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 5 — ROOM NAME AND NUMBER
- ITEM TO BE DEMOLISHED
- AREA NOT IN CONTRACT
- 2" — PIPE SIZE TAG (DIAMETER)
- ABOVE GROUND PIPING
- 1/8" / 12" SLOPE — PIPE SLOPE TAG
- BELOW GROUND PIPING
- INVERT: -105'-1" — PIPE INVERT ELEVATION TAG
- (E) — 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	MCF	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	MU/A	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	RL/A	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

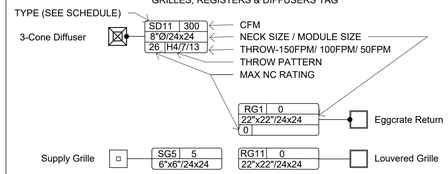
* NOTE *

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.

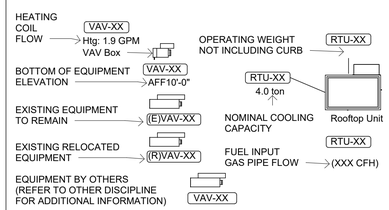
HVAC SYMBOLS

- 18"x12" — SQUARE DUCT SIZE TAG (WIDTH x HEIGHT)
- 18"/12" — OVAL DUCT SIZE TAG (WIDTH / HEIGHT)
- 18"Ø — ROUND DUCT SIZE TAG (DIAMETER)
- (E) — EXISTING DUCT TAG
- DUCT BEING DEMOLISHED
- 18"x18" S/A — SUPPLY AIR
- 18"x18" S-O/A — CONDITIONED OUTSIDE AIR
- 18"x18" O/A — OUTSIDE AIR
- 18"x18" R/A — RETURN AIR
- 18"x18" T/A — TRANSFER AIR
- 18"x18" E/A — EXHAUST AIR
- 18"x18" L/A — RELIEF AIR
- 18"x18" GE/A — GREASE EXHAUST AIR
- 18"x18" CE/A — CONDENSATE EXHAUST AIR
- 18"x18" SE/A — SMOKE EXHAUST AIR
- 6"Ø FLUE — EXHAUST GAS FLUE
- 6"Ø C/A — COMBUSTION AIR
- DROP — RECTANGULAR SUPPLY/OUTSIDE AIR DUCT RISE
- DROP — ROUND SUPPLY/OUTSIDE AIR DUCT RISE
- DROP — RECTANGULAR RETURN/TRANSFER AIR DUCT RISE
- DROP — ROUND RETURN/TRANSFER AIR DUCT RISE
- DROP — RECTANGULAR EXHAUST/RELIEF AIR DUCT RISE
- DROP — ROUND EXHAUST/RELIEF AIR DUCT RISE

GRILLES, REGISTERS & DIFFUSERS TAG



MECHANICAL EQUIPMENT TAGS

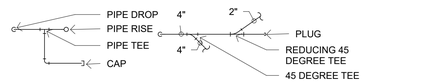


DAMPER TAGS

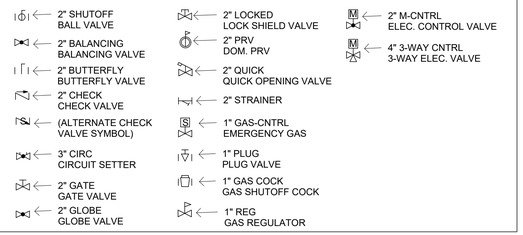
- SD — Smoke Damper
- FD — Fire Damper
- FSD — Comb. Fire/ Smoke Damper
- B — Manual Damper
- M — Motorized Damper
- BDD — Backdraft Damper

PIPING SYMBOLS

- CHWR — CHILLED WATER RETURN
- CHWS — CHILLED WATER SUPPLY
- CD — CONDENSATE DRAINAGE
- CWR — CONDENSER WATER RETURN
- CWS — CONDENSER WATER SUPPLY
- GWR — GEOTHERMAL WATER RETURN
- GWS — GEOTHERMAL WATER SUPPLY
- HWR — HEATING WATER RETURN
- HWS — HEATING WATER SUPPLY
- G — NATURAL GAS
- PG — PROPANE GAS
- REF-L — REFRIGERANT-LIQUID
- REF-S — REFRIGERANT-SUCTION
- REF-HG — REFRIGERANT-HOT GAS
- STM — STEAM
- CDR — CONDENSATE RETURN



PIPE ACCESSORY TAGS



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4/17/24
LICENSED PROFESSIONAL ENGINEER
ERIK BRADLEY KNUDSEN
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OKLAHOMA

a new restaurant for:
Freddy's
1000 Lonnie Abbott Blvd
Ada, OK 74820

date
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23006-15

BC PROJECT #: 24221
OKLAHOMA PE COA #CA1900PE

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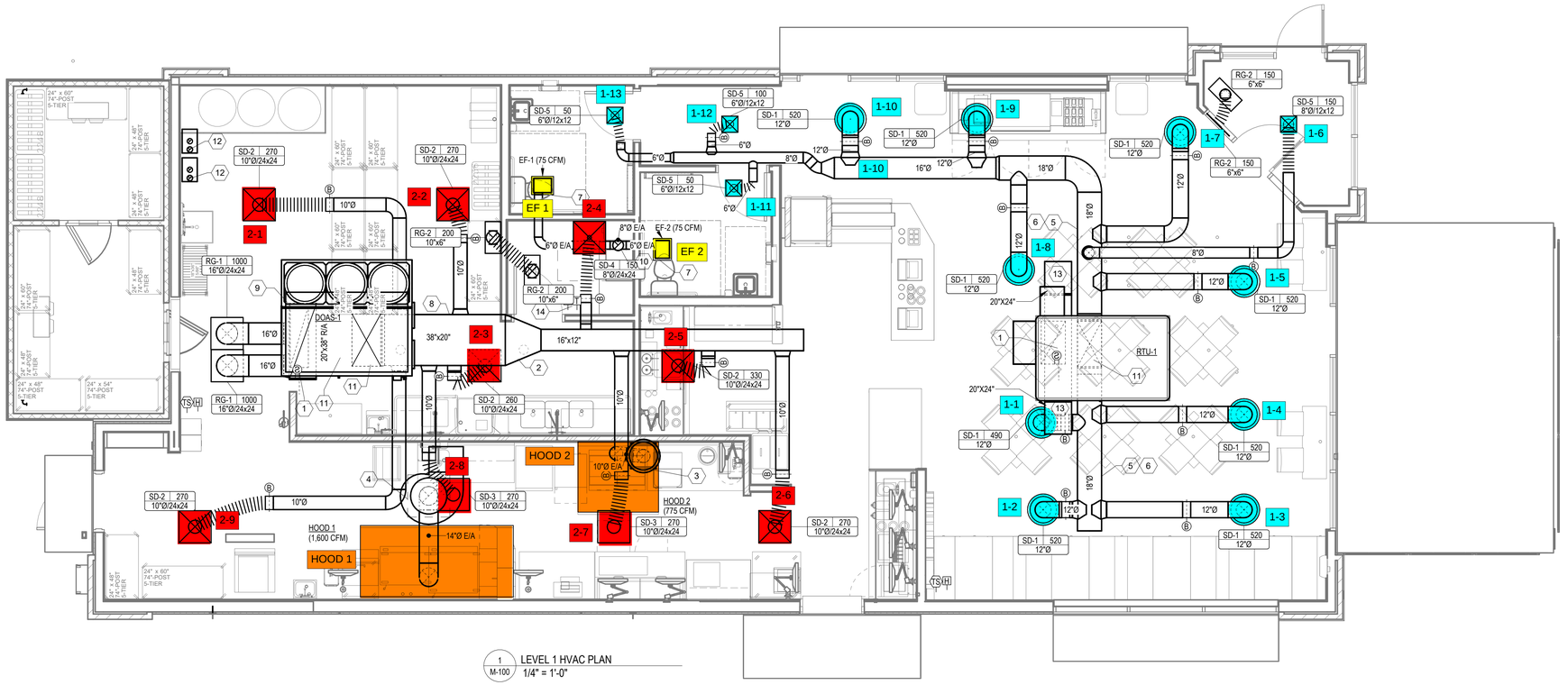


1 M-100 LEVEL 1 HVAC PLAN
1/4" = 1'-0"

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	1100	Dining rooms	70	7.5	0.18		776	0.8	969
	150	Corridors	0	0	0.06		9	0.8	11
								Total	981

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	981	4,019	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	3,281	4,249	7,530	43.57%	TOTAL	2,525
					RESULTING BUILDING PRESSURIZATION	756 CFM

THE BUILDING HVAC SYSTEM SHALL BE BALANCED BY NATIONAL TAB HIRED BY THE OWNER. CONTACT Dan Hertenstein - National TAB at: 816-215-1543 - DAN@NATIONALTAB.COM

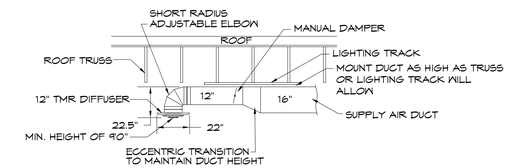
THE RTU SUPPLY FANS SHALL OPERATE IN SINGLE ZONE VAV MODE WITH 2 STAGES OF FAN CONTROL. LON SPEED SHALL BE USED DURING PERIODS OF LON COOLING LOAD AND VENTILATION ONLY OPERATION PER 2018 IECC REQUIREMENTS.

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

1. LOCATION OF FACTORY DUCT MOUNTED SMOKE DETECTOR IN RETURN OF RTU. PROVIDE REMOTE ENUNCIATOR AUDIO/VISUAL. VERIFY LOCATION WITH FIRE MARSHAL PRIOR TO INSTALLATION. REFER TO SPEC SHEET MP0 FOR ADDITONAL INFORMATION.
2. ALL KITCHEN DUCTWORK IS INTENDED TO BE ROUTED THROUGH OR BETWEEN TRUSSES. COORDINATE EXACT ROUTING WITH TRUSSES DURING INSTALLATION.
3. 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.
4. 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.
5. COORDINATE DUCT ROUTING WITH LIGHTING. REFER TO SHEET E200.
6. EXPOSED DUCTWORK SHALL BE OF PAINTLOCK CONSTRUCTION AND PAINTED PER THE DIRECTION OF ARCHITECT.
7. SUPPORT EXHAUST FAN FROM STRUCTURE AS REQUIRED BY THE MANUFACTURER.
8. COORDINATE WITH STRUCTURAL TO BLOCK OUT JOISTS AS REQUIRED TO RUN DUCT THROUGH THE STRUCTURE.
9. RETURN DUCT TO BE ROUTED BETWEEN JOISTS, AS HIGH AS STRUCTURE WILL ALLOW.
10. ROUTE 10" EXHAUST DUCT UP THROUGH ROOF TO ROOF CAP. MAINTAIN 10'-0" CLEARANCE TO ALL OUTDOOR AIR INTAKES. SEAL PENETRATION WEATHERTIGHT.
11. 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.
12. 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.
13. RETURN AIR DUCT LOCATED BETWEEN ROOF TRUSSES. OPEN END OF DUCTWORK TURNED UP TOWARD STRUCTURE WITH A MINIMUM 8" CLEARANCE TO DECK.
14. LOCATION OF RTU/DOAS THERMOSTATS. GC TO LABEL EACH THERMOSTAT.



2 M-100 DINING ROOM DIFFUSER DETAIL
NO SCALE

BC PROJECT #: 24221
OKLAHOMA PE COA #CA1900PE

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

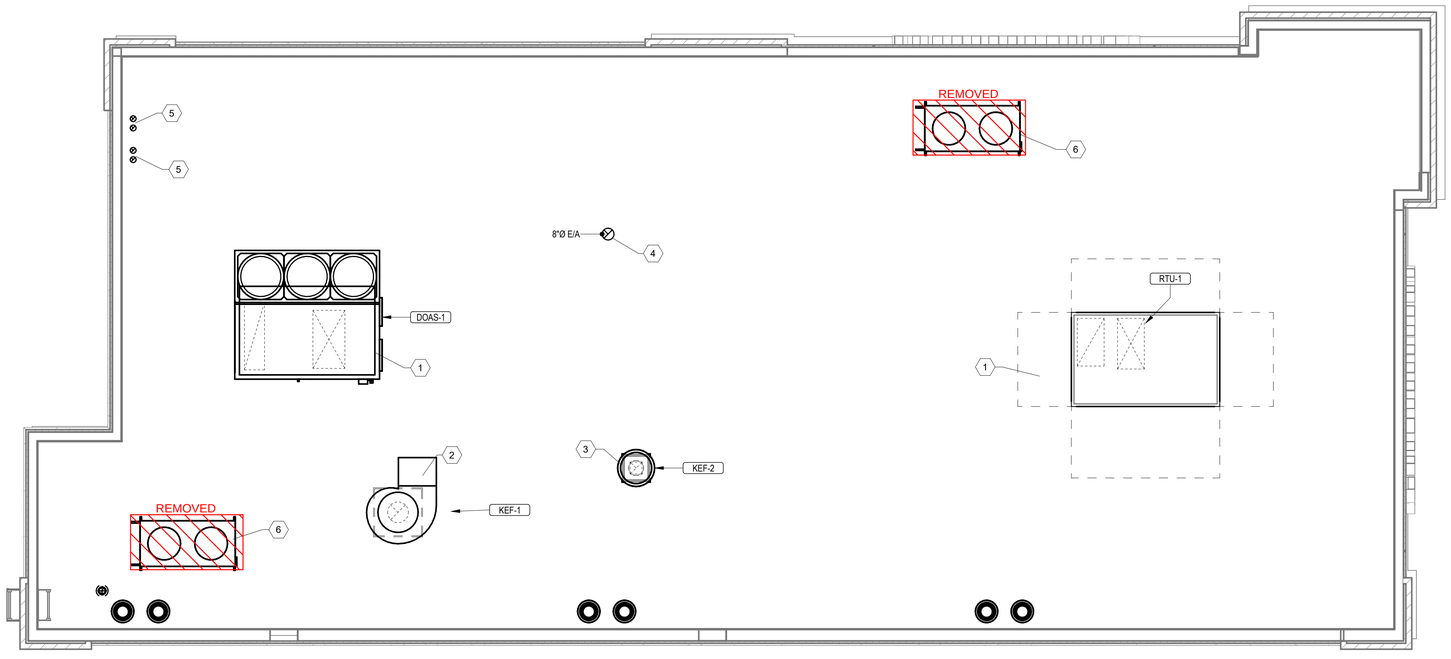
4/17/24
LICENSED PROFESSIONAL ENGINEER
ERIK BRADLEY KNUDSEN
27330
OKLAHOMA

a new restaurant for:
Freddy's
1000 Lonnie Abbott Blvd
Ada, OK 74820

date
04.17.2024
drawn by
Author
checked by
Checker
revisions

sheet number
M-100

drawing type
permit
project number
23006-15



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

MECHANICAL PLAN NOTES

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 14" 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 10" 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. CONNECT TO ROOF STRUCTURE PER THE STRUCTURAL DRAWINGS.~~

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sheet number
M-101

drawing type
permit

project number
23006-15

ROOFTOP UNIT

MARK	MANUFACTURER	MODEL NO.	EVAP CFM	EXT. STATIC P. IN. WG.	COOLING					HOT GAS REHEAT	HEATING (GAS)			ELECTRICAL					SUPPLY FAN TYPE	MINIMUM OUTDOOR AIR	SEER/EER	TOTAL WEIGHT (LBS)	NOTES
					COOLING STAGES	TOTAL	SENSIBLE	AMB	EVAP.EAT DB/WB		INPUT	OUTPUT	HEATING STAGES	VOLT/PH/HZ	BLOWER MOTOR	POWER EXHAUST	MCA	MOCP					
RTU-1	Trane	YSJ-150--	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	981 CFM	0 / 12.2	1108 lb	1-8

ALTERNATE ROOFTOP UNIT MANUFACTURER

MARK	MANUFACTURER	MODEL NO.	EVAP CFM	EXT. STATIC P. IN. WG.	COOLING					HOT GAS REHEAT	HEATING (GAS)			ELECTRICAL					SUPPLY FAN TYPE	MINIMUM OUTDOOR AIR	SEER/EER	TOTAL WEIGHT (LBS)	NOTES
					COOLING STAGES	TOTAL	SENSIBLE	AMB	EVAP.EAT DB/WB		INPUT	OUTPUT	HEATING STAGES	VOLT/PH/HZ	BLOWER MOTOR	POWER EXHAUST	MCA	MOCP					
RTU-1	Carrier	48HCFE14	5000 CFM	1.000	2	154800 Btu/h	116100 Btu/h	95.0 °F	-459.7 °F / -459.7 °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	981 CFM	0 / 10.8	1363 lb	1-8
RTU-1	YORK	ZJ15024D	5000 CFM	1.000	2	154800 Btu/h	116100 Btu/h	95.0 °F	-459.7 °F / -459.7 °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	981 CFM	0 / 10.8	1363 lb	1-8

NOTES:

1. 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, SMOKE DETECTOR MOUNTED IN RETURN, AND STANDARD COOLING DOWN TO 0°F FOR EACH UNIT. OUTDOOR AIR DAMPER TO FULLY CLOSE W/ FAN SHUTDOWN FOR ALL UNITS.
2. 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.
3. 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.
4. PROVIDE 14" HIGH (AT LOWEST POINT) PRE-FABRICATED INSULATED ROOF CURB.
5. PROVIDE HAIL GUARDS FOR EACH UNIT.
6. PROVIDE FACTORY INSTALLED UNIT MOUNTED CIRCUIT BREAKERS.
7. MECHANICAL CONTRACTOR SHOULD PROVIDE ALL NEW FILTERS ON DAY OF TURNOVER.
8. 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 AND CARRIER. NO ALTERNATE MANUFACTURERS ARE ALLOWED.

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

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

FAN SCHEDULE

ID	LOCATION	MANUFACTURER	MODEL NO.	TYPE	FAN						VOLT	PH	REMARKS
					DESIGN AIRFLOW	ESP	DRIVE TYPE	MOTOR					
								POWER	RPM	ECM			
EF-1	Ceiling	Greenheck	SP-A200-390	Premium (Constant Cfm)	75 CFM	0.250	Direct	0.08 hp	900	Yes	120 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	120 V	1	SEE NOTE 1.

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

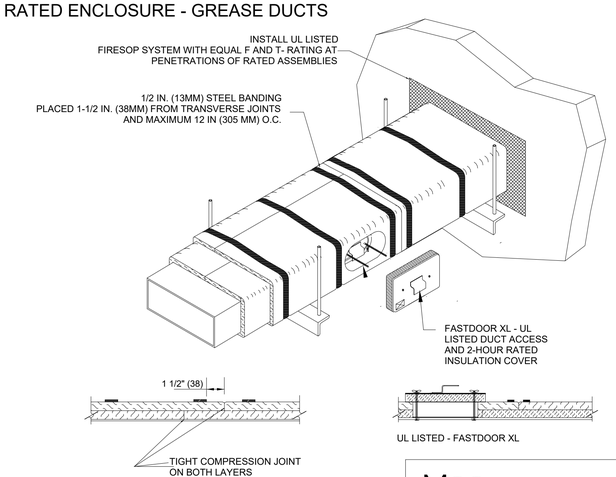
GRILLES, REGISTERS AND DIFFUSERS SCHEDULE

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"	6"	6"	
RG-2	Titus	350RL	Steel	White Enamel	0"	10"	6"	
RG-2	Titus	350RL	Steel	White Enamel	0"	<varies>	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	T3SQ-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

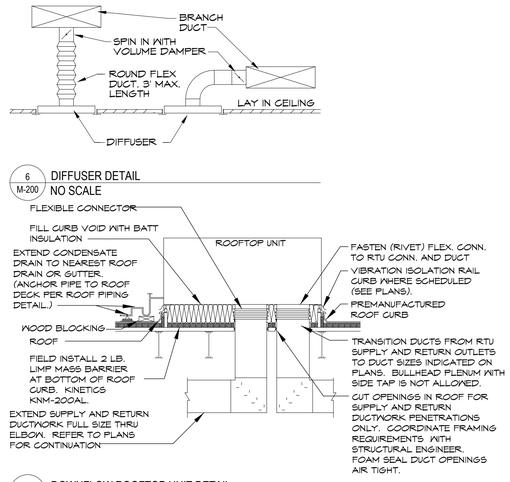
NOTES: 1. RETURN GRILLE TO BE PLASTIC FILTER RETURN, FILTER TO BE AMERICAN AIR FILTER (AAF) FRONTLINE GREEN 1", WITH AAF AMERIFRAME SIZE 20X20X1.

FIRE RATED ENCLOSURE - GREASE DUCTS

1. THERMAL CERAMICS FIREMASTER FASTWRAP XL IS TESTED TO ASTM E2336 AND UL LISTED PER HNKT.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.
2. COMPLIANT TO THE FOLLOWING CODES:
   NFPA 96
   INTERNATIONAL MECHANICAL CODES
   UNIFORM MECHANICAL CODE.
   CALIFORNIA MECHANICAL CODE
3. INSULATION APPLIED IN TWO LAYERS WITH TIGHT COMPRESSION JOINT ON BOTH LAYERS AT ALL JOINTS.
4. MINIMUM 16 GAUGE CARBON STEEL (OR 18 GAGE STAINLESS STEEL) RECTANGULAR OR ROUND GREASE EXHAUST DUCT
5. 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.
6. 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.
7. THERMAL CERAMICS DUCT WRAP SHALL BE INSTALLED DIRECTLY ONTO THE DUCT AND APPLIED FROM THE HOOD CONNECTION TO THE CONNECTION TO THE FAN.
8. THERMAL CERAMICS DUCT ENCLOSURE SYSTEM SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS AND UL LISTINGS.

