LIGHTING FIXTURE SCHEDULE

ALL LIGHTING FIXTURES ARE SUPPLIED BY CIRCLE K, INSTALLED BY THE ELECTRICAL CONTRACTOR

TYPE	ITEM TYPE	DESCRIPTION	MANUFACTURER	MODEL	LAMP	WATTS	VOLTAGE	COMMENTS	COUNT
A	INTERIOR LIGHTING	2'x4' H.E. TROFFER	CREE	RLA-FLX24-50L-940-CRV-10V10-UNV	LED	41 W	120 V		28
AE	INTERIOR LIGHTING	2'x4' H.E. TROFFER WITH BATTERY	CREE	RLA-FLX24-50L-940-CRV-10V10-UNV-EB	LED	41 W	120 V	WITH EMERGENCY BALLAST	6
B	INTERIOR LIGHTING	6" RECESSED DOWNLIGHT	CREE	RLA-LR6X-18L-40K	LED	21 W	120 V		17
C	INTERIOR LIGHTING	2'x2' H.E. TROFFER	CREE	RLA-FLX22-40L-940-CRV-10V10-UNV	LED	33 W	120 V		10
CE	INTERIOR LIGHTING	2'x2' H.E. TROFFER WITH BATTERY	CREE	RLA-FLX22-40L-940-CRV-10V10-UNV-EB	LED	33 W	120 V	WITH EMERGENCY BALLAST	2
J	INTERIOR LIGHTING	8' LED LINEAR FIXTURE	CREE	RLA -LS8-120L-950-R-UL-10V	LED	92 W	120 V		2
A2	EXTERIOR SITE LIGHTING	SINGLE MEDIUM EXTERIOR POLE FIXTURE	CREE	OSQ-ML-C-XX-XX + OSQM-C-16L-57K7-2M-UL-NM-XX	LED	97 W	120 V		3
A3	EXTERIOR SITE LIGHTING	SINGLE MEDIUM EXTERIOR POLE FIXTURE	CREE	OSQ-ML-C-XX-XX + OSQM-C-16L-57K7-3M-UL-NM-XX	LED	97 W	120 V		2
A3B	EXTERIOR SITE LIGHTING	SINGLE MEDIUM EXTERIOR POLE FIXTURE	CREE	OSQ-ML-C-XX-XX + OSQM-C-16L-57K7-3B-UL-NM-XX	LED	97 W	120 V		7
A4-2	EXTERIOR SITE LIGHTING	SINGLE MEDIUM EXTERIOR POLE FIXTURE	CREE	OSQ-ML-C-XX-XX + OSQM-C-16L-57K7-4M-UL-NM-XX	LED	97 W	120 V		1
A4B	EXTERIOR SITE LIGHTING	SINGLE MEDIUM EXTERIOR POLE FIXTURE	CREE	OSQ-ML-C-XX-XX + OSQM-C-16L-57K7-4B-UL-NM-XX	LED	97 W	120 V		4
INV	EXTERIOR SITE LIGHTING	EMERGENCY BATTERY BACKUP FOR EXT LIGHTS - 90 MIN	DUAL-LITE	LGY2S11AO	LED	21 W	120 V		1
L	EXTERIOR SITE LIGHTING	64" 24-VOLT LED TAPE	GETC	FLEXPOD 64" CUSTOM CUT	LED	44 W		B-QBSS1A-09624-HE QUICKBOX SLIM POWER SUPPLY	9
WP3	EXTERIOR SITE LIGHTING	EXT. WALL PACK ("EM" - INVERTER BACK-UP)	CREE	XSPW-B-WM-4ME-6L-40K-UL-XX	LED	47 W	120 V		3
WP4	EXTERIOR SITE LIGHTING	EXT. WALL PACK ("EM" - INVERTER BACK-UP)	CREE	XSPW-B-WM-4ME-8L-40K-UL-XX	LED	71 W	120 V		4
EM	EMERGENCY LIGHTING	LED EMERGENCY DUAL HEAD	LIGHTALARMS	RLA-LCA-2LED	LED	12 W	120 V		2
EX	EMERGENCY LIGHTING	LED EXIT SIGN / EMERGENCY LIGHT COMBO	LIGHTALARMS	RLA-UQLXN500X-2LED	LED	12 W	120 V		3
W	EMERGENCY LIGHTING	WET-LISTED EMERGENCY REMOTE DUAL HEAD	THOMAS & BETTS DORVAL, QUEBEC	CAM-SD-XX	LED	10 W	120 V	(2) 1W HEADS GRAY FINISH	1
CAN	CANOPY LIGHTING	CANOPY LIGHT	CREE	CPY250-C-13L-57K7-F-UL-DM-XX	LED	86 W	208 V	CANOPY LIGHT	28

1 1

ELECTRICAL SYMBOLS LEGEND

(SYMBOLS APPLY ONLY WHEN USED ON DRAWINGS)

SYMBOL	DESCRIPTION
	LIGHT FIXTURE (WALL MOUNTED/CEILING MOUNTED)
	LIGHT FIXTURE
	LIGHT FIXTURE, NIGHT LIGHT
	EXIT SIGN, WITHOUT OR WITH INTEGRATED EMERGENCY LIGHTING (WALL MOUNTED/CEILING MOUNTED)
	EMERGENCY LIGHT (WALL MOUNTED/CEILING MOUNTED)
INV	EMERGENCY POWER INVERTER
PE	CEILING MOUNTED LINE VOLTAGE PHOTOCELL SENSOR, LEVITON "PCCSD-W" OR EQUAL.
	CEILING MOUNTED ULTRASONIC OCCUPANCY SENSOR, LEVITON ODC05-MDW OR EQUAL.
$	STANDARD 20A, SINGLE PHASE SPST TOGGLE SWITCH
$3	3-WAY SWITCH
$K	KEYED SWITCH
$D	DIMMER SWITCH, SINGLE PHASE SLIDING TYPE SWITCH. LUTRON "NOVA-T" SERIES OR APPROVED EQUAL. PROVIDE SEPARATE NEUTRAL FOR EACH DIMMER CIRCUIT.
$M	MANUAL MOTOR SWITCH
$OS	SINGLE POLE OCCUPANCY SENSOR SWITCH
$OS2	DOUBLE POLE OCCUPANCY SENSOR SWITCH
	STANDARD 20A, 120V 1PH GROUNDING TYPE SIMPLEX RECEPTACLE
	STANDARD 20A, 120V 1PH GROUNDING TYPE DUPLEX RECEPTACLE
	STANDARD 20A, 120V 1PH GROUNDING TYPE QUADRUPLEX RECEPTACLE
	STANDARD 20A, 120V 1PH GROUNDING "GROUND FAULT INTERRUPTER" GFI RECEPTACLE
	STANDARD 20A, 120V 1PH ISOLATED GROUND TYPE DUPLEX RECEPTACLE, ORANGE IN COLOR
	STANDARD 20A, 120V 1PH GROUNDING TYPE DUPLEX RECEPTACLE MOUNTED IN FLUSH FLOOR OUTLET BOX
	STANDARD 20A, 120V 1PH GROUNDING TYPE QUADRUPLEX RECEPTACLE MOUNTED IN FLUSH FLOOR OUTLET BOX
	SPECIAL RECEPTACLE - VERIFY NEMA CONFIGURATION WITH INSTALLED EQUIPMENT MANUFACTURER REQUIREMENTS.
J	JUNCTION BOX. SIZED BY THE CONTRACTOR PER ACTUAL NUMBER OF CONDUITS AND / OR CONDUICTORS PASSING THROUGH. (WALL MOUNTED/CEILING MOUNTED)
	CEILING MOUNTED RECEPTACLE, STANDARD 20A, 120V 1PH GROUNDING TYPE DUPLEX RECEPTACLE
	DISCONNECT SWITCH, AMPS, POLES AND FUSE SIZE AS SHOWN (FUSE SIZE CALLED OUT IF REQUIRED)
	FLUSH MOUNTED PANELBOARD, REFERENCE PANEL SCHEDULE FOR RATINGS AND COMPONENTS
	SURFACE MOUNTED PANELBOARD, REFERENCE PANEL SCHEDULE FOR RATINGS AND COMPONENTS
SD / SD	SMOKE DETECTOR / DUCT SMOKE DETECTOR
110cd	HORN / STROBE, CANDELA AS INDICATED, COORDINATE WITH FIRE ALARM PLANS
	TELEPHONE OUTLET WITH (2) RJ45 PORTS U.O.N., PROVIDE 3/4"C TO ACCESSIBLE CEILING SPACE OR AS OTHERWISE INDICATED
	DATA OUTLET WITH (2) RJ45 PORTS U.O.N., PROVIDE 3/4"C TO ACCESSIBLE CEILING SPACE OR AS OTHERWISE INDICATED
	COMBINATION TELEPHONE / DATA OUTLET WITH (4) RJ45 PORTS U.O.N., PROVIDE (2) 3/4"C TO ACCESSIBLE CEILING SPACE OR AS OTHERWISE INDICATED
	SECURITY CAMERA BY OTHERS.

ABBREVIATIONS

a, b, c	LOWER CASE LETTERS INDICATE SWITCHING CONFIGURATION	LCU	LIGHTING CONTROL UNIT
AFF	ABOVE FINISHED FLOOR	NTS	NOT TO SCALE
AFG	ABOVE FINISHED GRADE	REC	REFRIGERATION
C	CONDUIT		ELECTRICAL CONTRACTOR
CCT	CIRCUIT		
CF	CEILING FAN	RC	REFRIGERATION CONTRACTOR
CW	CASH WRAP		
EC	ELECTRICAL CONTRACTOR	RH	RADIANT HEATER
EF	EXHAUST FAN	SC	SECURITY CAMERA
ETR	EXISTING TO REMAIN	TR	TAMPER RESISTANT
EWC	ELECTRIC WATER COOLER	TYP	TYPICAL
G	GROUND	UH	UNIT HEATER
GFEP	GROUND FAULT EQUIPMENT PROTECTION	UNO	UNLESS NOTED OTHERWISE
GFI	GROUND FAULT CIRCUIT INTERRUPTER	WH	WATER HEATER
IG	ISOLATED GROUND	WP	WEATHER PROOF
		WR	WEATHER RESISTANT

CODE COMPLIANCE INFORMATION

2020 NORTH CAROLINA ELECTRICAL CODE
2018 NORTH CAROLINA BUILDING CODE
2018 NORTH CAROLINA FUEL GAS CODE
2018 NORTH CAROLINA FIRE CODE
2018 NORTH CAROLINA ENERGY CONSERVATION CODE

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DESIGNED BY: LHO

REVISION

△	ISSUE	DATE
	OTP	02/15/23
1	OTB	01/05/24

NORTH CAROLINA PROFESSIONAL SEAL 036972 ENGINEER JASON C. ADAMS

Feb 15, 2023

PROFESSIONAL IN
JCA

PROJECT
SAG

QUALITY
SAG

DRAWN
LHO

PROJECT

CIRCLE K STORES, INC.

ANGIER, NC

9706 KENNEBEC CHURCH ROAD,
ANGIER, NC

PROTOCYCLE# R1.2 12/XX/22

CIRCLE K STORE

PROJECT NUMBER: 22130

ELECTRICAL COVER SHEET AND LEGEND

E0.0

1. SECTION 16010 - BASIC ELECTRICAL REQUIREMENTS

A. THE WORK OF EACH OF THE ELECTRICAL SECTIONS INCLUDES FURNISHING AND INSTALLING THE MATERIAL, EQUIPMENT, AND SYSTEMS COMPLETE AS SPECIFIED AND/OR INDICATED ON THE DRAWINGS. THE ELECTRICAL INSTALLATIONS, WHEN FINISHED, SHALL BE COMPLETE AND COORDINATED, READY FOR SATISFACTORY SERVICE.

B. THE WORK UNDER THIS CONTRACT SHALL BE DONE IN STRICT ACCORDANCE WITH ALL APPLICABLE MUNICIPAL, STATE AND OTHER LOCAL CODES, THE 2020 EDITION OF THE NATIONAL ELECTRICAL CODE AND THE 2010 ADA STANDARDS.

C. THE CONTRACTOR SHALL MAKE APPLICATION AND PAY FOR ALL PERMITS, LICENSES AND INSPECTIONS AS REQUIRED UNDER THE ABOVE CODES.

D. THE GENERAL ARRANGEMENT OF CONDUIT, WIRING AND EQUIPMENT SHALL BE AS IDENTIFIED ON THE CONTRACT DRAWINGS. THE CONTRACTOR SHALL CAREFULLY INVESTIGATE THE SITE, STRUCTURAL, AND FINISH CONDITIONS AFFECTING HIS WORK AND SHALL ARRANGE SUCH WORK ACCORDINGLY, PROVIDING SUCH FITTINGS AND ACCESSORIES AS MAY BE REQUIRED TO MEET SUCH CONDITIONS.

E. THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND SERVICES NECESSARY FOR AND REASONABLY INCIDENTAL TO THE COMPLETE INSTALLATION OF THE ELECTRICAL WORK AND RELATED SYSTEMS AS INDICATED ON THE DRAWINGS OR AS NECESSARY TO PROVIDE A COMPLETE SYSTEM.

F. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY TEMPORARY WIRING, LIGHTING AND CONSTRUCTION POWER FOR ALL TRADES AS REQUIRED TO COMPLETE THE PROJECT.

G. ALL MATERIALS AND EQUIPMENT SHALL BE INSTALLED AND COMPLETED IN A FIRST CLASS WORKMANLIKE MANNER. ALL MATERIALS SHALL BE NEW AND THE BEST OF THEIR RESPECTIVE KINDS. ALL EQUIPMENT AND SYSTEMS SHALL BE APPROVED BY UL OR SIMILAR NATIONALLY ACCEPTED TESTING AGENCY SUCH AS ETL TESTING LABORATORIES.

H. THE CONTRACTOR SHALL VISIT THE SITE AND OBSERVE THE CONDITIONS UNDER WHICH THE WORK SHALL BE COMPLETED. NO ALLOWANCE WILL BE MADE SUBSEQUENTLY IN THIS CONTRACT FOR ANY ERROR OR NEGLIGENCE IN THE CONTRACTOR'S PART.

I. THE CONTRACTOR SHALL SUBMIT DETAILED DIMENSIONED SHOP DRAWINGS, TOGETHER WITH WIRING DIAGRAMS, SPECIFICATIONS, OPERATING DATA, AND/OR CATALOG CUTS FOR ALL EQUIPMENT.

J. A THOROUGH TEST SHALL BE MADE PRIOR TO ENERGIZING THE SYSTEM TO DEMONSTRATE THAT THE SYSTEM IS ENTIRELY FREE FROM GROUND FAULTS, SHORT CIRCUITS, AND OPEN CIRCUITS; THAT THE RESISTANCE TO GROUND OF ALL NON-GROUNDED CIRCUITS, BEFORE AND AFTER CONNECTION OF EQUIPMENT MEETS THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND IEEE STANDARDS/RECOMMENDATIONS.

K. IDENTIFY ALL MOTOR STARTERS, SWITCHES, CONTROLS, PANELBOARDS, SWITCHBOARDS, TERMINAL BOARDS, CONTROL CENTERS AND OTHER EQUIPMENT. IDENTIFICATION PLATES SHALL BE LAMINATED PLASTIC, BLACK AND WHITE ENGRAVED LETTERS. LETTERING FOR CONTROL CENTERS, CONTROL PANELS, METERING AND INSTRUMENT PANELS SHALL BE 3/8" HIGH.

L. THE MATERIAL AND WORKMANSHIP OF ALL PARTS OF THE ELECTRICAL INSTALLATION SPECIFIED HEREIN SHALL BE GUARANTEED UNCONDITIONALLY FOR A PERIOD OF ONE (1) YEAR FROM DATE OF FINAL CERTIFICATE OF OCCUPANCY OR GRAND OPENING, WHICH EVER COMES FIRST.

M. UPON COMPLETION OF THE ELECTRICAL INSTALLATION, THE CONTRACTOR SHALL DELIVER TO THE OWNER ONE SET OF SCANNED DIGITAL PRINTS OF ELECTRICAL CONTRACT DRAWINGS WHICH SHALL BE LEGIBLY MARKED IN RED TO SHOW ALL ADDITIONS, CHANGES AND DEPARTURES OF THE INSTALLATION AS COMPARED WITH THE ORIGINAL DESIGN. THEY SHALL BE SUITABLE FOR USE IN PREPARATION OF RECORD DRAWINGS.

N. THE CONTRACTOR SHALL PREPARE A RECORD AND INFORMATION MANUAL. THE MANUAL SHALL BE SCANNED INTO A DIGITAL FORMAT AND FORWARDED TO CIRCLE K CONSTRUCTION. PROVIDE THE FOLLOWING DATA IN THE RECORD AND INFORMATION MANUAL:

1) CUT SHEETS OF ALL EQUIPMENT WITH TECHNICAL SPECIFICATIONS.
2) OPERATION AND MAINTENANCE PROCEDURES.
3) SERVICING INSTRUCTIONS.
4) COPIES OF PANELBOARD DIRECTORIES.
5) COPIES OF WARRANTIES.
6) LIST OF LAMPS SHOWING QUANTITY, TYPE, WATTAGE, MANUFACTURER, CATALOG NUMBER, ETC., FOR EACH FIXTURE TYPE.
7) COPIES OF TEST REPORTS.

O. EXACT LOCATIONS OF OUTLETS SHALL BE COORDINATED WITH DOOR SWINGS AND VARIOUS PROTRUSIONS. MOUNTING HEIGHTS OF THE VARIOUS ELECTRICAL DEVICES SHALL BE AS FOLLOWS:

SWITCHES	46" AFF TO CENTER OF BOX
RECEPTACLES	20" AFF TO CENTER OF BOX
TELEPHONE OUTLETS	20" AFF TO CENTER OF BOX
EXIT LIGHTS	CENTERED BETWEEN CEILING AND TOP OF DOOR (UP TO 1'-0" ABOVE DOOR), SURFACE OR CEILING MOUNTED AS SHOWN
DISCONNECTING SWITCHES	52" AFF TO CENTER OF SWITCH

P. PROVIDE A DISCONNECT SWITCH FOR EACH MOTOR AS SHOWN ON THE DRAWINGS SIZED AS REQUIRED TO MEET THE NEC AND PROVIDE ALL WIRING CONNECTIONS FROM SOURCE. PROVIDE REQUIRED VOLTAGE.

Q. SEAL ALL CONDUIT PENETRATIONS THRU RATED WALLS AND FLOORS TO MAINTAIN FIRE INTEGRITY. REFER TO ARCHITECTURAL DRAWING FOR FIRE WALL LOCATIONS.

R. ELECTRICAL CONTRACTOR SHALL VERIFY ALL VOLTAGES OF MECHANICAL EQUIPMENT WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.

2. SECTION 16050 - BASIC ELECTRICAL MATERIALS AND METHODS

A. INSTALL ALL WIRING CONDUIT EXCEPT AS OTHERWISE INDICATED. MINIMUM CONDUIT SIZE SHALL BE 3/4". ALL CONDUIT EMBEDDED IN CONCRETE SHALL BE 3/4" MINIMUM. INSTALL ALL CONDUIT CONCEALED UNLESS ON UNFINISHED WALLS, ON UNFURRED CEILINGS OR MECHANICAL EQUIPMENT SPACES. PROVIDE CONDUIT AS FOLLOWS:

1) RIGID STEEL CONDUIT FOR WORK EXPOSED TO WEATHER OR EMBEDDED IN CONCRETE OR MASONRY.
2) GALVANIZED ELECTRICAL METALLIC TUBING (EMT) FOR INTERIOR EXPOSED WORK, CONCEALED WORK ABOVE SUSPENDED CEILINGS, AND WITHIN INTERIOR PARTITIONS OR NON-MASONRY WALLS.
3) FLEXIBLE METAL CONDUIT IN SHORT LENGTHS (6' MAXIMUM) FOR THE CONNECTION OF RECESSED LIGHTING FIXTURES AND MOTORS.
4) LIQUID TIGHT FLEXIBLE METAL CONDUIT WHEREVER MOISTURE MAY BE PRESENT AND MOTORS IN MECHANICAL EQUIPMENT SPACES.
5) POLYVINYLCHLORIDE (PVC) SCHEDULE 40 AND 80 CONDUIT WITH GROUND CONDUCTOR FOR UNDERGROUND OUTSIDE OF BUILDING (SITE) INSTALLATION AS PERMITTED BY 2008 NEC ARTICLE 352 .

B. INSTALL CONDUITS PARALLEL AND PERPENDICULAR TO WALLS AND INTERIOR SURFACES. CLEAN AND PLUG AND PROVIDE A PULL LINE IN EACH CONDUIT LEFT EMPTY. USE MANUFACTURED ELBOWS AND SCREW JOINTED CONDUIT FITTINGS. USE CAPPED BUSHINGS OR "PUSH PENNY" PLUGS. ALL FITTINGS SHALL BE STEEL OR MALLEABLE IRON. ALL EMT FITTINGS SHALL BE COMPRESSION TYPE.

C. ALL OUTLET, SWITCH AND JUNCTION BOXES, SHALL BE STAINLESS STEEL BY STEEL CITY, RACO, APPLETON, VALEN, OR EQUIVALENT. OUTLET BOXES IN CONCRETE CONSTRUCTION SHALL BE OCTAGONAL. NO "THRU-WALL" BOXES SHALL BE USED IN PARTITIONS. ALL BOXES SHALL BE FURNISHED WITH APPROPRIATE COVERS.

D. JUNCTION AND PULL BOXES SHALL BE FURNISHED AND INSTALLED AS INDICATED OR WHERE REQUIRED TO FACILITATE PULLING OF WIRES OR CABLES. BOXES FOR EXTERIOR WORK SHALL BE CAST ALUMINUM OR GALVANIZED CAST IRON TYPE WITH THREADED HUBS, UNLESS OTHERWISE DIRECTED. GASKETED COVER PLATES SHALL BE FURNISHED FOR OUTDOOR INSTALLATIONS.

E. BUILDING WIRE, UNLESS OTHERWISE INDICATED, SHALL BE COPPER, 600 VOLT, TYPE THWN/THHN INSULATION, #12 AWG MINIMUM, FOR INTERIOR AND EXTERIOR USE. FOR BRANCH CIRCUITS TYPE MC (METAL CLAD) CABLE MAY BE USED WHERE PERMITTED BY THE NEC AND LOCAL CODES. NO ROMEX OR AC (BX) CABLE WILL BE ALLOWED ON THE PROJECT.

F. MINIMUM WIRE SIZE SHALL BE NUMBER TWELVE (12) AWG. NO SPLICES SHALL BE MADE EXCEPT WITHIN OUTLET OR JUNCTION BOXES. WIRES NUMBER EIGHT (8) AWG AND LARGER SHALL BE STRANDED. WIRES AND CABLES SHALL BE MANUFACTURED BY PIRELLI, ROYAL, TRIANGLE OR EQUIVALENT.

