



GENERAL MECHANICAL SYMBOLS		HVAC SYMBOLS		PIPING SYMBOLS	
	REVISION NUMBER - SHOWN ON PLANS		SQUARE DUCT SIZE TAG (WIDTH X HEIGHT)		CHWR CHILLED WATER RETURN
	POINT WHERE NEW CONNECTS TO EXISTING		OVAL DUCT SIZE TAG (WIDTH / HEIGHT)		CHWS CHILLED WATER SUPPLY
	NUMBER OF DETAIL ON SHEET NUMBER OF SHEET WHERE DETAIL APPEARS		ROUND DUCT SIZE TAG (DIAMETER)		CD CONDENSATE DRAINAGE
	KEYNOTE		EXISTING DUCT TAG		CWR CONDENSER WATER RETURN
	CONTINUATION SYMBOL		DUCT BEING DEMOLISHED		CWS CONDENSER WATER SUPPLY
	ROOM NAME AND NUMBER		SUPPLY AIR		GWR GEOTHERMAL WATER RETURN
	ITEM TO BE DEMOLISHED		CONDITIONED OUTSIDE AIR		GWS GEOTHERMAL WATER SUPPLY
	AREA NOT IN CONTRACT		OUTSIDE AIR		HWR HEATING WATER RETURN
	PIPE SIZE TAG (DIAMETER)		RETURN AIR		HWS HEATING WATER SUPPLY
	ABOVE GROUND PIPING		TRANSFER AIR		G NATURAL GAS
	PIPE SLOPE TAG		EXHAUST AIR		PG PROPANE GAS
	BELOW GROUND PIPING		RELIEF AIR		REF-L REFRIGERANT-LIQUID
	PIPE INVERT ELEVATION TAG		GREASE EXHAUST AIR		REF-S REFRIGERANT-SUCTION
	EXISTING PIPE TAG		CONDENSATE EXHAUST AIR		REF-HG REFRIGERANT-HOT GAS
	PIPING BEING DEMOLISHED		SMOKE EXHAUST AIR		STM STEAM
ABBREVIATIONS			EXHAUST GAS FLUE		CDR CONDENSATE RETURN
Ø	ROUND		EXHAUST GAS FLUE	PIPE ACCESSORY TAGS	
ABV	ABOVE		COMBUSTION AIR		2\"/>
AC	AIR CONDITIONING	DROP	RECTANGULAR SUPPLY/OUTSIDE AIR DUCT RISE		2\"/>
AD	AREA DRAIN	DROP	ROUND SUPPLY/OUTSIDE AIR DUCT RISE		2\"/>
ADD	ADDENDUM	DROP	RECTANGULAR RETURN/TRANSFER AIR DUCT RISE		2\"/>
AFF	ABOVE FINISHED FLOOR	DROP	ROUND RETURN/TRANSFER AIR DUCT RISE		2\"/>
AFUE	ANNUAL FUEL UTILIZATION EFFICIENCY	DROP	RECTANGULAR EXHAUST/RELIEF AIR DUCT RISE		2\"/>
ALT	ALTERNATE	DROP	ROUND EXHAUST/RELIEF AIR DUCT RISE		2\"/>
AP	ACCESS PANEL	TYPE (SEE SCHEDULE)			2\"/>
ARCH	ARCHITECT/ARCHITECTURAL	3-Cone Diffuser			2\"/>
BFF	BELOW FINISHED FLOOR				2\"/>
BLW	BELOW				2\"/>
BTU	BRITISH THERMAL UNITS				2\"/>
BTUH	BRITISH THERMAL UNITS PER HOUR				2\"/>
CAP	CAPACITY				2\"/>
CB	CATCH BASIN				2\"/>
CFM	CUBIC FEET PER MINUTE				2\"/>
CLG	CEILING				2\"/>
CO	CLEAN OUT				2\"/>
CW	COLD WATER				2\"/>
D	DEGREE				2\"/>
DB	DRY BULB				2\"/>
DIA	DIAMETER				2\"/>
DN	DOWN				2\"/>
DW	DISTILLED WATER				2\"/>
EA	EACH				2\"/>
EAT	ENTERING AIR TEMPERATURE				2\"/>
ELEC	ELECTRICAL				2\"/>
EQUIP	EQUIPMENT				2\"/>
EW	ELECTRIC WATER COOLER				2\"/>
EWT	ENTERING WATER TEMPERATURE				2\"/>
E/A	EXHAUST AIR				2\"/>
EXIST	EXISTING				2\"/>
F	DEGREES FAHRENHEIT				2\"/>
FCO	FLOOR CLEAN OUT				2\"/>
FD	FLOOR DRAIN				2\"/>
FDG	FIRE DEPARTMENT CONNECTION				2\"/>
FL	FLOOR				2\"/>
FO	FUEL OIL				2\"/>
FOV	FUEL OIL VENT				2\"/>
FOR	FUEL OIL RETURN				2\"/>
FOS	FUEL OIL SUPPLY				2\"/>
FS	FLOOR SINK				2\"/>
FT	FOOT/FEET				2\"/>
FTR	FIN TUBE RADIATION				2\"/>
GAL	GALLON				2\"/>
GF	GAS-FIRED				2\"/>
GC	GENERAL CONTRACTOR				2\"/>
GPM	GALLONS PER MINUTE				2\"/>
GW	GREASE WASTE				2\"/>
HB	HOSE BIB				2\"/>
HP	HORSE POWER				2\"/>
HTG	HEATING				2\"/>
HTR	HEATER				2\"/>
HW	HOT WATER				2\"/>
HYD	HYDRANT				2\"/>
ID	INDIRECT				2\"/>
IN	INCH				2\"/>
INV	INVERT				2\"/>
LB	POUND				2\"/>
LB/HR	POUNDS PER HOUR				2\"/>
LAT	LEAVING AIR TEMPERATURE				2\"/>
LP	LOW PRESSURE				2\"/>
LPG	LIQUEFIED PETROLEUM GAS				2\"/>
LVR	LOUVER				2\"/>
LWT	LEAVING WATER TEMPERATURE				2\"/>
M/A	MIXED AIR				2\"/>
MAX	MAXIMUM				2\"/>
MBH	ONE THOUSAND BTU PER HOUR				2\"/>
MCF	ONE THOUSAND CUBIC FEET				2\"/>
MD	MOTORIZED DAMPER				2\"/>
MECH	MECHANICAL				2\"/>
MFR	MANUFACTURER				2\"/>
MIN	MINIMUM				2\"/>
MISC	MISCELLANEOUS				2\"/>
MTR	MOTOR				2\"/>
MUA	MAKE-UP AIR				2\"/>
NC	NOISE CRITERIA				2\"/>
NC	NORMALLY CLOSED				2\"/>
NIC	NOT IN CONTRACT				2\"/>
NO	NUMBER				2\"/>
NO	NORMALLY OPEN				2\"/>
NTS	NOT TO SCALE				2\"/>
O	OXYGEN				2\"/>
O/A	OUTSIDE AIR				2\"/>
ORD	OVERFLOW ROOF DRAIN				2\"/>
PD	PRESSURE DROP				2\"/>
PV	POST INDICATOR VALVE				2\"/>
PLBG	PLUMBING				2\"/>
PRESS	PRESSURE				2\"/>
PRV	PRESSURE REDUCING VALVE				2\"/>
PSI	POUNDS PER SQUARE INCH				2\"/>
PSIG	POUNDS PER SQUARE INCH GAUGE				2\"/>
PWR	POWER				2\"/>
R	RISER				2\"/>
R/A	RETURN AIR				2\"/>
RCP	RADIANT CEILING PANEL				2\"/>
RD	ROOF DRAIN				2\"/>
REC	RECESSED				2\"/>
RED	REDUCER				2\"/>
RH	RELATIVE HUMIDITY				2\"/>
RL/A	RELIEF AIR				2\"/>
RM	ROOM				2\"/>
RPM	REVOLUTIONS PER MINUTE				2\"/>
RW	RAIN WATER				2\"/>
SF	SQUARE FOOT				2\"/>
SIA	SUPPLY AIR				2\"/>
SAN	SANITARY				2\"/>
SF	SQUARE FOOT				2\"/>
SD	SMOKE DAMPER				2\"/>
SM	SURFACE MOUNT				2\"/>
SP	STANDPIPE				2\"/>
SP	STATIC PRESSURE				2\"/>
STM	STEAM				2\"/>
T	THERMOSTAT				2\"/>
TD	TEMPERATURE DROP				2\"/>
TDR	TRENCH DRAIN				2\"/>
TEMP	TEMPERATURE				2\"/>
TYP	TYPICAL				2\"/>
UG	UNDERGROUND				2\"/>
VAC	VACUUM				2\"/>
V	VENT				2\"/>
VAV	VARIABLE AIR VOLUME				2\"/>
VENT	VENTILATION				2\"/>
VTR	VENT THROUGH ROOF				2\"/>
W	WASTE				2\"/>
WB	WET BULB				2\"/>
WCO	WALL CLEAN OUT				2\"/>
WH	WATER HEATER				2\"/>
EQUIPMENT ABBREVIATIONS		MECHANICAL EQUIPMENT TAGS		PIPE ACCESSORY TAGS	
AC	AIR CONDITIONING UNIT	HEATING COIL FLOW			2\"/>
ACCU	AIR COOLING CONDENSING UNIT	COIL			2\"/>
AHU	AIR HANDLING UNIT	FLOW			2\"/>
AS	AIR SEPARATOR	COIL			2\"/>
B	BOILER	COIL			2\"/>
CH	CHILLER	COIL			2\"/>
CT	COOLING TOWER	COIL			2\"/>
CUH	CABINET UNIT HEATER	COIL			2\"/>
CHWP	CHILLED WATER PUMP	COIL			2\"/>
DBP	DOMESTIC WATER BOOSTER PUMP	COIL			2\"/>
DC	DUCT MOUNTED COIL	COIL			2\"/>
DCP	DOMESTIC WATER CIRCULATING PUMP	COIL			2\"/>
EF	EXHAUST FAN	COIL			2\"/>
EDC	ELECTRIC DUCT COIL	COIL			2\"/>
ET	EXPANSION TANK	COIL			2\"/>
EW	ELECTRIC WATER HEATER	COIL			2\"/>
FCU	FAN COIL UNIT	COIL			2\"/>
FP	FIRE PUMP	COIL			2\"/>
GI	GREASE INTERCEPTOR	COIL			2\"/>
GRV	GRAVITY ROOF VENTILATOR	COIL			2\"/>
HWP	HEATING WATER PUMP	COIL			2\"/>
HRU	HEAT RECOVERY UNIT	COIL			2\"/>
PRV	POWER ROOF VENTILATOR	COIL			2\"/>
RE	RETURN/EXHAUST FAN	COIL			2\"/>
RTU	ROOFTOP UNIT	COIL			2\"/>
SP	SUMP PUMP	COIL			2\"/>
UH	UNIT HEATER	COIL			2\"/>
WH	WATER HEATER	COIL			2\"/>
* NOTE *		DAMPER TAGS		PIPE ACCESSORY TAGS	
ALL OF GENERAL NOTES ON THIS SHEET ARE TO BE APPLIED TO ALL OTHER DRAWINGS IN THIS SET. THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE USED IN THIS SET OF DRAWINGS.			Smoke Damper		2\"/>
			Fire Damper		2\"/>
			Comb. Fire/Smoke Damper		2\"/>
			Manual Damper		2\"/>
			Motorized Damper		2\"/>
			Backdraft Damper		2\"/>

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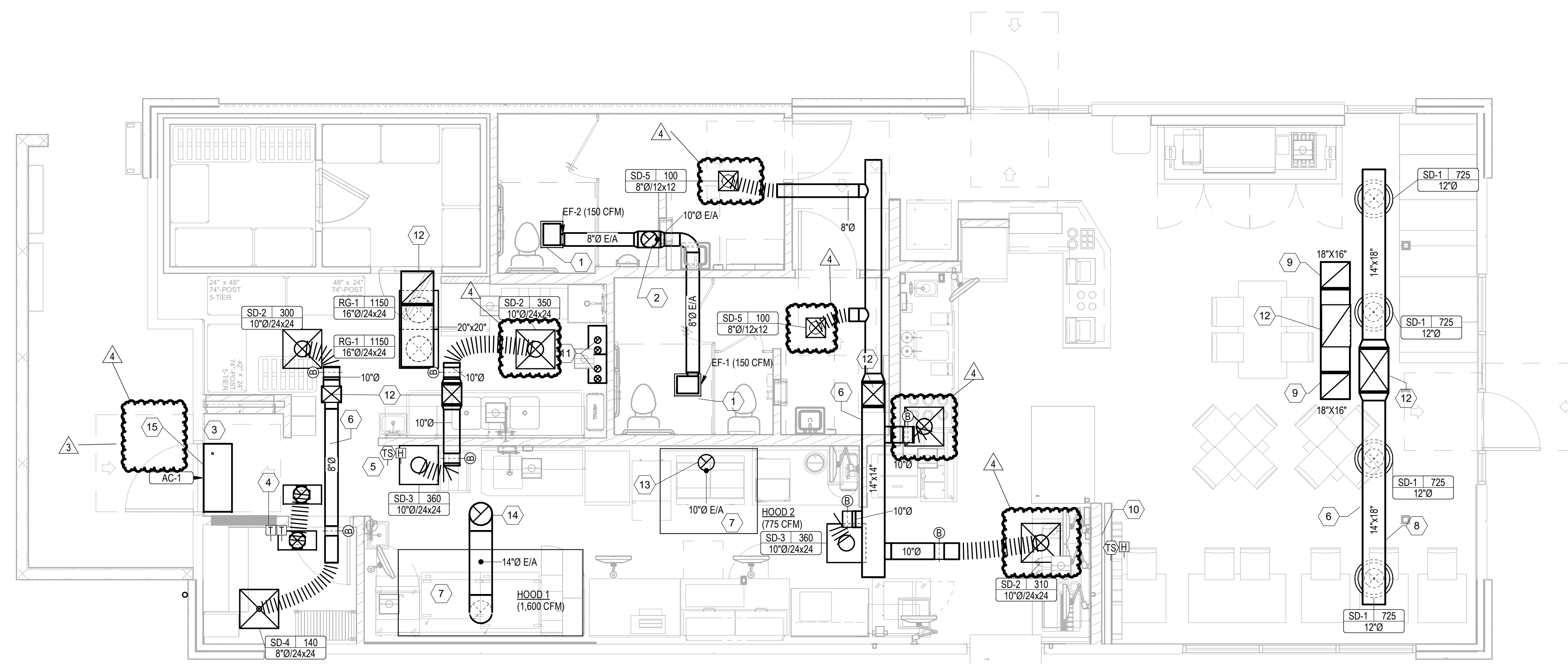
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Freddy's Frozen Custard  
 Freddy's  
 1834 E. Route 66  
 Glendora, CA. 91740

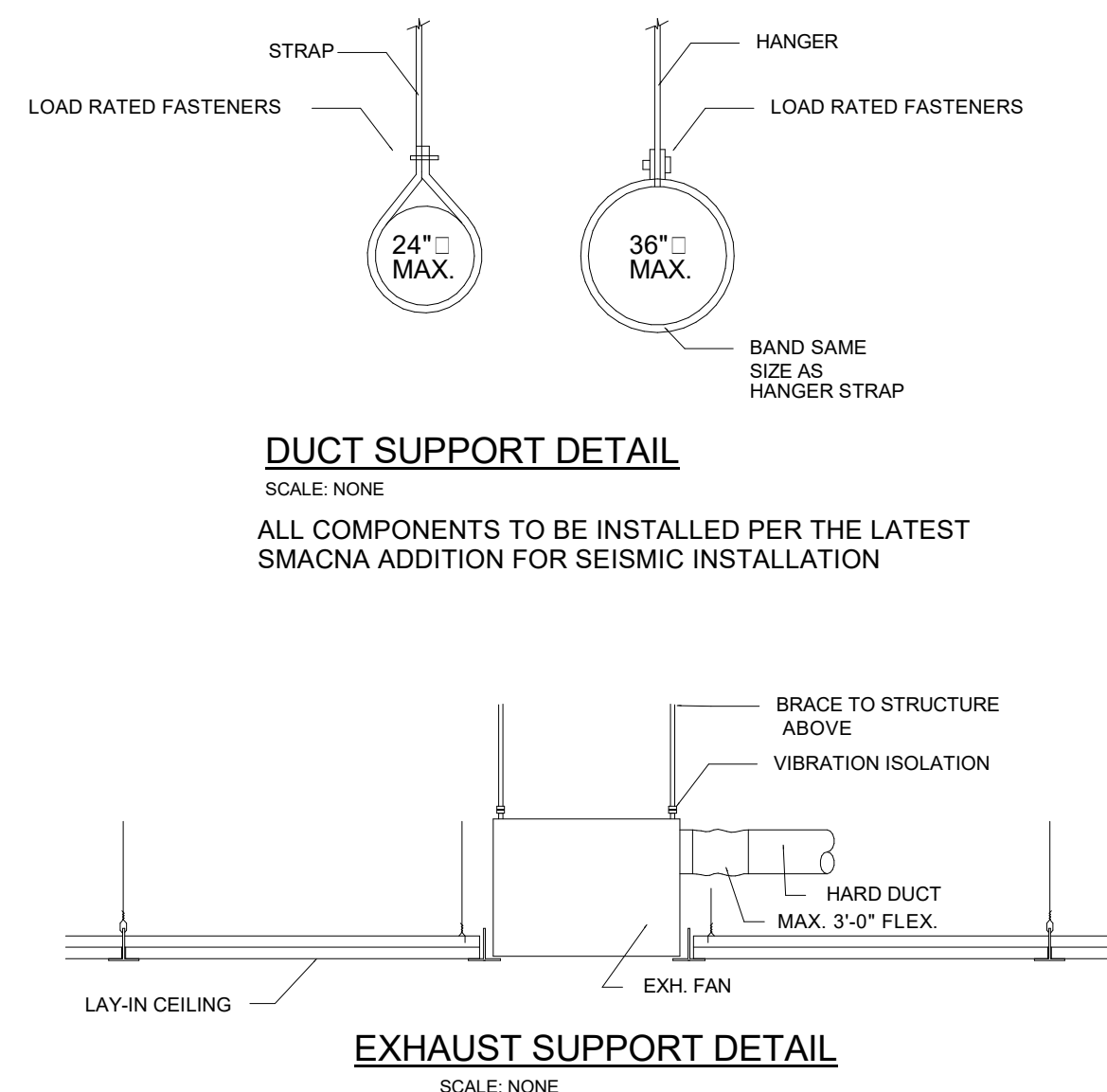
DESCRIPTION	DATE
PROJECT NO:	24135
STORE NO:	06-0008
DATE:	05.03.2024
DRAWN BY:	Author
CHECKED BY:	Checker

