	ELECTRICAL SYMPOLLEGE	ND
	ELECTRICAL SYMBOL LEGE	ND
SYMBOL	DESCRIPTION	MOUNTING
G	2 X 2 FLUORESCENT FIXTURE LETTER INDICATES TYPE	SEE FIXTURE SCHEDULE
\square_{A}	2 X 4 FLUORESCENT FIXTURE LETTER INDICATES TYPE	SEE FIXTURE SCHEDULE
● NL	SHADING DENOTES FIXTURE WITH EM BATTERY PACK. 'NL' DENOTES FIXTURE UNSWITCHED FOR NIGHT LIGHT	SEE FIXTURE SCHEDULE
E E	2 X 4 FLUORESCENT FIXTURE (LETTER INDICATES TYPE) SHADING DENOTES FIXTURE FED FROM EMERGENCY SUPPLY	SEE FIXTURE SCHEDULE
⊢О _К	FLUORESCENT STRIP FIXTURE LETTER INDICATES TYPE	SEE FIXTURE SCHEDULE
□ C	FLUORESCENT WALL BRACKET FIXTURE	SEE FIXTURE SCHEDULE
OL	RECESSED DOWNLIGHT LETTER INDICATES TYPE	SEE FIXTURE SCHEDULE
Øz	EXTERIOR DOWNLIGHT FIXTURE LETTER INDICATES TYPE	SEE FIXTURE SCHEDULE
)OH _w	EXTERIOR WALL MOUNTED FIXTURE LETTER INDICATES TYPE	SEE FIXTURE SCHEDULE
 	INTERIOR PENDANT FIXTURE LETTER INDICATES TYPE	SEE FIXTURE SCHEDULE
•	EXTERIOR SURFACE MOUNT FIXTURE LETTER INDICATES TYPE	SEE FIXTURE SCHEDULE
	EXTERIOR BOLLARD	SEE FIXTURE SCHEDULE
	CEILING FAN	SEE FIXTURE
H ⊙ X	EXIT—SHADING DENOTES FACEPLATE LOCATION. LETTER	SCHEDULE SEE FIXTURE
EX 餐	INDICATES TYPE. PROVIDE ARROWS AS REQUIRED. EXIT—SHADING WITH TWO EYE EMERGENCY	SCHEDULE SEE FIXTURE
EX SEM		SCHEDULE SEE FIXTURE
	DENOTES TRACK LIGTHING. LETTER INDICATES TYPE.	SCHEDULE SEE FIXTURE
	SINGLE POLE SWITCH (20A-120/277)	SCHEDULE 48" AFF OR AS
S S ₃ D	'3' DENOTES 3-WAY 'D' DENOTES DIMMER	NOTED APOVE CELLING
S _T	'T' DENOTES TOGGLE SWITCH OCCUPANCY SENSOR	ABOVE CEILING 48" AFF OR AS
		NOTED 48" AFF OR AS
<u>\$</u>	LOW VOLTAGE LIGHTING SWITCH DUPLEX RECEPTACLE, 125V, 20A	NOTED 18" AFF OR AS
ıc ⊕	'IG' DENOTES ISOLATED GROUND	NOTED 18" AFF OR AS
-	DUPLEX RECEPTACLE, 125V, 20A	NOTED 48" AFF OR AS
	DUPLEX RECEPTACLE, 125V, 20A	NOTED 18" AFF OR AS
 	QUAD RECEPTACLE, 125V, 20A	NOTED
₩	SINGLE RECEPTACLE, 208V OR 240V	18" AFF OR AS NOTED
	CEILING MOUNTED COILED REEL EXTENSION RECEPTACLE.	CEILING MOUNTED
₩▼	CEILING/WALL MOUNTED BOX WITH 20A DUPLEX RECEPTACLE. AND DATA OUTLET.	AS NOTED
JB	CEILING JUNCTION BOX	SEE DETAIL OR AS NOTED
×	POWER/TELEPHONE POLE	SEE DETAIL OR AS NOTED
	OUTLET BOX OR J-BOX FOR POWER AND DATA SUPPLY TO FURNITURE SYSTEMS	18" AFF OR AS NOTED
(P)	FLOOR BOX WITH 20A DUPLEX RECEPTACLE. AND DATA OUTLET.	SEE DETAIL OR AS NOTED
$\overline{\mathbb{V}}$	COMBINATION VOICE/DATA OUTLET	18" AFF OR AS NOTED
V	DATA OUTLET	18" AFF OR AS NOTED
P	WEATHERPROOF SPEAKER	WALL OR
S	WEATHERPROOF SPEAKER	AS NOTED ON CEILING OR AS NOTED
CR	CARD READER	COORDINATE WITH SECURITY INSTALLER
	SURVEILLANCE CAMERA	COORDINATE WITH SECURITY INSTALLER
₩	T.V. OUTLET	18" AFF OR AS
	PANELBOARD 120/208V	NOTED SEE PANEL SCHEDULE
	PANELBOARD 277/480V	SEE PANEL SCHEDULE
	RACEWAY CONCEALED IN WALL OR ABOVE CEILING	SEE SPECIFICATIONS
\\ \	UNDERGROUND OR UNDER FLOOR CONDUIT	SEE SPECIFICATIONS
A+0=	HOMERUN TO PANEL. LETTERS INDICATE PANEL, NUMBERS INDICATE CIRCUIT. NOTE: HASH MARKS INDICATES THE NUMBER OF WIRES EXCLUDING THE REQUIRED EQUIPMENT GROUND.	SEE SPECIFICATIONS
5	MOTOR, NUMERAL INDICATES HORSEPOWER	AS NOTED
\$	MOTOR RATED SWITCH WITH OVERLOAD RELAYS AS REQUIRED.	MOUNTED ADJACENT TO EQUIPMENT
	NON-FUSIBLE SAFETY SWITCH-SIZE AS NOTED	SEE SPECIFICATIONS
	FUSIBLE SAFETY SWITCH-SIZE AS NOTED	SEE SPECIFICATIONS
	ALL SYMBOLS SHOWN MAY NOT BE LISED	

ABBREVIATIONS: HVAC - HEATING, VENTILATING, AIR CONDITIONING JB - JUNCTION BOX AHU - AIR HANDLING UNIT BFG - BELOW FINISHED GRADE LRA - LOCKED ROTOR AMPERES C – CONDUIT MCB – MAIN CIRCUIT BREAKER CW - COOL WHITE MLO - MAIN LUGS ONLY DACP - DOOR ALARM CONTROL PANEL N – NEUTRAL DN - FEED DOWNWARD NL – NIGHT LIGHT EF — EXHAUST FAN OB – OUTLET BOX EG — EQUIPMENT GROUND PB - PULL BOX, PUSH-BUTTON ENCL - ENCLOSURE PS – PAY STATION SF – SUPPLY FAN EWC - ELECTRIC WATER COOLER EWH - ELECTRIC WATER HEATER SPEC - SPECIFICATIONS WX - EXPLOSION PROOF TWISTLOCK TTB - TELEPHONE TERMINAL BOARD FCU - FAN COIL UNIT FHP - FRACTIONAL HORSEPOWER TVTB - TELEVISION TERMINAL BOARD FLA — FULL LOAD AMPERES UNO - UNLESS NOTED OTHERWISE G – GROUND UP - FEED UPWARD VERT - VERTICAL GFI - GROUND FAULT INTERRUPTER WM - WATT MISER HID - HIGH INTENSITY DISCHARGE WP – WEATHERPROOF HORIZ - HORIZONTAL WW — WARM WHITE IG - ISOLATED GROUND XFMR – TRANSFORMER LW - LIGHT WHITE NEC - NATIONAL ELECTRIC CODE HP - HORSEPOWER, HEAT PUMP

NATIONAL ELECTRIC CODE NOTES:

ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF NFPA 70 -2014 NATIONAL ELECTRIC CODE

ELECTRICAL SUBMITTAL NOTES:

SUBMIT ALL ELECTRICAL SYSTEMS SUBMITTALS AT ONE (1) TIME IN ONE (1) INTEGRAL GROUP. PIECE-BY-PIECE SUBMISSION OF INDIVIDUAL ITEMS WILL NOT BE ACCEPTABLE. ENGINEER MAY CHECK CONTENTS OF EACH SUBMITTAL SET UPON INITIAL DELIVERY; IF NOT COMPLETE AS SET FORTH HEREIN, SUBMITTAL SETS MAY BE RETURNED TO CONTRACTOR WITHOUT REVIEW AND APPROVAL AND WILL NOT BE ACCEPTED UNTIL MADE COMPLETE. SHOP DRAWINGS WILL BE REVIEWED MAXIMUM TWICE AS PART OF THIS CONTRACT. ADDITIONAL SHOP DRAWING REVIEWS SHALL BE INVOICED AT \$85.00 PER HOUR, BILLABLE TO THE SUB-CONTRACTOR.

- . ALL MOUNTING HEIGHTS SHOWN ARE TO THE TOP OF THE DEVICE UNLESS NOTED OTHERWISE.
- 2. NOT ALL SYMBOLS APPEAR ON PLANS.

GENERAL SCOPE:

- FURNISH AND INSTALL ELECTRICAL LIGHTING AND POWER FOR NEW RESTAURANT FACILITIES TO BE INSTALLED IN SINGLE STORY BUILDING.
- ALL EXTERIOR SIGNAGE TO BE SUBMITTED UNDER A SEPARATE PERMIT BY THE SIGNAGE CONTRACTOR.
- FIRE ALARM SYSTEM SHALL BE BY OTHERS. FIRE ALARM TO BE SUBMITTED UNDER A SEPARATE PERMIT. FIRE ALARM SYSTEM MUST BE PERMITTED BY A LICENSED FIRE PROTECTION CONTRACTOR.

C408.3.2 MANUALS. THE CONTRACTOR SHALL PROVIDE AN OPERATING AND MAINTENANCE MANUAL FOLLOWING THE REQUIREMENTS OF C408.3.2.

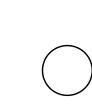
	DRAWING INDEX
SHEET NUMBER	DRAWING TITLE
E-0	ELECTRICAL COVER SHEET
E-1	ELECTRICAL LIGHTING PLAN
E-2	ELECTRICAL POWER PLAN
E-3	KITCHEN EQUIPMENT ELECTRICAL PLAN
E-4	ELECTRICAL ROOF PLAN
E-5	POWER RISER & PANELBOARDS
E-6	SITE PLAN
E-7	ELECTRICAL SPECIFICATIONS

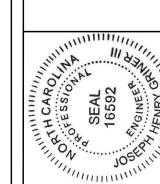
ELECTRICAL GENERAL NOTES:

- ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF NORTH CAROLINA STATE BUILDING CODE 2018 EDITION NATIONAL ELECTRIC CODE 2017 EDITION NFPA 70, NFPA 101 & NFPA 72 (CURRENT ADOPTED EDITIONS). ANY OTHER APPLICABLE CODE REFERENCES AND ALL LOCAL ORDINANCES.
- BIDDERS ARE TO VISIT THE SITE AND FAMILIARIZE THEMSELVES WITH EXISTING CONDITIONS AND SATISFY THEMSELVES AS TO THE NATURE AND SCOPE OF WORK AND THE EXTENT OF DEMOLITION. THE SUBMISSION OF A BID WILL BE EVIDENCED THAT SUCH AN EXAMINATION HAS BEEN MADE. LATER CLAIMS FOR LABOR, EQUIPMENT OR MATERIALS REQUIRED, OR FOR DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN HAD AN EXAMINATION BEEN MADE, WILL NOT BE ALLOWED.
- ELECTRICAL CONTRACTOR SHALL BE EXPERIENCED IN PERFORMING AND INSTALLATION OF WORK SIMILAR TO THAT REQUIRED FOR THIS PROJECT. THE CONTRACTOR SHALL SUBMIT A LIST OF AT LEAST FIVE PROJECTS THAT THEY BEEN CONTRACTED AND COMPLETED CONSTRUCTION WITH SIMILAR PROJECT
- PRIOR TO SUBMITTING A BID, THE CONTRACTOR SHALL HAVE STUDIED AND COMPARED THE CONTRACT DOCUMENTS WITH EXISTING/PROPOSED CONDITIONS AND NOT LATER THAN TEN (10) DAYS PRIOR TO THE BID OPENING SHALL REPORT TO THE ENGINEER ANY ERROR, INCONSISTENCY, OR OMISSION IN THE CONTRACT DOCUMENTS.
- 5. ELECTRICAL EQUIPMENT SHALL BE AS SPECIFIED. ARCHITECT AND ENGINEER WILL REVIEW ANY SUBSTITUTION FOR COMPATIBILITY.
- 6. ALL CUTTING, PATCHING AND REPAIR WORK SHALL BE THE RESPONSIBILITY OF THE TRADE INVOLVED.
- PROTECT ELECTRICAL EQUIPMENT AND INSTALLATIONS AS NECESSARY. IF DAMAGED OR DISTURBED IN THE COURSE OF THE WORK, REMOVE DAMAGED PORTIONS AND INSTALL NEW PRODUCTS OF EQUAL CAPACITY, QUALITY, AND FUNCTIONALITY.
- B. THE CONTRACTOR SHALL INCLUDE, WITHIN THE BID, ALL REQUIRED OFF HOUR, OVERTIME, AND NON—BUSINESS HOUR WORK AS REQUIRED.
- 9. ALL WORK SHALL BE COORDINATE WITH OTHER TRADES FOR ITEMS IN THEIR SCOPE OF WORK WHICH WOULD REQUIRE ELECTRICAL WORK (DISCONNECTION/RECONNECTION ETC.) AND ARE NOT INDICATED ON THE ELECTRICAL PLANS. ALL SUBCONTRACTORS ARE REQUIRED TO COORDINATE THEIR WORK WITH OTHER TRADES. LACK OF THIS COORDINATION RESULTING IN ADDED COST TO THE CONTRACT WILL BE BORNE BY THE SUBCONTRACTOR.
- 10. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS AND SUBMITTALS FOR ELECTRICAL EQUIPMENT SHOWN ON THE PLANS AND SPECIFICATIONS FOR THE ENGINEERS APPROVAL. THE ENGINEER MAY REQUIRE THE CONTRACTOR TO REDO ANY WORK, WHICH WAS NOT APPROVED, OR THE ENGINEER MAY REQUIRE A CREDIT TO THE OWNER. PROVIDE A SET OF ASBUILTS AFTER THE JOB IS COMPLETED. THIS SET SHALL BE CONTINUOUSLY UPDATED DURING CONSTRUCTION.
- 1. PROVIDE IDENTIFICATION FOR ALL LIGHT FIXTURES AND ALL ELECTRICAL COVER PLATES WITH PERMANENT MARKER ON A SELF-ADHERING TAG INDICATING PANEL AND CIRCUIT NUMBER. TYPICAL FOR ALL LIGHTING AND POWER DEVICES.
- 12. ALL WORK SHALL BE PERFORMED DURING TIME PERIODS ACCEPTABLE TO THE OWNER. SCHEDULE ALL WORK WITH THE OWNER'S REPRESENTATIVE BEFORE
- 13. THE CONTRACTOR SHALL PERFORM ALL TEMPORARY WORK NECESSARY TO MAINTAIN CONTINUITY OF ELECTRICAL SERVICE (LIKE SAWPOLE SERVICE) WHEN CONNECTION IS MADE. THIS SERVICE SHALL NOT BE INTERRUPTED WITHOUT PRIOR CONSENT OF THE OWNER'S REPRESENTATIVE AND MAY BE INTERRUPTE ONLY AT AND FOR THE SPECIFIED TIME DESIGNATED BY OWNER'S REPRESENTATIVE. THE CONTRACTOR SHALL BE GUIDED BY THE OWNER'S REPRESENTATIVE AT ALL TIMES IN MATTERS AFFECTING THE FACILITIES.
- 14. THE CONTRACTOR SHALL COORDINATE ALL PHASING OF ELECTRICAL WORK AS REQUIRED AND INDICATED ON THE ELECTRICAL DRAWINGS.
- 15. THE OWNER PROJECT REPRESENTATIVE SHALL BE NOTIFIED PRIOR TO CUTTING OF ANY STRUCTURAL ITEM (I.E. CONCRETE FLOOR, MASONRY, WALL, ETC.) WITHIN THE EXISTING BUILDING. METHOD OF CUTTING SHALL BE APPROVED BY THE OWNER PROJECT REPRÈSENTATIVE.
- 16. CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING THE BUILDING WATERTIGHT DURING CONSTRUCTION.
- 17. ALL WIRING IN CEILING SPACE OR IN AIR HANDLING PLENUMS NOT IN CONDUIT SHALL BE UL LISTED AS SUITABLE FOR PLENUM USE.
- 18. ALL JUNCTION BOXES AND COVER PLATES SHALL BE PAINTED AND LABELED.
- 19. ALL RECEPTACLES WITHIN 6 FEET OF PLUMBING FIXTURES SHALL BE PROVIDED WITH 5 MILLIAMP GROUND FAULT INTERRUPTERS. (GFCI RECEPTACLES)
- 20. EXIT SIGNS AND ALL EMERGENCY LIGHTING SHALL BE WIRED AHEAD OF ANY SWITCHING OR CONTACTORS. DO NOT SWITCH EXIT SIGNS OR EMERGENCY NIGHT LIGHTS. CONTRACTOR SHALL PROVIDE AN UNSWITCHED HOT TO BYPASS ANY SWITCHING AND/OR CONTRACTORS FOR ALL SWITCHED EMERGENCY
- 21. EDGE OF LIGHT SWITCH WALL PLATE SHALL BE NOT MORE THAN 4" AWAY FROM METAL/WOOD DOOR FRAME. TYPICAL FOR SINGLE OR MULTIPLE WALL
- 22. CONFIRM MOUNTING HEIGHTS AND COORDINATE LOCATION OF ALL OUTLETS, SWITCHES, AND OTHER DEVICES WITH ARCHITECTURAL ELEVATIONS (FURNITURE LAYOUT) PRIOR TO ROUGH-IN.
- 23. PROVIDE SEAL FOR PENETRATION OF FIRE RATED WALLS BY CONDUIT.
- 24. BACK TO BACK RECEPTACLES IN ALL ONE HOUR FIRE RATED WALLS SHALL BE LOCATED A MINIMUM OF 24" ON CENTER.
- 25. BRANCH CIRCUIT CONDUCTORS SHALL NOT BE SMALLER THAN #12 AND WHERE BRANCH CIRCUIT CONDUCTOR RUNS FROM SOURCE (PANEL) TO THE LAST DEVICE ON THE CIRCUIT EXCEEDS 75 FT. IN LENGTH, THE CONDUCTORS SHALL BE #10 MINIMUM AND FOR THE ENTIRE LENGTH OF THE CIRCUIT. FOR RUNS OVER 150 FT. IN LENGTH THE CONDUCTOR SHALL BE #8 MINIMUM AND FOR THE ENTIRE LENGTH OF THE CIRCUIT. THE ABOVE APPLIES TO 120 VOLT CIRCUITS ONLY.
- 26. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER, THE REMOVAL AND DISPOSAL OF ALL ELECTRICAL MATERIALS WHICH IS NOT TO BE USED ON THI PROJECT. CONTRACTOR SHALL REMOVE AND STORE ANY ELECTRICAL MATERIAL IF SO DIRECTED BY OWNER. PATCH AND PAINT WALLS AND CEILINGS AS REQUIRED. THE CONTRACTOR SHALL COORDINATE INSTALLATION OF NEW LIGHTING FIXTURES, RECEPTACLES, PANEL BOARDS, ETC. WITH EXISTING STRUCTURE PIPING, ETC. AND MAKE ADJUSTMENTS AS REQUIRED.
- 27. REFER TO ELECTRICAL SPECIFICATIONS SHEET FOR REQUIREMENTS.
- 28. UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL INSURE THAT ALL SYSTEMS OPERATE AS DESIGNED AND REQUIRED AND SHALL REVIEW THEIR OPERATION WITH THE OWNER AND PROVIDE TRAINING OF THE MAINTENANCE PERSONNEL. COMPLETE SET OF AS-BUILT DRAWINGS SHALL BE COMPILED (BY THE CONTRACTOR) AND ISSUED (1 EACH) TO THE ARCHITECT AND BUILDING MAINTENANCE PERSONNEL UPON COMPLETION OF CONSTRUCTION AND
- 29. ALL FEEDERS SIZING (BRANCH AND SERVICE ENTRANCE CONDUCTORS) BASED IN AMPACITY OF COPPER THHW CONDUCTORS (NEC 2014 TABLE 310.15(B)(16)) UNLESS OTHERWISE NOTED.
- 30. ARC-FAULT CIRCUIT-INTERRUPTER (AFCI) PROTECTION SHALL BE INSTALLED IN A READILY ACCESSIBLE LOCATION, FOLLOWING NEC 2014 ART. 210.12.