G. THE COLOR CODING SYSTEM LISTED BELOW SHALL BE USED THROUGHOUT THE BUILDING:

SYSTEM	PHASE A	PHASE B	PHASE C	NEUTRAL	GROUND	ISOLATED GROUND
120/208V	BLACK	RED	BLUE	WHITE	GREEN	GREEN/YELLOW
277/480V	BROWN	ORANGE	YELLOW	GRAY	GREEN	GREEN/YELLOW

H. THE WIRE SIZE INDICATED IN THE HOMERUN SHALL BE USED THROUGH THE CIRCUIT.

I. PROVIDE DISCONNECT SWITCHES WHERE INDICATED AND AS REQUIRED. SWITCHES SHALL BE OF SIZE, NUMBER OF POLES AND FUSED OR NONFUSED, AS REQUIRED FOR JOB CONDITIONS AND THE NATIONAL ELECTRICAL CODE. ALL SAFETY SWITCHES SHALL BE NEMA I ENCLOSURE "HD" WITH INTERLOCKING COVER AND HANDLE, MANUFACTURED BY SQUARE "D" OR APPROVED EQUAL. PROVIDE NEMA 3R ENCLOSURES WHERE REQUIRED.

J. PROVIDE STARTERS AND CONTROL WIRING AS INDICATED ON THE DRAWINGS, OR SPECIFIED HEREIN. ALL TEMPERATURE CONTROL WIRING AND COMPONENTS SHALL BE UNDER DIVISION 15.

K. PROVIDE THERMAL MANUAL MOTOR STARTING SWITCHES FOR FRACTIONAL HORSEPOWER, SINGLE PHASE MOTORS. THE STARTERS SHALL BE SQUARE D COMPANY, CLASS 2510, ALLEN BRADLEY BULLETIN 600, OR APPROVED EQUAL FOR SINGLE SPEED MOTORS. ENCLOSURES SHALL BE NEMA I FOR INTERIOR USE AND NEMA 3R FOR EXTERIOR USE.

L. THREE PHASE MOTOR STARTERS SHALL BE 3 POLE, FULL-VOLTAGE, MAGNETIC TYPE. ENCLOSURES SHALL BE NEMA I FOR INTERIOR USE AND NEMA 3R FOR EXTERIOR USE. PROVIDE HOA SWITCH WHEN AUTOMATICALLY CONTROLLED, PILOT INDICATING LIGHT, CONTROL TRANSFORMER, AND NO/NC AUXILIARY CONTACTS. STARTERS SHALL BE SQUARE D COMPANY, CLASS 8536 AND CLASS 8538 COMBINATION TYPE OR APPROVED EQUAL.

M. WIRING DEVICES SHALL BE ARROW HART, GENERAL ELECTRIC, P & S LEVITON OR HUBBELL:

1) WALL SWITCHES: ARROW HART 1991. THREE AND FOUR-WAY SWITCHES SHALL BE OF THE SAME MANUFACTURER AND GRADE.
2) RECEPTACLES: ARROW HART 5362 FOR 20 AMPERES. GFCI SHALL BE #GFCS20 RATED 20 AMPERE, 120 VOLT. PROVIDE TAMPER RESISTANT AND MOISTURE RESISTANT TYPE WHERE REQUIRED BY NEC.
3) DIMMERS: 600/1000/1500/2000 WATTS AS REQUIRED BY JOB CONDITIONS. LUTRON 'NOVA' SERIES OR EQUAL.
4) DEVICE PLATES: ARROW HART SWITCH PLATES SI-S6 SERIES. ARROW HART RECEPTACLE PLATES S8. ARROW HART TELEPHONE BLANK PLATES S14.

N. MOUNT WEATHERPROOF DEVICES IN CAST METAL BOXES WITH GASKETED, SPRING-HINGED LID-TYPE LOCKING COVERS HAVING CORROSION-RESISTANT FINISH.

O. THE ENTIRE ELECTRICAL SYSTEM SHALL BE SOLIDLY GROUNDED INCLUDING MAIN SERVICE EQUIPMENT, DISCONNECT SWITCHES, WIRING TROUGHS AND PULL BOXES, CONDUIT SYSTEM, OUTLET BOXES, MOTORS, ELECTRIC HEATING EQUIPMENT, LIGHTING FIXTURES, TRANSFORMERS, EMERGENCY SYSTEMS, UPS SYSTEMS, AND FIRE ALARM SYSTEMS.

P. PROVIDE EQUIPMENT GROUNDING CONDUCTORS IN ALL BRANCH CIRCUITS AND FEEDERS SIZED IN ACCORDANCE WITH THE NEC TABLE 250.112.

Q. ALL BRANCH CIRCUITS SHALL BE RUN CONCEALED IN EXISTING AND NEW WALLS. CUT AND PATCH EXISTING WALLS AND SURFACES AS REQUIRED.

R. ALL D.C. WIRING SHALL BE #10 AWG MINIMUM.

S. GROUND, PHASE AND NEUTRAL CONDUCTORS SHALL BE PIG-TAILED IN OUTLET BOXES OR MULTI-OUTLET ASSEMBLY FOR RECEPTACLES SO THAT GROUND AND ELECTRICAL SERVICE WILL NOT BE DISRUPTED TO OTHER RECEPTACLES ON THE SAME MULTI-WIRE CIRCUIT IF RECEPTACLE IS REMOVED.

3. SECTION 16400 - SERVICE AND DISTRIBUTION

A. COORDINATE ALL SERVICE ENTRANCE WORK WITH THE ELECTRIC UTILITY.

B. DISTRIBUTE POWER AT 120/208V, 3 PHASE, 4 WIRE, LED LIGHTING, AIR CONDITIONING, ELECTRIC HEATING, MOTOR CIRCUITS, AND 120/208V FOR RECEPTACLES, INCANDESCENT LIGHTS AND SMALL MOTORS.

C. PANELBOARDS SHALL BE 120/208 VOLTS, THREE PHASE EMPLOYING BREAKERS MINIMUM 10,000 SYMMETRICAL A.I.C. AT 120 VOLTS. FURNISH PANELBOARDS AS INDICATED ON DRAWINGS E6.0, E7.0 AND E7.1.

D. PANELBOARDS SHALL BE FACTORY ASSEMBLED WITH BOLT-ON TYPE CIRCUIT BREAKERS. BUSS SHALL BE ALUMINUM. PROVIDE 50% GROUND BUS BAR. PANELS CONNECTED TO K-RATED TRANSFORMERS SHALL HAVE 200% RATED NEUTRAL BUS BARS.

E. PROVIDE THREE (3) 3/4 INCH SPARE CONDUITS FROM EACH RECESSED PANEL TO THE CEILING SPACE.

F. FUSES FOR SERVICE ENTRANCE EQUIPMENT SHALL BE U.L. LISTED CLASS L, J, OR RKI. FUSES FOR FEEDER CIRCUITS AND PANELBOARDS SHALL BE U.L. CLASS RKI FAST-ACTING TYPE. FUSES FOR MOTOR OVERCURRENT, MOTOR CONTROLLER, AND TRANSFORMER PROTECTION SHALL BE DUAL-ELEMENT, U.L. CLASS RKI TIME-DELAY TYPE.

G. PROVIDE ENERGY EFFICIENT, NEMA TP-1, SELF-COOLED, DRY TYPE TRANSFORMERS OF KVA, PHASE, "K" AND VOLTAGE RATINGS AS INDICATED. TRANSFORMERS 15 KVA AND LESS SHALL HAVE A CLASS F INSULATION, 115 DEGREES C RISE. TRANSFORMERS ABOVE 15 KVA SHALL HAVE CLASS H INSULATION, 115 DEGREE C RISE. PROVIDE FOUR 2-1/2 TAPS BELOW TWO 2-1/2 TAPS ABOVE RATED PRIMARY VOLTAGE. TRANSFORMERS OF 150 KVA AND LESS SHALL BE RATED 45 DB, LARGER TRANSFORMERS SHALL BE RATED 55 DB. NEUTRALS AND NEUTRAL CONNECTIONS OF ALL "K" RATED DRY TYPE TRANSFORMERS SHALL BE 200% OF THE PHASE CONDUCTOR SIZE. TRANSFORMER SHALL BE HEVI-DUTY ELECTRIC COMPANY, GENERAL ELECTRIC, SORGEL, ACME OR HOWARD INDUSTRIES.

4. SECTION 16500 - LIGHTING

A. PROVIDE A COMPLETE LIGHTING FIXTURE AT EACH LOCATION INDICATED ON THE DRAWINGS. FIXTURES SHALL BE SPECIFIED ON THE LIGHTING FIXTURE SCHEDULE ON THE DRAWINGS.

B. ALL PLASTIC DIFFUSERS SHALL BE 100 PERCENT VIRGIN ACRYLIC (NOMINAL .125 INCH THICK) AND ALL LEXAN DIFFUSERS SHALL BE LEXAN TYPE MR-4000, OR EQUAL.

C. 8-FOOT TANDEM UNITS MAY BE USED IN LIEU OF 4 FOOT UNITS IN CONTINUOUS ROWS.

D. THE CONTRACTOR SHALL CONSULT THE CEILING CONTRACTOR AND ARCHITECT'S DRAWINGS FOR APPROVED REFLECTED CEILING PLANS BEFORE ORDERING FIXTURES TO INSURE THAT ALL ARE COMPATIBLE WITH THE CEILING SYSTEM AND PROPERLY LOCATED. VERIFY THAT ADEQUATE CLEARANCE FOR INSTALLATION, MAINTENANCE, AND HEAT DISSIPATION IS AVAILABLE.

E. PROVIDE A MINIMUM OF TWO (2) GALVANIZED STEEL #12 GAUGE HANGER WIRES (ALTERNATE CORNERS) ON ALL RECESSED FIXTURES.

F. CONTRACTOR SHALL PROVIDE ADDITIONAL EXIT LIGHTS AND EMERGENCY BATTERY PACK WITH DUAL HEADS AS NEEDED TO MEET FIRE MARSHAL'S WALK-THROUGH AND ACCEPTANCE.

G. CONNECT EXIT LIGHTS, EMERGENCY BATTERY UNITS AND NIGHT LIGHTS (NL) TO UNSWITCHED PORTION OF LIGHTING CIRCUIT SERVING RESPECTIVE AREA.

5. SECTION 16700 - COMMUNICATION SYSTEMS

A. TELEPHONE SERVICE SHALL BE INSTALLED BY THE TELEPHONE COMPANY.

B. PROVIDE WALL OUTLETS IN 4" SQUARE 2-1/8" DEEP BOX WITH RAISED SINGLE GANG COVERS EQUIPPED WITH BLANK STAINLESS STEEL DEVICE PLATES. EXTEND 3/4" EMPTY CONDUIT FROM EACH OUTLET TO THE CEILING SPACE AND TERMINATE WITH INSULATED BUSHINGS. PROVIDE NYLON PULL WIRE IN ALL CONDUITS LEFT EMPTY.

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Feb 15, 2023

PROFESSIONAL IN
JCA

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QUALITY
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LHO

PROJECT

CIRCLE K STORES, INC.

ANGIER, NC

9706 KENNEBEC CHURCH ROAD,
ANGIER, NC

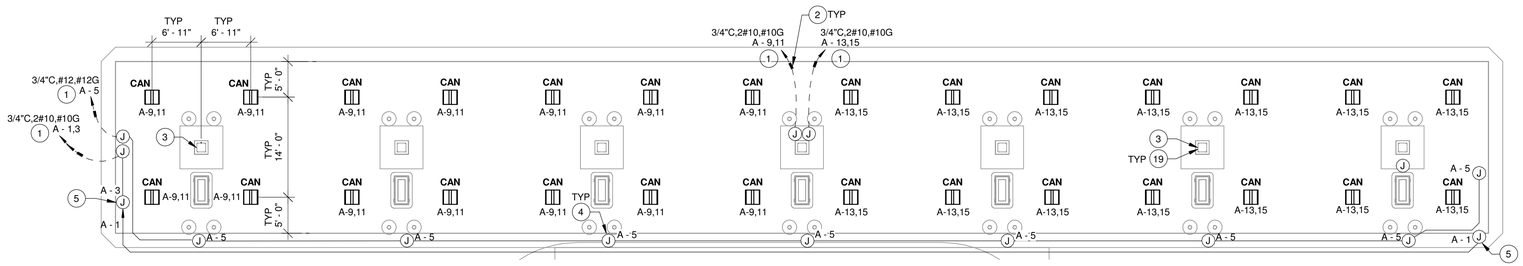
PROTOCYCLE# R1.2 12/XX/22

CIRCLE K STORE

PROJECT NUMBER: 22130

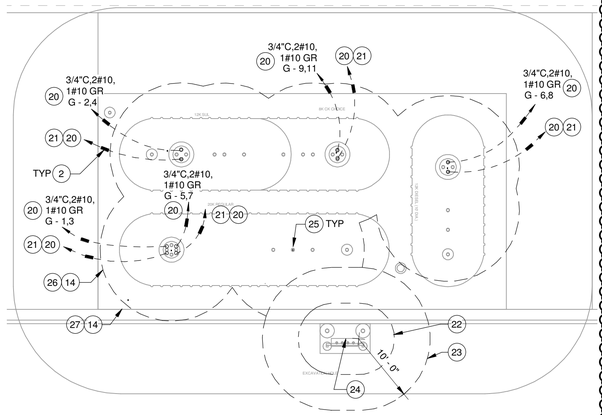
ELECTRICAL SPECIFICATIONS

E0.1



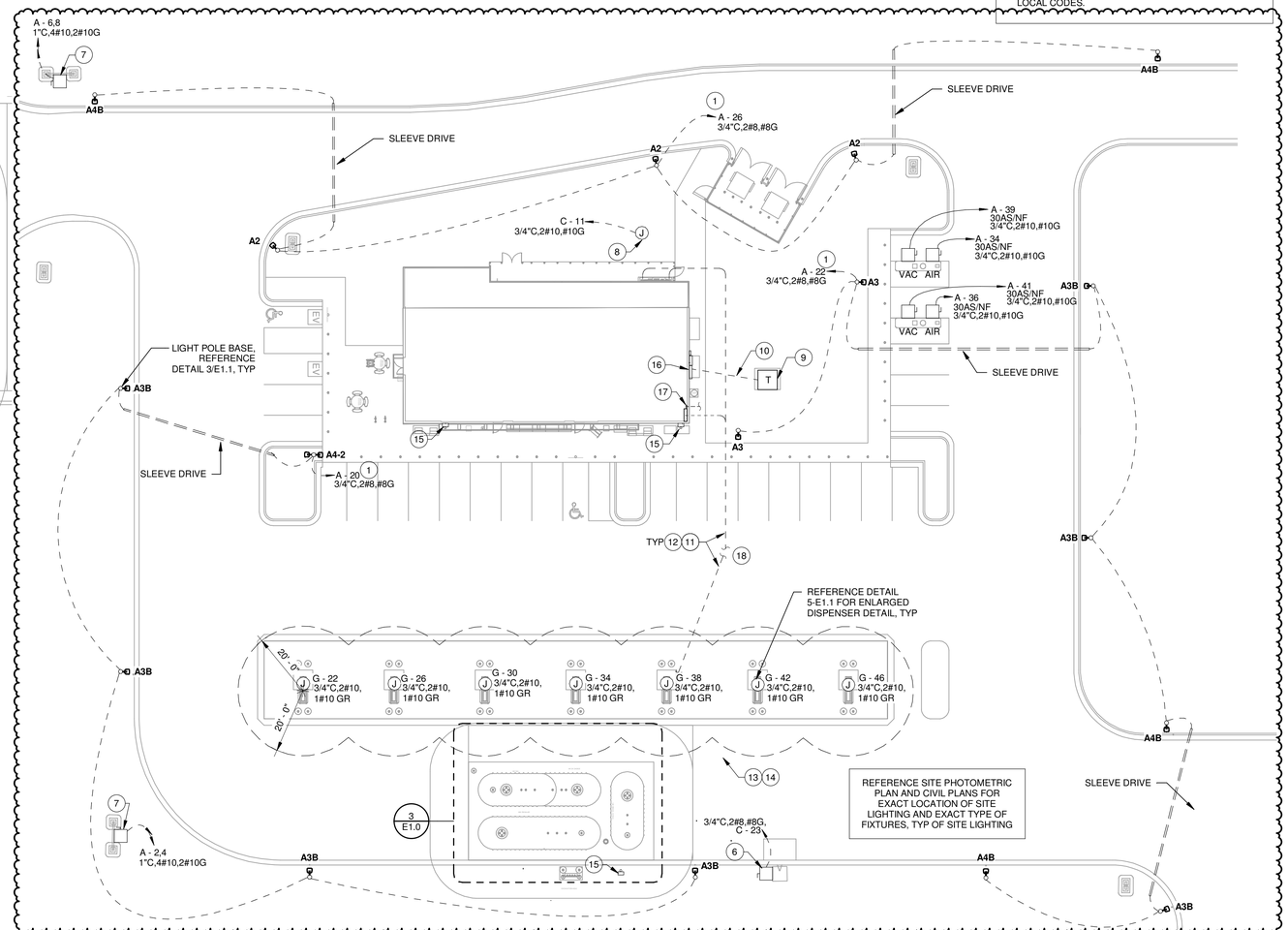
CANOPY LIGHTING PLAN | 2

1" = 10'-0"



FUEL TANK ELECTRICAL PLAN | 3

1" = 10'-0"



ELECTRICAL SITE PLAN | 1

3/64" = 1'-0"

GENERAL NOTES

1. ALL EXTERIOR DEVICES SHALL BE WEATHERPROOF.
2. ALL FUEL ISLAND CONDUITS SHALL BE ROUTED TO THE RESPECTIVE PANELS AND / OR TO THE FUEL CONTROL PANELS LOCATED IN THE MANAGER'S OFFICE / STORAGE ROOM.
3. PROVIDE EMPTY CONDUITS WITH PULL STRING. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL UTILITY COMPANY FOR THE EXACT LOCATION OF ALL PRIMARY SERVICE EQUIPMENT, TRENCH LOCATIONS, TRANSFORMER LOCATION, METER LOCATION, ETC.
4. ELECTRICAL CONTRACTOR SHALL PROVIDE NECESSARY SECONDARY CONDUITS, POWER TRENCHING, BACKFILL, CONCRETE PADS FOR TRANSFORMERS AND SERVICE EQUIPMENT AND CONDUIT STUBS INTO TRENCH AS REQUIRED BY ELECTRICAL UTILITY COMPANY SPECIFICATIONS.
5. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH TELEPHONE UTILITY COMPANY FOR THE EXACT LOCATION OF ALL PRIMARY SERVICE EQUIPMENT, SERVICE EQUIPMENT, TRENCH LOCATIONS, ETC.
6. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY TELEPHONE TRENCHING, BACKFILL AND CONDUIT STUBS INTO TRENCH AS REQUIRED BY TELEPHONE UTILITY COMPANY SPECIFICATIONS.
7. ALL WIRING OUTSIDE SHALL BE A MINIMUM OF #10 COPPER WITH TYPE 'XHHW-2' INSULATION FOR UNDERGROUND CIRCUIT RUN IN PVC. PROVIDE A #10 COPPER BOND IN ADDITION TO CIRCUIT CONDUCTORS.
8. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR COORDINATION AND COMPLIANCE WITH THE UTILITY COMPANY'S REQUIREMENTS. WITHIN TWO WEEKS AFTER AWARD OF CONTRACT, SUBMIT (2) COMPLETE SETS OFF PLANS, INCLUDING PLOT OF SURVEY, TO UTILITY COMPANY FOR COORDINATION. ROUTING OF INCOMING POWER AND TELEPHONE SERVICE SHOWN ARE FOR ESTIMATING PURPOSES ONLY. ACTUAL ROUTING, CONDUIT, TRENCH AND PAD REQUIREMENTS SHALL BE AS SPECIFIED BY THE UTILITY COMPANY. CONFIRM ALL REQUIREMENTS WITH UTILITIES PRIOR TO INSTALLATION..
9. ALL UNDERGROUND CABLE, PIPE AND CONDUITS SHALL BE DETECTABLE (METALLIC) OR HAVE A DETECTABLE UNDERGROUND DEVICE INSTALLED PER LOCAL CODES.

KEYNOTES

1 SITE LIGHTING CIRCUITS SHALL BE ROUTED VIA 20A ELECTRICALLY HELD LIGHTING CONTACTORS CONTROLLED BY THE 'EPO' SWITCHES AND PHOTOCELL. 'EPO' SWITCHES LOCATED AT THE FUEL CANOPY AND STORE ON THE SITE. REFERENCE DETAIL 2/E6.0.

2 PROVIDE SEAL-OFF FITTINGS AT EACH END OF CONDUIT IN CONJUNCTION WITH / G.V.R. DISPENSER MANUAL. REFERENCE DETAIL 4/E1.1.

3 PROVIDE AND INSTALL WP JUNCTION BOXES IN CANOPY FOR WHITE SPEAKERS. MAKE CONNECTIONS TO CONDUITS PROVIDED IN CANOPY COLUMN.

4 CANOPY EYEBROW LED STRIP LIGHTS. ONE DOUBLE KWIK BOX POWER CONNECTION PER EACH GROUP OF FOUR SECTIONS.

5 WP JUNCTION BOX FOR COMPLETE CONNECTION OF CANOPY SIGN. VERIFY EXACT LOCATION IN FIELD.

6 PROVIDE WEATHERPROOF DISCONNECT SWITCH FOR WATER / AIR FILL STATION. VERIFY EXACT LOCATION IN FIELD, AND VERIFY REQUIREMENTS PRIOR TO ROUGH-IN

7 PROVIDE WEATHERPROOF DISCONNECT SWITCH. COORDINATE EXACT CONNECTION AND WIRING REQUIREMENTS WITH SIGN CONTRACTOR AND FINAL SECTION PRIOR TO INSTALLATION. PROVIDE (2) 1" CONDUITS, ONE FOR POWER AND ONE FOR PHONE AND COMMUNICATION.

8 HEAT TRACE TO BE PROVIDED FOR BACKFLOW PREVENTER IN COLD REGION.

9 PROVIDE HOUSEKEEPING PAD FOR POWER CO. PAD MOUNTED TRANSFORMER PER UTILITY COMPANY REQUIREMENTS.

10 REFER TO ONE-LINE DIAGRAM FOR CONDUCTOR AND CONDUIT SIZES. VERIFY WITH POWER COMPANY.

11 FUEL DISPENSER CONDUITS FOR POWER, INTERCOM, CRIND DATA AND SENSORS. REFERENCE DETAIL 5/E1.1 AND FUEL SYSTEM VENDOR DRAWINGS.

12 (1) 3/4" CONDUIT AND (3) 1" CONDUITS FROM ELECTRICAL PANELS TO CLOSEST CANOPY COLUMN. ROUTE CONDUITS UP TO CANOPY DECK FOR SPEAKER/SECURITY CAMERA CONNECTIONS. PROVIDE PULL STRINGS IN ALL CONDUITS. REFERENCE ELECTRICAL VENDOR DRAWINGS FOR CONDUIT ENTRANCE LOCATIONS IN PANELS.

13 CLASS 1 DIVISION 2 HAZARDOUS AREA: OUTDOOR DISPENSING DEVICE: UP TO 18" OF DISPENSER ENCLOSURE, EXTENDING 20 FT. HORIZONTALLY IN ALL DIRECTIONS FROM DISPENSER ENCLOSURE. PER NEC TABLE 514.3(8)(1).