HVAC TITLE SHEET

M-000



1 LEVEL 1 HVAC PLAN  
M-100  
1/4" = 1'-0"



### OUTDOOR AIR CALCULATIONS

UNIT	Area (sqft)	OCCUPANCY CLASSIFICATION	Occupant Density #/1000 sqft	People outdoor airflow rate in breathing zone (Pb) cfm/person	Area outdoor airflow rate in breathing zone (Ra) cfm/sqft	Exhaust airflow rate (Vbz) cfm/sqft	Breathing zone outdoor airflow (Vbz)	Zone air distribution effectiveness (Ez)	Zone outdoor airflow (cfm)
RTU-1	605	Dining rooms	40	7.5	0.5		484	0.8	605
	150	Corridors	0	0	0.15		23	0.8	28
<b>Total</b>									<b>633</b>

### 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	633	2,367	3,000	21.1%	KEF-1	1600
DOAS-1	2,300	0	2,300	100.0%	KEF-2	775
					EF-1, EF-2	300
<b>TOTAL</b>	<b>2,933</b>	<b>2,367</b>	<b>5,300</b>	<b>47.46%</b>	<b>TOTAL</b>	<b>2,675</b>
<b>RESULTING BUILDING PRESSURIZATION</b>						<b>258 CFM</b>

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

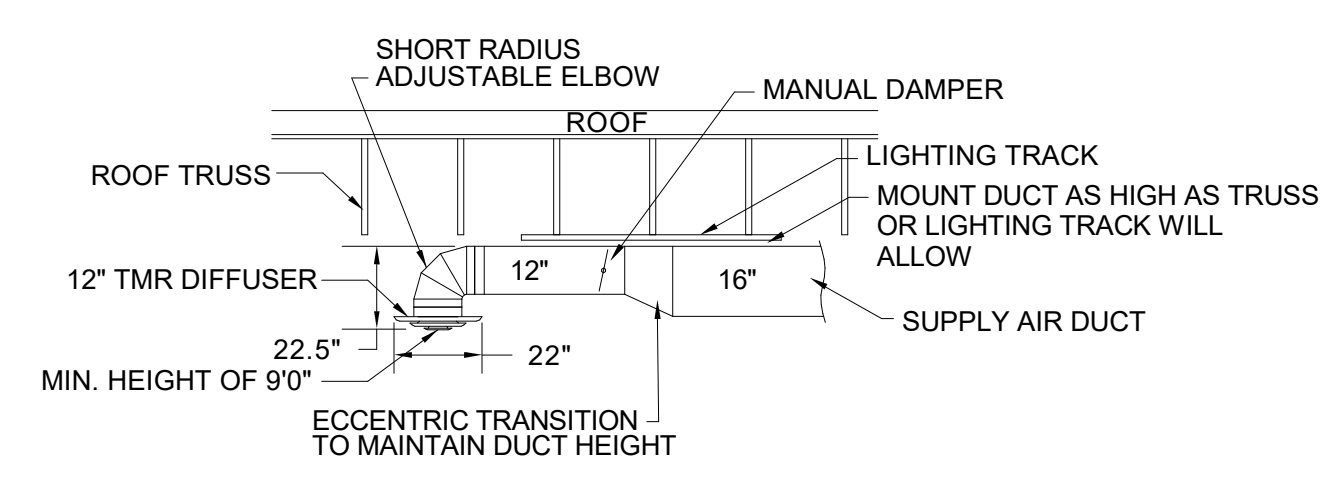
THE RTU SUPPLY FANS SHALL OPERATE IN SINGLE ZONE VAV MODE WITH 2 STAGES OF FAN CONTROL. LOW SPEED SHALL BE USED DURING PERIODS OF LOW COOLING LOAD AND VENTILATION ONLY OPERATION PER 2018 IECC REQUIREMENTS.

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 M-200.

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.

### MECHANICAL PLAN NOTES

- SUPPORT EXHAUST FAN FROM STRUCTURE AS REQUIRED BY THE MANUFACTURER.
- ROUTE 10" EXHAUST DUCT UP THROUGH ROOF TO ROOF CAP. MAINTAIN 10'-0" CLEARANCE TO ALL OUTDOOR AIR INTAKES. SEAL PENETRATION WEATERTIGHT.
- LOCATION OF MANUAL PULL STATION. INSTALL PER THE MANUFACTURERS REQUIREMENTS. CONFIRM LOCATION WITH LOCAL FIRE MARSHAL PRIOR TO INSTALLATION.
- LOCATION OF RTUDOUS THERMOSTATS. GO TO LABEL EACH THERMOSTAT.
- LOCATION OF DOAS TEMPERATURE SENSOR AND HUMIDISTAT MOUNTED AT 7' AFF.
- ALL DUCTWORK IS INTENDED TO BE ROUTED THROUGH OR BETWEEN TRUSSES. COORDINATE EXACT ROUTING WITH TRUSSES DURING INSTALLATION.
- EXHAUST HOOD PROVIDED BY OTHERS. INSTALLED BY THIS CONTRACTOR PER THE MANUFACTURERS INSTRUCTIONS.
- EXPOSED DUCTWORK SHALL BE OF PAINTLOCK CONSTRUCTION AND PAINTED PER THE DIRECTION OF ARCHITECT. RETURN AIR DUCT LOCATED BETWEEN ROOF TRUSSES. OPEN END OF DUCTWORK TURNED UP TOWARD STRUCTURE WITH A MINIMUM 6" CLEARANCE TO DECK.
- LOCATION OF REMOTE TEMPERATURE AND HUMIDITY SENSOR FOR RTU. INSTALL AT 9' AFF.
- PROVIDE 3" PVC FLUE AND COMBUSTION AIR INTAKE PIPE FOR HOT WATER HEATER THROUGH ROOF. PROVIDE MANUFACTURERS TERMINATION KIT. SEAL PENETRATION WEATERTIGHT. VERIFY 10'-0" CLEARANCE FROM ALL OUTDOOR AIR INTAKES.
- DUCT UP THROUGH ROOF. SEE SHEET M101 FOR CONTINUATION. OPENING TO BE CUT BETWEEN EXISTING AND NEW TRUSSES AS REQUIRED. FIELD VERIFY EXACT LOCATION PRIOR TO CUTTING THE ROOF. SEAL PENETRATION WEATERTIGHT AS REQUIRED.
- TRANSITION AND CONNECT 10" DIAMETER GREASE DUCT TO 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. ALL GREASE DUCT IS TO BE INSTALLED WITH DUCT WRAP AS DETAILED AND PER THE MANUFACTURERS REQUIREMENTS FOR 0" CLEARANCE TO COMBUSTIBLES. REFER TO ROOF PLAN M-101 FOR CONTINUATION.
- TRANSITION AND CONNECT 14" DIAMETER GREASE DUCT TO 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. ALL GREASE DUCT IS TO BE INSTALLED WITH DUCT WRAP AS DETAILED AND PER THE MANUFACTURERS REQUIREMENTS FOR 0" CLEARANCE TO COMBUSTIBLES. REFER TO ROOF PLAN M-101 FOR CONTINUATION.
- AS SHOWN TO BE SUPPLIED BY MECHANICAL MANUFACTURERS.



2 DINING ROOM DIFFUSER DETAIL  
M-100  
NO SCALE

BC PROJECT #: 24142

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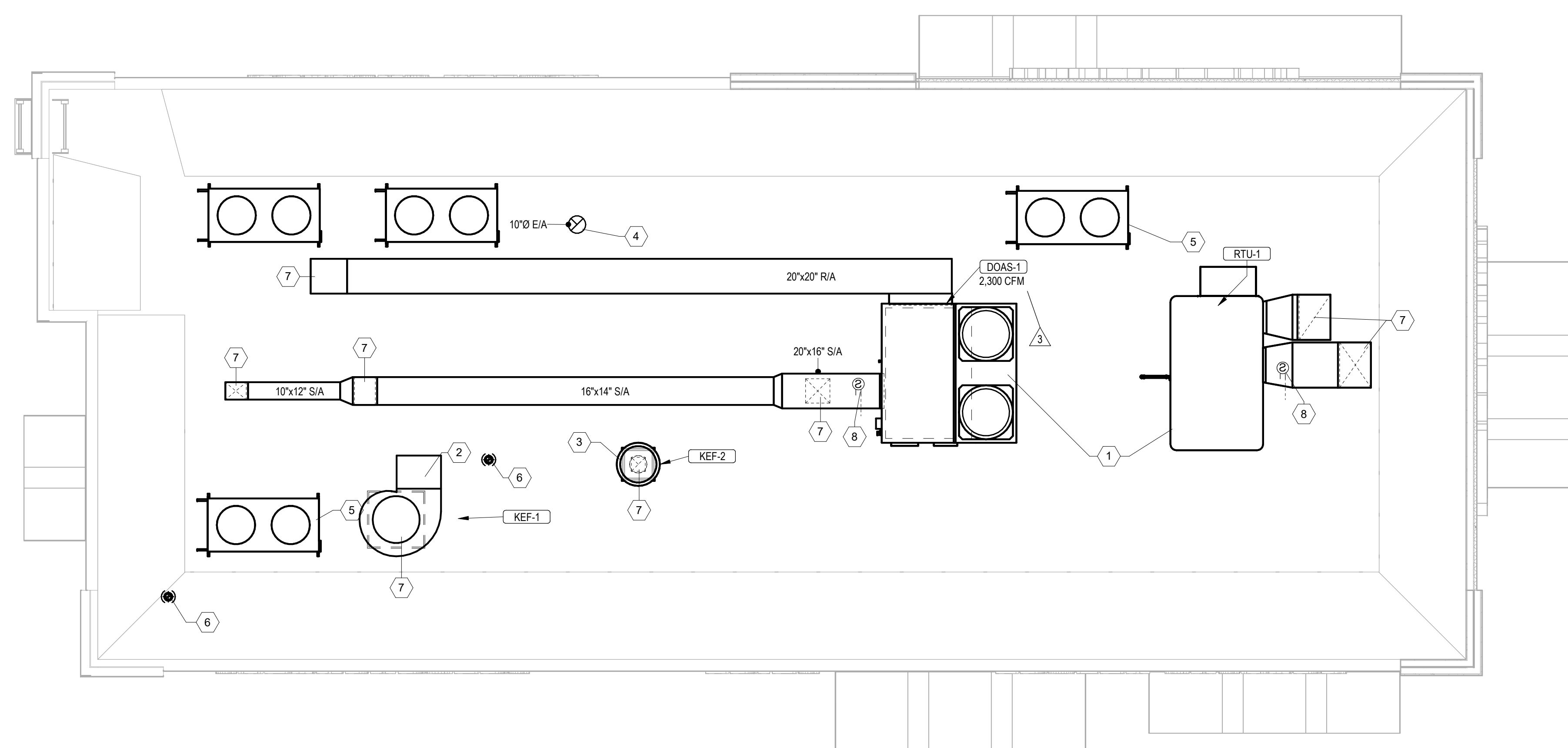
**Freddy's Frozen Custard**  
Freddy's  
1834 E. Route 66  
Glendora, CA. 91740

DESCRIPTION	DATE
Health Comments	09/27/2024
Health Department Comments	08/28/2024

PROJECT NO: 24135  
STORE NO: 66-0008  
DATE: 05.03.2024  
DRAWN BY: Author  
CHECKED BY: Checker

**MECHANICAL FLOOR PLAN**

**M-100**



**CONTROL SEQUENCE**

DURING OPERATING HOURS THE SUPPLY FAN FOR RTU-1 AND DOAS-1 SHALL RUN CONTINUOUSLY TO PROVIDE VENTILATION AIR FOR THE OCCUPANTS, AND TO PROVIDE MAKE UP AIR TO KEEP THE SPACE POSITIVELY PRESSURIZED WHEN THE KITCHEN EXHAUST FANS ARE IN OPERATION. RTU-1 AND DOAS-1 SHALL BE INTERLOCKED TO OPERATE THE SUPPLY FAN WHENEVER KEF-1 OR KEF-2 OPERATE.

THE SUPPLY FAN SHALL OPERATE AT A REDUCED VOLUME (66% OF FULL CAPACITY) WHEN DEMAND IS LOW.

THE OUTDOOR AIR VOLUME SHALL REMAIN UNCHANGED AT BOTH SETPOINTS.

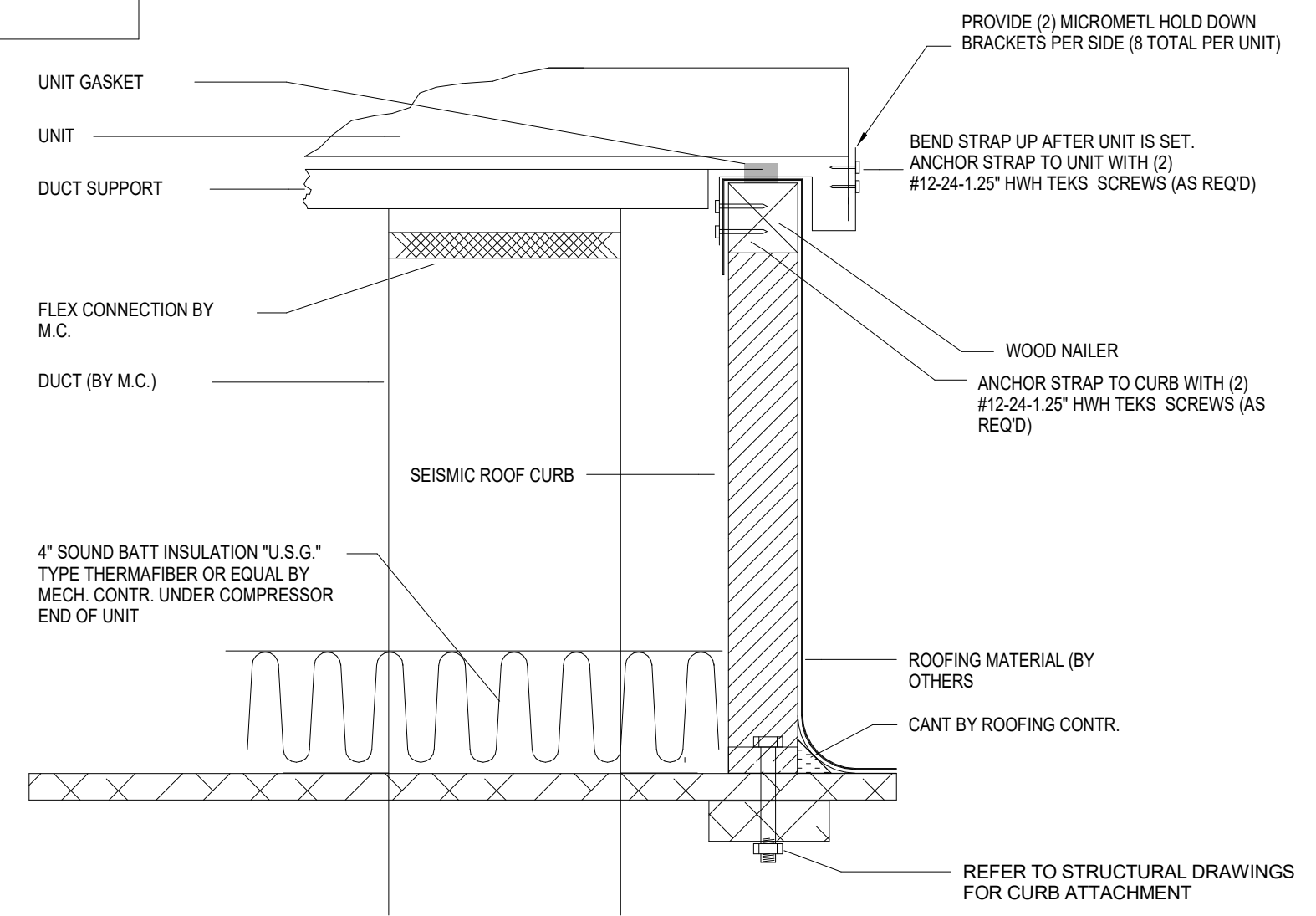
DURING UNOCCUPIED HOURS, RTU-1 AND DOAS-1 SHALL CYCLE THE SUPPLY FAN APPROPRIATELY WHEN HEATING OR COOLING WITH THE OUTDOOR AIR DAMPERS CLOSED. THE ECONOMIZER SHALL MONITOR THE OUTSIDE TEMPERATURE AND OPEN WHEN APPROPRIATE FOR FREE COOLING. THE ECONOMIZER SHALL OPEN WHEN CONDITIONS PERMIT EVEN IF THE SPACE REQUIRES ADDITIONAL COOLING.

THE THERMOSTATS SHALL BE SET TO MAINTAIN 74°F (MODIFIABLE BY OWNER) WITH A 5° DEADBAND DURING OPERATING HOURS. DURING UNOCCUPIED HOURS THE THERMOSTATS WILL SETBACK TO MAINTAIN 80°F (SUMMER) AND 55° (WINTER) (OWNER MODIFIABLE).

1 MECHANICAL ROOF PLAN  
1/4" = 1'-0"

**MECHANICAL PLAN NOTES**

- PROVIDE RTU/DOAS IN LOCATION AS SHOWN ON PLANS. COORDINATE EXACT RTU LOCATION AND DUCT DROPS WITH STRUCTURAL TRUSS LAYOUT. MAINTAIN MINIMUM 10'-0" CLEARANCE BETWEEN OUTDOOR AIR INTAKES AND EXHAUST TERMINATIONS.
- PROVIDE TYPE I EXHAUST FAN IN LOCATION AS SHOWN ON PLANS. CONNECT 14" DIAMETER EXHAUST DUCT FROM EXHAUST HOOD UP TO KEF-1 ON ROOF. COORDINATE EXHAUST DUCT ROUTING WITH STRUCTURAL TRUSS LAYOUT. EXTEND DISCHARGE DUCT UP TO BE AS TALL AS THE PARAPET HEIGHT.
- PROVIDE TYPE I EXHAUST FAN IN LOCATION AS SHOWN ON PLANS. CONNECT 10" DIAMETER EXHAUST DUCT FROM EXHAUST HOOD UP TO KEF-2 ON ROOF. COORDINATE EXHAUST DUCT ROUTING WITH STRUCTURAL TRUSS LAYOUT. PROVIDE WINDBAND EXTENSION SO DISCHARGE IS AS TALL AS THE PARAPET HEIGHT.
- 10" EXHAUST DUCT ROUTED TO ROOF GAP AS REQUIRED.
- MOUNT CONDENSING UNIT ON ROOF AS DETAILED AND AS REQUIRED BY THE MANUFACTURER. CONNECT REFRIGERANT PIPING TO EVAP COIL AS REQUIRED BY THE MANUFACTURER. SEE SHEET M200 FOR MOUNTING DETAIL. CONNECT TO ROOF STRUCTURE PER THE STRUCTURAL DRAWINGS.
- PLUMBING VENT. REFERENCE SHEET P101. ENSURE VTR IS A MINIMUM 10'-0" FROM ALL OUTDOOR AIR INTAKES. EXTEND VENTS UP TO THE PARAPET HEIGHT.
- DUCT DOWN THROUGH ROOF. SEE SHEET M100 FOR CONTINUATION. OPENING TO BE CUT BETWEEN EXISTING AND NEW TRUSSES AS REQUIRED. FIELD VERIFY EXACT LOCATION PRIOR TO CUTTING THE ROOF. COORDINATE WITH GC TO SEAL PENETRATION WEATHERTIGHT AS REQUIRED.
- DUCT MOUNTED SMOKE DETECTOR LOCATED IN THE SUPPLY DUCT OF THE RTU/DOAS UNITS.



