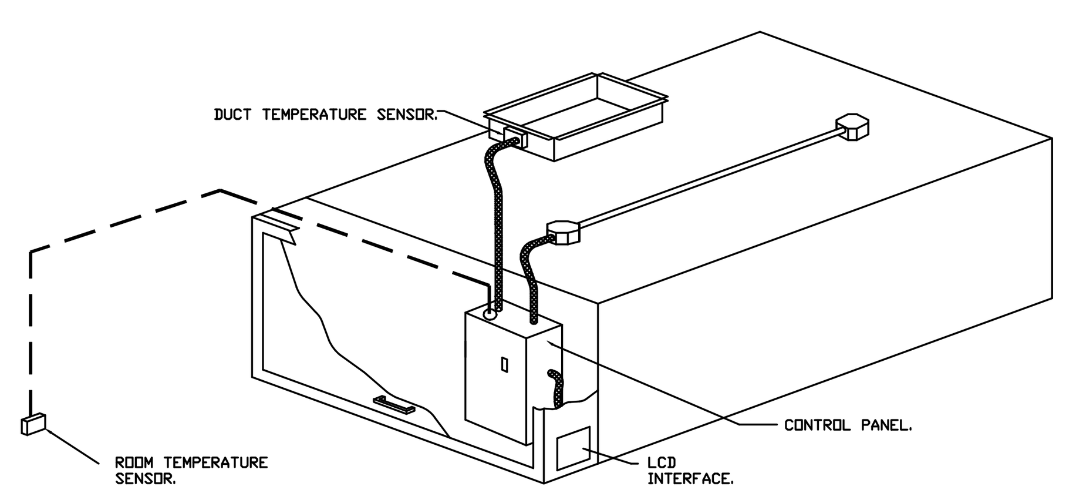
JOB NO FREDDY'S
MODEL NUMBER DCV-2011
JOB NAME Freddy's - Wiring Diagram
DRAWN BY
DATE 9/23/2021
SCHEMATIC TYPE INSTALL
DWG NO ECP #1-1
DESCRIPTION OF OPERATION:
BREAKER PANEL TO PRIMARY CONTROL PANEL
Responsibility: Electrician
BREAKER SIZE SHOWN IS THE MAXIMUM ALLOWED
BREAKER PANEL TO FANS
Responsibility: Electrician
Low Voltage (Factory supplied STP Wire)
CONTROL PANEL TO FANS
Responsibility: Electrician
CONTROL PANEL TO ACCESSORY ITEMS
Responsibility: Electrician
Low Voltage (Factory supplied 18/2 Wire)
CONTROL PANEL TO ACCESSORY ITEMS
Responsibility: Electrician
NOTE: CAPTIVEAIRE OR FIRE SUPPRESSION COMPANY IS NOT RESPONSIBLE FOR ANY FIELD WIRING. FIELD WIRING SHALL BE COMPLETED BY ELECTRICIAN OR LOW VOLTAGE CONTRACTOR.
CONTROL PANEL TO ACCESSORY ITEMS
Responsibility: Electrician
Low Voltage (Field supplied 18/8 Wire)
CONTROL PANEL TO ACCESSORY ITEMS
Responsibility: Electrician / Low Voltage Contractor
Low Voltage (Factory supplied CAT-5 Cable)
CONTROL PANEL TO ACCESSORY ITEMS
Responsibility: Electrician / Low Voltage Contractor



UNLESS SPECIFIED OTHERWISE, ALL FACTORY AC WIRING 16 AWG. ALL FACTORY DC WIRING 18 AWG.
MOTOR POWER CIRCUITS. SEE INSTALLATION DIAGRAM FOR FIELD WIRING REQUIREMENTS.
MAKE UP AIR INTERLOCK.
DRY CONTACTS (SHOWN DE-ENERGIZED)
FACTORY WIRING SCHEMATIC CIRCUIT BOARDS ECPM03
COMPONENT LIST
LEGEND
Freddy's - Jasper
DCV-2011
5254570
FACTORY
1/5/2022
ECP #1-2
SC-20 x 18 x 8.62 BOX

DEMAND CONTROL VENTILATION HOOD CONTROL PANEL SPECIFICATIONS:

- CONTROLS SHALL BE LISTED BY ETL (UL 508A) AND SHALL COMPLY WITH DEMAND VENTILATION SYSTEM TURNDOWN REQUIREMENTS OUTLINED IN IECC 403.2.8 (2015).
- THE CONTROL ENCLOSURE SHALL BE NEMA 1 RATED AND LISTED FOR INSTALLATION INSIDE OF THE EXHAUST HOOD UTILITY CABINET. THE CONTROL ENCLOSURE MAY BE CONSTRUCTED OF STAINLESS STEEL OR PAINTED STEEL.
- TEMPERATURE PROBE(S) LOCATED IN THE EXHAUST DUCT RISER(S) SHALL BE CONSTRUCTED OF STAINLESS STEEL.
- A DIGITAL CONTROLLER SHALL BE PROVIDED TO ACTIVATE THE HOOD EXHAUST FANS DYNAMICALLY BASED ON A FIXED DIFFERENTIAL BETWEEN THE AMBIENT AND DUCT TEMPERATURES SENSORS. THIS FUNCTION SHALL MEET THE REQUIREMENTS OF IMC 507.1.1.
- A DIGITAL CONTROLLER SHALL PROVIDE ADJUSTABLE HYSTERESIS SETTINGS TO PREVENT CYCLING OF THE FANS AFTER THE COOKING APPLIANCES HAVE BEEN TURNED OFF AND/OR THE HEAT IN THE EXHAUST SYSTEM IS REDUCED.
- A DIGITAL CONTROLLER SHALL PROVIDE AN ADJUSTABLE MINIMUM FAN RUN-TIME SETTING TO PREVENT FAN CYCLING.
- VARIABLE FREQUENCY DRIVES (VFDS) SHALL BE PROVIDED FOR FANS AS REQUIRED. THE DIGITAL CONTROLLER SHALL MODULATE THE VFDS BETWEEN A MINIMUM SETPOINT AND A MAXIMUM SETPOINT ON DEMAND. THE DUCT TEMPERATURE SENSOR INPUT(S) TO THE DIGITAL CONTROLLER SHALL BE USED TO CALCULATE THE SPEED REFERENCE SIGNAL.
- THE VFD SPEED RANGE OF OPERATION SHALL BE FROM 0% TO 100% FOR THE SYSTEM, WITH THE ACTUAL MINIMUM SPEED SET AS REQUIRED TO MEET MINIMUM VENTILATION REQUIREMENTS.
- AN INTERNAL ALGORITHM TO THE DIGITAL CONTROLLER SHALL MODULATE SUPPLY FAN VFD SPEED PROPORTIONAL TO ALL EXHAUST FANS THAT ARE LOCATED IN THE SAME FAN GROUP AS THE SUPPLY FAN.
- THE SYSTEM SHALL OPERATE IN PREP MODE DURING LIGHT COOKING LOAD OR COOL DOWN MODE WHEN SUFFICIENT HEAT REMAINS UNDERNEATH THE HOOD SYSTEM AFTER COOKING OPERATIONS HAVE COMPLETED. OPERATION DURING EITHER OF THESE PERIODS WILL DISABLE THE SUPPLY FANS AND PROVIDE AN EXHAUST FAN SPEED THAT IS EQUAL TO THE MINIMUM VENTILATION REQUIREMENT.
- A DIGITAL CONTROLLER SHALL DISABLE THE SUPPLY FAN(S), ACTIVATE THE EXHAUST FAN(S), ACTIVATE THE APPLIANCE SHUNT TRIP, AND DISABLE AN ELECTRIC GAS VALVE AUTOMATICALLY WHEN FIRE CONDITION IS DETECTED ON A COVERED HOOD.
- A DIGITAL CONTROLLER SHALL ALLOW FOR EXTERNAL BMS FAN CONTROL VIA DRY CONTACT (EXTERNAL CONTROL SHALL NOT OVERRIDE FAN OPERATION LOGIC AS REQUIRED BY CODE).
- AN LCD INTERFACE SHALL BE PROVIDED WITH THE FOLLOWING FEATURES:
  A. ON/OFF PUSH BUTTON FAN & LIGHT SWITCH ACTIVATION.
  B. INTEGRATED GAS VALVE RESET FOR ELECTRONIC GAS VALVES (NO RESET RELAY REQUIRED).
  C. VFD FAULT DISPLAY WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
  D. DUCT TEMPERATURE SENSOR FAILURE DETECTION WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
  E. MIS-WIRED DUCT TEMPERATURE SENSOR DETECTION WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
  F. A SINGLE LOW VOLTAGE CAT-5 RJ45 WIRING CONNECTION.
  G. AN ENERGY SAVINGS INDICATOR THAT UTILIZES MEASURED KWH FROM THE VFDS.