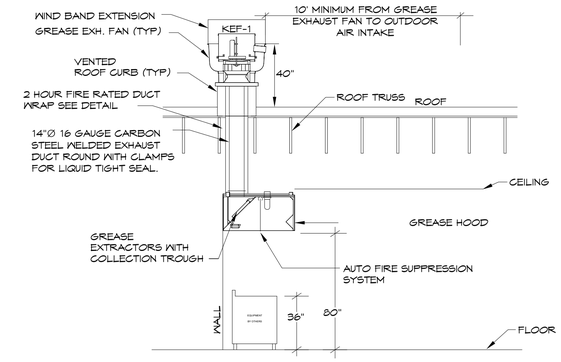


Morgan ThermalCeramics
P.O. Box 923
Augusta, Georgia 30903-0923
Phone: (706) 560-4038



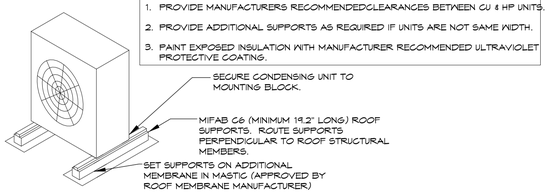
6 / M-200 DIFFUSER DETAIL
NO SCALE

7 / M-200 DOWNFLOW ROOFTOP UNIT DETAIL
NO SCALE

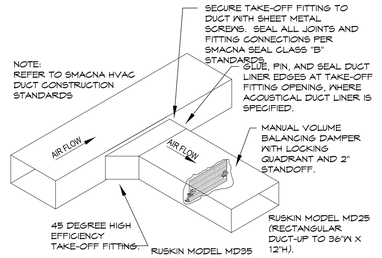


4 / M-200 GREASE HOOD DETAIL
NO SCALE

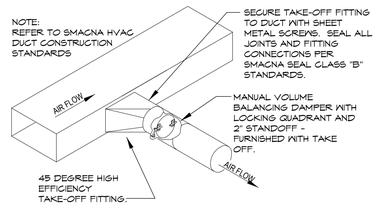
NOTES:
1. PROVIDE MANUFACTURERS RECOMMENDEDCLEARANCES BETWEEN CU & HP UNITS.
2. PROVIDE ADDITIONAL SUPPORTS AS REQUIRED IF UNITS ARE NOT SAME WIDTH.
3. PAINT EXPOSED INSULATION WITH MANUFACTURER RECOMMENDED ULTRAVIOLET PROTECTIVE COATING.



5 / M-200 ROOFTOP CONDENSING UNIT DETAIL
NO SCALE



9 / M-200 RECTANGULAR DUCT TAKE OFF DETAIL
NO SCALE



8 / M-200 ROUND DUCT TAKE OFF DETAIL
NO SCALE

BC PROJECT #: 24221
OKLAHOMA PE COA #CA1900PE

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

davidson
architecture&engineering
4301 Indian Creek Parkway
Overland Park, KS 66207
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fax: 913.451.9391
www.davidsonae.com

4/17/24
LICENSED PROFESSIONAL ENGINEER
ERIK BRADLEY KNUDSEN
27330
OKLAHOMA

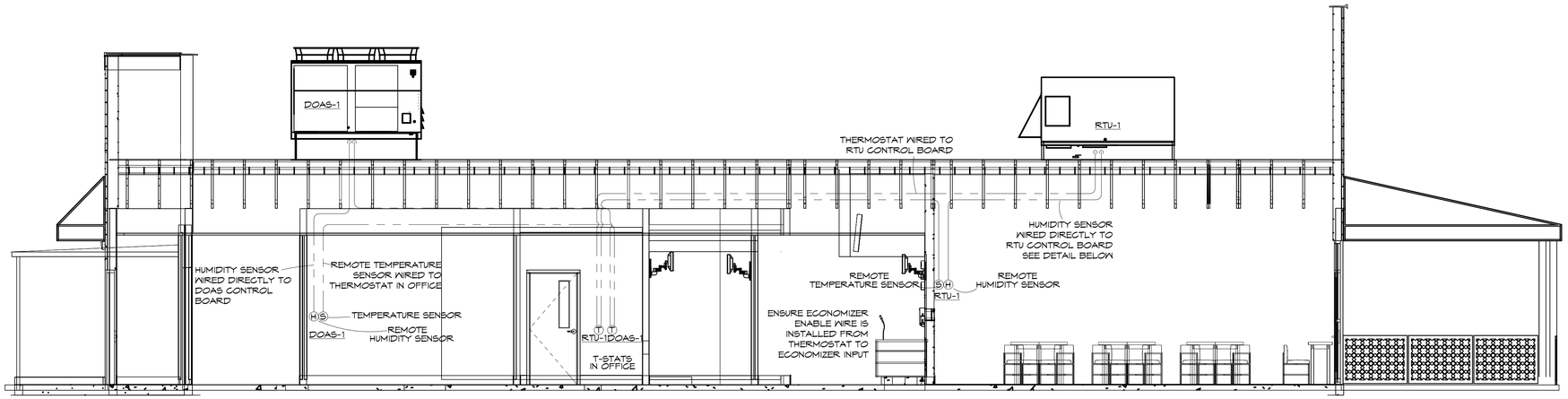
a new restaurant for:
Freddy's
1000 Lonnie Abbott Blvd
Ada, OK 74820

date
04.17.2024
drawn by
Author
checked by
Checker
revisions

sheet number
M-200

drawing type
permit

project number
23006-15



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 mm²
151 - 240 feet	20 gauge
46 - 73.1 m	0.50 mm²
241 -385 feet	18 gauge
73.5 - 117.3 m	0.75 mm²
386 - 610 feet	16 gauge
117.7 - 185.9 m	1.3 mm²
611 - 970 feet	14 gauge
186.2 - 295.7 m	2.0 mm²

Figure 58. Typical field wiring diagrams for electromechanical

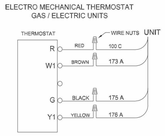
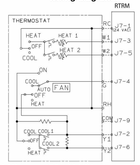


Figure 59. ReliaTel™ conventional thermostat field wiring diagrams(a)



(a) Not compatible with VAV units.

Figure 60. ReliaTel™ options module (RTOM board)

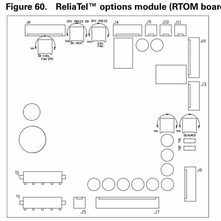


Figure 61. ReliaTel™ relative humidity sensor (dehumidification option)

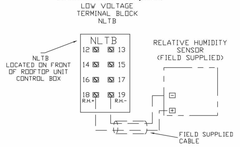
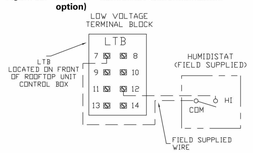


Figure 62. ReliaTel™ humidistat (dehumidification option)



TRANE HUMIDITY SENSOR WIRING

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

davidson
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fax: 913.451.9391
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ND-2 HANGING ANGLE DETAIL

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

HANGING ANGLE LOCATIONS

HOOD STYLE	DIM FROM REAR	DIM FROM FRONT (24"H)	DIM FROM FRONT (30"H)
CANOPY ND2	4.166"	2.246"	2.246"
ND2-PSP-F	4.166"	2.246"	2.246"
BACKSHELF BD-2	4.166"	2.246	–
VHB/VHB-G	36"X36"	42"X42"	48"X48"
FRONT/BACK DIMS BY SIZE	2.246"	2.246"	2.246"

CALCULATIONS UTILIZED

EXHAUST CFM=LENGTH OF HOOD X CFM/LIN.FT. (LOAD)

SUPPLY CFM=EXHAUST CFM X PERCENTAGE REQUIRED

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

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

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

BUILDING CODES

CAPTIVE-AIRE HOODS ARE BUILT IN COMPLIANCE WITH

ETL LISTED & 3054804-001 & 3054804-002 — UL STANDARDS 710 — ETL LISTED Intertek — BUILT IN ACCORDANCE WITH NFPA No. 96

Listed under ETL File number 3054804-001/002

CLEARANCE TO COMBUSTIBLES

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

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

GENERAL NOTES

INSTALLATION

1. ALL ELECTRICAL "FIELD" CONNECTIONS AND RELATED INTERCONNECTIONS BY ELECTRICAL CONTRACTORS.
2. ALL PLUMBING "FIELD" CONNECTIONS AND RELATED INTERCONNECTIONS BY PLUMBING CONTRACTORS.
3. HANGING BRACKETS LOCATED AND WELDED AS SHOWN ON PLANS. ALL OTHER HANGER MATERIALS PROVIDED BY INSTALLING CONTRACTORS.
4. ALL CONNECTIONS FROM CAPTIVE-AIRE DUCT PER MECHANICAL CONTRACTOR'S'S PLANS.
5. COOKING EQUIPMENT TO SHUTOFF IN EVENT OF FIRE.
6. EXHAUST FANS TO TURN ON IN EVENT OF FIRE.
7. ALL LIGHTS FIXTURE SHOWN INSTALLED BY CAPTIVE-AIRE ARE FACTORY PREWIRED. INTERCONNECTIONS BETWEEN HOODS AND TO SWITCHES BY ELECTRICAL CONTRACTORS.
8. LAMPS FOR LIGHT FIXTURES BY INSTALLING CONTRACTORS.
9. SEISMIC RESTRAINTS ARE RESPONSIBILITY OF INSTALLING CONTRACTOR.
10. 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.

BALANCE

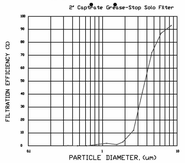
11. KITCHEN HOODS MUST BE BALANCED WITH KITCHEN.
12. KITCHEN SHALL BE NEGATIVE WITH RESPECT TO DINING AREA.
13. RESTAURANT SHALL BE POSITIVE WITH RESPECT TO AMBIENT PRESSURE.

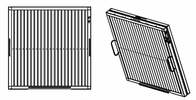
ADDITIONAL

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

FILTER DETAIL

FILTER COLLECTION EFFICIENCY





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

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

CUSTOMER APPROVAL TO MANUFACTURE:

- Approved as Noted ☐
- Approved with NO Exception Taken ☐
- Revise and Resubmit ☐

SIGNATURE _____
Your Title _____ Date _____

HOOD INFORMATION – JOB#6691142

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

PATENT NUMBERS

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

HOOD INFORMATION

HOOD NO	TAG	FILTER(S) TYPE	QTY	HEIGHT	LENGTH	EFFICIENCY @ 7 MICRONS	LIGHT(S) QTY	TYPE	WIRE GUARD	LOCATION	SIZE	UTILITY CABINET(S) FIRE SYSTEM TYPE	SIZE	ELECTRICAL MODEL #	SWITCHES QUANTITY	FIRE SYSTEM PIPING	HANGING WEIGHT
1	ITEM 33A	CAPTRATE SOLO FILTER	5	16"	16"	85% SEE FILTER SPEC	2	RECESSED ROUND	NO	LEFT	12"x54"x24"	TANK FS	4.0/4.0/4.0	DCV-2111	1 LIGHT 1 FAN	YES	828 LBS
2	ITEM 33B	CAPTRATE SOLO FILTER	3	16"	16"	85% SEE FILTER SPEC	2	RECESSED ROUND	NO							YES	310 LBS

HOOD OPTIONS

HOOD NO	TAG	OPTION
1	ITEM 33A	FIELD WRAPPER 18.00" HIGH FRONT, LEFT, RIGHT.
		LEFT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS.
		RIGHT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS.
		RISER SENSOR INSTALL 61N PLEN.
2	ITEM 33B	FIELD WRAPPER 18.00" HIGH FRONT, LEFT, RIGHT.
		RIGHT END PANEL 27" TOP WIDTH, 24" BOTTOM WIDTH, 39.5° HIGH 430 SS.
		LEFT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS.
		RISER SENSOR INSTALL 61N PLEN.

SPECIFICATION: CAPTRATE® GREASE-STOP® SOLO FILTER

THE CAPTRATE GREASE-STOP SOLO FILTER IS A SINGLE-STAGE FILTER FEATURING A UNIQUE S-BAFFLE DESIGN IN CONJUNCTION WITH A SLOTTED REAR BAFFLE DESIGN, TO DELIVER EXCEPTIONAL FILTRATION EFFICIENCY.

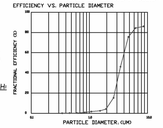
FILTER IS STAINLESS STEEL CONSTRUCTION, AND SIZED TO FIT INTO STANDARD 2-INCH DEEP HOOD CHANNELS(S).

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

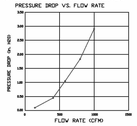
GREASE EXTRACTION EFFICIENCY PERFORMANCE SHALL REMOVE AT LEAST 75% OF GREASE PARTICLES FIVE MICRONS IN SIZE, AND 85% GREASE PARTICLES SEVEN MICRONS IN SIZE AND LARGER, WITH A CORRESPONDING PRESSURE DROP NOT TO EXCEED 1.0 INCHES OF WATER GAUGE.

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

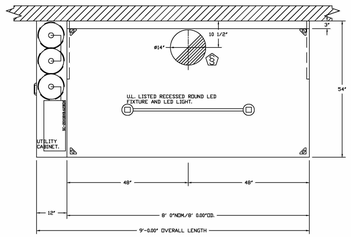
EFFICIENCY VS. PARTICLE DIAMETER



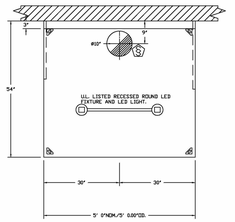
PRESSURE DROP VS. FLOW RATE



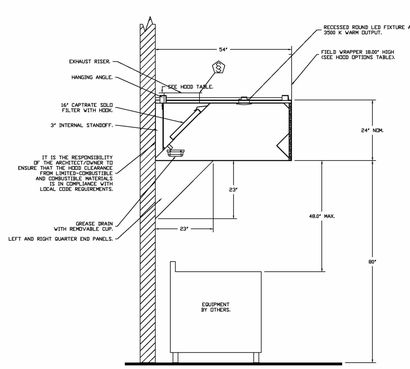
CAPTRATE FILTERS ARE BUILT IN COMPLIANCE WITH. NFPA #96. NSF STANDARD #2. UL STANDARD #1046. INT. MECH. CODE (IMC). ULC-S649.



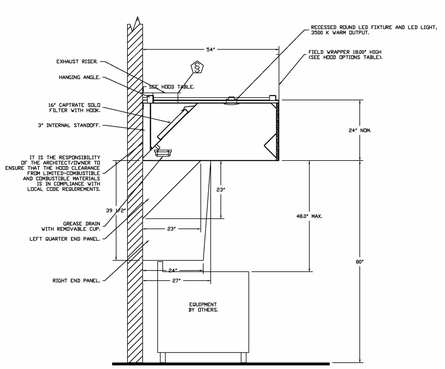
PLAN VIEW – HOOD #1 (ITEM 33A)
8' 0.00" LONG 5424ND-2



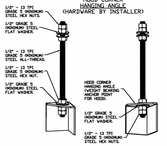
PLAN VIEW – HOOD #2 (ITEM 33B)
5' 0.00" LONG 5424ND-2



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

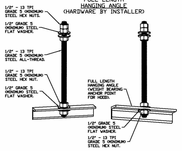


SECTION VIEW – MODEL 5424ND-2
HOOD – #2 (ITEM 33B)



ASSEMBLY INSTRUCTIONS

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



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*** NOTE ***

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

*** NOTE ***

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

*** NOTE ***

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

REVISIONS

	DESCRIPTION	DATE
△		
△		
△		
△		

CAPTIVE-AIRE
HBT Foodservice
www.captiveaire.com
104 W 9th St Suite 204, Kansas City, MO, 64105 PHONE: (816) 221-8575 FAX: (816) 221-8311 EMAIL: rsg5@captiveaire.com

4/17/24
LICENSED PROFESSIONAL ENGINEER
ERIK BRADLEY KNUDSEN
27330
OKLAHOMA

Freddy's – Ada, OK
ADA, OK, 74820

DATE: 3/26/2024
DWG.#: 6691142
DRAWN BY: michael.co
SCALE: 1/2" = 1'-0"
MASTER DRAWING
SHEET NO. 1

a new restaurant for:
Freddy's
1000 Lonnie Abbott Blvd
Ada, OK 74820

date
04.17.2024
drawn by
Author
checked by
Checker
revisions △

sheet number
M-300

drawing type
permit
project number
23006-15

BC PROJECT #: 24221
OKLAHOMA PE COA #CA1900PE

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Overland Park, KS 66207
phone: 913.451.9390
fax: 913.451.9391
www.davidsonae.com

FIRE SYSTEM INFORMATION – JOB#6691142

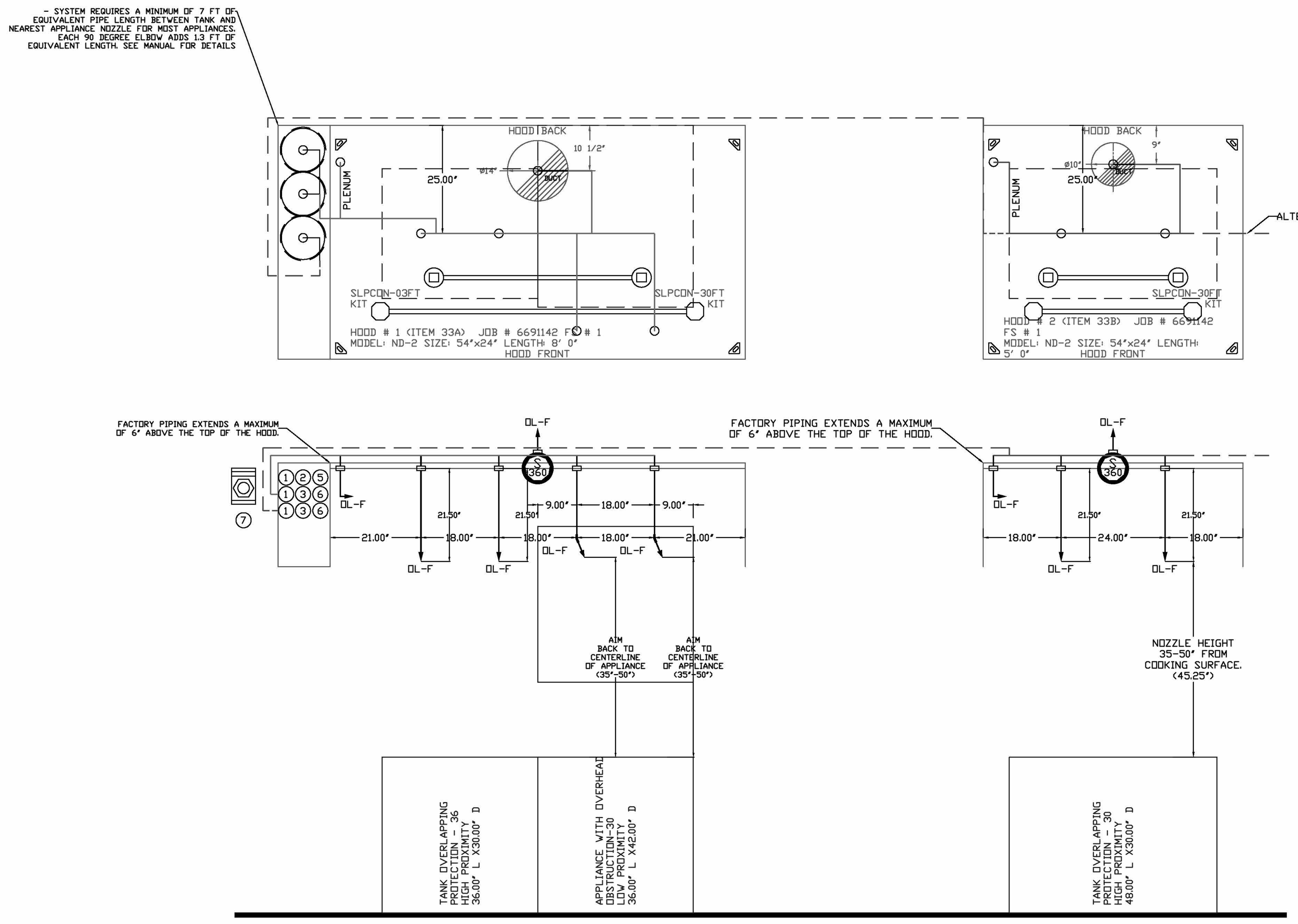
FIRE SYSTEM NO	TAG	TYPE	SIZE	MAX FP	DESIGN FP	INSTALLATION	
						SYSTEM	LOCATION ON HOOD
1	FS - 33A/B	TANK FS	4.0/4.0/4.0	60	42	FIRE CABINET LEFT	LEFT, HOOD 1

GAS VALVE(S)