**ROOF CURB DETAIL (RTU, DOAS, KEF)**  
SCALE: NONE

BC PROJECT #: 24142

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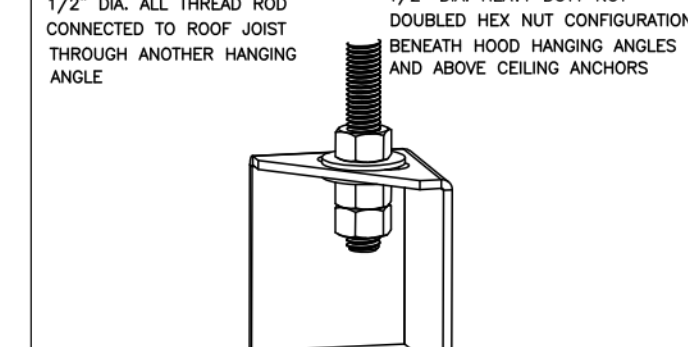
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PROJECT NO:	24135	DATE
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DATE:	05.03.2024	Author
DRAWN BY:	Author	Checker
CHECKED BY:	Checker	

**MECHANICAL ROOF PLAN**

**M-101**



**ND-2 HANGING ANGLE DETAIL**



HOOD AND NUTS TO BE SUPPLIED BY INSTALLING CONTRACTOR. HANGING ANGLE IS PRE-FINISHED AT FACTORY.

**HANGING ANGLE LOCATIONS**

HOOD STYLE	DIM FROM REAR (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-C	36"x36"	42"x42"	48"x48"
FRONT/BACK DING BY SIZE	2.246"	2.246"	2.246"

**CALCULATIONS UTILIZED**

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

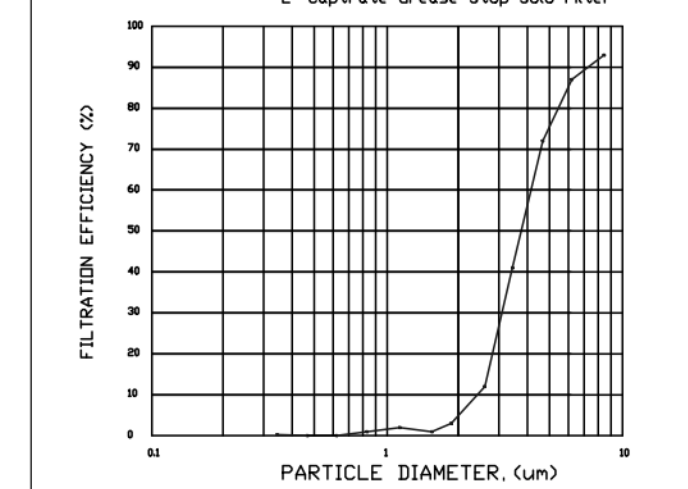
**BUILDING CODES**

CAPTIVE-AIRE HOODS ARE BUILT IN COMPLIANCE WITH  
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**

- 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 HANGING MATERIALS PROVIDED BY INSTALLING CONTRACTORS.
- ALL CONNECTIONS FROM CAPTIVE-AIRE DUCT PER MECHANICAL CONTRACTORS PLANS.
- COOKING EQUIPMENT TO SHUT OFF IN EVENT OF FIRE.
- EXHAUST FANS TO TURN ON IN EVENT OF FIRE.
- ALL LIGHTS FIXTURES SHOWN INSTALLED BY CAPTIVE-AIRE ARE FACTORY PREWIRED INTERCONNECTED 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 DOCUMENTS FOR ALL CODE REQUIREMENTS IN EFFECT PRIOR TO ANY RELEASE FOR PRODUCTION OF EQUIPMENT SHOWN.

**FILTER DETAIL**



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

**HOOD INFORMATION - JOB#6858585**

HOOD NO.	TAG	MODEL	MANUFACTURER	LENGTH	MAX COOKING TOP	TYPE	APPLIANCE DUTY	SECTION CFM/FT	TOTAL EXH CFM	EXHAUST PLENUM (BASIS)	WIDTH	LENGTH	HEIGHT	DIAM (CFM)	VEL	SP	HOOD CONSTRUCTION	HOOD END TO END	PATENT NUMBERS
1	ITEM 324	S424	CAPTIVEAIRE	8' 0"	430	I	MEDIUM	200	1600	4"	14"	1600	1497	-0.734"	430 SS	WHERE EXPOSED	ALDNE	FRONT	EXHAUST HOODS ND-2/BD-2/SND-2 (CANADA) - CA PATENT 2580435 C.
2	ITEM 328	S424	CAPTIVEAIRE	5' 0"	430	I	MEDIUM	155	775	4"	10"	775	1421	-0.436"	430 SS	WHERE EXPOSED	ALDNE	ALDNE	

**HOOD INFORMATION**

HOOD NO.	TAG	TYPE	QTY	HEIGHT	LENGTH	EFFICIENCY @ 7 MICRONS	QTY	TYPE	W/RE GUARD	LOCATION	SIZE	TYPE	SIZE	MODEL #	QUANTITY	FIRE SYSTEM HANGING WEIGHT	
1	ITEM 324	CAPTIVATE SOLID FILTER	5	16"	16"	85% SEE FILTER SPEC	2	RECESSED ROUND	NO							YES	467 LBS
2	ITEM 328	CAPTIVATE SOLID FILTER	3	16"	16"	85% SEE FILTER SPEC	2	RECESSED ROUND	NO							YES	289 LBS

**HOOD OPTIONS**

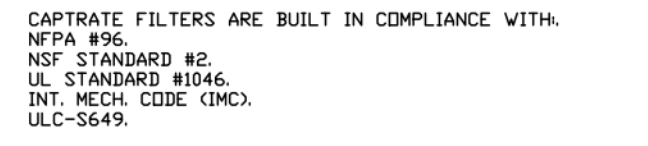
HOOD NO.	TAG	OPTION
1	ITEM 33A	LEFT END STANDOFF (FINISHED) 1" WIDE 54" LONG INSULATED. RIGHT END STANDOFF (FINISHED) 1" WIDE 54" LONG INSULATED. RIGHT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS. LEFT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS. INSULATION FOR TOP OF HOOD. INSULATION FOR BACK OF HOOD.
2	ITEM 33B	RIGHT END STANDOFF (FINISHED) 1" WIDE 54" LONG INSULATED. 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.

**WALL-MOUNT UTILITY CABINET**

HOOD NO.	LOCATION	SIZE	TYPE	TABLE SIZE	ELECTRICAL	SWITCHES	WEIGHT
1	WALL MNT	12"x54"x24"	TANK FS	40/40/40	DCV-E111	1 LIGHT 1 FAN	4400 LB

**SPECIFICATION CAPTIVE-GREASE-STOP SOLID FILTER**

THE CAPTIVE 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 CHANNELS.  
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 CAPTIVE GREASE-STOP SOLID WAS TESTED TO ASTM STANDARD ASTM F259-02. MANUFACTURER APPROVED FOR USE IN SOLID FUEL APPLICATIONS AS A SPARK ARRESTER.  
EFFICIENCY VS. PARTICLE DIAMETER



CAPTIVATE FILTERS ARE BUILT IN COMPLIANCE WITH:  
NFPA #96  
NF STANDARD #96A  
UL STANDARD #96A  
INT. MCH. CODE (IBC)  
ULC-S649

**UTILITY CABINET(S)**

HOOD NO.	LOCATION	SIZE	TYPE	TABLE SIZE	ELECTRICAL	SWITCHES	WEIGHT
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**UTILITY CABINET(S)**

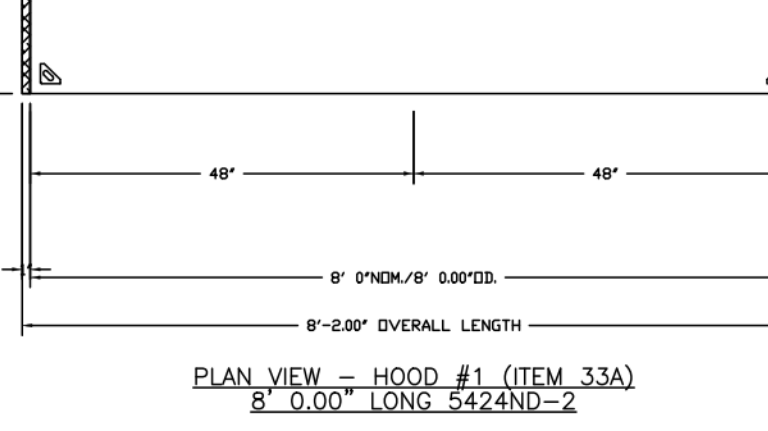
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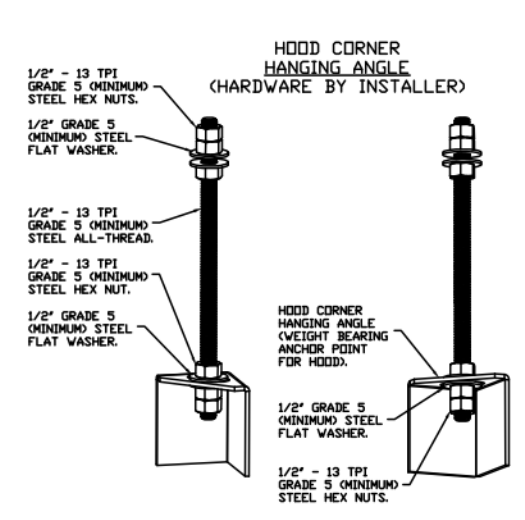
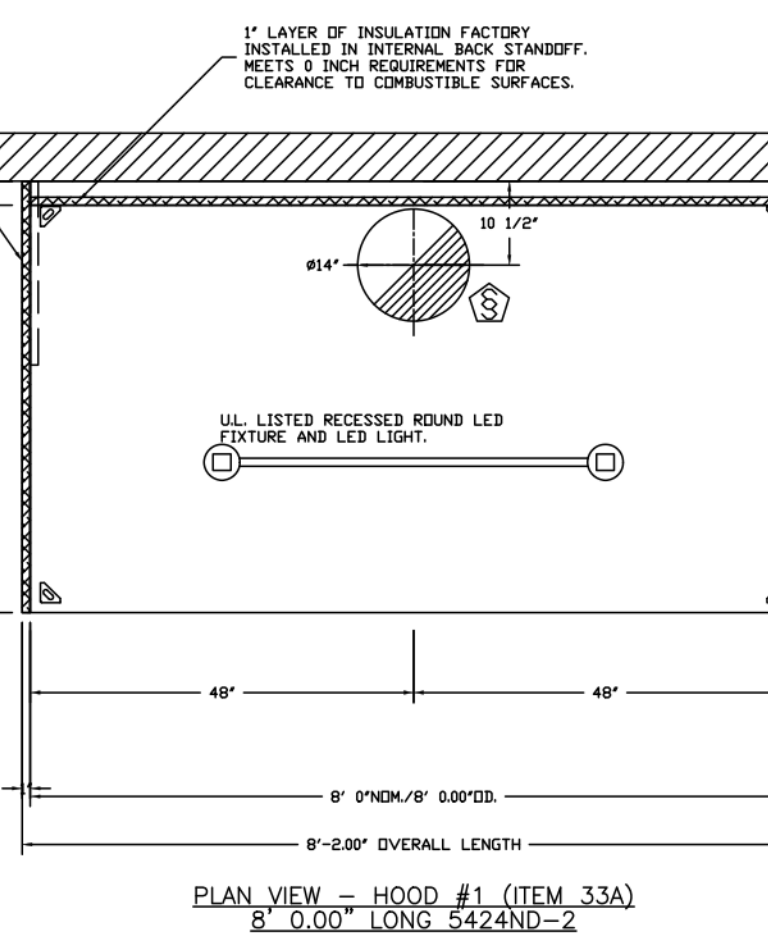
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EFFICIENCY VS. PARTICLE DIAMETER



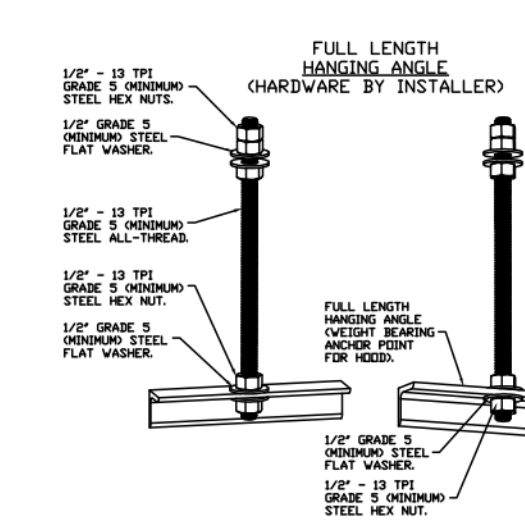
CAPTIVATE FILTERS ARE BUILT IN COMPLIANCE WITH:  
NFPA #96  
NF STANDARD #96A  
UL STANDARD #96A  
INT. MCH. CODE (IBC)  
ULC-S649

NOTE: CEILING HEIGHT AT 8'-0". BOTTOM OF TRUSSES AT 9'-6".



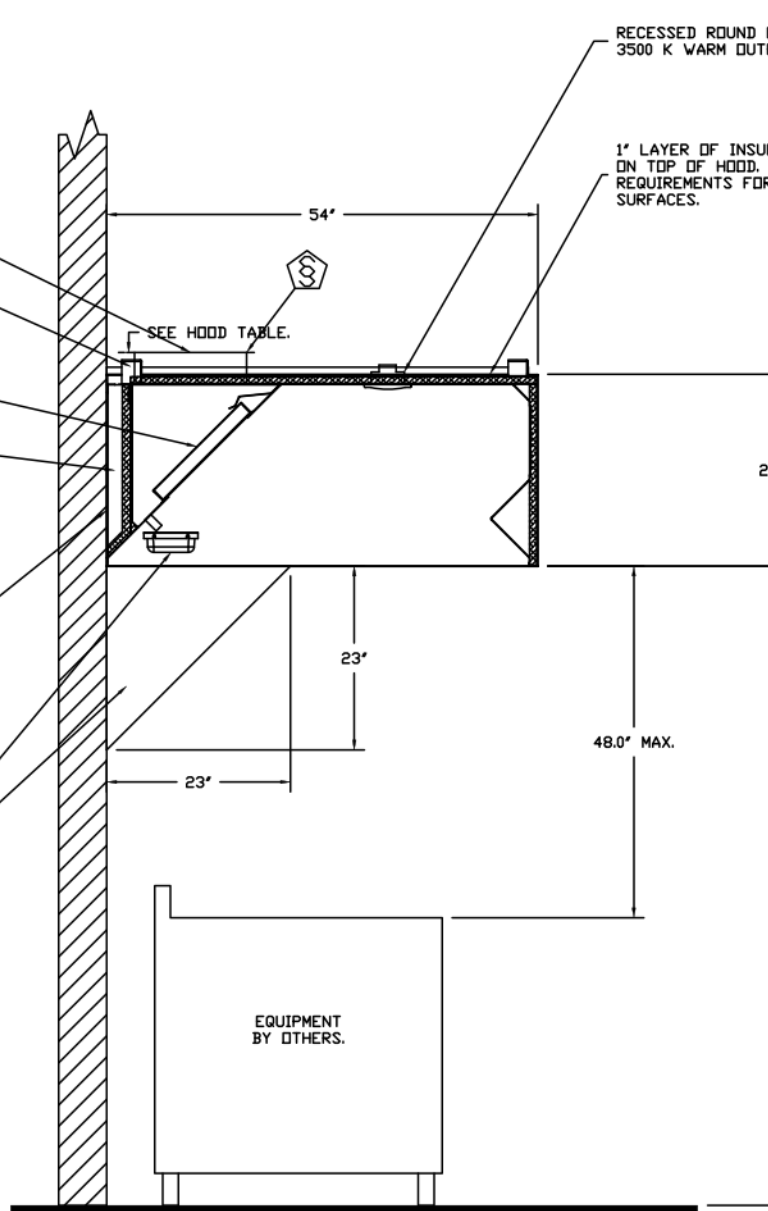
**ASSEMBLY INSTRUCTIONS**

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

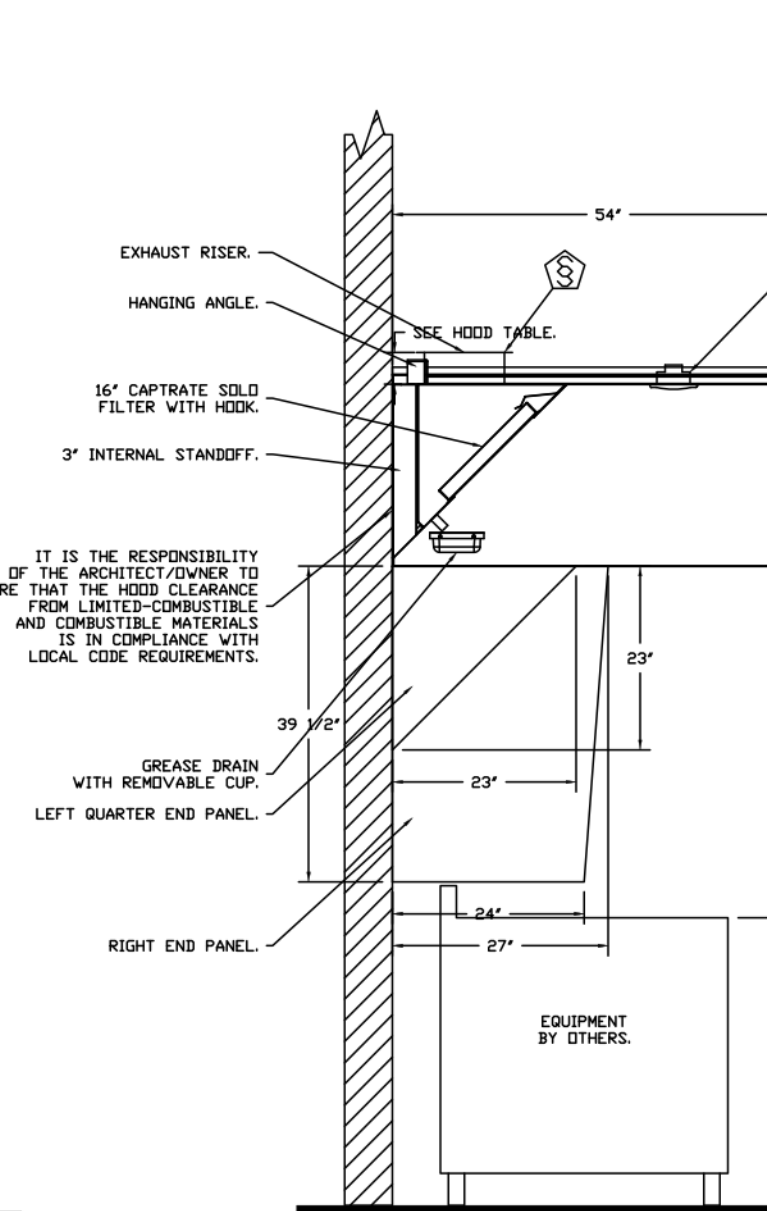


**ASSEMBLY INSTRUCTIONS**

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



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

**CLEARANCE TO COMBUSTIBLES**

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

\* 18" CLEARANCE TO COMBUSTIBLES CONFORMS TO UL710 STANDARD.