REVISIONS







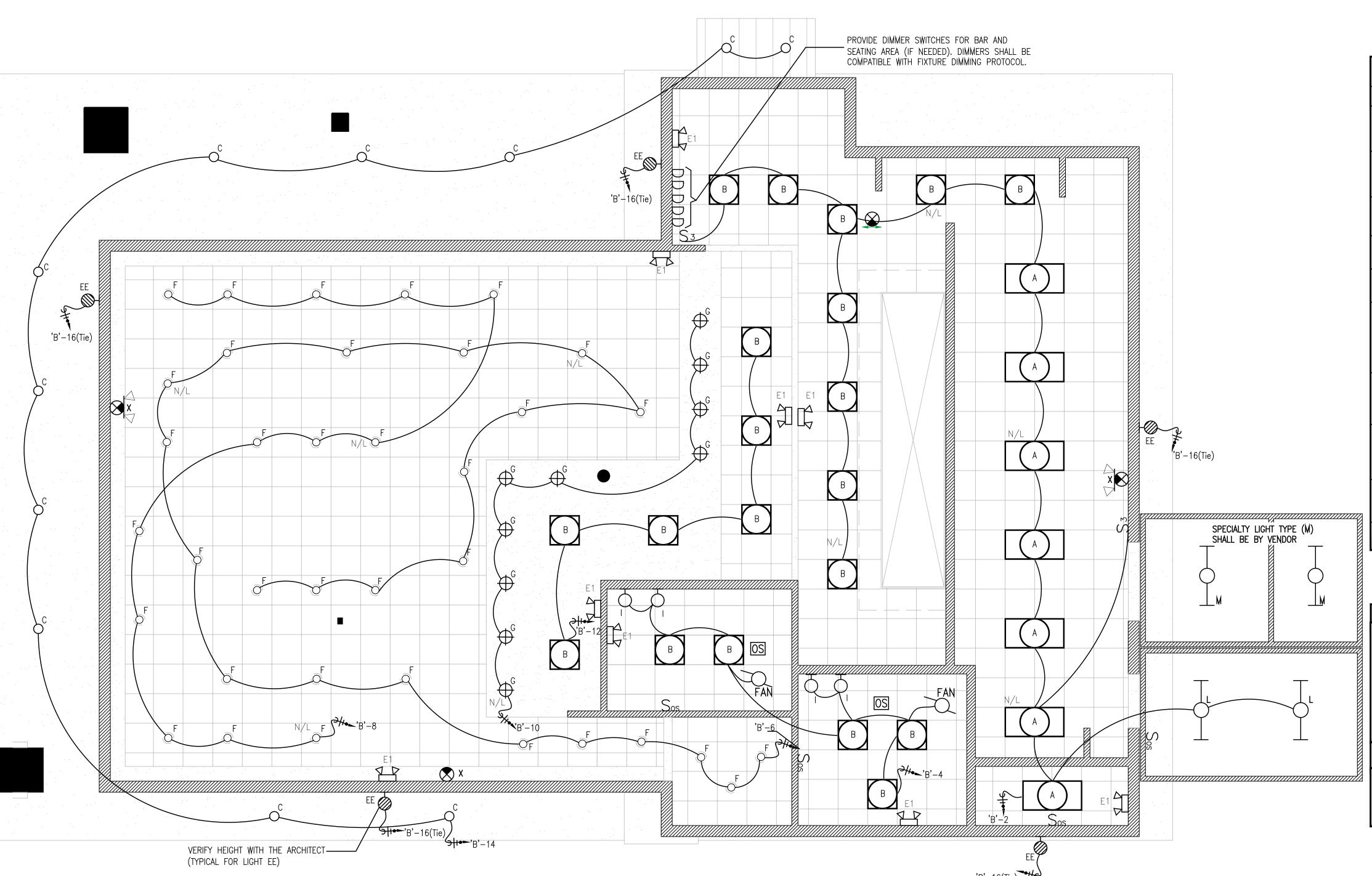


Date: **1. 24. 20** Scale: **AS NOTED** Project Mgr: **DG**

Drawn: HH

Job: **19-142**

Sheet



LED 40W 120V UNIT COMPLETE LITHONIA RECESS MOUNTED LED W/3000K 2TL4-48L-A12-COLOR TEMP. 0-10V DIMMING. FIELD W/DIMMING LED MVOLT-EZ1-LP830 COORDINATE ALL MOUNTING DRIVER REQUIREMENTS. LED | 35W | UNIT COMPLETE RECESS MOUNTED LED W/3000K 120V B LITHONIA 2TL2-40L-A12-W/DIMMING LED COLOR TEMP. 0-10V DIMMING. FIELD MVOLT-EZ1-LP830 DŔIVER COORDINATE ALL MOUNTING REQUIREMENTS. LED | 11.2W | UNIT COMPLET 120V 6" SHALLOW RECESSED DOWNLIGHT, LITHONIA L7XP R6 W/DIMMING LED FOR DAMP LOCATION, 30K/9CRI DRIVER FINISHES BY ARCHITECT. UNIT COMPLETE EGRESS LIGHT. MOUNT ABOVE DOOR 120/277 LED 6W DBEL-ACEM-FINISHES-PC EE ENVOY ELEVATION. COLOR BY ARCHITECT. LED 2X5.4W UNIT COMPLETE E1 LITHONIA WALL MOUNT 7'-6" AFF OR AS NOTED. 120V ELM2 WHITE FINISH, FIELD AIM. 6" RECESS ADJUSTABLE LED DOWN UNIT COMPLETE 120V LED 10W LIGHT WITH 3000K, FIXTURE SHALL BE DARK SKY FRIENDLY. 2000 MAX. LUMEN SOURCE. PROVIDE ALL PRESCOLITE LITEBOX 'LBEB6A 7 REQUIRED MOUNTING/WIRING 30K 9 WH ACCESSORIES. JASPER 4 LIGHT HALOGEN WALL (SKU) 45583CH KITCHLER MOUNTED ABOVE MIRROR OVER 120V HAL MAX UNIT COMPLETE LIGHTING LAVATORY. COORDINATE LAMPING WITH OWNER, FIELD COORDINATE ALL MOUNTING REQUIREMENTS. UNIT COMPLETE 120V | LED | 9W ONE LIGHT PENDANT WITH PRISMATIC P5143-0930K9 PROGRESS W/DIMMING LED GLASS SHADE, HUNG AT 7.5' ABOVE LIGHTING DRIVER FINISHED FLOOR SURFACE MOUNTED LED UNIT WITH UNIT COMPLETE LED 32W LITHONIA LBL4-3000LM-DIMMING DRIVE, 3000K, COLOR TEMP. W/DIMMING LED 80CRI-30K-MVOLT PROVIDE ALL REQUIRED DRIVER MOUNTING/WIRING ACCESSORIES. MVOLT -- 3W LHQM-LED-G UNIVERSAL MOUNT EXIT SIGN W/WHITE LITHONIA FINISH AND GREEN LED'S

LIGHTING FIXTURES SCHEDULE

VOLTS | LAMP | WATTS

REMARKS

DESCRIPTION

LIGHTING FIXTURE GENERAL NOTES

TYPE | MFCTR.

CAT. #

- . INSTALLATION OF LIGHT FIXTURES SHALL BE ACCORDING TO MANUFACTURER'S RECOMMENDATIONS AND APPLICABLE CODE
- CONTRACTOR SHALL VERIFY VOLTAGE, PHASE, FULL LOAD CURRENT AND EXACT LOCATIONS OF ALL ELECTRICAL EQUIPMENT BEFORE ROUGH-IN.
- LIGHT FIXTURES SHALL BE PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
- CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP FOR A MINIMUM OF ONE YEAR.
- CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND INSPECTIONS.
- . TENTING OF RECESSED FIXTURES (WHERE REQUIRED) IS BY THE GENERAL CONTRACTOR.

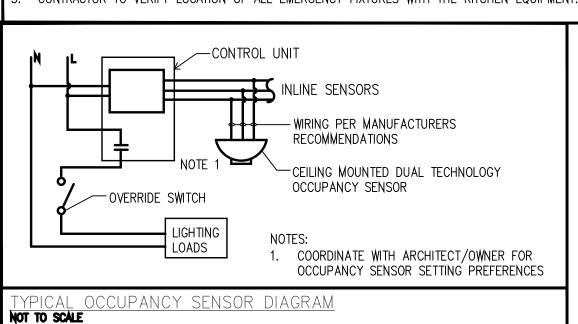
ENERGY CONSERVATION NOTES:

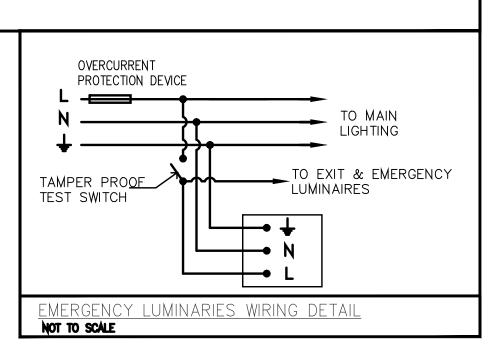
NORTH CAROLINA STATE BUILDING CODE 2018 - ENERGY CONSERVATION CODE C405.2.1 OCCUPANCY SENSORS NOTES:

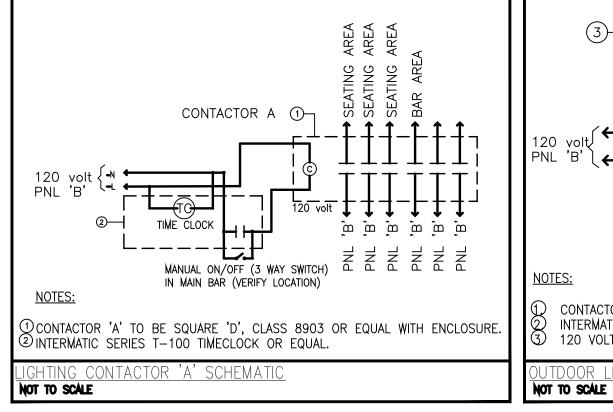
INSTALL WALL SWITCHES WITH OCCUPANCY SENSORS ON ALL ROOMS AND SPACES AS REQUIRED PER C405.2.1. SENSORS SHALL BE CAPABLE OF OCCUPANTS DETECTION AND AUTOMATICALLY TURN OFF IN 30 MINS ONCE THE OCCUPANT HAS LEFT THE AREA. ELECTRICAL AND MECHANICAL ROOMS SHALL HAVE MANUAL WALL SWITCHES.