FIRE SYSTEM NO	TAG	TYPE	SIZE	SUPPLIED BY
1	FS - 33A/B	SC ELECTRICAL	1.000	CAPTIVEAIRE SYSTEMS

FIRE SYSTEM PARTS LIST KEY

FIRE SYSTEM NO	TAG	KEY NUMBER - PART DESCRIPTION	QTY BY FACTORY	QTY BY DIST
1	FS - 33A/B	0 - 0 - TANK FIRE SUPPRESSION POST-DISCHARGE PROCEDURE UTILITY CABINET LABEL SHEET.	1	0
		0 - 0 - TANK FIRE SUPPRESSION MAINTENANCE GUIDE UTILITY CABINET LABEL SHEET.	1	0
		0 - 0 - 12-F28021-32144-OT-360 DUCT FIRE THERMOSTAT WITH 12 FOOT WIRE LEADS. NO, CLOSE ON TEMP RISE AT 360°F.	2	0
		0 - 0 - 32-00002 QUIK SEAL - 1/2" (UL).	2	0
		0 - 0 - 361091 3/8" BRASS PLUG.	3	0
		0 - 0 - 4429K153 1/2" MALE NPT TO 1/2" FEMALE NPT ELBOW, BRASS.	3	0
		0 - 0 - 4429K422 1/2" X 1/4" BRASS REDUCING BUSHING.	2	0
		0 - 0 - 79425 3/8" NPT FEMALE TO 1/2" MALE PROPRESS ADAPTER.	3	0
		0 - 0 - 79525 1/2" 90 PRO-PRESS ELBOW WITH 1/2" NPT FEMALE CONNECTION, VIEGA.	2	0
		0 - 0 - 79580 1/2" X 1/2" PRO-PRESS TEE X 1/2" NPT FEMALE CONNECTION, VIEGA.	3	0
		0 - 0 - 87-120042-001 SECONDARY ACTUATOR VALVE (SVA) - SINGLE ACTUATOR, REQUIRES PRIMARY RELEASE ACTUATOR, TANK FIRE SUPPRESSION.	2	0
		0 - 0 - 87-120045-001 HOSE, SECONDARY ACTUATOR HOSE, 7.5" BRAIDED STAINLESS STEEL, TANK FIRE SUPPRESSION.	2	0
		0 - 0 - 87-300001-001 TANK - PRESSURIZED TANK USED FOR TANK FIRE SUPPRESSION.	3	0
		0 - 0 - 87-300030-001 PRIMARY ACTUATOR KIT (PAK) - ACTUATOR AND RELEASE SOLENOID ASSEMBLY, ONE NEEDED PER FIRE SYSTEM, SUPERVISED, TANK FIRE SUPPRESSION.	1	0
		0 - 0 - 87-300152-001 HARDWARE, SVA BOLTS, TANK FIRE SUPPRESSION.	12	0
		0 - 0 - 9055455PC PRO PRESS 1/2 PRESS X PRESS 90 ELBOW LD.	9	0
		0 - 0 - 9097200PC PRO PRESS PC611 1/2 PRESS TEE LD.	9	0
		0 - 0 - 98694A115 HARDWARE, DATANKLOCK LOCKING BRACKET SQUARE NUTS 5/16" ZINC, TANK FIRE SUPPRESSION.	6	0
		0 - 0 - A0034332 JUNCTION BOX FOR MANUAL PULL STATION. 1.5" DEEP BACK BOX, RED COLOR.	1	0
		0 - 0 - A31484 1/4" NPT SCHRADER VALVE AND CAP, JB INDUSTRIES. 1/4" FLARE X 1/4" MPT HALF UNION. USED ON TANK SERVICE PORT.	2	0
		0 - 0 - BI145 3/8" BLACK IRON 90 ELL.	4	0
		0 - 0 - CBI-22.5 CHROME PLATED PIPE FITTING 3/8" NPT 22.5 DEGREE ELBOW.	2	0
		0 - 0 - DATANKLOCK DISCHARGE ADAPTER TANK LOCKING PLATE FOR FIRE SYSTEM TANK INSTALLATION IN UTILITY CABINETS, TANK FIRE SUPPRESSION.	3	0
		0 - 0 - SLPCON-03FT SUPERVISED LOOP CONNECTION KIT. CONTAINS THE PARTS NEEDED TO CONNECT THE SUPERVISED LOOP BETWEEN END TO END HOODS WITH LESS THAN A 2' GAP. KIT CONTAINS 5 FEET OF BLACK MG WIRE, 5 FEET OF TAN MG WIRE, 3 FEET OF FLEXIBLE CONDUIT, AND TWO 7/8" CONNECTORS.	1	0
		0 - 0 - SLPCON-30FT SUPERVISED LOOP CONNECTION KIT. CONTAINS THE PARTS NEEDED TO CONNECT THE SUPERVISED LOOP BETWEEN HOODS WITH UPTO 29' GAP. KIT CONTAINS 32 FEET OF BLACK MG WIRE, 32 FEET OF TAN MG WIRE, 30 FEET OF FLEXIBLE CONDUIT, AND TWO 7/8" CONNECTORS.	2	0
		0 - 0 - TANK STRAP TANK STRAP - USED FOR TANK FIRE SUPPRESSION.	9	0
		0 - 0 - TFS-UCTANKBRACKET TANK BRACKET FOR FIRE SYSTEM TANK INSTALLATION IN UTILITY CABINETS, TANK FIRE SUPPRESSION.	3	0
		0 - 0 - WK-283952-000 DISCHARGE ADAPTER, TANK FIRE SUPPRESSION.	3	0
		16 - 16 - 79210 1/2" X 3/8" NPT MALE ADAPTER, VIEGA.	10	0
		16 - 16 - OL-F NOZZLE - TANK PROTECTION APPLIANCE COVERAGE NOZZLE (INCLUDES METAL BLOW OFF CAP, LANYARD, USED WITH CHROME-PLATED PIPE).	10	0
		26 - 26 - QSA-3/8 QUIK SEAL - 3/8" (UL).	10	0
		34 - 34 - A0034331 24VDC SINGLE ACTION MANUAL ACTUATION DEVICE (PUSH/PULL STATION) WITH PROTECTIVE COVER, ONE (1) NORMALLY OPEN CONTACT. RED COLOR.	1	0



INCLUDES: FIELD INSTALLATION AND HOOKUP DURING NORMAL BUSINESS HOURS BY CERTIFIED INSTALLERS ONLY IN THE LOCATION NOTED ABOVE, TWO SITE VISITS ONLY (ONE VISIT TO SET PULL STATION & SYSTEM HOOKUP AND ONE VISIT FOR ONE TEST; ADDITIONAL VISITS WILL RESULT IN ADDITIONAL CHARGES), ONE MECHANICAL OR ELECTRICAL GAS VALVE PER SYSTEM AT A MAXIMUM SIZE OF 2", PERMIT, AND SYSTEM TEST.
EXCLUDES: UNION LABOR & PREVAILING WAGE (LABOR & WAGES WILL BE ADDED IF APPLICABLE), GAS VALVE INSTALLATION, ELECTRICAL HOOKUP AND CONNECTIONS, HANGING OF FIRE CABINET, SHUNT TRIP, HANDHELD EXTINGUISHER(S), ON-SITE RE-PIPING DUE TO EQUIPMENT LAYOUT CHANGES.

NOTES
- FIELD PIPE DROPS AS SHOWN
  PIPING, ELBOWS, TEES, AND NOZZLES SUPPLIED BY CAS.
- FIELD INSTALLED DROP: FACTORY WILL PROVIDE QTY 2 60IN LONG PIECES OF CHROME PLATED PIPING SHIPPED LOOSE TO BE FIELD-INSTALLED.
- SHIP LOOSE DROP: FACTORY WILL PROVIDE THE EXACT CHROME PIPE LENGTH NEEDED SHIPPED LOOSE TO BE FIELD-INSTALLED.
- RELOCATE NOZZLES IF FLOW PATTERN IS BLOCKED BY SHELVING, SALAMANDERS, ETC.
- OVERLAPPING COVERAGE SHALL NOT BE USED ON ANY APPLIANCE WITH AN OBSTRUCTION.
- IF APPLICABLE, EXTENDED PRE-PIPED DROPS ARE SHIPPED LOOSE.
- FACTORY PIPING EXTENDS A MAXIMUM OF 6" ABOVE THE TOP OF THE HOOD.

- APPLIANCE DIMENSIONS LISTED REPRESENT THE COOKING SURFACE SIZE, NOT THE OVERALL APPLIANCE SIZE.

- THIS FIRE SYSTEM COMPLIES WITH U.L. 300 REQUIREMENTS.

- OL-F NOZZLE PART NUMBER REPLACES 3070-3/8H-10-SS

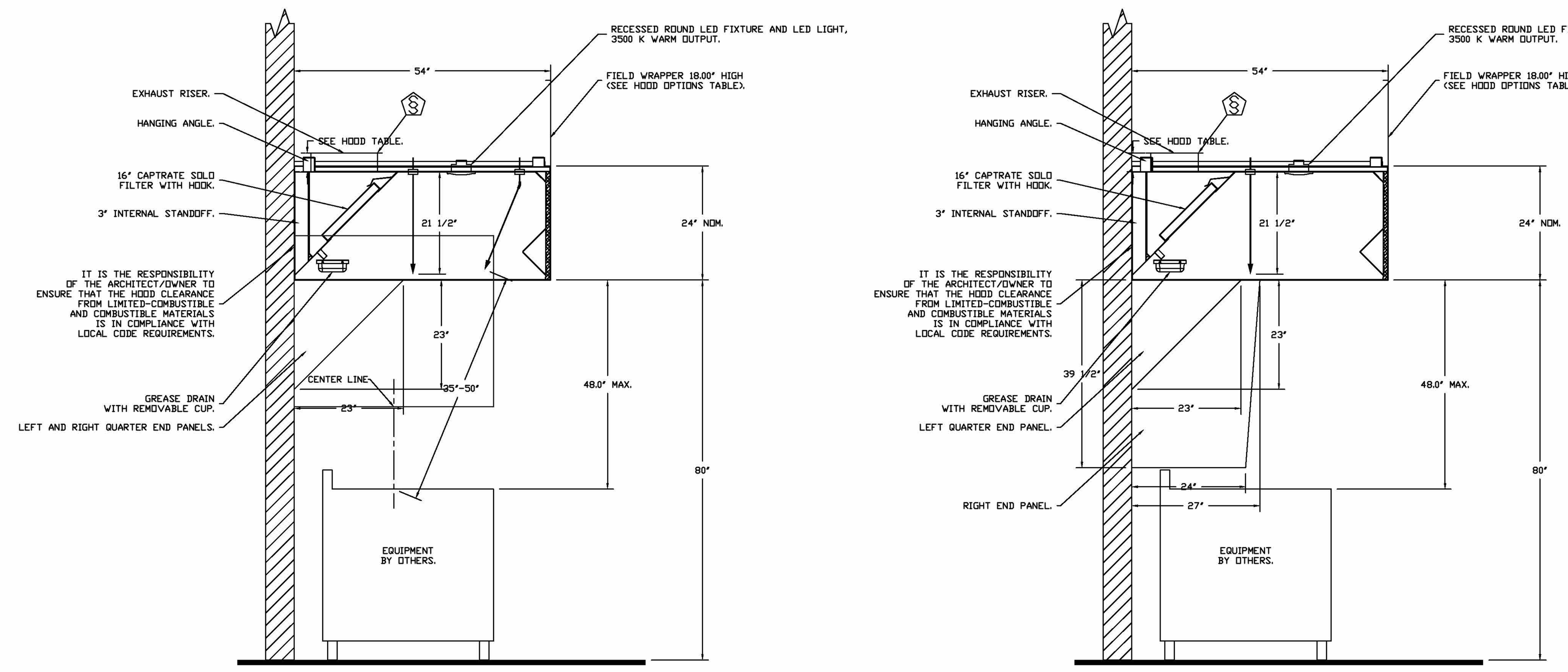
JOB #: 6691142.
JOB NAME: FREDDY'S - ADA, OK (LH).

SYSTEM SIZE: TANK-SP-3 DESIGN FP: 44. MAXIMUM FP: 60.
HOOD # 1 8' 0.00" LONG x 54" WIDE x 24" HIGH.
RISER # 1 SIZE: 14" DIA.
HOOD # 1 METAL BLOW-OFF CAPS INCLUDED.
HOOD # 2 5' 0.00" LONG x 54" WIDE x 24" HIGH.
RISER # 1 SIZE: 10" DIA.
HOOD # 2 METAL BLOW-OFF CAPS INCLUDED.

- HEAVY-DUTY APPLIANCES (RATED 600°F) WILL REQUIRE AN ADDITIONAL DOWNSTREAM FIRESTAT IN THE EVENT THAT THE DUCTWORK CONTAINS ANY HORIZONTAL RUNS OVER 25 FT IN LENGTH.
- MEDIUM TO LIGHT-DUTY APPLIANCES (RATED 450°F) WILL NOT REQUIRE ANY ADDITIONAL DOWNSTREAM DETECTION.

LEGEND – FIRE CABINET TANK SYSTEM

1 4 GALLON TANK.
2 PRIMARY ACTUATOR RELEASE.
3 SECONDARY ACTUATOR RELEASE.
4 PRESSURE SUPERVISION SWITCH.
5 PRIMARY HOSE ASSEMBLY.
6 SECONDARY HOSE ASSEMBLY.
7 REMOTE MANUAL ACTUATION DEVICE.



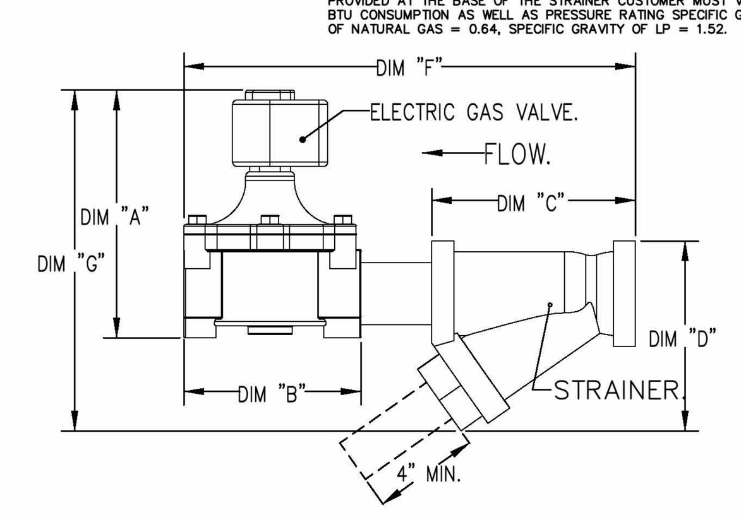
SECTION VIEW – MODEL 5424ND-2
HOOD – #1

SECTION VIEW – MODEL 5424ND-2
HOOD – #2

GAS VALVES AND STRAINERS																		
	GAS VALVE SIZING							GAS VALVE DIMENSIONS						INSTALLATION	PART NUMBERS		
	TYPE	SIZE	VOLTAGE	MIN. INLET PRESSURE	MAX. INLET PRESSURE	FLOW AT 1 IN.W.C. DROP NATURAL GAS	FLOW AT 1 IN.W.C. DROP PROPANE	DIM "A"	DIM "B"	DIM "C"	DIM "D"	DIM "F"	DIM "G"	MOUNTING ORIENTATION	GAS VALVE PART NUMBER	STRAINER PART NUMBER	GAS VALVE/STRAINER KIT
GAS VALVE FOR FS#1	ELECTRICAL	1"	120 VAC	0 PSI (0 IN.W.C.)	5 PSI (138 IN.W.C.)	1,132,300 BTU/HR	734,733 BTU/HR	6-15/16"	5-15/16"	4-7/8"	5-3/16"	12-13/16"	10-11/16"	HORIZONTAL/ VERTICAL	8214250	4417K65	(SC)EGVA1

ALL GAS VALVES/STRAINERS
PROPER CLEARANCE MUST BE PROVIDED IN ORDER TO SERVICE THE STRAINERS A MINIMUM OF 4" CLEARANCE DISTANCE MUST BE PROVIDED AT THE BASE OF THE STRAINER CUSTOMER MUST VERIFY BTU CONSUMPTION AS WELL AS PRESSURE RATING SPECIFIC GRAVITY OF NATURAL GAS = 0.64, SPECIFIC GRAVITY OF LP = 1.52.

CALCULATIONS
TO CALCULATE GAS FLOW FOR OTHER THAN 1 IN.W.C. PRESSURE DROP
NEW BTU/HR = (BTU/HR AT 1 IN.W.C. PRESSURE DROP) X NEW PRESSURE DROP$^{0.5}$
TO CALCULATE GAS FLOW FOR OTHER THAN 0.64 SPECIFIC GRAVITY
NEW BTU/HR = (BTU/HR AT 0.64) X (0.64 / NEW SPECIFIC GRAVITY)$^{0.5}$.



REVISIONS

DESCRIPTION	DATE:

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104 W 9th St Suite 204, Kansas City, MO, 64105 PHONE: (816) 221-8575 FAX: (816) 221-8311

Freddy's - Ada, OK
ADA, OK, 74820

DATE: 3/26/2024
DWG.#: 6691142
DRAWN BY: michael.co
SCALE: 1/2" = 1'-0"
MASTER DRAWING
SHEET NO. 2

ERIK BRADLEY KNUDSEN
LICENSED PROFESSIONAL ENGINEER
27330
OKLAHOMA
4/17/24

a new restaurant for:
Freddy's
1000 Lonnie Abbott Blvd
Ada, OK 74820

date 04.17.2024
drawn by Author
checked by Checker
revisions

BC PROJECT #: 24221
OKLAHOMA PE COA #CA1900PE

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sheet number
M-301

drawing type
permit
project number
23006-15

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EXHAUST FAN INFORMATION – JOB#6691142

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	MANUFACTURER	CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	DISCHARGE VELOCITY	WEIGHT (LBS)	SONES
1	ITEM 74.1	1	CASRE180D	CAPTIVEAIRE	1600	1.400	1105	ODP,PREMIUM	1.000	0.6270	3	208	3.8	928 FPM	296	15.7
2	ITEM 74.2	1	DUSQHFA	CAPTIVEAIRE	775	1.250	1532	TEAO-ECM	0.500	0.3950	1	115	6.3	295 FPM	103	16.4

DOAS/RTU FAN SCHEDULE – JOB#6691142

FAN UNIT NO	TAG	QTY	DOAS/RTU MODEL #	MANUFACTURER	BLOWER	RETURN AIR CFM	MAX OUTSIDE AIR CFM	TOTAL CFM	WEIGHT (LBS)	ESP	HP	PHASE	VOLT	MCA	MOCP
3	DOAS-1	1	CASRTU3-1200-15-1ST	CAPTIVEAIRE	15P-3	0	2300	2300	2459	0.500	2.00	3	208	59.2A	60A

ELECTRICAL INFORMATION	COOLING INFORMATION										REHEAT INFORMATION				GAS HEAT INFORMATION				
	OUTSIDE AIR		MIXED AIR		LEAVING AIR		CAPACITY				DISCHARGE	CAPACITY		MOISTURE REMOVAL RATE	GAS TYPE	INPUT BTUH	OUTPUT BTUH	TEMP RISE	REQUIRED INPUT GAS PRESSURE
	DB	WB	DB	WB	DB	WB	DP	TOTAL	SENS.	IEER	ISMRE	DB	WB	DESIRED	MAX					
	84.9°F	78.2°F	84.9°F	78.2°F	56.9°F	54.3°F	53.2°F	186.8 MBH	69.0 MBH	18.8	5.7	70.0°F	59.6°F	34.8 MBH	129.6 MBH	105.3 LBS/HR	NATURAL	199175	161332	61°F	7 IN. W.C. – 14 IN. W.C.

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

FAN OPTIONS

FAN UNIT NO	TAG	QTY	DESCRIPTION
1	ITEM 74.1	1	UTILITY SET GREASE CUP
		1	RE18 – DISCHARGE EXTENSION ASSEMBLY WITH HARDWARE
		1	FAN BASE CERAMIC SEAL – CASRE18 – INSTALLED AT PLANT – FOR GREASE DUCTS
		1	UNIT MOUNTED VFD FOR USE WITH ECPM03
		1	VFD MOUNTING BRACKET FOR CASRE180D
		1	2 YEAR PARTS WARRANTY
2	ITEM 74.2	1	GREASE BOX
		1	UPBLAST FAN WHEEL ACCESS PORT
		1	36" TALL STRAIGHT WIND BAND EXTENSION 13 (SHIPS LOOSE)
		1	GUY LINE EYE BOLTS – USED FOR 3 GUY LINE TIE OFF POINTS
		1	FAN BASE CERAMIC SEAL – DU/DRSQHFA – INSTALLED AT PLANT – FOR GREASE DUCTS
		1	ECM WIRING PACKAGE – PWM SIGNAL FROM ECPM03 PREWIRE (TELCO MOTOR), CCW ROTATION
		1	2 YEAR PARTS WARRANTY
3	DOAS-1	1	INLET PRESSURE GAUGE, 0-35"
		1	MANIFOLD PRESSURE GAUGE, 0 TO 10" WC, 1 FURNACE
		1	RTU TOTAL CFM MONITORING
		1	INTAKE FIRESTAT SET TO 135°F
		1	FREEZESTAT
		1	DISCHARGE FIRESTAT SET TO 240°F
		1	SHIP LOOSE GAS STRAINER 3/4"
		1	SINGLE POINT ELECTRICAL CONNECTION FOR RTU. 750VA TRANSFORMER USED. IF A NON-DCV PREWIRE CONTROLS THIS UNIT. THE #28, #47, "MA", OR "LCT" PREWIRE OPTION MUST BE SELECTED. DOES NOT PROVIDE SUPPLY STARTER IN PREWIRE
		1	CASLINK BUILDING MONITORING SYSTEM – INTERNET OR CELLULAR CONNECTION REQUIRED
		1	RTU3 3DVN DISCHARGE
		1	2" MERV 13 FILTERS FOR RTU3 (QTY. 4)
		1	2" MERV 8 FILTERS FOR RTU3 (QTY. 4)
		1	OVERHEAT STAT
		1	OCCUPIED SCHEDULING
		1	RTU3 CURB DUCT HANGER
		1	RTU3 3DVN RETURN
		1	24VAC FIRE INPUT
		1	RTU RETURN MOUNTED SMOKE DETECTOR AND SAMPLING TUBE – FACTORY INSTALLED
		1	CLOGGED FILTER SWITCH – NOTIFICATION ON HMI
		1	15 TON MODULATING COOLING OPTION, 208/230V. R410A REFRIGERANT, VARIABLE SPEED COMPRESSOR, ECM CONDENSING FANS
		1	15 TON MODULATING REHEAT OPTION – SPACE DEWPOINT CONTROL
		1	RTU INTAKE/RETURN DAMPER – MANUAL CONTROL VIA HMI
		1	RTU3 HAIL GUARD
		1	UNIT MOUNTED VFD CONFIGURED FOR DCV
		1	5 YEAR ENTIRE UNIT PARTS WARRANTY, 10 YEAR ENTIRE UNIT PARTS WARRANTY WITH REMOTE MONITORING AND CAPTIVEAIRE SERVICE CONTRACT, 25 YEAR STAINLESS STEEL FURNACE PARTS WARRANTY (SEE ADDITIONAL DETAILS)

FAN ACCESSORIES

FAN UNIT NO	TAG	EXHAUST			SUPPLY			
		GREASE CUP	GRAVITY DAMPER	WALL MOUNT	SIDE DISCHARGE	GRAVITY DAMPER	MOTORIZED DAMPER	WALL MOUNT
1	ITEM 74.1	YES						
2	ITEM 74.2	YES						

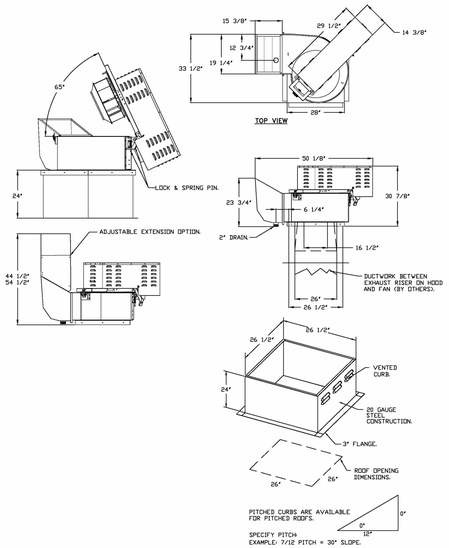
CURB ASSEMBLIES

NO	ON FAN	TAG	WEIGHT	ITEM	SIZE
1	# 1	ITEM 74.1	52 LBS	CURB	26.500"W X 26.500"L X 24.000"H VENTED HINGED.
2	# 2	ITEM 74.2	31 LBS	CURB	19.500"W X 19.500"L X 20.000"H VENTED HINGED.
3	# 3	DOAS-1	104 LBS	CURB	59.500"W X 91.000"L X 14.000"H INSULATED.