14 ALL WIRING IN THIS AREA INCLUDING BELOW GRADE SHALL BE INSTALLED IN RIGID CONDUIT PER NEC ARTICLE 514.8. HOWEVER, PER NEC 514.8 EXCEPTION 2, NONMETALLIC RIGID CONDUIT (PVC) HAVING A MINIMUM OF 24" OF GROUND COVER IS ALLOWED. IN ADDITION, THREADED RIGID METAL CONDUIT OR THREADED STEEL INTERMEDIATE METAL CONDUIT SHALL BE USED FOR THE LAST 2 FEET OF THE UNDERGROUND RUN TO EMERGENCE OR TO THE POINT OF CONNECTION TO THE ABOVE GROUND RACEWAY, AND AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE INCLUDED. PROVIDE ALL EXPLOSION PROOF FITTINGS AND SEALS NECESSARY TO COMPLETE CONDUIT SYSTEMS. NO SUBSTITUTIONS SHALL BE MADE UNLESS APPROVED BY THE AUTHORITY HAVING JURISDICTION. PROVIDE EXPLOSION PROOF JUNCTION BOXES (CROUSE HINDS) MODEL GUP215 WITH 0302 'O' RING OR OWNER APPROVED EQUAL.

15 "EMERGENCY POWER OFF" SWITCH PER NEC 2011. NEC ARTICLE 514.11. PROVIDE SIGNAGE PER IFC SECTION 2204, 2205 (VERIFY EXACT LOCATION WITH CIRCLE 'K' CONSTRUCTION MANAGER). ROUTE (1) 3/4" EMPTY CONDUIT WITH PULL STRING FROM EPO SWITCH TO SWITCHGEAR PANEL DP FUEL CONTROLS SECTION. REFERENCE ELECTRICAL VENDOR DRAWINGS FOR EXACT PANEL SECTION CONDUIT STUB UP LOCATION.

16 SERVICE ENTRANCE DISCONNECT PER UTILITY REQUIREMENTS.

17 (2) 4" EMPTY CONDUITS FOR TELEPHONE SERVICE. VERIFY EXACT QUANTITY AND SIZE WITH SERVING TELEPHONE COMPANY.

18 STORE ELECTRICIAN SHALL ROUGH IN CONDUIT AT ELECTRICAL ROOM AND RUN TO PETROLEUM ELECTRICIAN'S POINT OF INTERCEPTION 30 FEET FROM FRONT OF STORE. PETROLEUM ELECTRICIAN SHALL INTERCEPT CONDUIT AND COMPLETE RUNS TO DISPENSERS, CANOPY AND FUEL TANKS. PETROLEUM ELECTRICIAN SHALL FURNISH AND INSTALL ALL WIRING. REFERENCE FUEL SYSTEM VENDOR DRAWINGS FOR ALL REQUIRED CONDUIT, WIRE AND CIRCUITRY.

19 CANOPY COLUMN GROUNDING: REFERENCE DETAILS 1 & 2/E1.1.

20 3/4" CONDUIT FOR POWER/STP CONTROL. REFERENCE DETAIL 1/E1.0 FOR POWER CIRCUIT DESIGNATION, CONDUIT AND WIRE SIZE. PROVIDE 4#12 THWN2 FOR STP AUTHORIZATION. VERIFY STP AUTHORIZATION CONDUCTOR QUANTITY, SIZE AND TYPE PER DISPENSER WITH FUEL VENDOR DRAWINGS.

21 3/4" CONDUIT FOR TANK MOTION SENSORS. INSTALL CONDUIT TO SUMP AND INTERSTITIAL SENSORS AT TANKS. REFERENCE FUEL SYSTEM VENDOR DRAWINGS FOR CONDUCTORS TO BE INSTALLED TO SENSORS.

22 CLASS 1 DIVISION 1 HAZARDOUS AREA: UNDERGROUND TANK VENT: WITHIN 5 FT. OF OPEN END OF VENT, EXTENDING IN ALL DIRECTIONS. PER NEC TABLE 514.3(B)(1).

23 CLASS 1 DIVISION 2 HAZARDOUS AREA: UNDERGROUND TANK VENT: BETWEEN 5 FT. AND 10 FT. OF OPEN END OF VENT, EXTENDING IN ALL DIRECTIONS. PER NEC TABLE 514.3(B)(1).

24 VENT RISERS FROM TANKS.

25 TANK FILL STATION.

26 CLASS 1 DIVISION 2 HAZARDOUS AREA: UNDERGROUND TANK FILL OPENING: UP TO 18" ABOVE GRADE LEVEL, EXTENDING 5 FT. HORIZONTALLY IN ALL DIRECTIONS FROM ANY LOOSE-FILL CONNECTION. PER NEC TABLE 514.3(B)(1).

27 CLASS 1 DIVISION 1 HAZARDOUS AREA: UNDERGROUND TANK: INSIDE TANK - ENTIRE INSIDE VOLUME. FILL OPENING - ENTIRE SPACE WITHIN ANY PIT OR BOX BELOW GRADE LEVEL. PER NEC TABLE 514.3(B)(1).

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JOB NO.: 29894
DESIGNED BY: LHO

REVISION

△	ISSUE	DATE
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1	OTB	01/05/24

NORTH CAROLINA PROFESSIONAL SEAL 036972 ENGINEER JASON C. ADAMS

Feb 15, 2023

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PROTOCYCLE# R1.2 12/XX/22

CIRCLE K STORE

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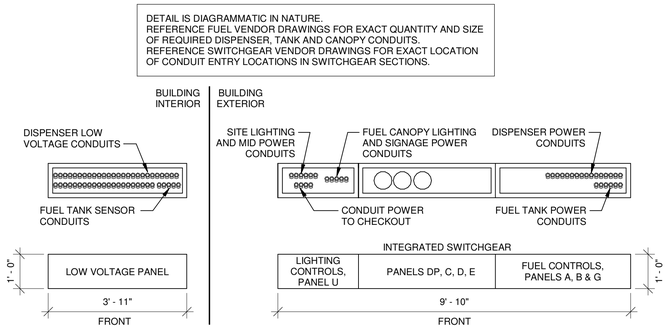
ELECTRICAL SITE PLAN

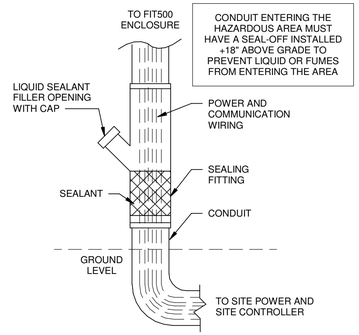
E1.0

KEYNOTES

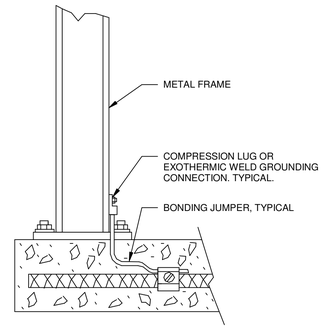
1. PROVIDE SEAL-OFF FITTINGS AT EACH END OF CONDUIT IN CONJUNCTION WITH / G.V.R. DISPENSER MANUAL. REFERENCE DETAIL 4/E1.1.
2. 3/4" CONDUIT FOR POWER/STP CONTROL. REFERENCE DETAIL 1/E1.0 FOR POWER CIRCUIT DESIGNATION, CONDUIT AND WIRE SIZE. PROVIDE 4#12 THWN2 FOR STP AUTHORIZATION. VERIFY STP AUTHORIZATION CONDUCTOR QUANTITY, SIZE AND TYPE PER DISPENSER WITH FUEL VENDOR DRAWINGS.
3. 3/4" CONDUIT FOR DISPENSER MONITORING SENSOR IN DISPENSER SUMP. REFERENCE FUEL SYSTEM VENDOR DRAWINGS FOR QUANTITY AND TYPE OF CONDUCTORS TO BE INSTALLED.
4. 3/4" CONDUIT TO SWITCHGEAR LOW VOLTAGE SECTION FOR DISPENSER INTERCOM. REFERENCE FUEL SYSTEM VENDOR DRAWINGS FOR QUANTITY AND TYPE OF CONDUCTORS TO BE INSTALLED PER DISPENSER.
5. 3/4" CONDUIT FOR CRIND DATA. REFERENCE FUEL SYSTEM VENDOR DRAWINGS FOR QUANTITY AND TYPE OF CONDUCTORS TO BE INSTALLED PER DISPENSER.



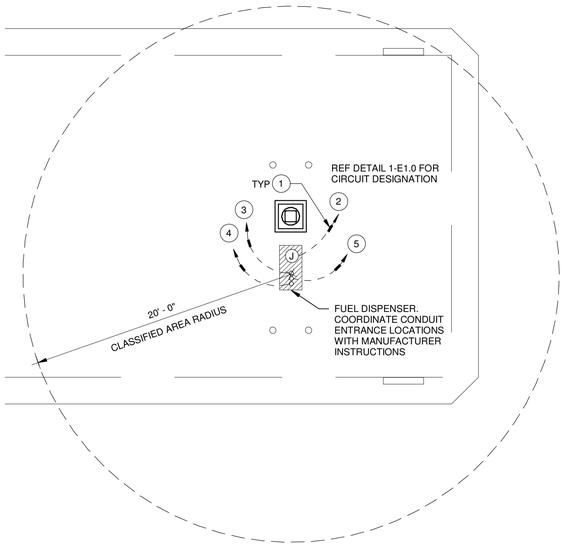
SITE FUEL EQUIPMENT CONDUIT ROUGH-IN | 6
1/2" = 1'-0"



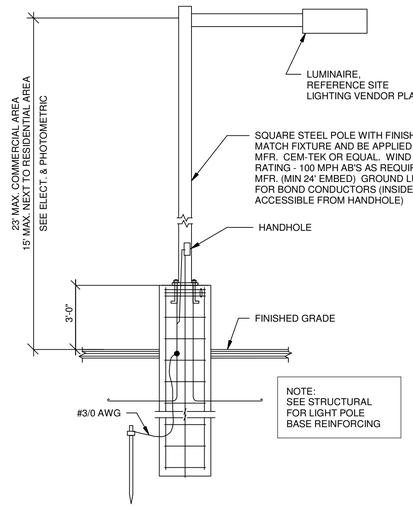
SEAL OFF DETAIL | 4
N.T.S.



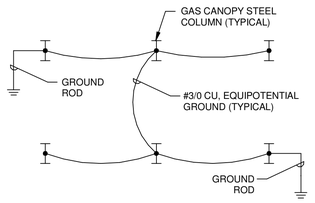
CANOPY GROUNDING | 2
N.T.S.



FUEL DISPENSER ENLARGED | 5
3/16" = 1'-0"



LIGHT POLE BASE | 3
N.T.S.



CANOPY GROUNDING DETAIL | 1
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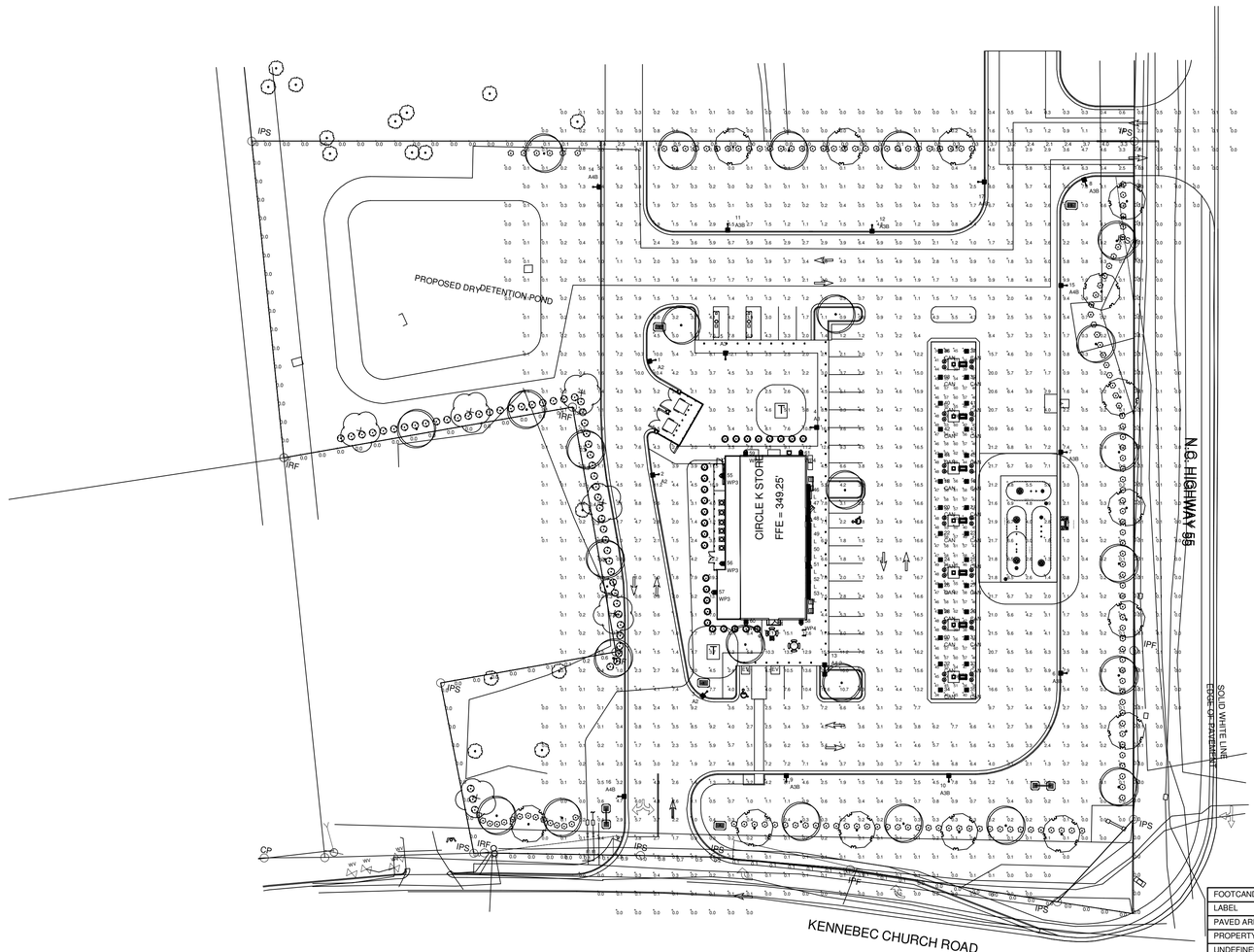
PROTOCYCLE# R1.2 12/XX/22

CIRCLE K STORE

PROJECT NUMBER: 22130

ELECTRICAL SITE PLAN DETAILS

E1.1



NOTE:
- ALL AREA LIGHTS ON NEW 15 FT. POLE MOUNTED ON 3 FT. CONCRETE BASE

LUMINAIRE LOCATION SUMMARY		
LUM NO.	LABEL	MTG. HT.
1	A2	18
2	A2	18
3	A2	18
4	A3	18
5	A3	18
6	A3B	18
7	A3B	18
8	A3B	18
9	A3B	18
10	A3B	18
11	A3B	18
12	A3B	18
13	A4-2	18
14	A4B	18
15	A4B	14.5
16	A4B	18
17	A4B	18
18	CAN	15.5
19	CAN	15.5
20	CAN	15.5
21	CAN	15.5
22	CAN	15.5
23	CAN	15.5
24	CAN	15.5
25	CAN	15.5
26	CAN	15.5
27	CAN	15.5
28	CAN	15.5
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30	CAN	15.5
31	CAN	15.5
32	CAN	15.5
33	CAN	15.5
34	CAN	15.5
35	CAN	15.5
36	CAN	15.5
37	CAN	15.5
38	CAN	15.5
39	CAN	15.5
40	CAN	15.5
41	CAN	15.5
42	CAN	15.5
43	CAN	15.5
44	CAN	15.5
45	CAN	15.5
46	L	10.625
47	L	10.625
48	L	10.625
49	L	10.625
50	L	10.625
51	L	10.625
52	L	10.625
53	L	10.625
54	L	10.625
55	WP3	9
56	WP3	9
57	WP3	9
58	WP4	14.5
59	WP4	14.5
60	WP4	14.5
61	WP4	14.5

FOOTCANDLE LEVELS CALCULATED AT GRADE USING INITIAL LUMEN VALUES					
LABEL	AVG	MAX	MIN	AVG/MIN	MAX/MIN
PAVED AREA	5.24	22.0	0.5	10.48	44.00
PROPERTY LINE	0.29	4.0	0.0	N.A.	N.A.
UNDEFINED	1.02	19.3	0.0	N.A.	N.A.
UNDER CANOPY	49.70	62	33	1.51	1.88

LUMINAIRE SCHEDULE

SYMBOL	QTY	LABEL	ARRANGEMENT	LUMENS	LLF	DIMMING LUMEN MULTIPLIER	BUG RATING	WATTS/LUMINAIRE	TOTAL WATTS	MANUFACTURER	CATALOG LOGIC
	3	A2	Single	15200	1.010	1.000	B3-U0-G3	97	291	Cree Lighting	OSQ-ML-C-XX-XX + OSQM-C-16L-57K7-2M-UL-NM-XX
	2	A3	Single	15200	1.010	1.000	B3-U0-G3	97	194	Cree Lighting	OSQ-ML-C-XX-XX + OSQM-C-16L-57K7-3M-UL-NM-XX
	7	A3B	Single	10450	1.010	1.000	B2-U0-G2	97	679	Cree Lighting	OSQ-ML-C-XX-XX + OSQM-C-16L-57K7-3B-UL-NM-XX
	1	A4-2	Back-Back	15200	1.010	1.000	B3-U0-G2	97	194	Cree Lighting	OSQ-ML-C-XX-XX + OSQM-C-16L-57K7-4M-UL-NM-XX
	4	A4B	Single	9575	1.010	1.000	B2-U0-G2	97	388	Cree Lighting	OSQ-ML-C-XX-XX + OSQM-C-16L-57K7-4B-UL-NM-XX
	28	CAN	Single	14015	1.010	1.000	B3-U0-G1	86.4	2419.2	Cree Lighting	CPY250-C-13L-57K7-F-UL-DM-XX
	9	L	FLEXPOD 64IN	51	1.000	1.000	N.A.	0.652	234.72	P-LED	FLEX POD 5000K CUSTOM CUT TO 64IN
	3	WP3	Single	6100	1.020	1.000	B2-U0-G2	47	141	Cree Inc	XSPW-B-WM-4ME-6L-40K-UL-XX
	4	WP4	Single	8873	1.020	1.000	B2-U0-G2	70.82	283.28	Cree Inc	XSPW-B-WM-4ME-8L-40K-UL-XX

ELECTRICAL SITE PHOTOMETRIC PLAN | 1
N.T.S.

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ELECTRICAL SITE PHOTOMETRIC PLAN

E1.2

OSQ Series

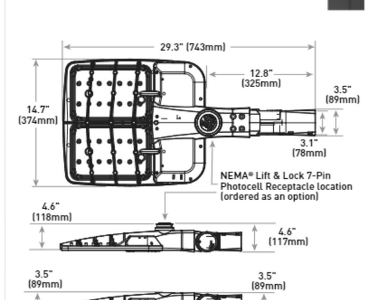
OSQ™ LED Area/Flood Luminaire featuring Patented NanoComfort™ Technology – Version C

Rev. Date: V3 04/17/2023

Product Description

The OSQ™ Area/Flood luminaire blends extreme optical control, advanced thermal management and modern, clean aesthetics. Built to last, the housing is rugged cast aluminum with an integral, weathertight LED driver compartment. Versatile mounting configurations offer simple installation. Its slim, low-profile design minimizes wind load requirements and blends seamlessly into the site providing even, quality illumination. Medium is suitable upgrade for HID applications up to 400 Watts. Large is suitable upgrade for HID applications up to 1000 Watts. Extra Large is suitable upgrade for HID applications up to multiple 1000 Watts.
Applications: Parking lots, walkways, campuses, car dealerships, office complexes, high-mast and internal roadways

OSQM - AA Mount



Luminaire	Weight
OSQM	19.3 lbs. (8.8kg)

Note: For OSQL, OSQX and additional mounts, refer to drawings beginning on page 26.

Performance Summary

- Utilizes Patented NanoComfort™ Technology
- Utilizes Cree TrueWhite® Technology on 5000K Luminaires
- Assembled in the USA by Cree Lighting from US and imported parts
- **Initial Delivered Lumens:** 4,000 - 75,000
- **Efficacy:** Up to 171 LPW
- **CRI:** Minimum 70 CRI (3000K, 4000K & 5700K); 90 CRI (5000K)
- **CCT:** 3000K, 4000K, 5000K, 5700K
- **Limited Warranty[†]:** 10 years for luminaire; 10 years for Colorfast DeltaGuard® finish; 5 years for BML sensor; up to 5 years for Synapse® accessories; 1 year for luminaire accessories

[†] See http://creelighting.com/warranty for warranty terms. For Synapse accessories, consult Synapse spec sheets for details on warranty terms.

Ordering Information

Fully assembled luminaire is composed of two components that must be ordered separately:
Example: **Mount:** OSQ-ML-C-AA-BK + **Luminaire:** OSQM-C-4L-30K7-2M-UL-NM-BK

Mount (Luminaire must be ordered separately)*		
OSQ-		
Medium/Large Mounts OSQ-ML-C-AA Adjustable Arm; OSQ-ML-C-DA Direct Arm; OSQ-ML-C-TM Trunnion Mount	**Extra Large Mounts** OSQ-X-C-AA Adjustable Arm; OSQ-X-C-DA Direct Arm	**Color Options:** SV Silver, BZ Bronze, BK Black, WH White

* Reference fixture mounting drill pattern, EPA, and pole configuration suitability data beginning on page 14.