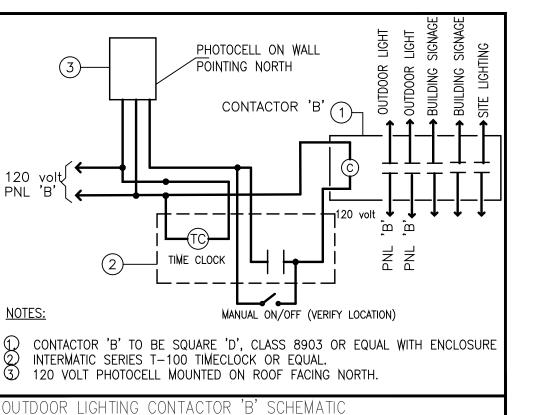
ELECTRICAL GENERAL NOTES:

- SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION AND MOUNTING HEIGHTS OF LIGHT FIXTURES.
- COORDINATE ALL LIGHTING WORK WITH ARCHITECT, OWNER, GENERAL CONTRACTOR AND ALL OTHER TRADES FOR ITEMS IN THEIR SCOPE OF WORK WHICH WOULD REQUIRE ELECTRICAL WORK PRIOR TO BID AND ROUGH-IN.
- . ALL EXIT LIGHTS, EMERGENCY LIGHT FIXTURES AND EMERGENCY BATTERY PACK UNIT SHALL BE CONNECTED TO UNSWITCHED LEG OF LOCAL LIGHTING BRANCH CIRCUIT IN ACCORDANCE WITH NEC 700.
- THE EMERGENCY LIGHTS ARE REQUIRED TO PROVIDE 1-FOOTCANDLE OF ILLUMINATION AT THE FLOOR ALONG THE EXIT PATHWAY. EC SHALL VERIFY THAT 1-FOOTCANDLE MINIMUM AT THE FLOOR IS ACHIEVED. EC SHALL ADJUST FIXTURES LOCATIONS AND PROVIDE ADDITIONAL FIXTURE(S) AS NEEDED TO ACHIEVE MINIMUM ILLUMINATION REQUIREMENTS PER NFPA 101, 7.8.1.
- CONTRACTOR TO VERIFY LOCATION OF ALL EMERGENCY FIXTURES WITH THE KITCHEN EQUIPMENT.









Date: **1. 24. 20** Scale: AS NOTED

Sheet

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

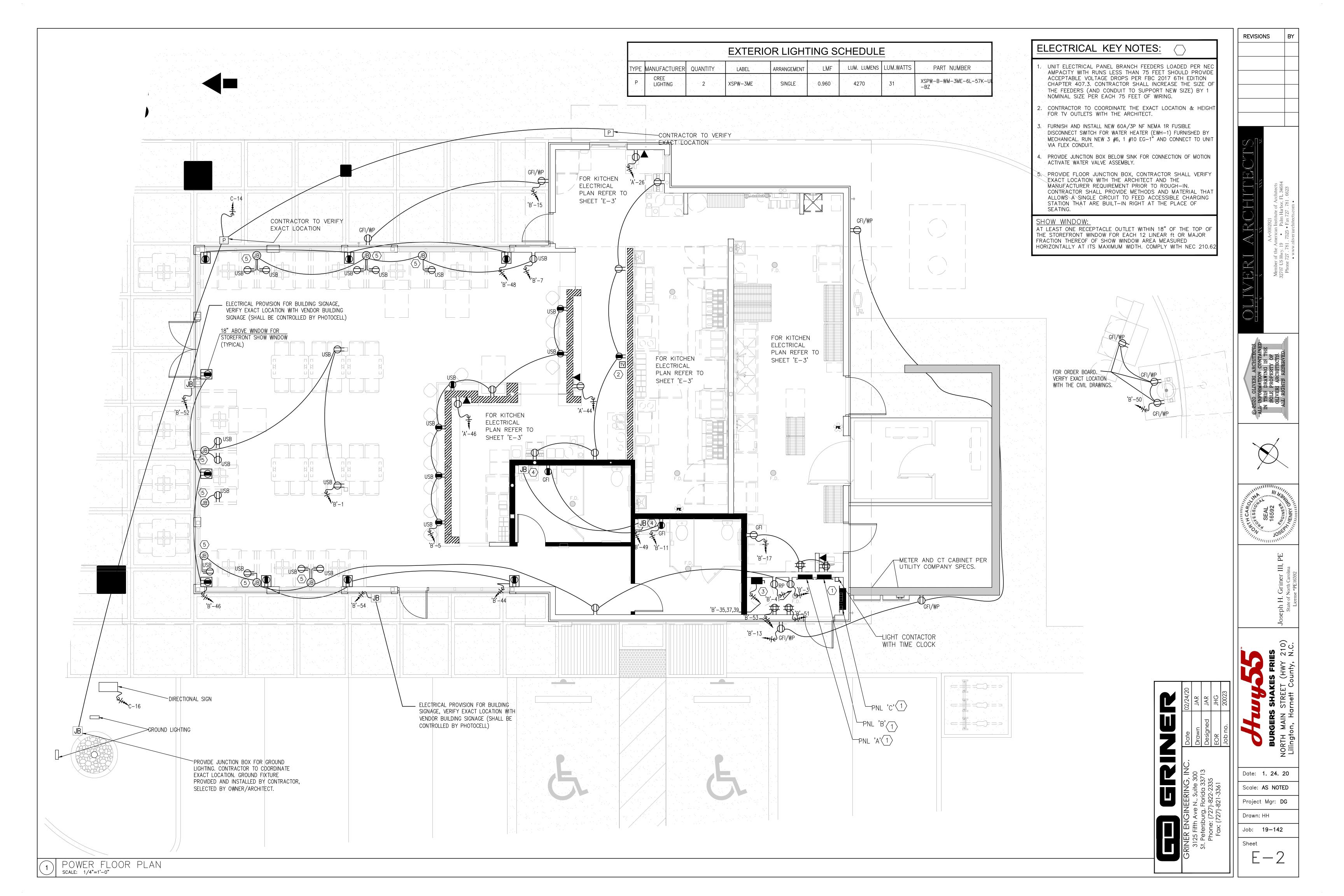
OZOO OLIVERI ARCHITEC INFORMATION CONTAIN N THIS DRAWING IS THI SOLE PROPERTY OF OLIVERI ARCHITECTS.

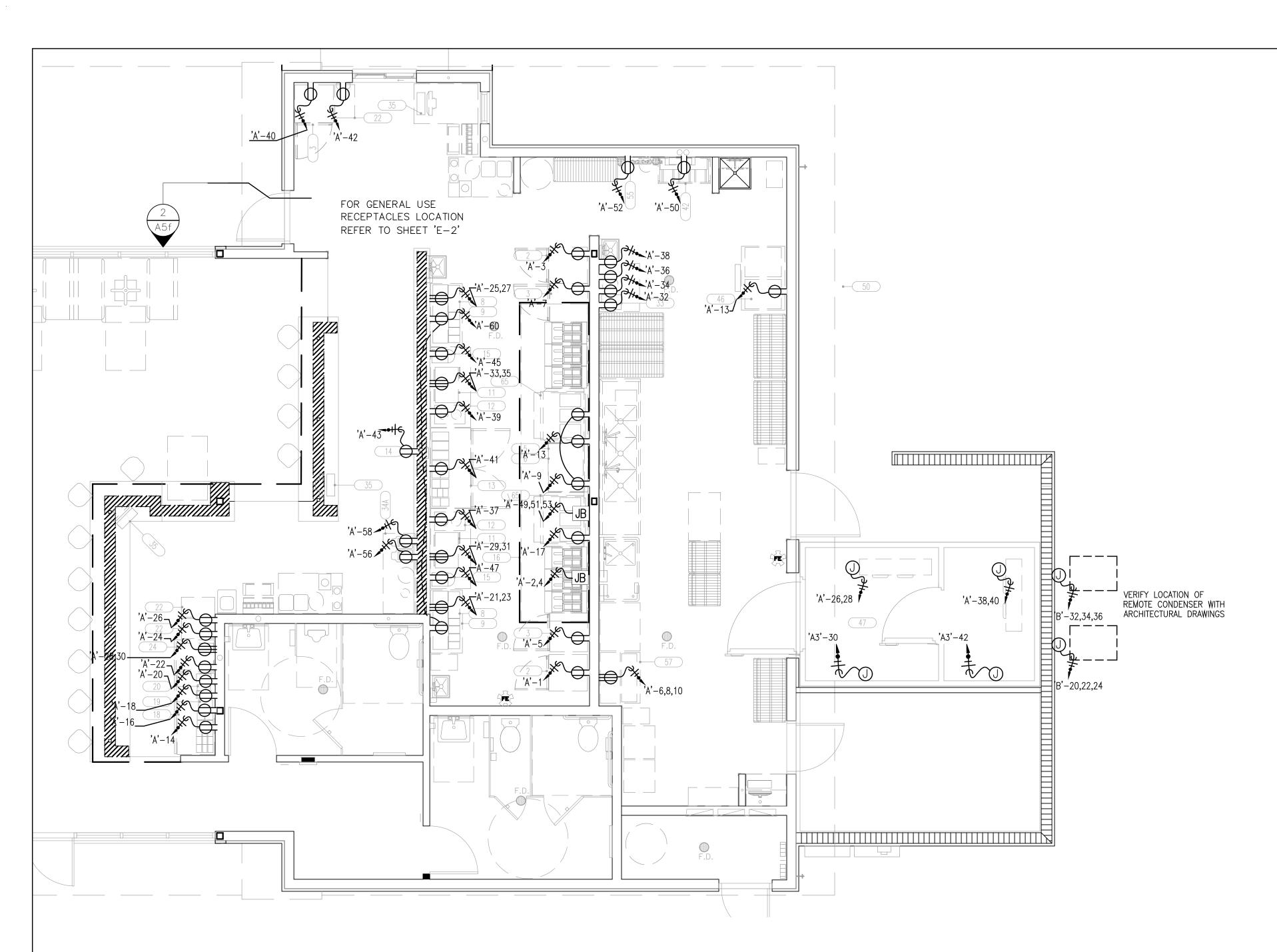
REVISIONS



Project Mgr: **DG**

Drawn: HH Job: **19-142**





ΙT	ЕМ		SF	PECIFICATIONS			ELEC	CTRICA	L		NOTES
#	QTY.	MFG	MODEL #	DESCRIPTION	Volts	PH	RATED AMP	Hz	HP	Connection	
2	2	Serv-Ware	RF-1	1-Dr Freezer 27"W x 33"D x 82.3"H. 23 cu ft. 364 lbs.	115	1	11	60	5/8	5-15P	
3	3	Serv-Ware	SP 29-8	Prepbox 29"L x 30"D x 43.2"H. 7 cu. ft. 190 lbs.	115	1	5	60	1/4	5-15P	
5	2	Vulcan	MSA60	Grill. 60"W x 31.5" D x 15.25"H. 5 Burners. 650 lbs.	120	1	1	50/60		5-15P	
6	2	Serv-Ware	CB60	Chefbase 36"W x 26" H x34.75"D 400 lbs.	115	1	6	60	1/4	5-15P	
8	2	Hatco	MPWS-45	Holding Cabinet. 45.4"W x 32"H x 24.8"D 170lbs.	120/208	1	14.2			L14-20P	
9	2	TRUE	TWT-48 / 675-103	Worktop (48" True TWT-48) 12 cu. ft. 48.5" D 280 lbs.	120	1			1/5		
11	2	Roundup	DFWF 250 (9100146)	Steamer 27"W x 17.25"D x 9.3"H 75 lbs.	208		15.9	50/60		6-20P (20A/250V)	Requires a water line and pressure regulator
12	2	Nemco	6055A-CW	Cooker/Warmer14.75"W x 23.5"D x 10.5" H 19.1 lbs.	120	1	12.5			5-15P	
13	1	Serv-Ware	SP60-16	Prepbox 61"W x 30"D x 43.2" H. 330 lbs.	115	1	7	60	3/8	5-15P	
14	1	Select Electronics		Monitor & Bumpbar	115	1					Provided by Home Office
15	1	AFP	9/10/20189/10/2018	Cheese Warmer. 26"H x 10"W x 16"D 26lbs.	120	1		60		5-15P	Provided by Vendor
16	1	CaptiveAire	Hood w/ Ansul System	Hood System with Ansul System	220	1					
18	1	TRUE	TSSU 60-8	Prepbox 60.3"W x 43"H x 30.1"D 14 cu. ft. 330lbs.	115	1	7.8	60	1/3	5-15P	
19	2	Stoelting	Mix-In Blender	Mix-In Blender 7.5"W x 24"H x 10"D 22lbs.	115	1	2.1	60	3/4	5-15P	
20	2	Nemco	6120A-CW	Cooker/Warmer 18.5" W x 10.3"D x 10" H 13.5lbs.	120	1	8.3			5-15P	
22	2	Excellence Industries	FT-4	Dipping Cabinet 25"W x 15"D x 38.25"H 2.8Cu.Ft. 80 lbs.	115	1	1.4	60	1/8	5-15P	
24	1	Stoelting	CF-101	Frozen Custard Machine 37"H x 19.5"W x 28"D 310 lbs.	208-240	1		60	1.5	6-20P (20A/250V)	
33	4	Bunn	ITCB	Coffee/Tea Brewer	120	1	14	60		5-15P	
35	2	SAM-4S	SPT-7000	POS Terminal Systems 14"W x 17"H x 12"D 30 lbs.	100-240	1	0.37	50/60		5-15P	Provided by Home Office
42	1	Pepsi	Taprite Fassco	Modular BiB Rack 31" H x 40"W x 19.75"D	120	1					Provided by Vendor
46	1	Hoshizaki	F-801MAH & B-800SF	Ice Machine w/Flaker Head/800ib Bin 48"W x 32"D x 71" H 805 I	115-120	1	20	60		5-15P	
47	1	Norlake	Fast Track	Outside Walk-in Cooler/ Freeezer		1					* Not Shown on Drawings
48	1	Serv-Ware	RR-3	3-Door Cooler (Optional) 82"H x 55"W x 33"D 72 cu. ft.	115	1	10	60		5-15P	
49	2	Serv-Ware	RF-3	3-Door Freezer (Optional) 82"H x 55"W x 33"D 72 cu. ft.	115	1	10	60		5-20P	
53	1			Walk-in Cooler/Freezer							
55	1			Water Filtration System							
57	1	Blodgett	SHO-100-E	Convection Oven	208	3	31/29/29	60			RUN 4 #8, 1 #10 GE IN 1" C
61	2	Waring	WW180	Waffle Maker	120	1	10				
65	2	Taylor	L-810	Electric 2-Slided Grill	240	3	33(2)	60			RUN 4 #8, 1 #10 GE IN 1" C

POWER GENERAL NOTES:

REFER TO THE APPROVED FOOD SERVICE EQUIPMENT SCHEDULE PLANS AND ELECTRICAL ROUGH-IN FLOOR FOR EXACT ELECTRICAL REQUIREMENTS AND

- REFER TO FINAL APPROVED EQUIPMENT SHOP DRAWINGS FOR EXACT NAMEPLATE RATING, EXACT LOCATIONS, ELECTRICAL REQUIREMENTS AND OTHER ADDITIONAL ELECTRICAL REQUIREMENTS PRIOR TO COMMENCING ANY WORK.
- RECEPTACLES SERVED COUNTERTOP APPLIANCES.
- RECEPTACLES SHALL MATCH EQUIPMENT PLUG/CORD. REFER TO FINAL APPROVED EQUIPMENT SHOP DRAWINGS AND COORDINATE WITH EQUIPMENT CONSULTANT/ CONTRACTOR PRIOR TO COMMENCING ANY WORK.
- 5. FIELD VERIFY IF NEUTRAL CONDUCTOR IS REQUIRED PRIOR TO ROUGH-IN.
- PROVIDE LIQUIDIGHT (SEALTIGHT) FLEXIBLE HARDWARE CONNECTION TO ALL GAS
- 9. ALL CONDUIT SHALL BE ROUTED OVERHEAD CONCEALED IN WALL AND CEILING, UNLESS OTHERWISE NOTED. PROVIDE 3" C MINIMUM IF BRANCH CIRCUIT CONDUITS ARE ROUTED UNDERGROUND. ADJUST CONDUIT SIZE FOR LARGER SIZE CONDUCTORS
- 10. FIELD VERIFY THE EXACT LOCATION AND MOUNTING HEIGHT OF ALL EQUIPMENT AND/OR DEVICES IN THIS AREA. ALL DEVICES MUST BE READILY ACCESSIBLE AS REQUIRED PER LOCAL AHJ. COORDINATE WITH MILLWORK/CASEWORK VENDOR, FOOD SERVICE EQUIPMENT AND OTHER TRADES PRIOR TO ROUGH—IN. REFER TO FINAL APPROVED ARCHITECTURAL AND FOOD SERVICE EQUIPMENT INTERIOR ELEVATION DRAWINGS PRIOR TO COMMENCING ANY WORK.