HMI SCHEDULE

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

FAN #1 CASRE180D – EXHAUST FAN ITEM 74.1



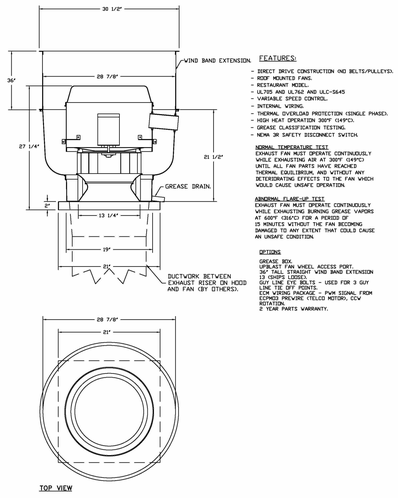
FEATURES:
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL762 AND ULC-S645
- HIGH HEAT OPERATION DIRECT DRIVE 300°F (149°C).
- HEAT SLINGER.
- GREASE CLASSIFICATION TESTING.
- TILT OUT WHEEL.
- LOCKING PIN FOR POWER PACK.
- MOTOR WEATHER COVER.
- INTERLOCKED DISCONNECT SWITCH.
- NEMA 4X SAFETY DISCONNECT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

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

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

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

FAN #2 DUSQHFA – EXHAUST FAN ITEM 74.2

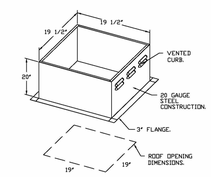


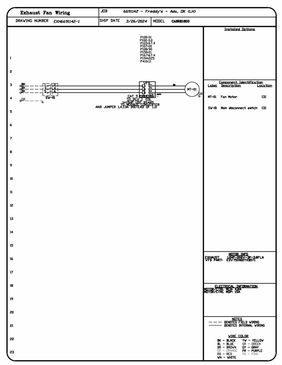
FEATURES:
- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL705 AND UL762 AND ULC-S645
- VARIABLE SPEED CONTROL.
- INTERNAL WIRING.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).
- HIGH HEAT OPERATION 300°F (149°C).
- GREASE CLASSIFICATION TESTING.
- NEMA 3R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

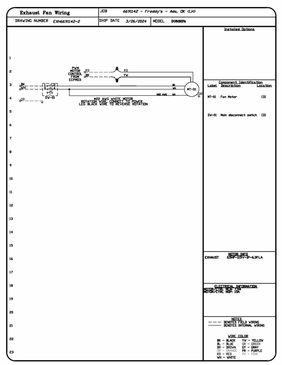
NORMAL TEMPERATURE TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

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

OPTIONS
GREASE BOX.
UPBLAST FAN WHEEL ACCESS PORT.
36" TALL STRAIGHT WIND BAND EXTENSION (3 YOUNG LOOSE).
GUY LINE EYE BOLTS – USED FOR 3 GUY LINE TIE OFF POINTS.
ECM WIRING PACKAGE – PWM SIGNAL FROM ECPM03 PREWIRE (TELCO MOTOR), CCW ROTATION.
2 YEAR PARTS WARRANTY.







CAPTIVEAIRE
www.captiveaire.com
HBT Foodservice
104 W 5th St Suite 204, Kansas City, MO. 64105 PHONE: (816) 221-8575 FAX: (816) 221-8311 EMAIL: reg8@captiveaire.com

REVISIONS	
DESCRIPTION	DATE
△	
△	
△	
△	

4/17/24
LICENSED PROFESSIONAL ENGINEER
ERIK BRADLEY KNUDSEN
27330
OKLAHOMA

F Freddy's – Ada, OK
ADA, OK, 74820

DATE: 3/26/2024

DWG.#: 6691142

DRAWN BY: michael.co

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

MASTER DRAWING

SHEET NO. 3

BC PROJECT #: 24221
OKLAHOMA PE COA #CA1900PE

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

a new restaurant for:
Freddy's
1000 Lonnie Abbott Blvd
Ada, OK 74820

date 04.17.2024
drawn by Author
checked by Checker
revisions △

sheet number
M-302

drawing type permit

project number 23006-15

davidson
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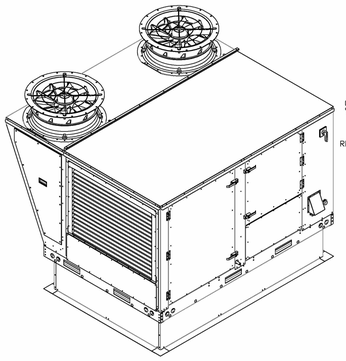
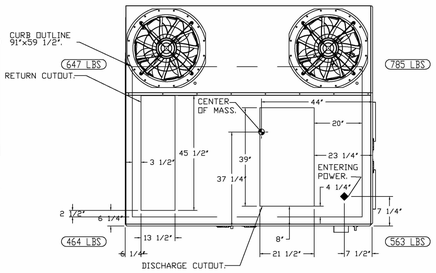
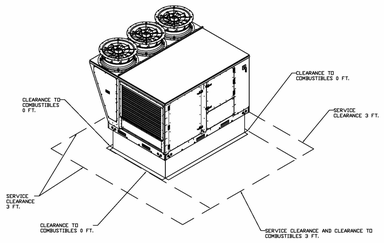
FAN #3 CASRTU3-1200-15-15T - HEATER (DOAS-1)

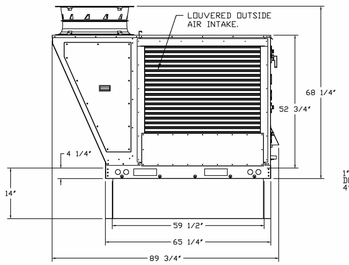
NOTES:
1. DO NOT OBSTRUCT OUTSIDE AIR INLET, OUTSIDE AIR COIL OR OUTSIDE AIR FAN.
2. ( ) DENOTES CORNER WEIGHT.
3. ROOF OPENING MUST BE 2" SMALLER THAN CURB DIMENSIONS IN BOTH DIRECTIONS.
4. CONNECTION FROM BREAKER TO UNITS SAFETY DISCONNECT SWITCH TO BE COPPER WIRE ONLY.

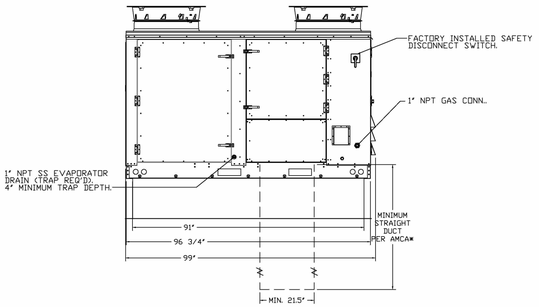
*NOTE: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE AS OUTLINED IN AMCA PUBLICATION 201. WHEN USING RECTANGULAR DUCTWORK, ELBOWS MUST BE RADIUS THROAT, RADIUS BACK WITH TURNING VANES. FLEXIBLE DUCTWORK AND SQUARE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

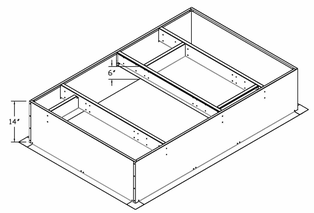


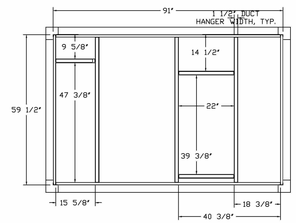


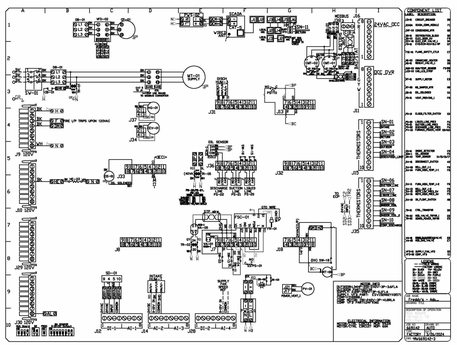


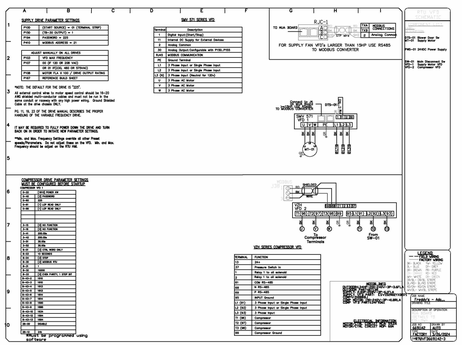


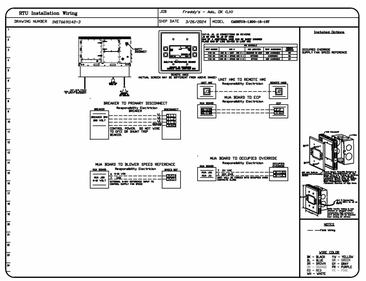












REVISIONS

	DESCRIPTION	DATE:
1		
2		
3		
4		

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

Freddy's - Ada, OK
ADA, OK, 74820

DATE: 3/26/2024
DWG.#: 6691142
DRAWN BY: michael.co
SCALE: 1/2" = 1'-0"
MASTER DRAWING
SHEET NO. 4

4/17/24
LICENSED PROFESSIONAL ENGINEER
ERIK BRADLEY KNUDSEN
27330
OKLAHOMA

a new restaurant for:
Freddy's
1000 Lonnie Abbott Blvd
Ada, OK 74820

date
04.17.2024
drawn by
Author
checked by
Checker
revisions

sheet number
M-303

drawing type
permit
project number
23006-15

BC PROJECT #: 24221
OKLAHOMA PE COA #CA1900PE

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

Electrical Abbreviations

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

∠	Angle
@	At
▲	Delta
'	Feet
"	Inches
#	Number
Ø	Phase
C	Center Line
P	Plate

Electrical Symbol Legend

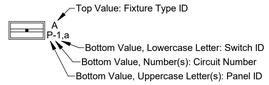
Lighting Symbols

- Lighting Fixtures, Typical, Rectangular
- Lighting Fixtures, Typical, Round
- Wall-mounted fixtures, Typical (Various Symbols)
- Strip Fixture
- Directional Light, Track Light, Flood Light
- Linear Light, Tape Light
- Emergency Lighting Unit, Ceiling-Mounted, Integral Battery
- Emergency Lighting Unit, Ceiling-Mounted, Remote Battery
- Emergency Lighting Unit, Wall-Mounted, Integral Battery
- Emergency Lighting Unit, Wall-Mounted, Remote Battery
- Exit Light, Ceiling-Mounted. Shading and arrows indicate faces and directional chevrons.
- Exit Light, Wall-Mounted. Shading and arrows indicate faces and directional chevrons.
- Exit/ELU Combo
- Pole/Area Lights
- Post-Top Area Light
- Bollard Light
- $ Single-Pole Switch

  Switch Modifiers:

  2: 2-Pole
  3: 3-Way — OS: Occupancy Sensor
  4: 4-Way — VS: Vacancy Sensor
  K: Keyed — AC: Above-Counter
  D: Dimming — LV: Low-Voltage
  T: Timer — M: Motor-Rated
- Lighting Contactor
- LCP Lighting Control Panel
- OS Occupancy Sensor
- DL Daylight Harvesting Sensor
- RC Room Controller

Lighting Tags



Absence of a switch designation on a lighting fixture indicates fixture is controlled by the only switch in the space.

Switch ID indicated by a lowercase letter. Switch IDs are unique per space. A switch with an ID "a" controls all devices within the space in which it is located tagged with "a". A switch without a tagged ID controls all lighting fixtures within a space. ID tags may be used on control devices other than switches, such as occupancy sensors or contactors.

Power Symbols

- Simplex Receptacle
- Duplex Receptacle
- Quadruplex Receptacle
- Special Receptacle, Type as Indicated

  Receptacle Modifiers:
  +XX": Height AFF to centerline
  GF: Ground-Fault Circuit Interrupter
  WP: Weatherproof In-Use Cover
  IG: Isolated Ground
- Half shading indicates split (typically switched)
- Outside shading indicates device mounted above counter
- Multioutlet Assembly
  Filled squares indicate 120V outlet
  Open squares indicate with USB
- Cord Reel, Device Varies
- Drop Cord, Device Varies
- J Junction Box
- F1 Floor Box, see schedule for type
- Emergency Power Off
- DO Door Opener Push Plate
- M Power Meter
- Safety Switch, Fused
- Safety Switch, Unfused
- Motor Starter
- Combination Starter/Disconnect
- Contactor

Power Device and Equipment Tags

P-1,a — Electrical DeviceTags: Uppercase letter(s) indicates Panel ID and circuit number. Lowercase letter indicates designation of controlling switch (where applicable)

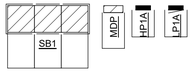
XX-1 / P-1,a — Equipment Tags: Equipment ID is indicated by an underlined tag adjacent to the equipment. Uppercase letter(s) indicates Panel ID and circuit number. Lowercase letter indicates designation of controlling switch (where applicable) Symbols/graphic appearance of equipment varies.

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, installtion, 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.

T1 — Transformer: Typically transformer names begin with or contain the letter "T". See Single-Line Diagram for description and requirements.

Telecom Symbols

PROVIDE MINIMUM 3/4" CONDUIT STUBBED UP TO ABOVE ACCESSIBLE CEILING, BOTTOM OF BOX AT 16", UNLESS NOTED OTHERWISE. PROVIDE WITH PULL STRING.

WHERE TELECOM SYMBOL IS SHOWN ADJACENT TO POWER DEVICE, TELECOM SHALL BE MOUNTED AT SAME HEIGHT UNLESS NOTED OTHERWISE.

- Data Outlet
- Telephone Outlet
- Data/Telephone Outlet

  Outlet Modifiers:
  +XX": Height AFF to centerline
- Wireless Access Point
- TV — TV Outlet - PROVIDE (1) HUBBELL #HBL260 TWO GANG LARGE CAPACITY WALL BOX (UP TO 2" KNOCKOUT) W/ MUD RING AND COVERPLATE FOR DATA. PROVIDE 2"C WITH PULL STRING TO ABOVE ACCESSIBLE CEILING FOR DATA CABLES.
- VC VOLUME CONTROL

Construction Phasing
(Typical All Symbols and Equipment)

- (E) Existing to Remain
- Existing to Be Demolished
- New

Miscellaneous

- Area Not in Contract
- X Keynote
- Callout:
  Top Value: Detail Number on Sheet
  Bottom Value: Sheet Number of Detail
- Room: 6 — Room Name and Number

Security Symbols

- Security Camera
  PTZ: Pan/Tilt/Zoom
- CR Card Reader
- CK Card Reader with Keypad
- CC Closed Circuit TV Outlet
- DC Door Contact
- ES Electric Strike
- IC Intercom
- ML Magnetic Lock
- RX Request to Exit Button
- REX Request to Exit Sensor
- MS Motion Detector
- XXX Security Control Unit
  SCP: Security Control Panel
  SPS: Security Power Supply Unit

Fire Alarm Symbols

- F Manual Pull Station
- H Horn, Wall
- H Horn, Ceiling
- Strobe, Wall, Candela as indicated
- Strobe, Ceiling, Candela as indicated
- Horn/Strobe, Wall, Candela as indicated
- Horn/Strobe, Ceiling, Candela as indicated
- Remote Indicator w/ Test Switch, Wall
- Remote Indicate w/ Test Switch, Ceiling
- SD Smoke Detector
- HD Heat Detector
- CO Carbon Monoxide Detector
- DD Duct Smoke Detector
- SD Smoke Damper
- DH Door Holder
- DCL Door Closer
- Fire Service Phone
- XXX Addressible Module
  AIM: Addressible Input Module
  AOM:Addressible Output Control Module
  AIO: Addressible Input/Output Module
- XXXX Fire Alarm Control Unit
  EVAC: Voice Evacuation Control Panel
  FAA: Fire Alarm Annunciator
  FACP: Fire Alarm Control Panel
  FATC: Fire Alarm Terminal Cabinet
  NACP: Notification Appliance Circuit Panel
  FAMN: Fire Alarm Mass Notification Control Panel
- XX Supervisory or Interface Device
  PIV: Post Indicator Valve Supervisory
  PS: Pressure Switch
  R: Non-Addressible Relay
  VS: Valve Supervisory Switch
  WF: Water Flow Switch

Electrical Sheet Schedule

ELECTRICAL GENERAL NOTES:

1. COORDINATE ALL WORK WITH OTHER TRADES AND EXISTING CONDITIONS AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACES AVAILABLE, AND WITHOUT INTERFERENCES.
2. IT IS THE ELECTRICAL CONTRACTORS RESPONSIBILITY TO PROPERLY BALANCE ALL BRANCH CIRCUITS BETWEEN THE PHASES OF THE SYSTEM REGARDLESS OF CIRCUITING INDICATED.
3. ALL EXPOSED RACEWAYS SHALL BE EMT CONDUIT, MC CABLE IS NOT PERMITTED IN EXPOSED AREAS.
4. 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.
5. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF LIGHT FIXTURES AND DEVICES.
6. ALL MATERIALS EXPOSED WITHIN PLENUMS SHALL BE NONCOMBUSTIBLE OR SHALL HAVE A 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.
7. EACH BRANCH CIRCUIT SHALL HAVE A DEDICATED NEUTRAL PER NEC 210.4.
8. KITCHEN EQUIPMENT - VERIFY ALL ELECTRICAL REQUIREMENTS AND ROUGH-IN LOCATION PRIOR TO WORK.
9. 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.
10. 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)
11. ALL 120 VOLT THROUGH 250 VOLT RECEPTACLES SUPPLIED BY SINGLE PHASE BRANCH CIRCUIT RATED 150 VOLTS OR LESS TO GROUND, 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)
12. PROVIDE SEAL-OFF FITTINGS AT ALL COOLER/FREEZER PENETRATIONS.
13. 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.

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4/17/2024

LICENSED PROFESSIONAL ENGINEER
DARIN T. SEIDEL
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OKLAHOMA

a new restaurant for:
Freddy's

1000 Lonnie Abbott Blvd
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date
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△

BC PROJECT #: 24221
OKLAHOMA PE COA #CA1900PE

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

sheet number
E-000

drawing type
permit

project number
23006-15

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 ELECTRIAL 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 CONJUCTION 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' HUBBEL #GFTR20-X OR EQUAL AND SHALL BE INSTALLED IN A WEATHERPROOF ENCLOSURE WHICH SHALL BE INTERMATIC #WP1010MXD OR #WP1010HMXD 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-L. 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-L. 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.
   G. LOAD CENTERS INSTALLED IN ACCESSIBLE DWELLING UNITS SHALL MEET ALL REQUIREMENTS OF ANSI A117.1. OPENING LATCH AND ALL BREAKERS SHALL BE MOUNTED BETWEEN 48" AND 15" AFF. CONTRACTOR SHALL VERIFY WITH ARCHITECT IF UNIT IS ACCESSIBLE PRIOR TO ROUGH IN.

12. DISTRIBUTION PANEL:
   A. THE DISTRIBUTION PANEL SHALL BE EQUAL TO SQUARE D I-LINE SERIES TYPE AND SHALL BE LOW VOLTAGE, CONFIGURED AN 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 8p0% 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.
         b.
   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 I AND OUTDOOR SWITCHES SHALL BE NEMA 3R, UNLESS INDICATED OTHERWISE.

