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a new restaurant for:
Freddy's
N East End Blvd - Lowes Outparcel
Marshall, TX 75670

date
01.24.2024
drawn by
Author
checked by
Checker
revisions

sheet number
M-000

drawing type
preliminary
project number
23006-08

GENERAL MECHANICAL SYMBOLS

	REVISION NUMBER - SHOWN ON PLANS
	POINT WHERE NEW CONNECTS TO EXISTING
	NUMBER OF DETAIL ON SHEET
	NUMBER OF SHEET WHERE DETAIL APPEARS
	KEYNOTE
	CONTINUATION SYMBOL
	ROOM NAME AND NUMBER
	ITEM TO BE DEMOLISHED
	AREA NOT IN CONTRACT
	PIPE SIZE TAG (DIAMETER)
	ABOVE GROUND PIPING
	PIPE SLOPE TAG
	BELOW GROUND PIPING
	PIPE INVERT ELEVATION TAG
	EXISTING PIPE TAG
	PIPING BEING DEMOLISHED

ABBREVIATIONS

Ø	ROUND	LVR	LOUVER
ABV	ABOVE	LWT	LEAVING WATER TEMPERATURE
AC	AIR CONDITIONING	M/A	MIXED AIR
AD	AREA DRAIN	MAX	MAXIMUM
ADD	ADDENDUM	MBH	ONE THOUSAND BTU PER HOUR
AFF	ABOVE FINISHED FLOOR	MGF	ONE THOUSAND CUBIC FEET
AFUE	ANNUAL FUEL UTILIZATION EFFICIENCY	MD	MOTORIZED DAMPER
ALT	ALTERNATE	MECH	MECHANICAL
AP	ACCESS PANEL	MFR	MANUFACTURER
ARCH	ARCHITECT/ARCHITECTURAL	MIN	MINIMUM
BFF	BELOW FINISHED FLOOR	MISC	MISCELLANEOUS
BLW	BELOW	MTR	MOTOR
BTU	BRITISH THERMAL UNITS	MUA	MAKE-UP/AIR
BTUH	BRITISH THERMAL UNITS PER HOUR	NC	NOISE CRITERIA
CAP	CAPACITY	NC	NORMALLY CLOSED
CB	CATCH BASIN	NIC	NOT IN CONTRACT
CFM	CUBIC FEET PER MINUTE	NO	NUMBER
CLG	CEILING	NO	NORMALLY OPEN
CO	CLEAN OUT	NTS	NOT TO SCALE
CW	COLD WATER	O	OXYGEN
D	DEGREE	O/A	OUTSIDE AIR
DB	DRY BULB	ORD	OVERFLOW ROOF DRAIN
DIA	DIAMETER	PD	PRESSURE DROP
DN	DOWN	PIV	POST INDICATOR VALVE
DW	DISTILLED WATER	PLBG	PLUMBING
EA	EACH	PRESS	PRESSURE
EAT	ENTERING AIR TEMPERATURE	PRV	PRESSURE REDUCING VALVE
ELEC	ELECTRICAL	PSI	POUNDS PER SQUARE INCH
EQUIP	EQUIPMENT	PSIG	POUNDS PER SQUARE INCH GAUGE
EWC	ELECTRIC WATER COOLER	PWR	POWER
EWT	ENTERING WATER TEMPERATURE	R	DUCT RISER
E/A	EXHAUST AIR	R/A	RETURN AIR
EXIST	EXISTING	RCP	RADIANT CEILING PANEL
F	DEGREES FAHRENHEIT	RD	ROOF DRAIN
FCO	FLOOR CLEAN OUT	REC	RECESSED
FD	FLOOR DRAIN	RED	REDUCER
FDC	FIRE DEPARTMENT CONNECTION	RH	RELATIVE HUMIDITY
FL	FLOOR	RLA	RELIEF AIR
FO	FUEL OIL	RM	ROOM
FOV	FUEL OIL VENT	RPM	REVOLUTIONS PER MINUTE
FOR	FUEL OIL RETURN	RW	RAIN WATER
FOS	FUEL OIL SUPPLY	SF	SQUARE FOOT
FPM	FEET PER MINUTE	S/A	SUPPLY AIR
FS	FLOOR SINK	SAN	SANITARY
FT	FOOT/FEET	SF	SQUARE FOOT
FTR	FIN TUBE RADIATION	SD	SMOKE DAMPER
GAL	GALLON	SM	SURFACE MOUNT
GF	GAS-FIRED	SP	STANDPIPE
GC	GENERAL CONTRACTOR	SP	STATIC PRESSURE
GPM	GALLONS PER MINUTE	STM	STEAM
GW	GREASE WASTE	T	THERMOSTAT
HB	HOSE BIB	TD	TEMPERATURE DROP
HP	HORSE POWER	TDR	TRENCH DRAIN
HTG	HEATING	TEMP	TEMPERATURE
HTR	HEATER	TYP	TYPICAL
HW	HOT WATER	UG	UNDERGROUND
HYD	HYDRANT	VAC	VACUUM
ID	INDIRECT	V	VENT
IN	INCH	VAV	VARIABLE AIR VOLUME
INV	INVERT	VENT	VENTILATION
LB	POUND	VTR	VENT THROUGH ROOF
LB/HR	POUNDS PER HOUR	W	WASTE
LAT	LEAVING AIR TEMPERATURE	WB	WET BULB
LP	LOW PRESSURE	WCO	WALL CLEAN OUT
LPG	LIQUEFIED PETROLEUM GAS	WH	WALL HYDRANT

EQUIPMENT ABBREVIATIONS

AC	AIR CONDITIONING UNIT	ET	EXPANSION TANK
ACCU	AIR COOLING CONDENSING UNIT	EWH	ELECTRIC WATER HEATER
AHU	AIR HANDLING UNIT	FCU	FAN COIL UNIT
AS	AIR SEPARATOR	FP	FIRE PUMP
B	BOILER	GI	GREASE INTERCEPTOR
CH	CHILLER	GRV	GRAVITY ROOF VENTILATOR
CT	COOLING TOWER	HWP	HEATING WATER PUMP
CUH	CABINET UNIT HEATER	HRU	HEAT RECOVERY UNIT
CHWP	CHILLED WATER PUMP	PRV	POWER ROOF VENTILATOR
DBP	DOMESTIC WATER BOOSTER PUMP	RE	RETURN/EXHAUST FAN
DC	DUCT MOUNTED COIL	RTU	ROOFTOP UNIT
DCP	DOMESTIC WATER CIRCULATING PUMP	SP	SUMP PUMP
EF	EXHAUST FAN	UH	UNIT HEATER
EDC	ELECTRIC DUCT COIL	WH	WATER HEATER

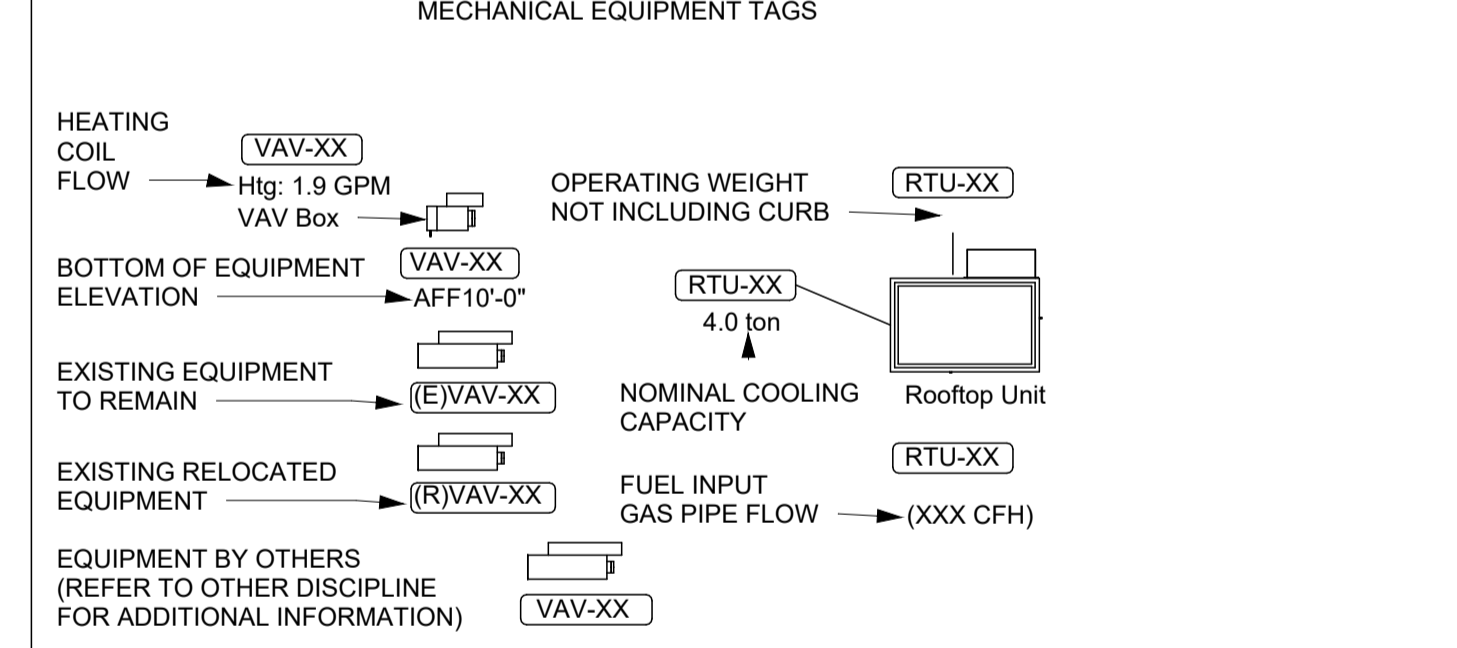
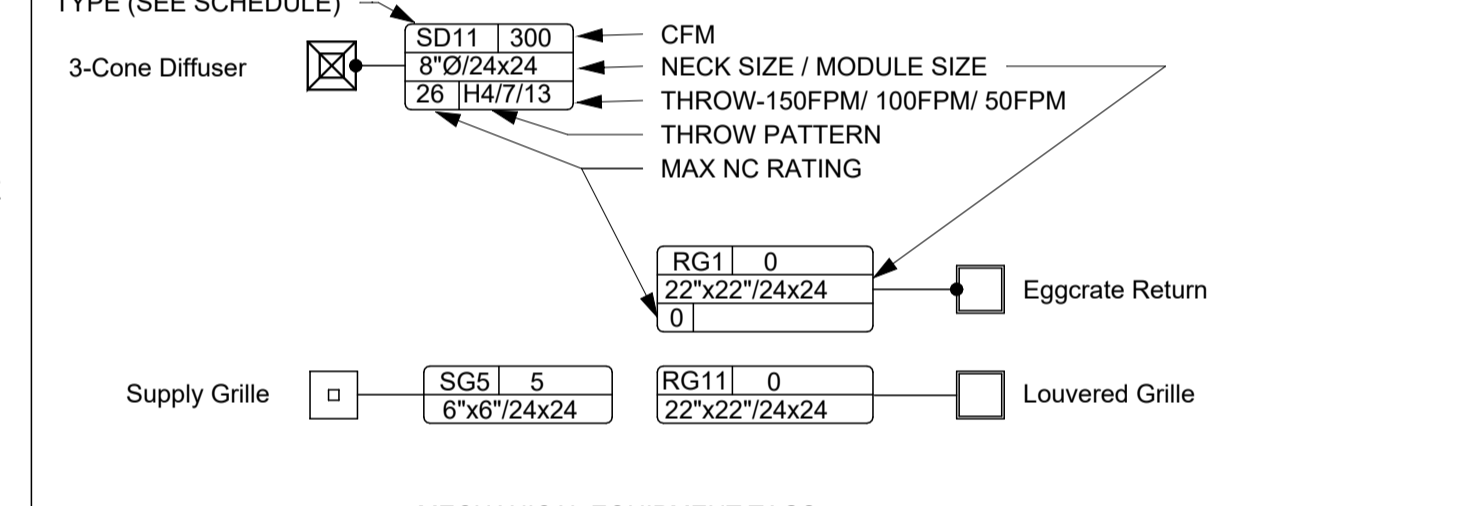
NOTE
ALL OF GENERAL NOTES ON THIS SHEET ARE TO BE APPLIED TO ALL OTHER DRAWINGS IN THIS SET. THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE USED IN THIS SET OF DRAWINGS.

HVAC SYMBOLS

	SQUARE DUCT SIZE TAG (WIDTH x HEIGHT)
	OVAL DUCT SIZE TAG (WIDTH / HEIGHT)
	ROUND DUCT SIZE TAG (DIAMETER)
	EXISTING DUCT TAG
	DUCT BEING DEMOLISHED
	SUPPLY AIR
	CONDITIONED OUTSIDE AIR
	OUTSIDE AIR
	RETURN AIR
	TRANSFER AIR
	EXHAUST AIR
	RELIEF AIR
	GREASE EXHAUST AIR
	CONDENSATE EXHAUST AIR
	SMOKE EXHAUST AIR
	EXHAUST GAS FLUE
	COMBUSTION AIR

DUCT RISE SYMBOLS

	RECTANGULAR SUPPLY/OUTSIDE AIR DUCT RISE
	ROUND SUPPLY/OUTSIDE AIR DUCT RISE
	RECTANGULAR RETURN/TRANSFER AIR DUCT RISE
	ROUND RETURN/TRANSFER AIR DUCT RISE
	RECTANGULAR EXHAUST/RELIEF AIR DUCT RISE
	ROUND EXHAUST/RELIEF AIR DUCT RISE

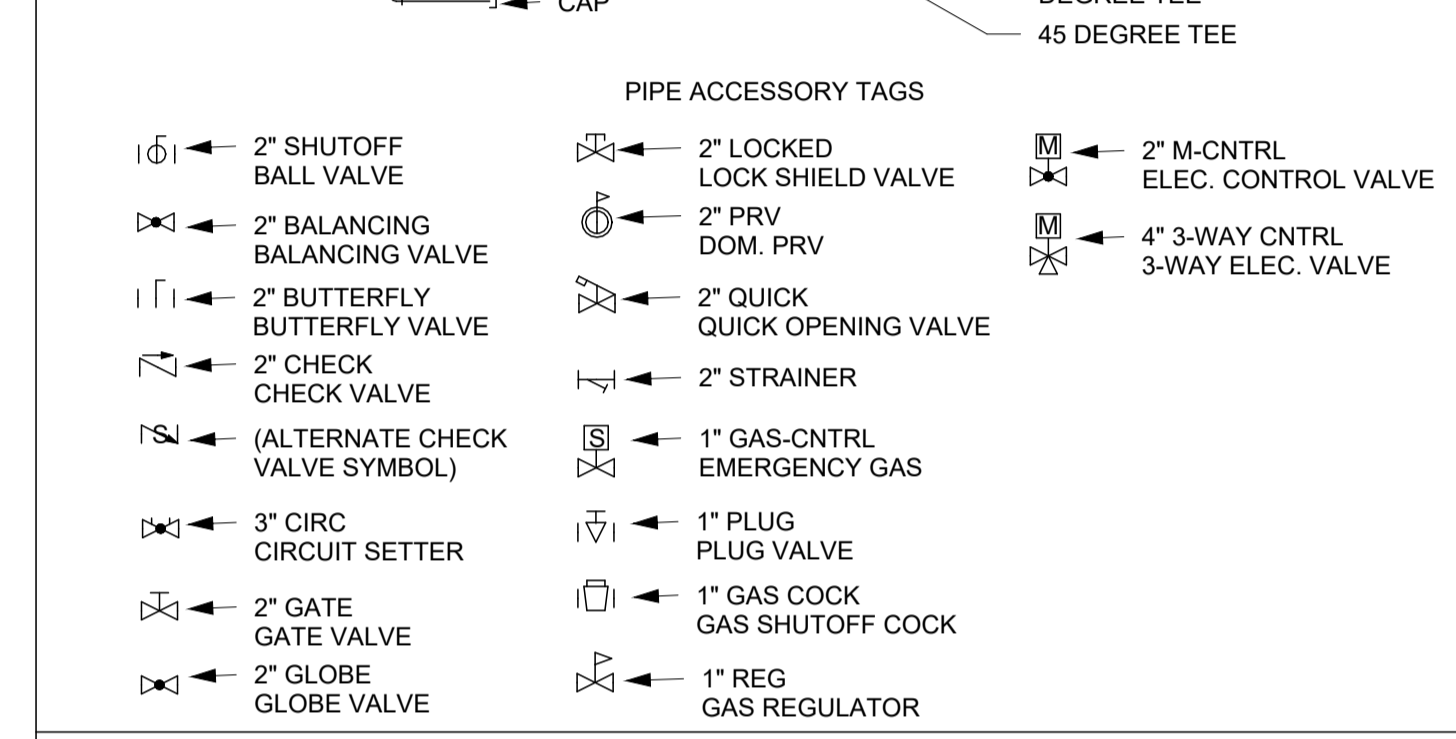


DAMPER TAGS

	Smoke Damper
	Fire Damper
	Comb. Fire/Smoke Damper
	Manual Damper
	Motorized Damper
	Backdraft Damper

PIPING SYMBOLS

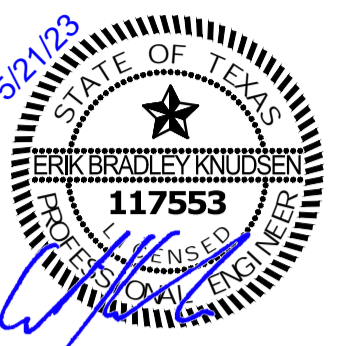
	CHILLED WATER RETURN
	CHILLED WATER SUPPLY
	CONDENSATE DRAINAGE
	CONDENSER WATER RETURN
	CONDENSER WATER SUPPLY
	GEO THERMAL WATER RETURN
	GEO THERMAL WATER SUPPLY
	HEATING WATER RETURN
	HEATING WATER SUPPLY
	NATURAL GAS
	PROPANE GAS
	REFRIGERANT-LIQUID
	REFRIGERANT-SUCTION
	REFRIGERANT-HOT GAS
	STEAM
	CONDENSATE RETURN



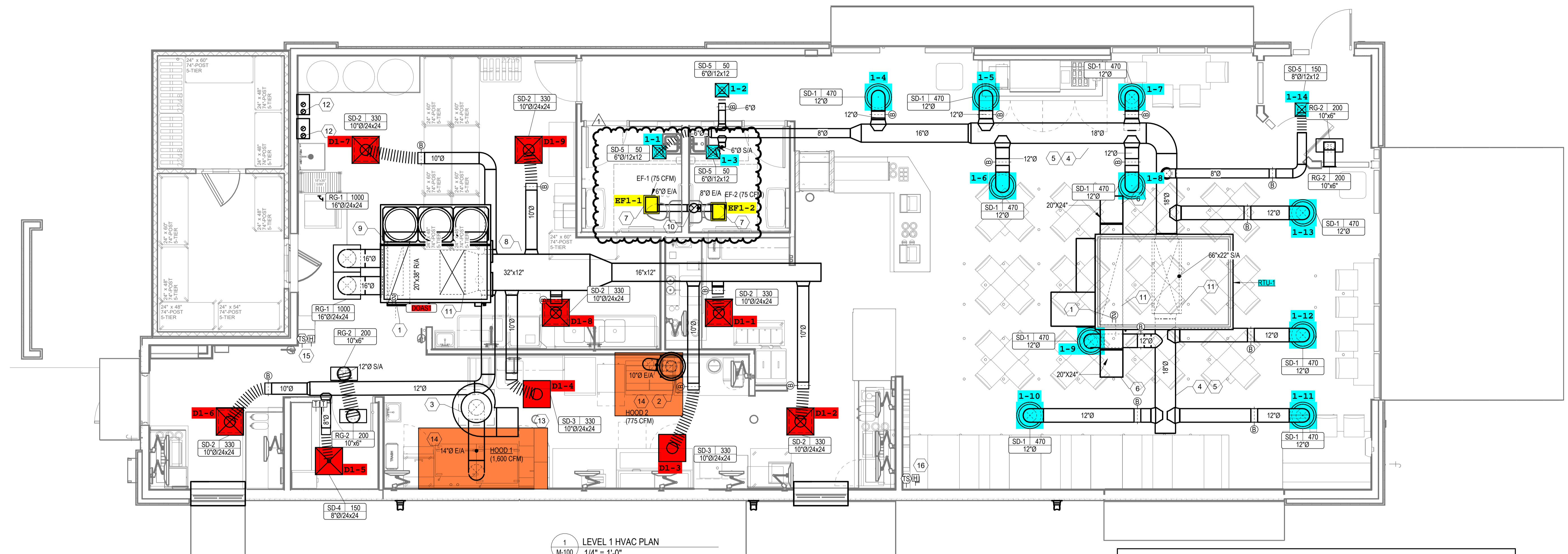
BC PROJECT # 23860
TEXAS PE COA #F-15878

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

OUTDOOR AIR CALCULATIONS

UNIT	Area (sqft)	OCCUPANCY CLASSIFICATION	Occupant Density #/1000 sqft	People outdoor airflow rate in breathing zone, (Rp) cfm/person	Area outdoor airflow rate in breathing zone, (Ra) cfm/sqft	Exhaust airflow rate cfm/sqft	Breathing zone outdoor airflow (Vbz)	Zone air distribution effectiveness (Ez)	Zone outdoor airflow (cfm)
RTU-1	890	Dining rooms	70	7.5	0.18		627	0.8	784
	360	Corridors	0	0	0.06		22	0.8	27
Total									811

AIR BALANCE SCHEDULE

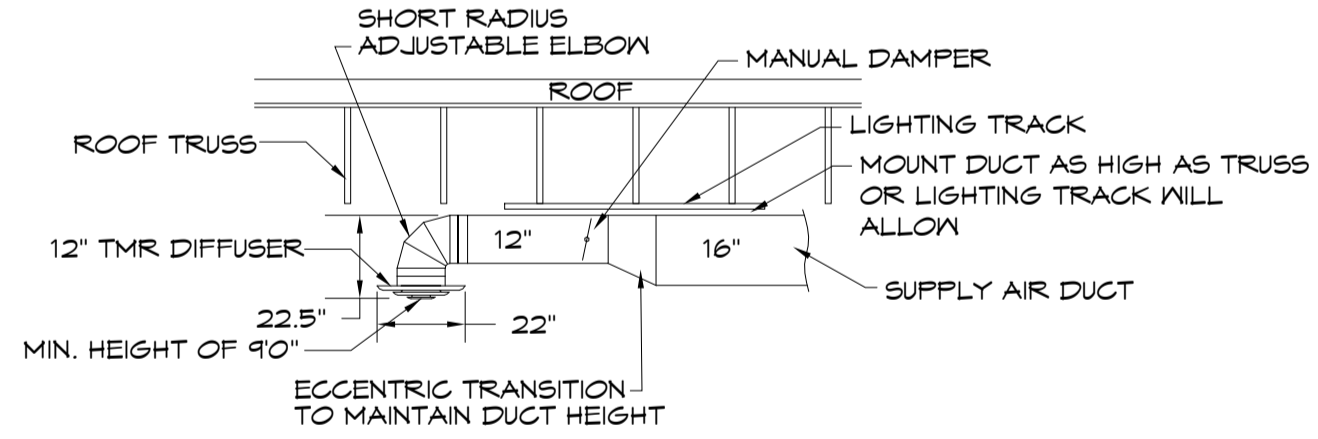
SUPPLY AIR UNIT	OUTSIDE AIRFLOW (CFM)	RETURN AIRFLOW (CFM)	SUPPLY AIRFLOW (CFM)	OA/SA %	EXHAUST AIR UNIT	EXHAUST AIRFLOW (CFM)
RTU-1	811	4,189	5,000	19.6%	KEF-1	1600
DOAS-1	2,300	0	2,300	100.0%	KEF-2	775
					EF-1, EF-2	150
TOTAL	3,111	4,189	7,300	42.6%	TOTAL	2,525
RESULTING BUILDING PRESSURIZATION						586 CFM

THE BUILDING HVAC SYSTEM SHALL BE BALANCED BY NATIONAL TAB HIRED BY THE OWNER. CONTACT Dan Hertenstein - National TAB at: 816-215-1549 - 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.