HOOD GENERAL NOTES:

- THIS DRAWING SHALL BE USED AS AN INSTRUMENT OF REFERENCE BY ALL TRADES AND CONTRACTORS. ALL TRADES SHALL VERIFY THE INFORMATION AS SHOWN ON THESE PLANS.
- 2. ALL NATIONAL, STATE, AND LOCAL CODES SHALL APPLY.
- 3. ALL NECESSARY ELECTRICAL DISCONNECTS, SHUNT TRIP BREAKERS, AND STARTERS TO BE FURNISHED AND INSTALLED BY EC, UNLESS PROVIDED AS A STANDARD COMPONENT OF THE EQUIPMENT BY THE MANUFACTURER.
- 4. ALL ELECTRICAL ITEMS SUPPLIED UNDER EXHAUST HOOD- TO SHUT DOWN WITH SHUNT TRIP TIED IN TO HOOD SYSTEM.
- 5. KITCHEN HOOD SHALL BE WIRED IN STRICT CONFORMANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND/OR SHOP DRAWINGS.
- 6. STARTERS, RELAYS, HEATERS, AND SWITCHES REQUIRED FOR EXHAUST FAN ARE TO BE PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.

KITCHEN HOOD SEQUENCE OF OPERATION:

OF THE EXTINGUISHING SYSTEM

NORMAL: SUPPLY AND EXHAUST FANS ARE OPERATIONAL.

UPON ACTIVATION OF HOOD FIRE SUPPRESSION SYSTEM, THE SUPPLY FAN SHALL BE "OFF" AND THE EXHAUST FAN SHALL BE "ON".

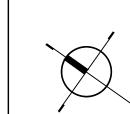
PER NFPA 96 CH,8.2.3.1., A HOOD EXHAUST FAN SHALL CONTINUE TO OPERATE AFTER THE EXTINGUISHING SYSTEM HAS BEEN ACTIVATED UNLESS FAN SHUT DOWN IS REQUIRED BY A LISTED COMPONENT OF THE VENTILATION SYSTEM OR BY THE DESIGN

ADDITIONAL INFORMATION.

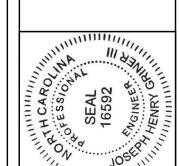
ALL DUPLEX RECEPTACLES IN KITCHEN AREAS SHALL BE GFI TYPE AND A MINIMUM OF 20A. THIS APPLIES TO EACH & EVERY DEVICE WETHER OR NOT THE

ALL DUPLEX RECEPTACLES, SINGLE RECEPTACLES AND/OR SPECIAL PURPOSE

- REFER TO FINAL APPROVED EQUIPMENT SHOP DRAWINGS FOR EXACT WIRING INTERCONNECTION BETWEEN EQUIPMENT AND REMOTE COMPRESSOR UNITS.
- EQUIPMENT PER MANUFACTURER INSTALLATION RECOMMENDATION.
- COMPLY WITH THE NATIONAL ELECTRICAL CODES, GROUND FAULT EQUIPMENT PROTECTION MUST BE USED ON EACH HEATING CABLE BRANCH CIRCUIT.
- AS REQUIRED PER NEC.



REVISIONS



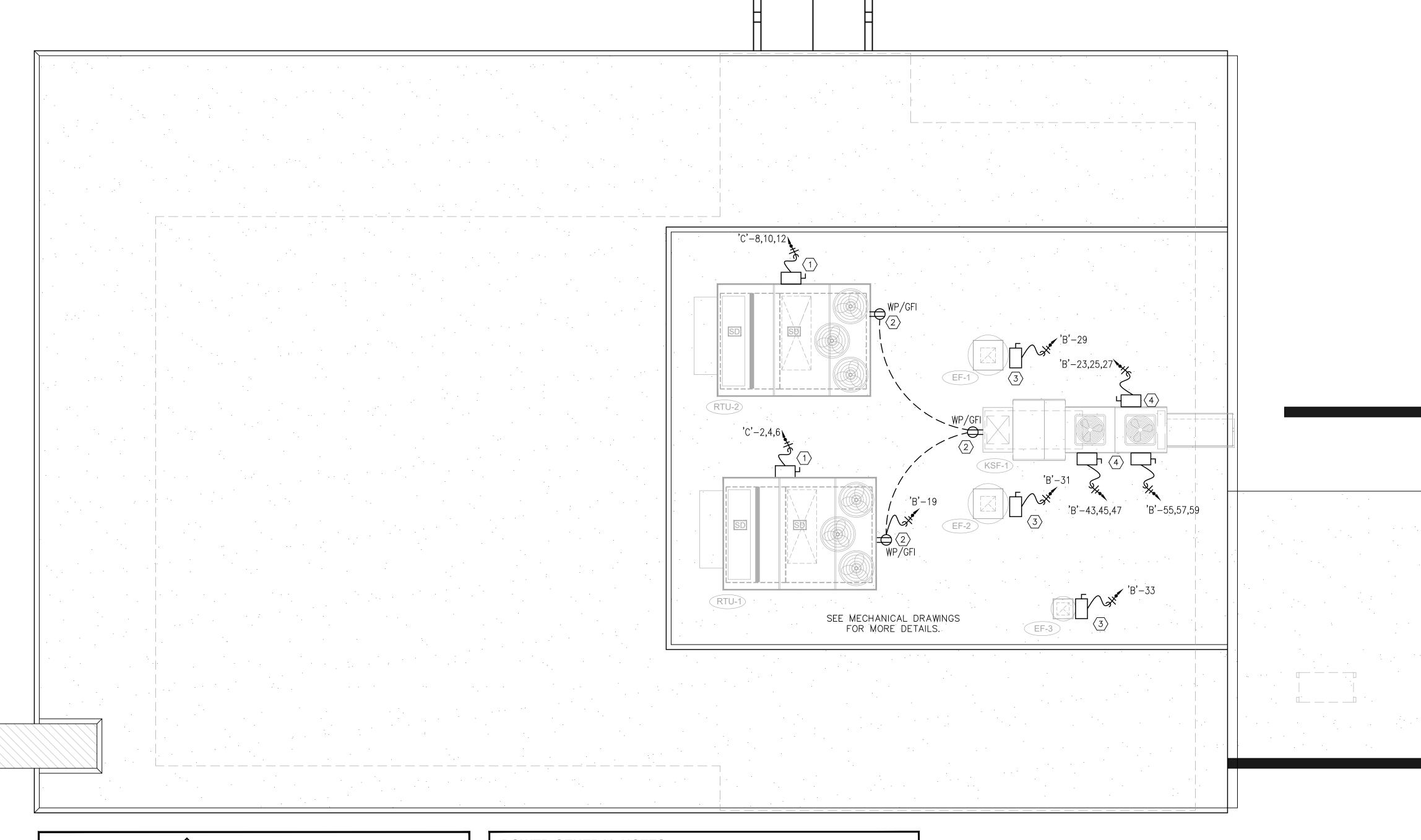
Date: **1. 24. 20** Scale: **AS NOTED**

Project Mgr: **DG**

Drawn: HH Job: **19-142**

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KITCHEN EQUIPMENT ELECTRICAL PLAN

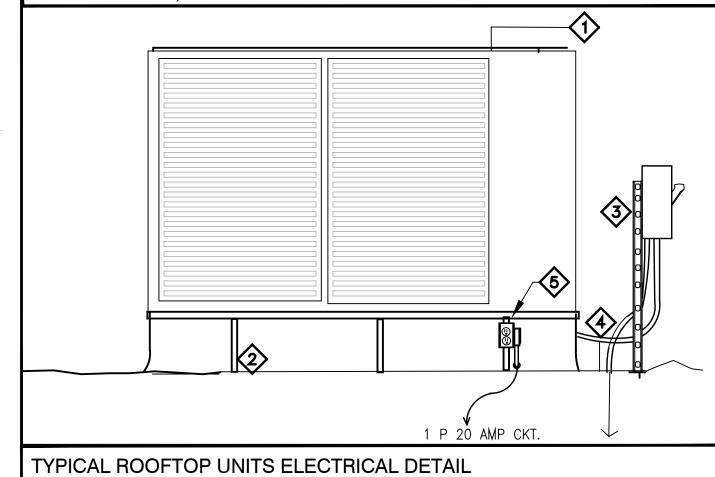




NEW ROOF-TOP AC UNIT.

NOT TO SCALE

- NEW SUPPORT CURB BY MECHANICAL. FURNISH WITH KNOCKOUTS FOR DEVICES SHOWN.
- NEW NEMA 3R NF DISCONNECT SWITCH. SEE ENGINEERED DRAWINGS FOR DISCONNECT SIZES.
- -. CONNECT TO UNIT USING SEAL—TITE FLEX CONDUIT.
- NEW WP COVERED 120V GFI CONVENIENCE OUTLET. RUN 2 # 12, 1#12 EG -1/2 INCH AND CONNECT BELOW. MOUNT ON CURB AS SHOWN AND RUN INSIDE FROM BELOW (INSTALL WHERE REQUIRED)



POWER GENERAL NOTES:

- ELECTRICAL CONTRACTOR TO VERIFY EXISTING CONDITIONS AND TO REPORT TO GENERAL CONTRACTOR, OWNER AND ENGINEER ANY DISCREPANCY FROM THAT SHOWN ON DRAWINGS.
- 2. COORDINATE ALL NEW ELECTRICAL WORK WITH MECHANICAL CONTRACTOR AND OWNER.
- 3. PANELS ARE REQUIRED TO HAVE A PANELBOARD NAMEPLATE PER NEC 408.4(B) SEE TYPICAL PANELBOARD NAMEPLATE DETAILS.
- 4. FOR SPECIFIC EQUIPMENT LOCATIONS, REFER TO CIVIL DRAWINGS.
- 5. ALL ELECTRICAL RUNS SHALL BE NO LEES THAN AWG #12 COPPER CONDUCTORS, UNLESS OTHERWISE NOTED.
- 6. ALL THE ROOF EQUIPMENT NEEDS MOTOR STARTER SHALL BE PROVIDED BY MECHANICAL AND INSTALLED BY ELECTRICAL CONTRACTOR (WHERE APPLICABLE).

ROOF CONDUIT GENERAL NOTE

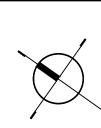
CONDUITS INTENDED TO BE RUN AT ROOF TOP LEVEL SHALL BE SUPPORTED AT LEAST 4 INCHES FROM THE ROOF LEVEL. SUPPORTS SHALL BE SPACED AT 10 FEET MINIMUM, AND CONDUIT MATERIAL SHALL BE GALVANIZED CONDUIT OR PVC WITH UV PROTECTIVE COVER.

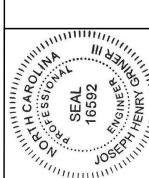
ELECTRICAL KEY NOTES:

- FURNISH AND INSTALL NEW 100A 3P NEMA 3R FUSIBLE DISCONNECT FOR RTU UNITS FURNISHED BY MECHANICAL. RUN NEW 4 #3, 1 #8 EG-1-1/4" AND CONNECT TO UNIT VIA FLEX CONDUIT.
- 2. NEW 20A DUPLEX GFI CONVENIENCE OUTLET (TYPICAL). RUN NEW 2# 12, 1# 12 EG -1/2" DOWN TO PANEL 'B' AND CONNECT.
- FURNISH AND INSTALL NEW 30A 1P NEMA 3R FUSIBLE DISCONNECT FOR 'EF-1', 'EF-2' & 'EF-3' UNIT FURNISHED BY MECHANICAL. RUN NEW 3 #10 EG-3/4" AND CONNECT TO UNIT VIA FLEX CONDUIT.
- FURNISH AND INSTALL NEW 30A 3P NEMA 3R FUSIBLE DISCONNECT FOR 'KSF-1', 'MUA-1' CONDENSER UNIT FURNISHED BY MECHANICAL. RUN NEW 4 #10, 1 #10 EG-1" AND CONNECT TO UNIT VIA FLEX CONDUIT.