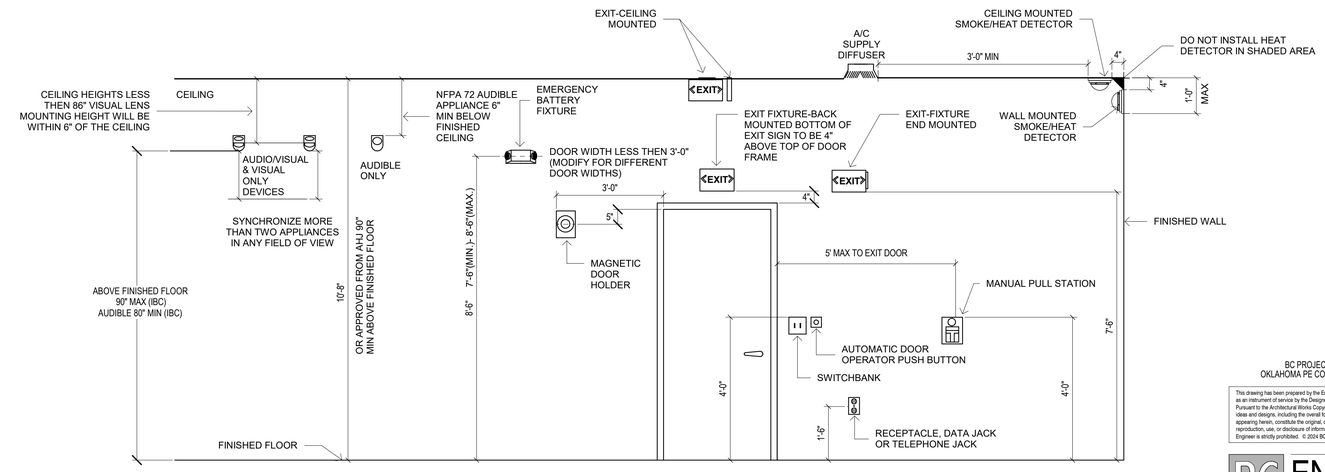
14. FUSES:
   A. FUSES PROTECTING CIRCUIT BREAKER PANELS SHALL BE CURRENT LIMITING U.L. CLASS RK-1 FUSES WITH 200,000 AMPERES RMS SYM INTERRUPTING CAPACITY. FUSING ELEMENTS SHALL BE SILVER FOR RATINGS ABOVE 60 AMPERES.
   B. ALL OTHER FUSES SHALL BE U.L. CLASS RK-5, DUAL-ELEMENT WITH A MINIMUM TIME-DELAY 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 / E-001 TYPICAL MOUNTING HEIGHTS
1/2" = 1'-0"

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4/17/2024

a new restaurant for:
Freddy's
1000 Lonnie Abbott Blvd
Ada, OK 74820

date
04.17.2024
drawn by
MS/AK
checked by
EK/DS
revisions

BC PROJECT #: 24221
OKLAHOMA PE COA #CA1900PE

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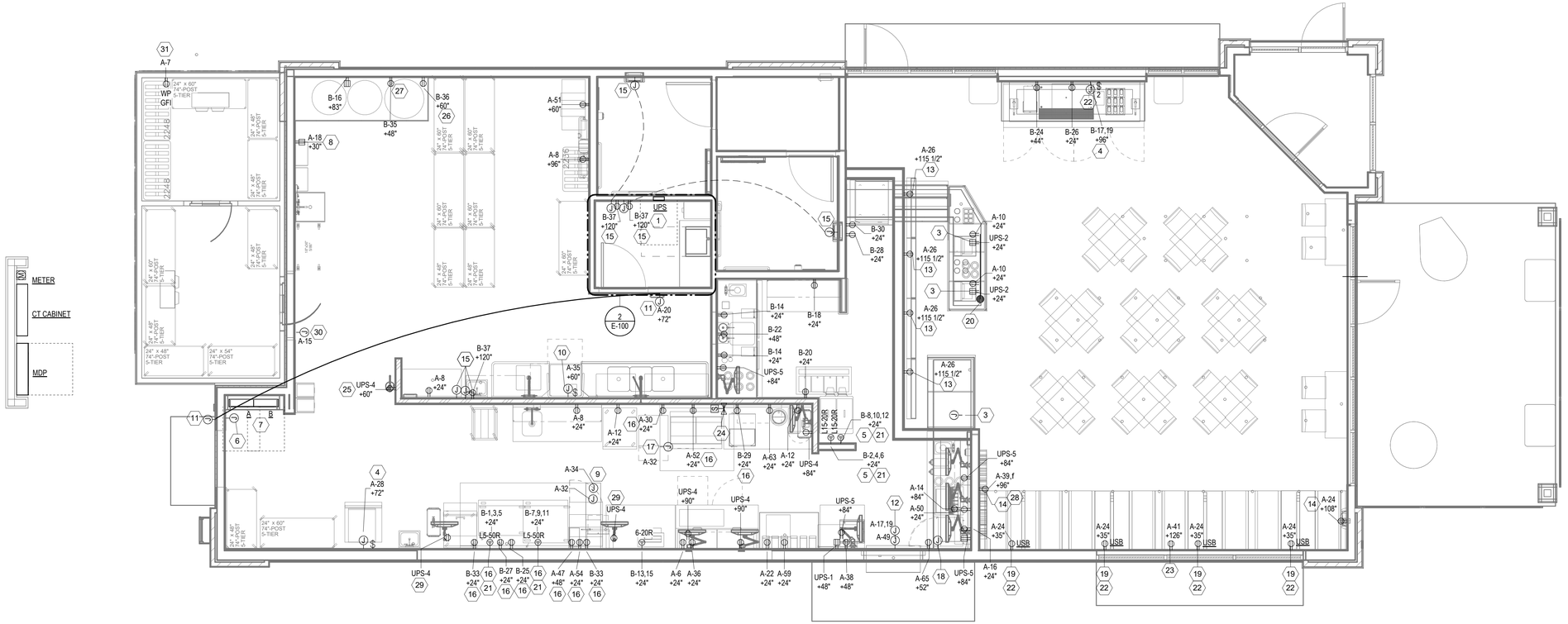
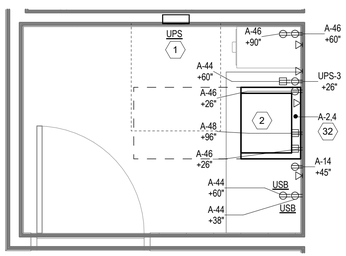
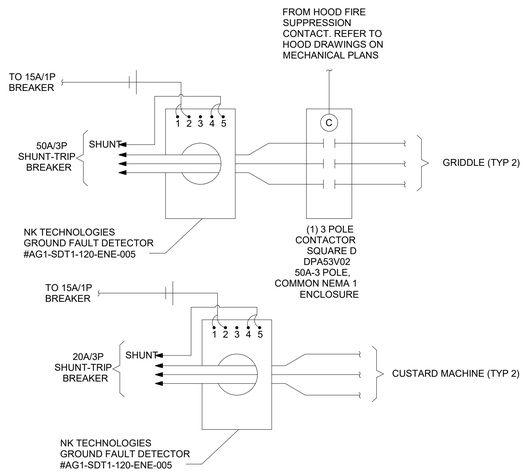


1 E-100 POWER PLAN
1/4" = 1'-0"



2 E-100 ENLARGED OFFICE POWER PLAN
1/2" = 1'-0"



E.C. TO PROVIDE ALL DEVICES SHOWN HERE. THESE ARE NOT INCLUDED IN THE HOOD CONTROL PANEL. LOCATE NEAR HOOD UTILITY CABINET.

GFCI DETECTORS TO BE LOCATED IN NEMA 1 ENCLOSURE. REFER TO MANUFACTURERS INSTRUCTIONS FOR INSTALLATION.

3 E-100 3-Phase Ground Fault Protection Detail
NOT TO SCALE

ELECTRICAL KEYNOTES

1. REFER TO SHEET E-300 FOR ALL COMMUNICATIONS ROUGH-IN REQUIREMENTS. REFER TO ARCHITECTURAL ELEVATIONS FOR EXACT PLACEMENT OF DEVICES IN OFFICE.
2. 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 INSIDE RACK ENCLOSURE. VERIFY ROUGH-IN LOCATIONS WITH ARCHITECTURAL ELEVATIONS. REFER TO SHEETS E-300 AND E-301 FOR ADDITIONAL RACK REQUIREMENTS AND INFORMATION.
3. DEVICES MOUNTED IN CASEWORK. RUN CONDUITS AND MOUNT DEVICES TIGHT TO BACK WALL OF INSIDE CABINET.
4. CONNECT TO REMOTE CONDENSING UNIT ON ROOF. REF SHEET E-101 VERIFY EXACT LOCATION.
5. OWNER FURNISHED CUSTARD MACHINES. E.C. TO PROVIDE NEMA L15-20P PLUG AND NEMA L15-20R RECEPTACLE.
6. JUNCTION BOX FOR HOOD FIRE SUPPRESSION SYSTEM PULL STATIONS. VERIFY MOUNTING HEIGHT.
7. CPI ELECTRICAL CABINET INCLUDES LIGHTING CONTROLS, PANEL A AND PANEL B.
8. CONNECT TO WATER HEATER CONTROLS PER MANUFACTURER'S INSTRUCTIONS.
9. LOCATION OF HOOD CONTROL PANEL. REFER TO MECHANICAL PLANS FOR MORE INFORMATION. CONNECT TO LIGHTS AND CONTROLS PER SUPPLIERS INSTRUCTIONS.
10. JUNCTION BOX WITH DISCONNECTING MEANS CAPABLE OF BEING LOCKED IN THE OPEN POSITION FOR CONNECTION TO DISHWASHER. SEE ARCHITECTURAL ELEVATIONS FOR LOCATION.
11. PROVIDE NUTONE #BK240SLP OR EQUAL COMMERCIAL DOOR CHIME AND PUSHBUTTON. VERIFY LOCATION OF INDOOR CHIME UNIT WITH OWNER.
12. (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.
13. PROVIDE RECEPTACLE, IN COMBINATION POWER/DATA J-BOX EQUAL TO HUBBLE #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.
14. 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.
15. 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.
16. ROUTE CIRCUIT TO PANEL VIA HOOD FIRE SUPPRESSION CONTACTOR IN CPI CABINET.
17. CONNECT TO HOOD LIGHTS ROUTE CIRCUIT TO HOOD CONTROL PANEL.
18. PROVIDE 1"C FROM SPEAKER POST(S) TO J-BOX AT DRIVE-THRU WINDOW FOR HEADSET RECEIVER/BASE.
19. BOOTH RECEPTACLES SHALL BE TAMPER RESISTANT WITH (2) INTEGRAL USB PORTS. MOUNT HORIZONTALLY. COORDINATE RECEPTACLE LOCATION WITH ARCHITECTURAL ELEVATIONS PRIOR TO ROUGH-IN.
20. (2) 1"C FOR LOW-VOLTAGE & CASEWORK POWER. (2) 1"C FOR LOW-VOLTAGE & CASEWORK POWER. ROUTE CONDUIT UNDER SLAB TO NEARBY WALL AND THEN UP TO ABOVE KITCHEN CEILING.
21. ROUTE CIRCUIT THROUGH GFCI DETECTOR TO PANEL INDICATED. REFER TO 3-PHASE GROUND FAULT PROTECTION DETAIL THIS SHEET.
22. ALL HOME RUNS IN FRONT OF HOUSE SHOULD BE RUN UNDERGROUND TO KEEP FRONT OF HOUSE EXPOSED CEILING SPACE CLEAR OF ELECTRICAL RUNS.
23. RECEPTACLE FOR MOTORIZED BLINDS. LOCATE 18" ABOVE ALL SOUTHERLY AND WESTERLY FACING WINDOWS. REFER TO ARCHITECTURAL ELEVATIONS.
24. PROVIDE CIRCUITING AND FINAL CONNECTION BETWEEN GAS SOLENOID AND HOOD CONTROL PANEL. REFER TO CAPTIVE AIRE HOOD DRAWINGS ON MACHANICAL PLANS.
25. MOUNT RECEPTACLE IN PEERLESS-AV IBA3 IN-WALL BOX FOR POWER AND STORAGE OF IPAD CHARGING STATIONS LV POWER SUPPLIES.
26. 1" CONDUIT DOWN IN WALL TO UNDERGROUND AND OUT INTO NEARBY LANDSCAPE AREA FOR IRRIGATION CONTROLS. VERIFY EXACT REQUIREMENTS WITH ARCHITECT/GC.
27. RECEPTACLE FOR CO2 SENSOR LOCATED ABOVE CO2 CYLINDER. PROVIDE CO2METER MODEL RAD-0102-6 OR EQUAL.
28. 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 CPI LIGHTING CONTROLLER SEQUENCE OF OPERATIONS ON SHEET E-201.
29. CEILING MOUNTED RECEPTACLE FOR POLE MOUNTED KDS MONITOR. ROUTE MONITOR CABLE SECURED DOWN POLE TO MONITOR.
30. 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.
31. CONNECT TO WALK-IN DRAINHEAT TAPE. COORDINATE WITH PLUMBING CONTRACTOR.
32. POWER FOR DATA RACK. REFER TO RISER DIAGRAM FOR MORE INFORMATION ON SHEET E-400.

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4/17/2024

LICENSED PROFESSIONAL ENGINEER
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OKLAHOMA

a new restaurant for:
Freddy's

1000 Lonnie Abbott Blvd
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date
04.17.2024
drawn by
MS/AK
checked by
EK/DS
revisions

BC PROJECT #: 24221
OKLAHOMA PE COA #CA1900PE

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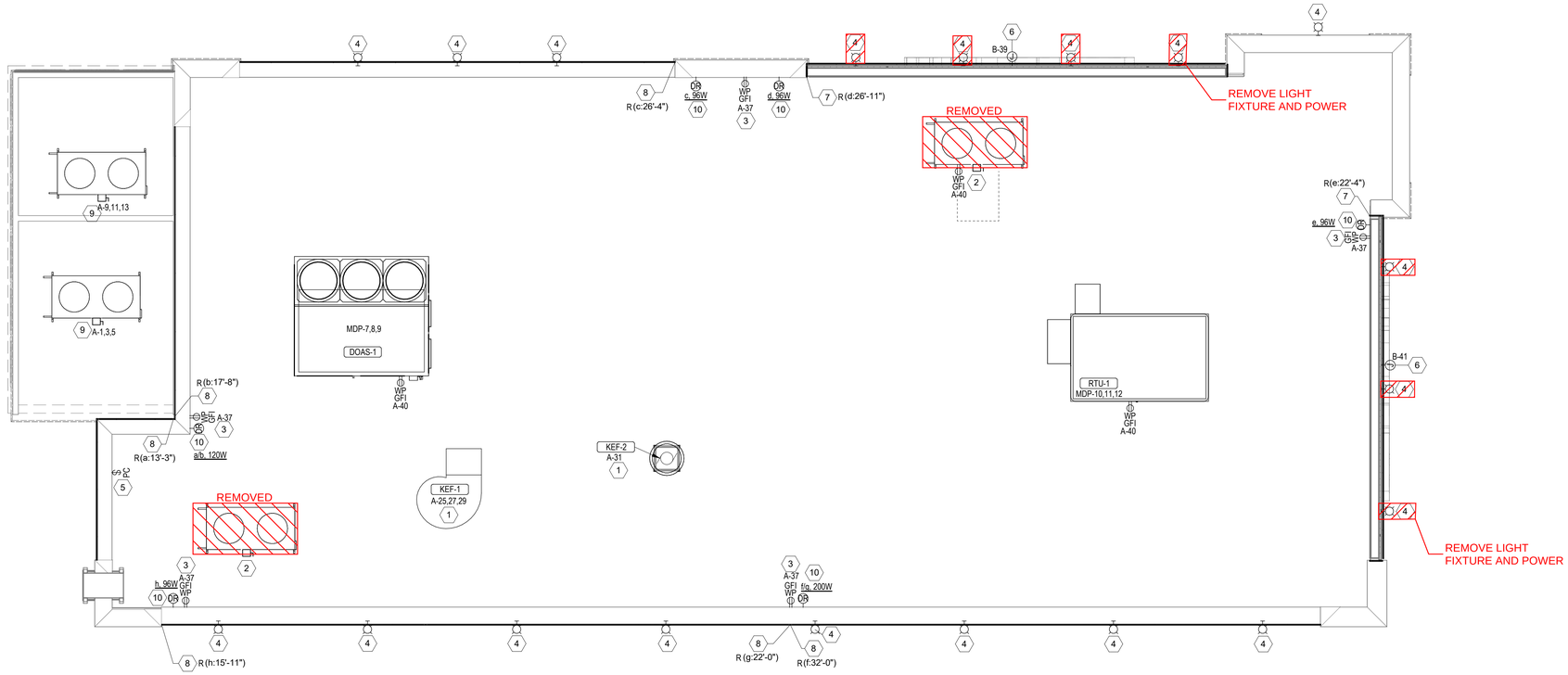
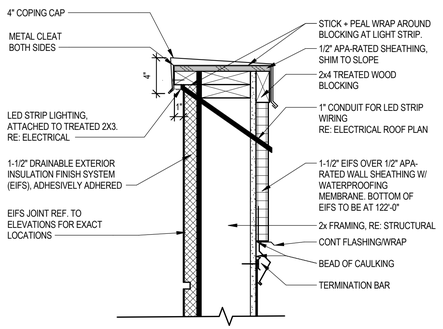
sheet number
E-100

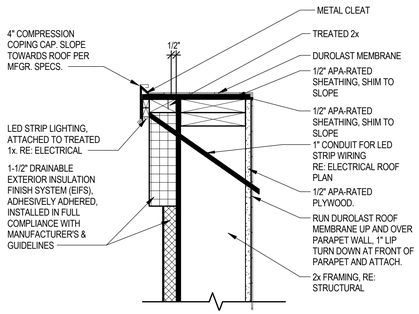
drawing type
permit
project number
23006-15



1 E-101 ROOF POWER PLAN
1/4" = 1'-0"



3 E-101 EIFS FINISH W/O TRIM - 4" COPING
1 1/2" = 1'-0"



2 E-101 EIFS FINISH W- TRIM - 4" COMP CAP
1 1/2" = 1'-0"

ELECTRICAL KEYNOTES

1	ROUTE CIRCUIT TO PANEL INDICATED VIA EXHAUST HOOD CONTROL PANEL. REFER TO MECHANICAL DRAWINGS FOR MORE INFORMATION.
2	~~CONNECT CONDENSING UNIT TO ICE MACHINE. REFER TO SHEET E-100 FOR CIRCUIT. MAKE FINAL CONNECTIONS AS REQUIRED.~~
3	PROVIDE RECEPTACLE FOR BUILDING LED STRIPING DRIVER. REFER TO ARCHITECTURAL ELEVATIONS/SECTIONS FOR LOCATION AND MOUNTING. INSTALL DRIVERS AND CONNECT TO LED STRIPS PER MANUFACTURER'S INSTRUCTIONS. ROUTE CIRCUIT TO PANEL VIA EXTERIOR LIGHTING CONTROLLER, SEE DETAIL ON SHEET E-201.
4	REFER TO E-200 FOR GOOSENECK CIRCUITING.
5	PROVIDE 120V PHOTOCELL ON ROOF, FACING NORTH FOR CONTROL OF FLAGPOLE AND REAR EXIT SECURITY LIGHTING.
6	JUNCTION BOX WITH DISCONNECTING MEANS CAPABLE OF BEING LOCKED IN THE OPEN POSITION FOR BUILDING SIGNAGE. VERIFY EXACT LOCATION. ROUTE CIRCUIT TO PANEL INDICATED VIA LIGHTING CONTROLLER CONTACTOR. REFER TO CPI LIGHTING CONTROLLER SEQUENCE OF OPERATION ON SHEET E-201.
7	LED ACCENT STRIP LIGHTING OF SPECIFIED LENGTH TO BE CONNECTED TO REMOTE DRIVER INDICATED (x: #'-#" = DRIVER/SECTION ID: SECTION LENGTH) ON BACK OF PARAPET WALL. ROUTE FIXTURE CABLE CONCEALED ALONG BACK OF PARAPET WALL AND DOWN TO DRIVER. REFER TO BLAZED LED STRIP INSTALLATION DETAIL SHEET E-201.
8	LED ACCENT STRIP LIGHTING OF SPECIFIED LENGTH TO BE CONNECTED TO REMOTE DRIVER INDICATED (x: #'-#" = DRIVER/SECTION ID: SECTION LENGTH) ON BACK OF PARAPET WALL. PROVIDE 1" CONDUIT AT DRIVER END OF FIXTURE THRU PARAPET WALL, FLUSH WITH FRONT OF PARAPET AND STUBBED OUT 1" FROM BACK OF PARAPET, REFER TO DETAILS THIS SHEET. ROUTE FIXTURE CABLE THRU CONDUIT TO DRIVER. REFER TO BLAZED LED STRIP INSTALLATION DETAIL SHEET E-201.
9	CONNECT TO FACTORY PROVIDED FUSED DISCONNECT FOR SINGLE POINT POWER SUPPLY FOR WALK-IN EVAPORATOR AND CONDENSER.
10	DRIVER OF WATTAGE INDICATED. FOR LED STRIP LIGHTING SUPPLIED BY ACCENT LIGHTING. POWER FROM RECEPTACLE. CONNECT TO FIXTURE 'R' SECTION INDICATED. E.C. TO PROVIDE NEMA 3R J-BOX FOR DRIVER.