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: \_\_\_\_\_ 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 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 HOOD'S ABILITY TO CAPTURE AND CONTAIN.

**REVISIONS**

DESCRIPTION	DATE

**CAPTIVE**  
HBT Foodservice  
104 W 9th St Suite 204, Kansas City, MO 64106 PHONE: (816) 221-8575 FAX: (816) 221-8311 EMAIL: reg@captivate.com  
www.captivate.com

Freddy's - Glendora, CA  
Glendora, CA, 91740

DATE: 5/1/2024  
DWG.#: 6658359  
DRAWN BY: michael.co  
SCALE: 1/2" = 1'-0"  
MASTER DRAWING

SHEET NO. 1

Freddy's Frozen Custard  
Freddy's  
1834 E. Route 66  
Glendora, CA, 91740

DESCRIPTION	DATE
PROJECT NO:	24135
STORE NO:	66-008
DATE:	05.03.2024
DRAWN BY:	Author
CHECKED BY:	Checker

MECHANICAL HOOD PLANS

M-300

BC PROJECT #: 24142  
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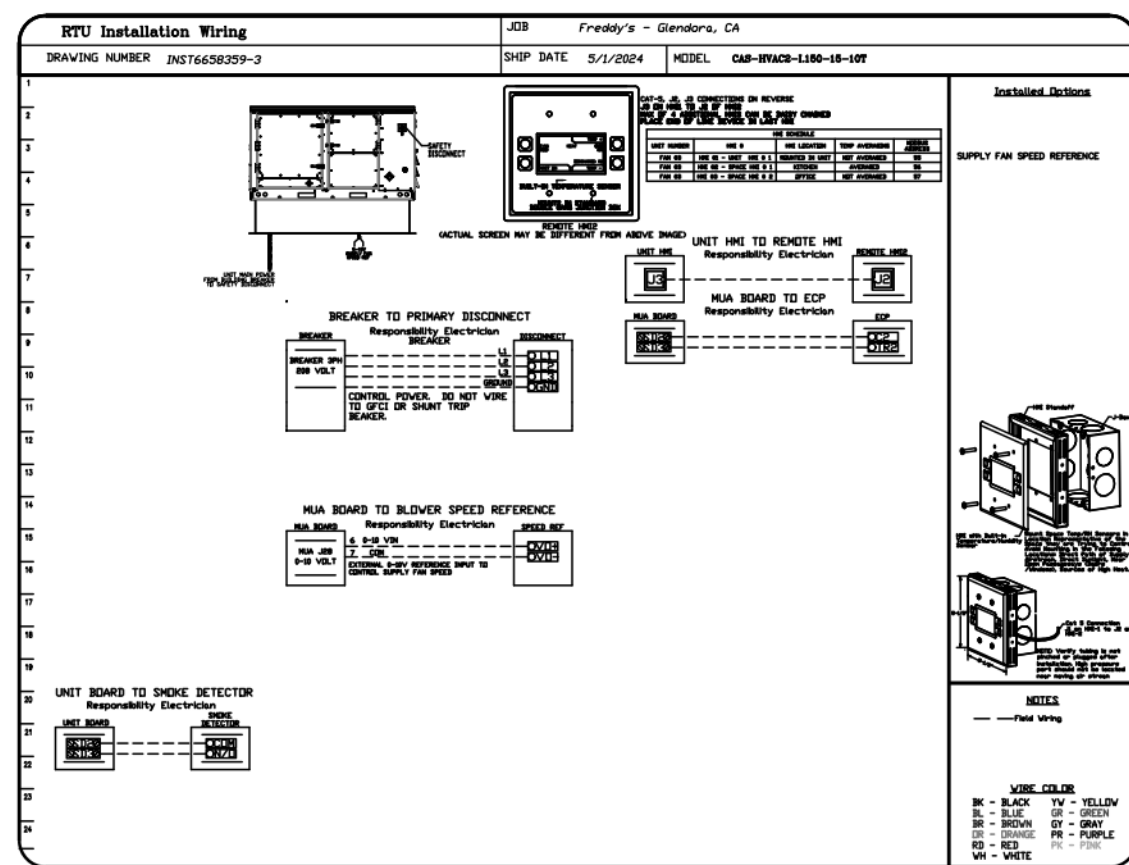
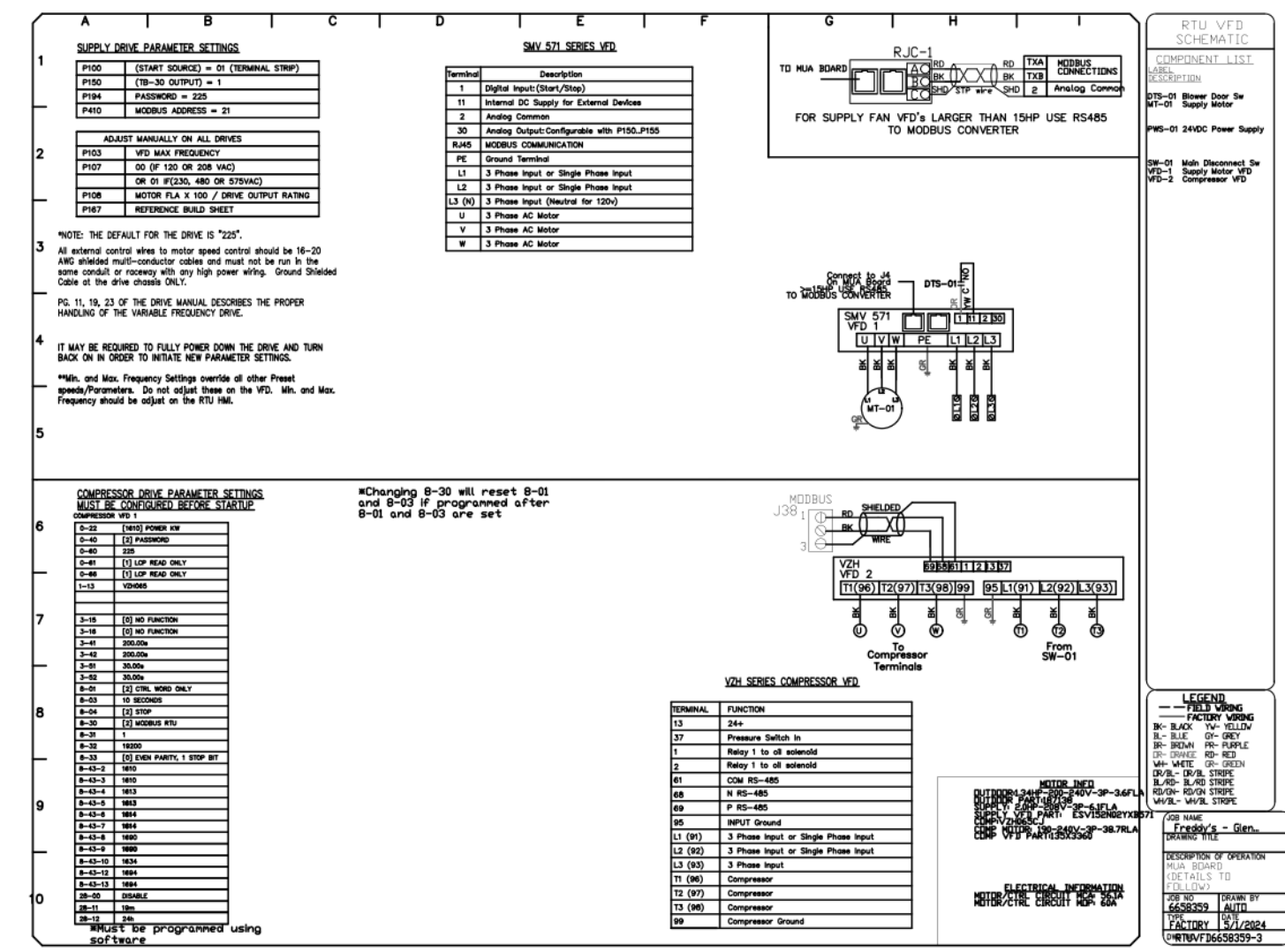
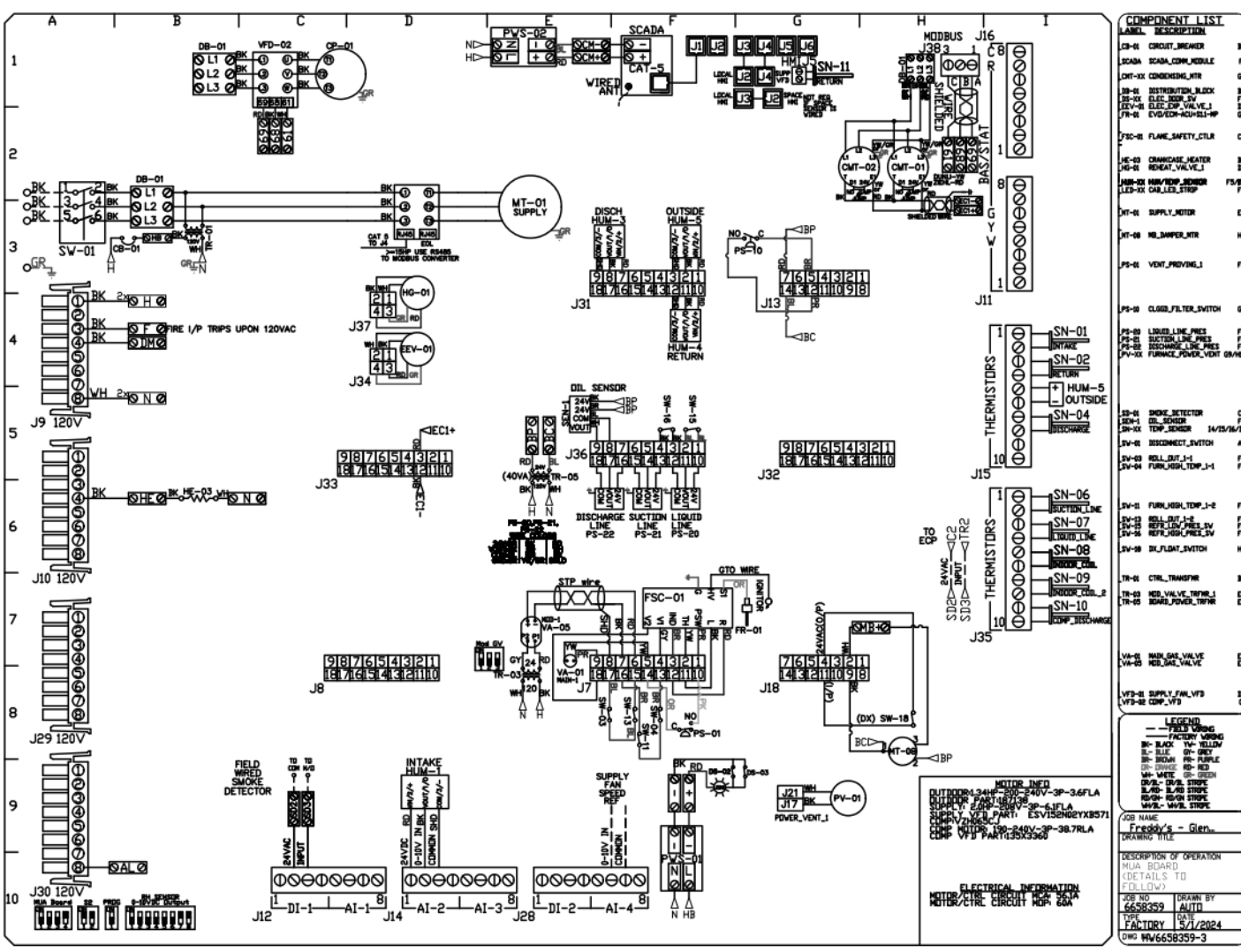
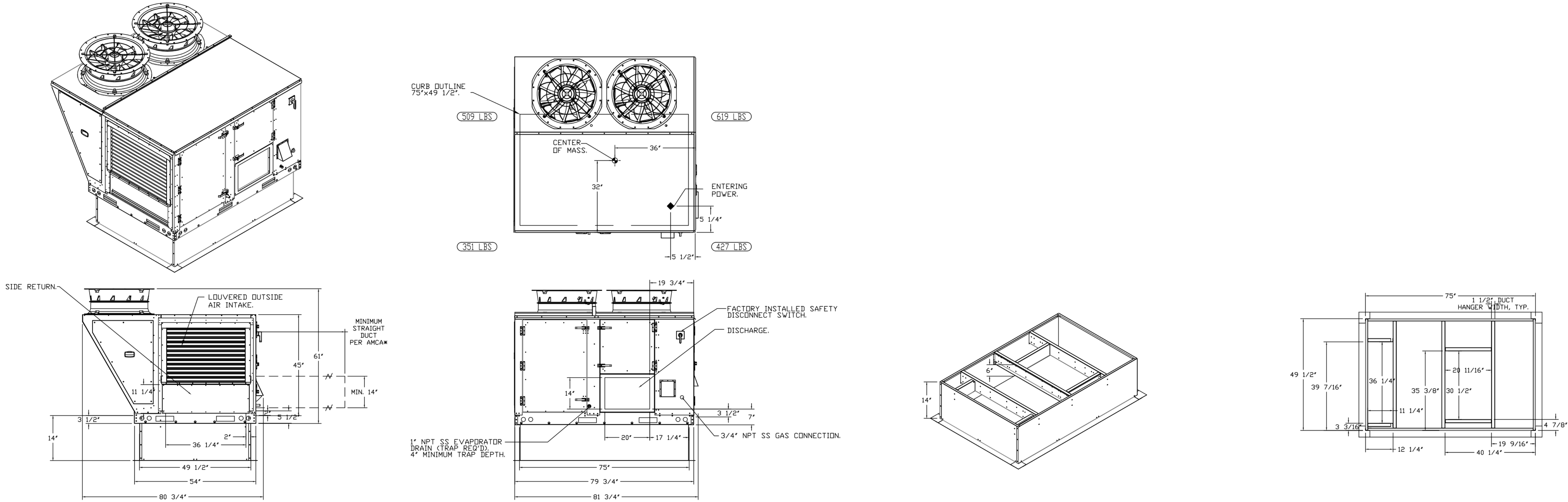




FAN #3 CASRTU2-1,150-15-10T - HEATER (DDAS-1)

- NOTES:
- DO NOT OBSTRUCT OUTSIDE AIR INLET, OUTSIDE AIR COIL OR OUTSIDE AIR FAN.
  - DENOTES CORNER WEIGHT.
  - ROOF OPENING MUST BE 2" SMALLER THAN CURB DIMENSIONS IN BOTH DIRECTIONS.
  - CONNECTION FROM BREAKER TO UNITS SAFETY DISCONNECT SWITCH TO BE COPPER WIRE ONLY.

\*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 20" x 14".