Luminaire (Mount must be ordered separately)

Family	Size	Series	Lumen Package[1]	CCT/CRI	Optic	Voltage	Mount	Color Options	Controls[2]	Options
OSQ		C								
OSQ	M Medium; L Large; X Extra Large	C	**Medium** 4L 4,000 Lumens; 6L 6,000 Lumens; 9L 9,000 Lumens; 11L 11,000 Lumens; 16L 16,000 Lumens; **Large** 22L 22,000 Lumens; 30L 30,000 Lumens; 40L 40,000 Lumens; **Extra Large** 50L 50,000 Lumens; 65L 65,000 Lumens; 75L 75,000 Lumens	30K7 3000K, 70 CRI; 40K7 4000K, 70 CRI; 50K9 5000K, 90 CRI; 57K7 5700K, 70 CRI	**Asymmetric** 2M Type II Mid; 2B Type II Mid w/ Factory-Installed Backlight Shield; 3M Type III Mid; 3B Type III Mid w/ Factory-Installed Backlight Shield; 4M Type IV Mid; 4B Type IV Mid w/ Factory-Installed Backlight Shield; AF Automotive FrontlineOptic™; AB Automotive-FrontlineOptic™ w/Factory-Installed Backlight Shield; **Symmetric** 5M Type V Mid; 5N Type V Narrow; 33 NEMA® 3x3; 44 NEMA® 4x4; 55 NEMA® 5x5; 66 NEMA® 6x6; 75 NEMA® 7x5	UL Universal 120-277V; UH Universal 347-480V - Not available with 4L, 40L or 75L lumen packages; UE Universal 277-480V - Available only with 40L and 75L lumen packages	NM No Mount - Must specify mount from table above - Mount ships separately	BK Black; BZ Bronze; SV Silver; WH White	BML Bluetooth® Technology Enabled Multi-Level Sensor - Utilizes a multifunction sensor - Refer to BML spec sheet for details - 20-40' sensor lens installed on luminaire; 8-20' sensor lens and aisle shroud included - Intended for downlight applications at 0° tilt - Not available with Q or X options or Synapse TL7-B2 or TL7-HVG accessories; Q9/Q8/Q7/Q6/Q5/Q4/Q3/Q2/Q1 Field Adjustable Output - Must select Q9, Q8, Q7, Q6, Q5, Q4, Q3, Q2, or Q1 - Offers full range adjustability - Refer to pages 15-25 for power and lumen values - Not available with BML or X options or Synapse TL7-B2 or TL7-HVG accessories; X8/X7/X6/X5/X4/X3/X2/X1 Locked Lumen Output - Must select X8, X7, X6, X5, X4, X3, X2, or X1 - Not available with BML or Q options - X1 option not available the following lumen package/voltage offerings: 9L/UL, 16L/UL, 16L/UH, 30L/UL, 30L/UH, 65L/UL, 65L/UH - X2 option not available 9L/UL lumen package/voltage - Lumen output is permanently locked to the setting selected - Refer to pages 15-25 for power and lumen values	20KV 20kV/10kA Surge Suppression - Replaces standard 10kV/5kA surge protection; F Fuse - Compatible with 120V, 277V or 347V (phase to neutral) - Consult factory if fusing is required for 208V, 240V or 480V (phase to phase) - When code dictates fusing, use time delay fuse; N Utility Label and NEMA® Lift & Lock 7-Pin Photocell Receptacle - External utility label per ANSI C136.15-2020 - 7-pin receptacle per ANSI C136.41 - Available only with OSQM & OSQL luminaires - Intended for downlight applications with maximum 45° tilt - Factory connected 0-10V dim leads - Requires photocell or shorting cap by others; R NEMA® Lift & Lock 7-Pin Photocell Receptacle - 7-pin receptacle per ANSI C136.41 - Intended for downlight applications with maximum 45° tilt - Factory connected 0-10V dim leads - Requires photocell or shorting cap by others - Refer to page 2 for compatible Synapse control offerings; RL Rotate Left - LED and optic are rotated to the left - Refer to RR/RL configuration diagram on page 26 for optic directionality - Not for use with symmetric optics; RR Rotate Right - LED and optic are rotated to the right - Refer to RR/RL configuration diagram on page 26 for optic directionality - Not for use with symmetric optics

[1] Lumen Package codes identify approximate light output only. Actual lumen output levels vary by CCT and optic selection. Refer to Initial Delivered Lumen tables for specific lumen values
[2] Luminaire comes standard with 0-10V dimming

US: creelighting.com (800) 236-6800
Canada: creelighting-canada.com (800) 473-1234

CREE LIGHTING

OSQ™ LED Area/Flood Luminaire featuring Patented NanoComfort™ Technology – Version C

Product Specifications

CREE LIGHTING NANOCOMFORT™ TECHNOLOGY
Cree Lighting's NanoComfort™ Technology ends the trade-offs in outdoor lighting by providing superior glare reduction and visual comfort in high-efficiency illumination delivered precisely where it is needed. The basic building block of NanoComfort™Technology is a compact 4x4 array of LEDs. Each of the 16 LEDs in a module is in contact with its own acrylic polymer lens to capture and precisely direct light. With NanoComfort™ Technology, the acrylic optics are cut and sculpted into facets that relieve the glare and harshness while improving visual comfort – all while retaining superb efficacy and control.

CREE TRUEWHITE® TECHNOLOGY
A revolutionary way to generate high-quality white light, Cree TrueWhite® Technology is a patented approach that delivers an exclusive combination of 90+ CRI, beautiful light characteristics and lifelong color consistency, all while maintaining high luminous efficacy – a true no compromise solution.

CONSTRUCTION & MATERIALS
- Slim, low profile design minimizes wind load requirements
- Luminaire housing is rugged die cast aluminum with an integral, weathertight LED driver compartment and high-performance heat sink
- Acrylic optic w/clear tempered glass lens
- Convenient interlocking mounting method on direct arm. Mounting adaptor is rugged die cast aluminum and mounts to 3" (76mm) or larger square or round pole, secured by two 5/16-18 UNC bolts spaced on 2" (51mm) centers. Refer to page 14 for fixture mounting drill pattern
- Adjustable arm mount adapters are rugged die cast aluminum
- OSQ-ML-C-AA mounts to a horizontal or vertical 2" (51mm) IP, 2.375" (60mm) O.D. tenon and can be adjusted 180° in 2.5° increments
- OSQ-X-C-AA mounts to a horizontal or vertical 2" (51mm) IP, 2.375-2.50" (60-64mm) O.D. steel tenon and can be adjusted 180° in 5.0° increments. **NOTE: Tenon length must be a minimum of 3.75" (95mm), and tenon must be steel**
- Trunnion mount is constructed of A500 and A1011 steel and is adjustable from 0-180° in 15° degree increments. Trunnion mount secures to surface with (1) 3/4" bolt or (2) 1/2" or 3/8" bolts
- Luminaires include 15" (381mm) 18/5 cord exiting the luminaire
- Designed for uplight and downlight applications. Uplight orientation not suitable for use with N or R options
- Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultra-durable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Silver, bronze, black, and white are available

Weight			
Mount	Housing Size: Medium	Large	Extra Large
Direct Arm	19.7 lbs. (8.9kg)	28.8 lbs. (13.1kg)	45.8 lbs. (20.8kg)
Adjustable Arm	19.3 lbs. (8.8kg)	28.4 lbs. (12.9kg)	48.6 lbs. (22.0kg)
Trunnion	23.2 lbs. (10.5kg)	32.3 lbs. (14.7kg)	N/A

For BML sensor add 0.1 lbs. (45g), and for NEMA receptacle, add 0.3 lbs. (136g).

ELECTRICAL SYSTEM
- **Input Voltage:** 120-277V, 277-480V or 347-480V, 50/60Hz, Class 1 drivers
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- Integral 10kV/5kA surge suppression protection standard; 20kV/10kA surge suppression protection optional
- When code dictates fusing, a slow blow fuse or type C/D breaker should be used to address inrush current
- Designed with 0-10V dimming capabilities. Controls by others
- Refer to Dimming spec sheet for details
- **Maximum 10V Source Current:** 1.8mA
- **Operating Temperature Range:** -40°C - +40°C (-40°F - +104°F)

REGULATORY & VOLUNTARY QUALIFICATIONS
- cULus Listed (UL1598)
- Suitable for wet locations
- Meets NEMA C82.77 standards
- Drivers and LEDs are UL certified in accordance with UL8750
- Meets requirements of IP66 per IEC 60529 when ordered without N or R options
- Certified to ANSI C136.31-2018, 3G bridge and overpass vibration standards
- ANSI C136.2 10kV/5kA (standard) and 20kV/10kA (optional) surge suppression protection tested in accordance with IEEE/ANSI C62.41.2
- Meets FCC Part 15, Subpart B, Class A limits for conducted and radiated emissions
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- Lens meets IK07 requirements per IEC 60068-2
- Assembled in the USA by Cree Lighting from US and imported parts
- Meets Buy American requirements within ARRA
- RoHS compliant. Consult factory for additional details
- Dark Sky Friendly, IDA Approved when ordered with 30K CCT and direct arm mount only. Please refer to https://www.darksky.org/our-work/lighting/lighting-for-industry/fsa/fsa-products/ for most current information (Pending)
- **CA RESIDENTS WARNING:** Cancer and Reproductive Harm – www.p65warnings.ca.gov

Product Specifications

SYNAPSE® SIMPLYSNAP INTELLIGENT CONTROL
The Synapse SimplySNAP platform is a highly intuitive connected lighting solution featuring zone dimming, motion sensing, and daylight harvesting with utility-grade power monitoring and support of up to 1000 nodes per gateway. The system features a reliable and robust self-healing mesh network with a browser-based interface that runs on smartphones, tablets, and PCs. The Twist-Lock Lighting Controller (TL7-B2 or TL7-HVG) and Site Controller (SS450-002) take the OSQ Series to a new performance plateau, providing extreme energy productivity, code compliance and a better light experience.

Synapse Wireless Control Accessories

Twist-Lock Lighting Controller
TL7-B2
- Suitable for 120-277V (UL) voltage only
- Requires NEMA/ANSI C136.41 7-Pin Dimming Receptacle
- Not for use with BML or Q options
- Provides On/Off switching, dimming, power metering, digital sensor input, and status monitoring of luminaire
- Refer to TL7-B2 spec sheet for details

Twist-Lock Lighting Controller
TL7-HVG
- Suitable for 120-480V (UL, UE and UH) voltages
- Requires NEMA/ANSI C136.41 7-Pin Dimming Receptacle
- Not for use with BML or Q options
- Provides On/Off switching, dimming, power metering, digital sensor input, and status monitoring of luminaire
- Refer to TL7-HVG spec sheet for details

SimplySNAP Central Base Station
CBSSW-450-002
- Includes On-Site Controller (SS450-002) and 5-button switch
- Indoor and Outdoor rated
- Refer to CBSSW-450-002 spec sheet for details

Synapse Wireless Sensor
WSN-DPM
- Motion and light sensor
- Control multiple zones
- Refer to WSN-DPM spec sheet for details

SimplySNAP On-Site Controller
SS450-002
- Verizon® LTE-enabled
- Designed for indoor applications
- Refer to SS450-002 spec sheet for details

Building Management System (BMS) Gateway
BMS-GW-002
- Required for BACnet integration
- Refer to BMS-GW-002 spec sheet for details

Outdoor Antennas (Optional, for increased range, 8dB gain)
KIT-ANT420SM
- Kit includes antenna, 20' cable and bracket
KIT-ANT360
- Kit includes antenna, 30' cable and bracket
KIT-ANT600
- Kit includes antenna, 50' cable and bracket
- Refer to Outdoor antenna spec sheet for details

Electrical Data*

Lumen Package	System Watts 120-480V	Utility Label Wattage	120V	208V	240V	277V	347V	480V
			Total Current (A)					
4L**	26	30	0.21	0.12	0.11	0.09	N/A	N/A
6L	37	40	0.31	0.18	0.15	0.13	0.11	0.08
9L	55	60	0.46	0.27	0.23	0.20	0.16	0.12
11L	68	70	0.57	0.33	0.28	0.25	0.20	0.14
16L	97	100	0.81	0.47	0.40	0.35	0.28	0.20
22L	131	130	1.09	0.63	0.55	0.47	0.38	0.27
30L	175	180	1.46	0.84	0.73	0.63	0.50	0.36
40L	236	240	1.96	1.13	0.98	0.85	0.68	0.49
50L	297	N/A	2.48	1.43	1.24	1.07	0.86	0.62
65L	384	N/A	3.20	1.85	1.60	1.39	1.11	0.80
75L	447	N/A	3.73	2.15	1.86	1.61	1.29	0.93

* Electrical data at 25°C (77°F). Actual wattage may differ by +/- 10% when operating between 120-277V, 277-480V or 347-480V+/-10%.
** Available with UL voltage only

OSQ-C Series Ambient Adjusted Lumen Maintenance[1]

Ambient	Initial LMF	25K hr Reported[2] LMF	50K hr Reported[2] LMF	75K hr Reported[2] LMF	100K hr Reported[2] LMF
5°C (41°F)	1.02	0.99	0.93	0.88	0.83
10°C (50°F)	1.02	0.98	0.93	0.87	0.82
15°C (59°F)	1.01	0.98	0.92	0.87	0.82
20°C (68°F)	1.01	0.97	0.92	0.86	0.81
25°C (77°F)	1.00	0.97	0.91	0.86	0.81

[1] Lumen maintenance values at 25°C (77°F) are calculated per IES TM-21 based on IES LM-80 report data for the LED package and in-situ luminaire testing. Luminaire ambient temperature factors (LATF) have been applied to all lumen maintenance factors. Please refer to the Temperature Zone Reference Document for outdoor average nighttime ambient conditions.
[2] In accordance with IES TM-21, Reported values represent interpolated values based on time durations that are up to 6x the tested duration in the IES LM-80 report for the LED.

Accessories

Field-Installed	
Backlight Shield OSQ-M-C-BLSF (Medium); OSQ-L-C-BLSF (Large); OSQ-X-C-BLSF (Extra Large) - Not for use with rotated optics; **Bird Spikes** OSQ-M-C-BRDSPK; OSQ-L-C-BRDSPK; OSQ-X-C-BRDSPK	**Shorting Cap** XA-XSLSHRT

US: creelighting.com (800) 236-6800
Canada: creelighting-canada.com (800) 473-1234

CREE LIGHTING

1

TYPE "A2","A3","A3B","A4-2" & "A4B" LIGHT FIXTURE

CPY Series - Version C

CPY250® LED Canopy/Soffit Luminaire

Rev. Date: V4 07/11/2022

Product Description

The CPY250® LED Canopy/Soffit Luminaire has an extremely thin profile constructed of rugged cast aluminum. It can be surface mounted easily from below the canopy deck and can be pendant mounted. Direct imaging of the LEDs is eliminated with a highly efficient patterned flat or 0.91" (23mm) drop glass lens.
Applications: Petroleum canopies, CNG fueling stations, soffits

Performance Summary

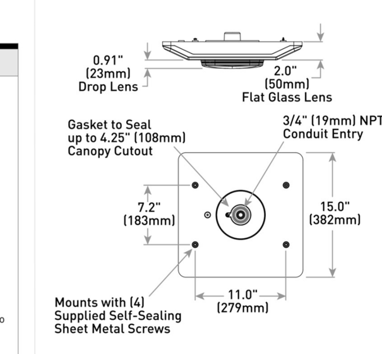
- Assembled in the USA by Cree Lighting from US and imported parts
- **Initial Delivered Lumens:** Up to 21,000
- **Efficacy:** Up to 165 LPW
- **CRI:** Minimum 70 CRI (40K, 50K, 57K); 80 CRI (30K); 90 CRI (40K, 50K)
- **CCT:** 3000K, 4000K, 5000K, 5700K
- **Limited Warranty[†]:** 10 years on luminaire/10 years on Colorfast DeltaGuard® finish/5 years on PML sensor/up to 5 years for Synapse® accessories/1 year on field-installed accessories
- IP66 Rated (select models only)
- Class I, Division 2 Hazardous Location for select models

[†] See http://creelighting.com/warranty for warranty terms

DM Mount / DM Mount with HZ Option

Flat Lens

Drop Lens



Weight
12.5 lbs. (5.7kg)

Refer to Page 4 for additional mounts.

Accessories

Field-Installed

Direct Mount Luminaires
Canopy Upgrade Kits (18 ga. steel, except where noted)
CPY-AP304* - for use with Cree Lighting CAN-304 luminaires, 16 ga. 5052 aluminum
XA-BXCCMW – for use with Jet-Philips, 21.60" (549mm) square, white
XA-BXCCNW – for use with Elsco Franciscan, 22.06" (560mm) square, white
XA-BXCCPW – for use with LSI Dakota or Masters, 22.50" (572mm) square, white
XA-BXCCQW – for use with Whiteway Riviera or Rig-A-Lite, 20.60" (523mm) square, white
XA-BXCCRW – for use with Elsco Merrit, 18.06" (459mm) square, white
XA-BXCCSW – for use with LSI Richmond or Whiteway Civic, 23.00" (584mm) L x 13.00" (330mm) W, white
Direct Mount Junction Box/Stem Kit
XA-BXCCJBOX – 6.0" (152mm) H x 3/4" (19mm) NPT Stem
- Watertight
- Rated for feed through 8 (4 in, 4 out) #12 AWG conductors
Direct Mount Beauty Plates
XA-BXCCBPW – 26.17" (665mm) Beauty Plate Only (18 ga. steel), white
XA-BXCCBPB12W – 26.17" (665mm) Beauty Plate (18 ga. steel) w/12" (305mm) Backer Plate (16 ga. steel), white
- For use in canopies where deck opening is larger than what is required for mounting the CPY250 luminaire. Maximum deck opening 10.75" x 15" (183mm x 375mm)
XA-BXCCBPB16W – 26.17" (665mm) Beauty Plate (18 ga. steel) w/16" (406mm) Backer Plate (16 ga. steel), white
- For use in canopies where deck opening is larger than what is required for mounting the CPY250 luminaire. Maximum deck opening 12" x 15" (305mm x 375mm)

Pendant Mount Luminaires
Pendant Mount Kits
XA-PS12KIT* – 5" (127mm) pendant
XA-PS18KIT* – 11" (279mm) pendant
XA-PS22KIT* – 15" (381mm) pendant
- Includes two conduit fittings and 3/4-14 NPT pipe threaded on two ends
Hand-Held Remote
XA-SENSREM
- For successful implementation of the programmable multi-level option, a minimum of one hand-held remote is required
Synapse® SimplySnap 10V Interface
DIM10-220F
- 120V-277V
- Requires other Synapse components to complete system
- Refer to DIM10-220F spec sheet for details

* Must specify color: BK (Black), BZ (Bronze), SV (Silver) or WH (White)

Ordering Information

Example: CPY250-C-13L-57K7-D-UL-DM-SV

Product	Version	Lumen Package*	CCT/CRI	Optic	Voltage	Mounting	Color Options	Controls	Options
CPY250	C								
CPY250	C	2L 2,000 Lumens; 4L 4,000 Lumens; 8L 8,000 Lumens; 13L 13,000 Lumens; 21L 21,000 Lumens	30K8 3000K, 80 CRI; 40K7 4000K, 70 CRI; 40K9 4000K, 90 CRI; 50K7 5000K, 70 CRI; 50K9 5000K, 90 CRI; 57K7 5700K, 70 CRI	D 0.91" (23mm) Drop Lens; F Flat Lens	UL Universal 120-277V; UH Universal 347-480V - Available only in 4L-21L lumen packages	DM Direct; HC Hook & Cord; PD Pendant; H6 Car Wash	BK Black; BZ Bronze; SV Silver; WH White	BLANK Non-Dimming; 10V 0-10V Dimming - Control by others - Refer to Dimming spec sheet for details; PML Programmable Multi-Level - Available with UL voltage only - Refer to PML spec sheet for details	10KV 10kV/5kA Surge Suppression - Replaces standard 6kV/3kA surge suppression - Not for use with PML as PML option includes10kV/5kA surge as standard; HZ Class I, Div. 2 Hazardous Location Certification - Available with DM and PD mounts only - Not available with PML control or K option; K NSF 2 Certification - Luminaires include NSF certification mark - Suitable for DM mount only - Not available with PML control or HZ option

* Lumen Package codes identify approximate light output only. Actual lumen output levels may vary depending on CCT and optic selection. Refer to Initial Delivered Lumen tables for specific lumen values.

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Canada: creelighting-canada.com T (800) 473-1234

CREE LIGHTING

CPY250® LED Canopy/Soffit Luminaire - Version C

Product Specifications

CONSTRUCTION & MATERIALS
- Slim, low profile design
- Easy mounting and servicing from below the deck
- Luminaire housing is constructed of rugged cast aluminum with integral heat sink specifically designed for LED
- Flat lens is 0.125" tempered Solite® glass
- Drop lens is 0.157" molded borosilicate glass
- Direct mount is suitable for use in single or double skin canopies with a minimum 4.0" (102mm) wide panels and a minimum 22 gauge, 0.030" (0.7mm) canopy thickness
- Direct mount luminaire mounts directly to the canopy deck with the drilling of a single 2" to 4" (51mm to 102mm) round hole, is secured in place with self-sealing screws that provide a weathertight seal and includes 3/4" (19mm) conduit entry for direct wire feed
- Hook and cord mount includes a 3' (0.91m) cord out of the luminaire and is intended to hang from the single hook
- Standard pendant mount includes a mounting bracket and a J-Box for customer wiring and is intended to be mounted by 3/4 IP pendant (by others)
- Hazardous location pendant mount has a threaded hub which accepts 3/4" NPT conduit (by others) and secures with a 1/4"-20 set screw
- H6 mount includes cable gland with 3' (0.91m) cord out of the luminaire and is intended to hang from the single hook
- Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultra-durable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Black, bronze, silver and white are available
- **Weight:** 12.5 lbs. (5.7kg)

ELECTRICAL SYSTEM
- **Input Voltage:** 120-277V or 347-480V, 50/60Hz
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- Integral 6kV/3kA surge suppression protection standard; 10kV/5kA surge suppression protection optional
- When code dictates fusing, a slow blow fuse or type C/D breaker should be used to address inrush current

CONTROLS
- 10V option provides continuous dimming to 10% with 0-10V DC control protocol
- **Maximum 10V Source Current:** 1mA
- Use only lighting controls with neutral connection or controls intended for use with LED fixtures
- Reference LED Dimming spec sheet for additional dimming information

REGULATORY & VOLUNTARY QUALIFICATIONS
- cULus Listed
- Suitable for wet locations when ordered with DM, DM mount w/HZ option, PD mount w/HZ option, and H6 mounts. Covered ceiling required only when not used with cULus Listed, wet location junction box or XA-BXCCJBOX accessory
- Suitable for damp locations when ordered with HC and PD mounts. Designed for indoor use only
- Enclosure meets IP66 requirements per IEC 60529 when ordered with DM and H6 mounts
- ANSI C136.2 6kV/3kA (standard) and 10kV/5kA (optional) surge protection, tested in accordance with IEEE/ANSI C62.41.2. PML option includes 10kV surge protection
- Meets FCC Part 15, Subpart B, Class A limits for conducted and radiated emissions
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- Assembled in the USA by Cree Lighting from US and imported parts
- Meets Buy American requirements within ARRA
- RoHS compliant. Consult factory for additional details
- Class I, Division 2 Hazardous Location rated when ordered with the DM or PD mount and the HZ option. Not available with K or PML options. Rated for Groups A, B, C & D. Bears a T3C (160°C) temperature classification within a 25°C ambient
- NSF Certified when ordered with DM mount and K option. Not available with HZ or PML options. Refer to http://info.nsf.org/Certified/Food/ for additional details
- Dark Sky Friendly, IDA Approved when ordered with 30K CCT and Flat Lens (F). Please refer to https://www.darksky.org/our-work/lighting/lighting-for-industry/fsa/fsa-products/ for most current information
- DLC Premium qualified for Fuel Pump Canopies. DLC Standard qualified for High-Bay/Low Bay Luminaires when ordered with 8L and 30K8, 40K9 and 50K9 CCTs, 13L or 21L lumen packages with all CCTs. Please refer to https://qpl.designlights.org/solid-state-lighting for most current information
- **CA RESIDENTS WARNING:** Cancer and Reproductive Harm – www.p65warnings.ca.gov

Electrical Data*

Lumen Package	System Watts 120-480V**	120V	208V	240V	277V	347V	480V
		Total Current (A)					
2L	14	0.11	0.07	0.06	0.05	N/A	N/A
4L	29	0.24	0.14	0.12	0.10	0.08	0.06
8L	53	0.45	0.26	0.22	0.19	0.15	0.11
13L	86	0.73	0.42	0.36	0.32	0.25	0.19
21L	132	1.13	0.64	0.56	0.49	0.38	0.28

* Electrical data at 25°C (77°F). Actual wattage may differ by +/- 10% when operating between 120-277V or 347-480V +/- 10%.
** 2L not available in 347-480V.