2 DINING ROOM DIFFUSER DETAIL
NO SCALE

MECHANICAL KEYNOTES

- LOCATION OF FACTORY DUCT MOUNTED SMOKE DETECTOR IN RETURN OF RTU. PROVIDE REMOTE ENUNCIATOR AUDIOVISUAL. VERIFY LOCATION WITH FIRE MARSHAL PRIOR TO INSTALLATION. REFER TO SPEC SHEET MP0 FOR ADDITIONAL INFORMATION.
- 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 AND ACCESS DOORS AS DETAILED AND PER THE MANUFACTURERS REQUIREMENTS FOR 0" CLEARANCE TO COMBUSTIBLES. REFER TO ROOF PLAN M-101 FOR CONTINUATION.
- COORDINATE DUCT ROUTING WITH LIGHTING. REFER TO SHEET E200.
- 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 9" CLEARANCE TO DECK.
- SUPPORT EXHAUST FAN FROM STRUCTURE AS REQUIRED BY THE MANUFACTURER.
- COORDINATE WITH STRUCTURAL TO BLOCK OUT JOISTS AS REQUIRED TO RUN DUCT THROUGH THE STRUCTURE. RETURN DUCT TO BE ROUTED THROUGH JOISTS, AS HIGH AS STRUCTURE WILL ALLOW.
- ROUTE 8" EXHAUST DUCT UP THROUGH ROOF TO CAP. MAINTAIN 10'-0" CLEARANCE TO ALL OUTDOOR AIR INTAKES. SEAL PENETRATION WEATHERTIGHT.
- TRANSITION AND CONNECT DUCTWORK TO DUCT DROP WITH FLEXIBLE CONNECTION. COORDINATE WITH STRUCTURAL PLAN AND OFFSET DUCTWORK AS NECESSARY TO FIT BETWEEN JOISTS. REFER TO ROOF PLAN M-101 FOR CONTINUATION.
- PROVIDE 3" PVC FLUE AND COMBUSTION AIR INTAKE PIPE FOR HOT WATER HEATER THROUGH ROOF. PROVIDE MANUFACTURERS TERMINATION KIT. SEAL PENETRATION WEATHERTIGHT. VERIFY 10'-0" CLEARANCE FROM ALL OUTDOOR AIR INTAKES.
- HOOD SHALL BE PROVIDED WITH FACTORY PRE-WIRE PACKAGE AND A PRE-ENGINEERED UL-300 FIRE SUPPRESSION SYSTEM. SEE HOOD DRAWINGS FOR DETAILS.
- EXHAUST HOOD PROVIDED BY OTHERS. INSTALLED BY THIS CONTRACTOR PER THE MANUFACTURERS INSTRUCTIONS.
- LOCATION OF DOAS TEMPERATURE SENSOR AND HUMIDISTAT MOUNTED AT 7' AFF.
- LOCATION OF REMOTE TEMPERATURE AND HUMIDITY SENSOR FOR RTU. INSTALL AT 9' AFF.

BC PROJECT # 23860
TEXAS PE COA #F-15878

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a new restaurant for:
Freddy's

**N East End Blvd - Lowes Outparcel
Marshall, TX 75670**

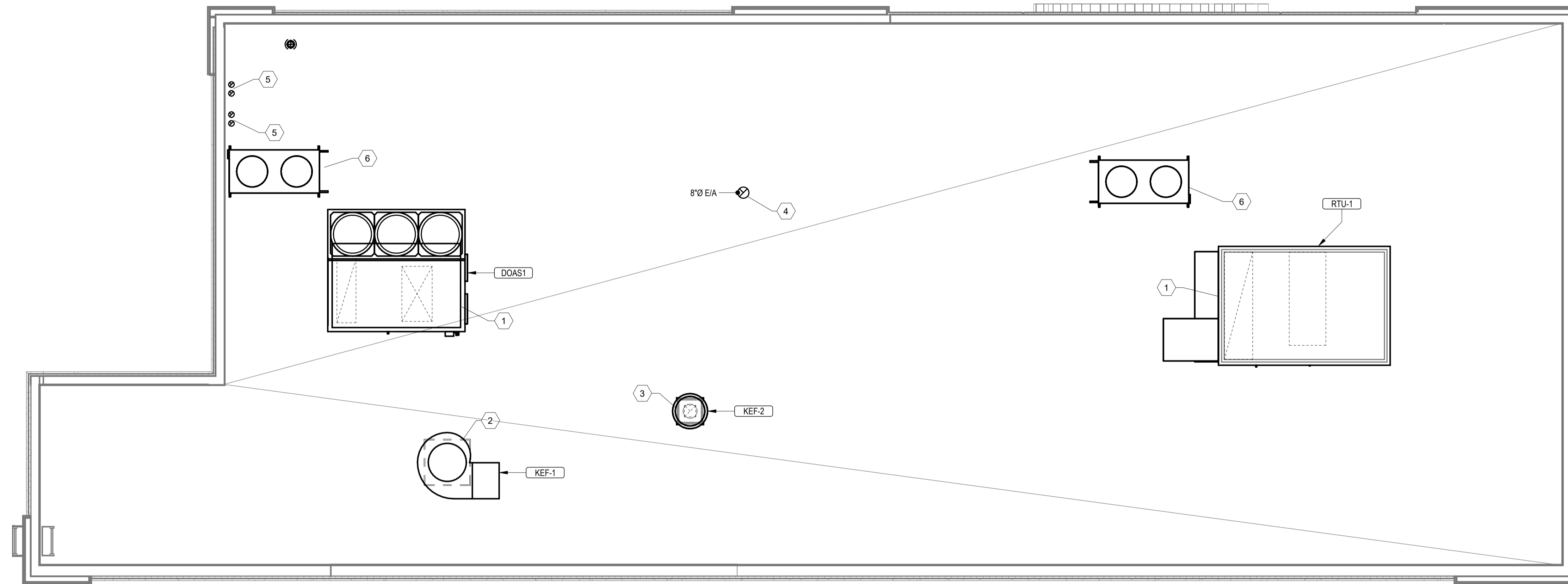
date
01.24.2024
drawn by
Author
checked by
Checker
revisions
5/22/24

sheet number
M-100

drawing type
preliminary
project number
23006-08



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1 MECHANICAL ROOF PLAN
M-101 1/4" = 1'-0"

MECHANICAL KEYNOTES	
1	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.
2	PROVIDE TYPE I EXHAUST FAN IN LOCATION AS SHOWN ON PLANS. CONNECT 10" DIAMETER EXHAUST DUCT FROM EXHAUST HOOD UP TO KEF-1 ON ROOF. COORDINATE EXHAUST DUCT ROUTING WITH STRUCTURAL TRUSS LAYOUT.
3	PROVIDE TYPE I EXHAUST FAN IN LOCATION AS SHOWN ON PLANS. CONNECT 8" DIAMETER EXHAUST DUCT FROM EXHAUST HOOD UP TO KEF-2 ON ROOF. COORDINATE EXHAUST DUCT ROUTING WITH STRUCTURAL TRUSS LAYOUT.
4	8" EXHAUST DUCT ROUTED TO ROOF CAP AS REQUIRED.
5	PROVIDE MANUFACTURER'S CONCENTRIC TERMINATION VENT KIT SERVING HOT WATER HEATER BELOW. INSTALL IN STRICT ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS. ENSURE AT LEAST 10'-0" DISTANCE BETWEEN OUTDOOR AIR INTAKES.
6	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.

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date
01.24.2024
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Author
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revisions

sheet number
M-101

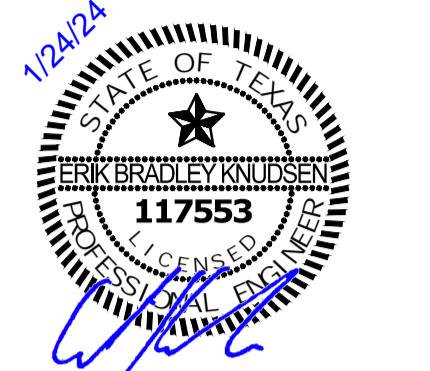
drawing type
preliminary
project number
23006-08

BC PROJECT # 23860
TEXAS PE COA #F-15970

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ROOFTOP UNIT SCHEDULE																								
MARK	MANUFACTURER	MODEL NO.	NOM TONS	EVAP CFM	EXT. STATIC P. IN. WG.	COOLING				HEATING (GAS)			ELECTRICAL				TOTAL WEIGHT (LBS)	NOTES						
						COOLING STAGES	TOTAL	SENSIBLE	AMB	EVAP. EAT DB/WB	HOT GAS REHEAT	INPUT	OUTPUT	HEATING STAGES	VOLT/PH/Hz	BLOWER MOTOR			POWER EXHAUST	MCA	MCCP	SUPPLY FAN TYPE	MINIMUM OUTDOOR AIR	IEER
RTU-1	Trane	YSJ-150--	12.5	5000 CFM	1.000	3	149000 Btu/h	105000 Btu/h	105.0 °F	80.0 °F / 67.0 °F	Yes	250000 Btu/h	202500 Btu/h	3	208 V / 3 / 60 Hz	3.00 hp	Yes	65.0 A	90.0 A	VFD	811 CFM	14	2046 lb	1-8

ALTERNATE ROOFTOP UNIT MANUFACTURER																								
MARK	MANUFACTURER	MODEL NO.	NOM TONS	EVAP CFM	EXT. STATIC P. IN. WG.	COOLING				HEATING (GAS)			ELECTRICAL				TOTAL WEIGHT (LBS)	NOTES						
						COOLING STAGES	TOTAL	SENSIBLE	AMB	EVAP. EAT DB/WB	HOT GAS REHEAT	INPUT	OUTPUT	HEATING STAGES	VOLT/PH/Hz	BLOWER MOTOR			POWER EXHAUST	MCA	MCCP	SUPPLY FAN TYPE	MINIMUM OUTDOOR AIR	IEER
RTU-1	Carrier	48HCFE14	12.5	5000 CFM	1.000	2	154800 Btu/h	116100 Btu/h	105.0 °F	80.0 °F / 67.0 °F	Yes	240000 Btu/h	192000 Btu/h	2	208 V / 3 / 60 Hz	5.00 hp	Yes	71.0 A	90.0 A	VFD	811 CFM	13.5	1363 lb	1-8
RTU-1	YORK	ZJ15024D	12.5	5000 CFM	1.000	2	154800 Btu/h	116100 Btu/h	105.0 °F	80.0 °F / 67.0 °F	Yes	240000 Btu/h	192000 Btu/h	2	208 V / 3 / 60 Hz	5.00 hp	Yes	71.0 A	90.0 A	VFD	811 CFM	13.5	1363 lb	1-8

- NOTES:**
- PROVIDE DIGITAL CONTROLS, HIGH PERFORMANCE WITH FDD OUTDOOR AIR ECONOMIZER WITH DRY BULB CONTROL, SINGLE ZONE VAV (MSAV), BAROMETRIC RELIEF DAMPER, TIME DELAY ON COMPRESSOR RE-START, CRANKCASE HEATER, BAROMETRIC RELIEF DAMPER, DRAIN PAN OVERFLOW SWITCH, DISCHARGE AIR TEMPERATURE SENSING, HINGED ACCESS DOORS, AND STANDARD COOLING DOWN TO 0°F FOR EACH UNIT. OUTDOOR AIR DAMPER TO FULLY CLOSE W/ FAN SHUTDOWN FOR ALL UNITS.
 - EXTERNAL STATIC PRESSURE LISTED REPRESENTS STATIC PRESSURE REQUIRED FOR DUCTWORK AND DIFFUSERS OUTSIDE THE HVAC UNIT COMPLETELY INDEPENDENT OF ANY PRESSURE DROP THROUGH THE HVAC EQUIPMENT INCLUDING BUT NOT LIMITED TO FILTERS, COILS AND ECONOMIZERS. THE FAN AND MOTOR SHALL BE SIZED APPROPRIATELY TO MEET THIS DEFINITION OF EXTERNAL STATIC PRESSURE.
 - PROVIDE COMMERCIAL 7-DAY PROGRAMMABLE HEAT/COOL/AUTO CHANGEOVER THERMOSTAT WITH ECONOMIZER OUTPUT AND REMOTE, TEMPERATURE AND HUMIDITY SENSOR FOR EACH UNIT (HONEYWELL VISION PRO 8000 OR EQUAL), ECONOMIZER/OUTDOOR AIR DAMPER IS TO CLOSE DURING UNOCCUPIED HOURS.
 - PROVIDE 14" HIGH (AT LOWEST POINT) PRE-FABRICATED INSULATED ROOF CURB.
 - PROVIDE HAIL GUARDS FOR EACH UNIT.
 - PROVIDE FACTORY INSTALLED UNIT MOUNTED CIRCUIT BREAKERS.
 - MECHANICAL CONTRACTOR SHOULD PROVIDE ALL NEW FILTERS ON DAY OF TURNOVER.
 - PROVIDE HOT GAS REHEAT FOR HUMIDITY CONTROL AND ALL ASSOCIATED ACCESSORY COMPONENTS.

NATIONAL ACCOUNT INFORMATION

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

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

FOR CARRIER EQUIPMENT CONTACT:
TERRI BURNS, ACCOUNT ORDER MANAGER, (915) 432-3653
nationalaccounts@carrier.com

FOR YORK EQUIPMENT CONTACT:
DAVID WALMSEY, ACCOUNT ORDER MANAGER, (774)-578-5125
david.walmsey@jcl.com

FAN SCHEDULE

ID	LOCATION	MANUFACTURER	MODEL NO.	TYPE	FAN				VOLT	PH	REMARKS		
					DESIGN AIRFLOW	ESP	DRIVE TYPE	POWER				RPM	ECM
EF-1	Ceiling	Greenheck	SP-A200-390	Premium (Constant Cfm)	75 CFM	0.250	Direct	0.08 hp	900	Yes	0 V	1	SEE NOTE 1.
EF-2	Ceiling	Greenheck	SP-A200-390	Premium (Constant Cfm)	75 CFM	0.250	Direct	0.08 hp	900	Yes	0 V	1	SEE NOTE 1.

NOTES: 1. PROVIDE CEILING GRILLE, INTEGRAL BACKDRAFT DAMPER, AND ROOF CAP.

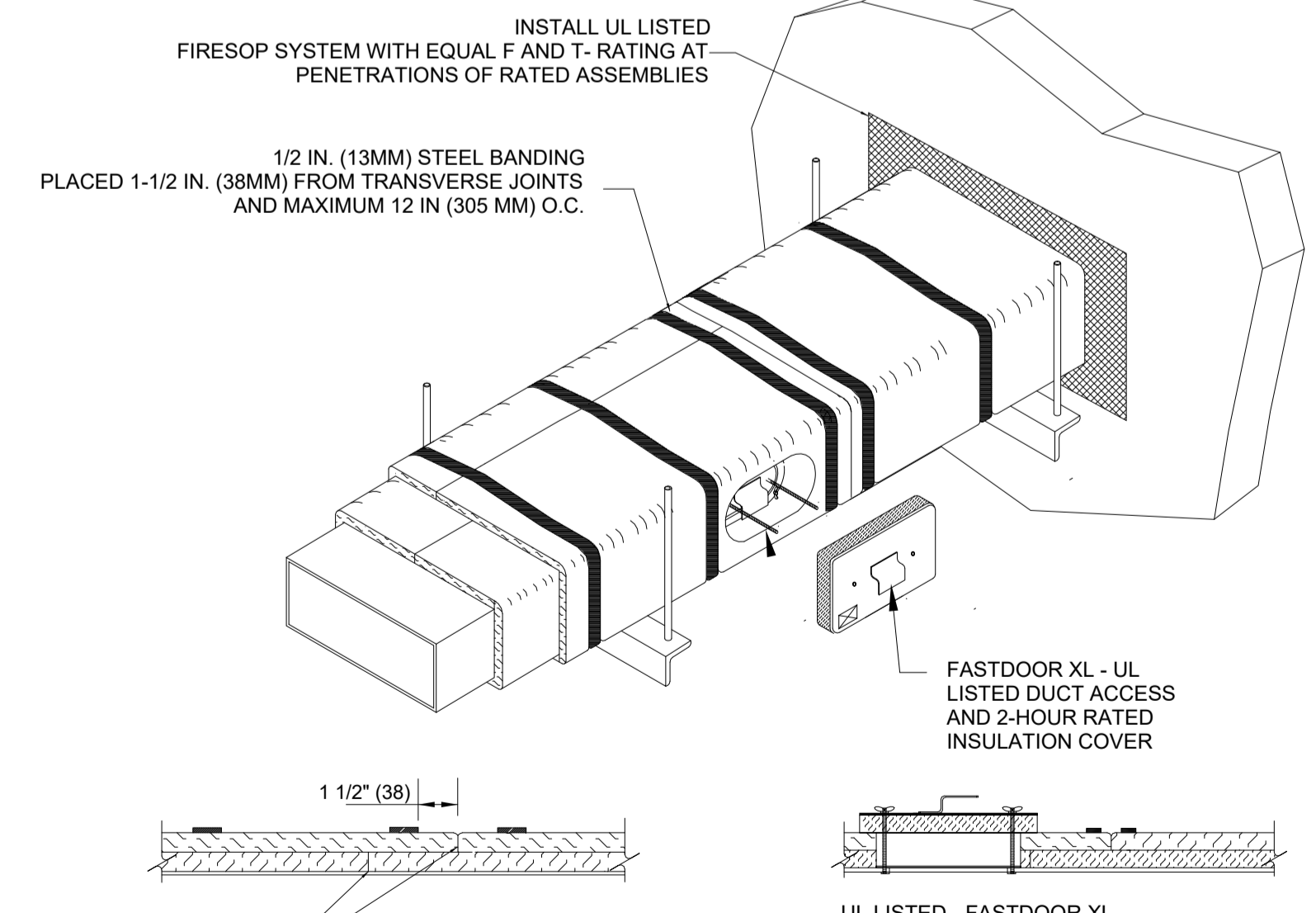
GRILLES, REGISTERS AND DIFFUSERS SCHEDULE

ID	MANUFACTURER	MODEL	MATERIAL	FINISH	NECK			NOTES
					SIZE	WIDTH	HEIGHT	
RG-1	AMER LOUVER CO	STRATUS	Aluminum	White Enamel	16"	0"	0"	SEE NOTE 1.
RG-2	Titus	350RL	Steel	White Enamel	0"	10"	6"	
RG-2	Titus	350RL	Steel	White Enamel	0"	10"	6"	
SD-1	Titus	TMR	Steel	White Enamel	12"	0"	0"	FIELD PREP FOR PAINTING
SD-2	Titus	TMS-AA	Aluminum	WHITE ENAMEL	10"	0"	0"	
SD-3	Titus	PAR	Steel	White Enamel	10"	0"	0"	RETURN - NO DEFLECTOR
SD-4	Titus	T350-4	Steel	WHITE ENAMEL	8"	0"	0"	THERMAL VAV DIFFUSER
SD-5	Titus	TMS	Steel	White Enamel	<varies>	0"	0"	WITH O.B. DAMPER AND TRM KIT