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4/17/2024

LICENSED PROFESSIONAL ENGINEER
DARIN T. SEIDEL
28984
OKLAHOMA

BC PROJECT #: 24221
OKLAHOMA PE COA #CA1900PE

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

a new restaurant for:
Freddy's

1000 Lonnie Abbott Blvd
Ada, OK 74820

date
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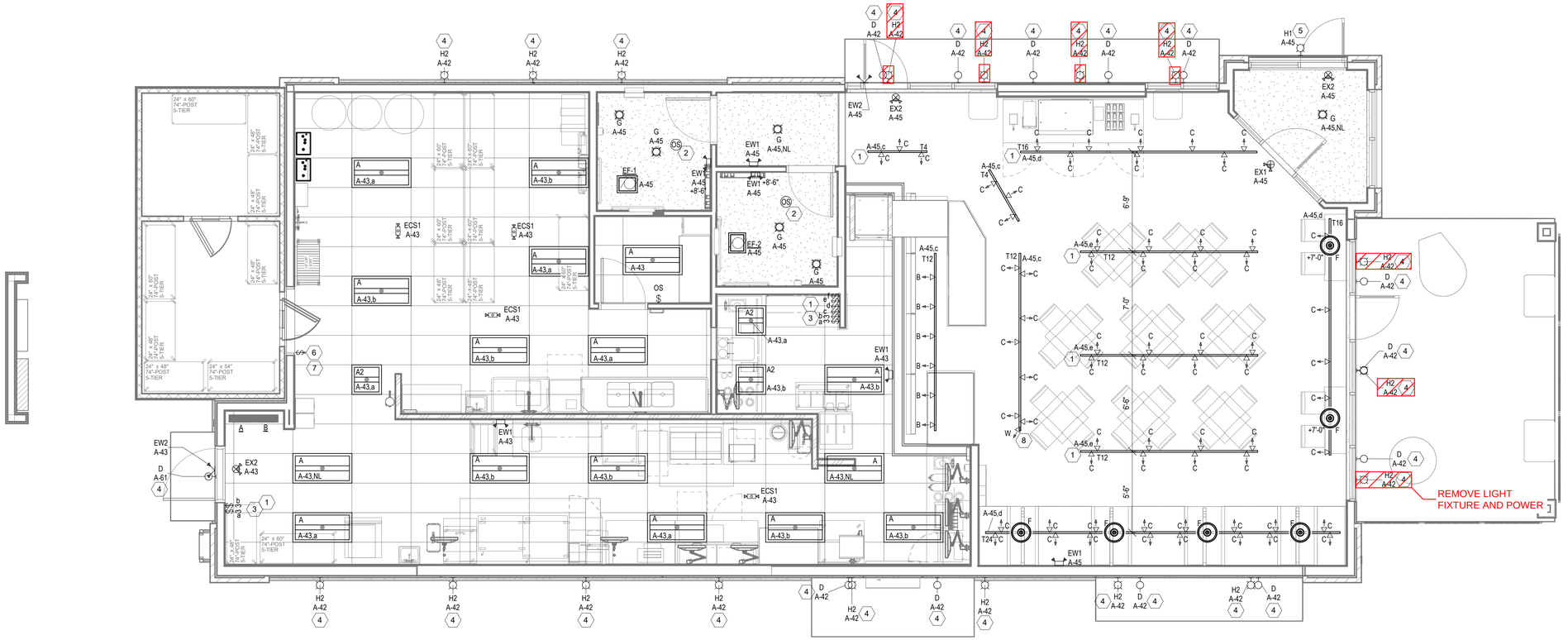

1 E-200 LEVEL 1 LIGHTING PLAN
1/4" = 1'-0"

ELECTRICAL KEYNOTES

1	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 CPI LIGHTING CONTROLLER SEQUENCE OF OPERATIONS ON SHEET E-201.
2	WATTSTOPPER #DT-355 OR EQUAL OCCUPANCY SENSOR. LOCATE MINIMUM 4' AWAY FROM SUPPLY AIR DIFFUSES - COORDINATE EXACT PLACEMENT WITH MECHANICAL CONTRACTOR.
3	KITCHEN LIGHTING WIRED FOR 50% LIGHTING REDUCTION VIA EVERY OTHER FIXTURE SWITCHING IN CHECKERBOARD PATTERN, AS INDICATED BY (a) AND (b).
4	REFER TO ARCHITECTURAL ELEVATIONS FOR EXTERIOR LIGHTING LOCATIONS. ALL EXTERIOR BUILDING LIGHT FIXTURE BASES NEED TO BE CAULKED TO PREVENT MOISTURE PENETRATION. ROUTE LIGHTING CIRCUIT THROUGH LIGHTING CONTACTOR. REFER TO CPI LIGHTING CONTROLLER SEQUENCE OF OPERATION ON SHEET E-201.
5	CIRCUIT FIXTURE TO SEPARATE EM LIGHTING INVERTER. ROUTE LIGHTING CIRCUIT THROUGH EXTERIOR LIGHTING CONTACTOR FOR CONTROL UNDER NORMAL CONDITIONS. PROVIDE UNSWITCHED "HOT" CONDUCTOR ROUTED AHEAD OF LIGHTING CONTROLS FOR EMERGENCY INVERTER PER INVERTER MANUFACTURER'S INSTRUCTIONS. INVERTER TO BE LOCATED IN ACCESIBLE AREA HIGH UP ON INTERIOR WALL OF DINING AREA.
6	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.
7	PROVIDE POWER FOR MANUFACTURER/FACTORY INSTALLED WALK-IN LIGHTS AND ACCESSORIES. REFER TO MANUFACTURER SPECIFICATIONS FOR LOCATION AND ADDITIONAL REQUIREMENTS.
8	FIXTURE TO ILLUMINATE FEATURE SIGN ON WALL. COORDINATE EXACT LOCATION WITH OWNER/ARCHITECT.

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E-200

drawing type
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23006-15

Luminaire Schedule

TYPE	DESCRIPTION	MFR.	MODEL NUMBER	LUMEN OUTPUT	VOLTAGE	WATTS	NOTES
A	2'X4' LED GRID BASKET TROFFER WITH OPAL LENS. 5,300 LUMENS, 4000K	TRACE-LITE	CBLQ-24-CP	5300 lm	120 V	42 W	--
A2	2'X2' LED GRID BASKET TROFFER WITH OPAL LENS. 3900 LUMENS, 4100K	TRACE-LITE	CLBQ-22-CP	4400 lm	120 V	35 W	--
B	TRACK MOUNTED GIMBAL-RING LAMP HOLDER WITH TRIM RING FOR (1) 14W PAR30 LED LAMP MOUNTED ON SINGLE CIRCUIT TRACK, LENGTH AS INDICATED ON PLANS. PROVIDE ALL NECESSARY ENDS, FEEDS, ETC FOR COMPLETE INSTALLATION. VERIFY FINISH WITH ARCHITECT.	JUNO	R532-WH ON TX-WH SERIES TRACK	0 lm	120 V	14 W	--
C	TRACK MOUNTED GIMBAL-RING LAMP HOLDER WITH TRIM RING FOR (1) 14W PAR30 LED LAMP MOUNTED ON SINGLE CIRCUIT TRACK, LENGTH AS INDICATED ON PLANS. PROVIDE ALL NECESSARY ENDS, FEEDS, ETC FOR COMPLETE INSTALLATION. VERIFY FINISH WITH ARCHITECT.	JUNO	R532-WH ON TX-WH SERIES TRACK	0 lm	120 V	14 W	--
CT	LIGHTING TRACK, SINGLE CIRCUIT, WHITE	JUNO	T XFT WH	0 lm	120 V	<varies>	
D	WALL SCONCE	AFX	ELMW0704LAJD2BK	2200 lm	120 V	19 W	--
ECS1	CEILING MOUNT EMERGENCY LIGHT WITH TWIN ADJUSTABLE LED HEADS AND SEALED NICAD BATTERY	EXITRONIX	LED-90	1100 lm	120 V	3 W	
EW1	EMERGENCY LIGHT WITH TWIN ADJUSTABLE LED HEADS AND SEALED NICAD BATTERY, MOUNT AT 10'-6" TO CLEAR OBSTACLES.	EXITRONIX	LED-90	1100 lm	120 V	3 W	
EW2	WEATHERPROOF REMOTE 2 HEAD EMERGENCY	EXITRONIX	MLED2-G-WP	440 lm	120 V	4 W	
EX1	COMBO EMERGENCY/EXIT LIGHT WITH LED LAMPS, RED LETTERS ON WHITE BACKGROUND, UNIVERSAL MOUNT, BATTERY BACKUP AND TWIN EMERGENCY HEADS	EXITRONIX	VLED-U-WH-EL90	1045 lm	120 V	4 W	
EX2	COMBO EMERGENCY/EXIT LIGHT WITH LED LAMPS, RED LETTERS ON WHITE BACKGROUND, UNIVERSAL MOUNT, BATTERY BACKUP AND TWIN EMERGENCY HEADS AND HIGH CAPACITY BATTERY FOR REMOTE HEADS	EXITRONIX	VLED-U-WH-EL90	1045 lm	120 V	4 W	
F	16" RLM SHADE FOR (1) 7.5W SILVER-BOWL MEDIUM BASE LED LAMP. MOUNT AT 60" AFF ABOVE BOOTHS AND 72" AFF ABOVE HIGH TOP TABLES OR AS NOTED ON PLANS	ACCENT LIGHTING	142-W516-43-BLC W/ JUNO TRACK ADAPTER	700 lm	120 V	14 W	--
G	6" RECESSED DOWNLIGHT WITH BLACK BAFFLE FOR (1) 12W LED LIGHT ENGINE	JUNO	IC22LED-35K-24W-WH	0 lm	120 V	12 W	--
H1	ANGLED SHADE ACCENT LIGHT SINGLE (12W) LED HEAD WITH RED FINISH W/ REMOTE INTERIOR EM LIGHTING INVERTER	BASELITE	A812/43/E12-EXT.24"/LWTM/LGSWL/LED12W/3K/120/277V W/ INVERTER ISI-MICRO	0 lm	120 V	12 W	--
H2	ANGLED SHADE ACCENT LIGHT DUAL (12W) LED HEAD WITH RED FINISH	BASELITE	A812/43/E18A/LWTM/LED12W/3K/120/277V	0 lm	120 V	24 W	--
LPS1	22' Square Straight Steel Pole, on 3' Base Per Parking Lot Pole Detail	Lithonia	SSS 22' 4C X X DDBXD	0 lm	0 V	0 W	Mounting And Options As Required. Total 25' AFG.
OF	LED ACCENT FIXTURE, BRONZE WITH 10 DEGREE SPOT BEAM SPREAD. PROVIDE WITH SURFACE MOUNT FLANGE.	KICHLER	16204AZT42	0 lm	120 V	29 W	
R	NEON SIDE BENDING RED LED LIGHT STRIP, IP65 WET LISTED. CORD AND PLUG DRIVER AND CHANNEL FOR COMPLETE INSTALLATION. REFER TO ROOF PLAN FOR LOCATION, LENGTH AND DRIVER WATTAGES.	DIODELED	DI-24V-SE-NBL2-RD-##-CHN-ELV	0 lm	120 V	<varies>	2.44W/LF, REFER TO PLANS FOR PREASSEMBLED SECTION ID AND LENGTH (X:#'#"). DRIVERS ARE LABELED ON PLANS WITH WATTAGE AND CORRESPONDING SECTIONS.
S2	POLE MOUNTED AREA LIGHT WITH INTEGRAL LED LIGHT ENGINE AND DRIVER - TYPE 2 DISTRIBUTION. MOUNT ON 22' POLE WITH 3' HIGH CONCRETE BASE (25' TOTAL MOUNTING HEIGHT). BRONZE FINISH	LITHONIA	RSX2 LED P4 40K R2 MVOLT SPA DDBXD	17604 lm	208 V	187 W	--
S3	POLE MOUNTED AREA LIGHT WITH INTEGRAL LED LIGHT ENGINE AND DRIVER - TYPE 3 DISTRIBUTION. MOUNT ON 22' POLE WITH 3' HIGH CONCRETE BASE (25' TOTAL MOUNTING HEIGHT). BRONZE FINISH	LITHONIA	RSX2 LED P4 40K R3 MVOLT SPA DDBXD	17604 lm	208 V	187 W	--
S4	POLE MOUNTED AREA LIGHT WITH INTEGRAL LED LIGHT ENGINE AND DRIVER - TYPE 4 DISTRIBUTION. MOUNT ON 22' POLE WITH 3' HIGH CONCRETE BASE (25' TOTAL MOUNTING HEIGHT). BRONZE FINISH	LITHONIA	RSX2 LED P4 40K R4 MVOLT SPA DDBXD	17604 lm	208 V	187 W	--
W	TRACK MOUNTED WALL WASH FLOOD MOUNTED ON SINGLE CIRCUIT TRACK, LENGTH AS INDICATED ON PLANS. PROVIDE ALL NECESSARY ENDS, FEEDS, ETC FOR COMPLETE INSTALLATION. VERIFY FINISH WITH ARCHITECT.	JUNO	T258L G2 30K 90CRI PDIM WH	2000 lm	120 V	20 W	--

NOTES:

A. ALL NEW LIGHT FIXTURES ARE TO BE PROVIDED BY OWNER THROUGH ACCENT LIGHTING. CONTACT PAUL GRAF @316-636-1278 WITH QUESTIONS. ALL LAMPS TO BE SUPPLIED BY OWNER.
B. TYPE 'F' FIXTURES TO BE CENTERED OVER BOOTH.
C. TYPE R FIXTURES COME FACTORY ASSEMBLED TO LENGTH INDICATED WITH LV CABLE FOR CONNECTION TO DRIVER. NO CUTTING WILL BE NEEDED. DRIVERS WILL HAVE 6FT 120V CORD AND PLUG FOR CONNECTION TO WP RECEPTACLE. 120W/200W DRIVERS HAVE (2) LV CABLES FOR CONNECTION OF MULTIPLE SECTIONS. 96W DRIVER WILL HAVE ONLY (1) LV CABLE FOR CONNECTION TO SINGLE SECTION.

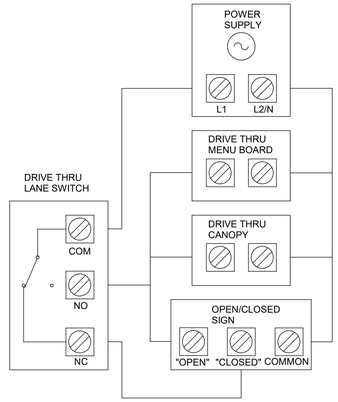
CPI LIGHTING CONTROLLER SEQUENCE OF OPERATION

CONTACT NAME:	Bryan Stryker
CONTACT NUMBER:	(704) 441-4048
CONTACT E-MAIL:	bryans@cpipanels.com

RELAY NO.	CIRCUIT NO.	CONTROLLED AREA	ON TIME	OFF TIME
1	-	SPARE	30 MINUTES BEFORE SUNSET	10:15PM SU-TH 11:15PM FR-SA
	B-41	SIGN #1		
	B-39	SIGN #2		
	-	SPARE		
2	A-37	BUILDING LED STRIPE	30 MINUTES BEFORE SUNSET	10:15PM SU-TH 11:15PM FR-SA
	A-53	DRIVE THRU MENU 1		
	-	SPARE		
	A-21	MONUMENT SIGN		
3	B-32	SITE LIGHTING	30 MINUTES BEFORE SUNSET OR PHOTO CELL OVERRIDE	12:00AM SU-TH 1:00AM FOLLOWING DAY FR-SA
	B-34			
	-	SPARE		
	-	SPARE		
4	A-43	KITCHEN LIGHTING	8:00AM	11:00PM SU-TH 12:00AM FR-SA
	A-15	WALK-IN COOLER/ FREEZER LIGHTING		
	A-39	NEON SIGN		
	A-45	DINING LIGHTING		
5	A-26	MENUBOARDS	8:00AM	11:00PM SU-TH 12:00AM FR-SA
	-	SPARE		
	-	SPARE		
	-	SPARE		
6	A-42	BUILDING EXTERIOR LIGHTING	30 MINUTES BEFORE SUNSET	11:00PM SU-TH 12:00AM FR-SA
	-	SPARE		
	-	SPARE		
	-	SPARE		

CPI CONTROLLER AND CONTACTORS PROVIDED WITH CPI ELECTRICAL CABINET

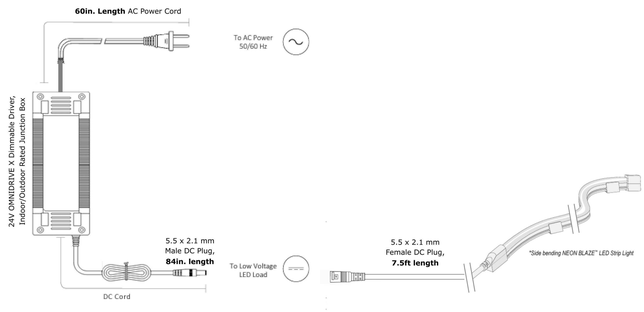
2 E-201 LIGHTING CONTACTOR DETAIL
NOT TO SCALE



CONNECT TO SINGLE POLE DOUBLE THROW SWITCH, PROVIDED IN CPI CABINET, FOR EACH DRIVE THRU LANE TO CONTROL DRIVE-THRU CANOPY OPEN/CLOSED SIGN. WHEN OPEN CANOPY LIGHTS AND MENU BOARD LIGHT TO COME ON. WHEN CLOSED MENUBOARD AND CANOPY LIGHT TO TURN OFF WITH CLOSED SIGN STILL POWERED. REFERENCE ABOVE WIRING DIAGRAM. PROVIDE PERMANENT LABEL WITH OPEN AND CLOSED POSITION FOR EACH SWITCH.

Installation Diagram -

- Plug-in Omnidrive X Power Supply with Male DC quick-connect
- Neon Blaze RED, with extended length Female DC Lead Wire



3 E-201 BLAZE LED STRIP INSTALLATION DETAIL
1/8" = 1'-0"

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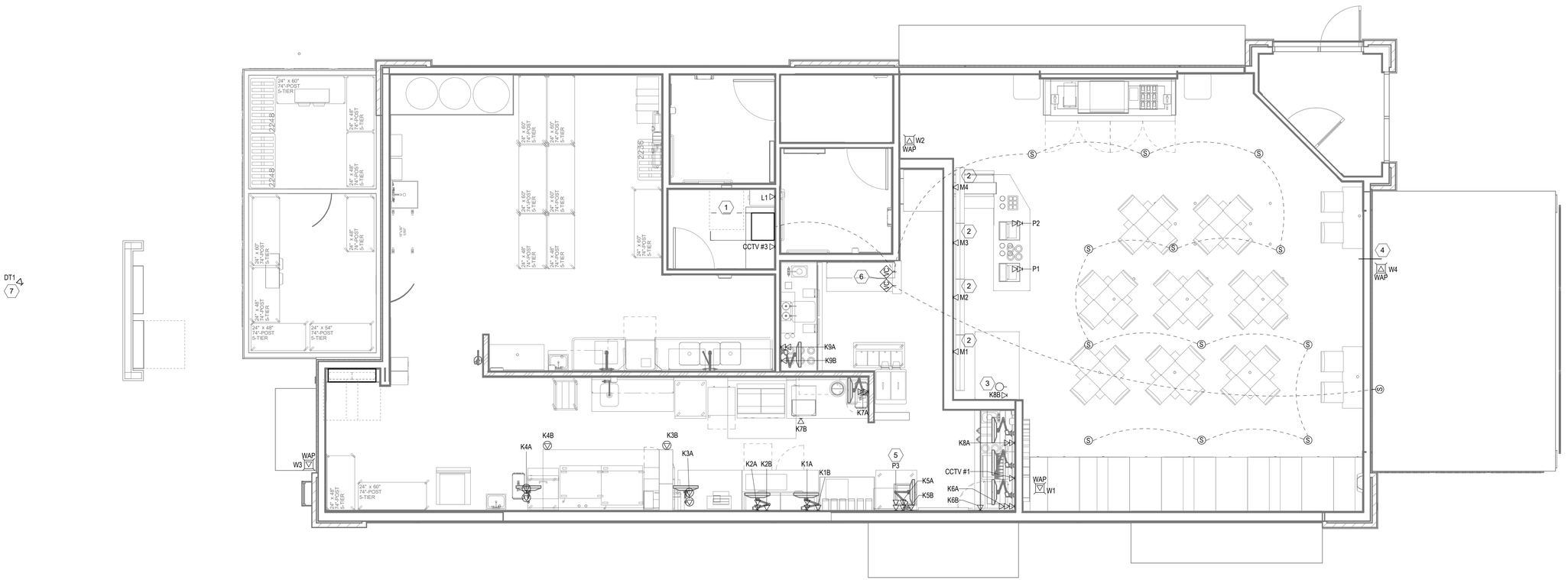

1 E-300 LOW VOLTAGE PLAN
1/4" = 1'-0"

ELECTRICAL KEYNOTES

1	REFER TO OFFICE ELEVATION ON ARCHITECTURAL SHEETS FOR EXACT PLACEMENT OF DEVICES IN THE OFFICE.
2	MENUBOARD DATA OUTLET, MOUNT 22" FROM BOTTOM OF SOFFIT TO CENTER OF DEVICE. REFER TO SYSTEM WIRING SCHEDULE FOR ADDITIONAL DETAILS.
3	PROVIDE J-BOX INSIDE PICKUP COUNTER CABINET FOR MICROPHONE. PROVIDE 3/4" W/ PULL STRING FROM J-BOX TO ABOVE ACCESSIBLE CEILING. TERMINATE WITH NYLON BUSHINGS.
4	PROVIDE 1/2" CONDUIT STUB-OUT FOR PATIO SPEAKER. AT EXTERIOR WALL CONDUIT SHALL BE ROUTED FROM INTERIOR BOTTOM OF DECK TO EXTERIOR WALL BEHIND CANOPY.
5	WALL MOUNTED POS, PROVIDE CONDUIT IN WALL FROM BEHIND POS TO BELOW COUNTER FOR CONNECTION TO CASH DRAWER.
6	PROVIDE (2) 100LVC-DW WALL MOUNTED VOLUME CONTROLS. ONE CONTROLS DINING AREA SPEAKERS AND ONE CONTROLS PATIO AREA SPEAKERS.
7	DEVICES LOCATED AT DRIVE THRU MENUBOARD.