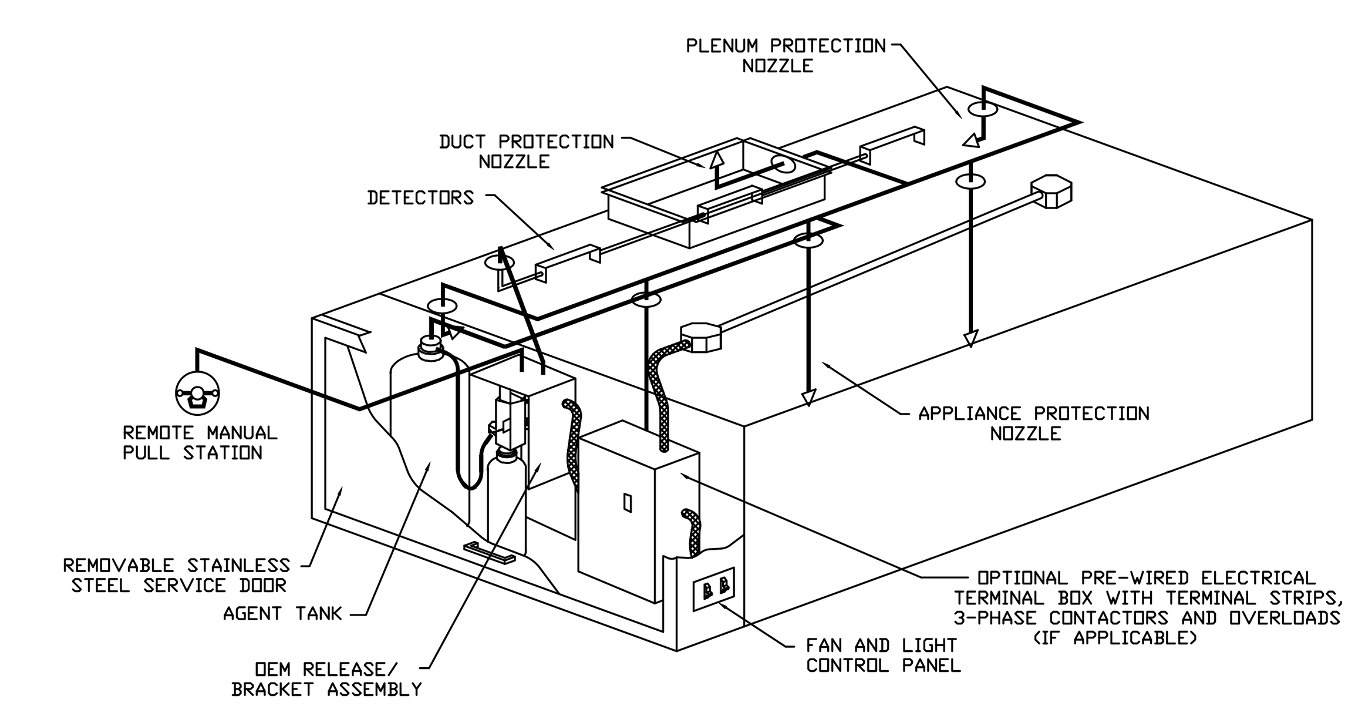


TYPICAL HOOD CONTROL PANEL INSTALLATION

SEQUENCE OF OPERATIONS:

THE HOOD CONTROL PANEL IS CAPABLE OF OPERATING IN ONE OR MORE OF THE FOLLOWING STATES AT ANY GIVEN TIME:

- AUTOMATIC: THE SYSTEM OPERATES BASED ON THE DIFFERENTIAL BETWEEN ROOM TEMPERATURE AND THE TEMPERATURE AT THE HOOD CAVITY OR EXHAUST DUCT COLLAR. FANS ACTIVATE AT A CONFIGURABLE TEMPERATURE DIFFERENTIAL THRESHOLD. DEPENDING ON THE JOB CONFIGURATION EACH FAN ZONE CAN BE CONFIGURED AS STATIC OR DYNAMIC. THESE TERMS REFER TO WHETHER A VARIABLE MOTOR (SUCH AS EC MOTORS OR VFD DRIVEN MOTORS) MODULATE WITH TEMPERATURE. IF THE PANEL IS EQUIPPED WITH VARIABLE SPEED FANS AND THE ZONE IS DEFINED AS "DYNAMIC", THESE WILL MODULATE WITHIN A USER-DEFINED RANGE BASED ON THE TEMPERATURE DIFFERENTIAL. PANELS EQUIPPED WITH VARIABLE SPEED FANS AND A FAN ZONE DEFINED AS "STATIC", FANS WILL RUN AT A SET SPEED CALCULATED FOR THE DRIVE. DEMAND CONTROL VENTILATION SYSTEMS ARE CAPABLE OF MODULATING EXHAUST AND MAKE UP AIR FAN SPEEDS PER THE REQUIREMENTS OUTLINED IN IECC 403.2.8.
- MANUAL: THE SYSTEM OPERATES BASED ON HUMAN INPUT FROM AN HMI.
- SCHEDULE: A WEEKLY SCHEDULE CAN BE SET TO RUN FANS FOR A SPECIFIED PERIOD THROUGHOUT THE DAY. THERE ARE THREE OCCUPIED TIMES PER DAY TO ALLOW FOR THE USER TO SET UP A TIME THAT IS SUITABLE TO THEIR NEEDS. ANY TIME THAT IS WITHIN THE DEFINED OCCUPIED TIME, THE SYSTEM WILL RUN AT MODULATION MODE AND FOLLOW THE FAN PROCEDURE ALGORITHM BASED ON TEMPERATURE DURING THIS TIME. DURING UNOCCUPIED TIME, THE SYSTEM WILL HAVE AN EXTRA OFFSET TO PREVENT UNINTENDED ACTIVATION OF THE SYSTEM DURING A TIME WHERE THE SYSTEM IS NOT BEING OCCUPIED.
- OTHER: THE SYSTEM OPERATES BASED ON THE INPUT FROM AN EXTERNAL SOURCE (DDC, BMS OR HARD-WIRED INTERLOCK).
- FIRE: UPON ACTIVATION OF THE HOOD FIRE SUPPRESSION SYSTEM, THE EXHAUST FAN WILL COME ON OR CONTINUE TO TO RUN, THE HOOD MAKEUP AIR WILL SHUTDOWN, AND A SIGNAL WILL BE SENT FOR ACTIVATING THE SHUNT TRIP BREAKER PROVIDED BY THE ELECTRICIAN. FUEL GAS WILL SHUT OFF VIA A MECHANICAL/ELECTRICAL GAS VALVE ACTUATED BY THE HOOD FIRE SUPPRESSION SYSTEM.



PLENUM PROTECTION NOZZLE
DUCT PROTECTION NOZZLE
DETECTORS
APPLIANCE PROTECTION NOZZLE
REMOTE MANUAL PULL STATION
REMOVABLE STAINLESS STEEL SERVICE DOOR
AGENT TANK
OEM RELEASE/ BRACKET ASSEMBLY
OPTIONAL PRE-WIRED ELECTRICAL TERMINAL BOX WITH TERMINAL STRIPS, 3-PHASE CONTACTORS AND OVERLOADS (IF APPLICABLE)
FAN AND LIGHT CONTROL PANEL

TYPICAL ANSUL R-102 SYSTEM LAYOUT

SPECIFICATIONS

THE RESTAURANT FIRE SUPPRESSION SYSTEM SHALL BE THE PRE-ENGINEERED TYPE WITH A FIXED NOZZLE AGENT DISTRIBUTION NETWORK. IT SHALL BE LISTED WITH UNDERWRITERS LABORATORIES, INC. (UL)

THE SYSTEM SHALL BE CAPABLE OF AUTOMATIC DETECTION AND ACTUATION WITH LOCAL OR REMOTE MANUAL ACTUATION. ACCESSORIES SHALL BE AVAILABLE FOR MECHANICAL OR ELECTRICAL GAS LINE SHUT-OFF APPLICATIONS.

THE EXTINGUISHING AGENT SHALL BE A POTASSIUM CARBONATE, POTASSIUM ACETATE-BASED FORMULATION DESIGNED FOR FLAME KNOCKDOWN AND SECUREMENT OF GREASE RELATED FIRES. IT SHALL BE AVAILABLE IN PLASTIC CONTAINERS WITH INSTRUCTIONS FOR LIQUID AGENT HANDLING AND USAGE.

THE REGULATED RELEASE MECHANISM SHALL BE COMPATIBLE WITH A FUSIBLE LINK DETECTION SYSTEM. THE FUSIBLE LINK SHALL BE SELECTED AND INSTALLED ACCORDING TO THE OPERATING TEMPERATURE IN THE VENTILATING SYSTEM. THE FUSIBLE LINK SHALL BE SUPPORTED BY A DETECTOR BRACKET/ LINKAGE ASSEMBLY.

REVISIONS

DESCRIPTION	DATE

CAPTIVE-AIRE

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DRAWN BY: michael.co

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

MASTER DRAWING

SHEET NO. 5