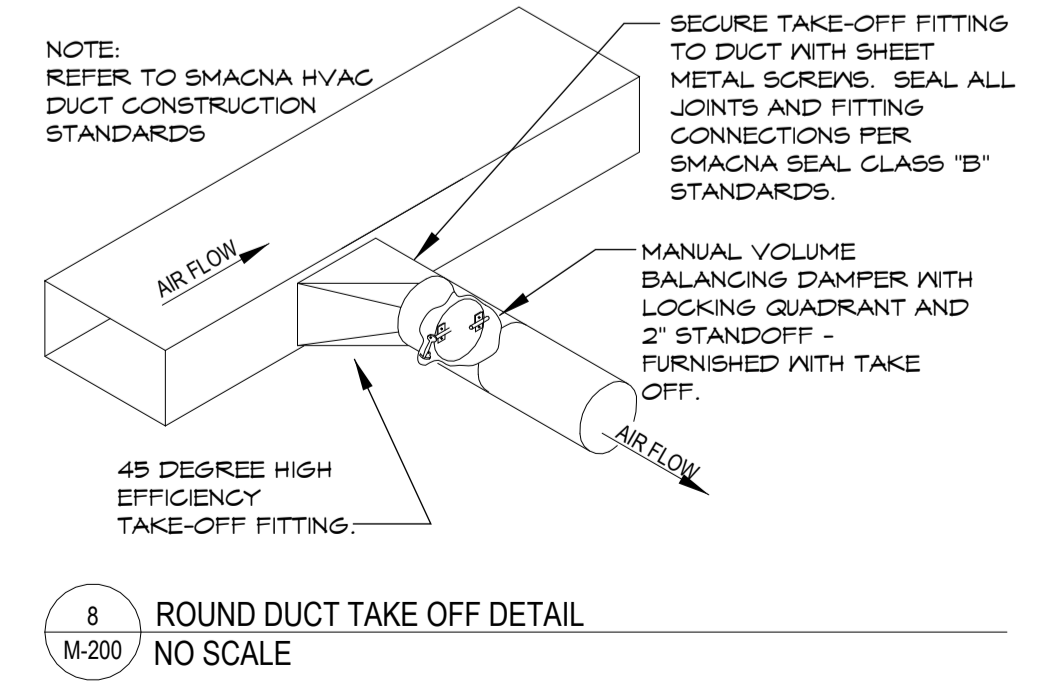
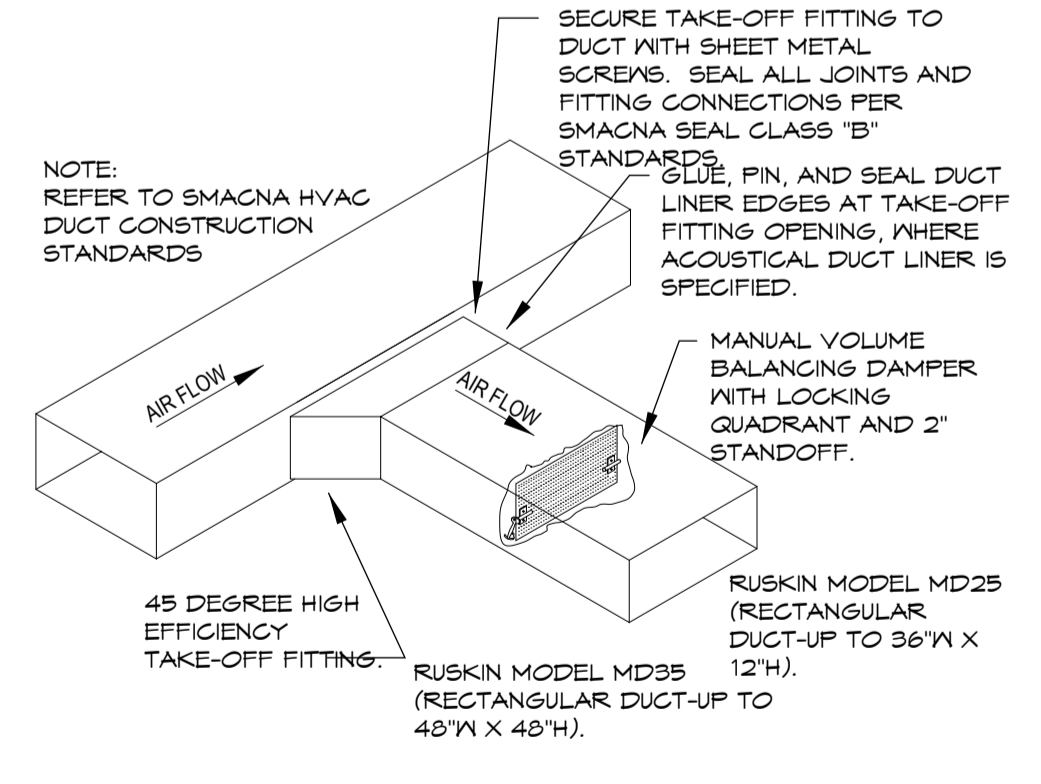
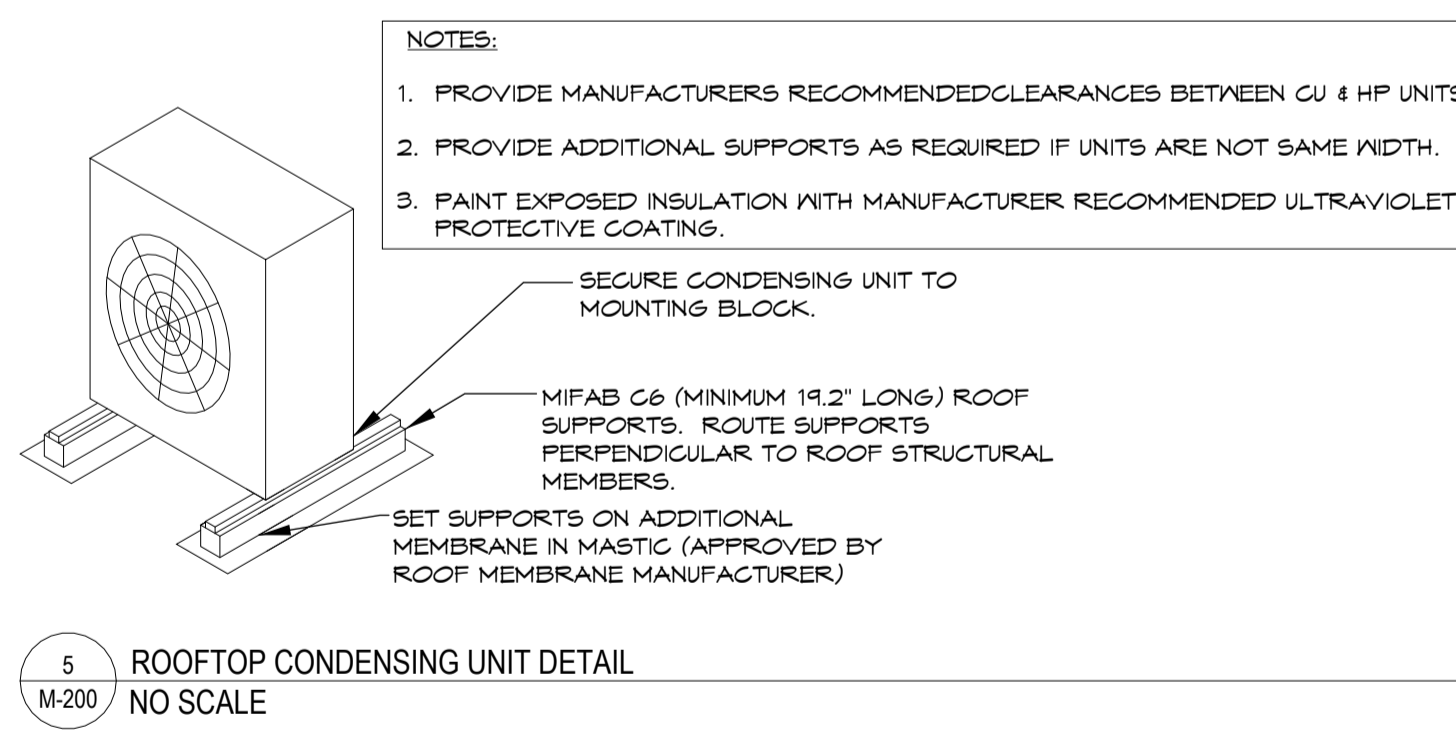
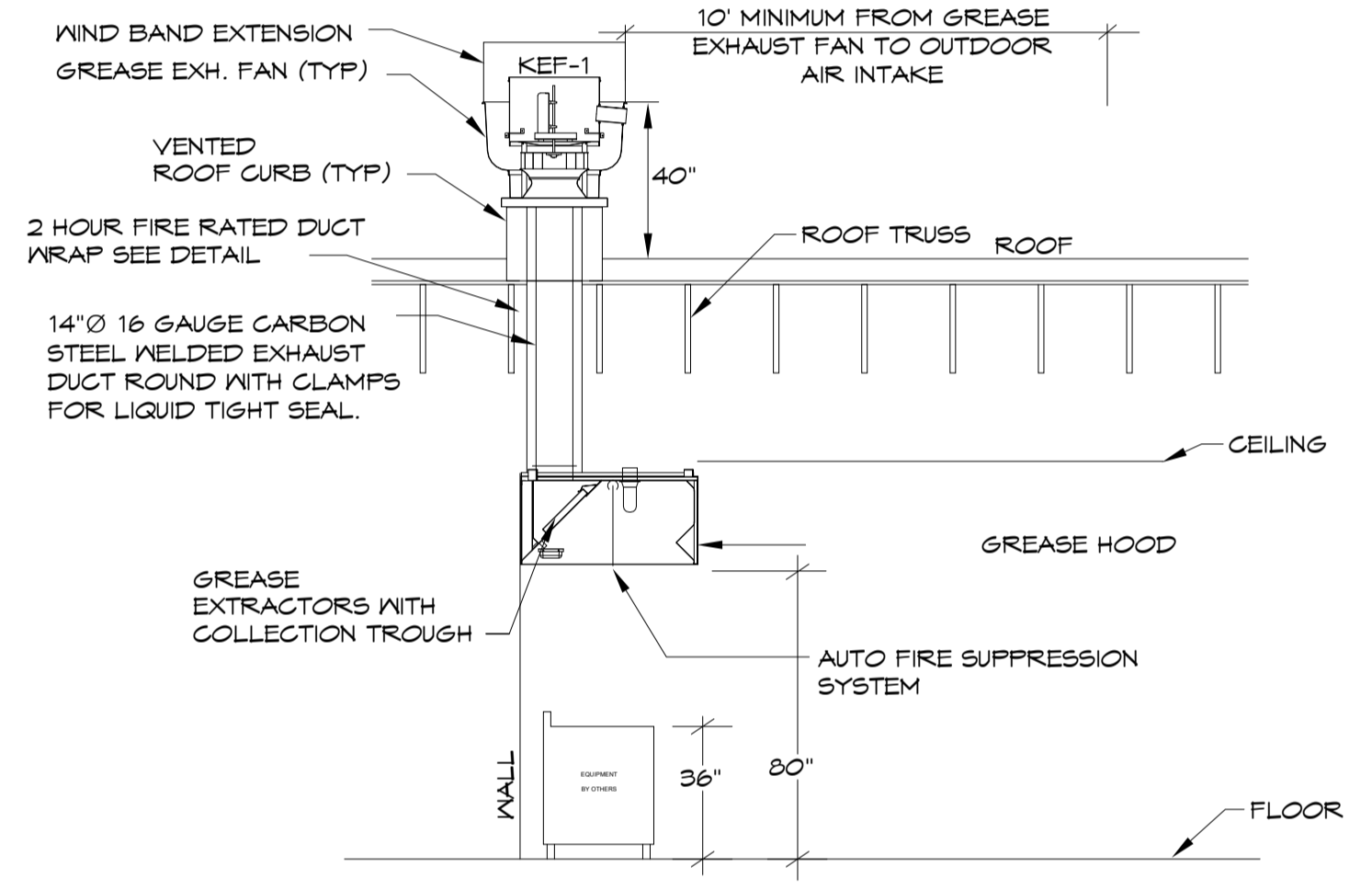
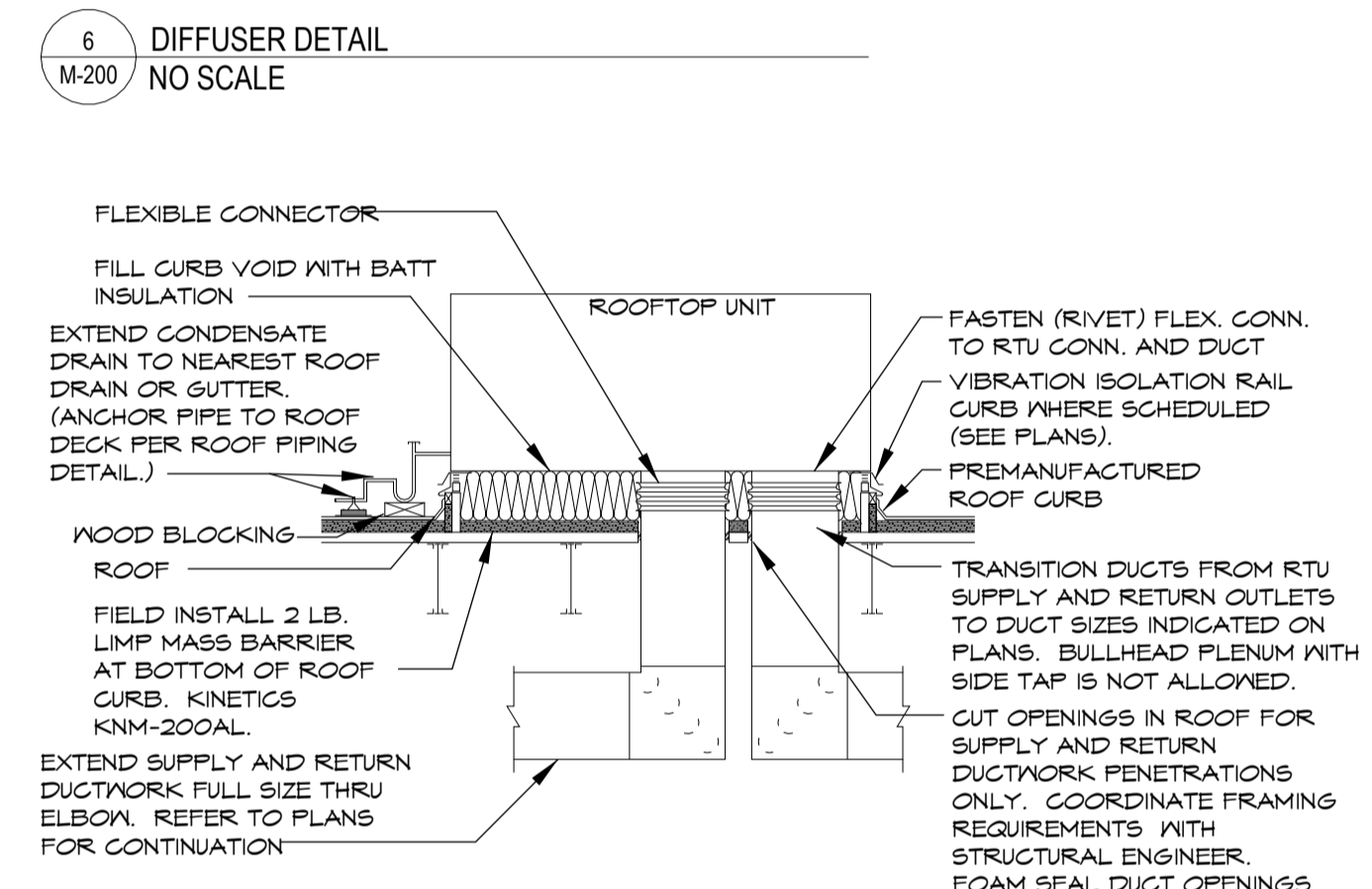
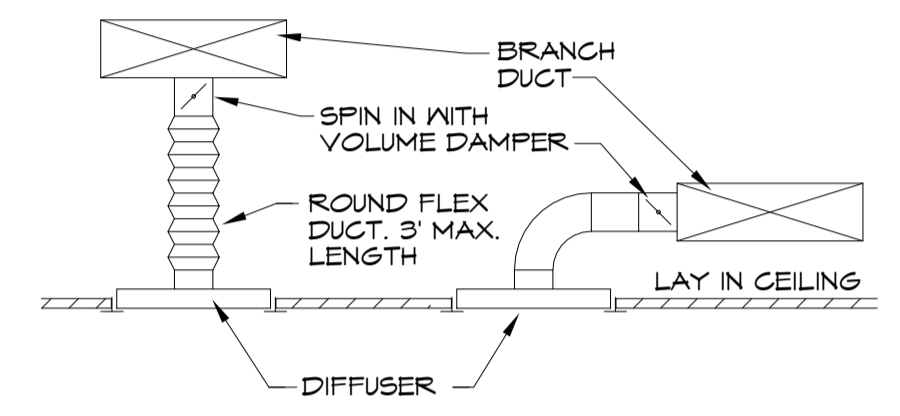
NOTES: 1. RETURN GRILLE TO BE PLASTIC FILTER RETURN, FILTER TO BE AMERICAN AIR FILTER (AAF) FRONTLINE GREEN 1", WITH AAF AMERIFRAME SIZE 20X20X1.

FIRE RATED ENCLOSURE - GREASE DUCTS

- THERMAL CERAMICS FIREMASTER FASTWRAP XL IS TESTED TO ASTM E2336 AND UL LISTED PER HNK1.G18 TO PROVIDE ZERO CLEARANCE TO COMBUSTIBLES AND TO PROVIDE A 1- OR 2- HOUR ENCLOSURE. THROUGH PENETRATIONS FIRESTOP SYSTEMS ARE TESTED IN ACCORDANCE WITH ASTM E 814 (UL 1479). ICC-ES APPROVAL PER REPORT ESR 2213 OR ESR 2832.
- COMPLIANT TO THE FOLLOWING CODES:
NFPA 96
INTERNATIONAL MECHANICAL CODES
UNIFORM MECHANICAL CODE
CALIFORNIA MECHANICAL CODE
- INSULATION APPLIED IN TWO LAYERS WITH TIGHT COMPRESSION JOINT ON BOTH LAYERS AT ALL JOINTS.
- MINIMUM 16 GAUGE CARBON STEEL (OR 18 GAGE STAINLESS STEEL) RECTANGULAR OR ROUND GREASE EXHAUST DUCT
- INSTALL UL LISTED AND LIQUID TIGHT THERMAL CERAMICS FASTDOOR XL ACCESS DOORS AT ALL CHANGES IN DIRECTION AND AT MINIMUM EVERY 20 FT ON HORIZONTAL RUNS.
- SUPPORT HANGER SYSTEMS DO NOT NEED TO BE WRAPPED PROVIDED THE HANGER RODS ARE MINIMUM OF 3/8 IN. DIAMETER AND SUPPORTS ARE MINIMUM 2 X 2 X 1/8 IN. STEEL ANGLE OR SMACNA EQUIVALENT SUPPORT SYSTEM.
- THERMAL CERAMICS DUCT WRAP SHALL BE INSTALLED DIRECTLY ONTO THE DUCT AND APPLIED FROM THE HOOD CONNECTION TO THE CONNECTION TO THE FAN.
- THERMAL CERAMICS DUCT ENCLOSURE SYSTEM SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS AND UL LISTINGS.



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



BC PROJECT # 23860
TEXAS PE COA #F-15978

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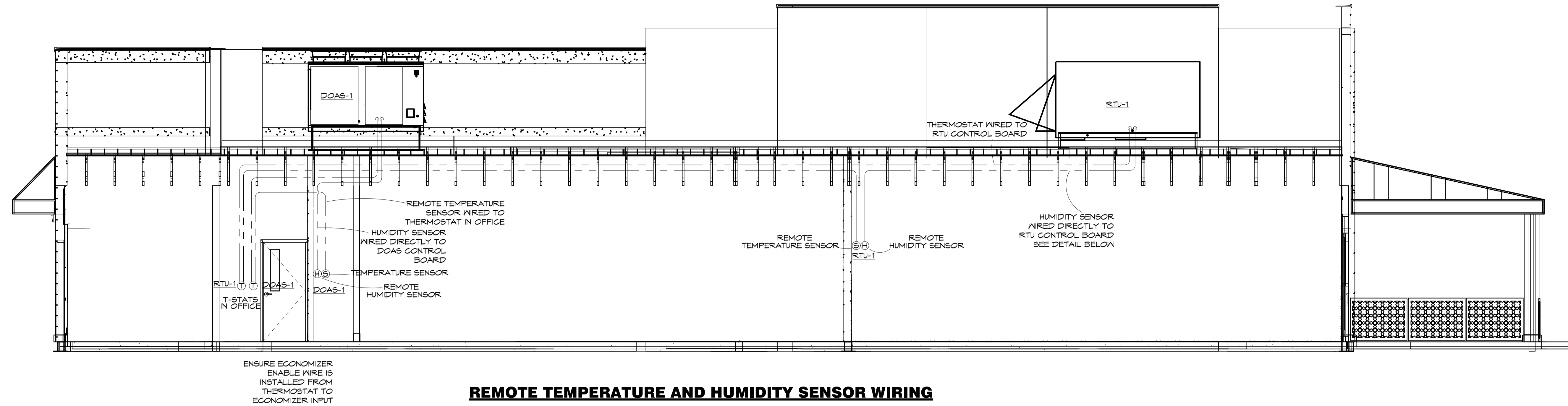
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5720 Reeder Shawnee, KS 66203 (913)262-1772

a new restaurant for:
Freddy's
N East End Blvd - Lowes Outparcel
Marshall, TX 75670

date
01.24.2024
drawn by
Author
checked by
Checker
revisions

sheet number
M-200

drawing type
preliminary
project number
23006-08



REMOTE TEMPERATURE AND HUMIDITY SENSOR WIRING

ALL LOW VOLTAGE WIRING FOR THE HVAC SYSTEM IS TO BE PROVIDED AND INSTALLED BY THE HVAC CONTRACTOR.

Installation

DC Conductors

Table 11. Zone sensor module wiring

Distance from Unit to Control	Recommended Wire Size
0 - 150 feet	22 gauge
0 - 45.7 m	0.33 mm ²
151 - 240 feet	20 gauge
46 - 73.1 m	0.50 mm ²
241 - 385 feet	18 gauge
73.5 - 117.3 m	0.75 mm ²
386 - 610 feet	16 gauge
117.7 - 185.9 m	1.3 mm ²
611 - 970 feet	14 gauge
186.2 - 295.7 m	2.0 mm ²

Figure 58. Typical field wiring diagrams for electromechanical

ELECTRO MECHANICAL THERMOSTAT (GAS) / ELECTRIC UNITS

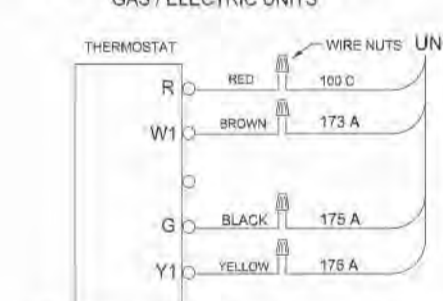
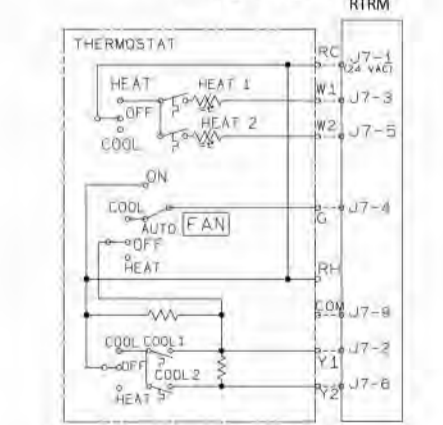


Figure 59. ReliaTel™ conventional thermostat field wiring diagrams^(a)



(a) Not compatible with VAV units.

Figure 60. ReliaTel™ options module (RTOM board)

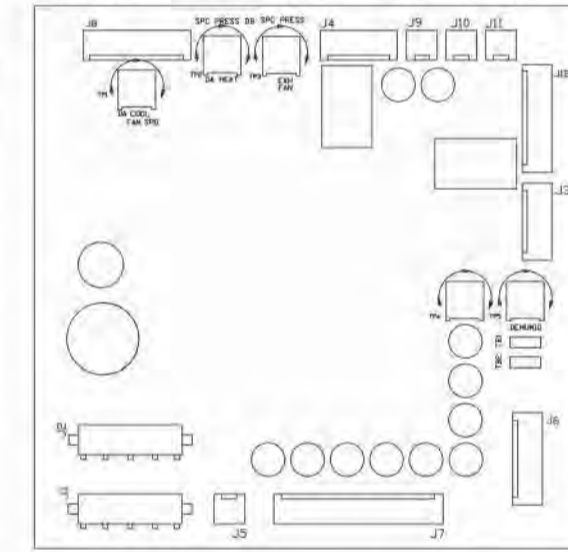


Figure 61. ReliaTel™ relative humidity sensor (dehumidification option)

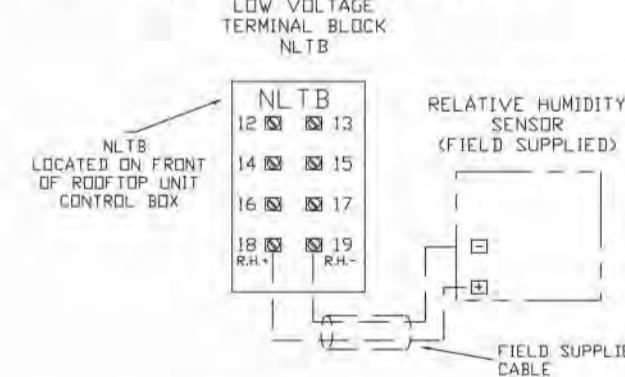
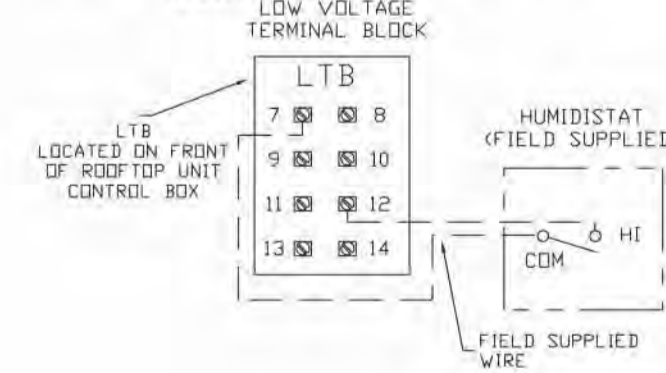


Figure 62. ReliaTel™ humidistat (dehumidification option)



TRANE HUMIDITY SENSOR WIRING

40

RT-SVX21YEN

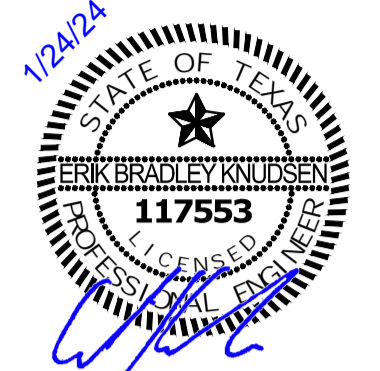
FOR GENERAL INFORMATION ONLY
REFER TO MANUFACTURER'S INSTALLATION INSTRUCTIONS
PROVIDED WITH THE EQUIPMENT FOR EXACT INSTALLATION INSTRUCTIONS AND REQUIREMENTS.