CPY Series (Version C) Ambient Adjusted Lumen Maintenance[1]

Ambient	Luminaire Mounting Surface	Initial LMF	25K hr Reported[2] LMF	50K hr Reported[2] LMF	75K hr Estimated[3] LMF	100K hr Estimated[3] LMF
5°C (41°F)	2L-13L Plywood/ 2L-21L Metal	1.02	0.99	0.96	0.94	0.92
	21L Plywood	1.02	0.99	0.96	0.93	0.90
10°C (50°F)	2L-13L Plywood/ 2L-21L Metal	1.02	0.98	0.96	0.93	0.91
	21L Plywood	1.02	0.98	0.95	0.92	0.90
15°C (59°F)	2L-13L Plywood/ 2L-21L Metal	1.01	0.98	0.95	0.93	0.91
	21L Plywood	1.01	0.98	0.95	0.92	0.89
20°C (68°F)	2L-13L Plywood/ 2L-21L Metal	1.01	0.97	0.95	0.92	0.90
	21L Plywood	1.01	0.97	0.94	0.91	0.89
25°C (77°F)	2L-13L Plywood/ 2L-21L Metal	1.00	0.97	0.94	0.92	0.90
	21L Plywood	1.00	0.96	0.94	0.91	0.88
30°C (86°F)	2L-13L Plywood/ 2L-21L Metal	0.99	0.96	0.94	0.91	0.89
	21L Plywood	0.99	0.96	0.93	0.90	0.87
35°C (95°F)	2L-13L Plywood/ 2L-21L Metal	0.99	0.95	0.93	0.91	0.88
	21L Plywood	0.99	0.93	0.89	0.84	0.80
40°C (104°F)	2L-13L Plywood/ 2L-21L Metal	0.98	0.95	0.92	0.90	0.88
45°C (113°F)	2L-4L Plywood/ 2L-13L Metal	0.98	0.93	0.89	0.86	0.82
50°C (122°F)	2L-4L Metal	0.97	0.90	0.84	0.78	0.73

[1] Lumen maintenance values at 25°C (77°F) are calculated per IES TM-21 based on IES LM-80 report data for the LED package and in-situ luminaire testing. Luminaire ambient temperature factors (LATF) have been applied to all lumen maintenance factors. Please refer to the Temperature Zone Reference Document for outdoor average nighttime ambient conditions.
[2] In accordance with IES TM-21, Reported values represent interpolated values based on time durations that are up to 6x the tested duration in the IES LM-80 report for the LED.
[3] Estimated values are calculated and represent time durations that exceed the 6x test duration of the LED.

Operating Temperature Range

Lumen Package	Direct Mount to Plywood	Direct Mount to Sheet Metal/Suspended	Class 1, Division 2 Hazardous Location: Direct Mount to Plywood	Direct Mount to Sheet Metal/Suspended
2L	-40°C to +45°C	-40°C to +50°C	-40°C to +25°C	
4L	-40°C to +45°C	-40°C to +50°C		
8L	-40°C to +40°C	-40°C to +45°C		
13L	-40°C to +40°C	-40°C to +45°C		
21L	-40°C to +35°C	-40°C to +40°C		

NOTE: Standard luminaires are UL rated at 40°C, and hazardous location luminaires are UL rated at 25°C, but will operate in the ambients listed above
WARNING: Exceeding maximum operating temperature may result in thermal foldback

US: creelighting.com T (800) 236-6800
Canada: creelighting-canada.com T (800) 473-1234

CREE LIGHTING

TYPE "CAN" LIGHT FIXTURE

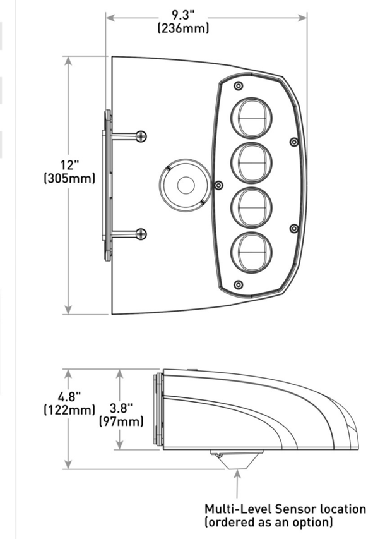
XSP Series

XSPW™ LED Wall Mount Luminaire featuring Cree TrueWhite® Technology

Rev. Date: VersionB V4 02/25/2020

Product Description

The XSPW™ LED wall mount luminaire has a slim, low profile design intended for outdoor wall mounted applications. The rugged lightweight aluminum housing and mounting box are designed for installation over standard single gang J-Boxes and mud ring single gang J-Boxes. The luminaire allows for through-wired or conduit entry from the top, bottom, sides and rear. The housing design is intended specifically for LED technology including a weathertight LED driver compartment and thermal management. Optic design features industry-leading NanoOptic® Precision Delivery Grid™ system in multiple distributions.
Applications: General area and security lighting



Performance Summary

- NanoOptic® Precision Delivery Grid™ optic
- Assembled in the U.S.A. of U.S. and imported parts
- **CRI:** Minimum 70 CRI (3000K, 4000K & 5700K); 90 CRI (5000K)
- **CCT:** 3000K, 4000K, 5000K, 5700K
- **Limited Warranty[†]:** 10 years on luminaire/10 years on Colorfast DeltaGuard® finish

[†] See http://creelighting.com/warranty for warranty terms

Accessories

Field-Installed	
Beauty Plate WM-PLT12** - 12" (305mm) Square; WM-PLT14** - 14" (356mm) Square - Covers holes left by incumbent wall packs	**Hand-Held Remote** XA-SENSREM - For successful implementation of the programmable multi-level option, a minimum of one hand-held remote is required

** Must specify color

Lumen Package	Weight
2L, 4L, 6L	11.0 lbs. (5.0kg)
8L	11.8 lbs. (5.4kg)

Ordering Information

Example: XSPW-B-WM-2ME-2L-30K-UL-BK

Product	Version	Mounting	Optic	Lumen Package*	CCT	Voltage	Color Options	Options
XSPW	B	WM						
XSPW	B	WM Wall	2ME Type II Medium; 3ME Type III Medium; 4ME Type IV Medium	2L 2,490 lumens; 4L 4,270 lumens; 6L 6,100 lumens; 8L 8,475 lumens	30K 3000K - 70 CRI; 40K 4000K - 70 CRI; 50K 5000K - 90 CRI; 57K 5700K - 70 CRI	UL Universal 120-277V; UH Universal 347-480V; 34 347V - For use with P option only	BK Black; BZ Bronze; SV Silver; WH White	ML Multi-Level - Refer to ML spec sheet for details - Available with UL voltage only; P Button Photocell - Not available with ML or PML options - Available with UL and 34 voltages only; PML Programmable Multi-Level - Refer to PML spec sheet for details - Available with UL voltage only

* Lumen Package selection codes identify approximate light output only. Actual lumen output levels may vary depending on CCT and optic selection. Refer to Initial Delivered Lumen tables for specific lumen values

US: creelighting.com (800) 236-6800
Canada: creelighting-canada.com (800) 473-1234

CREE LIGHTING

XSPW™ LED Wall Mount Luminaire

Product Specifications

CREE TRUEWHITE® TECHNOLOGY
A revolutionary way to generate high-quality white light, Cree TrueWhite® Technology is a patented approach that delivers an exclusive combination of 90+ CRI, beautiful light characteristics and lifelong color consistency, all while maintaining high luminous efficacy – a true no compromise solution.

CONSTRUCTION & MATERIALS
- Slim, low profile design
- Luminaire housing specifically designed for LED applications with advanced LED thermal management and driver
- Luminaire mounting box designed for installation over standard single gang J-Boxes and mud ring single gang J-Boxes
- Luminaire can also be direct mounted to a wall and surface wired
- Secures to wall with four 3/16" (5mm) screws (by others)
- Conduit entry from top, bottom, sides, and rear
- Exclusive Colorfast DeltaGuard® finish features an E-coat epoxy primer with an ultra-durable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Silver, black, white and bronze are available
- **Weight:** 2L, 4L, 6L - 11.0 lbs. (5.0kg); 8L - 11.8 lbs. (5.4kg)

ELECTRICAL SYSTEM
- **Input Voltage:** 120-277V or 347-480V, 50/60Hz
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- Integral 10kV surge suppression protection standard
- When code dictates fusing, a slow blow fuse or type C/D breaker should be used to address inrush current
- Designed with 0-10V dimming capabilities. Controls by others
- **10V Source Current:** 0.15 mA
- Refer to Dimming spec sheet for details
- **Operating Temperature Range:** -40°C - +50°C (-40°F - +122°F)

REGULATORY & VOLUNTARY QUALIFICATIONS
- cULus Listed
- Suitable for wet locations
- Designed for downlight applications only
- Enclosure rated IP66 per IEC 60598
- ANSI C136.2 10kV surge protection, tested in accordance with IEEE/ANSI C62.41.2
- Meets FCC Part 15, Subpart B, Class A limits for conducted and radiated emissions
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- Meets Buy American requirements within ARRA
- RoHS compliant. Consult factory for additional details
- Dark Sky Friendly, IDA Approved when ordered with 30K CCT. Please refer to https://www.darksky.org/our-work/lighting/lighting-for-industry/fsa/fsa-products/ for most current information
- DLC and DLC Premium qualified versions available. Please refer to https://www.designlights.org/search/ for most current information
- **CA RESIDENTS WARNING:** Cancer and Reproductive Harm – www.p65warnings.ca.gov

Electrical Data*

Lumen Package	CCT/CRI	System Watts 120-480V	Efficacy	120V	208V	240V	277V	347V	480V
				Total Current (A)					
2L	30K/70 CRI	20	125	0.17	0.10	0.08	0.07	0.06	0.05
	40K/70 CRI	19	131	0.16	0.09	0.08	0.07	0.06	0.04
	50K/90 CRI	24	104	0.20	0.11	0.10	0.08	0.07	0.05
	57K/70 CRI	19	131	0.16	0.09	0.08	0.07	0.06	0.04
4L	30K/70 CRI	33	129	0.28	0.16	0.14	0.13	0.10	0.07
	40K/70 CRI	31	138	0.27	0.15	0.13	0.12	0.09	0.07
	50K/90 CRI	40	107	0.34	0.20	0.17	0.16	0.12	0.09
	57K/70 CRI	31	138	0.26	0.15	0.13	0.12	0.09	0.07
6L	30K/70 CRI	51	120	0.43	0.25	0.22	0.19	0.14	0.11
	40K/70 CRI	47	130	0.40	0.23	0.20	0.18	0.14	0.10
	50K/90 CRI	60	102	0.51	0.29	0.25	0.23	0.17	0.13
	57K/70 CRI	47	130	0.40	0.23	0.20	0.17	0.14	0.10
8L	30K/70 CRI	77	110	0.65	0.38	0.32	0.28	0.22	0.16
	40K/70 CRI	72	118	0.61	0.35	0.31	0.27	0.21	0.15
	50K/90 CRI	78	89	0.66	0.37	0.33	0.29	0.22	0.16
	57K/70 CRI	71	119	0.60	0.35	0.30	0.26	0.20	0.15

* Electrical data at 25°C (77°F). Actual wattage may differ by +/- 10% when operating between 120-277V or 347-480V +/- 10%

XSPW Series Ambient Adjusted Lumen Maintenance Factors[1]

Ambient	Initial LMF	25K hr Reported[2] LMF	50K hr Reported[2] LMF	75K hr Estimated[3] LMF	100K hr Estimated[3] LMF
5°C (41°F)	1.03	0.98	0.96	0.94	0.92
10°C (50°F)	1.03	0.98	0.96	0.94	0.92
15°C (59°F)	1.02	0.97	0.95	0.93	0.92
20°C (68°F)	1.01	0.96	0.95	0.93	0.91
25°C (77°F)	1.00	0.96	0.94	0.92	0.90
30°C (86°F)	0.99	0.95	0.93	0.91	0.89
35°C (95°F)	0.98	0.94	0.92	0.90	0.88
40°C (104°F)	0.97	0.93	0.91	0.89	0.87

[1] Lumen maintenance values at 25°C (77°F) are calculated per IES TM-21 based on IES LM-80 report data for the LED package and in-situ luminaire testing. Luminaire ambient temperature factors (LATF) have been applied to all lumen maintenance factors. Please refer to the Temperature Zone Reference Document for outdoor average nighttime ambient conditions.
[2] In accordance with IES TM-21, Reported values represent interpolated values based on time durations that are up to 6x the tested duration in the IES LM-80 report for the LED.
[3] Estimated values are calculated and represent time durations that exceed the 6x test duration of the LED.

US: creelighting.com (800) 236-6800
Canada: creelighting-canada.com (800) 473-1234

CREE LIGHTING

TYPE "WP1","WP2","WP3" & "WP4" LIGHT FIXTURE

130 Lightalarms

Remote Fixture Camray® LED Series

Low-profile, slim look and performance in a remote fixture

Description
- Die-cast aluminium housing
- UV resistant polycarbonate lens

Lamp type
- LED light engine with redundant connections
- Optional forward-throw light distribution, for applications of outdoor egress
- Optional dual-mode: normal and emergency LED lighting with separate AC inputs
- Optional high-lumen output
- Optional photo-switch: dusk-to-dawn control of normal lighting
- Optional remote test: infrared remote control
- 400-640 lumens
- Color temperature: 4000K

Mounting
- Surface wall mount
- Universal J-Box mounting

Approval
- UL 924 Listed
- NEMA-3R
- Damp and wet location listed 50°F to 104°F (10°C to 40°C)

Warranty (subject to proper installation and maintenance)
Unit: five-year full warranty
Detailed warranty terms located on **page 197 or online at: www.lightalarms.com**

NEMA-3R

Unit color

Platinum gray; Black; White; Dark bronze (painted)

REMOTES & HEADS

Table A – Spacing for NFPA101 (average = 1FC) – Average of 1 foot-candle

Model type	Mounting height	Lumen	Color temperature	Width X length (ft): Single unit	Center-to-center
Standard	9'	400	4000K	6' X 50'	6' X 50'
With option -H	11'	550		6' X 60'	6' X 60'
With option -FT	12'	460			6' X 70'
With option -FTH	15'	640		6' X 40'	–
				6' X 40'	–

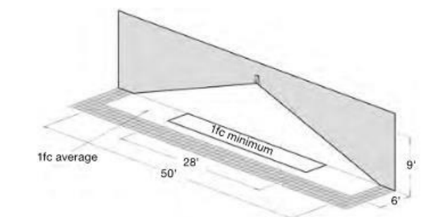
Indoor reflectance: 80/50/20 and 10-ft wide corridor.
Outdoor reflectance: 0/30/10

Table B – Spacing for minimum illumination = 1FC – Minimum of 1 foot-candle

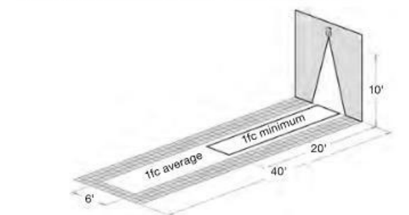
Model type	Mounting height	Lumen	Color temperature	Width X length (ft): Single unit	Center-to-center
Standard	9'	400	4000K	6' X 28'	6' X 32'
With option -H	11'	550		6' X 32'	6' X 40'
With option -FT	12'	460			–
With option -FTH	15'	640		6' X 22'	–
				6' X 27'	–

Note: The illumination level meets ALL the requirements of the Life Safety Code (NFPA 101):
1) Average of 1 foot-candle or more
2) Minimum at any point of 0.1 foot-candle or more
3) Maximum-to-minimum illumination uniformity ratio of 40:1 or less

Photometry performance - Wide beam

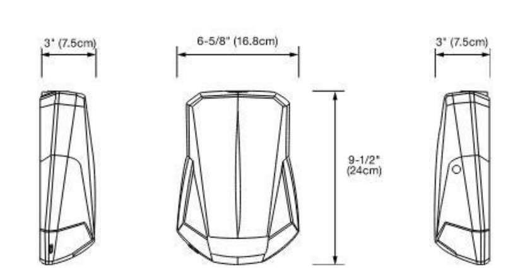


Photometry performance - Forward throw



Lightalarms 131

Dimensions (Dimensions are approximate and subject to change)



REMOTES & HEADS

Power consumption chart

Model	Normal lighting: Current (max.)	Power (max.)	AC input(s): 120/277VAC Emergency lighting: Current (max.)	Power (max.)	DC input 6-12V: Power (max.)
AC, 2AC, ACDC, DC	0.12/0.08A	12W	0.11/0.08A	12W	8W
All above, -H	0.18/0.11A	18W	0.18/0.11A	18W	14W (6VDC only)

Ordering format

Series	Model[1]	Color	Options
CAM= Camray® LED	AC= AC-only; ACDC= AC/6-12VDC remote; DC= 6-12VDC remote fixture; 2AC= AC-only two circuits: 120/120 or 277/277V	B= Black; DB= Dark bronze; OW= Off white; PG= Platinum gray	-FT= Forward throw lighting; -H= High lumen output -40°F - 86°F (-40°C - 30°C); -P= Photo-switch (AC and ACDC only); -RC= Remote control - infrared (AC and ACDC only)[2]

Example: CAMACDCB-H

[1] Temperature range: -40°F - 122°F (-40°C + 50°C)
[2] With -RC option, order the remote control keypad (TB-RC1-L) separately

TYPE "W" LIGHT FIXTURE

rdc.

11921 Freedom Drive #1110
Reston, Va 20190
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rdcollaborative.com

PROFESSIONAL

Jason C. Adams P.E.
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JOB NO.: 29894
DESIGNED BY: LHO

REVISION

△ ISSUE		DATE
	OTP	02/15/23
1	OTB	01/05/24

FOR INFORMATION ONLY

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PROJECT

CIRCLE K STORES, INC.

ANGIER, NC

9706 KENNEBEC CHURCH ROAD,
ANGIER, NC

PROTOCYCLE# R1.2 12/XX/22

CIRCLE K STORE

PROJECT NUMBER: 22130

EXTERIOR LIGHT FIXTURE CUT SHEETS

E1.3

COORDINATE ROUTING OF BRANCH CIRCUITS IN SIPS PANEL WITH VENDOR INSTALLED CHASES OR IN FURRED OUT WALLS. CIRCUITS SHALL NOT BE ROUTED EXPOSED ON SIPS PANELS OR WALLS. MINIMAL CUTTING OF SIPS PANELS FOR RECESSED BOXES OR DEVICES IS ALLOWED. COORDINATE LOCATIONS WITH PANEL MANUFACTURER

SECURITY CAMERAS AND MONITORS ARE FURNISHED AND INSTALLED BY OTHERS. CONTRACTOR TO PROVIDE ALL PENETRATIONS AND WIRING IN ACCORDANCE WITH LOCAL CODE. SECURITY CONTRACTOR IS RESPONSIBLE FOR LOW VOLTAGE PERMITTING AND INSPECTIONS. ALL PENETRATIONS IN EXTERIOR WALLS AND WALK-IN COOLERS SHALL BE SEALED PER SPECIFICATIONS. CONTRACTOR TO COORDINATE WITH SECURITY SYSTEM INSTALLER.

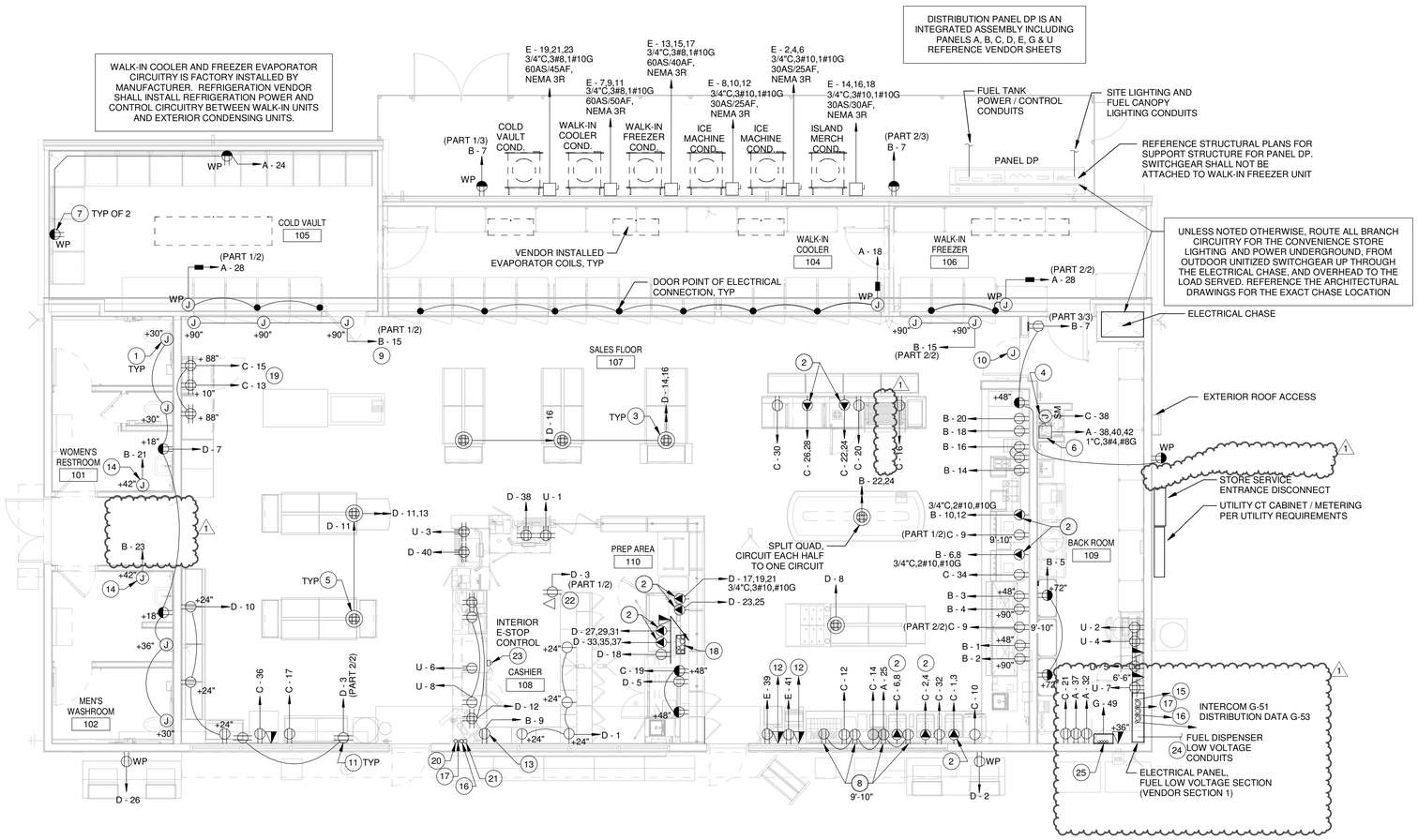
NOTE:
REFER TO SHEETS A1.5.1 AND A1.5.2 FOR ADDITIONAL EQUIPMENT ELECTRICAL INFORMATION AND REQUIREMENTS.