REVISIONS	
DESCRIPTION	DATE

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 www.captivehbt.com  
 104 W 9th St Suite 204, Kansas City, MO 64108 PHONE: (816) 221-8575 FAX: (816) 221-8311 EMAIL: reg98@captivehbt.com

Freddy's - Glendora, CA  
 Glendora, CA, 91740

DATE: 5/1/2024  
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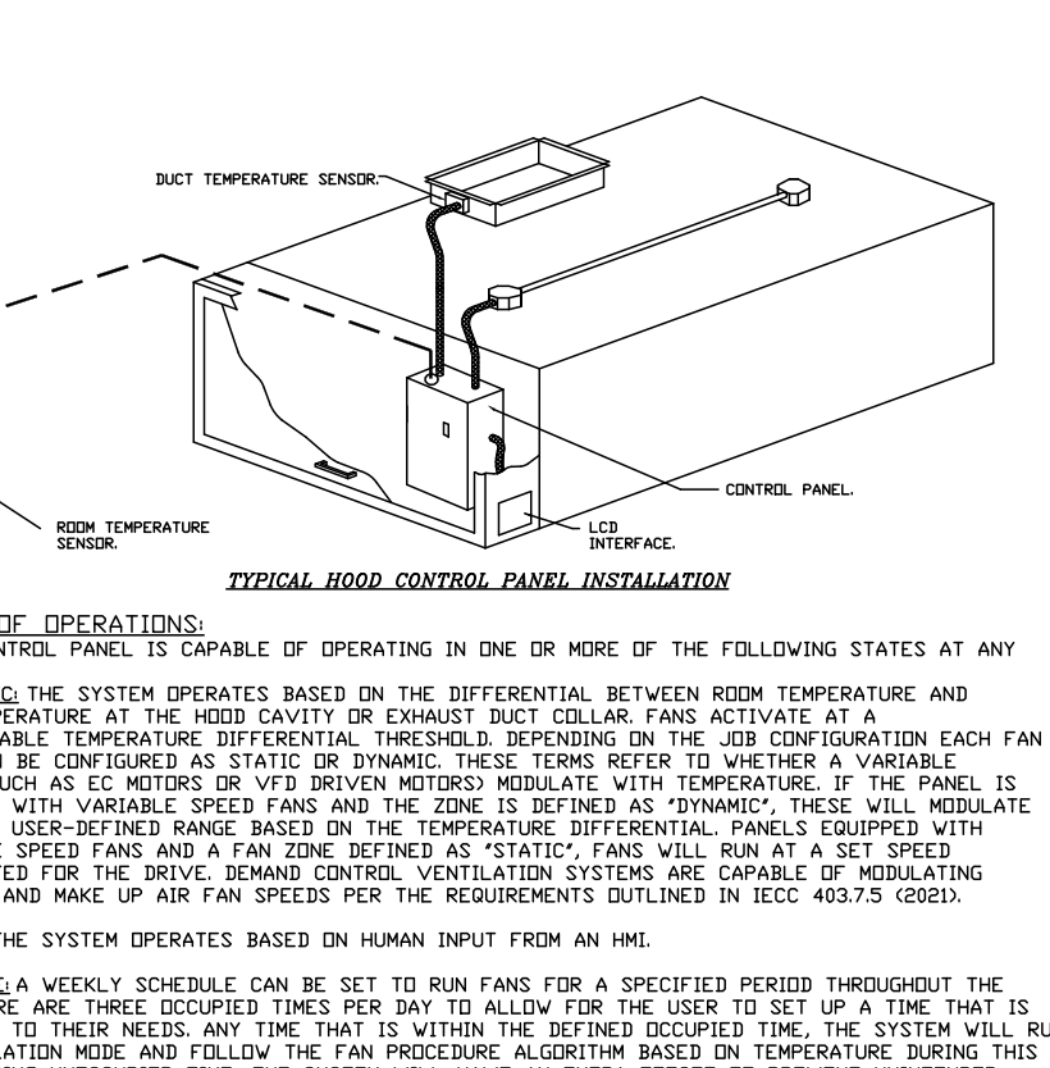
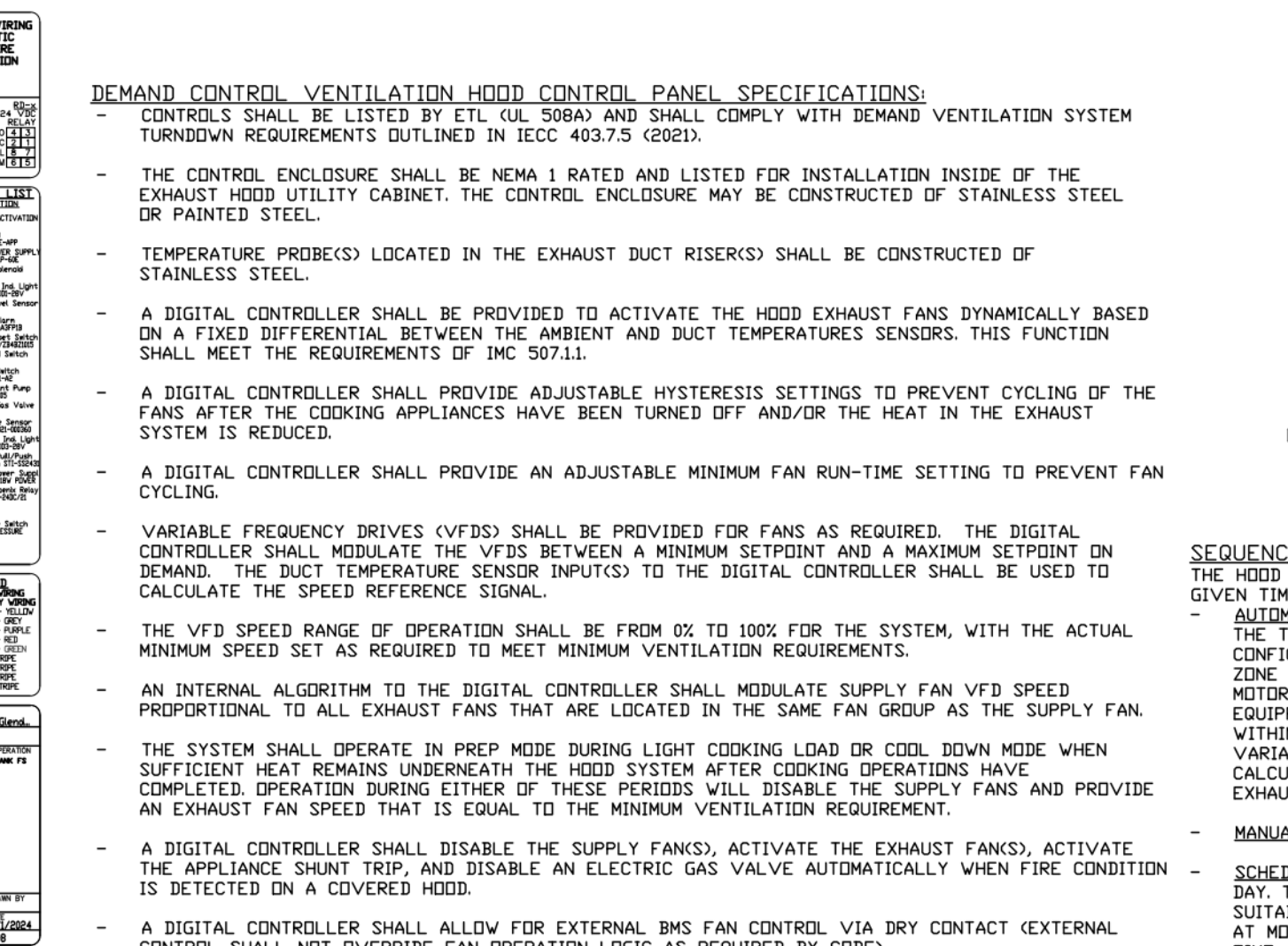
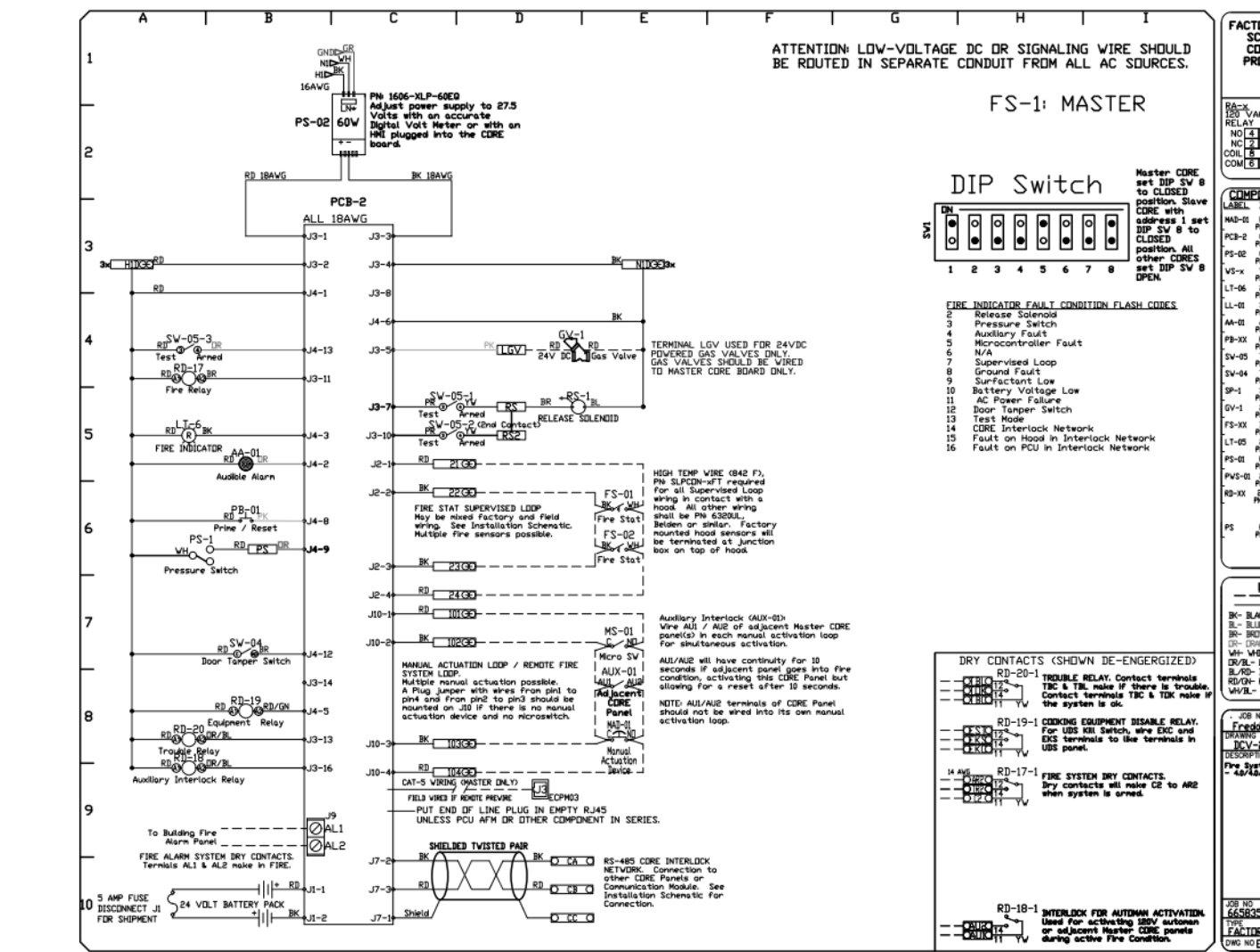
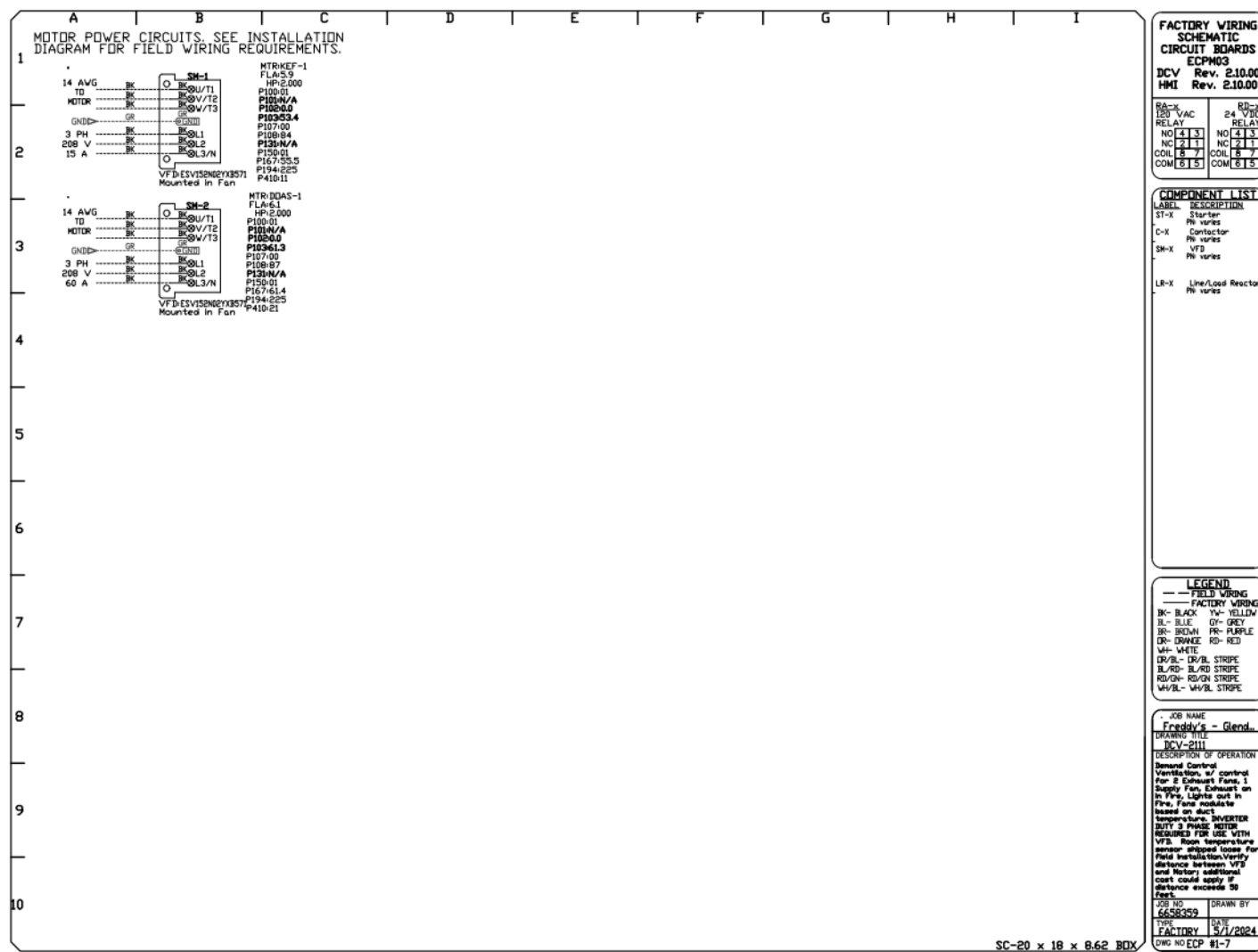
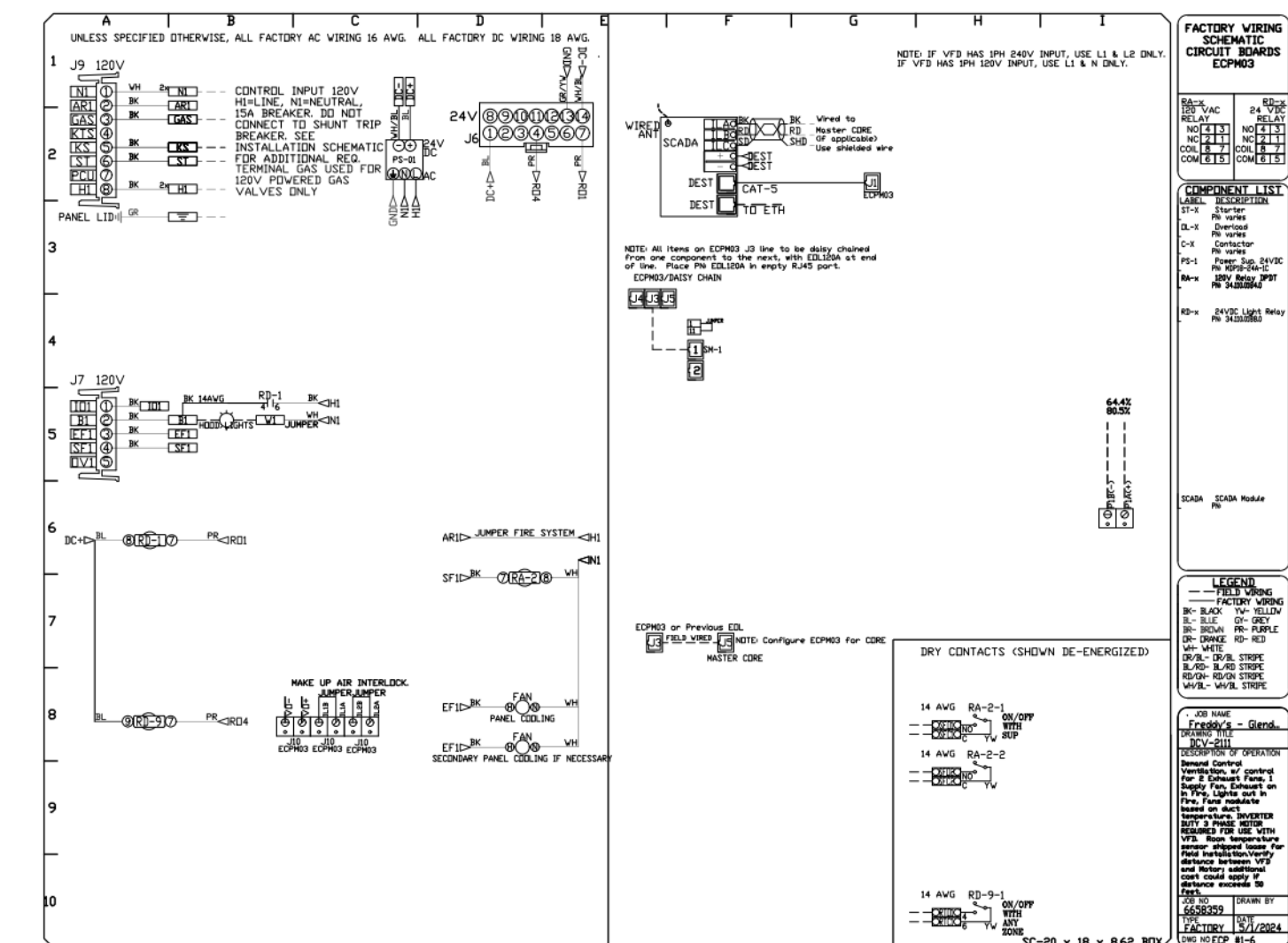
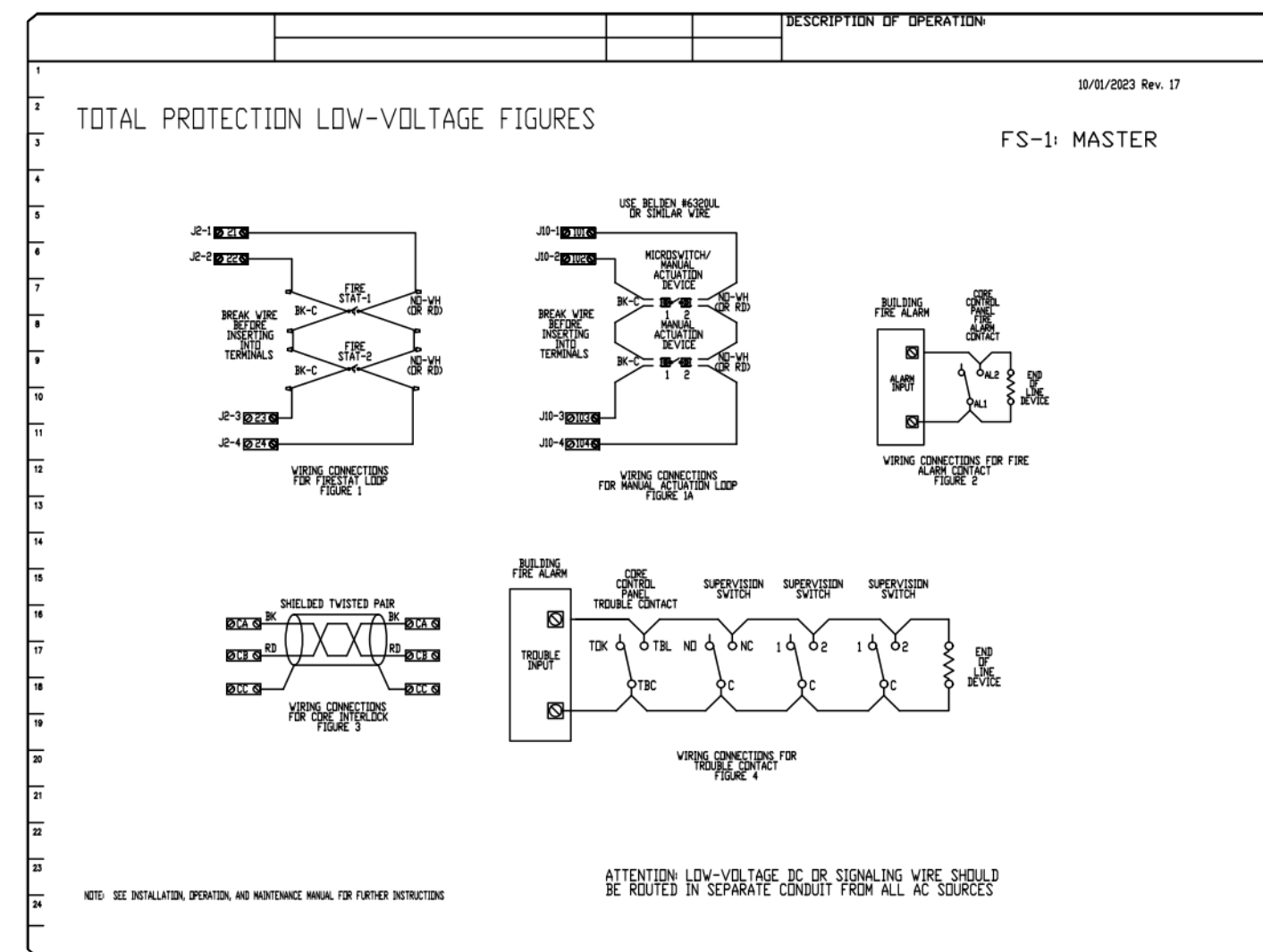
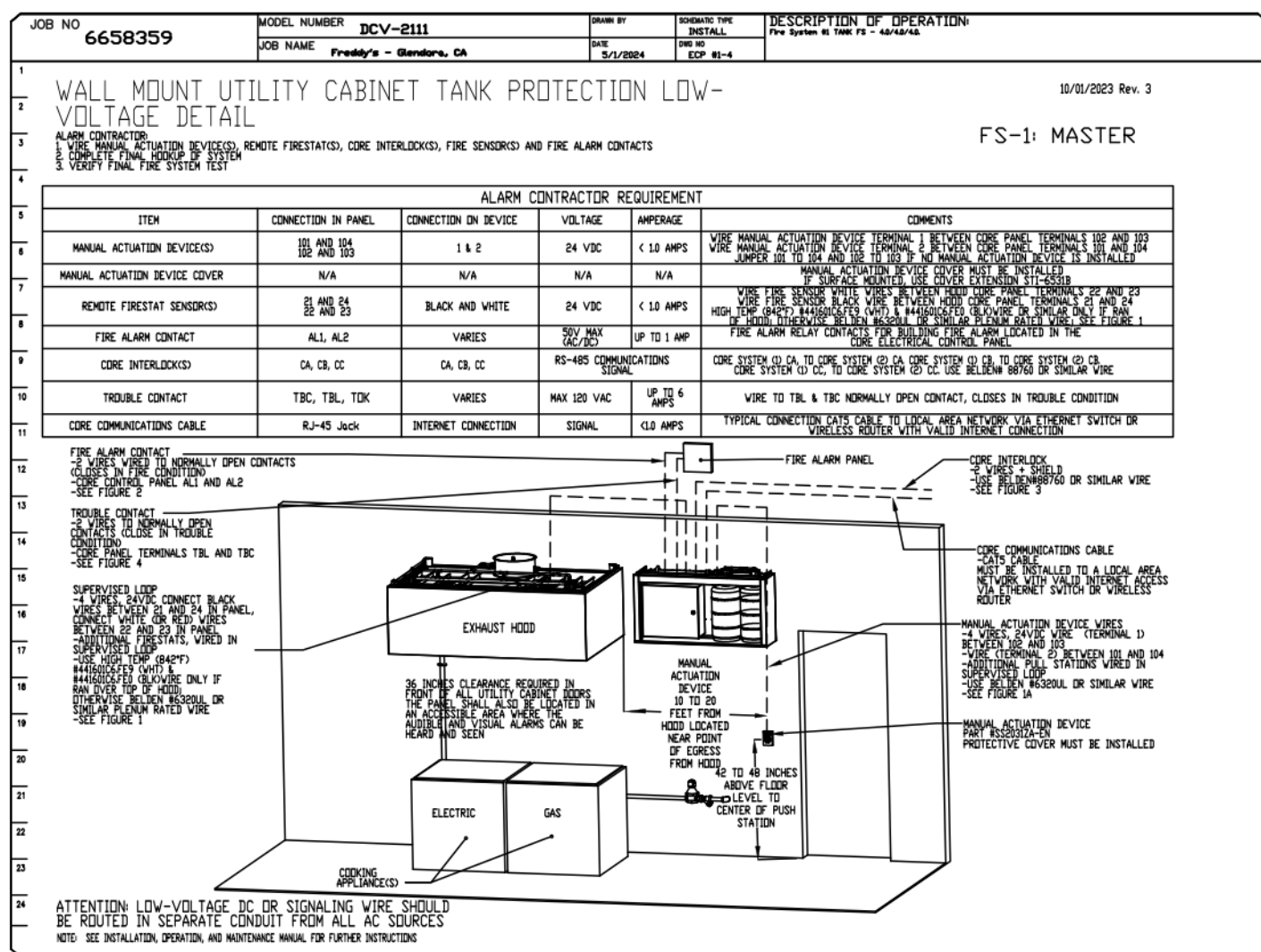
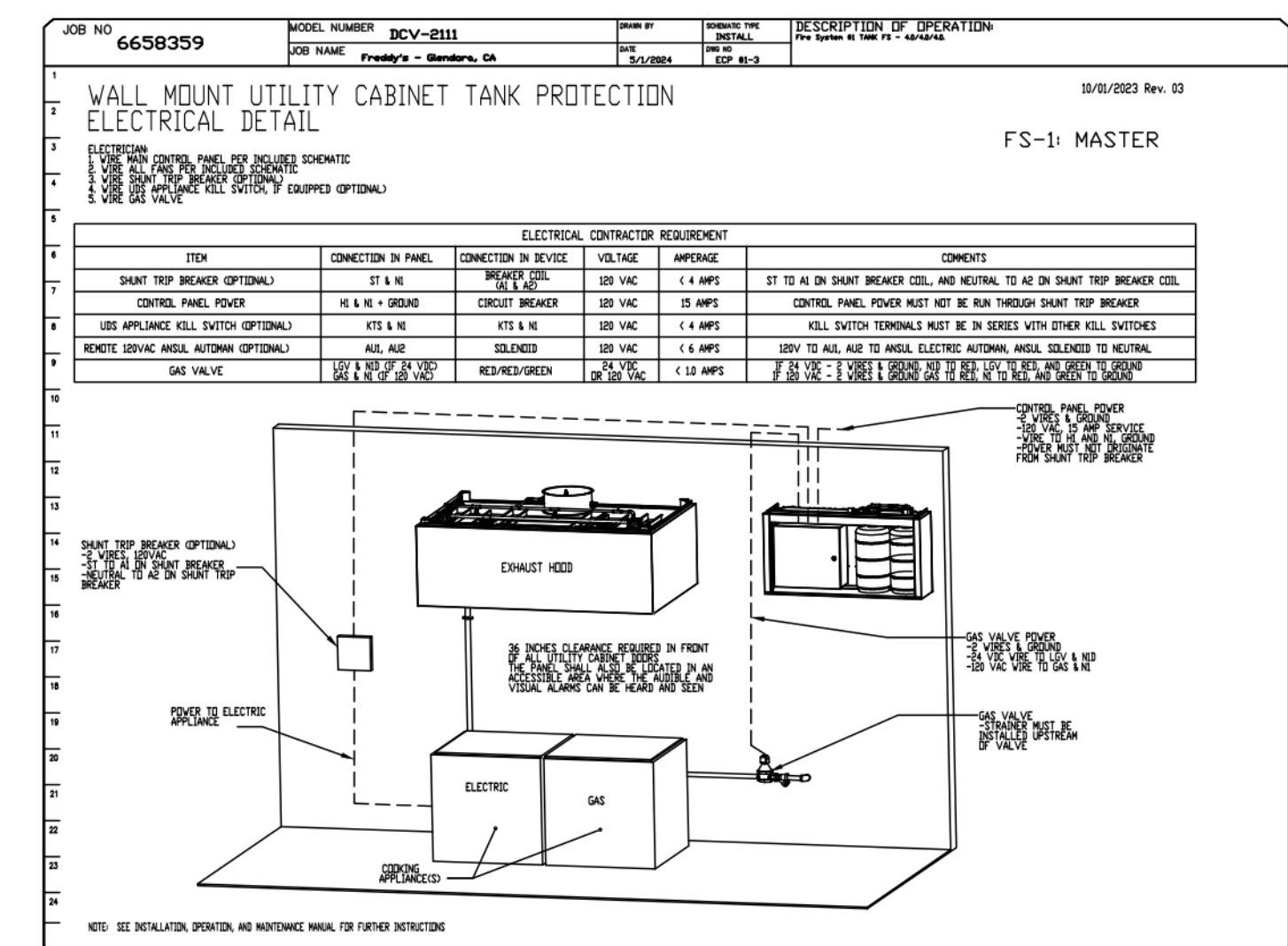
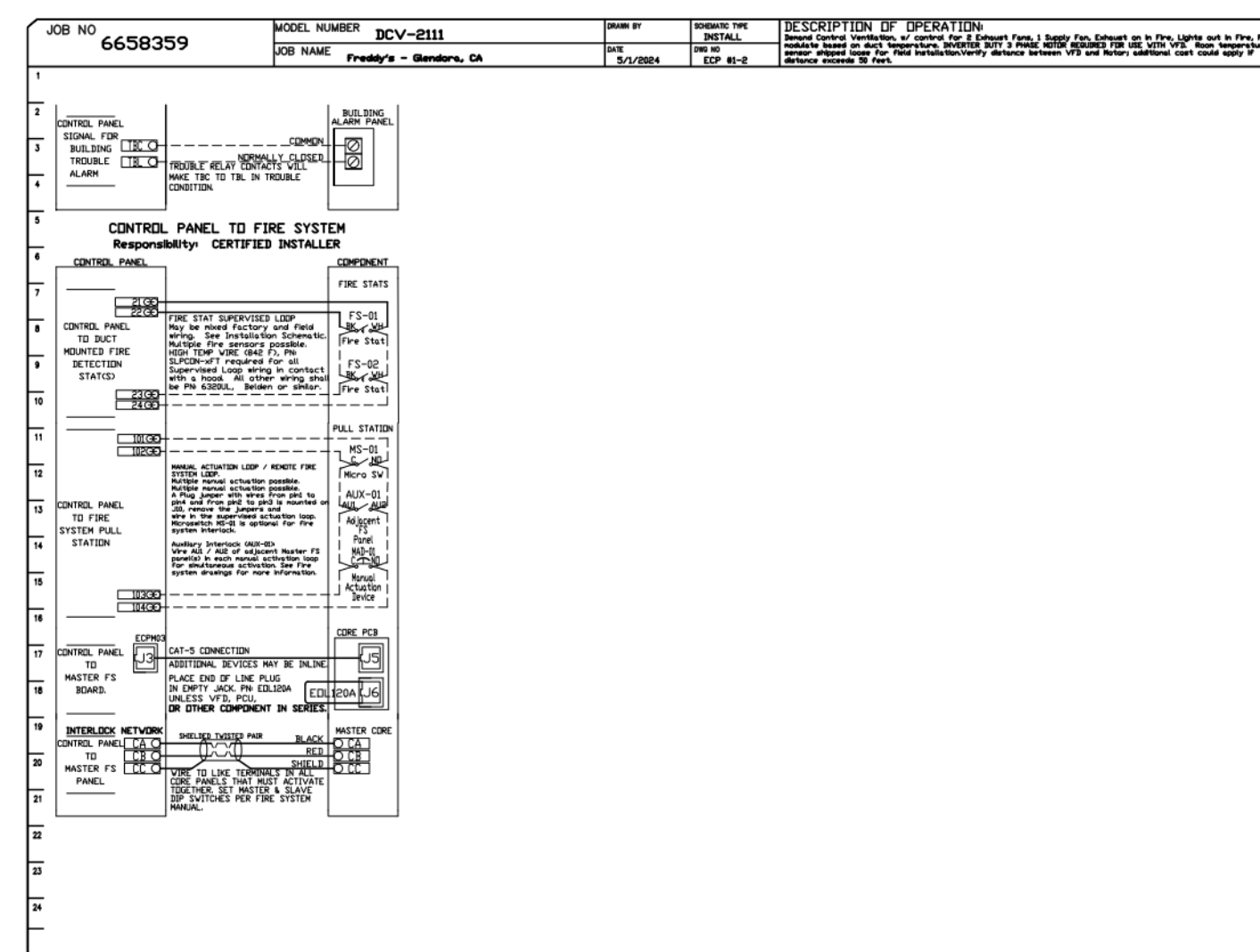
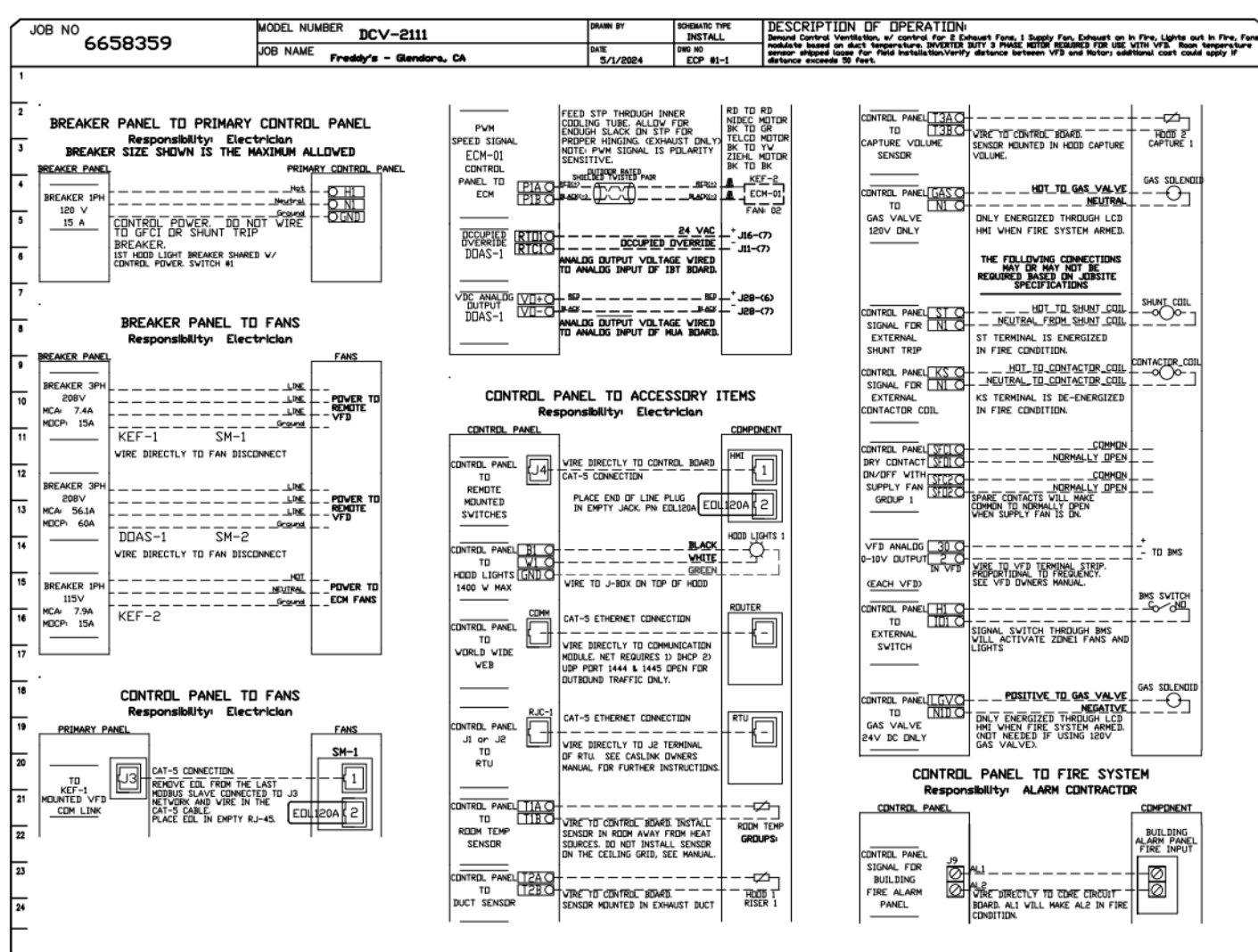
SHEET NO. 4