REVISIONS	BY	







Date: **1. 24. 20**

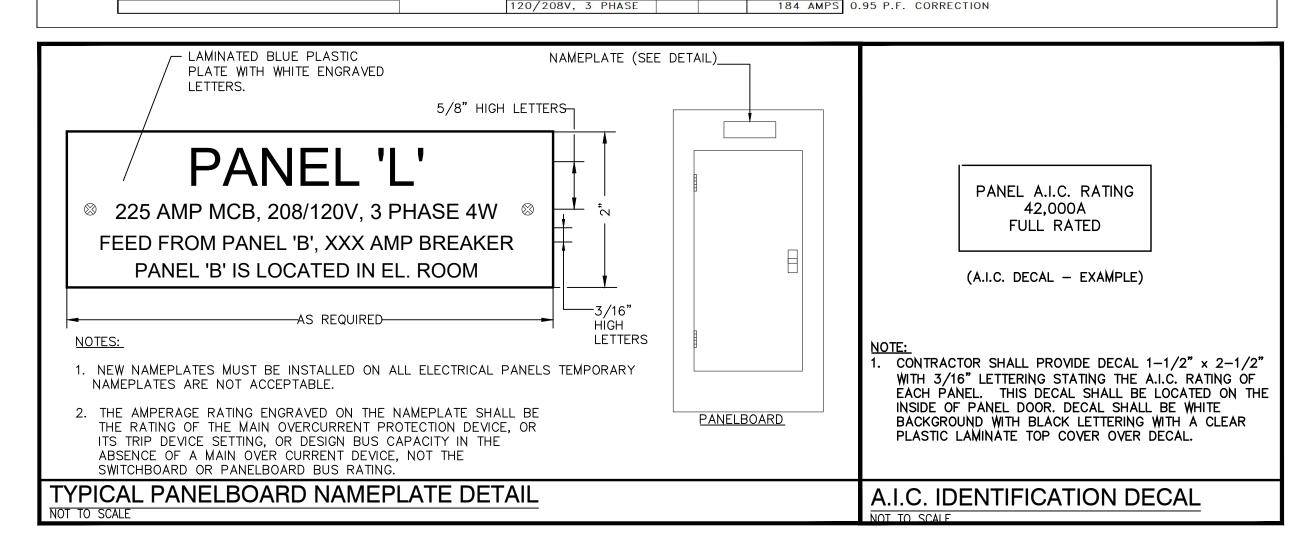
Scale: **AS NOTED** Project Mgr: **DG**

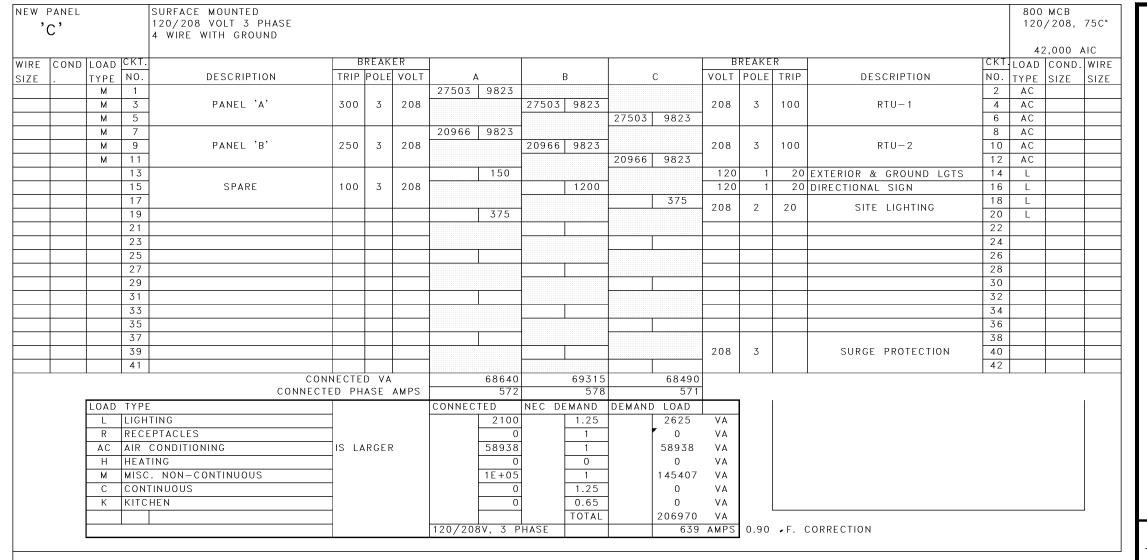
Drawn: HH Job: **19-142**

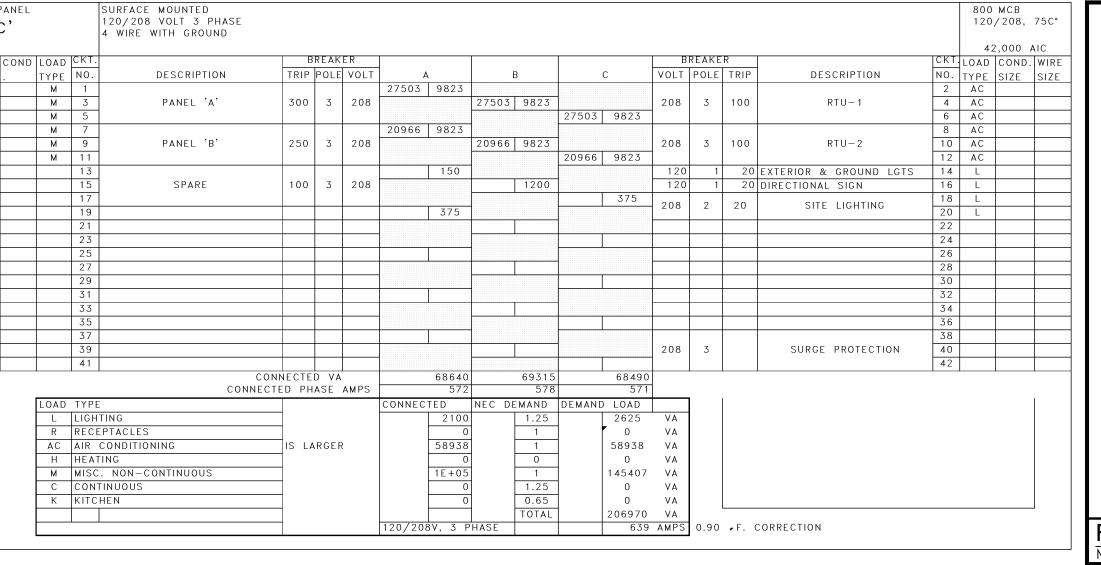
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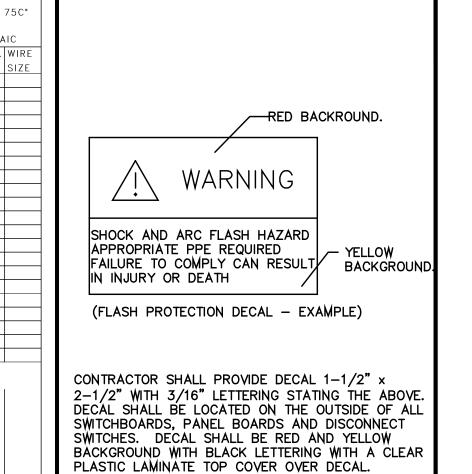
NEW PA			SURFACE MOUNTED 120/208 VOLT 3 PHASE 4 WIRE WITH GROUND															,	/208,	
											1								,000 A	
WIRE C					REAK									REAKE			-		COND.	
SIZE .	1	TYPE I		TRIP	POLE	VOLT			В			С	VOLT	POLE	TRIP	DESCRIPTION	NO.	TYPE	SIZE	SIZE
			1 (2) 1-DR FREEZER	20	1	120	1265	1500					208	2	20	(16) HOOD SYSTEM WITH	2	М		
			3 (2) 1-DR FREEZER	20	1	120			1265	1500			200	_		ANSUL	4	М		
			5 (3) PREPBOX	20	1	120					575	3720					6	М		
			7 (3) PREPBOX	20	1	120	575	3720					208	3	40*	(57) CONVECTION OVEN	8	М		
			9 (5) GAS GRILL BURNER	20(*)	1	120			360	3720							10	М		
			11 SPACE ALLO. SHUNT TRIP	()												SPACE ALLO. SHUNT TRIP	12			<u> </u>
			13 (6) CHEFBASE	20(*)	1	120	690	900					120	1		(18) PREPBOX	14	М		
			15 SPACE ALLO. SHUNT TRIP							250			120	1		(19) MIX-IN BLENDER	16	М		
			17 (6) CHEFBASE	20(*)	1	120					690	250	120	1		(19) MIX-IN BLENDER	18	М		
			19 SPACE ALLO. SHUNT TRIP					996					120	1	20	(20) COOKER /WARMER	20	М		
			(8) HOLDING CABINET	20	2	208			1500	996			120	1		(20) COOKER /WARMER	22	М		<u> </u>
			23 1					•			1500	168	120	1		(22) DIPPING CABINET	24	М		
			(8) HOLDING CABINET	20	2	208	1500	168					120	1	20	(22) DIPPING CABINET	26	М		
			27						1500	1200			208	2	20	(24) FROZEN CUSTARD	28	М		<u> </u>
			(11) STEAMER	20	2	208					1650	1200				MACHINE	30	М		
			31 \ '				1650	1700					120	1		(33) COFFEE/TEA BREWER	32	М		
			33 (11) STEAMER	20	2	208			1650	1700			120	1		(33) COFFEE/TEA BREWER	34	М		
			35								1650	1700	120	1		(33) COFFEE/TEA BREWER	36	М		
			37 (12) COOKER/WARMER	20	1	120	1500	1700					120	1		(33) COFFEE/TEA BREWER	38	М		<u> </u>
			39 (12) COOKER/WARMER	20	1	120			1500	575			120	1		(3) PREPBOX	40	М		
			41 (13) PREPBOX	20	1	120		•			805	168	120	1		(22) DIPPING CABINET	42	М		
			43 (14) MONITR & BUMPBAR	20	1	120	180	180					120	1		20 (35) POS 46 1 20 (35) POS 48 1 20 (42) MODULAR BIB RACK 50 1				
			45 (15) CHEESE WARMER	20	1	120			180	180			120	1						
			47 (15) CHEESE WARMER	20	1	120					180		120	1	20					
			49				9000	180					120	1						
			51 (65)ELECTRIC 2-SLIDE GRILL	50(*)	3	208			9000	180			120	1		(55) WATER FILT SYSTEM	52	М		
			53								9000	1200	120	1	20	(46) ICE MACHINE	54	М		
			55 SPACE ALLO. SHUNT TRIP					1200					120	1		(61) WAFFLE MAKER	56	М		
			57 SPARE	20	1	120				1200			120	1		(61) WAFFLE MAKER	58	М		
			59 SPARE	20	1	120		•				360	120	1	20	(9) WORK TOP	60	М		
			61														62			
			63														64			
			65					1									66			
			67					<u> </u>									68			
			69														70			
			71														72			
				NECTE				28604		28456		24816								
			CONNECT	LD PHA	42F			238		237		207								1
	լլ	OAD		1			CONNEC		NEC DE		DEMANE				` '	CUIT BREAKER SHOULD BE PRO	VIDED	WITH	3HUNT	
			IGHTING					0		1.25		0	VA	TRIP UNIT.						
	⊢		RECEPTACLES	1				0		1		0	VA							
	L		AIR CONDITIONING	1				0		0		0	VA							
	L		HEATING	1				0		0]	0	VA							
	L		MISC. NON-CONTINUOUS	4				79346		1		79346	VA							
	⊢		CONTINUOUS	1				2530		1.25		3162.5								
	L	K	KITCHEN	1				0		0.65		0	VA	l						_
	⊢			1			100 /00			TOTAL		82509	VA	0.00	D E	CORRECTION				
	L						120/208	3V, 3 P	HAZE			255	AMPS	0.90	P.F. (CORRECTION				

NEW PAR				SURFACE MOUNTED 120/208 VOLT 3 PHASE																MLO /208,	75C°
				4 WIRE WITH GROUND															40	2,000	ALC
WIRE CO	ו מאכ	OADC	KT.		В	REAK	ER						BREAKER			ER		CKT.			. WIRE
SIZE .			١٥.	DESCRIPTION			VOLT	1	\	E	3	(VOLT			DESCRIPTION	NO.	LUAD		SIZE
SIZE .			1	SEATING AREA RECEPTACLE	20	1	120	900	800					120	1	20	KITCHEN LIGHTING	2	L	SIZE	SIZE
			3	SEATING AREA RECEPTACLE	20	1	120			900	500			120	1	20	RESTROOM LIGHT/EX. FAN	4	L		
		R	5	SEATING AREA RECEPTACLE	20	1	120					1080	200	120	1	20	SEATING ROOM LIGHT	6	L		
		R	7	SEATING AREA RECEPTACLE	20	1	120	900	200					120	1	20	SEATING ROOM LIGHT	8	L		
		R	9	BAR RECEPTACLES	20	1	120			900	300			120	1	20	SEATING ROOM LIGHT	10	L		
		R	11	RESTROOM GFI RECEPTACLES	20	1	120					360	300	120	1	20	BAR LIGHTS	12	L		
		R	13	OUTSIDE GFI RECEPTACLES	20	1	120	540	100					120	1	20	EXTERIOR LIGHTING LIGHTS	14	L		
		R	15	OUTSIDE GFI RECEPTACLES	20	1	120			720	500			120	1	20	EXTERIOR LIGHTING LIGHTS	16	L		
		R	17	KITCHEN GENERAL RECEPT	20	1	120					900		120	1	20	SPARE	18			
		R	19	ROOF GFI RECEPTACLES	20	1	120		600										С		
			21	SPARE	20	1	120				600			208	3	20 W.I. COOLER COMPRESSOR (#)		22	С		
		AC	23									750	600					24	C		
		AC	25	KMUA-1	20	3	208	750	300					200	2	20	W.L. COOLED EVAD	26	C		
		AC	27							750	300			208	2	20	W.I. COOLER EVAP.	28	C		
		AC	29	EF-1	20	1	120					1200	200	120	1	20	W.I. COOLER MISC & LIGHT	30	М		
		AC	31	EF-2	20	1	120	1200										32	С		
		AC	33	EF-3	20	1	120			25	600			208	3	20	W.I. FREEZER COMPRESSOR (#)	34	С		
		М	35									9000	600					36	С		
		М	37	EWH-1	80	3	208	9000	300					200	2	20	W.L. EDEEZED EVAD	38	С		
		М	39							9000	300			208	2	20	W.I. FREEZER EVAP.	40	С		
		M	41	RECIRCULATING PUMP	20	1	120					100	200	120	1	20 W.I. FREEZER MISC & LIGHT		42	М		
		Н	43					2570	900					120	1	20	CEILING RECEP	44	R		
		Н	45	KMUA-1 (CONDENSER-1)	30	3	208			2570	900			120	1	20	CEILING RECEP	46	R		
		Н	47									2570	900	120	1	20	CEILING RECEP	48	R		
		М	49	RESTROOM SENSOR OUTLET	20	1	120	100	360					120	1	20	ORDER BOARD RECEP	50	R		
		R	51	DATA RACK	20	1	120			360	1200			120	1	20	BUILDING SIGNAGE	52	L		
		R	53	DATA RACK	20	1	120					360	1200	120	1	20	BUILDING SIGNAGE	54	L		
		Н	55					1741						120	1	20	SPARE	56			
		Н	57	KMUA-1 (CONDENSER-1)	20	3	208			1741				120	1	20	SPARE	58			
		Н	59									1741		120	1	20	SPARE	60			
		1	61	SPARE	20	1	120							120	1	20	SPARE	62			
			63	SPARE	20	1	120							120	1	20	SPARE	64			
			65	SPARE	20	1	120							120	1	20	SPARE	66			
		1	67	SPARE	20	1	120							120	1	20	SPARE	68			
		1	69	SPARE	20	1	120							120	1	20	SPARE	70			
			71	SPARE	20	1	120							120	1	20	SPARE	72			
					NECTE				21261		22166		22261								
	_			CONNECTE	ED PH	ASE	AMPS		177		185		186								T
	L	OAD T						CONNEC	TED	NEC DE	EMAND	DEMAND	LOAD			(*) SE	ATING AREA LIGHT SHALL BE CONN	ECT T	O		
	L			ΓING	ļ				5300		1.25		6625	VA		CONT	ACTOR CONTROLLED BT TIME CLO	CK			
				PTACLES					10980		1		10490	VA							
				CONDITIONING					4675		0		0	VA		\ /	RIFY COMPRESSOR LOCATION FOR			EEZER	
			IEAT		IS LA	RGE	3		12933		1		12933	VA		& COC	DLER WITH THE ARCHITECT AND VE	NDOF	?		
				. NON-CONTINUOUS					27600		1		27600	VA							
1				INUOUS	1				4200		1.25		5250	VA							
1		KK	ITCH	HEN	ļ				0		0.65		0	VA							
1					ļ						TOTAL		62898	VA							
								120/20	3V. 3 P	HASE	1		184	AMPS	0.95	PF	CORRECTION				

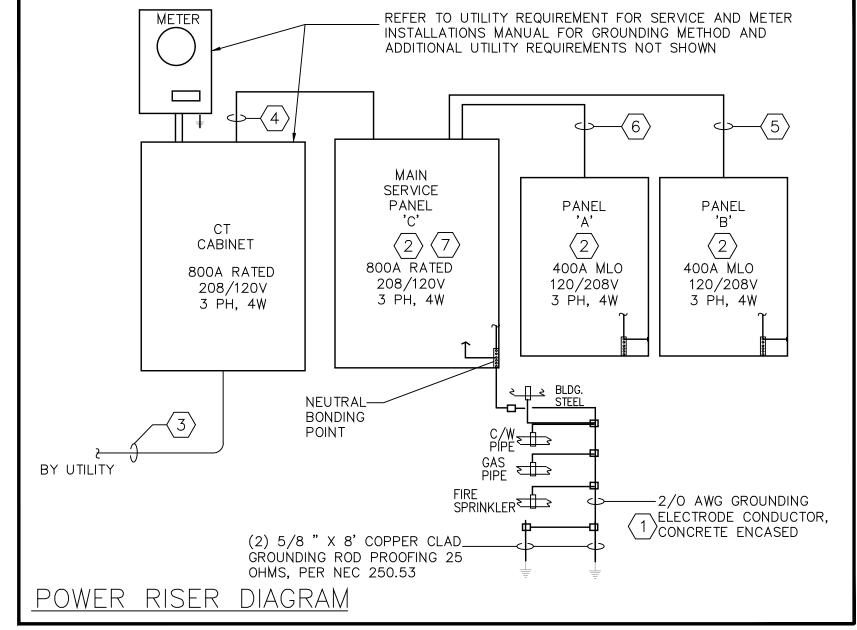








FLASH PROT NOT TO SCALE



	4	6 5
	CT CABINET 800A RATED 208/120V 3 PH, 4W	MAIN SERVICE PANEL 'C' 800A RATED 208/120V 3 PH, 4W PANEL 'A' 2 400A MLO 120/208V 3 PH, 4W 3 PH, 4W PANEL 'B' 400A MLO 120/208V 3 PH, 4W 3 PH, 4W
BY UTILITY POWER	(2) 5/8 " GROUNDING	GAS PIPE FIRE SPRINKLER 2/0 AWG GROUNDING ELECTRODE CONDUCTOR, CONCRETE ENCASED ROD PROOFING 25 NEC 250.53

RISER DIAGRAM KEY NOTES: 🔘

. SERVICE ENTRANCE GROUNDING AS REQUIRED BY NEC 2017.