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Data Device Schedule

DROP ID	DESCRIPTION	LABEL	DEVICE CONNECTION	ORIGIN - TERMINATION	WIRE TYPE	NOTES
CCTV #1	DRIVE THRU #1 - CCTV-1	CCTV-1	WALL PLATE - COAX	DATA RACK - COAX WHIP	COAX	11
CCTV #3	CCTV OFFICE MONITOR	CCTV-3	WALL PLATE - COAX	DATA RACK - COAX WHIP	COAX	11
DT1	DRIVE THRU #1 MENUBOARD	DT-1A	RJ45 KEYSTONE	PATCH PANEL - RJ45 CONNECTOR	CAT 5	5,10
DT1	DRIVE THRU #1 MENUBOARD	DT-1B	RJ45 KEYSTONE	PATCH PANEL - RJ45 CONNECTOR	CAT 5	5,10
DT1	DRIVE THRU #1 MENUBOARD	DT-1C	RJ45 KEYSTONE	PATCH PANEL - RJ45 CONNECTOR	CAT 5	5,10
DT1	DRIVE THRU #1 SPARE	DT-1D	RJ45 KEYSTONE	PATCH PANEL - RJ45 CONNECTOR	CAT 5	5,10
K1A	BAGGING STATION KDS	K1-PP	RJ45 KEYSTONE	PATCH PANEL - RJ45 CONNECTOR	CAT 5	4,5,6,7,9
K1A	BAGGING STATION KDS	K1-BB	RJ45 KEYSTONE	KDS BB #1 - RJ45 CONNECTOR	CAT 5	2,6,7,9
K1B	BAGGING STATION BUMP BAR	BB-1	KDS BB #1	K1-BB	CAT 5	2,6
K2A	MAKE STATION KDS	K2-PP	RJ45 KEYSTONE	PATCH PANEL - RJ45 CONNECTOR	CAT 5	4,5,6,7,9
K2A	MAKE STATION KDS	K2-BB	RJ45 KEYSTONE	KDS BB #2 - RJ45 CONNECTOR	CAT 5	2,6,7,9
K2B	MAKE STATION BUMP BAR	BB-2	KDS BB #2	K2-BB	CAT 5	2,6
K3A	GRILL #2 KDS	K3-PP	RJ45 KEYSTONE	PATCH PANEL - RJ45 CONNECTOR	CAT 5	4,5,6,7,9
K3A	GRILL #2 KDS	K3-BB	RJ45 KEYSTONE	KDS BB #3 - RJ45 CONNECTOR	CAT 5	3,6,7,9
K3B	GRILL #2 BUMP BAR	BB-3	KDS BB #3	K3-BB	CAT 5	3,6
K4A	GRILL #1 KDS	K4-PP	RJ45 KEYSTONE	PATCH PANEL - RJ45 CONNECTOR	CAT 5	4,5,6,7,9
K4A	GRILL #1 KDS	K4-BB	RJ45 KEYSTONE	KDS BB #4 - RJ45 CONNECTOR	CAT 5	3,6,7,9
K4B	GRILL #1 BUMP BAR	BB-4	KDS BB #4	K4-BB	CAT 5	3,6
K5A	DTW #1 KDS	K5-BB	RJ45 KEYSTONE	KDS BB #5 - RJ45 CONNECTOR	CAT 5	2,6,7,9
K5A	DTW #1 KDS	K5-PP	RJ45 KEYSTONE	PATCH PANEL - RJ45 CONNECTOR	CAT 5	4,5,6,7,9
K5B	DTW #1 BUMP BAR	BB-5	KDS BB #5	K5-BB	CAT 5	2,6
K6A	DTW #2 KDS	K6-BB	RJ45 KEYSTONE	KDS BB #6 - RJ45 CONNECTOR	CAT 5	2,6,7,9
K6A	DTW #2 KDS	K6a-PP	RJ45 KEYSTONE	PATCH PANEL - RJ45 CONNECTOR	CAT 5	4,5,6,7,9
K6A	DTW #3 KDS	K6b-PP	RJ45 KEYSTONE	PATCH PANEL - RJ45 CONNECTOR	CAT 5	4,5,6,7,9
K6B	DTW #2/3 BUMP BAR	BB-6	KDS BB #6	K6-BB	CAT 5	2,6
K7A	FRYER KDS	K7-PP	RJ45 KEYSTONE	PATCH PANEL - RJ45 CONNECTOR	CAT 5	4,5,6,7,9
K7A	FRYER KDS	K7-BB	RJ45 KEYSTONE	KDS BB #7 - RJ45 CONNECTOR	CAT 5	2,6,7,9
K7B	FRYER BUMP BAR	BB-7	KDS BB #7	K7-BB	CAT 5	2,6
K8A	PICK UP KDS	K8-BB	RJ45 KEYSTONE	KDS BB #8 - RJ45 CONNECTOR	CAT 5	1,6,7,9
K8A	PICK UP KDS	K8-PP	RJ45 KEYSTONE	PATCH PANEL - RJ45 CONNECTOR	CAT 5	4,5,6,7,9
K8B	PICK UP BUMP BAR	BB-8	KDS BB #8	K8-BB	CAT 5	1,6
K9A	CUSTARD KDS	K9-BB	RJ45 KEYSTONE	KDS BB #9 - RJ45 CONNECTOR	CAT 5	2,6,7,9
K9A	CUSTARD KDS	K9-PP	RJ45 KEYSTONE	PATCH PANEL - RJ45 CONNECTOR	CAT 5	4,5,6,7,9
K9B	CUSTARD BUMP BAR	BB-9	KDS BB #9	K9-BB	CAT 5	2,6
L1	OFFICE PRINTER	LN-1	RJ45 KEYSTONE	PATCH PANEL - RJ45 CONNECTOR	CAT 5	5,6
M1	MENU BOARD #1	M-1	RJ45 KEYSTONE	PATCH PANEL - RJ45 CONNECTOR	CAT 5	5,6,7,8
M2	MENU BOARD #2	M-2	RJ45 KEYSTONE	PATCH PANEL - RJ45 CONNECTOR	CAT 5	5,6,7,8
M3	MENU BOARD #3	M-3	RJ45 KEYSTONE	PATCH PANEL - RJ45 CONNECTOR	CAT 5	5,6,7,8
M4	MENU BOARD #4	M-4	RJ45 KEYSTONE	PATCH PANEL - RJ45 CONNECTOR	CAT 5	5,6,7,8
P1	POS #1 PIN PAD	P1-B	RJ45 KEYSTONE	PATCH PANEL - RJ45 CONNECTOR	CAT 5	5,6
P1	POS #1 REGISTER	P1-A	RJ45 KEYSTONE	PATCH PANEL - RJ45 CONNECTOR	CAT 5	5,6
P2	POS #2 PIN PAD	P2-B	RJ45 KEYSTONE	PATCH PANEL - RJ45 CONNECTOR	CAT 5	5,6
P2	POS #2 REGISTER	P2-A	RJ45 KEYSTONE	PATCH PANEL - RJ45 CONNECTOR	CAT 5	5,6
P3	POS #3 PIN PAD	P3-B	RJ45 KEYSTONE	PATCH PANEL - RJ45 CONNECTOR	CAT 5	5,6
P3	POS #3 REGISTER	P3-A	RJ45 KEYSTONE	PATCH PANEL - RJ45 CONNECTOR	CAT 5	5,6
W1	DINING WIRELESS ACCESS POINT	WAP-1		PATCH PANEL - RJ45 CONNECTOR	CAT 5	6,12
W2	DINING WIRELESS ACCESS POINT	WAP-2		PATCH PANEL - RJ45 CONNECTOR	CAT 5	6,12
W3	EXTERIOR WIRELESS ACCESS POINT	WAP-3		PATCH PANEL - RJ45 CONNECTOR	CAT 5	6,12
W4	PATIO WIRELESS ACCESS POINT	WAP-4		PATCH PANEL - RJ45 CONNECTOR	CAT 5	6,12

NOTES:

1. CAT 5 CABLE IN THE WALL FROM K#-BB JACK, TO THE APPROPRIATE BUMP BAR, WHERE SHOWN IN ELEV. #. STUB 18" OF CABLE OUT, WITH CONNECTOR, PERMANENTLY LABELED , BEYOND THE FACE OF THE CABINET.
2. CAT 5 CABLE IN THE WALL FROM K#-BB JACK BEHIND MONITOR K# TO WALL JACK BEHIND/BESIDE BB-#.
3. CAT 5 CABLE IN THE WALL AND ABOVE CEILING FROM K#-BB JACK, BEHIND MONITOR K#, TO CEILING MOUNTED JACK BB-#.
4. CAT 5 CABLE FROM PATCH PANEL TO K#-PP JACK BEHIND MONITOR K#.
5. HOME RUNS ALL TO BE ROUTED THROUGH THE SLEEVES/GROMMETS IN THE CEILING IMMEDIATELY OVER THE DATA RACK.STUB 24" OF CABLE WITH RJ45 CONNECTOR IN DATA RACK TO CONNECT TO PATCH PANEL. PERMANENTLY LABEL ALL CABLES AT PATCH PANEL END.
6. INSTALLER TO TEST ALL COMPLETED RUNS & PROVIDE A REPORT TO GC & OWNER CERTIFYING FUNCTIONALLITY.
7. WALL MOUNTED MONITORS, REFER TO ELEVATIONS FOR ROUGH-IN LOCATIONS.
8. CAT 5 TO EACH MENU SCREEN, FROM THE PATCH PANEL. TERMINATE IN RJ45 TOMBSTONE IN A RECESSED COMBINATION POWER/DATA RECEPTACLE EQUAL TO HUBBLE #HBL985 WALL BOX WITH #HBL989 LOW VOLTAGE PARTION & #RR1514W FACEPLATE.
9. RUNS TO TERMINATE IN THE SAME BOX WITH CONNECTIONS LABELED ACCORDING TO LV SCHEDULE.
10. CAT 5 FROM MENUBOARD BASE TO RACK/PATCH PANEL WITH (4)CAT 5 CABLES, 3 PLUS 1 SPARE.
11. INSTALL CCTV CABLING AND TERMINATIONS PER OWNDER REQUIREMENTS.
12. RUN CAT-5E FROM PATCH PANEL TO DESIGNATED END POINT. VENDOR TO SUPPLY AND CONNECT DEVICE.

CONTRACTOR SUPPLIED DATA RACK SPECIFICATION

TRIPP SRW18USDP 18UWALL MOUNT RACK ENCLOSURE

U#	U QTY	DESCRIPTION	SPECIFICATION	SUPPLIED BY	INSTALLED BY	NOTE/COMMENTS
S	1U	SPARE				
S	1U	SPARE				
1	1U	12 PORT SURGE PROTECTOR	CYBERPOWER CPS1215RMS RACKMOUNT SURGE PROTECTOR, 120V/15A, 12 OUTLETS, 15 FT POWER CORD	GC	GC/EC	NOT TO BE CONNECTED TO VERTIV BBU REFER TO MANUFACTURER'S TECHNICAL SPECIFICATIONS FOR DETAILED PRODUCT INFO
2	3U	DVR FOR CCTV	OWNER SELECTED	OWNER	OWNER	GC/EC TO COORDINATE/COOPERATE WITH OWNER'S CCTV/SECURITY SYSTEM PROVIDER
3						
4						
5		POS SWITCH	CISCO MERAKI - MS210-24P	RDS	RDS	SEE NOTES 1 & 2
6	2U	48 PORT PATCH PANEL	48 PORT, RACK MOUNT RJ45 JACKS COMPATIBLE WITH CAT5E WIRING	GC	GC/EC	MUST BE MOUNTED BETWEEN THE TWO NETWORK SWITCHES
7						SEE NOTE 2
8		NON-POS SWITCH	CISCO MERAKI - MS210-24P	OWNER	RDS	SEE NOTES 1 & 2
9		MX	CISCO MERIAKI - MX68-HW	RDS	RDS	SEE NOTES 1 & 2
10	2U	BATTERY BACK-UP UNIT	VERTIV - GXT5-5000MVRT4UXLN	RDS	RDS	TO POWER POS TERMINALS AND KDS POWER ONLY. EC MUST CLEARLY LABEL ALL DEVICES POWERED FROM BBU.
11						
12		MEDIA PLAYER	MEDIA PLAYER - MEDIA PLAYER	OWNER	GC/EC	INSTALL WITH RACK MOUNTED CLIP/ADAPTER
13	2U	SOUND SYSTEM	TOA ELECTRONICS - BG-2120, MOUNTED ON LOWELL 2U VENTED UTILITY SHELF - USV-110 2U RACKMOUNT	OWNER	OWNER	GC/EC TO INSTALL COMPLETE SOUND SYSTEM. EQUIPMENT & WIRING PROVIDED BY OWNER.
14						
S	1U	SPARE				
S	1U	SPARE				

NOTE 1 - MERIAKI EQUIPMENT, OWNER WILL RECEIVE AN INVOICE FROM FREDDY'S CORPORATE FOR THESE PIECES. RDS HOLDS THE HARDWARE IN INVENTORY AS PART OF THE POS INSTALLATION.
NOTE 2 - POWER DIRECTLY FROM VERTIV BBU (U# 10/11)

SOUND SYSTEM SPECIFICATION

MFG	STOCK #	LOCATION DESCRIPTION	DESCRIPTION
ASTATIC	119L-19	COUNTER MICS	CARDIOID GOOSENECK MIC, 19", SILVER MIC, LESS SWITCH
LOWELL	100LVC-DW	IN-WALL 2G TOTAL FOR PATIO AND DINING VOLUME CONTROL	ATTENUATOR-100W, 70V/25V, 1-GANG DECORA, WHITE
MOOD	TECCMIT325274401	RACK MOUNT KIT FOR MOOD MIX MUSIC PLAYER (1RU)	CUSTOM FABRICATED RACK MOUNT KIT FOR MOOD MIX MUSIC PLAYERS
OWI	P5278P-B	PATIO SPEAKERS	OWI SURFACE MOUNT SPEAKER, EXTERIOR RATED, BLACK
SES	ACO TS21R NO SCREEN	PAGING MIC UNDER-COUNTER PUSHBUTONS	SINGLE GANG MUSHROOM PUSHBUTON NO SCREEN PRINTING
SHURE	A13HD	PAGING MIC BASE	MOUNTING FLANGE, HEAVY DUTY, MATTE SILVER
SOUNDTUBE	RS31-EZ-T-BK	DINING SPEAKERS	SOUNDTUBE SM PENDANT SPEAKER, BLACK
SPI	214426	DINING SPEAKER BACKBOX	BACKBOX FOR SOUNDTUBE SPEAKERS
TOA	BG-2120 CU	MIXER/AMPLIFIER	5-INPUT MIXER/AMP 120W (4 OHM/25V/70V)
TOA	M-01S	2ND MIC INPUT FOR MIXER/AMPLIFIER	TOA MICROPHONE MODULE
TOA	MB-1000	RACK MOUNT BRACKET FOR MIXER/AMPLIFIER (2RU)	RACK MOUNT KIT - BG-2000 SERIES
WIRE	WIRE224-P	SPEAKER WIRE	WIRE 18/2 1PR US PLENUM
WIRE	WIRE291-P	MICROPHONE WIRE	WIRE 22/2 1PR SHLD PLENUM

BC PROJECT #: 24221
OKLAHOMA PE COA #CA1900PE

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

a new restaurant for:
Freddy's

1000 Lonnie Abbott Blvd
Ada, OK 74820

date
04.17.2024
drawn by
MS/AK
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sheet number
E-301

drawing type
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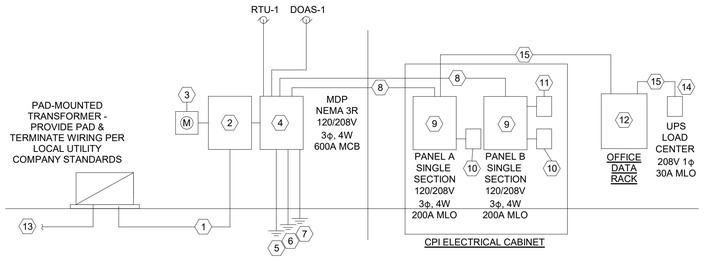
23006-15



SERVICE ENTRANCE AND PANEL FEEDER CONDUCTORS, NO. 3 GAUGE AND LARGER SHALL BE TYPE XHHW-2 (WET LOCATIONS) OR THHN (DRY LOCATIONS)

1 E-400 ELECTRICAL RISER DIAGRAM
NOT TO SCALE

RISER DIAGRAM NOTES:

1. 2 SETS, 4#500KCMIL AL, 4"C EACH, OR IF CU CONDUCTORS ARE REQUIRED BY AHJ 2 SETS, 4#350KCMIL CU, 4"C EACH
2. NEMA 3R CT CABINET PER UTILITY CO STANDARDS.
3. METER SOCKET PER UTILITY CO STANDARDS.
4. MCB IN MDP TO BE LABELED "SERVICE DISCONNECT"
5. #6 CU TO 5/8"x8' DRIVEN GRND ROD PER NEC 250.52(A)(5) ADN NEC 250.66(A).
6. #2/0 CU TO BLDG STEEL AND COLD WATER SERVICE PER NEC 250.52(A)(1).
7. #4 CU TO CONCRETE-ENCASED GROUNDING ELECTRODE PER NEC 250.52(3) AND NEC 250.66(B).
8. 4#3/0, 1#6G, 2"C
9. PANEL A AND PANEL B PROVIDED WITH CPI ELECTRICAL CABINET.
10. PREWIRED INTERMATIC SURGE PROTECTOR #H20S23Y1DG2 (OR EQUAL) PROVIDED WITH CPI ELECTRICAL CABINET.
11. PREWIRED CPI LIGHTING CONTROLS INCLUDED WITH CPI ELECTRICAL CABINET.
12. 5KVA RACK MOUNTED UPS. REFER TO SHEET E301 FOR DETAILS AND UPS MANUFACTURER AND MODEL NUMBER.
13. 4"C TO EXISTING GEAR FOR PRIMARY CABLES - VERIFY ROUTING & DISTANCE WITH LOCAL UTILITY COMPANY.
14. UPS LOAD CENTER PROVIDED BY CPI. REFER TO SHEET E601.
15. 3#10, 1#10G, 1/2"C. MAKE HARD-WIRED CONNECTION TO UPS.

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4/17/2024

LICENSED PROFESSIONAL ENGINEER
DARIN T. SEIDEL
28984
OKLAHOMA

a new restaurant for:
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1000 Lonnie Abbott Blvd
Ada, OK 74820

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BRANCH FEEDER SCHEDULE

UP TO BREAKER	COPPER CONDUCTORS Ø & N	COPPER CONDUCTORS GND	ALUMINUM CONDUCTORS Ø & N	ALUMINUM CONDUCTORS GND
20	#12	#12		
30	#10	#10		
40	#8	#10		
60	#6	#10		
70	#4	#8		
100	#3	#8	#1	#6
125	#1	#6	#1/0	#6
150	#1/0	#6	#3/0	#6
175	#2/0	#6	#4/0	#4
200	#3/0	#6	250 kCM	#4
225	#4/0	#4	300 kCM	#2
250	250 kCM	#4	350 kCM	#2
300	350 kCM	#3	500 kCM	#2
350	400 kCM	#3	(2) #4/0	(2) #2
400	500 kCM	#3	(2) 250 kCM	(2) #1
500	(2) 250 kCM	(2) #1	(2) 350 kCM	(2) #1/0
600	(2) 350 kCM	(2) #1	(2) 500 kCM	(2) #2/0
800	(2) 500 kCM	(2) #1/0	(2) 750 kCM	(2) #3/0
1000	(3) 400 kCM	(3) #2/0	(4) 350 kCM	(4) #4/0
1200	(4) 350 kCM	(4) #3/0	(4) 500 kCM	(4) 250 kCM
1600	(5) 400 kCM	(5) #4/0	(6) 400 kCM	(6) 350 kCM
2000	(6) 400 kCM	(6) 250 kCM	(6) 600 kCM	(6) 400 kCM
2500	(8) 350 kCM	(8) 350 kCM	(8) 500 kCM	(8) 600 kCM
3000	(8) 500 kCM	(8) 400 kCM	(8) 750 kCM	(8) 600 kCM

GENERAL NOTES:

A. THE ABOVE FEEDER SCHEDULE IS A SCHEDULE OF TYPICAL FEEDERS AND SOME SIZES MAY NOT BE UTILIZED. WHERE FEEDER SIZES ON DRAWINGS ON DIAGRAMS DIFFER FROM SCHEDULE ABOVE, THE SIZE ON THE DRAWING OR DETAIL SHALL TAKE PRECEDENCE OVER THIS SCHEDULE.

B. ALL CONDUCTOR AMPACITIES ARE BASED ON TABLE 310-15(b)(16) OF THE NEC.

C. FEEDER SIZES SHOWN ON THE RISER DIAGRAM INDICATE FEEDER AMPACITIES AND DO NOT NECESSARILY CORRESPOND TO CIRCUIT BREAKER AMPACITIES. CERTAIN FEEDERS MAY BE SIZED FOR THE DERATION FACTORS REQUIRED BY CODE AND/OR ARE OVERSIZED FOR VOLTAGE DROP.

D. WHERE MULTIPLE PARALLEL RUNS ARE INDICATED FOR A SINGLE FEEDER, EACH CONDUIT SHALL CONTAIN 1 SET OF PARALLEL PHASE CONDUCTORS, 1 FULL SIZE NEUTRAL, AND 1 FULL SIZE GROUND.