POWER GENERAL NOTES

1. ALL ELECTRICAL DEVICES SHALL BE WEATHERPROOF.
2. ALL 125V THROUGH 250V RECEPTACLES SUPPLIED BY SINGLE-PHASE BRANCH CIRCUITS RATED 150V OR LESS TO GROUND, 50A OR LESS, AND ALL RECEPTACLES SUPPLIED BY THREE-PHASE CIRCUITS RATED 150V OR LESS TO GROUND, 100A OR LESS LOCATED AT FOOD PREPARATION, FOOD SERVICE OR BEVERAGE COUNTERS SHALL BE PROTECTED BY A READILY ACCESSIBLE GFCI DEVICE PER NEC 210.8(B) (2). GFCI DEVICE MAY BE LOCATED EITHER IN A RECEPTACLE OR CIRCUIT BREAKER. FACE PLATE OF RECEPTACLE CONTROLLED BY GFCI DEVICE SHALL BE MARKED WITH GFCI PROTECTED SYMBOL.
3. ALL EMPTY CONDUITS SHALL BE PROVIDED WITH PULL STRINGS.
4. REFER TO DRAWING A1.5 FOR EQUIPMENT SCHEDULE AND TERMINATION REQUIREMENTS. REFER TO ARCHITECTURAL DRAWINGS FOR ISLAND DETAILS.
5. ALL EQUIPMENT WITH REMOTE CONDENSERS MOUNTED ON THE ROOF SHALL HAVE 1/2" EMPTY CONDUIT (SEE POWER GENERAL NOTE 3) BETWEEN THE EQUIPMENT AND THE REMOTE CONDENSER FOR CONTROL CIRCUITS.
6. ELECTRICAL CONTRACTOR SHALL VERIFY ALL EQUIPMENT CONNECTIONS, MOUNTING HEIGHTS AND CORD REQUIREMENTS WITH EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION. ALL EQUIPMENT SHALL BE LISTED FOR ITS INTENDED USE PER NEC ART. 400.7.
7. PROVIDE HEAT TAPE FOR ALL EXPOSED PIPING. HEAT TAPE TO BE FROM THE SAME CIRCUIT SERVING EQUIPMENT. SEE MECHANICAL SHEETS FOR DETAILS.
8. ELECTRICAL CONVEYANCES FROM BREAKERS TO OUTLET OR FIXTURE SHALL BE ENCLOSED WITHIN CEILING SPACE, FINISHED WALLS OR CABINETRY AND NOT EXPOSED. CODE 6-201.12.

KEYNOTES

1. JUNCTION BOX FOR AUTOMATIC FLUSH SENSOR. COORDINATE EXACT MOUNTING HEIGHT WITH MANUFACTURER INSTRUCTIONS AND PLUMBING CONTRACTOR.
2. PROVIDE SPECIAL OUTLET FOR COMPLETE CONNECTION OF EQUIPMENT. VERIFY EXACT NEMA CONFIGURATION WITH SUPPLIED EQUIPMENT.
3. PROVIDE FLUSH RECESSED HUBBELL FLOOR BOX WITH BRASS COVER PLATE FOR POWER TO DISPLAYS AND EQUIPMENT.
4. PROVIDE JUNCTION BOX FOR HARD WIRE CONNECTION TO RE-CIRC PUMP AND AQUA-STAT TIMER. PROVIDE MOTOR RATED SWITCH PER 422.31 (C). VERIFY EXACT LOCATION AND MOUNTING HEIGHT PRIOR TO ROUGH-IN.
5. PROVIDE 3/4" CONDUIT UNDER SLAB FROM CASEWORK BACK TO WALL FOR 120V POWER TO FLOOR BOXES. ROUTE IN FIELD TO NEAREST ACCESSIBLE POINT AND MINIMIZE INTERFERENCES. REFER TO ARCHITECTURAL PLANS FOR MORE INFORMATION.
6. WATER HEATER AT 208V 3PH. PROVIDE 100A 250V 3P+EQUIPMENT GROUND, NON-FUSIBLE DISCONNECT SWITCH INSTALLED IN READILY ACCESSIBLE LOCATION.
7. MOUNT RECEPTACLE TO ACCESSIBLE CEILING IN COOLER / BEER CAVE FOR LOW VOLTAGE SIGNAGE. SEAL SLEEVE WITH POLY SILICON CAULKING TO PREVENT MOISTURE AND AIR FROM ENTERING AND DAMAGING THE TRANSFORMER AND LOW VOLTAGE WIRING.
8. PROVIDE JUNCTION BOX WITH DUPLEX RECEPTACLE FOR PLUG IN ABOVE THE CEILING GRID.
9. PROVIDE JUNCTION BOX ABOVE CEILING FOR HARDWIRED ELECTRICAL CONNECTION.
10. CO2 ALARM STROBE JUNCTION BOX. SINGLE GANG JUNCTION BOX MOUNTED 8" BELOW CEILING CENTERED ON DOOR WITH CONDUIT TO ACCESSIBLE BACKROOM CEILING SPACE FOR LOW VOLTAGE COMMUNICATION WIRING BY OTHERS.
11. PROVIDE FLUSH MOUNT RECEPTACLE IN CEILING FOR WINDOW DISPLAYS.
12. JUNCTION BOX WITH (1) 3/4" EMPTY CONDUIT TO NETWORK SWITCH IN OFFICE AREA FOR ATM DATA.
13. JUNCTION BOX AND RECEPTACLE FOR CO2 MONITOR CONTROL PANEL. CATEGORY 5 CONTROL WIRING TO BE CONCEALED WITHIN WALL. NO EXPOSED WIRING IN SALES AREA.
14. HAND DRYER: INSTALL PER MANUFACTURER INSTRUCTIONS.
15. (1) 2" EMPTY CONDUIT WITH PULL STRING TO MANAGER'S DESK.
16. (1) 2" EMPTY CONDUIT WITH PULL STRING FROM ELECTRICAL EQUIPMENT LOW VOLTAGE PANEL SECTION TO CHECKOUT CABINET. REFERENCE ELECTRICAL EQUIPMENT VENDOR INFORMATION.
17. (1) 1" EMPTY CONDUIT WITH PULL STRING FOR INTERCOM FROM ELECTRICAL LOW VOLTAGE PANEL SECTION TO CHECKOUT. REFERENCE ELECTRICAL EQUIPMENT VENDOR INFORMATION.
18. PROVIDE AND INSTALL CONDUIT(S) UNDER SLAB FROM THE PANELS IN THE BACK OF THE HOUSE TO THE FOOD PREP AREA IN FRONT OF STORE. TRANSITION FROM PVC TO GRC 90 DEGREE ELL TO STUB-UP THROUGH SLAB AND CONTINUE CIRCUIT TO EQUIPMENT RECEPTACLE USING ARMORED FLEX. PROVIDE A MEANS OF MOUNTING FOR RECEPTACLE UNDER THE EQUIPMENT. CONFIRM EXACT LOCATION AND REQUIREMENTS WITH OWNER PRIOR TO INSTALLATION.
19. WINE RACK RECEPTACLES: REFERENCE MANUFACTURER INSTRUCTION FOR EXACT LOCATION OF RECEPTACLES WITHIN DISPLAY.
20. (1) 2" EMPTY CONDUIT WITH PULL STRING FROM CHECKOUT CABINET TO MANAGER'S DESK.
21. PROVIDE (1) 2" EMPTY CONDUIT WITH PULL STRING FROM CHECKOUT CABINET TO NETWORK RACK IN BACKROOM AT MANAGER'S DESK AREA.
22. CEILING MOUNTED RECEPTACLE AND DATA OUTLET FOR CAR WASH MENU SCREEN.
23. INTERIOR E-STOP / CASHIER CONTROL PANEL MOUNTED UNDER COUNTER. FIELD VERIFY LOCATION WITH CONSTRUCTION MANAGER.
24. FUEL ISLAND DISPENSER / FUEL TANK POWER, CONTROL AND MONITORING CONDUIT ENTRANCES. REFERENCE SHEET E1.0, DETAILS 5/E1.1, 6/E1.1 AND FUEL SYSTEM VENDOR DRAWINGS.
25. VEEDER ROOT TLS450 MONITOR SYSTEM. PROVIDE (4) 1" CONDUITS WITH PULL STRING AT MONITOR LOCATION, ROUTED TO LOW VOLTAGE CONTROL SECTION 1 OF SWITCHGEAR DP. REFERENCE SWITCHGEAR VENDOR DRAWINGS FOR LOW VOLTAGE SECTION CONDUIT ENTRANCE LOCATION. VEEDER ROOT MONITOR CONSOLE TO BE INSTALLED +48" AFF TO CENTER BY PETROLEUM SYSTEMS ELECTRICIAN. COORDINATE EXACT LOCATION WTIH PETROLEUM SYSTEMS ELECTRICIAN.



ELECTRICAL FLOOR PLAN | 1
3/16" = 1'-0"

rdc.

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PROFESSIONAL

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JOB NO.: 29894
DESIGNED BY: LHO

REVISION

△	ISSUE	DATE
	OTP	02/15/23
1	OTB	01/05/24

NORTH CAROLINA PROFESSIONAL SEAL 036972 ENGINEER JASON C. ADAMS

Feb 15, 2023

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PROJECT

CIRCLE K STORES, INC.

ANGIER, NC

9706 KENNEBEC CHURCH ROAD,
ANGIER, NC

PROTOCYCLE# R1.2 12/XX/22

CIRCLE K STORE

PROJECT NUMBER: 22130

ELECTRICAL FLOOR PLAN

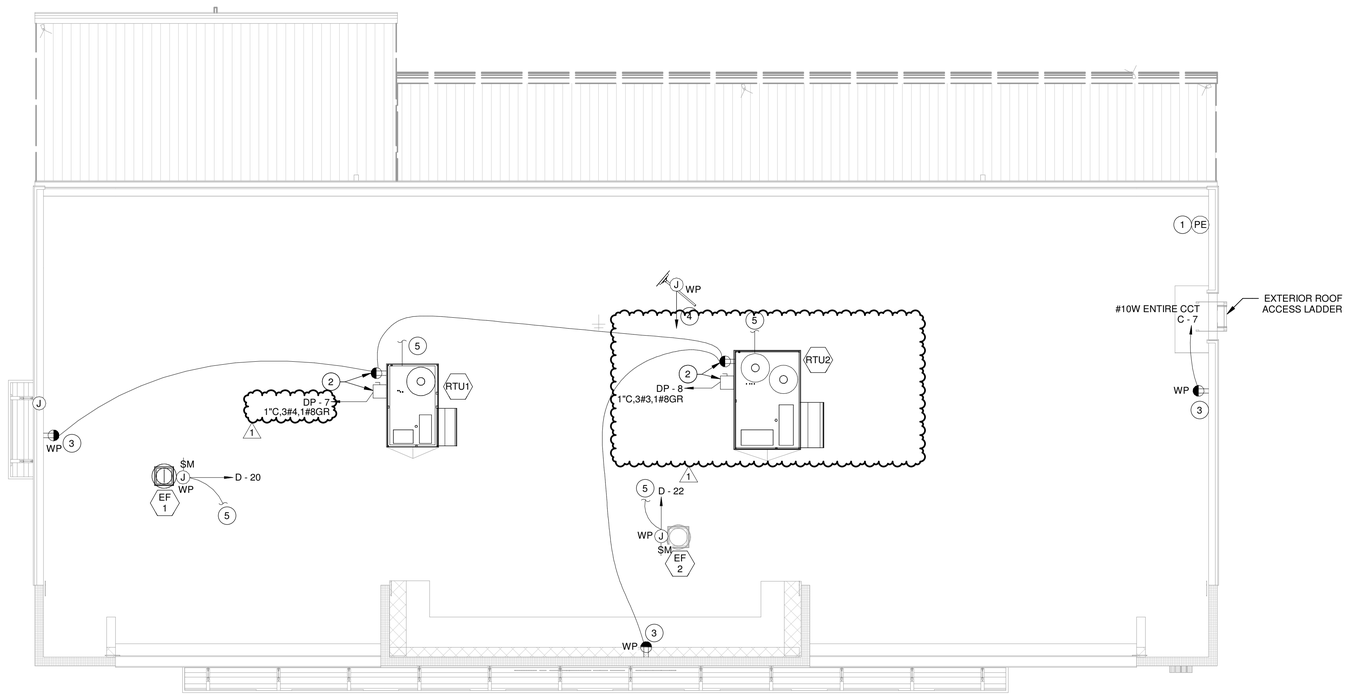
E2.0

ROOF POWER GENERAL NOTES

1. ALL EXTERIOR DEVICES SHALL BE WEATHERPROOF RATED.
2. ALL EQUIPMENT WITH REMOTE CONDENSERS MOUNTED ON THE ROOF SHALL HAVE (1) 1/2" EMPTY CONDUIT BETWEEN THE EQUIPMENT AND THE REMOTE CONDENSER FOR CONTROL CIRCUITS.
3. ROUTE CONDUIT(S) FOR CONDENSERS THROUGH SAME WEATHERPROOF GOOSENECK USED FOR CONDENSATE PIPING - REFER TO DETAIL #2 ON SHEET M1.2.1.
4. SEAL ALL BUILDING PENETRATIONS.
5. HEAT TRACE TO BE PROVIDED IN COLD REGIONS.

KEYNOTES

1. MOUNT PHOTOCELL TO INTERIOR WALL OF PARAPET. ROUTE CONDUIT THROUGH PARAPET WALL TO LIGHTING CONTROL. DETAIL 2/E6.0.
2. ROOF TOP UNIT IS PROVIDED WITH MANUFACTURER FACTORY INSTALLED DISCONNECT AND GFI MAINTENANCE RECEPTACLE. CIRCUIT AS SHOWN.
3. WP, GFCI MOISTURE RESISTANT RECEPTACLE ON ROOF.
4. WP JUNCTION BOX ON ROOF FOR SATELLITE DISH WITH 1" EMPTY CONDUIT TO CASHIER COUNTER LOTTO MACHINE. VERIFY EXACT LOCATION OF SATELLITE DISH IN FIELD.
5. EXTEND CONDUIT AND WIRE TO THERMOSTAT FOR LINE VOLTAGE CONNECTION. COORDINATE WITH MECHANICAL CONTRACTOR.



ROOF POWER PLAN | 1

3/16" = 1'-0"

rdc.

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t 703.668.0086
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PROFESSIONAL

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JOB NO.: 29894
DESIGNED BY: LHO

REVISION

△	ISSUE	DATE
	OTP	02/15/23
1	OTB	01/05/24

NORTH CAROLINA PROFESSIONAL SEAL 036972 ENGINEER JASON C. ADAMS

Feb 15, 2023

PROFESSIONAL IN
JCA

PROJECT
SAG

QUALITY
SAG

DRAWN
LHO

PROJECT

CIRCLE K STORES, INC.

ANGIER, NC

9706 KENNEBEC CHURCH ROAD,
ANGIER, NC

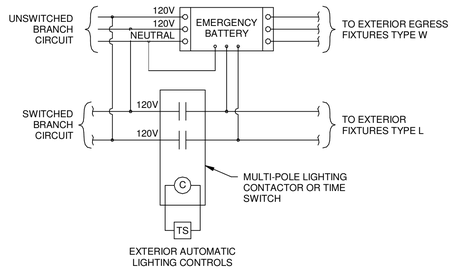
PROTOCYCLE# R1.2 12/XX/22

CIRCLE K STORE

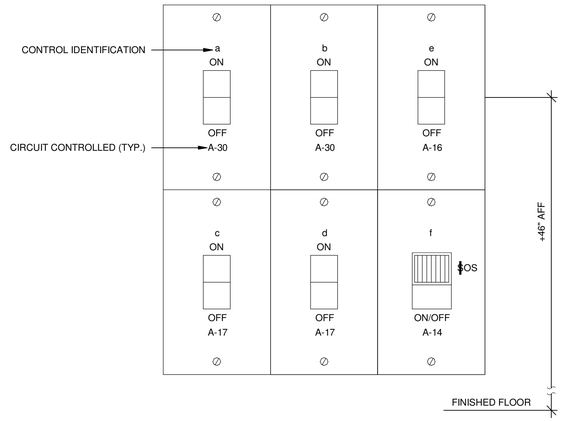
PROJECT NUMBER: 22130

ROOF POWER PLAN

E4.0



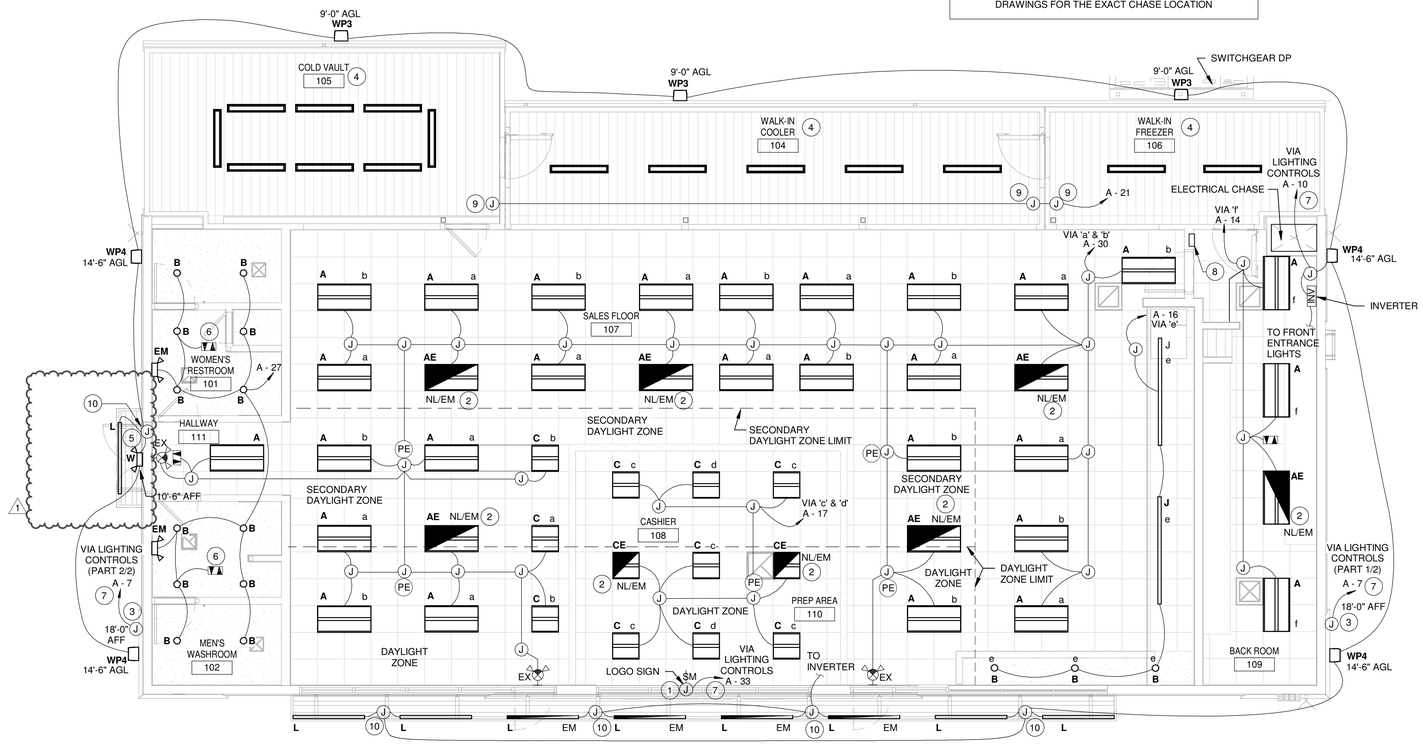
EXTERIOR EMERGENCY LIGHTING DETAIL | 3
N.T.S.



SWITCHBANK DETAIL | 2
N.T.S.

COORDINATE ROUTING OF BRANCH CIRCUITS IN SIPS PANEL WITH VENDOR INSTALLED CHASES OR IN FURRED OUT WALLS. CIRCUITS SHALL NOT BE ROUTED EXPOSED ON SIPS PANELS OR WALLS. MINIMAL CUTTING OF SIPS PANELS FOR RECESSED BOXES OR DEVICES IS ALLOWED. COORDINATE LOCATIONS WITH PANEL MANUFACTURER

UNLESS NOTED OTHERWISE, ROUTE ALL BRANCH CIRCUITRY FOR THE CONVENIENCE STORE LIGHTING AND POWER UNDERGROUND, FROM OUTDOOR UNITIZED SWITCHGEAR UP THROUGH THE ELECTRICAL CHASE, AND OVERHEAD TO THE LOAD SERVED. REFERENCE THE ARCHITECTURAL DRAWINGS FOR THE EXACT CHASE LOCATION



ELECTRICAL LIGHTING PLAN | 1
3/16" = 1'-0"

LIGHTING GENERAL NOTES

A. COORDINATE ALL WORK WITH OTHER TRADES AND THE PROJECT MANAGER.

B. VERIFY LOCATION AND MOUNTING HEIGHT OF ALL LIGHT FIXTURES WITH THE ARCHITECT / OWNER PRIOR TO ROUGH-IN.

C. THE EXIT, EMERGENCY AND NIGHT LIGHT FIXTURES SHALL NOT BE SWITCHED.

D. RGS CONDUIT SHALL BE USED IN ALL EXTERIOR LOCATIONS.

E. MINIMUM CONDUIT SIZE SHALL BE 1/2".

F. MINIMUM WIRE SIZE SHALL BE #12 THHN/THWN CU.

G. ALL EXTERIOR LIGHT FIXTURES SHALL BE CONTROLLED VIA PHOTOCELL. REFERENCE DETAIL 2/E6.0.

H. REFER TO THE PANEL SCHEDULES ON SHEETS E7.0 AND E7.1 FOR LOAD DESIGNATIONS. THERE SHALL BE NO SHARED NEUTRALS.

I. CONDUIT(S) SHALL NOT BE ROUTED EXPOSED ON ANY EXTERIOR OR INTERIOR WALL.

J. ALL EXTERIOR DEVICES SHALL BE WEATHERPROOF RATED.

K. REFER TO SHEET E0.0 FOR THE LIGHT FIXTURE SCHEDULE.

L. PROVIDE STAINLESS STEEL SWITCH COVERS FOR ALL CUSTOMER ACCESSIBLE AREAS. (RESTROOMS, HALLWAY, COOLER, SALES AREA).

M. ALL EMERGENCY EQUIPMENT SHALL BE LISTED TO UL924 AND BE INSTALLED PER NEC 700.

N. OCCUPANCY SENSORS SHALL BE SET TO MAXIMUM DELAY PER MANUFACTURER INSTRUCTIONS.

KEYNOTES

1 REFER TO ARCHITECTURAL SHEETS FOR ACCESS PANEL FOR SIGNAGE IN THIS SOFFIT AREA.

2 PROVIDE WITH EMERGENCY BATTERY BACK-UP BALLAST - BODINE B50.

3 FUTURE SIGNAGE LOCATION.

4 PROVIDE TEMPERATURE SEAL / FIRE STOP FOR ALL CONDUITS AND HOME RUNS IN THESE AREAS PER NEC 300.7.

5 PROVIDE HIGHLITES EMERGENCY BATTERY PACK - PCF 250 - BLACK IN COLOR (SEE DETAIL 3/E5.0)

6 RESTROOM OCCUPANCY SENSOR: SET SENSOR FOR 20 MINUTE TIME DELAY

7 ROUTE CIRCUIT VIA PHOTOCELL CONTROLLED CONTACTOR. REFERENCE DETAIL 2/E6.0.

8 REFER TO SWITCH BANK DETAIL 2/E5.0 FOR SWITCHING OF SALES FLOOR LIGHTING. VERIFY FINAL LOCATION WITH OWNER.

9 LIGHTING AND DEVICES IN WALK-IN COOLER / FREEZER ARE INSTALLED BY COOLER / FREEZER VENDOR. MAKE FINAL CONNECTION TO INSTALLED LIGHTING AT VENDOR CONNECTION POINT. FIELD VERIFY CONNECTION POINT WITH VENDOR.

10 120-VOLT LED LIGHTING POWER SUPPLY FURNISHED BY OWNER. CIRCUIT POWER SUPPLY TO 120-VOLT POWER AS SHOWN AND CIRCUIT TO 24-VOLT LED LIGHTING STRIP PER MANUFACTURER'S INSTRUCTIONS. MAXIMUM OF (2) LED LIGHTING STRIPS CIRCUITED TO EACH POWER SUPPLY.

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PROJECT

CIRCLE K STORES, INC.