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**ELECTRICAL PACKAGE - JOB#6658359**

NO.	TAG	PACKAGE #	LOCATION	SWITCHES	QUANTITY	OPTION	FANS CONTROLLED
1	EXP-1	DCV-001	WALL UTILITY CABINET LEFT	FACE MOUNT LEFT SIDE OF HOOD	1 LIGHT HOOD # 1	SMART CONTROLS DCV	KEE-1 KEE-2 SOAS-1 SUPPLY 1 SUPPLY 2 SUPPLY 3



**SEQUENCE OF OPERATIONS:**

1. 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. BEYOND THIS THRESHOLD, 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 ICC-403.2.3 (CODE).
  - 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 UNWANTED 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 HARDWIRED INTERLOCK).
2. UPON ACTIVATION OF THE HOOD FIRE SUPPRESSION SYSTEM, THE EXHAUST FAN WILL COME ON OR CONTINUE TO RUN, THE HOOD MAKEUP AIR WILL SHUTDOWN, AND A SIGNAL WILL BE SENT FOR ACTIVATING THE SHUNT TRIP BREAKER PROVIDED BY THE ELECTRICAL. FUEL GAS WILL SHUT OFF VIA A MECHANICAL/ELECTRICAL GAS VALVE ACTUATED BY THE HOOD FIRE SUPPRESSION SYSTEM.

**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 ICC-403.2.3 (CODE).
- 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 PROBES LOCATED IN THE EXHAUST DUCT RISERS 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 TEMPERATURE 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 APPLIANCE 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 (VFD) 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 FAILING 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 RJ-45 WIRING CONNECTION.
  - G. AN ENERGY SAVING INDICATOR THAT UTILIZES MEASURED kWh FROM THE VFDs.