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TEXAS PE COA #F-15978

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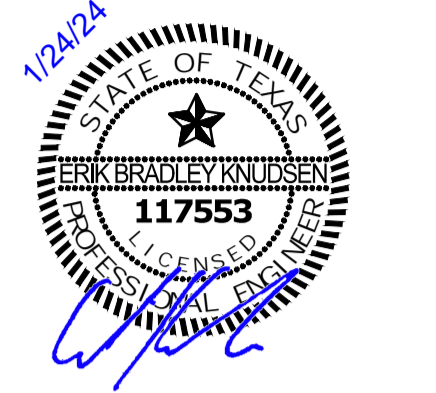
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Author
checked by
Checker
revisions

sheet number
M-201

drawing type
preliminary
project number
23006-08



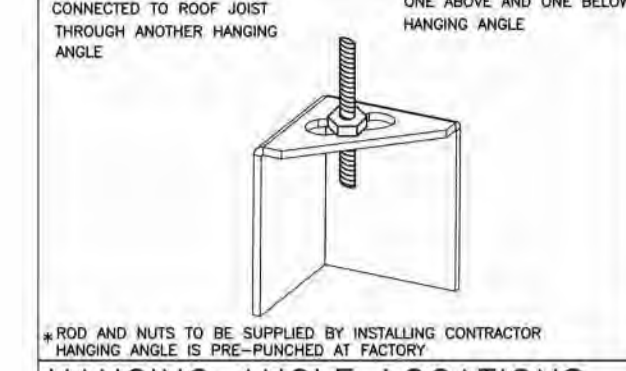
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SCALE: 1/2" = 1'-0"
MASTER DRAWING

sheet number
M-300
drawing type
preliminary
project number
23006-08

ND-2 HANGING ANGLE DETAIL



HANGING ANGLE LOCATIONS

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

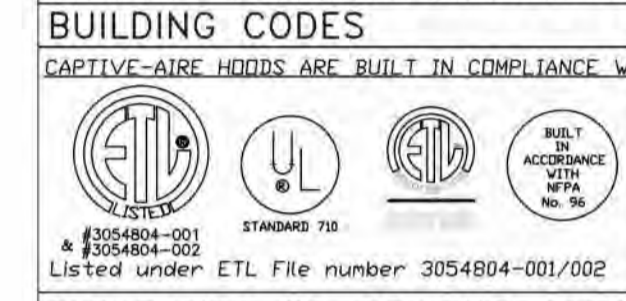
CALCULATIONS UTILIZED

EXHAUST CFM/LENGTH OF HOOD X CFM/LIN.FT. (0.045)
SUPPLY CFM=EXHAUST CFM X PERCENTAGE REQUIRED

DUCT AREA=144 X CFM
DUCT LENGTH= TOTAL DUCT AREA

DUCT DEPTH

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



GENERAL NOTES

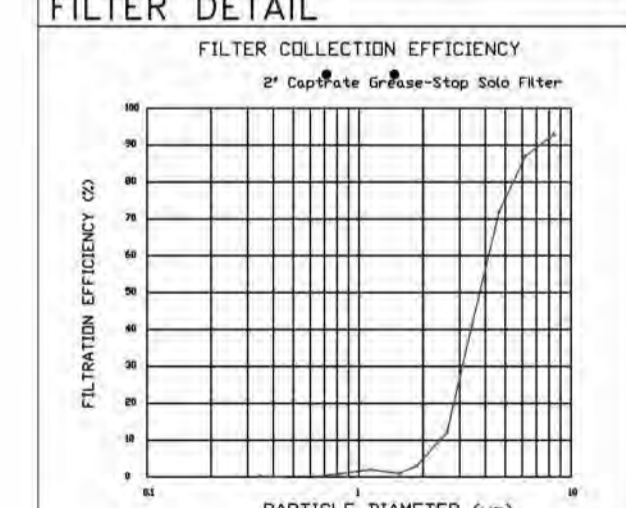
- ALL ELECTRICAL "FIELD" CONNECTIONS AND RELATED INTERCONNECTIONS BY ELECTRICAL CONTRACTORS.
- ALL PLUMBING "FIELD" CONNECTIONS AND RELATED INTERCONNECTIONS BY PLUMBING CONTRACTORS.
- HANGING BRACKETS LOCATED AND WELDED AS SHOWN ON PLANS. ALL OTHER HANGER MATERIALS PROVIDED BY INSTALLING CONTRACTORS.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

INSTALLATION

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

ADDITIONAL

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



FOR QUESTIONS, CALL THE:
KANSAS CITY REGIONAL OFFICE
1126 SWIFT STREET, KANSAS CITY, MO 64116
PHONE: (816) 221-8575
FAX: (816) 221-8511

CUSTOMER APPROVAL TO MANUFACTURE:

Approved as Noted
Approved with NO Exception Taken
Revise and Resubmit

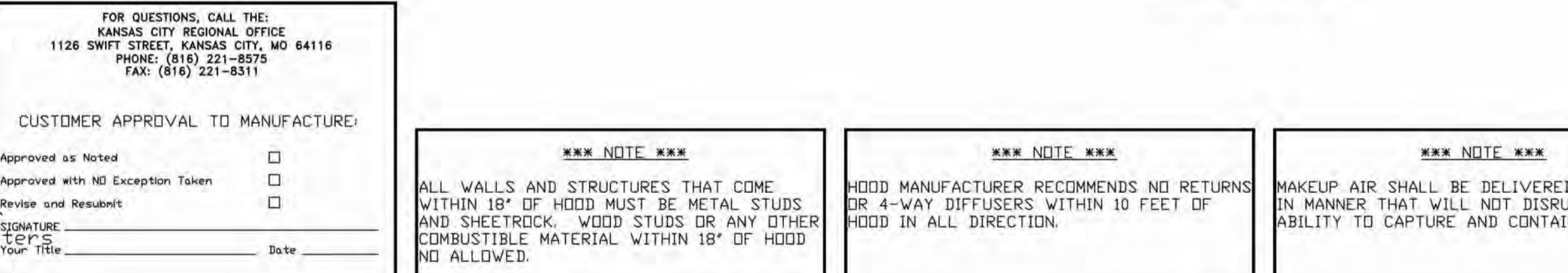
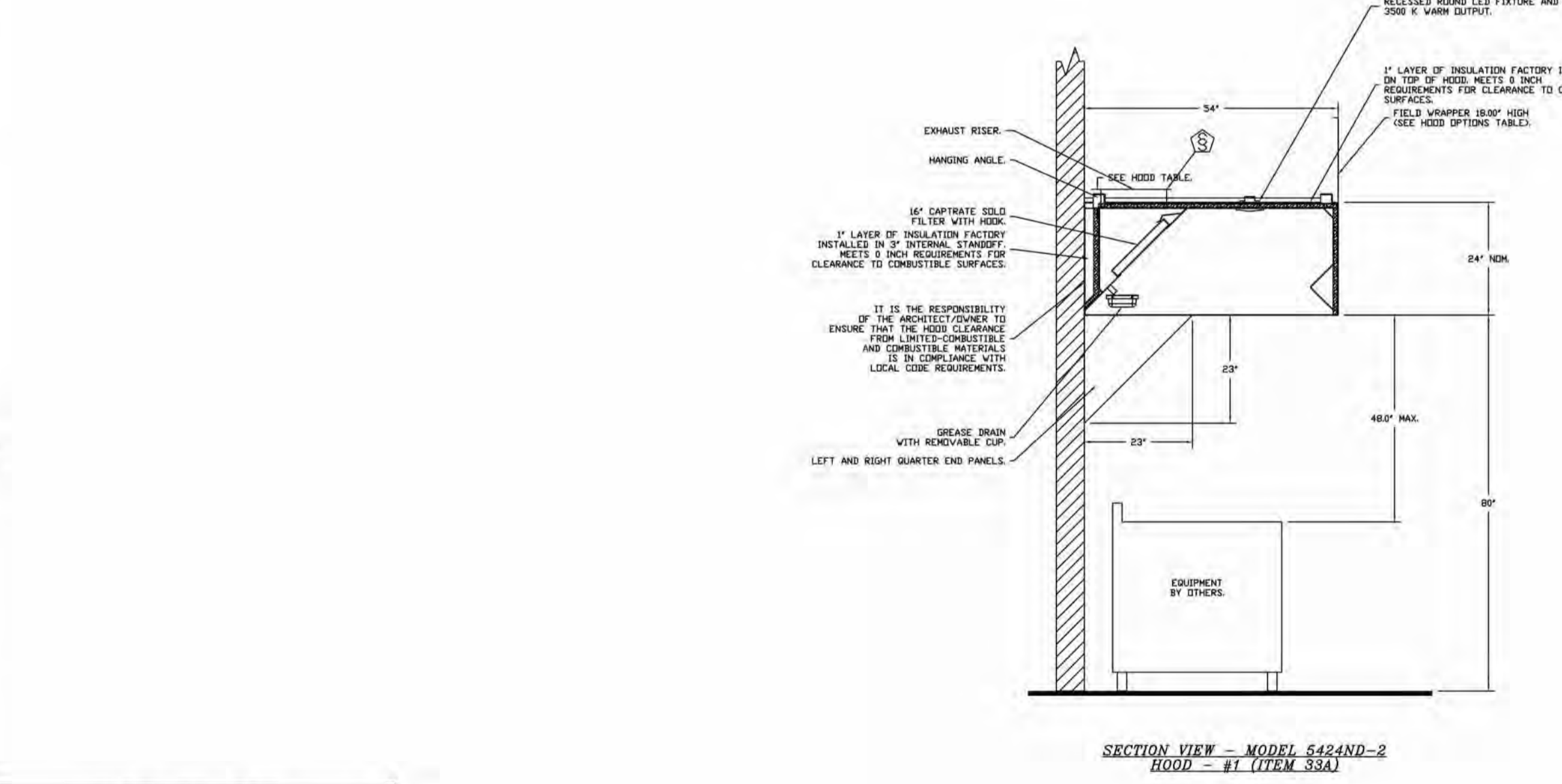
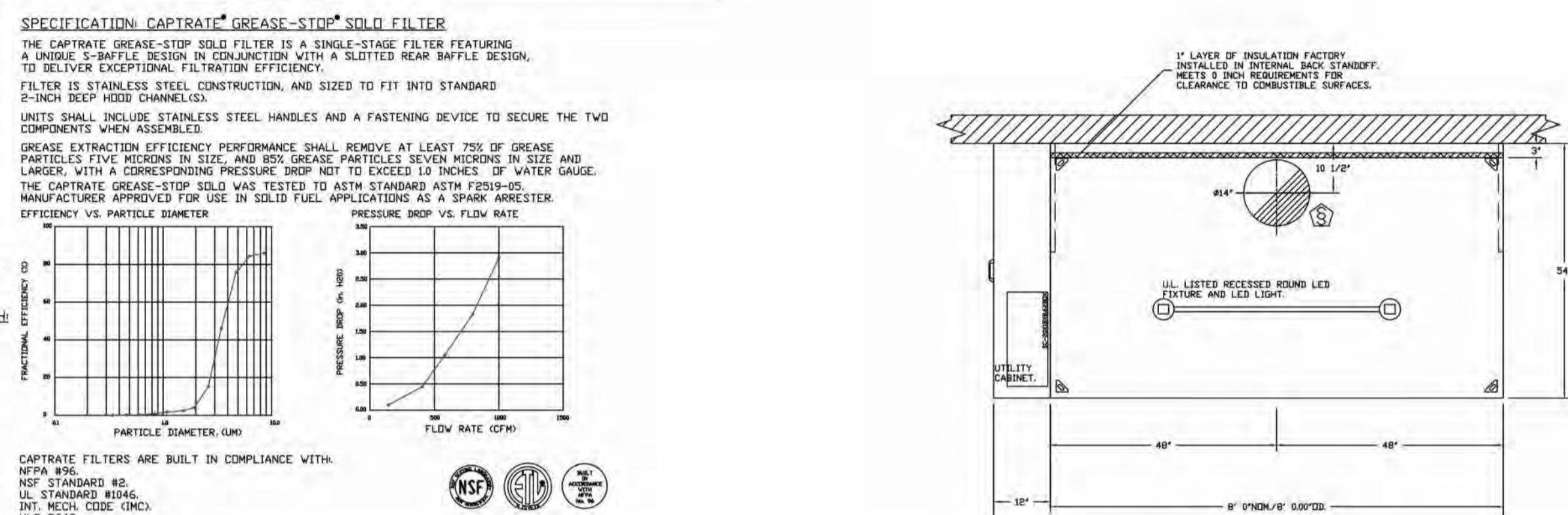
SIGNATURE: _____ DATE: _____

HOOD INFORMATION - JOB#6382484

HOOD NO.	TAG	MODEL	MANUFACTURER	LENGTH	MAX. COOKING TEMP.	TYPE	APPLIANCE DUTY	SECTION CFM/FT	TOTAL EXH. CFM	EXHAUST FLEXIBLE DUCTS	EXHAUST VELOCITY	HOOD CONSTRUCTION	HOOD CORNER END TO END	HOOD CORNER END TO END	PATENT NUMBERS
1	ITEM 33A	5424 ND-2	CAPTIVEAIRE	9' 0"	450 DEG	1	MEDIUM	200	1600	4"	10'	1600	1497	-0.734"	430 SS WHERE EXPOSED
2	ITEM 33B	5424 ND-2	CAPTIVEAIRE	5' 0"	450 DEG	1	MEDIUM	150	775	4"	10'	775	1421	-0.436"	430 SS WHERE EXPOSED

HOOD INFORMATION

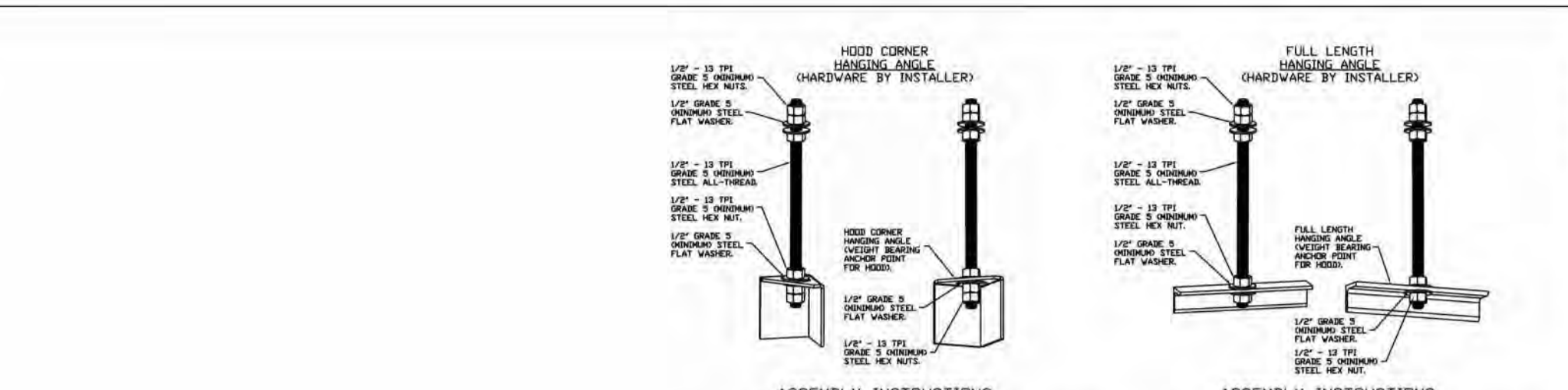
HOOD NO.	TAG	TYPE	QTY	HEIGHT	LENGTH	EFFICIENCY @ 7 MICRONS	QTY	TYPE	WIRE GUARD	LOCATION	SIZE	UTILITIES (CABINET(S))	FIRE SYSTEM	ELECTRICAL	SWITCHES	FIRE SYSTEM	HOOD SYSTEM HANGING WEIGHT
1	ITEM 33A	CAPTIVEAIRE SOLID FILTER	5	16"	16"	85% SEE FILTER SPEC.	2	RECESSED ROUND	NO	LEFT	12"X54"X24"			BCV-2111	1 LIGHT 1 FAN	NO	395 LBS
2	ITEM 33B	CAPTIVEAIRE SOLID FILTER	3	16"	16"	85% SEE FILTER SPEC.	2	RECESSED ROUND	NO							NO	327 LBS



***** 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 HOODS ABILITY TO CAPTURE AND CONTAIN.



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.



HANGING ANGLE MUST BE SUPPORTED WITH 1/2" - 13 TPI GRADE 5 MINIMUM ALL-THREAD SANDWICH HANGING ANGLES AND CEILING ANCHOR POINTS WITH 1/2" GRADE 5 MINIMUM STEEL FLAT WASHERS AND 1/2" - 13 TPI GRADE 5 MINIMUM HEX NUTS AS SHOWN. MUST USE DOUBLED HEX NUT CONFIGURATION ABOVE CEILING ANCHORS. SINGLE HEX NUT BENEATH HANGING ANGLES. MAINTAIN 1/4" OF EXPOSED THREADS BENEATH BOTTOM HEX NUT. TORQUE ALL HEX NUTS TO 57 FT-LBS.

REVISIONS

NO.	DESCRIPTION	DATE

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Freddy's - Marshall, TX
MARSHALL, TX, 75670

DATE: 12/6/2023
DWG.#: 6382484
DRAWN BY: michael.co
SCALE: 1/2" = 1'-0"
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SHEET NO. 1