ANGIER, NC

9706 KENNEBEC CHURCH ROAD,
ANGIER, NC

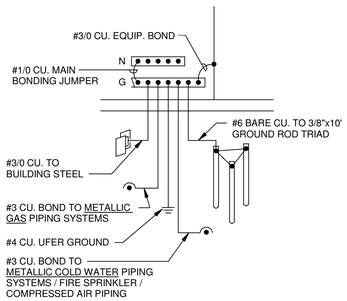
PROTOCYCLE# R1.2 12/XX/22

CIRCLE K STORE

PROJECT NUMBER: 22130

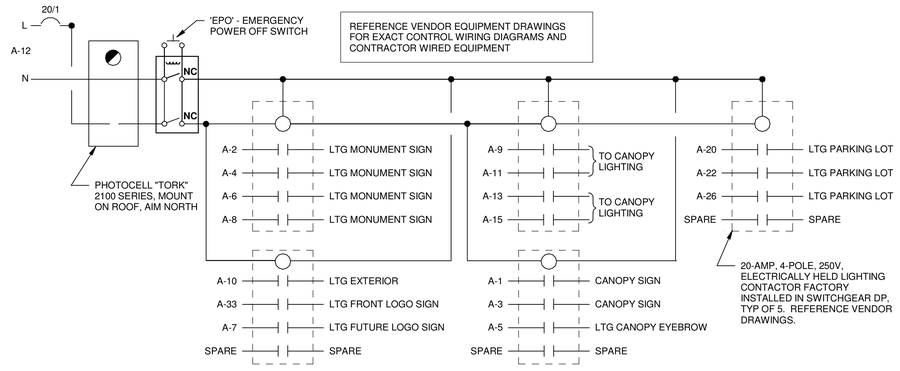
LIGHTING PLAN

E5.0



GROUNDING DETAIL | 3

N.T.S.



LIGHTING CONTROL DIAGRAM | 2

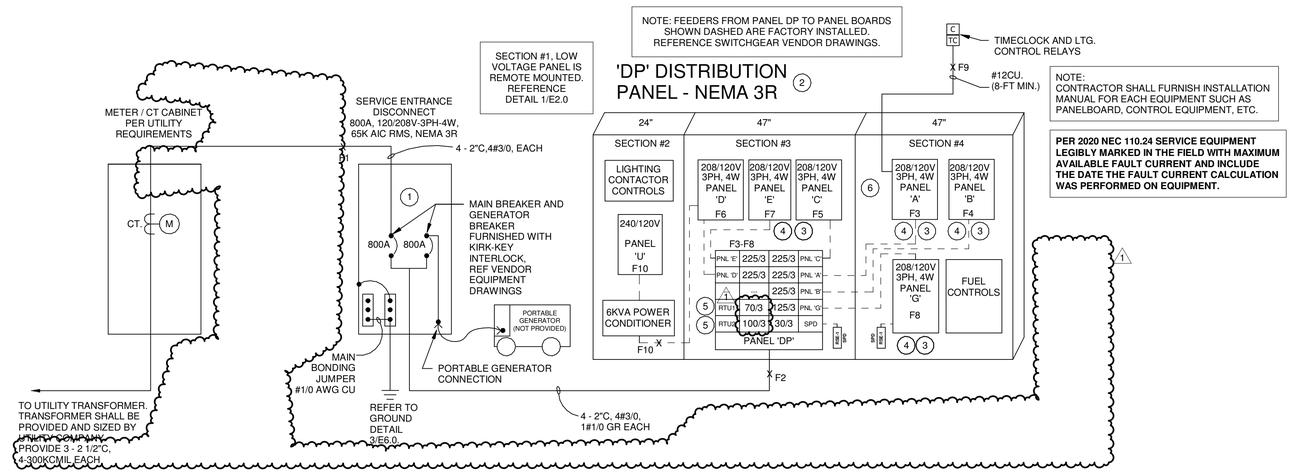
N.T.S.

SERIES RATING GENERAL NOTES

1. THE MOTOR CONTRIBUTION TO THE FAULT CURRENT MEETS THE 1% CRITERIA STATED IN NEC 240.86(C)
2. NO DESIGN CHANGES MAY BE MADE TO THE SYSTEM WITHOUT THE PRIOR APPROVAL OF THE DESIGN ELECTRICAL ENGINEER AND THE ELECTRICAL INSPECTOR.

ONE-LINE KEYNOTES

1. THIS SERVICE IS A SERIES RATED SYSTEM: 2-TIER 65/10. ALL SERVICE ENTRANCE EQUIPMENT SYSTEM COMPONENTS SHALL BE RATED 65K, WITH SERIES RATED DOWNSTREAM.
2. CONTRACTOR SHALL LABEL SERVICE ENTRANCE EQUIPMENT "CAUTION - SERIES RATED SYSTEM (65). 65,000 AMPS AVAILABLE IDENTIFIED REPLACEMENT COMPONENT REQUIRED." IN ACCORDANCE WITH NEC 110.22.
3. CONTRACTOR SHALL LABEL PANEL(S) "CAUTION - SERIES RATED SYSTEM ("X"). "X" AMPS AVAILABLE IDENTIFIED REPLACEMENT COMPONENT REQUIRED IN ACCORDANCE WITH NEC 110.22". (REFER TO SHORT CIRCUIT CALCULATIONS FOR ACTUAL AMPS TO BE LABELED).
4. CIRCUIT BREAKERS SHALL BE A BOLT-ON TYPE U.L. LISTED SERIES RATED COMBINATION WITH THE BREAKERS AT DISTRIBUTION PANEL "DP".
5. REFER TO E4.0 ROOF POWER PLAN FOR WIRE AND CONDUIT SIZE FOR ROOF TOP UNITS.
6. MAXIMUM CIRCUIT BREAKER HEIGHT EQUAL TO 6'-7" AFF OR AFG.



RISER DIAGRAM - | 1

N.T.S.

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PROTOCYCLE# R1.2 12/XX/22

CIRCLE K STORE

PROJECT NUMBER: 22130

CALCULATIONS AND SCHEMATICS

E6.0

PANELBOARD A

Bus Rating: 225 A | **Main Rating Upstream:** 225A | **Location:** DIST. DP
Voltage: 208Y/120 V | **Mains Type:** M.L.O. | **Busbar Material:** CU
System: 3Ø, 4W | **A.I.C. Rating:** 65,000 A | **Ground Busbar:** Yes
Mounting: Cabinet | **Fully / Series:** Series | **Neutral Busbar:** 100%
Status: New | **Trim:** Door-In-Door | **Branch Breaker Type:** Bolt-on | **IG Ground Busbar:** No
Nema Rating: 3R | **Feed Type:** Bottom | **Skirt Type:** None
Furnished by Owner, installed by EC | **Feed Thru Lugs:** No | **Terminations:** 75°C CU | **Sections:** 1

CCT No.	Load Code	Load Description	Notes	Brkr Size	Poles	A	B	C	Poles	Brkr Size	Notes	Load Description	Load Code	CCT No.
1	10	FUEL CANOPY SIGN		20 A	1	1.20 0.96			1	20 A		LTG. - MONUMENT SIGN - PRICE	10	2
3	10	FUEL CANOPY SIGN		20 A	1		1.20 0.96		1	20 A		LTG. - MONUMENT SIGN - LOGO	10	4
5	10	FUEL CANOPY EYEBROW		20 A	1			0.54 0.96	1	20 A		LTG. - MONUMENT SIGN - PRICE	10	6
7	10	LTG. BUILDING SIGN (FUTURE)		20 A	1	0.60 0.96			1	20 A		LTG. - MONUMENT SIGN - LOGO	10	8
9	10	FUEL CANOPY LIGHTING		20 A	2		0.60 1.12		1	20 A		LTG. EXTERIOR BUILDING	10, 1	10
11								0.60 0.30	1	20 A		MISC. - LTG CONTACTOR	3	12
13	10	FUEL CANOPY LIGHTING		20 A	2	0.60 0.18			1	20 A		LTG. BACK ROOM / OFFICE	1	14
15							0.60 0.06		1	20 A		LTG. COFFEE & DRINKS	1	16
17	1	LIGHTING CASHIER / PREP		20 A	1			0.40 0.60	1	20 A		LTG/HTR WALK-IN CLR DOORS	1	18
19	--	SPARE	--	20 A	1	0.00 0.52			1	20 A		LTG. EXTERIOR PARKING - POLES	10	20
21	1	LTG. COOLER / COLD VAULT		20 A	1		0.23 0.73		1	20 A		LTG. EXTERIOR PARKING - POLES	10	22
23	--	FILLER SPACE	--	--	1			0.65	1	20 A		LTG. COOLER SIGNS	2	24
25	2	LED FRAME - COFFEE		20 A	1	0.20 0.52			1	20 A		LTG. EXTERIOR PARKING - POLES	10	26
27	1	LTG. RESTROOMS / STOCKROOM		20 A	1		0.25 1.20		1	20 A		LTG/HTR COLD VAULT DOORS	1	28
29	--	SPARE	--	20 A	1			0.00 1.45	1	20 A		LTG. SALES FLOOR	1	30
31	--	FILLER SPACE	--	--	1	-- 0.18			1	20 A		DOOR CHIME	2	32
33	10	CIRCLE K FRONT LOGO SIGN		20 A	1		0.15 1.56		1	20 A		AIR MACHINE	4	34
35	--	FILLER SPACE	--	--	1			-- 1.56	1	20 A		AIR MACHINE	4	36
37	2	LOGO LTG CONTROLS		20 A	1	0.30 8.00								38
39	4	VACUUM		20 A	1		1.80 8.00		3	90 A		WATER HEATER	3	40
41	4	VACUUM		20 A	1			1.80 8.00						42
						Total Connect Load:	14.22	18.46	16.86	**kVA**				

Demand Loads May Vary From Connected Loads Because of Demand Factors — **Total Amps:** 119 A | 157 A | 144 A | **Amps** — Circuit Numbering By Pole Position Circuit

Load Codes	Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
0	Lighting - Non-Continuous	0.00	0.00%	0.00		
1	Lighting - Continuous	5.26	125.00%	6.57	**Total Conn. Load:**	49.54
2	Receptacles	1.33	100.00%	1.33	**Total Est. Demand:**	53.84
3	Special Loads	24.30	100.00%	24.30	**Total Conn.:**	138 A
4	Motors	6.72	100.00%	6.72	**Total Est. Demand:**	149 A
5	Kitchen (Commercial)	0.00	0.00%	0.00		
6	Heating	0.00	0.00%	0.00		
7	Cooling	0.00	0.00%	0.00		
9	Computer Outlets	0.00	0.00%	0.00	**Spare Capacity:**	76 A
10	Exterior Lighting	11.93	125.00%	14.92	**Spare Capacity Percent:**	66
11	Miscellaneous - Continuous	0.00	0.00%	0.00		
12	Modular Furniture Outlets	0.00	0.00%	0.00		

PANELBOARD B

Bus Rating: 225 A | **Main Rating Upstream:** 225A | **Location:** DIST. DP
Voltage: 208Y/120 V | **Mains Type:** M.L.O. | **Busbar Material:** CU
System: 3Ø, 4W | **A.I.C. Rating:** 65,000 A | **Ground Busbar:** Yes
Mounting: Cabinet | **Fully / Series:** Series | **Neutral Busbar:** 100%
Status: New | **Trim:** Door-In-Door | **Branch Breaker Type:** Bolt-on | **IG Ground Busbar:** No
Nema Rating: 3R | **Feed Type:** Bottom | **Skirt Type:** None
Furnished by Owner, installed by EC | **Feed Thru Lugs:** No | **Terminations:** 75°C CU | **Sections:** 1

CCT No.	Load Code	Load Description	Notes	Brkr Size	Poles	A	B	C	Poles	Brkr Size	Notes	Load Description	Load Code	CCT No.
1	2	B001 12-HEAD SODA FOUNTAIN		20 A	1	0.62 0.13			1	20 A		B102 ICE MAKER	2	2
3	2	B001 12-HEAD SODA FOUNTAIN		20 A	1		0.62 0.60		1	20 A		B101 ICE MAKER	2	4
5	2	REC. BIB EQ B601, B602, B603		20 A	1			0.80 2.40	2	30 A		B301 4-HEAD FROSTED VIPER	3	6
7	2	RECS. GENERAL BACK RM		20 A	1	0.90 2.40								8
9	2	B503 REC. CO2 DETECTION	3	20 A	1		0.18 2.40		2	30 A		B301 4-HEAD FROSTED VIPER	3	10
11	--	SPARE	--	20 A	1			0.00 2.40						12
13	--	FILLER SPACE	--	--	1	-- 1.50			1	20 A		H303 U.C. MICROWAVE	5	14
15	--	COLD VAULT OVAL SIGNS LED		20 A	1		0.20 0.61		1	20 A		H101/H102 CHEESE DISPENSERS	5	16
17	--	SPARE	--	20 A	1			0.00 1.50	1	20 A		H303 U.C. MICROWAVE	5	18
19	--	FILLER SPACE	--	--	1	-- 0.54			1	20 A		H104 COLD CONDIMENTS	5	20
21	3	WOMENS HAND DRYER	2	20 A	1		0.92 0.16		1	20 A		R309 SCA REFRG CASE FANS/HTRS	4	22
23	3	MENS HAND DRYER	2	20 A	1			0.92 0.15	1	20 A		R309 SCA REFRG CASE LIGHTS	1	24
25	--	FILLER SPACE	--	--	1	-- --			1	--	--	FILLER SPACE	--	26
27	--	FILLER SPACE	--	--	1		-- --		1	--	--	FILLER SPACE	--	28
29	--	FILLER SPACE	--	--	1			-- --	1	--	--	FILLER SPACE	--	30
31	--	FILLER SPACE	--	--	1	-- --			1	--	--	FILLER SPACE	--	32
33	--	FILLER SPACE	--	--	1		-- --		1	--	--	FILLER SPACE	--	34
35	--	FILLER SPACE	--	--	1	-- --			1	--	--	FILLER SPACE	--	36
37	--	FILLER SPACE	--	--	1		-- --		1	--	--	FILLER SPACE	--	38
39	--	FILLER SPACE	--	--	1			-- --	1	--	--	FILLER SPACE	--	40
41	--	FILLER SPACE	--	--	1				1	--	--	FILLER SPACE	--	42
						Total Connect Load:	6.09	5.69 8.17	**kVA**					

Demand Loads May Vary From Connected Loads Because of Demand Factors — **Total Amps:** 51 A | 47 A | 69 A | **Amps** — Circuit Numbering By Pole Position Circuit

Load Codes	Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
0	Lighting - Non-Continuous	0.00	0.00%	0.00		
1	Lighting - Continuous	0.35	125.00%	0.44	**Total Conn. Load:**	19.95
2	Receptacles	3.85	100.00%	3.85	**Total Est. Demand:**	18.79
3	Special Loads	11.44	100.00%	11.44	**Total Conn.:**	55 A
4	Motors	0.16	100.00%	0.16	**Total Est. Demand:**	52 A
5	Kitchen (Commercial)	4.15	70.00%	2.91		
6	Heating	0.00	0.00%	0.00		
7	Cooling	0.00	0.00%	0.00		
9	Computer Outlets	0.00	0.00%	0.00	**Spare Capacity:**	173 A
10	Exterior Lighting	0.00	0.00%	0.00	**Spare Capacity Percent:**	23
11	Miscellaneous - Continuous	0.00	0.00%	0.00		
12	Modular Furniture Outlets	0.00	0.00%	0.00		

PANELBOARD C

Bus Rating: 225 A | **Main Rating Upstream:** 225A | **Location:** DIST. DP
Voltage: 208Y/120 V | **Mains Type:** M.L.O. | **Busbar Material:** CU
System: 3Ø, 4W | **A.I.C. Rating:** 65,000 A | **Ground Busbar:** Yes
Mounting: Cabinet | **Fully / Series:** Series | **Neutral Busbar:** 100%
Status: New | **Trim:** Door-In-Door | **Branch Breaker Type:** Bolt-on | **IG Ground Busbar:** No
Nema Rating: 3R | **Feed Type:** Bottom | **Skirt Type:** None
Furnished by Owner, installed by EC | **Feed Thru Lugs:** No | **Terminations:** 75°C CU | **Sections:** 1

CCT No.	Load Code	Load Description	Notes	Brkr Size	Poles	A	B	C	Poles	Brkr Size	Notes	Load Description	Load Code	CCT No.
1	2	C001 COFFEE BREWER		20 A	2	1.66 1.66			2	20 A		C001 COFFEE BREWER	2	2
3							1.66 1.66							4
5	--	SPARE	--	20 A	1			0.00 1.66	2	20 A		C001 COFFEE BREWER	2	6
7	2	ROOF RECEPTACLES		20 A	1	0.90 1.66								8
9	2	FROSTER, POLAR POP BACKGRND		20 A	1		0.36 1.80		1	20 A		C002 5-HEAD CAPPUCCINO	2	10
11	2	HOT BOX - BACKFLOW PREVENTER	8	20 A	1			1.20 0.67	1	20 A		C101 2 EA.-2 VALVE CREAMER	2	12
13	2	R201 WINE REFRIG		20 A	1	0.65 0.78			1	20 A		C201 COUNTERTOP ICE MAKER	2	14
15	2	WINE RACK RECEPTS		20 A	1			0.72 1.54	1	20 A		H001 HOT DOG ROLLER	5	15
17	2	R401 6' NOVELTY CASE		20 A	1			1.80 --	1	--	--	FILLER SPACE	--	18
19	2	RECS. PREP CONVENIENCE		20 A	1	0.36 0.48			1	--	--	C002 5-HEAD CAPPUCCINO	2	20
21	0	LTG. LED CONTROL / REC.		20 A	1		0.54 1.49							22
23	4	WATER / AIR FILL STATION		20 A	1			1.56 1.49	2	20 A		H209 FLEXESERVE 1000	5	24
25	--	SPARE	--	20 A	1	0.00 1.49								26
27	--	FILLER SPACE	--	--	1		-- 1.49		2	20 A		H209 FLEXESERVE 1000	5	28
29	--	FILLER SPACE	--	--	1			-- 1.42	1	20 A		H206 PIZZA WARMER	5	30
31	--	FILLER SPACE	--	--	1	-- 0.18			1	20 A		REC. CONVENIENCE OUTLET	2	32
33	--	FILLER SPACE	--	--	1		-- 0.18		1	20 A		RECS. CONVENIENCE OUTLET	2	34
35	--	FILLER SPACE	--	--	1			-- 0.72	1	20 A		M104 LOTTO RECEPTACLE	3	36
37	--	FILLER SPACE	--	--	1	-- 1.00			1	20 A		RECIRC. PUMP / AQUA STAT	4	38
39	--	FILLER SPACE	--	--	1		-- --		1	--	--	FILLER SPACE	--	40
41	--	FILLER SPACE	--	--	1			-- --	1	--	--	FILLER SPACE	--	42
						Total Connect Load:	10.83	11.45 10.52	**kVA**					

Demand Loads May Vary From Connected Loads Because of Demand Factors — **Total Amps:** 91 A | 96 A | 88 A | **Amps** — Circuit Numbering By Pole Position Circuit

Load Codes	Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
0	Lighting - Non-Continuous	0.54	125.00%	0.68		
1	Lighting - Continuous	0.00	0.00%	0.00	**Total Conn. Load:**	32.80
2	Receptacles	19.58	75.53%	14.79	**Total Est. Demand:**	25.33
3	Special Loads	0.72	100.00%	0.72	**Total Conn.:**	91 A
4	Motors	2.56	100.00%	2.56	**Total Est. Demand:**	70 A
5	Kitchen (Commercial)	9.40	70.00%	6.58		
6	Heating	0.00	0.00%	0.00		
7	Cooling	0.00	0.00%	0.00		
9	Computer Outlets	0.00	0.00%	0.00	**Spare Capacity:**	155 A
10	Exterior Lighting	0.00	0.00%	0.00	**Spare Capacity Percent:**	31
11	Miscellaneous - Continuous	0.00	0.00%	0.00		
12	Modular Furniture Outlets	0.00	0.00%	0.00		

PANELBOARD D

Bus Rating: 225 A | **Main Rating Upstream:** 225A | **Location:** DIST. DP
Voltage: 208Y/120 V | **Mains Type:** M.L.O. | **Busbar Material:** CU
System: 3Ø, 4W | **A.I.C. Rating:** 65,000 A | **Ground Busbar:** Yes
Mounting: Cabinet | **Fully / Series:** Series | **Neutral Busbar:** 100%
Status: New | **Trim:** Door-In-Door | **Branch Breaker Type:** Bolt-on | **IG Ground Busbar:** No
Nema Rating: 3R | **Feed Type:** Bottom | **Skirt Type:** None
Furnished by Owner, installed by EC | **Feed Thru Lugs:** No | **Terminations:** 75°C CU | **Sections:** 1

CCT No.	Load Code	Load Description	Notes	Brkr Size	Poles	A	B	C	Poles	Brkr Size	Notes	Load Description	Load Code	CCT No.
1	2	CIGARETTE BACK BAR RECS.		20 A	1	1.33 0.18			1	20 A	4,8	VENDING MACHINE	2	2
3	2	CAR WASH MENU SCREEN		20 A	1		0.54 --		1	--	--	FILLER SPACE	--	4
5	2	R206 UNDER COUNTER REFRIG	4	20 A	1			0.28 --	1	--	--	FILLER SPACE	--	6
7	2	REC. RESTROOMS		20 A	1	0.36 0.36			1	20 A		H402 BAKERY CASE / GONDOLA	2	8
9	--	SPARE	--	20 A	1		0.00 0.54		1	20 A		RECS. EATING AREA	2	10
11	2	GONDOLA FLOOR RECS.		20 A	1			0.36 0.72	1	20 A		REC. POS	2	12
13	2	GONDOLA FLOOR RECS.		20 A	1	0.36 0.72			1	20 A		M001 GONDOLA FLOOR RECS.	2	14
15	--	FILLER SPACE	--	--	1		-- 0.36		1	20 A		M001 GONDOLA FLOOR RECS.	2	16
17								1.93 0.24	1	20 A		R202 27" U.C. FREEZER	5	18
19	5	H201 COMBI OVEN		25 A	3	1.93 0.36			1	20 A		EF1	4	20
21							1.93 0.36		1	20 A		EF2	4	22
23	5	H202 VENTLESS HOOD		20 A	2			0.05 --	1	--	--	FILLER SPACE	--	24
25						0.05 0.18			1	20 A	4,8	VENDING MACHINE	2	26
27							2.16 --		1	--	--	FILLER SPACE	--	28
29	5	H211 UNOX SPEEDPRO OVEN		20 A	3			2.16 --	1	--	--	FILLER SPACE	--	30
31						2.16 --			1	--	--	FILLER SPACE	--	32
33	5	H211 UNOX SPEEDPRO OVEN (OPTIONAL)	8	20 A	3		2.16 --		1	--	--	FILLER SPACE	--	34
35								2.16 --	1	--	--	FILLER SPACE	--	36
37						2.16 0.36			1	20 A		SELF CHECK DRN RECEPT	2	38
39	2	PANEL U VIA 6KVA POWER CONDITIONER	9	40 A	2		2.82 0.36		1	20 A		SELF CHECK DRN RECEPT	2	40
41								3.24 --	1	--	--	FILLER SPACE	--	42
						Total Connect Load:	10.51	11.23 11.14	**kVA**					

Demand Loads May Vary From Connected Loads Because of Demand Factors — **Total Amps:** 88 A | 94 A | 94 A | **Amps** — Circuit Numbering By Pole Position Circuit