- 2. FURNISH AND INSTALL NEW (120/208V) PANELBOARDS. IDENTIFY AS 'A', 'B' & 'C'. SEE CIRCUIT SCHEDULE.
- 3. PROVIDE (3) SETS OF 4 #350 AWG, COPPER CONDUCTORS IN (3) 3" CONDUIT.
- 4. PROVIDE (3) SETS OF 4 #350 AWG, 1 #1/0 E.G. COPPER CONDUCTORS IN (3) 3" CONDUIT.
- 5. PROVIDE 4 #250 AWG, 1 #4 AWG E.G. COPPER CONDUCTORS IN 2-1/2" CONDUIT.
- 6. PROVIDE (2) SETS OF 4 #2/0 AWG, 1 #3 AWG E.G. COPPER CONDUCTORS IN (2)2" CONDUIT.
- CONTRACTOR TO PROVIDE EXTERIOR SERVICE DISCONNECT/SHUNT TRIP MAIN BREAKER IF REQUIRED BY LOCAL POWER UTILITY AND/OR AHJ.

RISER GENERAL NOTES:

- 1. ELECTRICAL CONTRACTOR TO VERIFY EXISTING CONDITIONS AND TO REPORT TO GENERAL CONTRACTOR, OWNER AND ENGINEER ANY DISCREPANCY FROM THAT SHOWN ON DRAWINGS.
- 2. COORDINATE ALL NEW ELECTRICAL WORK WITH CONTRACTORS OF ALL TRADES AND OWNER.
- 3. PANELS ARE REQUIRED TO HAVE AN PANELBOARD NAMEPLATE PER NEC 408.4(B) SEE TYPICAL PANELBOARD NAMEPLATE DETAILS, ELECTRICAL DETAILS SHEET FOR MORE INFORMATION
- 4. FOR SPECIFIC EQUIPMENT LOCATION, REFER TO CIVIL DRAWINGS
- 5. ALL ELECTRICAL RUNS SHALL BE NO LESS THAT AWG #12 COPPER CONDUCTORS, UNLESS OTHERWISE
- 6. AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE INSTALLED IN ALL ELECTRICAL RACEWAYS AND SHALL BE SIZED IN ACCORDANCE WITH ARTICLE 250-122 OF THE 2017 NATIONAL ELECTRICAL CODE.
- 7. ALL PANELS SHALL HAVE AN AIC AND SCCR OF 22,000 AMPS MINIMUM.
- 8. ALL SERVICE/FEEDERS SIZING (BRANCH, AND SERVICE ENTRANCE CONDUCTORS) BASED IN AMPACITY OF COPPER THHW CONDUCTORS (NEC 2017 TABLE 310.15(B)(16)) UNLESS OTHERWISE NOTED.

FAULT CURRENT											
UTILITY TRANSF	ORMER VOLTAGE	120/208V 3 PH									
ASSUMED TRANSFORMER BANK SIZE 300KVA											
ASSUMED AFC A	55,600AMPS										
BUS	ESTIMATED AVAILABLE FAULT CURRENT	MINIMUM AIC & SCCR									
PANEL 'C'	36,183 AMPS	42,000 AMPS									
PANEL 'A'	31,967 AMPS	42,000 AMPS									
PANEL 'B'	31,137 AMPS	42,000 AMPS									

* LOAD CONTRIBUTION HAS BEEN ALLOCATED TO TOTAL FAULT CURRENT AIC - AMPERAGE INTERRUPTING CAPACITY

NOTE: AFC VALUES BASED ON PAD MOUNTED TRANSFORMER LOCATED AT MAX. 50 FEET DISTANT. CONTRACTOR TO COORDINATE WITH LOCAL UTILITY AND REVISE THE AFC VALUES CORRESPONDINGLY.

GENEREAL CODE NOTES

ALL ELECTRICAL WORK SHALL COMPLY WITH THE BUILDING CONSERVATION CODE

THE PLANS REFLECT SYSTEM VOLTAGE DROP AS PER ENERGY CONSERVATION CODE FEEDER CONDUCTORS ARE SIZED FOR A MAXIMUM VOLTAGE DROP OF 2% AT DESIGN LOAD. BRANCH CIRCUIT CONDUCTORS ARE SIZED FOR A MAXIMUM VOLTAGE DROP OF 3% AT DESIGN LOAD".

SERVICE VOLTAGE DROP

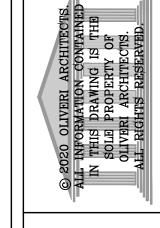
ESTIMATED SERVICE ENTRANCE FEEDER VOLTAGE DROP IS <u>0.9%</u> (BASED ON A 100 FEET RUN, (3) SET OF #250 KCMILL COPPER CONDUCTORS SERVICE ENTRANCE FEEDER (120/208V 3 PH) AND AMPERAGE PER PANEL "C" RATED LOAD CAPACITY.

BRANCH CIRCUITS LOADED PER NEC AMPACITY WITH RUNS LESS THAT 75 FEET SHOULD PROVIDE ACCEPTABLE VOLTAGE DROPS. CONTRACTOR SHALL INCREASE THE SIZE BY 1 NOMINAL SIZE PER EACH 50 FEET OF WIRING.

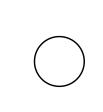
ALUMINUM FEEDER NOTE:

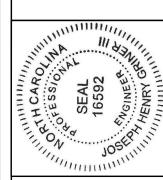
IT IS PERMISSIBLE TO PROVIDE ALUMINUM CONDUCTORS IN LIEU OF COPPER CONDUCTORS AS A COST SAVING OPTION. IF ALUMINUM CONDUCTORS ARE USED, CONDUITS SHALL BE SIZED TO ACCOMMODATE THE NEW ALUMINUM CONDUCTORS PLANNED TO BE USED. ADDITIONALLY, THE CONDUCTORS SHALL HAVE AT LEAST THE SAME CURRENT CAPACITY OF THE COPPER CONDUCTORS SHOWN ON THE ENGINEERED DRAWINGS. THE INSTALLATION SHALL BE PERFORMED USING APPROVED METHODS AND MATERIALS SPECIFICALLY COVERING ALUMINUM FEEDERS. FINALLY, THIS SUBSTITUTION SHALL BE PERMISSIBLE ONLY ON CONDUCTORS FEEDING MAIN ELECTRICAL SERVICES AND FEEDING DISTRIBUTION PANELS. SHALL BE COORDINATE AND APPROVED BY ELECTRICAL UTILITY COMPANY FOR MAIN SERVICE CONDUCTORS.

FLASH HAZARD E REQUIRED PLY CAN RESULT BACKGROUND.		
ION DECAL — EXAMPLE)		
PROVIDE DECAL 1-1/2" × LETTERING STATING THE ABOVE. DCATED ON THE OUTSIDE OF ALL NEL BOARDS AND DISCONNECT SHALL BE RED AND YELLOW BLACK LETTERING WITH A CLEAR TOP COVER OVER DECAL.		AA-0002921
TECTION DECAL		
	•	X ×



REVISIONS



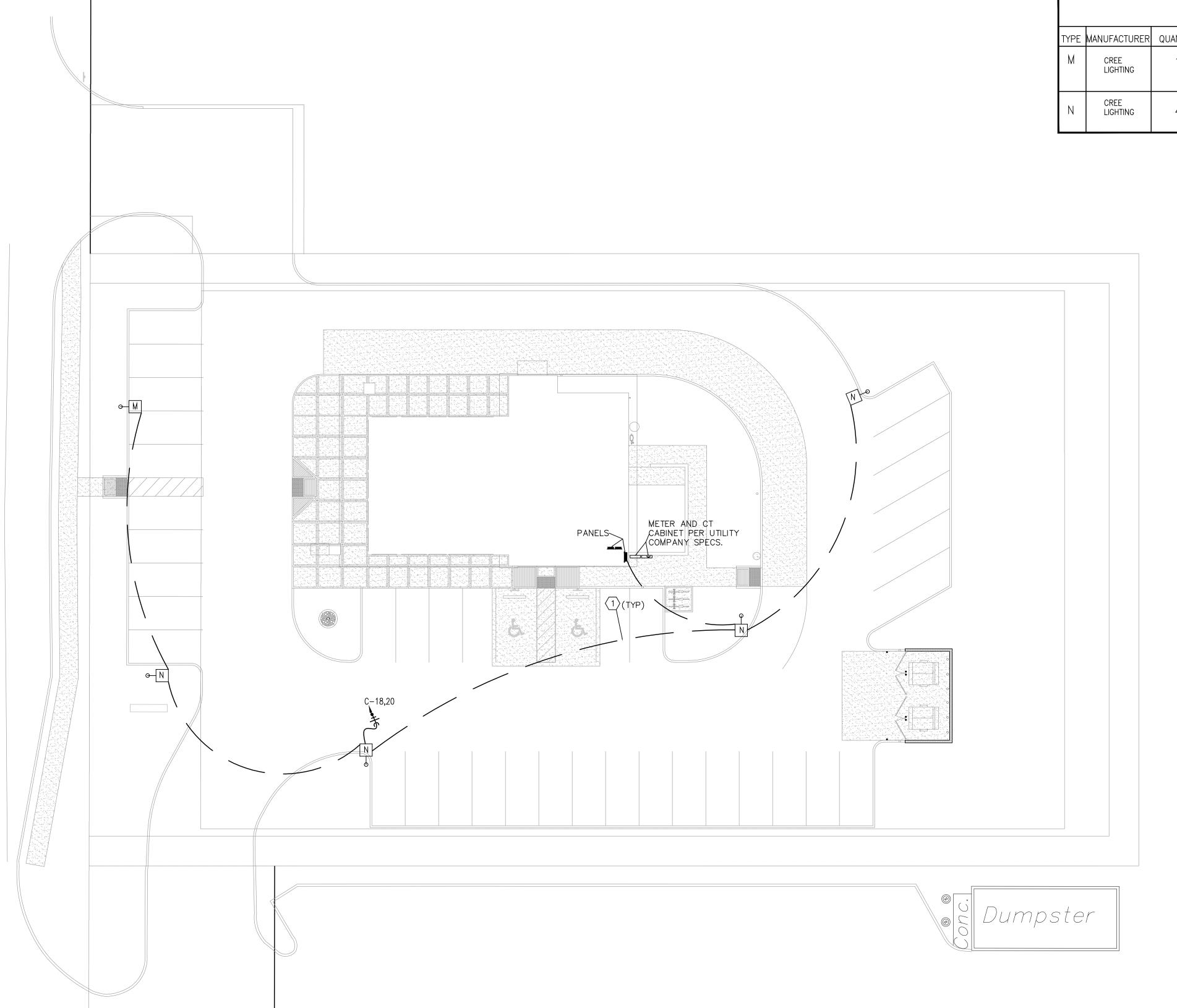


Date: **1. 24. 20** Scale: **AS NOTED** Project Mgr: **DG**

Drawn: HH Job: **19-142**

Sheet

POWER RISER & PANELBOARDS



			SITE I	_IGHTIN(G SCH	EDULE		
TYPE	MANUFACTURER	QUANTITY	LABEL	ARRANGEMENT	LMF	LUM. LUMENS	LUM.WATTS	PART NUMBER
М	CREE LIGHTING	1	P1 B Q9	SINGLE	0.990	7207	58	QSQ-A-NM-4ME-T-57K-U BZ-Q9w_OSQ-B-AABZ &OS BLSLF SET @ Q1
N	CREE LIGHTING	4	P1 B	SINGLE	0.990	17159	166	QSQ-A-NM-4ME-T-57K-U BZ w_OSQ-B-AABZ &OSQ- BLSLF

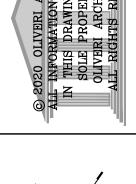
BRANCH CIRCUIT VOLTAGE DROP

ESTIMATED VOLTAGE DROP FOR SITE LIGHTING IS 1.5% (BASED ON THE TOTAL DISTANCE MEASURED 208 V, 1 PHASE).

ELECTRICAL KEY NOTES:

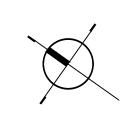
1. RUN NEW 3# 12, 1# 12 EG-1" IN 3/4" CONDUIT AND CONNECT AS SHOWN. (208V, 1 PHASE).

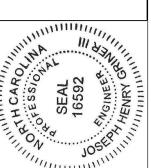
FOR SITE LIGHTING



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REVISIONS





Scale: AS NOTED

Project Mgr: **DG**

SITE PLAN SCALE: 1/16"=1'-0"

A. THE WORK. APPARATUS AND MATERIALS WHICH SHALL BE FURNISHED UNDER THESE SPECIFICATIONS AND ACCOMPANYING DRAWINGS SHALL INCLUDE ALL ITEMS SPECIFIED HEREINAFTER AND SHOWN ON THE DRAWINGS. ALL OTHER MATERIALS NECESSARY FOR THE COMPLETE INSTALLATION SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. CONTRACTOR TO PROVIDE COMPLETE ELECTRICAL SYSTEMS AS INDICATED ON THE DRAWINGS AND AS SPECIFIED

B. THE CONTRACTOR SHALL EXTEND THE SERVICE FROM THE POINT OF SERVICE ATTACHMENT FURNISHING ALL PROTECTIVE DEVICES, CONDUCTORS, SUPPORTS, RACEWAYS, ETC. TO PROVIDE COMPLETE INTERIOR ELECTRICAL SYSTEMS TO SERVE MOTOR LOADS, LIGHTING LOADS AND MISCELLANEOUS ELECTRICAL LOADS, AS SHOWN ON THE DRAWINGS AND AS SPECIFIED HEREINAFTER. THE WORK SHALL INCLUDE COMPLETE TESTING OF ALL EQUIPMENT AND WIRING AT THE COMPLETION OF THE WORK AND MAKING ANY MINOR CONNECTION CHANGES OR ADJUSTMENTS NECESSARY FOR THE PROPER FUNCTIONING OF THE SYSTEM AND EQUIPMENT. ALL WORKMANSHIP SHALL BE OF THE HIGHEST QUALITY AND NO SUBSTANDARD WORK WILL BE ACCEPTED.

C. VERIFY CONDITIONS AT THE FIELD PRIOR TO PRICING THE JOB. CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIMSELF WITH ALL DETAILS OF THE WORK AND EXISTING CONDITIONS.

D. CONTRACTOR SHALL COORDINATE THE EXACT MOUNTING HEIGHTS AND/OR LOCATIONS OF ALL LIGHTING FIXTURE SWITCHES, OUTLETS AND WIRING DEVICES AND SHALL PERFORM ALL WORK NOTED ON PLANS, IN NOTES OR IN DETAILS RELATED TO THE INSTALLATION. THE OWNER RESERVES THE RIGHT TO RELOCATE ANY DEVICE PRIOR TO ROUGH-IN 10' WITHOUT REVISION TO THE CONTRACT.

E. CONTRACTOR SHALL PAY FOR ALL PERMITS, FEE INSPECTIONS AND TESTING.

F. ALL REQUIRED INSURANCE TO BE PROVIDED FOR PROTECTION AGAINST PUBLIC LIABILITY OF PROPERTY DAMAGE FOR DURATION OF THE WORK.

G. ELECTRICAL INSTALLATION TO MEET ALL STANDARD REQUIREMENTS OF THE LOCAL POWER AND TELEPHONE COMPANIES. ELECTRICAL CONTRACTOR SHALL CONTACT LOCAL POWER AND TELEPHONE COMPANY PRIOR TO BID AND START OF CONSTRUCTION.

A. THE WORK UNDER THE REQUIREMENTS OF THESE SPECIFICATIONS SHALL BE IN CONFORMANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE. THE INSTALLATION SHALL ALSO COMPLY WITH ALL APPLICABLE RULES AND REGULATIONS OF LOCAL AND STATE LAWS AND ORDINANCES.