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TEXAS P.E. COA #F-15978

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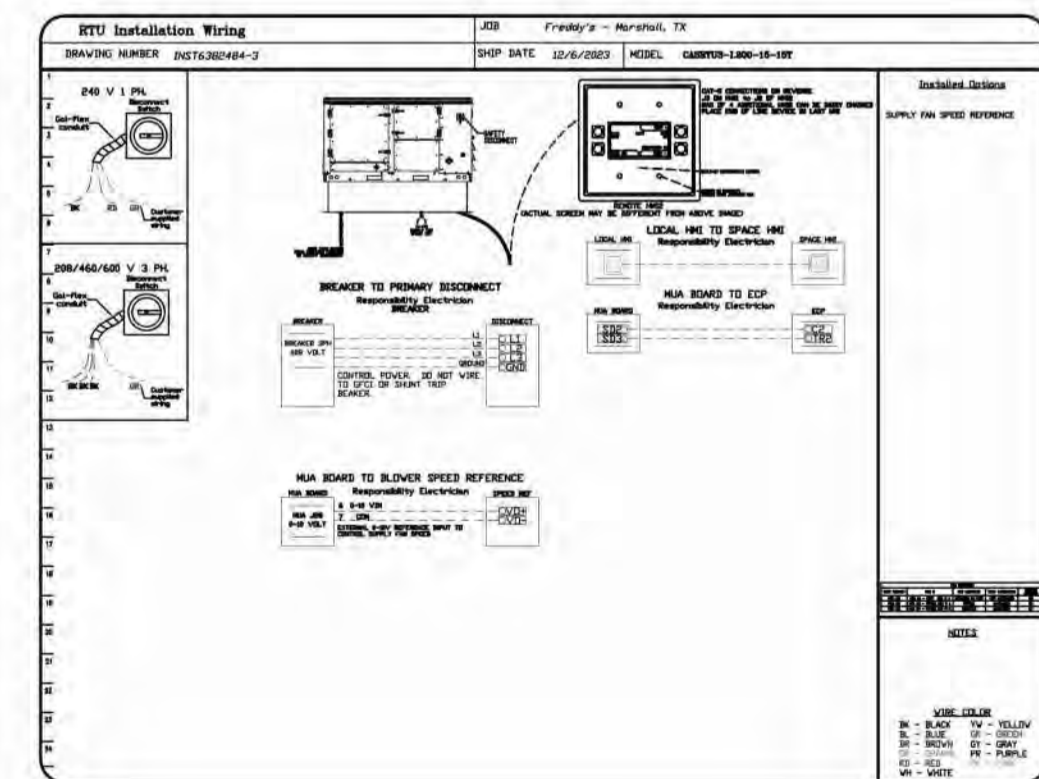
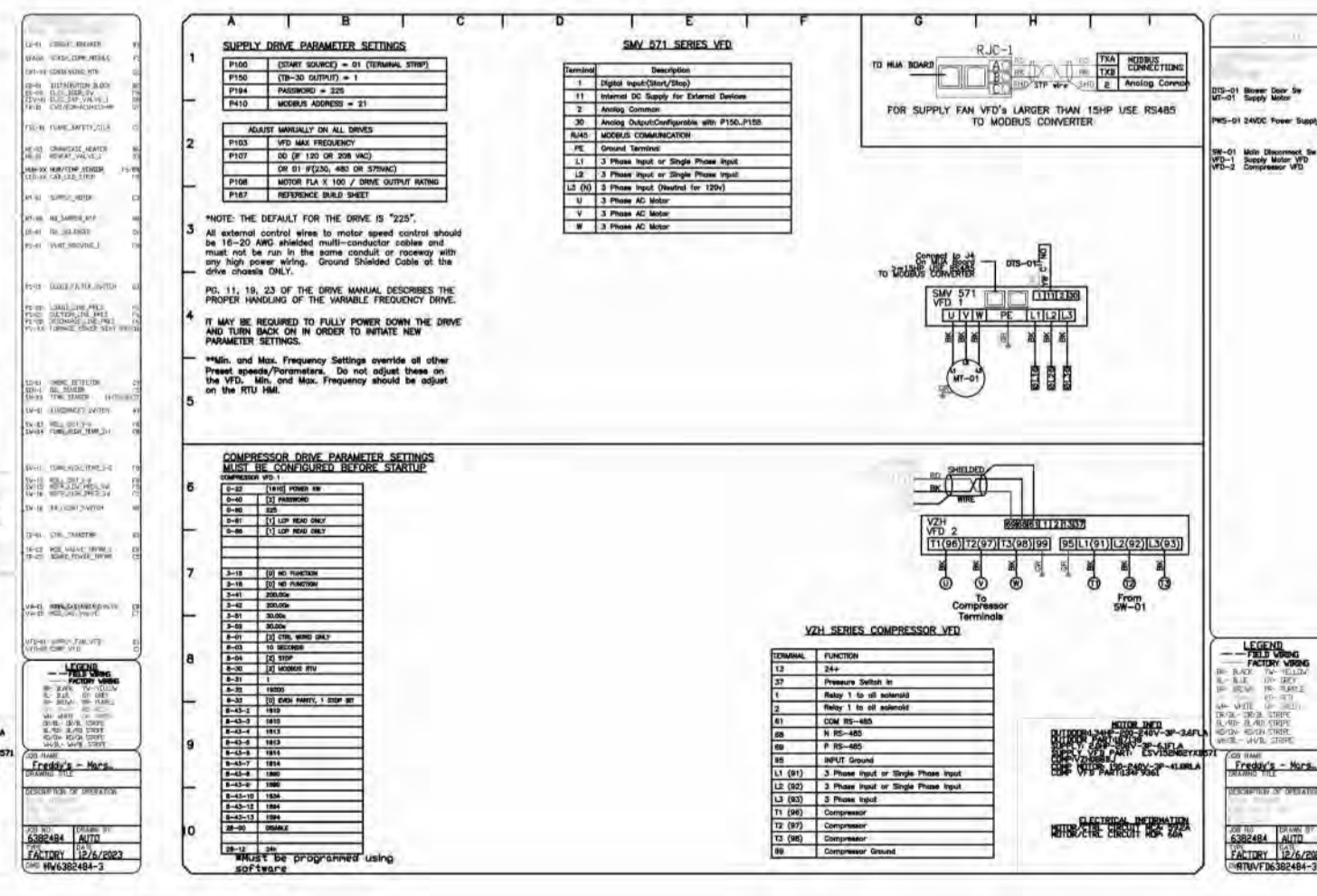
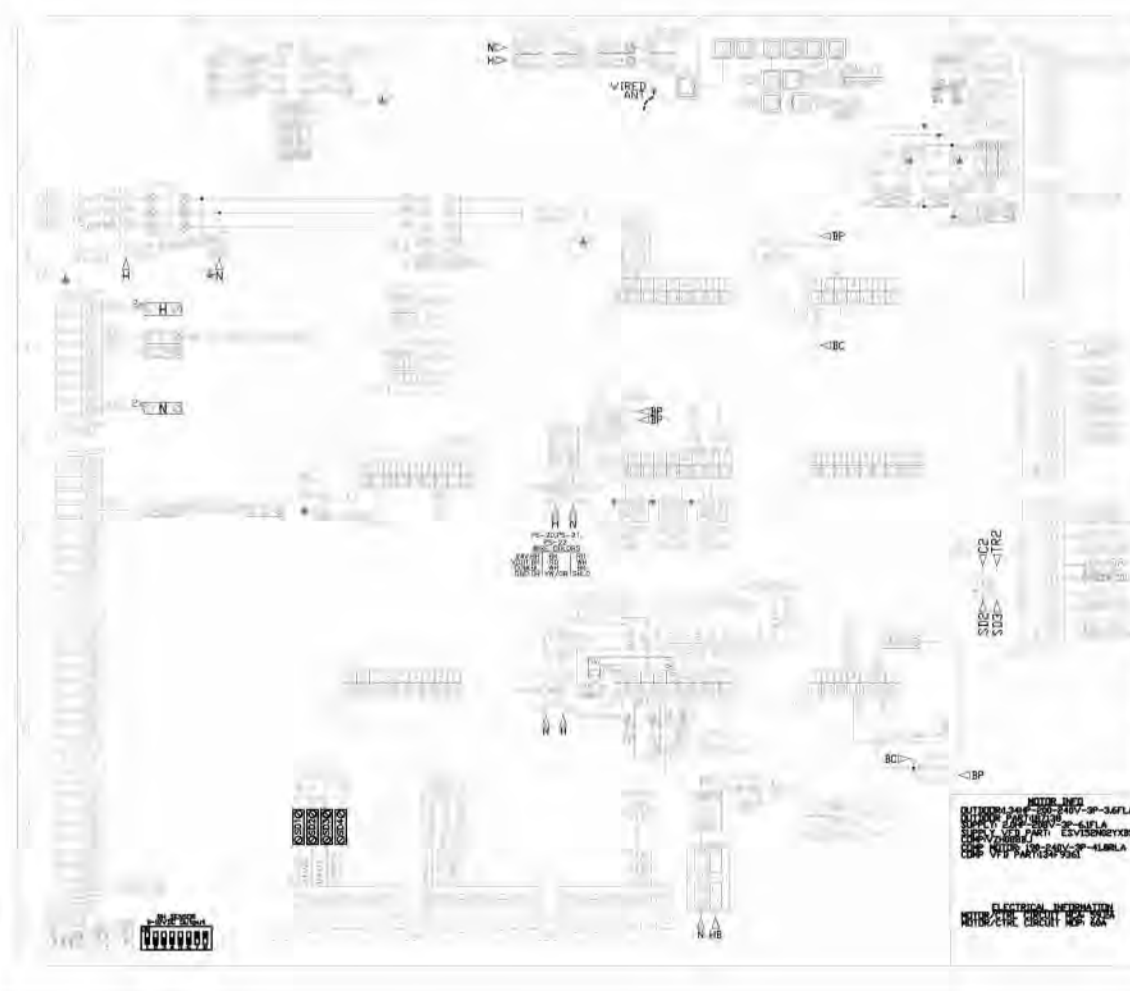
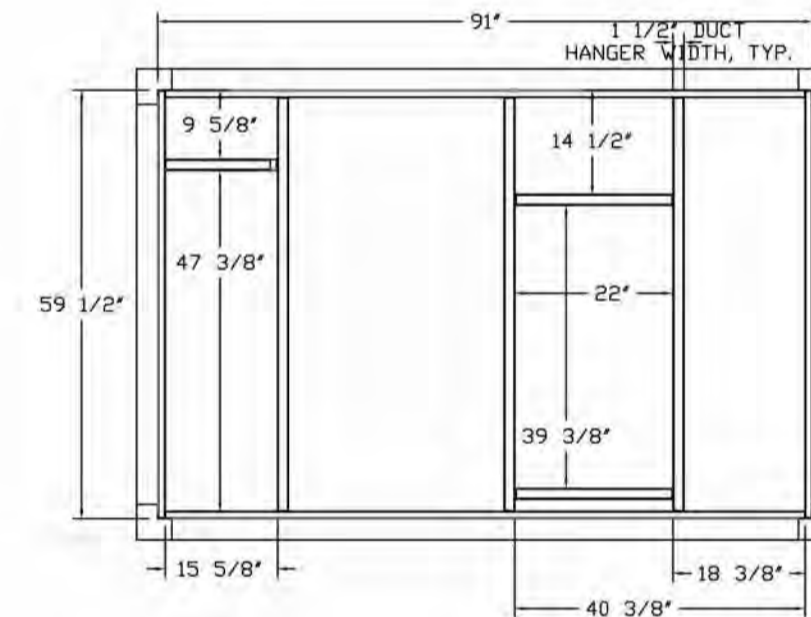
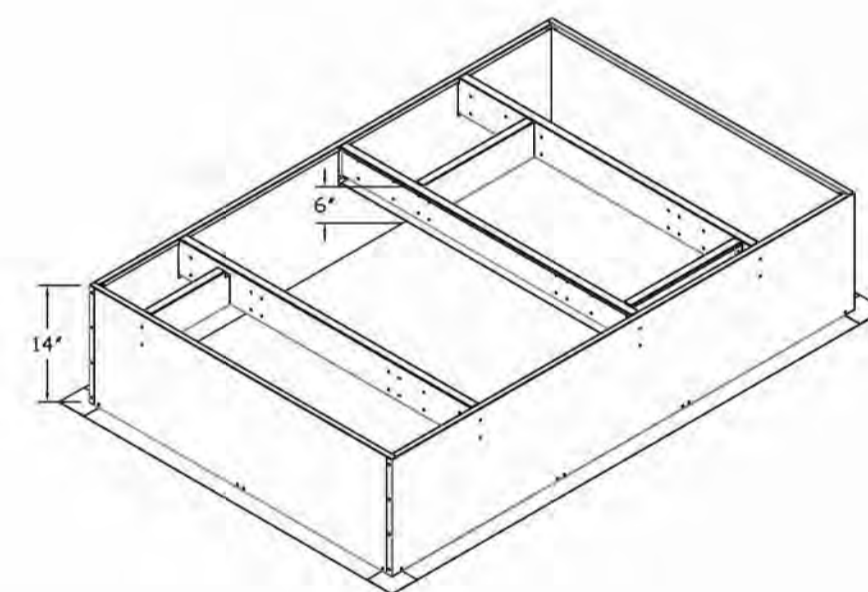
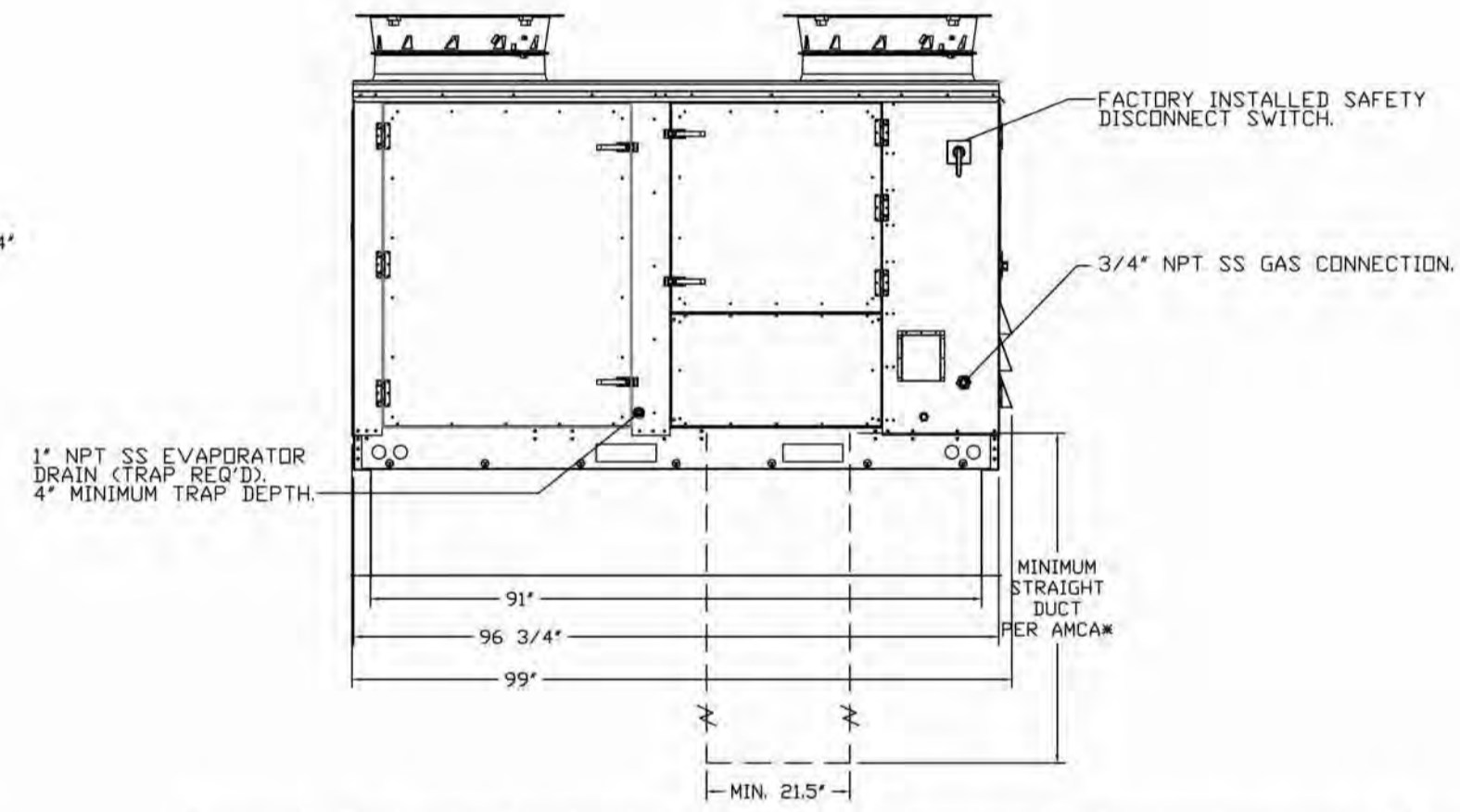
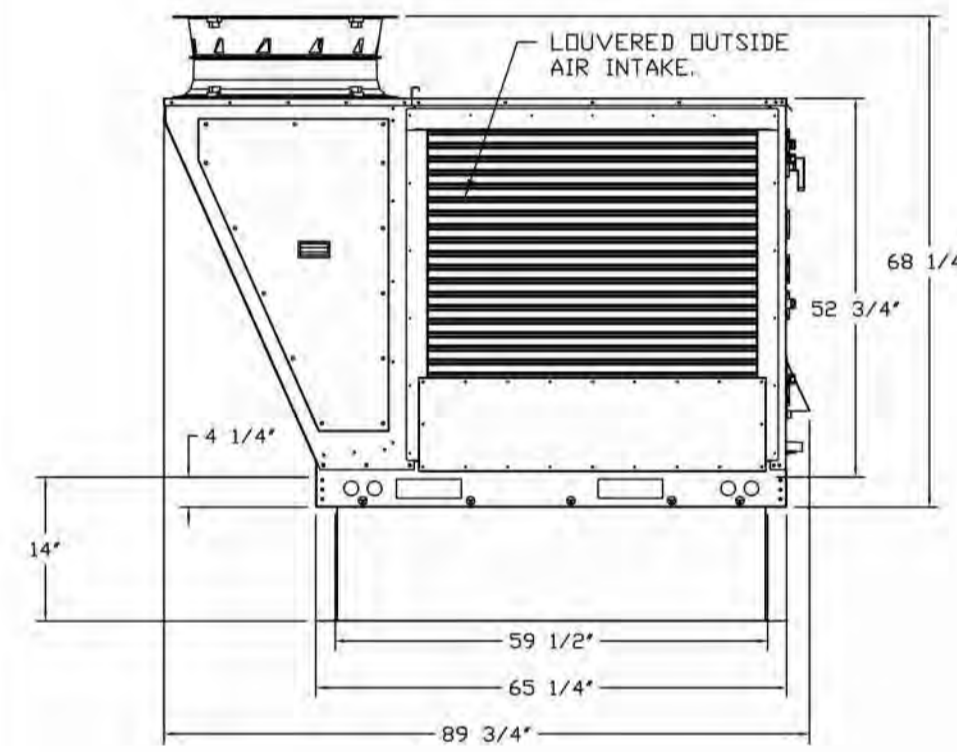
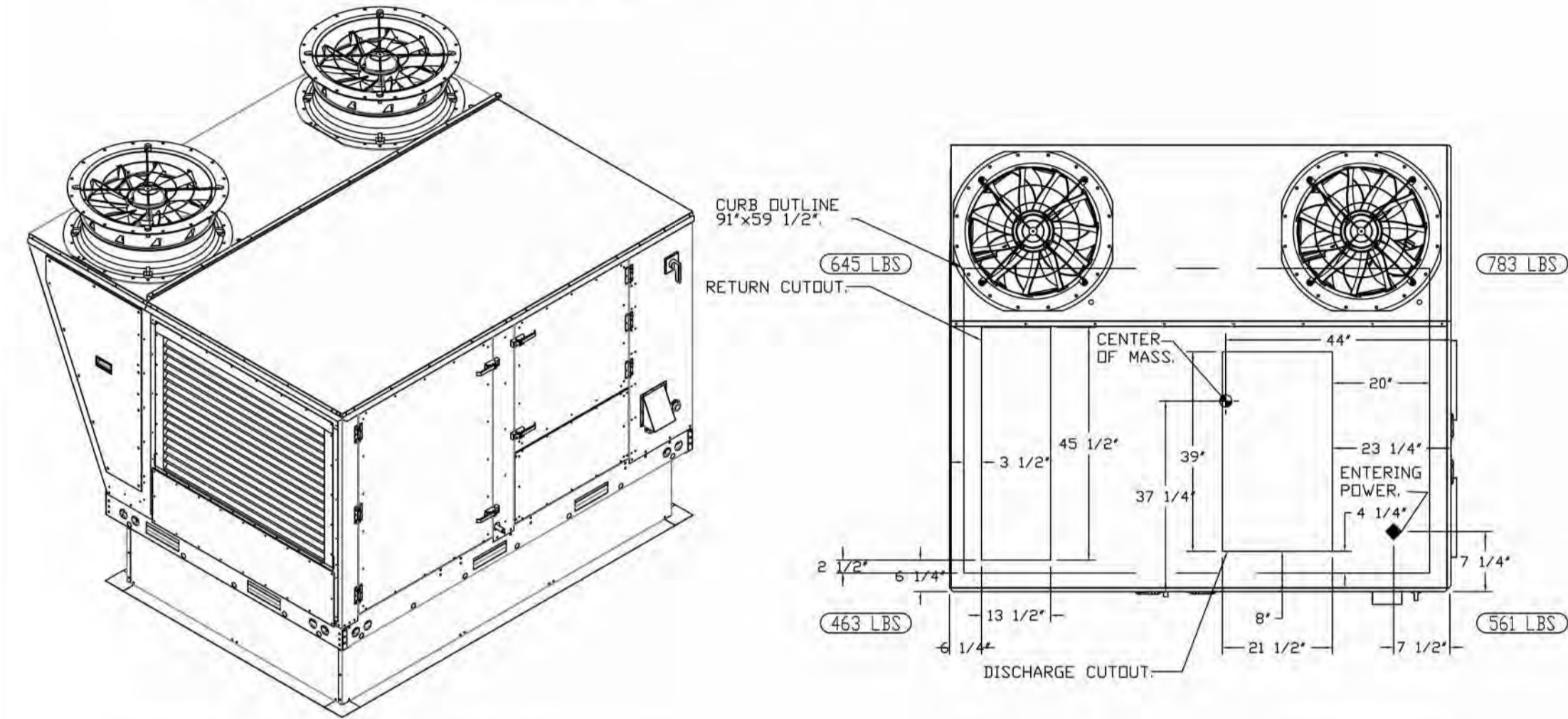


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FAN #3 CASRTU3-1200-15-15T - HEATER (ITEM 74.3)

- NOTES:
- DO NOT OBSTRUCT OUTSIDE AIR INLET, OUTSIDE AIR COIL OR OUTSIDE AIR FAN.
 - DENOTES CORNER WEIGHT.
 - ROOF OPENING MUST BE 2" SMALLER THAN CURB DIMENSIONS IN BOTH DIRECTIONS.
 - 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 21.5" x 39".



REVISIONS

NO.	DESCRIPTION	DATE

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www.captiveaire.com

HBT Foodservice

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MARSHALL, TX, 75670

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checked by
Checker
revisions

sheet number
M-302

drawing type
preliminary
project number
23006-08



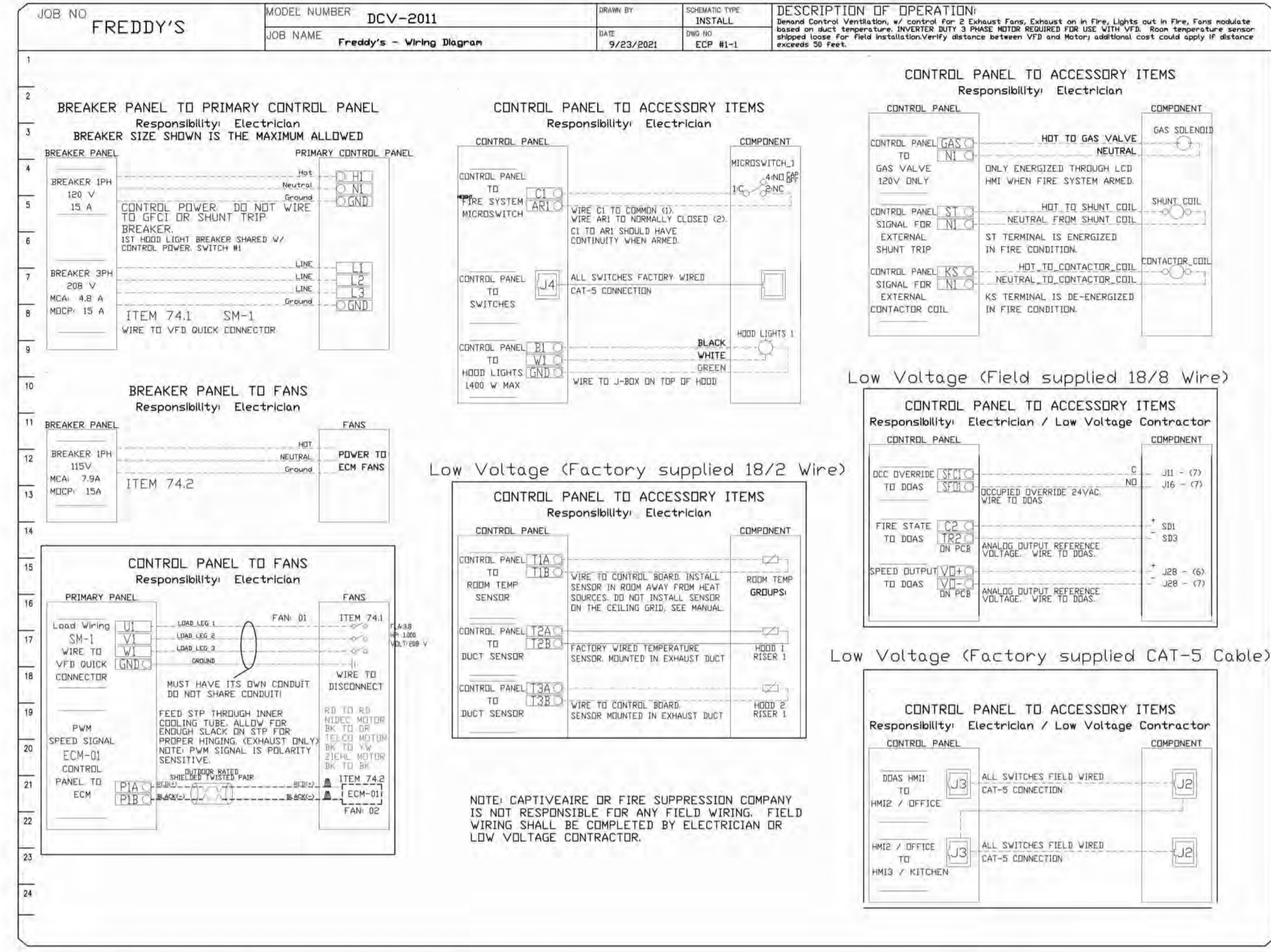
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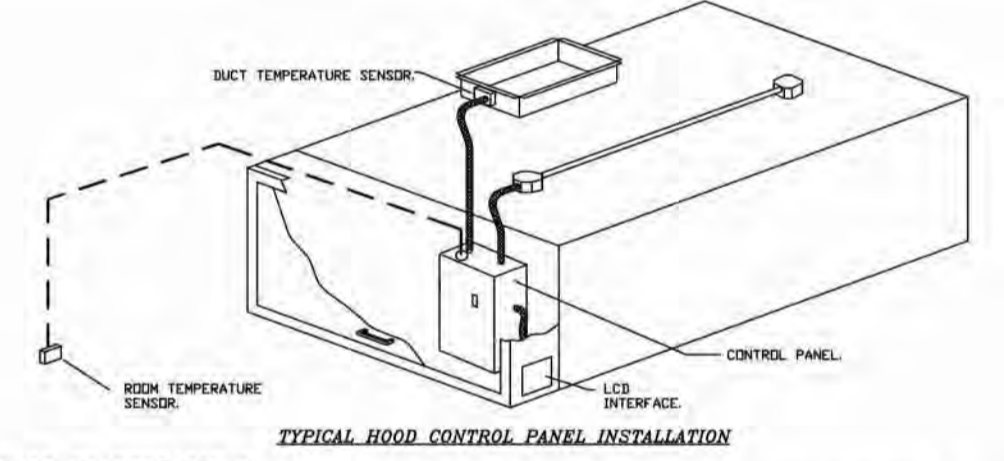
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DWG #: 6382484
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sheet number
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drawing type
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project number
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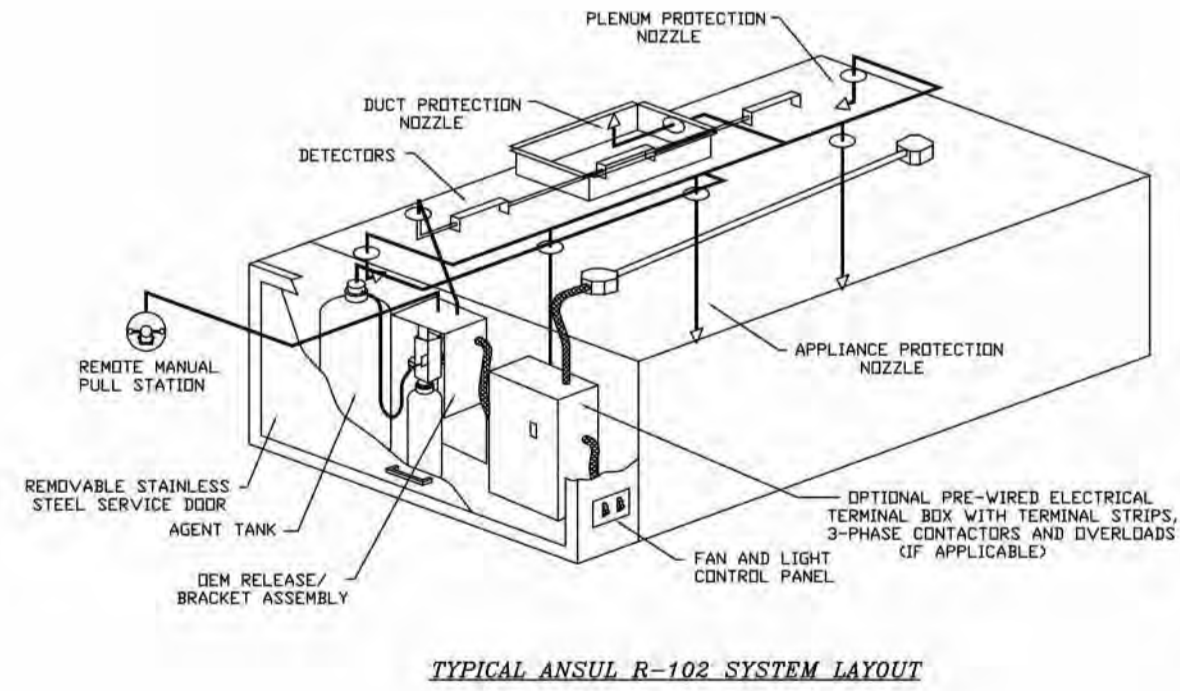
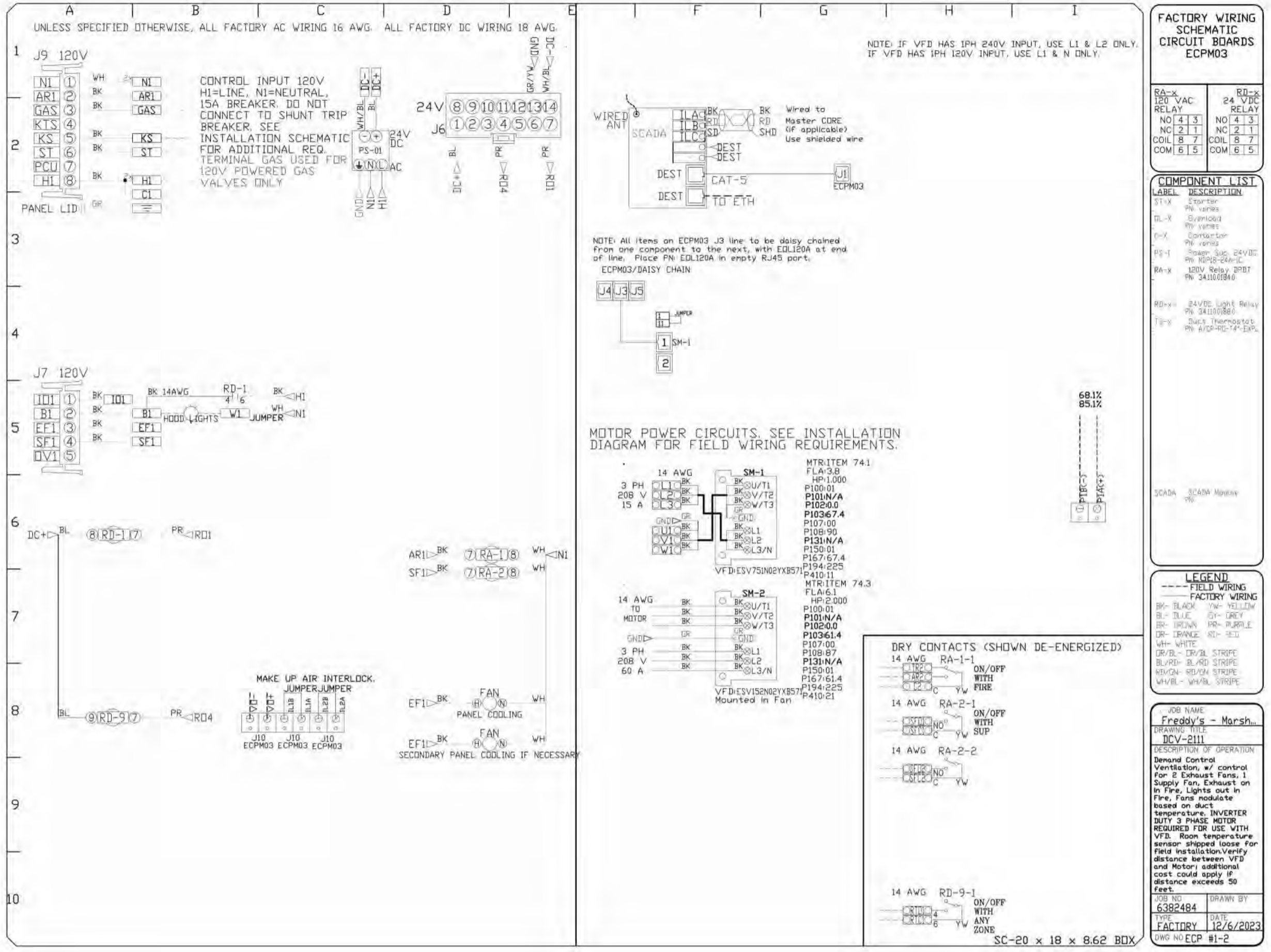
NO	TAG	PACKAGE #	LOCATION	QUANTITY	OPTION	FAN TAG	TYPE	HP	NPL	FLA
1	EDV-1	EDV-001	UTILITY CABINET LEFT	1 LIGHT	SMART CONTROLS DCV	ITEM 741	EXHAUST	2	1400	100
			HOOD # 1	1 FAN		ITEM 742	EXHAUST	1	1000	63
						ITEM 743	SUPPLY	2	2000	61



- DEMAND CONTROL VENTILATION HOOD CONTROL PANEL SPECIFICATIONS:**
- CONTROL PANEL SHALL BE LISTED BY ETL (UL 508A) AND SHALL COMPLY WITH DEMAND VENTILATION SYSTEM TURNDOWN REQUIREMENTS OUTLINED IN IECC 403.7.5 (2021).
 - 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 507.11.
 - 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 INPUTS TO THE DIGITAL CONTROLLER SHALL BE USED TO CALCULATE THE SPEED REFERENCE SIGNAL.
 - 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 FANS, ACTIVATE THE EXHAUST FANS, 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 AND 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.