Load Codes	Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
0	Lighting - Non-Continuous	0.00	0.00%	0.00		
1	Lighting - Continuous	0.00	0.00%	0.00	**Total Conn. Load:**	32.88
2	Receptacles	13.07	88.25%	11.54	**Total Est. Demand:**	25.62
3	Special Loads	0.00	0.00%	0.00	**Total Conn.:**	91 A
4	Motors	0.72	100.00%	0.72	**Total Est. Demand:**	71 A
5	Kitchen (Commercial)	19.09	70.00%	13.36		
6	Heating	0.00	0.00%	0.00		
7	Cooling	0.00	0.00%	0.00		
9	Computer Outlets	0.00	0.00%	0.00	**Spare Capacity:**	154 A
10	Exterior Lighting	0.00	0.00%	0.00	**Spare Capacity Percent:**	32
11	Miscellaneous - Continuous	0.00	0.00%	0.00		
12	Modular Furniture Outlets	0.00	0.00%	0.00		

PANELBOARD E

Bus Rating: 225 A | **Main Rating Upstream:** 225A | **Location:** DIST. DP
Voltage: 208Y/120 V | **Mains Type:** M.L.O. | **Busbar Material:** CU
System: 3Ø, 4W | **A.I.C. Rating:** 65,000 A | **Ground Busbar:** Yes
Mounting: Cabinet | **Fully / Series:** Fully | **Neutral Busbar:** 100%
Status: New | **Trim:** Door-In-Door | **Branch Breaker Type:** Bolt-on | **IG Ground Busbar:** No
Nema Rating: 3R | **Feed Type:** Bottom | **Skirt Type:** None
Furnished by Owner, installed by EC | **Feed Thru Lugs:** No | **Terminations:** 75°C CU | **Sections:** 1

CCT No.	Load Code	Load Description	Notes	Brkr Size	Poles	A	B	C	Poles	Brkr Size	Notes	Load Description	Load Code	CCT No.
1	--	FILLER SPACE	--	--	1	-- 1.89								2
3	--	FILLER SPACE	--	--	1		-- 1.89		3	25 A		B201 ICE MACHINE CONDENSER	4	4
5	--	FILLER SPACE	--	--	1			-- 1.89						6
7						3.94 1.89								8
9	4	WALK-IN COOLER CONDENSER		50 A	3		3.94 1.89		3	25 A		B202 ICE MACHINE CONDENSER	4	10
11								3.94 1.89						12
13						3.87 2.51								14
15	4	WALK-IN FREEZER CONDENSER		40 A	3		3.87 2.51		3	30 A		R310 REF. ISLAND CONDENSER	4	16
17								3.87 2.51						18
19						2.77 --						FILLER SPACE	--	20
21	4	COLD VAULT CONDENSER		45 A	3		2.77 --		1	--	--	FILLER SPACE	--	22
23								2.77 --	1	--	--	FILLER SPACE	--	24
25	--	FILLER SPACE	--	--	1	-- --			1	--	--	FILLER SPACE	--	26
27	--	FILLER SPACE	--	--	1		-- --		1	--	--	FILLER SPACE	--	28
29	--	FILLER SPACE	--	--	1			-- --	1	--	--	FILLER SPACE	--	30
31	--	SPARE	--	20 A	1	0.00 --			1	--	--	FILLER SPACE	--	32
33	--	SPARE	--	20 A	1		0.00 --		1	--	--	FILLER SPACE	--	34
35	--	SPARE	--	20 A	1			0.00 --	1	--	--	FILLER SPACE	--	36
37	--	SPARE	--	20 A	1	0.00 --			1	--	--	FILLER SPACE	--	38
39	2	REC. ATM		20 A	1		0.24 --		1	--	--	FILLER SPACE	--	40
41	2	REC. BITCOIN ATM		20 A	1			0.24 --	1	--	--	FILLER SPACE	--	42
						Total Connect Load:	16.87	17.11 17.11	**kVA**					

Demand Loads May Vary From Connected Loads Because of Demand Factors — **Total Amps:** 141 A | 143 A | 143 A | **Amps** — Circuit Numbering By Pole Position Circuit

Load Codes	Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
0	Lighting - Non-Continuous	0.00	0.00%	0.00		
1	Lighting - Continuous	0.00	0.00%	0.00	**Total Conn. Load:**	51.09
2	Receptacles	0.48	100.00%	0.48	**Total Est. Demand:**	51.09
3	Special Loads	0.00	0.00%	0.00	**Total Conn.:**	142 A
4	Motors	50.61	100.00%	50.61	**Total Est. Demand:**	142 A
5	Kitchen (Commercial)	0.00	0.00%	0.00		
6	Heating	0.00	0.00%	0.00		
7	Cooling	0.00	0.00%	0.00		
9	Computer Outlets	0.00	0.00%	0.00	**Spare Capacity:**	83 A
10	Exterior Lighting	0.00	0.00%	0.00	**Spare Capacity Percent:**	63
11	Miscellaneous - Continuous	0.00	0.00%	0.00		
12	Modular Furniture Outlets	0.00	0.00%	0.00		

PANELBOARD G

Bus Rating: 125 A | **Main Rating Upstream:** 125A | **Location:** DIST. DP
Voltage: 208Y/120 V | **Mains Type:** M.L.O. | **Busbar Material:** CU
System: 3Ø, 4W | **A.I.C. Rating:** 65,000 A | **Ground Busbar:** Yes
Mounting: Cabinet | **Fully / Series:** Series | **Neutral Busbar:** 100%
Status: New | **Trim:** Door-In-Door | **Branch Breaker Type:** Bolt-on | **IG Ground Busbar:** No
Nema Rating: 3R | **Feed Type:** Bottom | **Skirt Type:** None
Furnished by Owner, installed by EC | **Feed Thru Lugs:** No | **Terminations:** 75°C CU | **Sections:** 1

CCT No.	Load Code	Load Description	Notes	Brkr Size	Poles	A	B	C	Poles	Brkr Size	Notes	Load Description	Load Code	CCT No.
1	4	SUBMRG. 2HP PUMP REGULAR		20 A	2	1.38 1.38			2	20 A		SUBMRG. 2HP PUMP SUL	4	2
3							1.38 1.38							4
5	4	SUBMRG. 2HP PUMP REGULAR		20 A	2			1.38 1.38	2	20 A		SUBMRG. 2HP PUMP DIESEL	4	6
7						1.38 1.38								8
9	4	SUBMRG. 2HP PUMP CK CHOICE		20 A	2		1.38 --		1	--	--	FILLER SPACE	--	10
11								1.38 --	1	--	--	FILLER SPACE	--	12
13	--	FILLER SPACE	--	--	1	-- --			1	--	--	FILLER SPACE	--	14
15	--	FILLER SPACE	--	--	1		-- --		1	--	--	FILLER SPACE	--	16
17	--	FILLER SPACE	--	--	1			-- --	1	--	--	FILLER SPACE	--	18
19	--	FILLER SPACE	--	--	1	-- --			1	--	--	FILLER SPACE	--	20
21	--	FILLER SPACE	--	--	1		-- 0.26		1	20 A		MISC. - DISPENSER #1	3	22
23	--	FILLER SPACE	--	--	1			-- --	1	--	--	SWITCHED NEUTRAL	--	24
25	--	FILLER SPACE	--	--	1	-- 0.26			1	20 A		MISC. - DISPENSER #2	3	26
27	--	FILLER SPACE	--	--	1		-- --		1	--	--	SWITCHED NEUTRAL	--	28
29	--	FILLER SPACE	--	--	1			-- 0.26	1	20 A		MISC. - DISPENSER #3	3	30
31	--	FILLER SPACE	--	--	1	-- --			1	--	--	SWITCHED NEUTRAL	--	32
33	--	FILLER SPACE	--	--	1		-- 0.26		1	20 A		MISC. - DISPENSER #4	3	34
35	--	FILLER SPACE	--	--	1			-- --	1	--	--	SWITCHED NEUTRAL	--	36
37	--	FILLER SPACE	--	--	1	-- 0.26			1	20 A		MISC. DISPENSER #5	3	38
39	--	FILLER SPACE	--	--	1		-- --		1	--	--	SWITCHED NEUTRAL	--	40
41	--	FILLER SPACE	--	--	1			-- 0.26	1	20 A		MISC. - DISPENSER #6	3	42
43	2	E-STOP CONTROL PWR	9	15 A	1	0.18 --			1	--	--	SWITCHED NEUTRAL	--	44
45	--	SWITCHED NEUTRAL	--	--	1		-- 0.26		1	20 A		MISC. - DISPENSER #7	3	46
47	2	SPARE ELECTRONICS		20 A	1			0.36 --	1	--	--	SWITCHED NEUTRAL	--	48
49	2	VEEDER ROOT (E1)		20 A	1	0.36 0.01								50
51	2	INTERCOM CONTROLLER (E2)		20 A	1		0.36 0.01		3	30 A	9	SPD	11	52
53	2	DISTRIBUTION BOX (E3)		20 A	1			0.36 0.01						54
						Total Connect Load:	6.57	5.28 5.38	**kVA**					

Demand Loads May Vary From Connected Loads Because of Demand Factors — **Total Amps:** 55 A | 44 A | 45 A | **Amps** — Circuit Numbering By Pole Position Circuit

Load Codes	Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
0	Lighting - Non-Continuous	0.00	0.00%	0.00		
1	Lighting - Continuous	0.00	0.00%	0.00	**Total Conn. Load:**	17.22
2	Receptacles	1.62	100.00%	1.62	**Total Est. Demand:**	17.23
3	Special Loads	1.82	100.00%	1.82	**Total Conn.:**	48 A
4	Motors	13.75	100.00%	13.75	**Total Est. Demand:**	48 A
5	Kitchen (Commercial)	0.00	0.00%	0.00		
6	Heating	0.00	0.00%	0.00		
7	Cooling	0.00	0.00%	0.00		
9	Computer Outlets	0.00	0.00%	0.00	**Spare Capacity:**	77 A
10	Exterior Lighting	0.00	0.00%	0.00	**Spare Capacity Percent:**	38
11	Miscellaneous - Continuous	0.03	125.00%	0.04		
12	Modular Furniture Outlets	0.00	0.00%	0.00		

PANELBOARD CIRCUIT NOTES

1. TERMINATE GROUND ON ISOLATED GROUND BUS.
2. INSTALL LOCKING DEVICE ON BREAKER PER NEC (LOCK-OFF FOR MAINTENANCE).
3. INSTALL LOCKING DEVICE ON BREAKER PER NEC (LOCK-ON FOR CRITICAL LOAD).
4. GFI BREAKER FOR PERSONNEL PROTECTION (5MA).
5. REFER TO ONE-LINE DIAGRAM FOR CONDUCTOR SIZES.
6. PROVIDE LOCK-OFF DEVICE TO SIMULTANEOUSLY DISCONNECT ALL UNGROUNDED CONDUCTORS PER NEC.
7. FIRE ALARM CIRCUIT. PROVIDE RED MARKING AND LABEL "FIRE ALARM CIRCUIT CONTROL" ON BREAKER.
8. OPTIONAL EQUIPMENT: REVISE TO SPACE FILLER IF NOT USED ON SITE.
9. FACTORY INSTALLED WIRING IN UNITIZED SWITCHGE

20A WIRE SIZING SCHEDULE

ALL WIRE SIZES SHOWN ON PANEL SCHEDULES ARE INTENDED TO BE MINIMUM ACCEPTABLE WIRE SIZE.

THE FOLLOWING SCHEDULE IS TO BE USED TO SIZE WIRE FOR 20 AMP CIRCUITS (120 AND 277 VOLT). LENGTHS (IN FEET) ARE INTENDED TO BE MAXIMUM.

120 VOLT	#12	#10	#8	#6
1-5 AMPS	200 FT.	325 FT.	490 FT.	770 FT.
6-10 AMPS	100 FT.	160 FT.	245 FT.	385 FT.
11-15 AMPS	70 FT.	110 FT.	165 FT.	255 FT.

277 VOLT	#12	#10	#8	#6
1-5 AMPS	480 FT.	760 FT.	1170 FT.	1865 FT.
6-10 AMPS	240 FT.	380 FT.	585 FT.	930 FT.
11-15 AMPS	160 FT.	250 FT.	390 FT.	620 FT.

GROUND WIRE SIZING CHART

BRKR AMPS		WIRE SIZE				
15-20	PHASE	12	10	8	6	4
	GROUND	12	10	8	6	4
25-30	PHASE	10	8	6	4	3
	GROUND	10	8	6	4	3
35-50	PHASE	8	6	4	3	2
	GROUND	10	8	4	4	4
60	PHASE	6	4	3	2	1
	GROUND	10	6	6	4	4
70	PHASE	6	4	3	2	1
	GROUND	8	4	4	3	2
80-90	PHASE	4	3	2	1	1/0
	GROUND	8	6	4	4	3
100	PHASE	3	2	1	1/0	2/0
	GROUND	8	6	4	4	3

PER NEC 250.122(B)

GENERAL PANELBOARD NOTES

1. CIRCUIT BREAKERS IN PANELBOARDS SHALL BE U.L. LISTED SERIES RATED WITH SPECIFIED 65K AIC UPSTREAM CIRCUIT BREAKER AND DOWNSTREAM 10K AMP RATED BRANCH CIRCUIT BREAKERS.
2. PROVIDE A PERMANENT LABEL READING "CAUTION - SERIES RATED SYSTEM 65K, "X" AMPS AVAILABLE." IDENTIFIED (LABELED) REPLACEMENT COMPONENTS REQUIRED. (REFER TO SHORT CIRCUIT CALCULATIONS FOR ACTUAL AMPS TO BE LABELED).
3. CIRCUIT BREAKERS SHALL BE A BOLT-ON TYPE, U.L. LISTED SERIES-RATED COMBINATION FROM PUBLISHED COMBINATION LISTINGS.

PANELBOARD CIRCUIT NOTES

1. TERMINATE GROUND ON ISOLATED GROUND BUS.
2. INSTALL LOCKING DEVICE ON BREAKER PER NEC (LOCK-OFF FOR MAINTENANCE).
3. INSTALL LOCKING DEVICE ON BREAKER PER NEC (LOCK-ON FOR CRITICAL LOAD).
4. GFI BREAKER FOR PERSONNEL PROTECTION (5MA).
5. REFER TO ONE-LINE DIAGRAM FOR CONDUCTOR SIZES.
6. PROVIDE LOCK-OFF DEVICE TO SIMULTANEOUSLY DISCONNECT ALL UNGROUNDED CONDUCTORS PER NEC.
7. FIRE ALARM CIRCUIT. PROVIDE RED MARKING AND LABEL "FIRE ALARM CIRCUIT CONTROL" ON BREAKER.
8. OPTIONAL EQUIPMENT: REVISE TO SPACE FILLER IF NOT USED ON SITE.
9. FACTORY INSTALLED WIRING IN UNITIZED SWITCHGEAR.

PANELBOARD U

Status: New

Furnished by Owner, installed by EC

Bus Rating: 100 A
Voltage: 120/240 V
System: 1Ø, 3W
Mounting: Cabinet
Trim: Door-In-Door
Nema Rating: 3R
Feed Thru Lugs: No
Main Rating Upstream: 40A
Mains Type: M.C.B.
A.I.C. Rating: 10,000 A
Fully / Series: Series
Branch Breaker Type: Bolt-on
Feed Type: Bottom
Terminations: 75°C CU
Location: DIST. DP
Busbar Material: CU
Ground Busbar: Yes
Neutral Busbar: 100%
IG Ground Busbar: No
Skirt Type: None
Sections: 1

CCT No.	Load Code	Load Description	Notes	Brkr Size	Poles	A	B	Poles	Brkr Size	Notes	Load Description	Load Code	CCT No.
1	2	SELF CHECK POS SYSTEM		20 A	1	1.32 0.18		1	20 A		REC. CCTV SERVICE	2	2
3	2	SELF CHECK POS SYSTEM		20 A	1		1.32 1.20	1	20 A		REC. BACK OFFICE COMPUTER	2	4
5	2	REC. SECONDARY COMMUNICATION		20 A	1	0.36 0.96		1	20 A		T101 SAFE REC	2	6
7	2	REC. DATA COMMUNICATIONS		20 A	1		0.36 0.36	1	20 A		RECS. LOTTO EQ 44	2	8
9	--	FILLER SPACE	--	--	1	-- --		1	--	--	FILLER SPACE	--	10
11	--	FILLER SPACE	--	--	1		-- --	1	--	--	FILLER SPACE	--	12
13	--	FILLER SPACE	--	--	1	-- --		1	--	--	FILLER SPACE	--	14
15	--	FILLER SPACE	--	--	1		-- --	1	--	--	FILLER SPACE	--	16
17	--	FILLER SPACE	--	--	1	-- --		1	--	--	FILLER SPACE	--	18
				Total Connect Load:		2.82	3.24	**kVA**					
				Total Amps:		24 A	27 A	**Amps**					

Demand Loads May Vary From Connected Loads Because of Demand Factors

Circuit Numbering By Pole Position Circuit

Load Codes	Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
0	Lighting - Non-Continuous	0.00	0.00%	0.00		
1	Lighting - Continuous	0.00	0.00%	0.00	**Total Conn. Load:**	6.06
2	Receptacles	6.06	100.00%	6.06	**Total Est. Demand:**	6.06
3	Special Loads	0.00	0.00%	0.00	**Total Conn.:**	25 A
4	Motors	0.00	0.00%	0.00	**Total Est. Demand:**	25 A
5	Kitchen (Commercial)	0.00	0.00%	0.00		
6	Heating	0.00	0.00%	0.00		
7	Cooling	0.00	0.00%	0.00		
9	Computer Outlets	0.00	0.00%	0.00		
10	Exterior Lighting	0.00	0.00%	0.00		
11	Miscellaneous - Continuous	0.00	0.00%	0.00		
12	Modular Furniture Outlets	0.00	0.00%	0.00		

SWITCHBOARD DP

Status: New

Furnished by Owner, installed by EC

Bus Rating: 800 A
Voltage: 208Y/120 V
System: 3Ø, 4W
Mounting: Cabinet
Trim: Door-In-Door
Nema Rating: 3R
Feed Thru Lugs: No
Main Rating Upstream: 800A
Main Type: M.L.O.
Aic Rating: 65,000 A
Fully/Series: Fully
Branch Breaker Type: Bolt-On
Feed Type: Bottom
Terminations: 75°C CU
Location: DIST. DP
Busbar Material: CU
Ground Busbar: Yes
Neutral Busbar: 100%
IG Ground Busbar: No
Skirt Type: None
Sections: 4

CCT No.	Load Codes	Load Description	Notes	Brkr Size	Poles	A	B	C	Remarks
1	2; 4; 10; 1; 3	PANEL A	9	225 A	3	14.22	18.46	16.86	
2	2; 4; 5; 1; 3	PANEL B	9	225 A	3	6.09	5.69	8.17	
3	2; 4; 5; 0; 3	PANEL C	9	225 A	3	10.83	11.45	10.52	
4	2; 4; 5	PANEL D	9	225 A	3	10.51	11.23	11.14	
5	2; 4	PANEL E	9	225 A	3	16.87	17.11	17.11	
6	2; 4; 3; 11	PANEL G	9	225 A	3	6.57	5.28	5.38	
7	4	RTU 1	1	70 A	3	7.69	7.69	7.69	
8	4	RTU 2		100 A	3	11.77	11.77	11.77	
9	--	FILLER SPACE			3	--	--	--	
10	11	SPD	9	30 A	3	0.01	0.01	0.01	
						84.56	88.68	88.65	**kVA**
						705 A	744 A	744 A	**Amps**

Demand Loads May Vary From Connected Loads Because of Demand Factors
Circuit Numbering By Pole Position

Load Codes	Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
0	Lighting - Non-Continuous	0.54	125.00%	0.68		
1	Lighting - Continuous	5.61	125.00%	7.01	**Total Conn. Load:**	261.89
2	Receptacles	39.94	62.52%	24.97	**Total Est. Demand:**	240.03
3	Special Loads	38.28	100.00%	38.28	**Total Conn. Current:**	727 A
4	Motors	132.89	100.00%	132.89	**Total Est. Demand Current:**	666 A
5	Kitchen (Commercial)	32.64	65.00%	21.22		
6	Heating	0.00	0.00%	0.00		
7	Cooling	0.00	0.00%	0.00		
9	Computer Outlets	0.00	0.00%	0.00	**Spare Capacity:**	134 A
10	Exterior Lighting	11.93	125.00%	14.92	**Spare Capacity Percent:**	83
11	Miscellaneous - Continuous	0.06	125.00%	0.08		
12	Modular Furniture Outlets	0.00	0.00%	0.00		

FAULT CURRENT CALCULATIONS

THE FOLLOWING CALCULATIONS ARE BASED ON THE "POINT-BY-POINT" METHOD WHERE:

Isc = Isc x M M= 1/(1+f) $f = \frac{1.73 \times L \times I}{C \times E \times n}$ XFMR: $IP(sca) = \frac{IP(sca)x\ Vp\ x\%Z}{100{,}000 \times KVA}$ $IS(sca) = \frac{Vp \times M \times IS(sca)}{Vs}$

(ALL CALCULATIONS UTILIZE COPPER CONDUCTORS)

Fault Point	Panel / Transformer	Source (Fault Point)	Source I (amps)	Conduit Type	Wire/Bus Size	'C' value	E (volts)	L (length)	X'FMR KVA	X'FMR Z	f	M	Isc
F1	SERVICE DISC		65,000										65,000
F2	DIST. DP	1	55,476	M	4 Set(s) of 3/0	12,844	208	25			0.032	0.76	53,089
F3	PANEL 'A'	2	53,089	M	1 Set(s) of 4/0	15,082	208	5			0.082	0.92	46,303
F4	PANEL 'B'	2	53,089	M	1 Set(s) of 4/0	15,082	208	5			0.136	0.88	46,303
F5	PANEL 'C'	2	53,089	M	1 Set(s) of 4/0	15,082	208	5			0.082	0.92	46,303
F6	PANEL 'D'	2	53,089	M	1 Set(s) of 4/0	15,082	208	5			0.082	0.92	46,303
F7	PANEL 'E'	2	53,089	M	1 Set(s) of 4/0	15,082	208	5			0.082	0.92	46,303
F8	PANEL 'G'	2	53,089	M	1 Set(s) of 1	7,293	208	5			0.169	0.86	46,303
F9	LTG. CONTACT	3	46,303	M	1 Set(s) of 12	617	208	5			4.929	0.17	11,226
F10	PANEL 'U'	6	46,303	M	1 Set(s) of 10	981	208	5			1.163	0.46	20,688
F11	SERVICE DISC		65,000										65,000
F12	PANEL 'CWA'	11	55,476	M	2 Set(s) of 4/0	12,844	208	250			6.321	0.14	11,489

rdc.

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PROFESSIONAL

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REVISION

△	ISSUE	DATE
	OTP	02/15/23
1	OTB	01/05/24

NORTH CAROLINA PROFESSIONAL SEAL 036972 ENGINEER JASON C. ADAMS

Feb 15, 2023

PROFESSIONAL IN
JCA

PROJECT
SAG

QUALITY
SAG

DRAWN
LHO

PROJECT

CIRCLE K STORES, INC.

ANGIER, NC

9706 KENNEBEC CHURCH ROAD,
ANGIER, NC

PROTOCYCLE# R1.2 12/XX/22

CIRCLE K STORE

PROJECT NUMBER: 22130

PANEL SCHEDULES

E7.1