<u>INTERFERENCES</u>

A. THE PLANS ARE GENERALLY DIAGRAMMATIC AND THE CONTRACTOR SHALL COORDINATE THE WORK WITH THE DIFFERENT TRADES SO THAT INTERFERENCES BETWEEN CONDUITS. PIPING EQUIPMENT, ARCHITECTURAL AND STRUCTURAL WORK WILL BE AVOIDED. ALL NECESSARY OFFSETS IN RACEWAYS, FITTINGS, ETC. REQUIRED TO PROPERLY INSTALL THE WORK SHALL BE FURNISHED SO AS TO TAKE UP MINIMUM SPACE, AND ALL MATERIALS REQUIRED TO ACCOMPLISH THIS SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR WITHOUT ADDITIONAL EXPENSE TO THE OWNER. IN CASE INTERFERENCE DEVELOPS, THE OWNER'S AUTHORIZED REPRESENTATIVE WILL DECIDE WHICH EQUIPMENT. PIPING, ETC., MUST BE RELOCATED, REGARDLESS OF WHICH WAS INSTALLED FIRST.

A. IN GENERAL, MATERIALS AND APPARATUS SHALL COMPLY WITH ALL APPLICABLE TESTS, RATINGS, SPECIFICATIONS, AND REQUIREMENTS OF THE IEEE AND NEMA AND SHALL BEAR THE APPROVED DEVICE LABEL OF THE UNDERWRITERS' LABORATORIES, INC. OR OTHER TESTING LABORATORY APPROVED BY THE LOCAL AUTHORITY HAVING JURISDICTION.

3. THE CONTRACTOR SHALL SUBMIT A LIST OF PRINCIPAL MATERIAL ITEMS. GIVING MANUFACTURER'S NAMES AND CATALOG NUMBERS. APPROVAL OF THE LIST SHALL BE OBTAINED FROM THE OWNER BEFORE ORDERS ARE PLACED.

GUARANTEE

A. CONTRACTOR SHALL GUARANTEE ALL WORK FOR A PERIOD OF ONE YEAR FROM DATE OF SUBSTANTIAL COMPLETION. CONTRACTOR SHALL RECTIFY ANY DEFECTS DUE TO FAULTY MATERIALS OR WORKMANSHIP AND PAY FOR ANY DAMAGE TO OTHER WORK RESULTING THEREFROM WITHIN SAID PERIOD. THE OWNER WILL GIVE NOTICE OF DEFECTS WITH REASONABLE PROMPTNESS.

IDENTIFICATION OF EQUIPMENT

A. IDENTIFICATION OF EQUIPMENT SHALL BE PROVIDED FOR ALL ELECTRICAL EQUIPMENT INSTALLED BY THE CONTRACTOR. ENGRAVED LAMINATED PLASTIC NAMEPLATES SHALL BE PROVIDED AND IDENTIFICATION SHALL CLEARLY DESCRIBE THE EQUIPMENT AND FUNCTION. COORDINATE NAMES ABBREVIATIONS AND OTHER DESIGNATIONS USED IN ELECTRICAL IDENTIFICATION WORK WITH CORRESPONDING DESIGNATIONS SHOWN, SPECIFIED OR SCHEDULED. PROVIDE NUMBERS, LETTERS AND WORDING AS INDICATED OR IF NOT OTHERWISE INDICATED, AS RECOMMENDED BY MANUFACTURER OR AS REQUIRED FOR PROPER IDENTIFICATION AND MAINTENANCE OF ELECTRICAL SYSTEMS AND EQUIPMENT.

B. INSTALL LABEL TAGS ON ALL WIRE AND CABLE IN JUNCTION BOXES, WIREWAYS AND WIRING GUTTERS OF PANELS, TAGS SHALL IDENTIFY WIRE OR CABLE CIRCUIT NUMBER AND/OR EQUIPMENT SERVED AS SHOWN ON DRAWINGS.

C. ALL JUNCTION BOXES TO BE DESIGNATED WITH PERMANENT MARKER INDICATING PANELBOARD AND CIRCUIT NUMBERS OF BRANCH CIRCUIT WIRING CONTAINED WITHIN.

D. PANELBOARD DIRECTORIES SHALL BE UPDATED/TYPEWRITTEN WITH ACCURATE AND CURRENT INFORMATION BY THE CONTRACTOR AT THE END OF CONSTRUCTION. DIRECTORIES SHALL REFLECT EXISTING UNCHANGED AND NEW RECORD CONDITIONS AND INCLUDE CIRCUIT NUMBER, TENANT NAME, TYPE AND LOCATION OF LOAD.

RACEWAYS AND FITTINGS

A. HOMERUNS SHALL BE A MINIMUM SIZE OF HALF—INCH (1/2"), UNLESS OTHERWISE SPECIFIED PROVIDE A MINIMUM OF HALF-INCH (1/2") FOR FLEXIBLE CONNECTIONS TO EQUIPMENT.

- B. UNDERGROUND INSTALLATIONS:
- 1. USE THICKWALL NONMETALLIC CONDUIT, SCHEDULE 40 PVC. 2. IN OR UNDER SLAB-ON-GRADE: USE SCHEDULE 40 PVC OR GRAY HDPE PIPE, PER NEC REQUIREMENTS. USE ONLY UL LISTED AND APPROVED FITTINGS FOR COUPLING AND
- CHANGE-OVER TO DIFFERENT TYPE RACEWAYS. 3. MINIMUM SIZE: 3/4".
- 4. INSTALL RIGID STEEL, LONG RADIUS ELBOWS FOR CONDUITS LARGER THAN ONE INCH (1") 5. UNDER SLAB CONDUIT OR POURED-IN CONCRETE CONDUIT SHALL BE PAINTED WITH A COAT OF BITUMASTIC. THE BITUMASTIC SHALL BE CONTINUOUS AND CONTINUE UP THROUGH PENETRATION OF CONCRETE SLABS, UP TO 12" A.F.G. CORROSION TAPE IS ACCEPTABLE.

. OUTDOOR LOCATIONS, ABOVE GRADE: USE RIGID AND LIQUIDTIGHT FLEXIBLE METAL CONDUIT WITH ENHANCED CORROSION. PROVIDE COMPLETELY COATED OF THE RIGID CONDUIT WITH An ALKALI AND RUST RESISTANT BITUMASTIC PAINT, KOPPER # 50.

D. WET AND DAMP LOCATIONS: USE RIGID STEEL, INTERMEDIATE, AND LIQUIDTIGHT FLEXIBLE METAL CONDUIT.

E. DRY LOCATIONS:

1. CONCEALED: ELECTRICAL METALLIC TUBING.

2. EXPOSED: A)EXTERIOR-RIGID STEEL ONLY.

B)INTERIOR-RIGID STEEL TO 2'0" A.F.G., THENELECTRICAL METALLIC TUBING.

METAL CONDUIT

1. RIGID STEEL AND INTERMEDIATE METAL CONDUIT: ANSI C80.1.

- 2. FITTINGS AND CONDUIT BODIES: ANSI/NEMA FB 1; ALL STEEL FITTINGS. 3. RIGID STEEL CONDUIT SHALL BE UNDERWRITERS' APPROVED HOT-DIP GALVANIZED WITH ENHANCED CORROSION PROTECTION. ZINC METALIZED OR SHERADIZED. THE THREADED ENDS OF THE CONDUIT SHALL BE ZINC COATED AND SHALL BE THREADED TYPE WITH ENHANCED CORROSION PROTECTION.
- 4. ALL CONDUIT SHALL BE MADE UP TIGHT AND NO RUNNING THREADS WILL BE PERMITTED, "ERICSON" COUPLINGS BEING USED WHERE NECESSARY.

G. FLEXIBLE METAL CONDUIT

- 1. DESCRIPTION: FOR EXPOSED LOCATIONS, INTERLOCKED STEEL CONSTRUCTION, FOR CONCEALED LOCATIONS— INTERLOCKED STEEL CONSTRUCTION.
- 2. FITTINGS: ANSI/NEMA FB 1.
- 3. FLEXIBLE METALLIC CONDUIT IN DRY LOCATIONS SHALL BE UNDERWRITERS' APPROVED, ZINC COATED, SINGLE STRIP TYPE. FITTINGS SHALL BE AS MANUFACTURED BY THOMAS AND BETTS "TITE-BITE", STRAIGHT OR ANGLE CONNECTORS OR APPROVED EQUAL.

H. LIQUIDTIGHT FLEXIBLE METAL CONDUIT

- 1. DESCRIPTION: INTERLOCKED STEEL CONSTRUCTION WITH PVC JACKET.
- 2. FITTINGS: ANSI/NEMA FB 1.
- 3. FLEXIBLE CONDUIT IN DAMP OR WET LOCATIONS SHALL BE UNDERWRITERS' APPROVED FLEXIBLE, LIQUID-TIGHT METAL CONDUIT. FITTINGS SHALL BE AS MANUFACTURED BY APPLETON, CROUSE-HINDS OR THOMAS AND BETTS.

ELECTRICAL METALLIC TUBING (EMT)

- 1. DESCRIPTION: ANSI C80.3; GALVANIZED TUBING.
- 2. FITTINGS AND CONDUIT BODIES: ANSI/NEMA FB 1; STEEL SET SCREW OR STEEL COMPRESSION COUPLING OR CONNECTORS. ALL CONNECTORS SHALL BE INSULATED THROAT, UP TO ONE INCH.
- 3. THIN WALL CONDUIT SHALL BE UNDERWRITERS' APPROVED GALVANIZED ELECTRICAL METALLIC TUBING. COUPLINGS AND CONNECTORS FOR CONDUIT SHALL BE STEEL HEX-NUT, ZINC OR CADMIUM PLATED SET SCREW TYPE FITTING

NONMETALLIC CONDUIT

- 1. DESCRIPTION: NEMA TC 2; SCHEDULE 40 PVC.
- 2. FITTINGS AND CONDUIT BODIES: NEMA TC 3.

1. MC CABLE MAY BE USED WHERE CONCEALED IN WALLS. SECURE IN NO MORE THAN 3' INTERVALS AND WITHIN 6" OF OUTLET.

UNDERGROUND SERVICE CONDUITS/RACEWAY ENTERING THE BUILDING OR STRUCTURE FROM OUTSIDE SHALL BE SEALED, INCLUDING SPARE CONDUITS. SEALANT SHALL BE SUITABLE FOR THIS

M. ALL UNDERGROUND PVC CONDUIT RUNS SHALL HAVE RIGID STEEL ELBOWS AND RIGID SECTIONS AT SLAB PENETRATIONS WHERE SUBJECT TO POSSIBLE DAMAGE.

N. ALL CONDUITS SHALL BE PROPERLY ALIGNED. GROUPED AND SUPPORTED. EXPOSED CONDUIT SHALL BE INSTALLED AT RIGHT ANGLES TO OR PARALLEL TO THE PRINCIPAL STRUCTURAL MEMBERS. ALL CONDUITS SHALL BE SUPPORTED AT INTERVALS NOT EXCEEDING 8 FEET. PROVIDE SUPPORT A MINIMUM OF 18" FROM BENDS AND OUTLET BOXES AND ON INTERVALS NOT TO EXCEED 8'-0". CONDUIT IS NOT TO SPAN ANY SPACE UNSUPPORTED. ALL CONDUITS SHALL BE SUPPORTED FROM STRUCTURE AND NOT FROM CEILING SUPPORT SYSTEM.

O. PROVIDE NYLON PULL CORD AND LEAVE IN PLACE IN EACH EMPTY CONDUIT. LABEL EACH END OF THE PULL CORD WITH LOCATION OF THE OPPOSITE END.

A. ALL BOXES SHALL BE RIGIDLY MOUNTED AND SHALL BE EQUIPPED WITH SUITABLE SCREW FASTENED COVERS. OPEN KNOCK-OUTS OR HOLES IN BOXES SHALL BE PLUGGED WITH A SUITABLE BLANKING DEVICE.

B. OUTLET BOXES FOR EXPOSED WALL MOUNTING, AND OUTDOOR INSTALLATIONS SHALL BE CAST WITH THREADED HUB TYPE WITH SUITABLE COVERS. WEATHERPROOF RECEPTACLE COVERS SHALL BE "IN USE" TYPE AND HAVE METAL SPRING HINGE LIDS.

<u>CONDUCTORS</u>

A. UNLESS OTHERWISE INDICATED, ALL BRANCH CIRCUIT CONDUCTORS SHALL BE #12 AWG. BRANCH CIRCUITS RUN OVER 75 FEET IN LENGTH. MEASURING ONE WAY FROM THE FIRST OUTLET OF THE CIRCUIT TO THE PANEL, SHALL BE #10 AWG FOR THE ENTIRE CIRCUIT.

B. SPLICES, TAPS AND ATTACHMENT FITTINGS AND LUGS SHALL BE ELECTRICALLY AND MECHANICALLY SECURE AND SOLDERLESS FOR CONDUCTORS SIZES #8 AWG AND LARGER. THERE SHALL BE PLENTY OF SLACK CABLE IN BOXES, OUTLETS AND CABINETS TO INSURE THAT THERE NO BINDING AT THE BUSHINGS. ALL LUGS SHALL BE OF THE CORRECT SIZES FOR TH CONDUCTORS JOINED AND IN NO CASE SHALL STRANDS BE CUT FROM A CONDUCTOR IN ORDER TO FIT THE CONDUCTOR INTO A LUG. TAPING OF JOINTS SHALL BE WITH VINYL PLASTIC ELECTRICAL TAPE TO SECURE INSULATION STRENGTH EQUAL TO THAT OF THE CONDUCTORS JOINED.

C. ALL CONDUCTORS SHALL BE COPPER. CONDUCTOR INSULATION SHALL BE DUAL TYP THHN/THWN 75° C. (167°F.) FOR DRY, DAMP & WET LOCATIONS. CONDUCTOR INSULATION WITH SINGLE TYPE MARKING THHN 90° C. (194° F.) MAY BE USED FOR DRY LOCATIONS ONLY. AL CONDUCTORS SHALL BE COLOR CODED AS REQUIRED BY NEC AND FURTHER IDENTIFIED AND CODED AS SPECIFIED HEREINAFTER. COLOR CODING SHALL BE BY MEANS OF COLORED INSULATING MATERIAL, COLORED BRAID OR JACKET OVER THE INSULATION OR BY MEANS OF SUITABLE COLORED, PERMANENT, NON-AGING, INSULATING TAPE APPLIED TO CONDUCTORS AT EACH CABINET OR JUNCTION POINT. THE COLOR CODING SHALL BE ACCOMPLISHED AS TH

CONDUCTORS ARE INSTALLED. THE FOLLOWING SYSTEMS OF COLOR CODING SHALL BE STRICTL ADHERED TO:

ISOLATED GROUND LEADS: GREEN AND YELLOW.

- 2. GROUND LEADS: GREEN
- 3. GROUNDED NEUTRAL LEADS: WHITE
- 4. 120/240 VOLT, UNGROUNDED PHASE WIRES: BLACK AND RED.

THE COLOR CODE ASSIGNED TO EACH PHASE WIRE SHALL BE CONSISTENTLY FOLLOWED THROUGHOUT. NOTE: WHERE EXISTING BASE BUILDING COLOR CODING DIFFERS FROM COLOR CODING ASSIGNED HERE-IN. CONTRACTOR SHALL USE EXISTING COLOR CODING AS REQUIRED TO MAINTAIN CONSISTENCY. ADVISE ENGINEER (IN WRITING) OF COLOR CODING TO BE USED.

D. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH MECHANICAL CONTRACTOR AND MAKE ALL REQUIRED CONNECTIONS TO SERVE MECHANICAL EQUIPMENT FURNISHED.

ALL CONDUITS AND WIRING PENETRATING RATED FLOORS, CEILINGS AND WALLS SHALL SEALED TO MAINTAIN FIRE RATING AND INTEGRITY OF SEPARATION. PENETRATION SHALL BE PER UI ASSEMBLY STANDARDS.