- SEQUENCE OF OPERATIONS:**
- THE HOOD CONTROL PANEL IS CAPABLE OF OPERATING IN ONE OR MORE OF THE FOLLOWING STATES AT ANY GIVEN TIME:
- **ALARMING:** 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 CONSTANT 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 403.7.5 (2021).
 - 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 MODULATE MODE AND FOLLOW THE FAN PROCEDURE ALGORITHM BASED ON TEMPERATURE. DURING THIS TIME, DURING UNOCCUPIED TIME, THE SYSTEM WILL HAVE AN EXTRA OFFSET TO PREVENT UNINTENDED ACTIVATION OF THE SYSTEM DURING A TIME WHERE THE SYSTEM IS NOT BEING OCCUPIED.
 - OTHER:** THE SYSTEM OPERATES BASED ON THE INPUT FROM AN EXTERNAL SOURCE (DDC, BMS OR HARD-WIRED INTERLOCK).
 - FIRE:** UPON ACTIVATION OF THE HOOD FIRE SUPPRESSION SYSTEM, THE EXHAUST FAN WILL COME ON OR CONTINUE TO RUN. THE HOOD MAKEUP AIR WILL SHUTDOWN, AND A SIGNAL WILL BE SENT FOR ACTIVATING THE SHUNT TRIP BREAKER PROVIDED BY THE ELECTRICIAN. FUEL GAS WILL SHUT OFF VIA A MECHANICAL/ELECTRICAL GAS VALVE ACTIVATED BY THE HOOD FIRE SUPPRESSION SYSTEM.



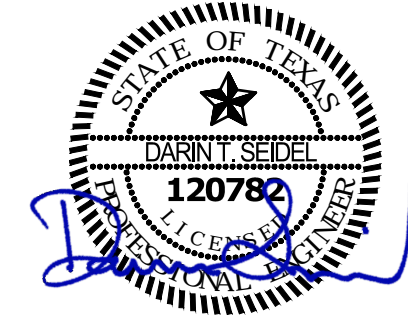
- SPECIFICATIONS:**
- THE RESTAURANT FIRE SUPPRESSION SYSTEM SHALL BE THE PRE-ENGINEERED TYPE WITH A FIXED NOZZLE AGENT DISTRIBUTION NETWORK. IT SHALL BE LISTED WITH UNDERWRITERS LABORATORIES, INC. (UL).
 - THE SYSTEM SHALL BE CAPABLE OF AUTOMATIC DETECTION AND ACTUATION WITH LOCAL OR REMOTE MANUAL ACTIVATION. ACCESSORIES SHALL BE AVAILABLE FOR MECHANICAL OR ELECTRICAL GAS LINE SHUT-OFF APPLICATIONS.
 - THE EXTINGUISHING AGENT SHALL BE A PROFESSIONAL GRADE, PROFESSIONAL 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.

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TEXAS PE COA #P-15970

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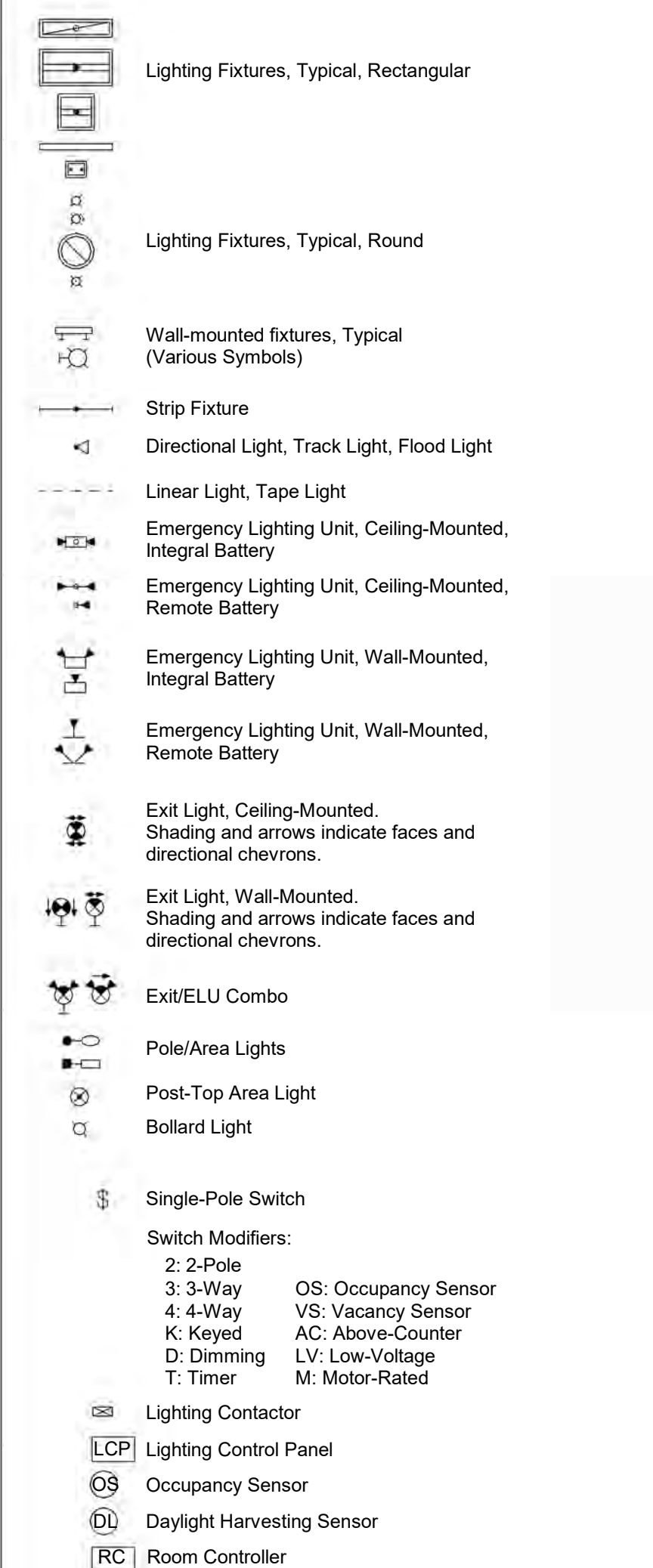
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Electrical Abbreviations

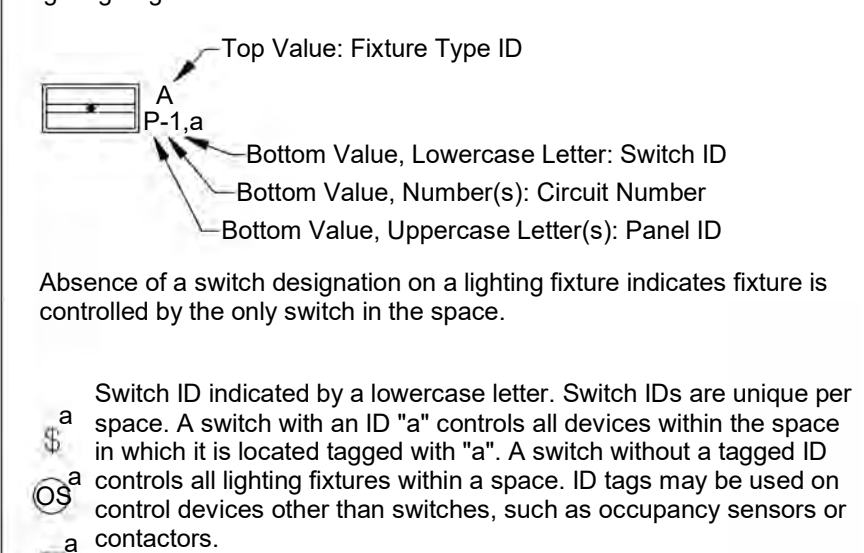
1P 1 Pole (2P, 3P, 4P, ETC.)	MCB Main Circuit Breaker
A Amp	MCC Motor Control Center
AC Above Counter	MDC Main Distribution Center
ACLG Above Ceiling	MDP Main Distribution Panel
ADO Automatic Door Opener	MFR Manufacturer
AF Amp Frame	MFS Main Fused Disconnect Switch
AFB Above Finished Floor	MH Manhole
AFG Above Finished Grade	MIC Microphone
AFI Arc Fault Circuit Interrupter	MIN Minimum
AHU Air Handling Unit	MISC Miscellaneous
AL Aluminum	MLO Main Lugs Only
ALT Alternate	MMS Manual Motor Starter
AMP Ampere	MJA Multioutlet Assembly
AMPL Amplifier	MSP Motor Starter Panelboard
ANNUN Annunciator	MSBD Main Switchboard
APPROX Approximately	MSS Motor Starter Switch
AQ-STA Aquastat	MT Mount
ARCH Architect, Architectural	MT.C Empty Conduit
AS Amp Switch	MTS Manual Transfer Switch
AT Amp Trip	MTR Motor, Motorized
ATS Automatic Transfer Switch	N.C. Normally Closed
AUTO Automatic	NEC National Electrical Code
AUX Auxiliary	NEMA National Electrical
AV Audio Visual	MAF Manufacturer's Association
AWG American Wire Gauge	NFDS Non-Fused Safety Disconnect Switch
BATT Battery	NIC Not In Contract
BD Board	NL Night Light
BLDG Building	N.O. Normally Open
BMS Building Management System	N.P.F. Normal Power Factor
C Conduit	NTS Not To Scale
CAB Cabinet	OC On Center
CAT Catalog	OH Overhead
CATV Cable Television	OL Overloads
CB Circuit Breaker	PA Public Address
CCTV Closed Circuit Television	PB Pull Box Or Pushbutton
CKT Circuit	PE Pneumatic Electric
CLG Ceiling	PED Pedestal
COMB Combination	PF Power Factor
CMPR Compressor	PH Phase
CONN Connection	PV Post Indicating Valve
CONST Construction	PE Pneumatic Electric
CONT Continuation Or Continuous	PP Power Pole
CONTR Contractor	PR Pair
CONV Convector	PRI Primary
CP Circulating Pump	PROJ Projection
CRT Cathode-Ray Tube	PRV Power Roof Ventilator
CT Current Transformer	PT Potential Transformer
CTR Center	PVC Polyvinyl Chloride (Conduit)
CU Copper	PWR Power
DCP Domestic Water Circulating Pump	QUAN Quantity
DEPT Department	RCP Receptacle
DET Detail	REQD Required
DIA Diameter	RM Room
DISC Disconnect	RSC Rigid Steel Conduit
DIST Distribution	RTU Roof Top Unit
DN Down	SC Surface Conduit
DPR Damper	SEC Secondary
DS Safety Disconnect Switch	SHT Sheet
DT Double Throw	SIM Similar
DWG Drawing	SLD Single-Line Diagram
EC Electrical Contractor	SIN Solid Neutral
ELEC Electric, Electrical	SPEC Specification
ELEV Elevator	SPKR Speaker
ELU Emergency Lighting Unit	SP Spare
EM Emergency	SPP Single-Point Power
EMS Energy Management System	SR Surface Raceway
EMT Electrical Metallic Tubing	SS Stainless Steel
EP Electric Pneumatic	SSW Selector Switch
EQUIP Equipment	S/S Stop/Start Pushbuttons
EWC Electric Water Cooler	STA Station
EXIST Existing	STD Standard
EXH Exhaust	SURF Surface Mounted
EXP Explosion Proof	SW Switch
FA Fire Alarm	SWBD Switchboard
FABP Fire Alarm Booster Power Supply Panel	SYM Symmetrical
FACP Fire Alarm Control Panel	SYS System
FCU Fan Coil Unit	TEL Telephone
FXT Fixture	TERM Terminal
FLR Floor	TL Twist Lock
FLUOR Fluorescent	TR Tamper Resistant
FU Fuse	T-STAT Thermostat
FUSD Fused Safety Disconnect Switch	TTC Telephone Terminal Cabinet
GA Gauge	TV Television
GAL Gallon	TVTC Television Terminal Cabinet
GALV Galvanized	UC Under Counter
GC General Contractor	UE Underground Electrical
GEN Generator	UG Underground
GFI Ground Fault Circuit Interrupter	UH Unit Heater
GFP Ground Fault Protector	UT Underground Telephone
GND Ground	UTIL Utility
GRS Galvanized Rigid Steel (Conduit)	UV Ultraviolet
GYP BD Gypsum Board	V Volt
HQA Hands-Off-Automatic Switch	VA Volt-Amperes
HORIZ Horizontal	VDT Video Display Terminal
HP Horsepower	VERT Vertical
HPF High Power Factor	VFD Variable Frequency Drive
HT Height	VOL Volume
HTG Heating	W Watt
HTR Heating	W/ With
HV High Voltage	WG Wire Guard
HVAC Heating, Ventilating And Air Conditioning	WH Water Heater
IC Interrupting Capacity	W/O Without
IG Isolated Ground	WP Weatherproof
IMC Intermediate Metal Conduit	XFMR Transformer
INCAND Incandescent	XFR Transfer
IR Infrared	
I/W Interlock With	∠ Angle
J-BOX Junction Box	@ At
KV Kilovolt	▲ Delta
KVA Kilovolt-Ampere	△ Feet
KVAR Kilovolt-Ampere Reactive	+ Inches
KW Kilowatt	# Number
KWH Kilowatt Hour	○ Phase
LOC Locate Or Location	○ Center Line
LT Light	□ Plate
LTG Lighting	
LTNG Lightning	
LV Low Voltage	
MAX Maximum	
MAG.S Magnetic Starter	
MIC Momentary Contact	
MC Mechanical Contractor	

Electrical Symbol Legend

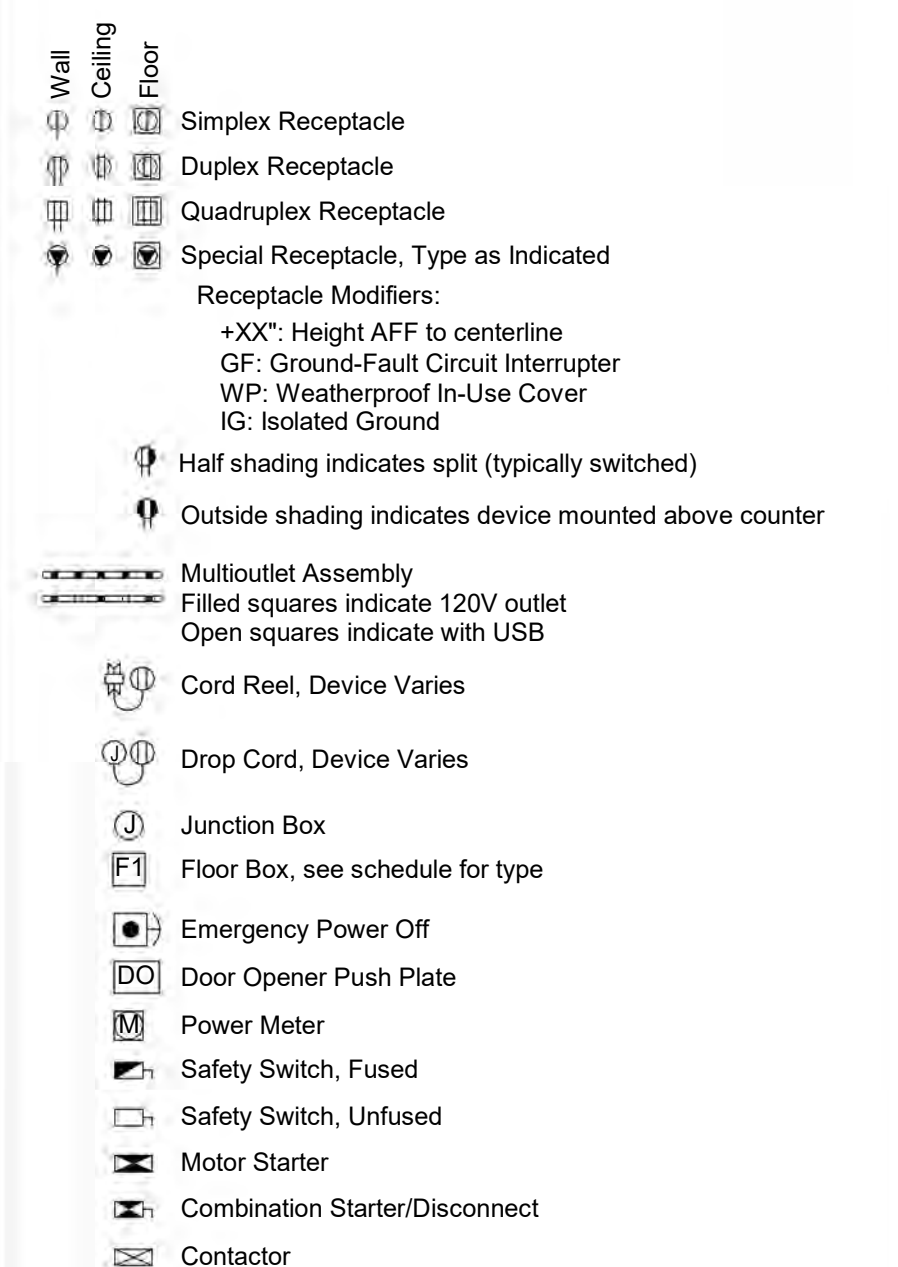
Lighting Symbols



Lighting Tags



Power Symbols



Power Device and Equipment Tags
Electrical Device Tags: Uppercase letter(s) indicates Panel ID and circuit number. Lowercase letter indicates designation of controlling switch (where applicable).
Equipment Tags: Equipment ID is indicated by an underlined tag adjacent to the equipment. Uppercase letter(s) indicates Panel ID and circuit number. Lowercase letter indicates designation of controlling switch (where applicable). Symbols/graphic appearance of equipment varies.

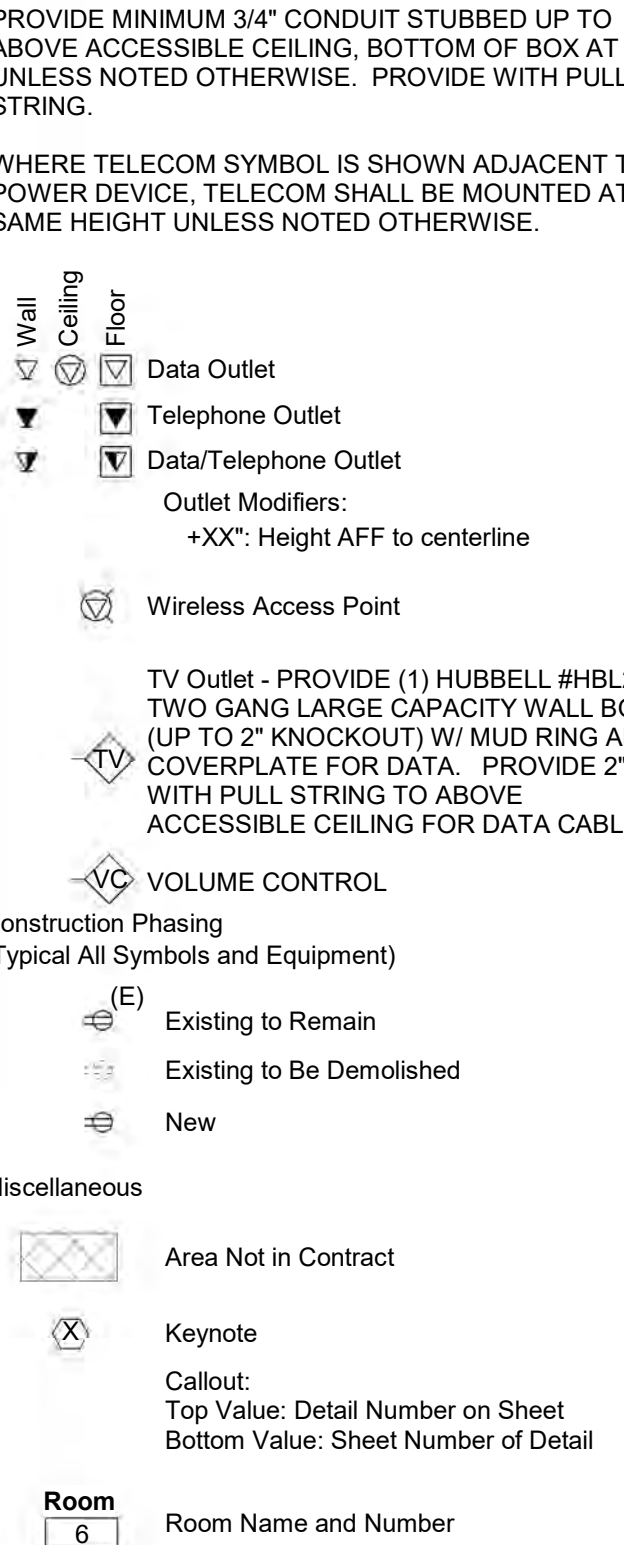
Wiring
Solid, arced lines connecting equipment, devices, or fixtures indicate unswitched power circuiting. Wires are only intended to indicate to what circuit devices are connected. Actual connections, circuit routing, installation, junction boxes, etc. shall be field-determined by the contractor.

Home run to branch circuit panelboard. The equipment name and circuit number(s) are indicated, separated by a hyphen. Homeruns are only intended to indicate panel and circuit number. Actual homerun location shall be field-determined by the contractor.

Power Distribution Equipment
Hatched fill indicates distribution panel or switchboard. Solid fill indicates branch panel or load center. Dashed box indicates code-required clearance (width and depth). Door indicates front of recessed panel.