**REVISIONS**

NO.	DESCRIPTION	DATE

**CAPTIVE**

**HBT Foodservice**

104 W 9th St Suite 204, Kansas City, MO 64106 PHONE: (816) 221-8575 FAX: (816) 221-8311 EMAIL: reg98@captive.com

Freddy's - Glendora, CA  
Glendora, CA, 91740

**DATE:** 5/1/2024  
**DWG.#:** 6658359  
**DRAWN BY:** michaelco  
**SCALE:** 1/2" = 1'-0"  
**MASTER DRAWING**

**SHEET NO.**  
5

BC PROJECT #: 24142

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**BC ENGINEERS INCORPORATED**

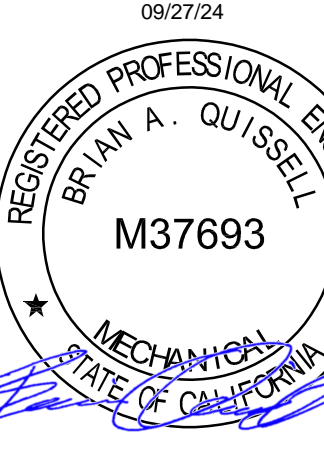
5720 Reeder Shawnee, KS 66203 (913)262-1722

**Freddy's Frozen Custard**  
Freddy's  
1834 E. Route 66  
Glendora, CA, 91740

**MECHANICAL HOOD PLANS**

**M-304**





STATE OF CALIFORNIA  
**Mechanical Systems**  
CALIFORNIA ENERGY COMMISSION

**CERTIFICATE OF COMPLIANCE** NRCC-MCH-4  
*This document is used to demonstrate compliance for mechanical systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in 140.4, or 141.0(b)(2) for alterations.*

Project Name: Freddy's Frozen Custard Report Page: (Page 1 of 12)  
Project Address: 1834 E. Route 66 Date Prepared: 2024-05-01T12:46:41-04:00

**A. GENERAL INFORMATION**

01 Project Location (city)	Glendora	04 Total Conditioned Floor Area	2400
02 Climate Zone	9	05 Total Unconditioned Floor Area	0
03 Occupancy Types Within Project:		06 # of Stories (Habitable Above Grade)	1
* Restaurant			

**B. PROJECT SCOPE**  
*This table includes mechanical systems or components that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in 140.4, 170.2(b) or 141.0(b)(2) and 180.2(b)(2) for alterations.*

01	02	03
Air System(s)	Wet System Components	Dry System Components
<input checked="" type="checkbox"/> Heating Air System	<input type="checkbox"/> Water Economizer	<input checked="" type="checkbox"/> Air Economizer
<input checked="" type="checkbox"/> Cooling Air System	<input type="checkbox"/> Pumps	<input type="checkbox"/> Electric Resistance Heat
Mechanical Controls	<input type="checkbox"/> System Piping	<input checked="" type="checkbox"/> Fan Systems
<input checked="" type="checkbox"/> Mechanical Controls (existing to remain, altered or new)	<input type="checkbox"/> Cooling Towers	<input checked="" type="checkbox"/> Ductwork (existing to remain, altered or new)
	<input type="checkbox"/> Chillers	<input checked="" type="checkbox"/> Ventilation
	<input type="checkbox"/> Boilers	<input type="checkbox"/> Zonal Systems/ Terminal Boxes

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CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance

STATE OF CALIFORNIA  
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**C. COMPLIANCE RESULTS**  
*Table C will indicate if the project data input into the compliance document is compliant with mechanical requirements. This table is not editable by the user. If this table says "DOES NOT COMPLY" or "COMPLIES WITH EXCEPTIONAL CONDITIONS" refer to Table D, or the table indicated as not compliant for guidance.*

01	02	03	04	05	06	07	08	09
System Summary 110.1, 110.2, 140.4, 170.2(c)	Pumps 140.4(k), 170.2(c)(4)	Fans/Economizers 140.4(c), 140.4(e), 170.2(c)	System Controls 110.2, 120.2, 140.4(f), 170.2(c)	Ventilation 120.1, 160.2	Terminal Box Controls 140.4(e), 170.2(c)(4B)	Distribution 120.3, 140.4(i), 160.2, 160.3	Cooling Towers 110.2(e)(2)	Compliance Results
(See Table F)	(See Table G)	(See Table H)	(See Table I)	(See Table J)	(See Table K)	(See Table L)	(See Table M)	
Yes	AND	AND	No	AND	Yes	AND	Yes	AND
Mandatory Measures Compliance (See Table Q for Details)								COMPLIES

**D. EXCEPTIONAL CONDITIONS**  
*This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.*

Table H indicates a Fan Power System Index that exceeds the maximum allowed per §140.4(i). Please revise to demonstrate compliance.  
Selections made in the Certificates of Acceptance Table have been changed by the permit applicant. See Table E. Additional Remarks for permit applicant's explanation.

**E. ADDITIONAL REMARKS**  
*This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.*  
(NRCA-MCH-03-A Explanation) Single zone CAV systems

**F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)**

**Space Conditioning System Information**

01	02	03	04	05	06
System Name	Quantity	System Serving	System Status	Space Type	Utilizing Recovered Heat
RTU-1	1	Single zone	New/ Addition	All Other Occupancies	<input type="checkbox"/>

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Project Name: Freddy's Frozen Custard Report Page: (Page 3 of 12)  
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**F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)**

**Space Conditioning System Information**

01	02	03	04	05	06
System Name	Quantity	System Serving	System Status	Space Type	Utilizing Recovered Heat
DOAS-1	1	Single zone	New/ Addition	All Other Occupancies	<input type="checkbox"/>

**Dry System Equipment Sizing (includes air conditioners, condensers, heat pumps, VRF, furnaces and unit heaters and DOAS systems)**

01	02	03	04	05	06	07	08	09	10	11	
Name or Item Tag	Equipment Category per Tables 110.2 and 170.2(c)(3a)	Equipment Type per Tables 110.2 and Title 20	Smallest Size Available <sup>1</sup> 140.4(a) and 170.2(c)(1)	Equipment Sizing per Mechanical Schedule (kBtu/h) 140.4(a)(8), 170.2(c)(1) & 170.2(c)(2)			Heating Output <sup>2,3</sup>		Cooling Output <sup>2,3</sup>		Load Calculations <sup>4,4</sup>
				Per Design (kBtu/h)	Rated (kBtu/h)	Supp. Heating Output (kBtu/h)	Sensible Per Design (kBtu/h)	Rated (kBtu/h)	Total Heating Load (kBtu/h)	Total Sensible Cooling (kBtu/h)	
RTU-1	Unitary Heat Pumps System	Air-cooled, pkg (3 phase)	Yes	88,000	88,000	0	60,000	96,200	36157	79,939	
DOAS-1	Dedicated Outside Air System	DOAS							38984		

<sup>1</sup>FOOTNOTES: Equipment shall be the smallest size, within the available options of the desired equipment line, necessary to meet the design heating and cooling loads of the building per 140.4(a) and 170.2(c)(1). Healthcare facilities are exempt.  
<sup>2</sup>It is common practice to show rated output capacity on the equipment schedule. Sensible cooling output comes from specification sheet tables.  
<sup>3</sup>If equipment is heating only, leave cooling output and load blank. If equipment is cooling only, leave heating output and load blank.  
<sup>4</sup>Authority Having Jurisdiction may ask for load calculations used for compliance per 140.4(b) and 170.2(c).

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Project Name: Freddy's Frozen Custard Report Page: (Page 4 of 12)  
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**F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)**

**Dry System Equipment Efficiency (other than Package Terminal Air Conditioners (PTAC) and Package Terminal Heat Pumps (PTHP), DX-DOAS and Dual Fuel Heat Pumps)**

01	02	03	04	05	06	07	08	09
Name or Item Tag	Size Category (Btu/h)	Rating Condition (°F)	Efficiency Unit	Minimum Efficiency Required per Tables 110.2 / Title 20	Design Efficiency	Efficiency Unit	Minimum Efficiency Required per Tables 110.2 / Title 20	Design Efficiency
RTU-1	>=65,000 and <135,000	47 Tdb/ 43 *Fwb OSA	COP	3.4	3.5	EER IEEER	11 14.1	11.8 15.5

**G. PUMPS**  
*This section does not apply to this project.*

**H. FAN SYSTEMS & AIR ECONOMIZERS**  
*This table is used to demonstrate compliance with prescriptive requirements found in 140.4(c), 140.4(e), 140.4(m), 170.2(c)(3), and 170.2(c)(4A) for fan systems. Fan systems serving only process loads are exempt from these requirements and do not need to be included in Table H.*

System Name	RTU-1	Quantit y	1	Fan System Status	New	System Zoning	all other systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	3,000	Site Elevation	774	Economizer	Fixed Temperature
Fan Name or Item Tag	Fan Type	Qty	Component	Airflow through Component (%)	Water Gauge (wg)	Component Allowance	Fan Allowance (watt/cfm) <sup>1</sup>	Design Electrical Input Power Method	Motor Nameplate Horsepower	Design Electrical Input Power (kW)		Fan System Allowance (kW) <sup>1</sup>	Fan System Electrical Output (kW)		

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**H. FAN SYSTEMS & AIR ECONOMIZERS**

<sup>1</sup>FOOTNOTES: Fans serving spaces with design background noise goals below NC35  
<sup>2</sup>Low-turndown single-zone VAV fan system must be capable of and configured to reduce airflow to 50 percent of design airflow and use no more than 30 percent of the design wattage at that airflow. No more than 10 percent of the design load served by the equipment shall have fixed loads.  
<sup>3</sup>Fan system allowance includes fan system base allowance.  
<sup>4</sup>Filter pressure loss can only be counted once per fan system.  
<sup>5</sup>Complex Fan System means a fan system that combines a single cabinet fan system with other supply fans, exhaust fans, or both.  
<sup>6</sup>Computer room economizers must meet requirements of 140.9(a) and will be documented on the NRCC-PRC-E document.

**H. EXHAUST AIR HEAT RECOVERY 140.4(a), 170.2(c)(4)**

01	02	03	04	05	06	07	08	09	10	11
Fan System Name	Qty	Hours of Operation per Year	Design Supply Airflow Rate	Outdoor Airflow	% Outdoor Air at Full Design Airflow	Exemptions to Exhaust Air Heat Recovery Requirement per 140.4(g) & 170.2(c)(4)	Exhaust Air Heat Recovery 140.4(n) & 170.2(c)(4O)	Type Of Heat Recovery Rating	Required Recovery Ratio	Energy Recovery Bypass
RTU-1			3,000	688	0.23	NA: Total airflow exhausted and relieved within 20ft <75% per Exception 6 to 140.4(n)				

**Dedicated Outdoor Air System (DOAS)**

01	02	03	04	05	06
System Name	Quantity	Delivered Directly to Space	DOAS Fan Control	Multi-Zone DOAS with Cooling 140.4(p)(4) & 170.2(c)(4N)	Multifamily DOAS

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**Dedicated Outdoor Air System (DOAS)**

DOAS-1	1	Yes	>= 3 speeds	NA: Single Zone	Not Serving Multifamily Common Use Space
--------	---	-----	-------------	-----------------	--

**Fan Energy Index (FEI)**

01	02	03
Name or Item Tag	FEI Exception	FEI

**I. SYSTEM CONTROLS**  
*This table is used to demonstrate compliance with mandatory controls in 110.2 and 120.2 and prescriptive controls in 140.4(f) and (n), 170.2(c)(4D), 170.2(c)(4L) or requirements in 141.0(b)(2) & 180.2(b)(2) for altered space conditioning systems.*

01	02	03	04	05	06	07	08	09	10
System Name	System Zoning	Condition of Floor Area Being Served (ft <sup>2</sup> )	Thermostats 110.2(b) & (c) <sup>1</sup> , 141.0(b)(2)E & 180.2(b)(2)	Shut-Off Controls 120.2(e) & 160.3(a)(2)	Isolation Zone Controls 120.2(a)(8) & 160.3(a)(2)F	Demand Response 110.12 120.2(b) & 160.3(a)(2)B	Supply Air Temp. Reset 140.4(f) & 170.2(c)(4D)	Window Interlocks per 140.4(n) & 170.2(c)(4D)	Direct Digital Control (DDC) per 120.2
System 1	Single zone	<= 25,000 ft <sup>2</sup>	Setback + DR Tstat per 110.12	EMCS	NA: Single Zone	DR Tstat per 110.12	NA: Single Zone	NA: No operable windows	NA: Single Zone

<sup>1</sup>FOOTNOTES: Gravity gas wall heaters, gravity floor heaters, gravity room heaters, non-central electric heaters, fireplaces or decorative gas appliances, wood stoves are not required to have setback thermostats.

**J. VENTILATION AND INDOOR AIR QUALITY**  
*This table is used to demonstrate compliance with mandatory ventilation requirements in 120.1 120.2(e)(3) 140.4(a) and 140.4(a) for all nonresidential and hotel/motel and d(2)4refnoln(1)160.2, 160.3(a)(3), 170.2(a)(4), 170.2(a)(4) for high-rise residential occupancies. For alterations, only ventilation systems being altered within the scope of the permit application need to be documented in this table. In lieu of this table, the required outdoor ventilation rates and airflows may be shown on the plans or the calculations can be presented in a spreadsheet.*

01	02	03
Check the box if the project is showing ventilation calculations on the plans, or attaching the calculations instead of completing this table.	<input type="checkbox"/>	
Check this box if the project included Nonresidential, Hotel/Motel Spaces or Multifamily Common Use Spaces	<input checked="" type="checkbox"/>	
Check the box if the project is using natural ventilation in any nonresidential or hotel/motel spaces to meet required ventilation rates per 120.1(c)(2).	<input type="checkbox"/>	

**Nonresidential and Hotel/ Motel Multifamily Common Use Ventilation Systems**

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CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance

BC PROJECT #: 24142

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STATE OF CALIFORNIA  
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**J. VENTILATION AND INDOOR AIR QUALITY**

04		05				06		07		
System Name	DOAS-1	System Design OA CFM Airflow <sup>1</sup>	2300	System Design Transfer Air CFM	0	Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)2 <sup>2</sup> Provided				
08	09	10	11	12	13	14	15			
Space Name or Item Tag	Mechanical Ventilation Required per 120.1(c)3 <sup>3</sup> & 160.2(c)3	Conditioned Floor Area (ft <sup>2</sup> )	# of Shower heads/ toilets	# of people <sup>4</sup>	Required Min OA CFM	Required Min CFM	Provided per Design CFM	Exh. Vent per 120.1(c)4 & 160.2(c)4		
Kitchen	Kitchen (cooking)	1200		12	180	840	2375	DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)3 <sup>5</sup> 160.2(c)5D 160.2(c)5E 160.2(c)5D		
17	Total System Required Min OA CFM				180	18	Ventilation for this System Complies? Yes			

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**J. VENTILATION AND INDOOR AIR QUALITY**

<sup>1</sup> FOOTNOTES: System CFM should include both mechanical and natural ventilation for the zone/system  
<sup>2</sup> Air filtration requirements apply to the following three system types per 120.1(c)1A: space conditioning systems utilizing ducts to supply air to occupiable space; supply-only ventilation systems providing outside air to occupiable space; supply side of balanced ventilation systems including heat recovery and energy recovery ventilation systems providing outside air to occupiable space.  
<sup>3</sup> Uniform Mechanical Code may have more stringent ventilation requirements; the most stringent code requirement takes precedence.  
<sup>4</sup> See Standards Tables 120.1-A and 120.1-B.  
<sup>5</sup> For lecture halls with fixed seating, the expected number of occupants shall be determined in accordance with the California Building Code.  
<sup>6</sup> 120.2(e)3 requires systems serving rooms that are required by 130.1(c) to have lighting occupancy sensing controls to also have occupancy sensing zone controls for ventilation. Examples of spaces which require lighting occupancy sensors include offices 250ft<sup>2</sup> or smaller, multipurpose rooms less than 1,000 ft<sup>2</sup>, classrooms, conference rooms, restrooms, restrooms, aisles and open areas in warehouses, library book stack aisles, corridors, stairwells, parking garages, and loading and unloading zones, unless excepted by 130.1(c).

**K. TERMINAL BOX CONTROLS**  
 This section does not apply to this project.

**L. DISTRIBUTION (DUCTWORK AND PIPING)**  
 This table is used to show compliance with mandatory pipe insulation requirements found in 120.3 and mandatory requirements found in 120.4(g) for duct sealing.

01	<input type="checkbox"/>	Insulation shall be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather shall be installed with a cover suitable for outdoor service. Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space shall have a Class I or Class II vapor retarder. All penetrations and joints of which shall be sealed.
<b>Duct Leakage Testing</b>		
The answers to the questions below apply to the following duct systems:		Supply and Return
		NR/ Common Use: Duct leakage testing shall not exceed 6% per NA7.5.3 required for these systems? Yes

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**L. DISTRIBUTION (DUCTWORK AND PIPING)**

		Dwelling Units: Total duct leakage of duct system shall not exceed 12% or duct system to outside shall not exceed 6% per RA3.1.4 required for systems?	---
		Duct leakage testing per CMC Section 603.10.1 required for these systems?	No
11	No	The scope of the project includes only duct systems serving healthcare facilities	
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.	
13	Yes	The space conditioning system serves less than 5,000 ft <sup>2</sup> of conditioned floor area.	
14	Yes	The combined surface area of the ducts is more than 25% of the total surface area of the entire duct system.	
15	No	The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.	
16	No	The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.	
17	Yes	All Ductwork and plenums with pressure class ratings shall be constructed to Seal Class A	
18	No	All ductwork is an extension of an existing duct system	
19	No	Ductwork serving individual dwelling unit	
20		< 25 ft. of new or replacement space conditioning ducts installed	
21	R-6	Duct Insulation R-value	
22	No	Ductwork Existing To Remain	
23	No	Duct System Connected To Altered Space Conditioning System	

**M. COOLING TOWERS**  
 This section does not apply to this project.

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**N. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION**  
 Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at <https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency-4>  
 Form/Title  
 NRCC-MCH-01-E - Must be submitted for all buildings

**O. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE**  
 Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at <https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency-4>  
 Form/Title  
 NRCA-MCH-02-A - Outdoor Air must be submitted for all newly installed HVAC units. Note: MCH-02-A can be performed in conjunction with MCH-07-A Supply Fan VFD Acceptance (if applicable) since testing activities overlap.  
 NRCA-MCH-03-A - Constant Volume Single Zone HVAC NOTE: This form does not automatically move to "Yes". If Constant Volume Single Zone HVAC Systems are included in the scope, permit applicant should move this form to "Yes".  
 NRCA-MCH-04 - Air Distribution Duct Leakage  
 NRCA-MCH-05-A - Air Economizer Controls  
 NRCA-MCH-13-A Automatic FFD for Air Handling Units and Zone Terminal Units Acceptance  
 NRCA-MCH-18-A Energy Management Control Systems

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**P. DECLARATION OF REQUIRED CERTIFICATES OF VERIFICATION**  
 Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E Additional Remarks. These documents must be provided to the building inspector during construction. The final documents must be created by a HERS Provider's registry, but drafts can be found online at <https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency-4>  
 Form/Title  
 NRCC-MCH-04-H Duct Leakage Test NOTE: Must be completed by a HERS Rater

**Q. MANDATORY MEASURES DOCUMENTATION LOCATION**  
 This table is used to indicate where mandatory measures are documented in the plan set or construction documentation.