F. WHEN MAIN ELECTRICAL SERVICE CONDUCTOR HAS A WIREWAY, E.C. SHALL TAP OFF ALL SERVICE ENTRANCE FEEDERS (PARALLEL CONDUCTORS) FOR TOTAL AMPACITY & BALANCING.

a. The interior electrical systems shall be completely and effectively grounded $^{\prime}$ REQUIRED BY THE NEC AND AS SPECIFIED HEREINAFTER.

B. ALL METALLIC RACEWAYS SHALL BE MECHANICALLY AND ELECTRICALLY SECURE AT ALL JOINTS AND AT ALL BOXES, CABINETS, FITTINGS, AND EQUIPMENT. METALLIC RACEWAYS SHALL B CONNECTED TO A DIRECT GROUND AT THE POINT OF ELECTRICAL SERVICE ENTRANCE AND SHALL BE ELECTRICALLY CONTINUOUS THROUGHOUT THE ENTIRE SYSTEM.

C. ALL GROUND CONDUCTORS SHALL BE INSULATED COPPER UNLESS OTHERWISE NOTED.

D. ALL RACEWAYS WITH #10 OR 12 AWG PHASE CONDUCTORS FOR RECEPTACLES, LIGHTING FIXTURES AND SIMILAR CIRCUITS (NEW BRANCH CIRCUITS) SHALL BE PROVIDED WITH A PARITY SIZED GREEN EQUIPMENT GROUND CONDUCTOR. GROUND CONDUCTOR SHALL BE INSTALLED I ENTIRE RACEWAY SYSTEM INCLUDING WALL SWITCHES AND FLEXIBLE CONDUIT TO LIGHT FIXTURES. EQUIPMENT GROUND CONDUCTOR SIZES FOR CIRCUITS WITH PHASE CONDUCTORS LARGER THAN #10 AWG ARE INDICATED ON DRAWINGS. GROUND CONDUCTORS SHALL BE CONNECTED TO GROUND BUS IN PANELBOARDS.

TERMINATE FEEDER AND BRANCH CIRCUIT INSULATED EQUIPMENT GROUNDING CONDUCTORS WITH GROUNDING LUG, BUS, OR BUSHING. CONDUCTORS LOOPED UNDER SCREW OR BOLT HEADS WILL NOT BE PERMITTED.

INSTALL CLAMP-ON CONNECTORS ON CLEAN METAL CONTACT SURFACES TO ENSURE ELECTRICAL CONDUCTIVITY AND CIRCUIT INTEGRITY.

G. PROVIDE GROUNDING BUSHING AND A CONTINUOUS COPPER BONDING JUMPER FROM THE BUSHING TO THE EQUIPMENT GROUND BUS IN ALL FEEDERS. THE BONDING JUMPER SHALL BE THE SAME SIZE AS THE EQUIPMENT GROUND CONDUCTOR.

H. GROUND SHALL BE 5/8" DIAMETER, TEN (10) FEET LONG COPPER-CLAD STEEL. OBTAIN TWENTY FIVE (25) OHMS MAXIMUM RESISTANCE AS READ WITH AN OHM METER, USING TWO REFERENCE RODS. IF TWENTY FIVE (25) OHMS CANNOT BE ACHIEVED. CONTRACTOR SHALL PROVIDE ADDITIONAL RODS, UNTIL TWENTY FIVE FIVE (25) HAS BEEN OBTAIN.

CIRCUIT PROTECTIVE DEVICES

GENERAL:

- 1. UNLESS OTHERWISE INDICATED, PROTECTIVE DEVICES SHALL BE MOUNTED WITH TOP OF CABINET OR ENCLOSURE 6'- 6" ABOVE FINISHED FLOOR, SHALL BE PROPERLY ALIGNED. AND SHALL BE ADEQUATELY SUPPORTED INDEPENDENTLY OF THE CONNECTING RACEWAYS. ALL STEEL SHAPES, ETC., NECESSARY FOR THE SUPPORT OF THE EQUIPMENT SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. UNLESS OTHERWISE INDICATED, ALL BRANCH CIRCUIT PROTECTIVE DEVICES ENCLOSURES SHALL BE NEMA TYPE I. GENERAL PURPOSE TYPE. CIRCUIT PROTECTIVE DEVICES INSTALLED OUTDOORS OR EXPOSED TO THE WEATHER SHALL HAVE WEATHERPROOF ENCLOSURES, NEMA TYPE 4X STAINLESS STEEL
- 2. INSTALL DISCONNECT SWITCHES FOR USE WITH MOTOR-DRIVEN APPLIANCES, AND MOTORS AND CONTROLLERS WITHIN SIGHT OF CONTROLLER POSITION UNLESS OTHERWISE

SAFETY SWITCHES:

1. ALL SAFETY SWITCHES SHALL BE HEAVY DUTY TYPE. SWITCH MECHANISM SHALL BE QUICK-MAKE, QUICK-BREAK. COVER SHALL BE INTERLOCKED WITH MECHANISM TO PREVENT OPENING UNLESS SWITCH IS IN THE "OFF" POSITION. ALL ENCLOSURES SHALL BE PRIMED AND FINISHED TO RESIST RUSTING AND CORROSION. SWITCHES SHALL BE ITE, GENERAL ELECTRIC, SQUARE—D, OR CUTLER—HAMMER. (MATCH BUILDING STANDARD WHERE APPLICABLE)

FUSES:

- 1. ALL FUSES FOR SWITCHES SHALL BE DUAL ELEMENT, CARTRIDGE TYPE. FUSES SHALL BE BUSSMAN "FUSETRON" OR CHASE SHAWMUT "TRIONIC". THE CONTRACTOR SHALL FURNISH AND INSTALL PROPER SIZE FUSES WHERE REQUIRED FOR ALL FUSIBLE EQUIPMENT AND SHALL FURNISH TO THE OWNER A DUPLICATE CARTRIDGE FOR EACH FUSE TYPE INSTALLED.
- 2. FUSES FOR HVAC EQUIPMENT (ROOF TOP UNITS, CONDENSING AND AIR HANDLING UNITS SHALL BE RK5 TYPE, TYPICAL UNLESS OTHERWISE NOTED. CONFIRM WITH HVAC EQUIPMENT NAME PLATE FOR SPECIFIC FUSE REQUIREMENTS.

PANELBOARDS:

PANELBOARDS SHALL BE CONNECTED DISTRIBUTED PHASE WITH CIRCUIT NUMBERING A INDICATED ON THE DRAWINGS. PANELBOARDS SHALL HAVE CIRCUIT DIRECTORY CARDS AND SHALI BE COMPLETED WITH A TYPEWRITER BY THE CONTRACTOR TO INDICATE NEW AND EXISTING AREAS AND/OR DEVICES SERVED BY EACH CIRCUIT.

B. CIRCUIT BREAKERS FOR MOUNTING IN NEW PANELBOARDS OR DISTRIBUTION SECTION OF SWITCHBOARD SHALL BE MOLDED PLASTIC CASE, AIR CIRCUIT BREAKER TYPE. BREAKERS SHALL

HAVE THERMAL-MAGNETIC TRIP UNITS AND MULTI-POLE BREAKERS SHALL HAVE A COMMON TR BAR SO THAT THE TRIPPING OF ONE POLE WILL AUTOMATICALLY TRIP ALL POLES OF TH BREAKER. BREAKERS SHALL BE TRIP FREE AND TRIP-INDICATING AND SHALL HAVE QUICK-MAKE, QUICK BREAK CONTACTS.

C. PANELBOARDS SHALL BE INSTALLED COMPLETE WITH CONNECTORS AND ASSOCIATED HARDWARI FOR ALL CIRCUIT BREAKERS AND SPACES LISTED IN THE PANELBOARD SCHEDULE.

D. PANELBOARDS TO BE DEADFRONT TYPE, WITH ALUMINMUM/COPPER BUS BARS, WITH BOLT-ON TYPE BRANCH CIRCUIT BREAKERS EQUAL TO SQUARE-D TYPE NQOD, NF, OR I-LINE A APPLICABLE. ALL CIRCUIT BREAKERS SHALL BE CONCEALED BEHIND A HINGED, LOCKABLE DOOF

E. ALL PANELBOARDS TO BE IDENTIFIED WITH ENGRAVED PLASTIC LAMINATE SIGNS. COORDINAT NAMES USED FOR IDENTIFICATION WITH CORRESPONDING DESIGNATIONS SHOWN, SPECIFIED OI SCHEDULED. FASTEN WITH SELF TAPPING STAINLESS STEEL SCREWS, OR CONTACT TY PANEL NAME, LOCATION, FEEDER, VOLTAGE, PHASE, WIRES, AND AMPERAGE.

F. INSTALL PANELBOARDS AND ENCLOSURES AS INDICATED, IN ACCORDANCE WIT MANUFACTURER'S WRITTEN INSTRUCTIONS, APPLICABLE REQUIREMENTS OF NEC STANDARDS AND NECA'S "STANDARDS OF INSTALLATION", AND IN COMPLIANCE WITH RECOGNIZED INDUSTRY

G. PANEL LOAD DATA IS BASED ON INFORMATION GIVEN TO ENGINEER AT THE TIME OF DESIGN

H. TYPEWRITTEN CIRCUIT PANEL DIRECTORY SHALL BE PROVIDED INSIDE OF EACH PANELBOARI DOOR. CLEARLY IDENTIFY AREA AND TYPE OF LOAD SERVED BY EACH BRANCH CIRCUIT PROTECTIVI

A. ALL RECEPTACLES SHALL BE THE GROUNDING TYPE WITH GROUND CONNECTION MADE THROUGH

B. RECEPTACLES FOR 20 AMPERE, 120V SERVICE SHALL BE THREE-WIRE, TWO PO RECEPTACLES RATED 20 AMPERES AT 120 VOLTS. 15 AMPERE RECEPTACLES WILL BE ACCEPTABLI ON MULTI-OUTLET CIRCUITS. ALL NEW RECEPTACLES SHALL BE THAT OF LEVITON OR HUBBEL OR PRE-APPROVED EQUAL.

C. WALLPLATES: PROVIDE WALLPLATES FOR SINGLE AND COMBINATION WIRING DEVICES, OF TYPES SIZES, AND WITH GANGING AND CUTOUTS AS INDICATED. SELECT PLATES WHICH MATE AND MATCH WIRING DEVICES TO WHICH ATTACHED. CONSTRUCT WITH METAL SCREWS FOR SECURING PLATES 1 DEVICES; SCREW HEADS COLORED TO MATCH FINISH OF PLATES, WALLPLATES COLORED TO MATCH WIRING DEVICES AND ADJACENT WALL SURFACES. PROVIDE STAINLESS STEEL PLATES IN BREAK ROOM, FOOD SERVICE AND COUNTER AREAS.

D. ELECTRICAL CONTRACTOR SHALL CONFIRM RECEPTACLE CONFIGURATION, VOLTAGE, PHASE ANI AMPERAGE FOR ALL EQUIPMENT FURNISHED AND INSTALLED FOR THIS WORK. ADVICE ENGINEER I

ALL REQUIRED DEVICES SHALL MATCH IN COLOR AND STYLE.

A. THE CONTRACTOR SHALL FURNISH AND INSTALL, COMPLETE IN ALL RESPECTS, ALL LIGHTING FIXTURES SHOWN ON THE PLANS.

B. SHOP DRAWINGS: SUBMIT FIXTURE SHOP DRAWINGS MINIMUM (6) COPIES IN BOOKLET FORM WITH SEPARATE SHEET FOR EACH FIXTURE ASSEMBLED IN "LUMINAIRE TYPE" ALPHABETICAL O NUMERICAL ORDER, WITH PROPOSED FIXTURE, LIGHTING PHOTOMETRIC, INPUT WATTS, ANI ACCESSORIES CLEARLY INDICATED ON EACH SHEET, SUBMIT DETAILS INDICATING COMPATIBILITY WITH CEILING GRID SYSTEM.

OTIC TYPE (265MA) LAMPS. THE TOTAL HARMONIC DISTORTION (%THD) SHALL BE LESS THAN 10 POWER FACTOR SHALL BE .95 OR HIGHER. ELECTRONIC BALLASTS FOR FLUORESCENT LAMP! SHALL BE OSRAM SYLVANIA, QUICKTRONIC. ALL BALLASTS SHALL BE INDIVIDUALLY FUSED ON TH LINE SIDE OF THE BALLAST. ALL BALLASTS SHALL BE ENERGY SAVING, HIGH POWER FACTOR TYPE AND SHALL BEAR ETL/CBM AND UL LABELS.

D. T-8 AND T-5 FLUORESCENT, COMPACT FLUORESCENT LAMPS SHALL BE AS SPECIFIED OI LIGHTING FIXTURE SCHEDULE OR AS NOTED. INCANDESCENT LAMPS SHALL BE 120V. GENERA PURPOSE TYPE. UNLESS OTHERWISE NOTED ALL LAMPS SHALL BE TCLP COMPLIANT AND MANUFACTURED BY OSRAM SYLVANIA. U-SHAPED LAMPS SHALL HAVE 6" SPACING BETWEEN ENDS

E. ALL FIXTURES SHALL BE PROPERLY AND CAREFULLY SUPPORTED AND ALIGNED, AND TI CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY STEEL SHAPES, ETC., FOR SUPPOR OF FIXTURES AS REQUIRED AND DETAILED ON THE DRAWINGS. LIGHTING FIXTURES SHALL BE CLEAN AND NON-OPERATING LAMPS REPLACED WITH NEW LAMPS AT THE TIME OF FINAL INSPECTION.

F. LED FIXTURES SHALL BE FURNISHED TO MATCH THE REQUIREMENTS FOR THE PARTICULAR APPLICATION. COLOR (CRI) SHALL BE 3500K, 4100K OR AS DIRECTED. LED LIGHT INTENSITY SHALL BE MINIMUM OF 20MA AND POSSESS AT LEAST L70% LUMEN MAINTENANCE FACTOR (LES THAN 30% REDUCTION IN LIGHT OUTPUT OVER 50,000HR LIFE). PARTICULAR ATTENTION SHOULD B PAID TO LUMEN OUTPUT OF THE FIXTURE BEING SUBSTITUTED, WHICH SHOULD NOT BE LESS THAN THE FLUORESCENT FIXTURE IT REPLACES. ATTENTION SHOULD BE PAID TO OUTPUT PATTERN A WELL.

INSTALLED ON THE FRONT PANELBOARD COVER.

PERMANENT ADHESIVE WHERE SCREWS CAN NOT OR SHOULD NOT PENETRATE SUBSTRATE. INDICATI

PRACTICES TO ENSURE THAT PRODUCTS FULFILL REQUIREMENTS.

VERIFY ALL EQUIPMENT NAMEPLATE RATING BEFORE ORDERING.

DEVICE, INCLUDING SPARES. HAND PRINTED WILL NOT BE ACCEPTED

THE PANEL BREAKERS SHALL BE FULLY RATED. SERIES RATING IS NOT ACCEPTABLE.

AN EXTRA POLE WHICH SHALL BE PERMANENTLY CONNECTED TO GROUND CONDUCTOR.

COLOR OF DEVICES AND PLATES SHALL BE DICTATED BY ARCHITECT AND OWNER.

MOTOR STARTERS:

A. MANUAL MOTOR STARTERS FOR 115V, 1Ø MOTORS (1) HORSEPOWER AND SMALLER, SHALL I SINGLE POLE. HORSEPOWER RATED SWITCHES WITH THERMAL OVERLOAD UNITS AND HEATERS STARTERS SHALL BE SQUARE-D CLASS 2510. WITH STAINLESS STEEL COVER PLATES.

<u>LIGHTING FIXTURES:</u>

C. BALLASTS FOR FLUORESCENT LAMPS SHALL BE HIGH FREQUENCY ELECTRONIC FOR USE WITI

Date: 1. 24. 20

Sheet

REVISIONS

Scale: **AS NOTED**

Project Mar: **DG**

Job: **19-142**

Drawn: HH

ELECTRICAL SPECIFICATIONS SCALE: N.T.S