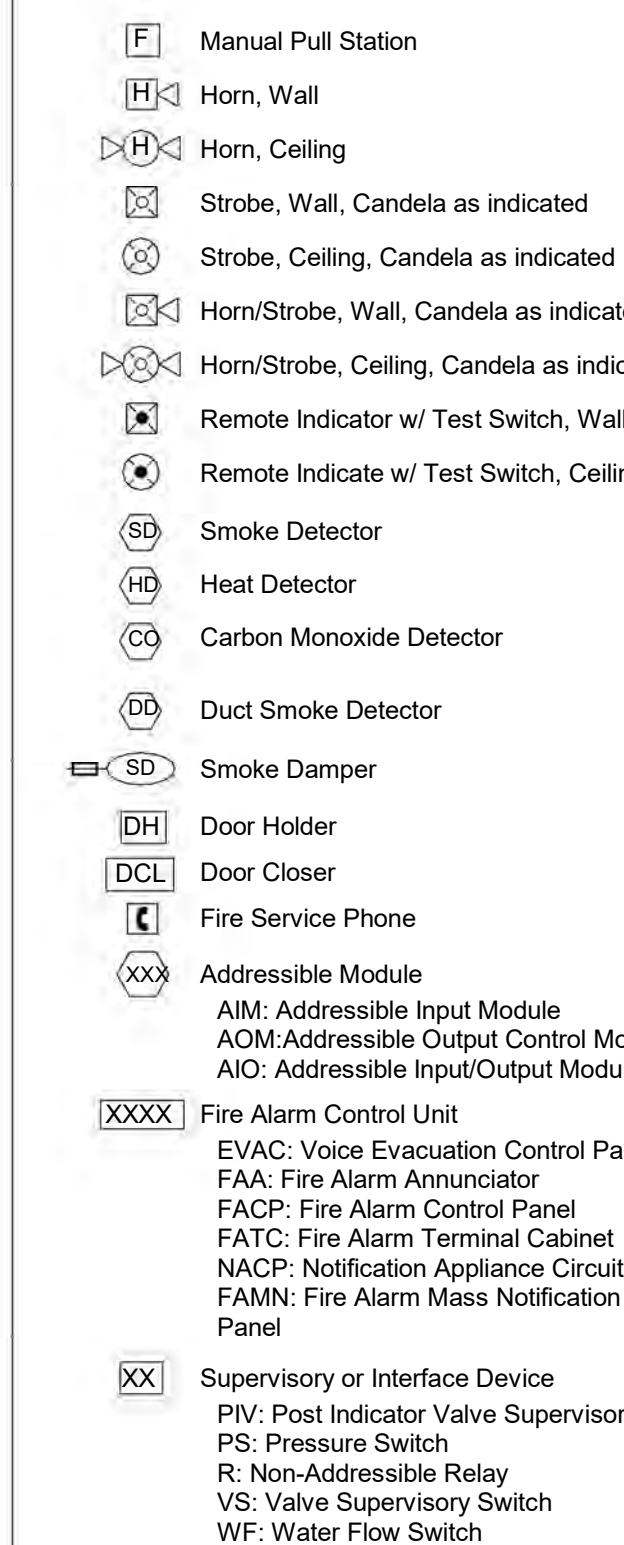
Transformer: Typically transformer names begin with or contain the letter "T". See Single-Line Diagram for description and requirements.

Telecom Symbols



Security Symbols
Security Camera, Card Reader, Card Reader with Keypad, Closed Circuit TV Outlet, Door Contact, Electric Strike, Intercom, Magnetic Lock, Request to Exit Button, Request to Exit Sensor, Motion Detector, Security Control Unit, SCP: Security Control Panel, SPS: Security Power Supply Unit

Fire Alarm Symbols



ELECTRICAL GENERAL NOTES:

- COORDINATE ALL WORK WITH OTHER TRADES AND EXISTING CONDITIONS AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACES AVAILABLE AND WITHIN THE PERMITTED VOLTAGE RANGES.
- ALL EXPOSED RACEWAYS SHALL BE EMT CONDUIT, MC CABLE IS NOT PERMITTED IN EXPOSED AREAS.
- ELECTRICAL CONTRACTOR TO COORDINATE MANUFACTURER ELECTRICAL REQUIREMENTS FOR HVAC EQUIPMENT BEING FURNISHED WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN. EQUIPMENT DISCONNECTS TO BE PROVIDED BY ELECTRICAL CONTRACTOR UNLESS NOTED OTHERWISE IN MECHANICAL SCHEDULES.
- REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF LIGHT FIXTURES AND FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84.
- EACH BRANCH CIRCUIT SHALL HAVE A DEDICATED NEUTRAL PER NEC 210.4.
- KITCHEN EQUIPMENT - VERIFY ALL ELECTRICAL REQUIREMENTS AND ROUGH-IN LOCATION PRIOR TO WORK.
- ALL BRANCH CIRCUITS SHALL BE SIZED TO ALLOW FOR A MAXIMUM OF 3% VOLTAGE DROP. ALL FEEDERS SHALL BE SIZED TO ALLOW FOR A MAXIMUM OF 2% VOLTAGE DROP. ELECTRICAL CONTRACTOR SHALL VERIFY WIRING INDICATED IS SUFFICIENT AND INCREASE CONDUCTOR SIZE AS REQUIRED BASED OFF ACTUAL INSTALLED LENGTH OF CONDUCTORS.
- ALL 120 VOLT 20 AMP RECEPTACLES IN KITCHEN SHALL BE GFCI PROTECTED PER NEC 210.8(B)(2). (GFCI DEVICE OR GFCI BREAKER AS INDICATED ON PLANS).
- ALL 120 VOLT THROUGH 250 VOLT RECEPTACLES SUPPLIED BY SINGLE PHASE BRANCH CIRCUITS RATED 150 VOLTS TO GROUND OR LESS, 50 AMPS OR LESS, AND THREE-PHASE BRANCH CIRCUITS 150 VOLTS OR LESS TO GROUND, 100 AMPS OR LESS, IN KITCHEN SHALL BE GFCI PROTECTED PER NEC 210.8(B)(2). (GFCI DEVICE OR GFCI BREAKER AS INDICATED ON PLANS)
- PROVIDE SEAL-OFF FITTINGS AT ALL COOLER/FREEZER PENETRATIONS.
- TYPE 1 HOOD FIRE SUPPRESSION SYSTEM TO BE INTERLOCKED WITH FIRE ALARM SYSTEM. UPON ACTIVATION OF HOOD FIRE SUPPRESSION SYSTEM SIGNAL SHALL BE SENT TO FIRE ALARM.

Electrical Sheet Schedule	
E-000	ELECTRICAL TITLE SHEET
E-001	ELECTRICAL SPECIFICATIONS
E-100	POWER PLAN
E-101	ROOF POWER PLAN
E-200	LIGHTING PLAN
E-201	LIGHTING DETAILS & SCHEDULES
E-300	LOW VOLTAGE PLAN & SCHEDULES
E-301	LOW VOLTAGE SCHEDULES
E-400	ELECTRICAL RISER AND PANEL SCHEDULES
E-401	ELECTRICAL PANEL SCHEDULES
E-500	ELECTRICAL SITE PLAN
E-501	PHOTOMETRIC PLAN
E-600	GENERIC ELECTRICAL DETAILS
E-601	CPI CABINET DETAILS

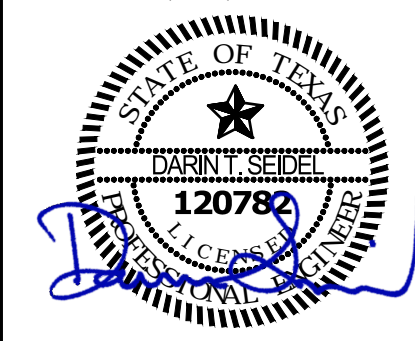
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a new restaurant for:
Freddy's
N East End Blvd - Lowes Outparcel
Marshall, TX 75670

date 01.24.2024
drawn by MS/AK
checked by EK/DS
revisions 5/22/24

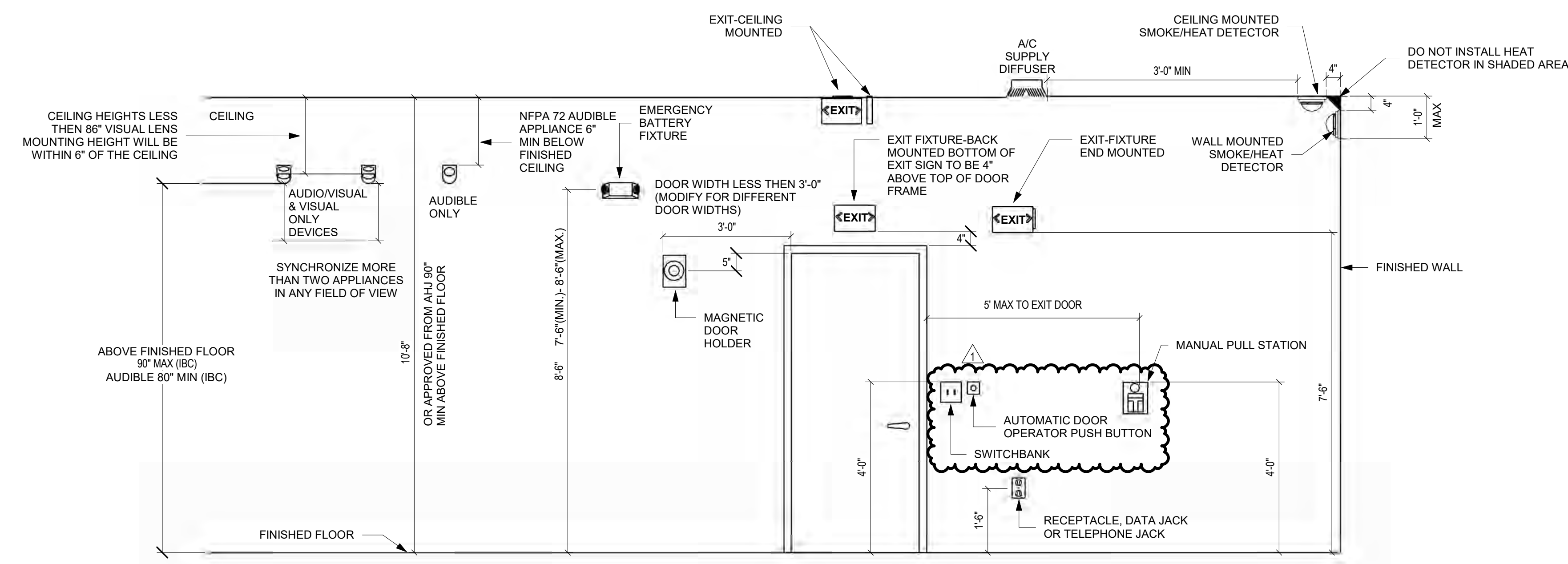
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ELECTRICAL SPECIFICATIONS

1. GENERAL PROVISIONS:
 - A. PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, NECESSARY FOR THE COMPLETE INSTALLATION OF THE ELECTRICAL SYSTEMS OUTLINED.
 - B. OBTAIN ALL PERMITS, FEES, LICENSES, INSPECTIONS, AND CERTIFICATES OF COMPLIANCE OR APPROVAL AS REQUIRED BY THE AUTHORITIES.
 - C. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST APPROVED EDITION OF THE NATIONAL ELECTRIC CODE (NEC), AND ALL APPLICABLE LAWS, CODES AND REGULATIONS OF THE GOVERNMENTAL BODIES HAVING JURISDICTION OVER THE SITE.
 - D. ALL TESTING REQUIRED BY AUTHORITIES SHALL BE CONSIDERED PART OF THIS WORK.
 - E. DURING CONSTRUCTION, ALL FIXTURES, EQUIPMENT, CONDUIT, ETC. SHALL BE COVERED, PLUGGED, OR CAPPED AS REQUIRED TO KEEP CLEAN AND UNDAMAGED. ALL DAMAGED ITEMS SHALL BE RESTORED TO ORIGINAL CONDITION OR REPLACED. ALL PROTECTIVE COVERING SHALL BE REMOVED BEFORE FINAL ACCEPTANCE.
 - F. PROVIDE ALL NECESSARY CUTTING AND PATCHING OF WALLS, FLOORS, CEILINGS, AND ROOFS AS NECESSARY. PATCH AROUND ALL OPENINGS SHALL MATCH ADJACENT AREA. COORDINATE ALL ROOFING WORK WITH OWNER OR RESPONSIBLE PARTY, SO THAT THE EXISTING ROOFING WARRANTY WILL BE MAINTAINED.
 - G. CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS AGAINST DEFECTS FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE.
 - H. CONTRACTOR SHALL PROVIDE ACCESS PANELS WHERE NECESSARY FOR CONCEALED ELECTRICAL COMPONENTS.
2. OPERATION AND MAINTENANCE MANUALS:
 - A. DURING THE COURSE OF CONSTRUCTION, COLLECT AND COMPILE OPERATING INSTRUCTIONS, WIRING DIAGRAMS, CATALOG CUTS, LUBRICATION AND PREVENTIVE MAINTENANCE INSTRUCTIONS, PARTS LISTS, ETC. FOR ALL EQUIPMENT FURNISHED UNDER THIS CONTRACT.
 - B. ALL LITERATURE AND INSTRUCTIONS SHIPPED WITH THE EQUIPMENT SHALL BE SAVED FOR INCLUSION IN THE OPERATION AND MAINTENANCE MANUALS.
 - C. ALL LITERATURE LISTED ABOVE AND ALL PAPERS LISTING WARRANTIES, ETC. SHALL BE COLLATED AND LABELED WITH THE PROJECT NAME, ADDRESS, ARCHITECT, ENGINEER, CONTRACTORS, ETC. CONTRACTORS, ETC. DOCUMENTS SHALL BE COMPILED AND BOUND IN DIGITAL FILE OR 3 RING BINDER.
3. MANUFACTURERS:
 - A. MANUFACTURERS, MODEL NUMBERS, ETC. INDICATED OR SCHEDULED ON THE DRAWINGS SHALL BE INTERPRETED AS HAVING ESTABLISHED A STANDARD OF QUALITY AND SHALL NOT BE CONSTRUED AS LIMITING COMPETITION. ARTICLES, FIXTURES, ETC. OF EQUAL QUALITY BY MANUFACTURERS SHALL BE ACCEPTABLE, SUBJECT TO STRUCTURAL AND ELECTRICAL CONSTRAINTS OF THE PROJECT DESIGN, UNLESS NOTED OTHERWISE.
4. TESTING, AND BALANCING:
 - A. ALL CIRCUITS SHALL BE TESTED FOR CONTINUITY, SHORTS, AND GROUNDS BEFORE CONNECTING TO THE PROPER PHASE AS DESIGNED TO BALANCE THE LOADING BETWEEN PHASES.
 - B. POWER AND LIGHTING PANELS SHALL BE PROPERLY PHASED TO DISTRIBUTE THE LOAD AND SHALL BE CONNECTED AND ADJUSTED TO OPERATE AS SPECIFIED.
 - C. ALL MOTORS AND SIMILAR EQUIPMENT SHALL BE CHECKED FOR PROPER PHASE ROTATION AND OPERATION.
5. RACEWAYS:
 - A. CONDUIT INSIDE THE BUILDING SHALL BE METALLIC TUBING (EMT), BEARING THE UL LABEL, WITH COMPRESSION TYPE FITTINGS OR SCREW SET FITTINGS.
 - B. CONDUIT EXPOSED TO THE WEATHER, INSTALLED UNDERGROUND, IN CONCRETE, OR USED FOR SERVICE ENTRANCE SHALL BE STANDARD RIGID CONDUIT (GALVANIZED) WITH THREADED FITTINGS.
 - C. UNDERGROUND CONDUIT MAY BE POLYVINYL CHLORIDE WITH A DEFLECTION TEMPERATURE, UNDER LOAD AT 264 PSI, OF 78 DEGREES C, AND A TENSILE STRENGTH OF 5,200 PSI. JOINTS SHALL BE FLUSH SOLVENT WELDED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. CONDUIT SHALL BE EQUAL TO CARLON POWER AND COMMUNICATIONS DUCT TYPE DB (DIRECT BURIAL). CONDUIT AND FITTINGS SHALL BE PRODUCED BY THE SAME MANUFACTURER.
 - D. FLEXIBLE METAL CONDUIT SHALL ONLY BE USED FOR CONNECTIONS TO MOTORS, TRANSFORMERS, AND LIGHT FIXTURES. MAXIMUM LENGTH SHALL BE 6'-0".
6. CONDUCTORS:
 - A. WIRES SHALL BE CONTINUOUS WITHOUT SPLICES OR TAPS IN CONDUIT RUNS. ALL SPLICES SHALL BE MADE IN JUNCTION, PULL, OR OUTLET BOXES. ALL WIRE SHALL BE INSTALLED IN CONDUIT, WIREWAYS, OR OTHER PROTECTIVE COVER SANCTIONED BY CODES.
 - B. CONDUCTORS FOR LIGHTING AND POWER SHALL BE COPPER, MINIMUM NO. 12 A.W.G., 600 VOLT.
 - C. NO. 10 GAUGE AND SMALLER CONDUCTORS SHALL BE TYPE THWN (WET LOCATIONS) OR THHN (DRY LOCATIONS), SOLID CONDUCTOR, UNLESS OTHERWISE INDICATED.
 - D. NO. 8 GAUGE AND LARGER CONDUCTORS SHALL BE TYPE THWN (WET LOCATIONS) OR THHN (DRY LOCATIONS), STRANDED, UNLESS OTHERWISE INDICATED.
 - E. SERVICE ENTRANCE AND PANEL FEEDER CONDUCTORS, NO. 3 GAUGE AND LARGER SHALL BE TYPE XHHW-2 (WET LOCATIONS) OR THHN (DRY LOCATIONS), STRANDED COPPER, UNLESS OTHERWISE INDICATED.
7. MC CABLE:
 - A. MC CABLE SHALL CONSIST OF INTERLOCK ARMORED CABLE MADE OF THREE OR FOUR TYPE THHN SOLID (#8 AWG AND LARGER MAY BE STRANDED) COPPER CONDUCTORS RATED 90°C FOR DRY LOCATIONS, WITH NYLON OR EQUIVALENT UL LISTED JACKET, PER UL STANDARD 83 THE THREE CONDUCTORS SHALL BE TWISTED TOGETHER WITH THE COPPER GROUNDING CONDUCTOR, SUITABLE FILLERS, AND WRAPPED IN BINDER TAPE. THE ASSEMBLY SHALL BE ARMORED WITH SPIRALLY WRAPPED INTERLOCKED ARMOR OF ALUMINUM OR GALVANIZED STEEL.
 - B. CABLES SHALL BE TESTED IN ACCORDANCE WITH UL STANDARD 1569 FOR TYPE MC CABLE AND RATED AT 600 VOLTS, 90 DEG. C FOR DRY LOCATIONS AND 75 DEG. C FOR WET LOCATIONS.
 - C. MC CABLE INSTALLED IN PATIENT CARE AREAS SHALL BE "HCF" TYPE WITH GREEN INSULATED COPPER GROUNDING CONDUCTOR, BARE ALUMINUM GROUNDING/BONDING CONDUCTOR AND INTERLOCKED GREEN ALUMINUM ARMOR LISTED FOR USE AS AN EQUIPMENT GROUNDING CONDUCTOR IN CONDUIT WITH THE BARE ALUMINUM BONDING CONDUCTOR.
 1. CABLES SHALL MEET ALL NEC REQUIREMENTS FOR ARTICLE 517 AND SHALL BE UL LISTED FOR USE IN HEALTH CARE FACILITIES.
 2. HCF CABLE SHALL NOT BE USED IN HAZARDOUS ANESTHETIZING AREAS.
8. WIRING DEVICES:
 - A. WALL SWITCHES SHALL BE SPECIFICATION GRADE, QUIET TYPE, FLUSH TOGGLE SWITCH, RATED FOR 20 AMPS, WITH THERMOPLASTIC COVER PLATES.
 1. SINGLE POLE: HUBBELL #CS1221-X, OR EQUAL.
 2. THREE WAY: HUBBELL #CS1223-X, OR EQUAL.
 3. AS SPECIFIED ON PLANS
 - B. RECEPTACLES SHALL BE SPECIFICATION GRADE, DUPLEX, GROUNDING, THREE-WIRE TYPE, RATED FOR 20 AMPS, WITH THERMOPLASTIC COVER PLATES. HUBBELL #CR5352-X, OR EQUAL.
 - C. GROUND FAULT INTERRUPTER RECEPTACLES (GFI) SHALL BE HUBBELL #GF20-XL. DEVICE COVER PLATES SHALL BE AS HEREINBEFORE SPECIFIED.
 - D. ISOLATED GROUND RECEPTACLES (IG) SHALL BE HUBBELL #CR5352IG, ORANGE COLOR. DEVICE COVER PLATES SHALL BE AS HEREINBEFORE SPECIFIED.
 - E. RECEPTACLES OUTSIDE BUILDING AND WHERE NOTED AS WEATHERPROOF, SHALL BE LISTED "WEATHER-RESISTANT" HUBBELL #GFTR20-X OR EQUAL AND SHALL BE INSTALLED IN A WEATHERPROOF ENCLOSURE WHICH SHALL BE INTERMATIC #WPP1010HMXD OR #WPP1010HMXD DIECAST METAL WEATHERPROOF RECEPTACLE COVER. COVER SHALL BE WEATHER PROOF RATED WHILE IN USE.
 - F. VERIFY DEVICES AND DEVICE COVERPLATES COLOR AND STYLE WITH ARCHITECT.
9. BOXES:
 - A. HOT DIPPED GALVANIZED STEEL BOXES. PROVIDE TYPE TO SUIT CONDITIONS FOR INSTALLATION.
 - B. ALL BOXES SHALL BE FLUSH MOUNTED, UNLESS INDICATED OTHERWISE.
10. PANELBOARDS:
 - A. FURNISH AND INSTALL CIRCUIT BREAKER PANELBOARDS AS SHOWN ON THE DRAWINGS. PANELBOARDS SHALL BE LISTED BY UL AND SO LABELED, AND SHALL BE FULLY RATED FOR THE VOLTAGE AND CURRENT CAPACITY INDICATED ON THE PANEL SCHEDULE. PANELBOARDS SHALL BE EQUAL TO SQUARE D TYPE NQ OR NF WITH BOLT IN TYPE BREAKERS. PANELBOARD LUGS SHALL BE RATED AT 75°C.
 1. CIRCUIT BREAKER INTERRUPTING CAPACITIES SHALL MEET OR EXCEED THE AVAILABLE RMS SYMMETRICAL FAULT CURRENTS INDICATED AND AS REQUIRED TO MEET OR EXCEED THE AVAILABLE FAULT CURRENT FROM LOCAL UTILITY.
 - B. CIRCUIT BREAKERS SHALL MEET APPLICABLE PORTIONS OF UL STANDARD 489 AND NEMA AB-1. CIRCUIT BREAKERS SHALL BE BOLT-ON, GROUP MOUNTED, AMBIENT MAGNETIC, WITH COMMON TRIP, UL RATED TO CARRY 80% OF NAMEPLATE RATING CONTINUOUSLY IN FREE AIR AT 40°C. CIRCUIT BREAKERS SHALL BE TRIP INDICATING AND FULLY INTERCHANGEABLE WITHOUT DISTURBING ADJACENT UNITS. WIRE TERMINALS SHALL BE RATED 75 DEGREES C. THE OPERATING MECHANISM SHALL BE TRIP-FREE SO THAT CONTACTS CANNOT BE HELD CLOSED AGAINST ANY ABNORMAL OVERCURRENT OR SHORT CIRCUIT CONDITION.
 - a. BREAKERS SHALL MEET APPLICABLE NEMA AND/OR UL SPECIFICATIONS.
 - C. PANELBOARD BOXES SHALL BE GALVANIZED SHEET STEEL WITH AMPLE WIRING GUTTER SPACE IN ACCORDANCE WITH NEC. FRONTS SHALL BE OF SHEET STEEL PAINTED LIGHT GREY OVER A SUITABLE RUST INHIBITOR PRIMER. PANELBOARDS SHALL BE EQUIPPED WITH ONE PIECE DOOR, CYLINDER TUMBLER TYPE LOCK, DIRECTORY CARD-HOLDER AND QUARTER-TURN ADJUSTABLE TRIM CLAMPS.
 - D. PANELBOARD INTERIORS SHALL CONSIST OF REINFORCED GALVANIZED SHEET STEEL FRAMES WITH ALUMINUM BUS BARS AND CIRCUIT BREAKERS, PROPERLY SUPPORTED TO PREVENT VIBRATIONS AND BREAKAGE IN HANDLING. BUS BARS SHALL BE SEQUENCE PHASED. PANELBOARD SHALL HAVE A FULL SIZED SOLID ALUMINUM NEUTRAL AND GROUND BUS.
 - E. BUS BAR BRACING SHALL BE UL LISTED AS INDICATED ON DRAWINGS. ADDITIONAL BRACING SHALL BE PROVIDED AS REQUIRED TO MEET OR EXCEED INDICATED AVAILABLE FAULT CURRENTS.
 - F. DIRECTORY CARDS SHALL BE COMPLETELY FILLED IN BY TYPEWRITER, LISTING CIRCUIT NUMBERS AND LOAD SERVED, INCLUDING EXISTING CIRCUITS. CIRCUIT BREAKERS SHALL BE IDENTIFIED BY CIRCUIT NUMBER LABELS AS HEREINBEFORE SPECIFIED.
11. LOAD CENTERS:
 - A. FURNISH AND INSTALL CIRCUIT BREAKER LOAD CENTERS AS SHOWN ON THE DRAWINGS. LOAD CENTERS SHALL BE LISTED BY UL AND SO LABELED, AND SHALL BE FULLY RATED FOR THE VOLTAGE AND CURRENT CAPACITY INDICATED ON THE PANEL SCHEDULE. LOAD CENTERS SHALL BE EQUAL TO GENERAL ELECTRIC POWER MARK SERIES WITH PLUG IN TYPE BREAKERS.
 - B. CIRCUIT BREAKERS SHALL MEET APPLICABLE PORTIONS OF UL STANDARD 489 AND NEMA AB-1. CIRCUIT BREAKERS SHALL BE PLUG-IN TYPE, WITH COMMON TRIP, UL RATED TO CARRY 100% OF NAMEPLATE RATING CONTINUOUSLY IN FREE AIR AT 25 DEGREE C. CIRCUIT BREAKERS SHALL BE TRIP INDICATING AND FULLY INTERCHANGEABLE WITHOUT DISTURBING ADJACENT UNITS. WIRE TERMINALS SHALL BE RATED 75 DEGREES C.
 1. BREAKERS SHALL MEET APPLICABLE NEMA AND/OR UL SPECIFICATIONS.
 2. ALL BREAKERS SHALL BE "HACR" RATED.
 - C. PANELBOARD BOXES SHALL BE GALVANIZED SHEET STEEL WITH AMPLE WIRING GUTTER SPACE IN ACCORDANCE WITH NEC. FRONTS SHALL BE OF SHEET STEEL PAINTED LIGHT GREY OVER A SUITABLE RUST INHIBITOR PRIMER. PANELBOARDS SHALL BE EQUIPPED WITH ONE PIECE DOOR, SEMI-CONCEALED HINGES, DOOR LATCH, AND DIRECTORY CARD-HOLDER.
 - D. PANELBOARD INTERIORS SHALL CONSIST OF REINFORCED GALVANIZED SHEET STEEL FRAMES WITH ALUMINUM BUS BARS AND CIRCUIT BREAKERS, PROPERLY SUPPORTED TO PREVENT VIBRATIONS AND BREAKAGE IN HANDLING. BUS BARS SHALL BE SEQUENCE PHASED. PANELBOARD SHALL HAVE A FULL SIZED SOLID ALUMINUM NEUTRAL AND GROUND BUS.
 - E. BUS BAR BRACING SHALL BE UL LISTED AT 10,000 SYMMETRICAL AMPERES MINIMUM. ADDITIONAL BRACING SHALL BE PROVIDED AS REQUIRED TO MEET OR EXCEED INDICATED AVAILABLE FAULT CURRENTS.
 - F. DIRECTORY CARDS SHALL BE COMPLETELY FILLED IN BY TYPEWRITER, LISTING CIRCUIT NUMBERS AND LOAD SERVED. CIRCUIT BREAKERS SHALL BE IDENTIFIED BY CIRCUIT NUMBER LABELS AS HEREINBEFORE SPECIFIED.
12. DISTRIBUTION PANEL:
 - A. THE DISTRIBUTION PANEL SHALL BE EQUAL TO SQUARE D I-LINE SERIES TYPE AND SHALL BE LOW VOLTAGE, CONFIGURED AS SHOWN ON THE DRAWINGS. THE MAIN DISTRIBUTION PANELS SHALL BE DESIGNED TO MEET UL AND NEMA STANDARDS. BUS BARS SHALL BE NONTAPERED, COPPER AND MOUNTED ON SUPPORTS OF HIGH IMPACT, NON-TRACKING INSULATING MATERIAL.
 1. A GROUND BUS SHALL BE FURNISHED. THE MAIN DISTRIBUTION PANEL SHALL HAVE A FULL SIZED SOLID COPPER NEUTRAL AND GROUND BUS. WIRE TERMINALS SHALL BE SOLDERLESS TYPE SUITABLE FOR COPPER CABLE OF THE SIZES INDICATED. MAIN DISTRIBUTION PANEL SHALL BE BRACED TO WITHSTAND MECHANICAL FORCES UP TO 65,000 AMPS SYM.
 - B. DISTRIBUTION PANEL DEVICES:
 1. MOLDED CASE CIRCUIT BREAKERS SHALL BE THERMAL MAGNETIC CONSTRUCTION. (ALL CIRCUIT BREAKERS SHALL HAVE SUFFICIENT INTERRUPTED CAPACITY RATINGS TO PROPERLY CLOSE AGAINST AND INTERRUPT INSTANTANEOUSLY THE MAXIMUM SHORT-CIRCUIT CURRENT AVAILABLE AT THE CIRCUIT BREAKER.) INTERRUPTING CAPACITIES SHALL COMPLY WITH INDICATED AVAILABLE FAULT CURRENT. THE QUANTITY AND CONTINUOUS CURRENT RATINGS OF THE CIRCUIT BREAKERS SHALL BE AS INDICATED ON THE DRAWINGS.
 2. CIRCUIT BREAKERS SHALL MEET APPLICABLE PORTIONS OF UL STANDARD 489 AND NEMA PB-1. CIRCUIT BREAKERS SHALL BE BOLT-ON, GROUP MOUNTED, AMBIENT COMPENSATED, MOLDED CASE, QUICK-MAKE, QUICK-BREAK, THERMAL-MAGNETIC, WITH COMMON TRIP, UL RATED TO CARRY 80% OF NAMEPLATE RATING CONTINUOUSLY IN FREE AIR AT 25 DEGREES C. CIRCUIT BREAKERS SHALL BE TRIP INDICATING AND FULLY INTERCHANGEABLE WITHOUT DISTURBING ADJACENT UNITS. WIRE TERMINALS SHALL BE RATED 75 DEGREES C. THE OPERATING MECHANISM SHALL BE TRIP-FREE SO THAT CONTACTS CANNOT BE HELD CLOSED AGAINST ANY ABNORMAL OVERCURRENT OR SHORT CIRCUIT CONDITION.
 - a. BREAKERS SHALL MEET APPLICABLE NEMA AND/OR UL SPECIFICATIONS.
 - C. BUS BAR BRACING SHALL BE UL LISTED AT 65,000 SYMMETRICAL AMPERES MINIMUM. ADDITIONAL BRACING SHALL BE PROVIDED AS REQUIRED TO MEET OR EXCEED INDICATED AVAILABLE FAULT CURRENTS.
 - D. THE DISTRIBUTION PANEL AND ALL LOW VOLTAGE PROTECTIVE DEVICES SHALL BE IDENTIFIED WITH PHENOLIC ENGRAVED NAME TAGS SHOWING DRAWINGS DESIGNATIONS AND LOADS BEING FED.
 - E. THE PANEL SHALL BE SERVICE ENTRANCE RATED.
 - F. THE PANEL SHALL BE EQUIPPED WITH MAIN BREAKER.
13. DISCONNECTS:
 - A. DISCONNECTS SHALL BE EXTERNALLY OPERATED, QUICK-MAKE, QUICK-BREAK, SAFETY, WITH PROVISIONS FOR PAD LOCKING. FUSED AND NON-FUSED DISCONNECT SWITCHES SHALL BE PROVIDED AS INDICATED.
 - B. INDOOR SWITCHES SHALL BE NEMA 1 AND OUTDOOR SWITCHES SHALL BE NEMA 3R, UNLESS INDICATED OTHERWISE.
14. FUSES:
 - A. FUSES PROTECTING CIRCUIT BREAKER PANELS SHALL BE CURRENT LIMITING U.L. CLASS RK-1 FUSES WITH 200,000 AMPERES RMS SYM INTERRUPTING CAPACITY. FUSING ELEMENTS SHALL BE SILVER FOR RATINGS ABOVE 60 AMPERES.
 - B. ALL OTHER FUSES SHALL BE U.L. CLASS RK-5, DUAL-ELEMENT WITH A MINIMUM TIME-DELAY OF 10 SECONDS AT 500% RATING. FUSES SHALL HAVE CURRENT-LIMITING SHORT-CIRCUIT LINKS AND 200,000 AMPERES RMS SYM INTERRUPTING CAPACITY. FUSING ELEMENTS SHALL BE COPPER.
15. LIGHT FIXTURES:
 - A. WHERE LIGHT FIXTURES ARE MOUNTED IN A LAY-IN CEILING, PROVIDE A MINIMUM OF 2 SUPPORT WIRES ATTACHED DIRECTLY BETWEEN EACH LIGHT FIXTURE AND THE BUILDING STRUCTURE. SUPPORT WIRES SHALL BE A MINIMUM OF 12 GAUGE GALVANIZED STEEL WIRE, SOFT ANNEALED.
 - B. FIXTURES ARE REQUIRED AT ALL LIGHTING OUTLETS SHOWN ON THE DRAWINGS. APPROVED LIGHTING FIXTURE WIRE IS REQUIRED IN ALL FIXTURES AND FIXTURE RACEWAYS. WEATHERPROOF WIRING IS REQUIRED FOR EXTERIOR FIXTURES. ALL PARTS OF FIXTURES AND WIRING SHALL BE IN ACCORDANCE WITH NEC REQUIREMENTS.
 - C. ALL FIXTURES SHALL CARRY UL AND ETL LABELS.
16. SLEEVES:
 - A. PROVIDE, SET, AND PROPERLY LOCATE PIPE SLEEVES AS REQUIRED FOR THIS WORK.
 - B. INTERIOR PARTITIONS: 16 GAGE GALVANIZED STEEL, PACK BETWEEN CONDUIT AND SLEEVE WITH FIRE SAFING AND CAULK AT EACH END WITH FIRE RESISTANT SEALANT.
 - C. ROOF: PROSET OR EQUAL, MANUFACTURED PVC SCHEDULE 40 PIPE SLEEVE WITH WEATHERPROOF SEAL. COORDINATE WITH ROOFING CONTRACTOR AND FLASH AS REQUIRED TO MAINTAIN ROOF WARRANTY.
17. GROUNDING:
 - A. GROUND ALL ELECTRICAL APPARATUS IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC) 250, AND ANY LOCAL REQUIREMENTS. INSURE CONTINUOUS BOND WHERE FLEXIBLE CONDUIT IS USED. PROVIDE BONDING JUMPER INSIDE ALL FLEXIBLE CONDUIT.
 - B. BOND METAL PIPING SYSTEMS IN COMPLIANCE WITH NEC 250.4(A)(4).
18. BOXES IN FIRE RATED ASSEMBLIES:
 - A. OUTLET BOXES THAT DO NOT EXCEED 16 SQUARE INCHES AND INSTALLED IN FIRE RATED WALLS SHALL NOT BE INSTALLED CLOSER THAN 24" HORIZONTAL INCHES TO OTHER OUTLET BOXES.
 - B. IF BOXES MUST BE INSTALLED WITHIN 24" OF EACH OTHER THAN BOTH OUTLET BOXES SHALL BE PROTECTED WITH LISTED PUTTY PADS, 3M FIRE BARRIER MOLDABLE PUTTY + OR EQUAL.