E. ALUMINUM CONDUCTORS ARE NOT PERMITTED FOR FEEDERS UNDER 100 AMPS.

1 E-401 CONDUIT AND WIRE SCHEDULE
NOT TO SCALE

Panelboard: A

Location: CPI ELECTRICAL CABINET BOH / Kitchen 106
Supply: MDP
Mounting: Surface
Enclosure: NEMA 1

Voltage: 208 V, 3Ø, 4W
Bus Rating: 225 A
Neutral: 100%
Feed-Thru Lugs: No
Features & Modifications: -

Mains Type: MLO
Mains Rating: 200 A
Mains FN/Note: -
SERIES RATED SCCR: 22 kA

Ckt	Description	Trip (A)	Poles	Notes	Phase A Load (VA)		Phase B Load (VA)		Phase C Load (VA)		Notes	Poles	Trip (A)	Description	Ckt
1					828	2500						2	30	UPS LOADS	2
3	WALK-IN COOLER COND/EVAP	15	3				828	2500							4
5									828	348	GF	1	20	BUN WARMER	6
7	WALK-IN FREEZER HEAT TAPE	20	1		500	370					GF	1	20	KITCHEN UTILITY RECEPTS	8
9							1320	360			GF,IG	1	20	SERVICE COUNTER POS	10
11	WALK-IN FREEZER COND/EVAP	30	3						1320	1224	GF	1	20	CHEESE WARMER/UC REFRIG.	12
13					1320	360					GF	1	20	CCTV RECEPTS	14
15	WALK-IN LIGHTING AND ACC.	20	1				360	240			GF	1	20	U.C. & COUNTERTOP FREEZER	16
17	AIR CURTAIN	40	2						3550	600	GF	1	20	WATER HEATER CONTROLS	18
19					3550	460						1	20	DOOR CHIME	20
21	MONUMENT SIGN	20	1				1800	252			GF	1	20	HEATED SHELF	22
23	Spare	20	1	--					0	900		1	20	DINING RECEPTS	24
25	KEF-1	20	3		456	1200						1	20	MENUBOARD RECEPTS	26
27							456	1824			GF	1	20	ICE MACHINE	28
29									456	240	GF,HC	1	20	REACH-IN FREEZER	30
31	KEF-2	15	1		756	610						1	20	HOOD LIGHTING	32
33	Spare	20	1	--			0	300				1	20	HOOD CONTROLS	34
35	DISHWASHER	20	1	GF					1380	720	GF	1	20	PIZZA PREP TBL	36
37	LED STRIP LIGHTING	20	1		439	180					GF,IG	1	20	DRIVE THRU POS IG	38
39	NEON SIGN	20	1				1000	540				1	20	ROOF TOP CONVENIENCE RECEPTS	40
41	POWERED WINDOW SHADES	20	1						180	733		1	20	EXTERIOR BUILDING LIGHTING	42
43	KITCHEN LIGHTING	20	1		892	720						1	20	OFFICE RECEPTS	44
45	DINING LIGHTING	20	1				1462	1140				1	20	OFFICE DESK RECEPTS	46
47	FOOD PAN WARMER	20	1	GF					504	500		1	20	DATA RACK GENERAL POWER	48
49	DRIVE-THRU WINDOW	20	1		360	1200					GF	1	20	SODA MACHINE	50
51	BAG-N-BOX	20	1	GF			1800	264			GF,HC	1	20	FRYER CONTROLS	52
53	MENU BOARD #1	20	1						1200	996	GF	1	20	HOT DOG STEAMER	54
55	SPEAKER POST #1	20	1		360	0						--	20	Spare	56
57	Spare	20	1	--			0	0				--	20	Spare	58
59	BURGER SLIDE	20	1	GF					1800	0		--	20	Spare	60
61	FLAG/SECURITY LIGHTING	20	1		86	0						--	20	Spare	62
63	INDUCTION WARMER	20	1	GF			804	0				--	20	Spare	64
65	DRIVE THRU HEADSET	20	1	GF					180	0		--	20	Spare	66
67	Spare	20	1	--	0	0						--	20	Spare	68
69	Spare	20	1	--			0	0				--	20	Spare	70
71	Spare	20	1	--					0	0		--	20	Spare	72
73	Spare	20	1	--	0	0						--	20	Spare	74
75	Spare	20	1	--			0	0				--	20	Spare	76
77	Spare	20	1	--					0	0		--	20	Spare	78
79	SURGE PROTECTION	30	3		1	0						--	20	Spare	80
81							1	0				--	20	Spare	82
83									1	0		--	20	Spare	84
				Connected Load:	17 kVA		17 kVA		18 kVA						
				Connected Current:	143 A		144 A		147 A						

Load Classification	Connected	Factor	Demand
KITCHEN EQUIPMENT	11616 VA	65.00%	7550 VA
LIGHTING	3750 VA	125.00%	4687 VA
Motor	868 VA	121.77%	1057 VA
Other	25295 VA	100.00%	25295 VA
RECEPTACLE	9530 VA	100.00%	9530 VA
SIGNAGE	1000 VA	125.00%	1250 VA

Panel Totals	
Connected Load:	52 kVA
Demand Load:	49369 VA
DemandCurrent:	137.0 A
Less HEAT/COOL NC Load:	0.0 A
Total Demand Current:	137.0 A

Notes:
GF = GFCI BREAKER, IG = ISOLATED GROUND, HC = ROUTE THRU HOOD CONTACTOR

Panelboard: B

Location: CPI ELECTRICAL CABINET BOH / Kitchen 106
Supply: MDP
Mounting: Surface
Enclosure: NEMA 1

Voltage: 208 V, 3Ø, 4W
Bus Rating: 225 A
Neutral: 100%
Feed-Thru Lugs: No
Features & Modifications: -

Mains Type: MLO
Mains Rating: 200 A
Mains FN/Note: -
SERIES RATED SCCR: 22 kA

REPLACE 25A/2 POLE BREAKER WITH (2) 20A/1 POLE BREAKERS. FOH ICE MACHINE ON CKT 17; SPARE CKT 19

Ckt	Description	Trip (A)	Poles	Notes	Phase A Load (VA)		Phase B Load (VA)		Phase C Load (VA)		Notes	Poles	Trip (A)	Description	Ckt
1					4747	2040									2
3	GRIDDLE	50	3	HC			4747	2040				3	20	CUSTARD MACHINE	4
5									4747	2040					6
7					4747	2040									8
9	GRIDDLE	50	3	HC			4747	2040				3	20	CUSTARD MACHINE	10
11									4747	2040					12
13	TOASTER	20	2	GF	1300	504					GF	1	20	BLENDERS	14
15							1300	720			GF	1	25	WASTE OIL TANKS	16
17	ICE MACHINE	25	2						1654	840	GF	1	20	BACK BAR COOLER	18
19					1654	960					GF	1	20	DIPPING CABINET	20
21	Spare	20	1	--			0	996			GF	1	20	HOT FUDGE DISPENSER	22
23	Spare	20	1	--					0	1680	GF	1	20	TEA BREWER	24
25	BURGER SMASHER	20	1	GF,HC	1800	1200					GF	1	20	SODA MACHINE	26
27	BURGER SMASHER	20	1	GF,HC			1800	1500			GF	1	20	CARRYOUT PICKUP COLD	28
29	FRY DUMP STATION	20	1	GF,HC					1800	1800	GF	1	20	CARRYOUT PICKUP HOT	30
31	Spare	20	1	--	0	519						2	20	SITE LIGHTING	32
33	PREP TABLE	20	1	GF,HC			576	519							34
35	CO2 SENSOR	20	1	GF					180	180	GF	1	20	IRRIGATION CONTROLLER	36
37	TOWEL DISPENSERS	20	1		199	1									38
39	SIGNAGE	20	1				500	1				3	30	SURGE PROTECTION	40
41	SIGNAGE	20	1						500	1					42
				Connected Load:	22 kVA		21 kVA		22 kVA						
				Connected Current:	181 A		179 A		185 A						

Load Classification	Connected	Factor	Demand
KITCHEN EQUIPMENT	59485 VA	65.00%	38665 VA
LIGHTING	1039 VA	125.00%	1299 VA
Other	1003 VA	100.00%	1003 VA
RECEPTACLE	1279 VA	100.00%	1279 VA
Receptacle - Dedicated	2600 VA	100.00%	2600 VA

Panel Totals	
Connected Load:	65 kVA
Demand Load:	44846 VA
DemandCurrent:	124.5 A
Less HEAT/COOL NC Load:	0.0 A
Total Demand Current:	124.5 A

Notes:
GF = GFCI BREAKER, IG = ISOLATED GROUND, HC = ROUTE THRU HOOD CONTACTOR

Panelboard: MDP

Location: EXTERIOR UTILITY WALL
Supply:
Mounting: Surface
Enclosure: NEMA 3R
Features & Modifications:

Voltage: 208 V, 3Ø, 4W
Bus Rating: 600 A
Neutral: 100%
Mains Type: MCB
Mains Rating: 600 A
Mains FN/Note: -
SCCR: 65 kA

Ckt	Description	Trip (A)	Poles	Notes	Phase A Load (VA)	Phase B Load (VA)	Phase C Load (VA)
1	PANEL A	200	3		17147		
2						17251	
3							17660
4	PANEL B	200	3		21711		
5						21486	
6							22209
7	DOAS-1	60	3		7104		
8						7104	
9							7104
10	RTU-1	90	3		7800		
11						7800	
12							7800
				Connected Load:	54 kVA	54 kVA	55 kVA
				Connected Current:	448 A	447 A	457 A

Load Classification	Connected	Factor	Demand
Motor	24268 VA	124.11%	30118 VA
Other	26298 VA	100.00%	26298 VA
LIGHTING	4788 VA	125.00%	5986 VA
RECEPTACLE	10809 VA	96.26%	10404 VA
Receptacle - Dedicated	2600 VA	100.00%	2600 VA
SIGNAGE	1000 VA	125.00%	1250 VA
KITCHEN EQUIPMENT	71101 VA	65.00%	46216 VA
HVAC	21312 VA	100.00%	21312 VA

Panel Totals	
Connected...:	162 kVA
Demand Load:	144184 VA
Demand...:	400.2 A
Less...:	0.0 A
Total Demand...:	400.2 A

Notes:
SERIES RATE BREAKERS WITH BRANCH CIRCUIT BREAKERS IN PANELS A & B. PROVIDE SERIES RATING LABELS AS REQUIRED.

Load Center: UPS

Location: OFFICE
Supply:
Mounting: Surface
Enclosure: NEMA 1
Features & Modifications: -

Voltage: 208 V, 1Ø, 3W
Bus Rating: 100 A
Neutral: 100%
Mains Type: MLO
Mains Rating: 30 A
Mains FN/Note: -
SCCR: 10 kA

Ckt	Description	Trip (A)	Poles	Notes	Phase A Load (VA)	Phase B Load (VA)
1	DRIVE THRU POS	20	1	GF	360	
2	SERVICE COUNTER POS	20	1	GF		720
3	OFFICE COMPUTER	20	1		400	
4	KDS MONITORS	20	1	GF, IG		1152
5	KDS MONITORS	20	1	GF, IG	972	
				Connected Load:	2 kVA	2 kVA
				Connected Current:	17 A	18 A

Load Classification	Connected	Factor	Demand
RECEPTACLE	3100 VA	100.00%	3100 VA
KITCHEN EQUIPMENT	504 VA	100.00%	504 VA

Panel Totals	
Connected...:	4 kVA
Demand Load:	3604 VA
Demand...:	17.3 A
Less...:	0.0 A
Total Demand...:	17.3 A

Notes:
GF = GFCI BREAKER, IG = ISOLATED GROUND

BC PROJECT #: 24221
OKLAHOMA PE COA #CA1900PE

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

a new restaurant for:
Freddy's

1000 Lonnie Abbott Blvd
Ada, OK 74820

date
04.17.2024
drawn by
MS/AK
checked by
EK/DS
revisions

sheet number
E-401

drawing type
permit

project number
23006-15

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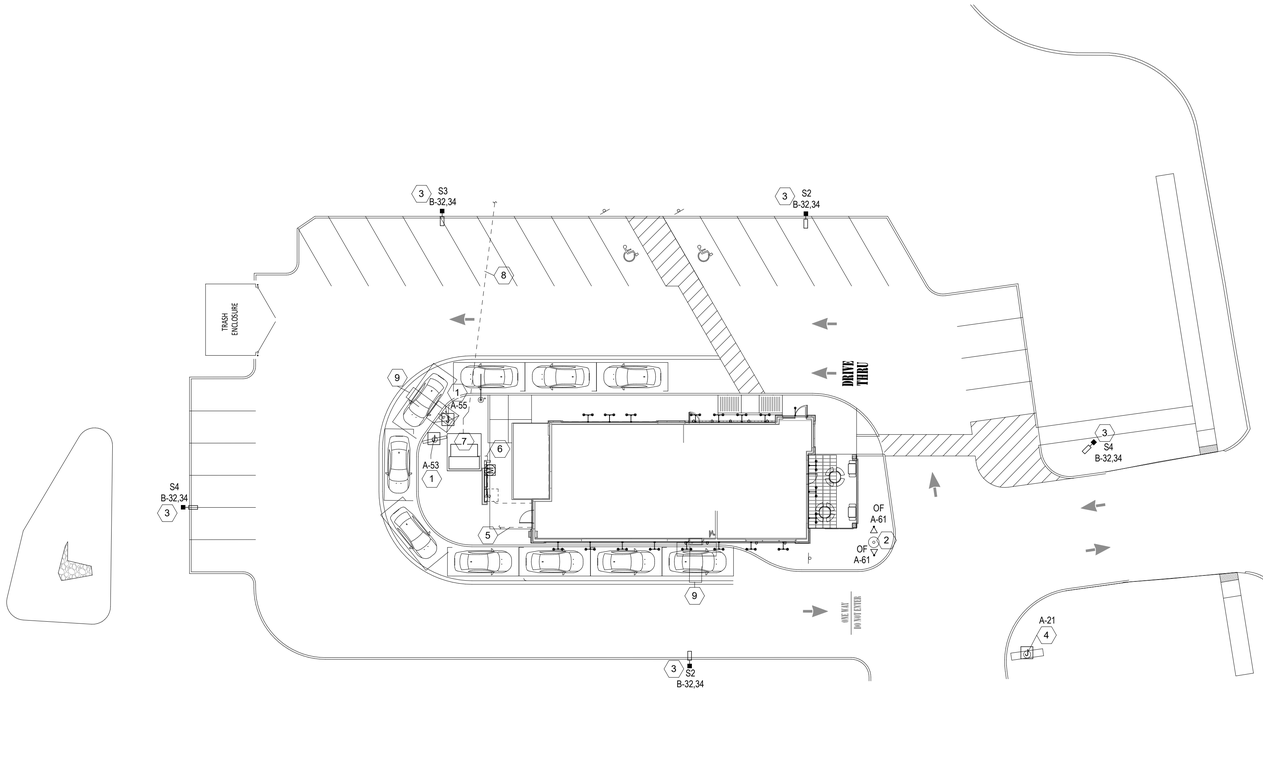
4/17/2024

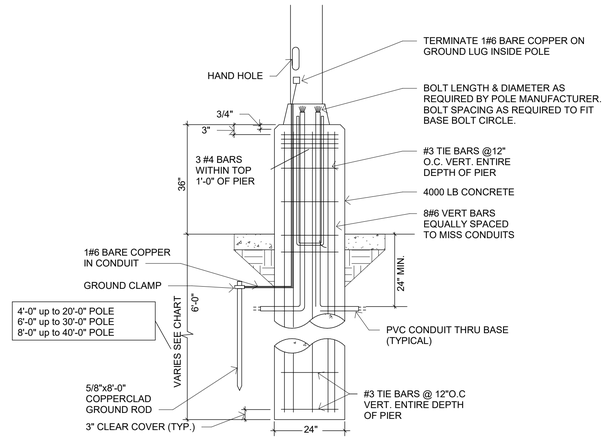
LICENSED PROFESSIONAL ENGINEER
DARIN T. SEIDEL
28984
OKLAHOMA

ELECTRICAL KEYNOTES

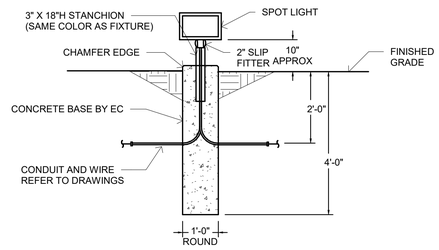
1	PROVIDE UNDERGROUND 1" CONDUIT AND CONDUCTORS FOR POWER TO MENU BOARD(S) PER MANUFACTURER'S INSTRUCTIONS. ONE CIRCUIT FOR MENU BOARD(S) TO BE CIRCUITED THROUGH TIMECLOCK AND ONE CIRCUIT UNSWITCHED FOR POWER TO SPEAKER POST. PROVIDE DEDICATED 1" CONDUIT WITH PULL STRING FROM SPEAKER POST(S) TO J-BOX AT DRIVE-THRU WINDOW FOR HEADSET RECEIVER/BASE. REFER TO SHEET E-100 FOR LOCATION. PROVIDE 2" CONDUIT FROM MENU BOARD BASE TO RACK/PATCH PANEL WITH (4) CAT-5 (3 PLUS 1 SPARE) FOR EACH MENUBOARD.
2	IN-GROUND FLAG POLE LIGHTING. VERIFY FINAL LOCATION WITH ARCHITECTURAL SITE PLAN PRIOR TO INSTALLATION. PROVIDE 120V PHOTOCELL ON ROOF, FACING NORTH FOR AUTOMATIC LIGHITNG CONTROL. REFER TO FLOODLIGHT BASE DETAIL THIS SHEET FOR MOUNTING.
3	REFER TO POLE BASE DETAIL, THIS SHEET. ROUTE CIRCUIT THROUGH EXTERIOR LIGHTING CONTACTOR. REFER TO CPI LIGHTING CONTROLLER SEQUENCE OF OPERATION ON SHEET E-201.
4	PROVIDE DISCONNECT AND CONNECT TO MONUMENT SIGN PER MANUFACTURER'S INSTRUCTIONS. ROUTE THROUGH EXTERIOR LIGHTING CONTACTOR. REFER TO CPI LIGHTING CONTROLLER SEQUENCE OF OPERATION ON SHEET E-201.
5	PROVIDE (2)2"C TO PROPERTY FOR TELEPHONE/INTERNET SERVICE. TERMINATE AT LOCATION DIRECTED BY LOCAL SERVICE PROVIDER.
6	SECONDARY CONDUCTORS FROM UTILITY TRANSFORMER. SEE ELECTRICAL RISER DIAGRAM ON SHEET E-400.
7	PROPOSED PAD-MOUNTED UTILITY TRANSFORMER - SEE ELECTRICAL RISER DIAGRAM ON SHEET E-400. COORDINATE EXACT LOCATION WITH LOCAL UTILITY COMPANY.
8	PROVIDE 4"C FOR PRIMARY CABLES BY UTLITY COMPANY. COORDINATE ROUTING & TERMINATION POINT WITH LOCAL SERVICE PROVIDER.
9	DETECTION LOOP (BY OTHERS)



1 E-500 ELECTRICAL SITE PLAN
1" = 20'-0"



3 E-500 POLE FOUNDATION DETAIL
NOT TO SCALE



2 E-500 FLOODLIGHT BASE DETAIL
NOT TO SCALE

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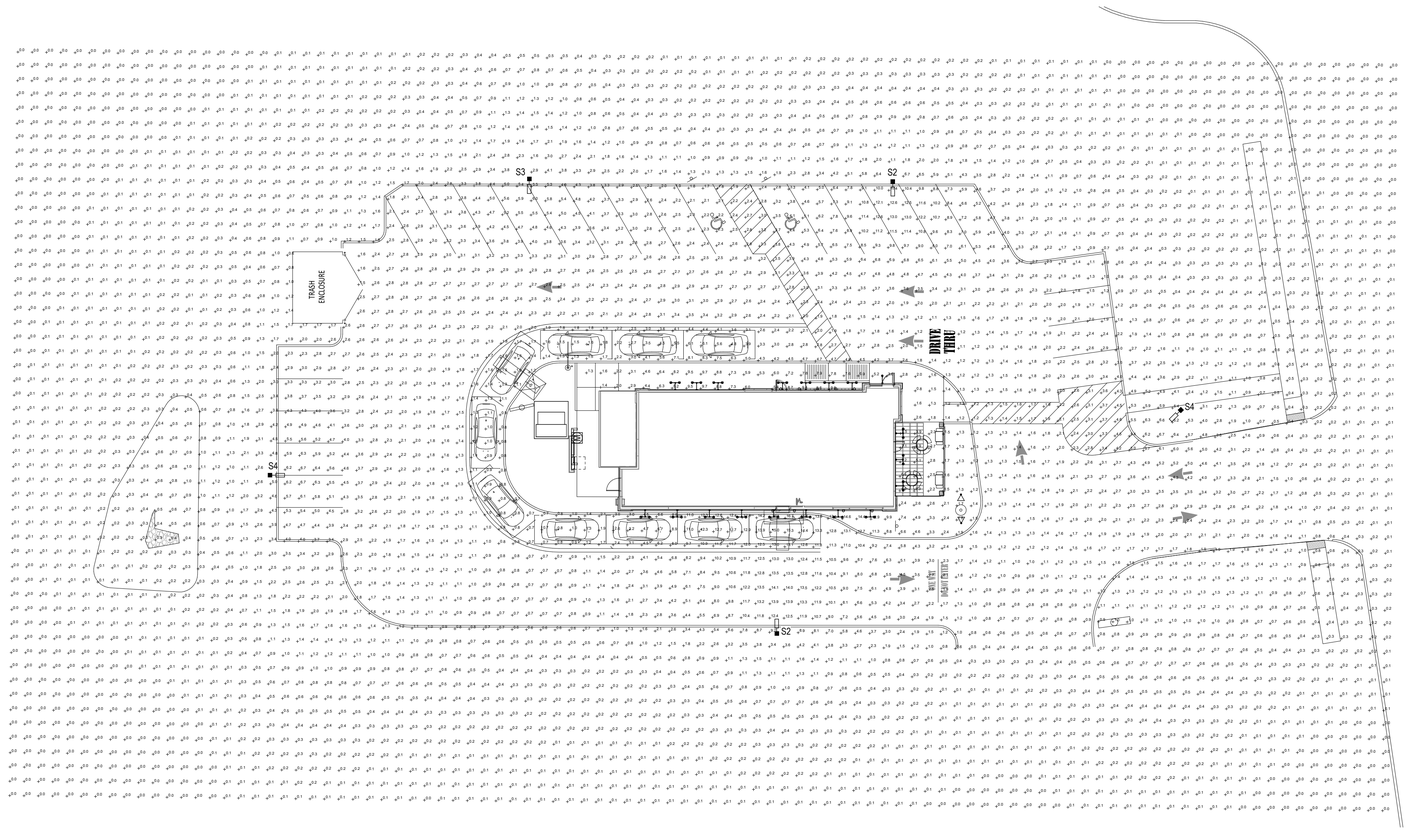

1 E-501 ELECTRICAL SITE PLAN
1" = 20'-0"

Statistics					
DESCRIPTION	Average	Maximum	Minimum	Max/Min	Avg/Min
Freddy's Site	3.5	16.7	0.5	33.4:1	7.0:1

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