01		02	
Compliance with Mandatory Measures documented through MCH	Yes	Plan sheet or construction document location	
Mandatory Measures Note Block		M-200	

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**DOCUMENTATION AUTHOR'S DECLARATION STATEMENT**  
 I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Mason Stewart  
 Company: BC Engineers  
 Address: 5720 Reeder Street  
 City/State/Zip: Shawnee Kansas 66203  
 Signature Date: 05/01/2024  
 CEA/HERS Certification Identification (if applicable):  
 Phone: 913-262-1772

**RESPONSIBLE PERSON'S DECLARATION STATEMENT**  
 I certify the following under penalty of perjury, under the laws of the State of California:  
 1. The information provided on this Certificate of Compliance is true and correct.  
 2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).  
 3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1, and Part 6 of the California Code of Regulations.  
 4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.  
 5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: Brian Quissell  
 Company: BC Engineers  
 Address: 5720 Reeder Street  
 City/State/Zip: Shawnee Kansas 66203  
 Date Signed: 05/02/2024  
 License: M37693  
 Phone: 913-262-1772

Generated Date/Time: Documentation Software: Energy Code Ace  
 Report Version: 2022.0.000 Compliance ID: 196104-0524-0003  
 Schema Version: rev 20220101 Report Generated: 2024-05-01 18:46:47



Freddy's Frozen Custard  
 Freddy's  
 1834 E. Route 66  
 Glendora, CA. 91740

DESCRIPTION	DATE
PROJECT NO:	24135
STORE NO:	66-0008
DATE:	05.03.2024
DRAWN BY:	Author
CHECKED BY:	Checker

TITLE 24

T-101

BC PROJECT #: 24142  
 This drawing has been prepared by the Engineer, or under his supervision. This drawing is provided as an instrument of service to the Designer/Engineer and is intended for use in the project. Pursuant to the Architectural Practice Act of 1967, all drawings, specifications, notes and legends, including the seal, stamp, signature and registration of the Engineer, are the property of the Engineer. Any reproduction, use, or disclosure of information contained hereon without prior written consent of the Engineer is strictly prohibited. © 2024 BC Engineers, Inc.



STATE OF CALIFORNIA  
**Domestic Water Heating System** CALIFORNIA ENERGY COMMISSION  
**CERTIFICATE OF COMPLIANCE** NRCC-PLB-E  
 This document is used to demonstrate compliance for nonresidential occupancies with requirements in 110.1, 110.3, 120.3, and 140.5, and with requirements in 141.0 for additions and alterations, for domestic water heating systems using the prescriptive path. For high-rise residential and hotel/motel occupancies compliance is demonstrated with requirements in 110.1, 110.3, 160.4 and 170.2(d), and with requirements 180.1 for additions and 180.2 for alterations.  
 Project Name: Freddy's Frozen Custard Report Page: (Page 1 of 8)  
 Project Address: 1834 E. Route 66 Date Prepared: 2024-05-01T12:08:57-04:00

**A. GENERAL INFORMATION**

01	Project Location (city)	Glendora	02	Climate Zone	9
03	Occupancy Types Within Project (select all that apply):				
<input checked="" type="checkbox"/> Restaurant					

**B. PROJECT SCOPE**  
 This table includes domestic water heating systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive paths outlined in 140.1, 170.2(d) and 141.0(a)/180.1, or 141.0(b)(2)/180.2 for additions or alterations. Solar water heating systems are documented on the NRCC-SAB compliance document. Combined hydronic water heating systems are documented on the NRCC-MCH compliance document.

01	02	03
My project consists of (check all that apply):	System Type <sup>1,2</sup>	System Components
<input checked="" type="checkbox"/> New system (DHW system being installed for the first time)	Central System (serving nonresidential spaces)	<input checked="" type="checkbox"/> Equipment <input checked="" type="checkbox"/> Distribution <input checked="" type="checkbox"/> Controls
<input type="checkbox"/> System Alteration (equipment, distribution or controls)		<input type="checkbox"/> Equipment <input type="checkbox"/> Distribution <input type="checkbox"/> Controls

<sup>1</sup>FOOTNOTES: Point of use water heaters, or other non-central systems used to serve nonresidential spaces, are considered individual systems.  
<sup>2</sup> Dwelling units refers to hotel/motel guest rooms and units in a multifamily residential occupancy.  
<sup>3</sup> DHW systems serving 2 or more dwelling units are considered "Central Systems" for multifamily occupancies

**C. COMPLIANCE RESULTS**  
 Table C will indicate if the project data input into the compliance document is compliant with water heating requirements. If this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D, or the table indicated as not compliant for guidance.

01	02	03	04
Domestic Hot Water Equipment	Distribution Systems	Controls	Compliance Results
Table F	Table G	Table H	
Yes	Yes	Yes	

**D. EXCEPTIONAL CONDITIONS**  
 This table is auto-filled with unedited comments because of selections made or data entered in tables throughout the form.

Generated Date/Time: Documentation Software: Energy Code Ace  
 CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: 196104-0524-0002 Schema Version: rev 20220101 Report Generated: 2024-05-01 18:09:00

STATE OF CALIFORNIA  
**Domestic Water Heating System** CALIFORNIA ENERGY COMMISSION  
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 Project Name: Freddy's Frozen Custard Report Page: (Page 2 of 8)  
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**E. ADDITIONAL REMARKS**  
 This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

STATE OF CALIFORNIA  
**Domestic Water Heating System** CALIFORNIA ENERGY COMMISSION  
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 Project Name: Freddy's Frozen Custard Report Page: (Page 3 of 8)  
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**F. DOMESTIC HOT WATER EQUIPMENT**  
 This table is used to demonstrate compliance with mandatory equipment requirements in 110.1 and 110.3. Compliance with prescriptive requirements in 140.5(c) / 170.2(d) must also be demonstrated and with 141.0 / 180.1 / 180.2 for addition and alteration scopes.

**Equipment Schedule: Water Heating Efficiency and Standby Loss**

03		04		05		06			
System Name	WH	Exception to 140.5(c)/170.2(d)	Exceptions Do Not Apply	Gas Service Water Heating System = 1MMBtu/h <sup>1</sup>	Capacity-weighted Average Efficiency %				
Name or Item Tag	Equipment Type	Volume (gal)	Rated Input Capacity (BTU/h)	Max GPM/ First Hour Rating (FHR)	Rated Efficiency	Minimum Efficiency Required	Efficiency Unit	Designed Standby Loss	Maximum Standby Loss
WH-1	Commercial Gas Instantaneous Water Heater	0	199,000		0.95	0.8	TE		
WH-2	Commercial Gas Instantaneous Water Heater	0	199,000		0.95	0.8	TE		

<sup>1</sup>FOOTNOTE: In systems >= 1MMBtu/h with multiple units, gas water heaters with input capacity > 100,000 Btu/h may meet 90% E<sub>t</sub> requirements via an input capacity-weighted average.  
<sup>2</sup>FOOTNOTE: Compliant equipment may be found in the Modernized Appliance Efficiency Database System (MAEDBS) on the Energy Commission website: <https://caenergy.com/energy-ca.gov/Pages/Search/AdvancedSearch.aspx>

**Water Heating Equipment All Occupancies**

03		04		05		06		
Yes	No	Not Applicable	Requirement					
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Unfired storage tank insulation shall have Internal + External >=R-16 OR External >=R-3.5. Label required per 110.3(c)3					
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	New state buildings 60% of energy for service water heating from solar site energy or recovered energy per 110.3(c)5					
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Isolation valves for instantaneous water heater with input rating >=6.8 kBtu/h or 2 kW has been specified per 110.3(c)6					
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	School buildings < 25,000 ft <sup>2</sup> and < 4 stories must install a heat pump water heating system per 140.5(a)1. Water heating systems serving an individual bathroom space may be an instantaneous electric water heater.					

Generated Date/Time: Documentation Software: Energy Code Ace  
 CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: 196104-0524-0002 Schema Version: rev 20220101 Report Generated: 2024-05-01 18:09:00

STATE OF CALIFORNIA  
**Domestic Water Heating System** CALIFORNIA ENERGY COMMISSION  
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 Project Name: Freddy's Frozen Custard Report Page: (Page 4 of 8)  
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STATE OF CALIFORNIA  
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**G. DOMESTIC HOT WATER DISTRIBUTION SYSTEM**  
 This table is used to demonstrate compliance for nonresidential occupancies with distribution requirements in 120.3 and 140.5. For multifamily and hotel/motel occupancies, compliance is demonstrated with requirements 110.3(c), 160.4, 170.2(d).

**Recirculation Loops in Central Systems Serving Dwelling Units or Nonresidential Spaces**

	Yes	No	Not Applicable	Requirement
01	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Air release valve or vertical pump installation per 110.3(c)4A
02	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Check valve or similar located between recirculation pump and water heating equipment to prevent backflow per 110.3(c)4B
03	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hose bibb installed between pump and equipment and isolation valve between hose bibb and equipment per 110.3(c)4C
04	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Isolation valves on both sides of the pump per 110.3(c)4D
05	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Cold water and recirculation loop piping shall not be connected to the hot water storage tank drain port per 110.3(c)4E
06	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Check valve installed on cold water supply between hot water system and next closest tee on cold water supply per 110.3(c)4F
07	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	DWELLING UNITS ONLY: For central systems serving multiple dwelling units, design includes a recirculation system serving separate dwelling units per 170.2(d) unless building has <=8 dwelling units.
08	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	DWELLING UNITS ONLY: For heat pump water heating systems, the hot water return from the recirculation loop shall connect to a recirculation loop tank and shall not directly connect to the primary heat pump water heater inlet or the primary thermal storage tanks per 170.2(d)2A.
09	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	DWELLING UNITS ONLY: For heat pump water heating systems, the fuel source for the recirculation loop tank shall be electricity if auxiliary heating is needed. The recirculation loop heater shall be capable of multi-pass water heating operation per 170.2(d)2B.

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STATE OF CALIFORNIA  
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 Project Name: Freddy's Frozen Custard Report Page: (Page 5 of 8)  
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**G. DOMESTIC HOT WATER DISTRIBUTION SYSTEM**  
**Mandatory Pipe Insulation All Occupancies**

13	<input type="checkbox"/>	For systems serving dwelling units, pipe insulation must meet the minimum insulation requirements in Table 160.4-A (see below) except: <ul style="list-style-type: none"> <li>Piping that penetrates framing members shall not be required to have pipe insulation for the distance of the framing penetration. Piping that penetrates metal framing shall use grommets, plugs, wrapping or other insulating material to assure that no contact is made with the metal framing. Insulation shall be secured against all framing members</li> <li>Piping installed in interior or exterior walls shall not be required to have pipe insulation if all of the requirements are met for compliance with Quality Insulation Installation (QII) as specified in the Reference Residential Appendix RA3.5</li> <li>Piping surrounded with a minimum of 1 inch of wall insulation, 2 inches of crawlspace insulation, or 4 inches of attic insulation, shall not be required to have pipe insulation.</li> </ul>
14	<input type="checkbox"/>	For systems serving nonresidential spaces, pipe insulation for the following applications is specified to comply with Table 120.3-A (see below) per 120.3: <ul style="list-style-type: none"> <li>Recirculating system piping, including supply and return piping of the water heater</li> <li>The first 8 ft of hot and cold outlet piping, including between storage tank and heat trap, for a nonrecirculating storage system</li> <li>Pipes that are externally heated</li> </ul>
15	<input checked="" type="checkbox"/>	Insulation shall be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather shall be installed with a cover suitable for outdoor service per 120.3(b) / 160.4(f). Pipe insulation buried below grade must be installed in a water proof and non-crushable casing or sleeve.

**TABLE 120.3-A / 160.4-A PIPE INSULATION THICKNESS**

Fluid Temperature Range (°F)	Conductivity Range (Rtu-in per hour per ft <sup>2</sup> per °F)	Insulation Mean Rating Temp (°F)	Nominal Pipe Diameter (in)			
			< 1	1 to < 1.5	1.5 to < 4	1.5 to < 4 Multifamily & Hotel/Motel
105-140	0.22 - 0.28	100	1.0 in or R-7.7	1.5 in or R-12.5	1.5 in or R-11	2.0 in or R-16

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 Project Name: Freddy's Frozen Custard Report Page: (Page 6 of 8)  
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**H. DOMESTIC HOT WATER CONTROLS**  
 This table is used to demonstrate compliance with control requirements in 110.3 for all occupancies. For multifamily residential and hotel/motel occupancies, compliance is also demonstrated with requirements in 160.4(e) / 170.2(d).

	Yes	No	Not Applicable	Requirement
01	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Construction documents require manufacturer certification that service water-heating systems are equipped with automatic temperature controls capable of adjusting temperature settings per 110.3(a).
02	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Systems with capacity > 167,000 BTUH equipped with outlet temperature controls per 110.3(c)1 unless covered by California Plumbing Code 613.0.
03	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Controls for circulating pumps or electrical heat trace systems are capable of automatically turning off the system per 110.3(c)2 unless systems serve healthcare facility.
04	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	For recirculation systems serving multiple dwelling units, design includes automatic pump controls per 170.2(d) or 180.1(b)3 for additions.
05	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	For recirculation systems serving individual dwelling units, design includes manual on/off controls as specified in Reference Appendix RA4.4.9 per 170.2(d).
06	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Combustion air positive shut-off shall be provided per 160.4(3) on all newly installed commercial boilers as follows: <ul style="list-style-type: none"> <li>Boilers with input capacity &gt;= 2.5 MMBtu/h, in which the boiler is designed to operate with a nonpositive vent static pressure</li> <li>Boilers where one stack serves two or more boilers with a total combined input capacity per stack of 2.5 MMBtu/h.</li> </ul>
07	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Boiler combustion air fans with motor >= 10 hp shall meet one of the following <ul style="list-style-type: none"> <li>The fan motor shall be driven by a variable speed drive OR</li> <li>The fan motor shall include controls that limit the fan motor demand to &lt;=30% of the total design wattage at 50% of the design air volume.</li> </ul>
08	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Newly installed boilers with an input capacity (dgtge)/5MMBtu/h and a steady state full-load combustion efficiency < 90% shall maintain excess (stack-gas) oxygen concentrations <= 5% by volume on a dry basis over firing rates of 20-100%. Combustion air volume shall be controlled with respect to firing rate or flue gas oxygen concentration. Use of a common gas and combustion air control linkage or jack shaft is prohibited.

STATE OF CALIFORNIA  
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 Project Name: Freddy's Frozen Custard Report Page: (Page 6 of 8)  
 Project Address: 1834 E. Route 66 Date Prepared: 2024-05-01T12:08:57-04:00

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 Project Name: Freddy's Frozen Custard Report Page: (Page 7 of 8)  
 Project Address: 1834 E. Route 66 Date Prepared: 2024-05-01T12:08:57-04:00

**I. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION**  
 Selections have been made based on information provided in this document. If any selection have been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online

Form/Title

NRCC-PLB-E - Must be submitted for all buildings

**J. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE**  
 There are no forms required for this project.

**K. DECLARATION OF REQUIRED CERTIFICATES OF VERIFICATION**  
 There are no forms required for this project.

STATE OF CALIFORNIA  
**Domestic Water Heating System** CALIFORNIA ENERGY COMMISSION  
**CERTIFICATE OF COMPLIANCE** NRCC-PLB-E  
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 Project Name: Freddy's Frozen Custard Report Page: (Page 8 of 8)  
 Project Address: 1834 E. Route 66 Date Prepared: 2024-05-01T12:08:57-04:00

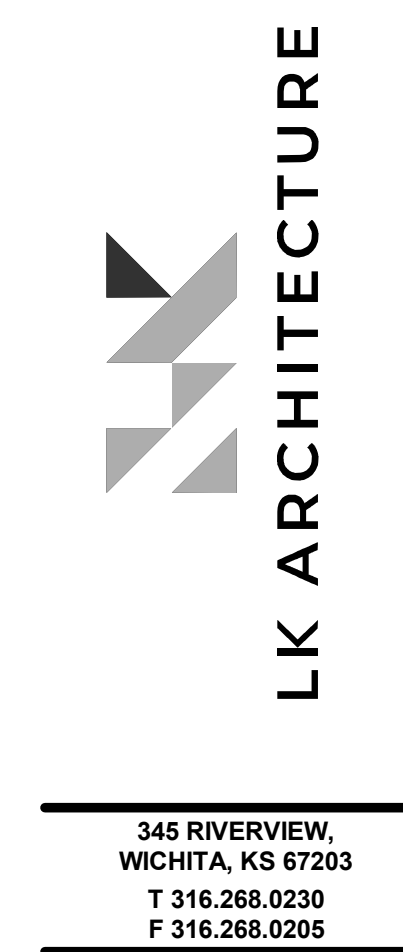
**DOCUMENTATION AUTHOR'S DECLARATION STATEMENT**  
 I certify that this Certificate of Compliance documentation is accurate and complete.

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Address: 5720 Reeder Street	CEA / HERS Certification Identification (if applicable):
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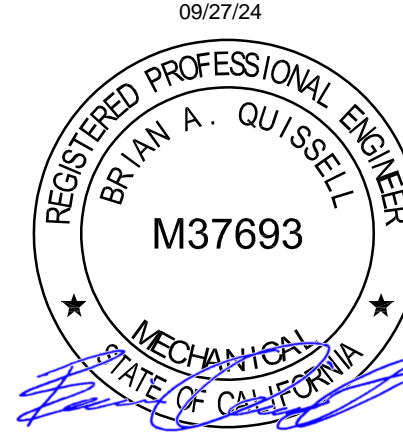
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Responsible Designer Name: Brian Quissell	Responsible Designer Signature:
Company: BC Engineers	Date Signed: 05/02/2024
Address: 5720 Reeder Street	License: M37693
City/State/Zip: Shawnee Kansas 66203	Phone: 913-262-1772

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Freddy's Frozen Custard  
 Freddy's  
 1834 E. Route 66  
 Glendora, CA. 91740

DESCRIPTION	DATE
PROJECT NO:	24135
STORE NO:	66-008
DATE:	05.03.2024
DRAWN BY:	Author
CHECKED BY:	Checker

TITLE 24

T-102

BC PROJECT #: 24142  
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