2 TYPICAL MOUNTING HEIGHTS
E-001 1/2" = 1'-0"

BC PROJECT # 23860
TEXAS PE COA #F-15978

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5720 Reeder Shawnee, KS 66203 (913)282-1772

a new restaurant for:
Freddy's

**N East End Blvd - Lowes Outparcel
Marshall, TX 75670**

date 01.24.2024
drawn by MS/AK
checked by EK/DS
revisions 5/22/24

sheet number
E-001

drawing type preliminary
project number 23006-08



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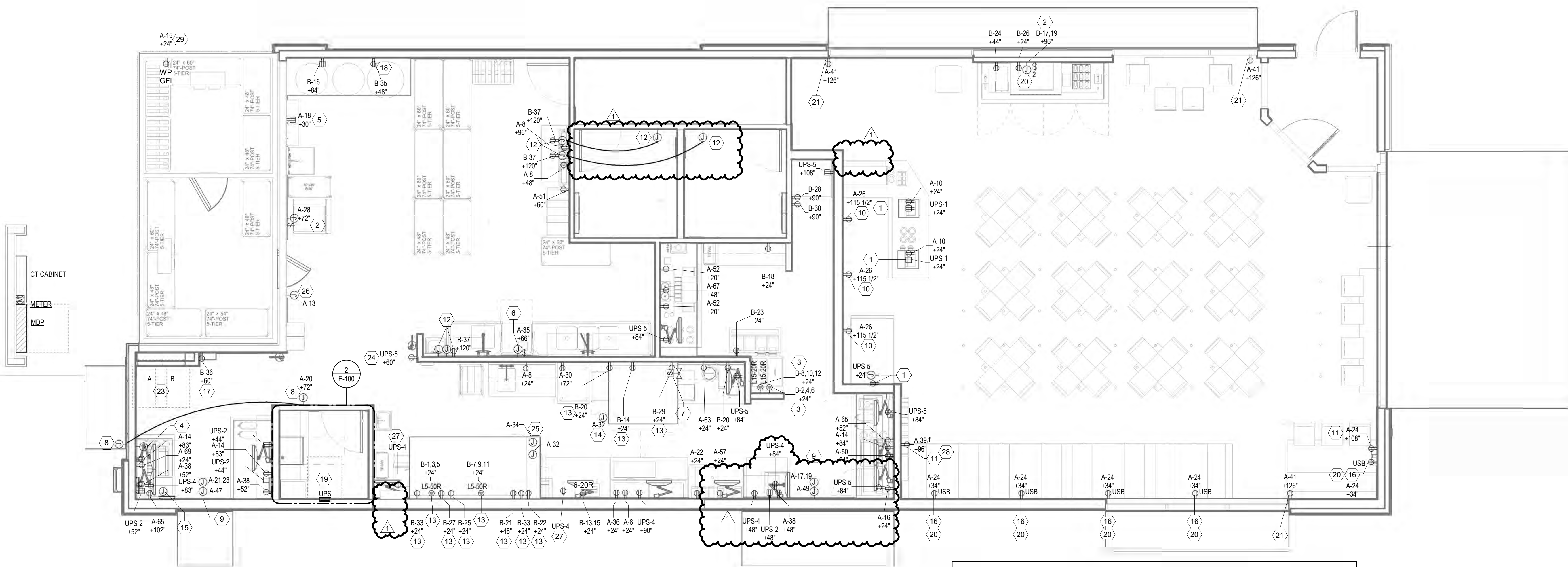
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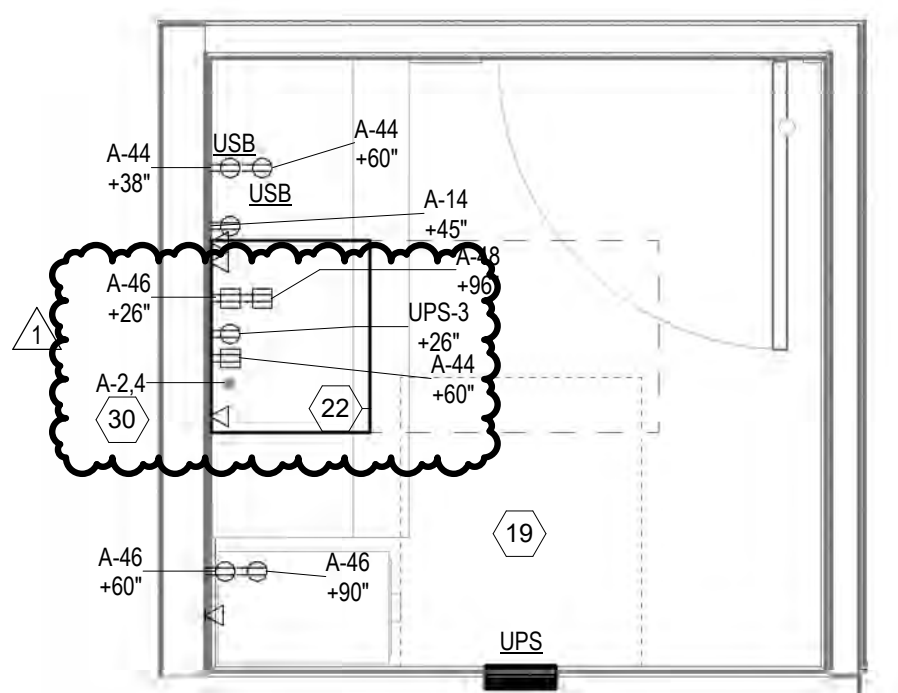
sheet number

E-100

drawing type
preliminary
project number
23006-08



1 POWER PLAN
1/4" = 1'-0"



2 ENLARGED OFFICE POWER PLAN
1/2" = 1'-0"

ELECTRICAL KEYNOTES

- DEVICES MOUNTED IN CASEWORK, RUN CONDUITS AND MOUNT DEVICES TIGHT TO BACK WALL OF INSIDE CABINET. CONNECT TO REMOTE CONDENSING UNIT ON ROOF. REF SHEET E-101 VERIFY EXACT LOCATION.
- OWNER FURNISHED CUSTARD MACHINES, E.C. TO PROVIDE NEMA L15-20P PLUG AND NEMA L15-20R RECEPTACLE.
- JUNCTION BOX FOR HOOD FIRE SUPPRESSION SYSTEM PULL STATIONS. VERIFY MOUNTING HEIGHT.
- CONNECT TO WATER HEATER CONTROLS PER MANUFACTURER'S INSTRUCTIONS.
- JUNCTION BOX WITH DISCONNECTING MEANS CAPABLE OF BEING LOCKED IN THE OPEN POSITION FOR CONNECTION TO DISHWASHER. SEE ARCHITECTURAL ELEVATIONS FOR LOCATION.
- PROVIDE CIRCUITING AND FINAL CONNECTION BETWEEN GAS SOLENOID AND HOOD CONTROL PANEL. REFER TO CAPTIVE AIRE HOOD DRAWINGS ON MECHANICAL PLANS.
- PROVIDE NUTONE #BK240SLP OR EQUAL COMMERCIAL DOOR CHIME AND PUSHBUTTON. VERIFY LOCATION OF INDOOR CHIME UNIT WITH OWNER.
- (2) JUNCTION BOXES AT DRIVE THROUGH WINDOW, ONE ABOVE WITH DISCONNECTING MEANS FOR AIR CURTAIN, ONE BELOW FOR POWERED MOTORIZED WINDOW OPERATOR. CONNECT TO AIR CURTAIN AND MOTOR PER MANUFACTURER'S INSTRUCTIONS. VERIFY EXACT LOCATION WITH EQUIPMENT SUPPLIER.
- PROVIDE RECEPTACLE, IN COMBINATION POWERDATA J-BOX EQUAL TO HUBBELL #HBL985 WALL BOX WITH #HBL989 LOW VOLTAGE PARTITION & RR1514W FACE PLATE, IN MENUBOARD SOFFIT, 22" UP FROM THE BOTTOM FOR DIGITAL MENUBOARDS. COORDINATE EXACT LOCATION IN FIELD PRIOR TO ROUGH-IN.
- PROVIDE RECESSED CLOCK HANGER RECEPTACLE, HUBBELL #HBL5235 OR EQUAL FOR NEON SIGN. COORDINATE EXACT LOCATION IN FIELD PRIOR TO ROUGH-IN REFER TO ARCHITECTURAL ELEVATION.
- PAPER TOWEL DISPENSER/TRASH RECEPTACLE. INSTALL 24V AC CONVERSION KIT TO CONVERT UNIT FROM BATTERY POWERED TO HARDWIRED. PROVIDE A UL LISTED 24V TRANSFORMER, 10VA MINIMUM, AND DUPLEX RECEPTACLE ABOVE ACCESSIBLE CEILING FOR TRANSFORMER POWER. ROUTE TRANSFORMER OUTPUT CORD THROUGH WALL INTO DISPENSER +60" AFF, PROVIDE ADDITIONAL CORD LENGTH AS REQUIRED. REFERENCE MANUFACTURER'S INSTRUCTION FOR FURTHER INFORMATION. SEE ARCHITECTURAL DETAILS.
- ROUTE CIRCUIT TO PANEL VIA HOOD FIRE SUPPRESSION CONTACTOR IN CPI CABINET.
- CONNECT TO HOOD LIGHTS ROUTE CIRCUIT TO HOOD CONTROL PANEL.
- PROVIDE 1" FROM SPEAKER POST(S) TO J-BOX AT DRIVE-THRU WINDOW FOR HEADSET RECEIVERBASE.
- BOOTH RECEPTACLES SHALL BE TAMPER RESISTANT WITH (2) INTEGRAL USB PORTS. MOUNT HORIZONTALLY. COORDINATE RECEPTACLE LOCATION WITH ARCHITECTURAL ELEVATIONS PRIOR TO ROUGH-IN.
- 1" CONDUIT DOWN IN WALL TO UNDERGROUND AND OUT INTO NEARBY LANDSCAPE AREA FOR IRRIGATION CONTROLS. VERIFY EXACT REQUIREMENTS WITH ARCHITECT.
- RECEPTACLE FOR CO2 SENSOR LOCATED ABOVE CO2 CYLINDER.
- REFER TO SHEET E-300 FOR ALL COMMUNICATIONS ROUGH-IN REQUIREMENTS. REFER TO ARCHITECTURAL ELEVATIONS FOR EXACT PLACEMENT OF DEVICES IN OFFICE.
- ALL HOME RUNS IN FRONT OF HOUSE SHOULD BE RUN UNDERGROUND TO KEEP FRONT OF HOUSE EXPOSED CEILING SPACE CLEAR OF ELECTRICAL RUNS.
- RECEPTACLE FOR MOTORIZED BLINDS. LOCATE 18" ABOVE ALL SOUTHERLY AND WESTERLY FACING WINDOWS. REFER TO ARCHITECTURAL ELEVATIONS.
- WALL MOUNTED DATA RACK. MOUNT ON WALL TIGHT TO LAY-IN CEILING. MODIFY RACK AS NEEDED TO ALLOW FOR REAR ENTRY OF ALL LV CABLES AND ACCESS TO FLUSH MOUNTED QUAD RECEPTACLE INSIDE RACK ENCLOSURE. VERIFY ROUGH-IN LOCATIONS WITH ARCHITECTURAL ELEVATIONS. REFER TO SHEETS E-300 AND E-301 FOR ADDITIONAL RACK REQUIREMENTS AND INFORMATION.
- CPI ELECTRICAL CABINET INCLUDES LIGHTING CONTROLS, PANEL A AND PANEL B.
- MOUNT RECEPTACLE IN PEERLESS-AV1BA3 IN-WALL BOX FOR POWER AND STORAGE OF IPAD CHARGING STATIONS LV POWER SUPPLIES.
- LOCATION OF HOOD CONTROL PANEL. REFER TO MECHANICAL PLANS FOR MORE INFORMATION. CONNECT TO LIGHTS AND CONTROLS PER SUPPLIER'S INSTRUCTIONS.
- CONNECT TO WALK-IN COOLER/FREEZER LIGHTS, DOOR HEAT, EVAPORATOR AND CONDENSING UNIT PER MANUFACTURER'S INSTRUCTIONS. VERIFY EXACT LOCATION OF CONDENSING UNITS ON ROOF. PROVIDE INTERCONNECT BETWEEN COMPRESSOR EVAPORATOR COIL & TIMECLOCK. VERIFY ALL DETAILS WITH MANUFACTURER'S SHOP DRAWINGS. EC TO PROPERLY SEAL PENETRATIONS THROUGH WALK-IN COOLER/FREEZER BOX PER MANUFACTURER'S REQUIREMENTS. MOUNT FACTORY PROVIDED DEFROST TIMER AT CONDENSING UNIT.
- CEILING MOUNTED RECEPTACLE FOR POLE MOUNTED KDS MONITOR. ROUTE MONITOR CABLE SECURED DOWN POLE TO MONITOR.
- ROUTE LIGHTING CIRCUIT THROUGH MANUAL LIGHT SWITCHES AND THEN TO LIGHTING CONTACTOR. ROUTE SWITCH LEG OF CIRCUIT THROUGH TIMECLOCK FOR AUTOMATIC SHUTOFF PER ENERGY CODE REQUIREMENTS. PROVIDE UNSWITCHED "HOT" CONDUCTOR ROUTED AHEAD OF LIGHTING CONTROLS FOR EXIT, EMERGENCY AND NIGHT-LIGHTS. REFER TO LIGHTING CONTROL DIAGRAM SHEET E-200.
- CONNECT TO WALK-IN REFRIGERATOR. COORDINATE WITH PLUMBING CONTRACTOR.
- POWER FOR DATA RACK. REFER TO RISER DIAGRAM FOR MORE INFORMATION ON SHEET E-400.

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TEXAS PE COA #F-15876

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