ARCH E

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION	MOUNTING	SYMBOL	DESCRIPTION	MOUNTING
○	CEILING LIGHT FIXTURE.	SEE FIXTURE SCHEDULE.	⏀	DUPLEX RECEPTACLE. SEE SPECIFICATIONS.	18" AFF TO CENTERLINE UON.
●	CEILING LIGHT FIXTURE (NIGHT LIGHT OR EMERGENCY).	SEE FIXTURE SCHEDULE.	⏀	DUPLEX RECEPTACLE, ABOVE COUNTER. SEE SPECIFICATIONS.	44" AFF TO CENTERLINE UON.
○→	WALL WASH LIGHT FIXTURE. ARROW INDICATES WASH DIRECTION.	SEE FIXTURE SCHEDULE.	⏀	DUPLEX RECEPTACLE, ONE-HALF SWITCHED. SEE SPECIFICATIONS.	18" AFF TO CENTERLINE UON.
□	WALL BRACKET LIGHT FIXTURE.	SEE FIXTURE SCHEDULE.	⏀	DUPLEX RECEPTACLE, FLOOR OR POKE-THRU. SEE SPECIFICATIONS.	FLUSH IN FLOOR UON.
▨	WALL BRACKET LIGHT FIXTURE (NIGHT LIGHT OR EMERGENCY).	SEE FIXTURE SCHEDULE.	⏀	DOUBLE DUPLEX RECEPTACLE. SEE SPECIFICATIONS.	18" AFF TO CENTERLINE UON.
○	WALL BRACKET LIGHT FIXTURE.	SEE FIXTURE SCHEDULE.	⏀	DOUBLE DUPLEX RECEPTACLE, ABOVE COUNTER. SEE SPECIFICATIONS.	44" AFF TO CENTERLINE UON.
●	WALL BRACKET LIGHT FIXTURE (NIGHT LIGHT OR EMERGENCY).	SEE FIXTURE SCHEDULE.	⏀	SIMPLEX RECEPTACLE. SEE SPECIFICATIONS.	18" AFF TO CENTERLINE UON.
◠	WALL MOUNTED SCONCE LIGHT FIXTURE	SEE FIXTURE SCHEDULE.	⏀	SPECIAL RECEPTACLE. NEMA CONFIGURATION AS NOTED.	18" AFF TO CENTERLINE UON.
◓	WALL MOUNTED SCONCE LIGHT FIXTURE (NIGHT LIGHT OR EMERGENCY).	SEE FIXTURE SCHEDULE.	▭	MULTI-OUTLET SURFACE RACEWAY WITH NEMA 5-15R SIMPLEX RECEPTACLES AT 12" CENTERS UON.	44" AFF TO CENTERLINE UON.
▣	1' X 1' LIGHT FIXTURE.	SEE FIXTURE SCHEDULE.	▬	208Y/120V OR 240/120V PANELBOARD.	78" AFF TO TOP.
▩	1' X 1' LIGHT FIXTURE (NIGHT LIGHT OR EMERGENCY).	SEE FIXTURE SCHEDULE.	▨	277Y/480V PANELBOARD.	78" AFF TO TOP.
□	2' X 2' LIGHT FIXTURE.	SEE FIXTURE SCHEDULE.	▭	DISCONNECT SWITCH. NEMA/AMPERAGE/POLE/FUSE/VOLTAGE. PROVIDE NEMA 1, 600V UON.	AS NOTED.
◩	2' X 2' LIGHT FIXTURE (NIGHT LIGHT OR EMERGENCY).	SEE FIXTURE SCHEDULE.	⧗	MOTOR STARTER.	AS NOTED.
▭	2' X 4' LIGHT FIXTURE.	SEE FIXTURE SCHEDULE.	⧗	COMBINATION MOTOR STARTER/DISCONNECT SWITCH. NEMA/AMPERAGE/POLE/FUSE/VOLTAGE. PROVIDE NEMA 1, 600V UON.	AS NOTED.
▨	2' X 4' LIGHT FIXTURE (NIGHT LIGHT OR EMERGENCY).	SEE FIXTURE SCHEDULE.	▩□	ELECTRIC DUCT HEATER.	BY OTHERS.
▭	SURFACE MOUNTED LIGHT FIXTURE.	SEE FIXTURE SCHEDULE.	⌀	MOTOR CONNECTION OR EXHAUST FAN.	BY OTHERS.
▨	SURFACE MOUNTED LIGHT FIXTURE (NIGHT LIGHT OR EMERGENCY).	SEE FIXTURE SCHEDULE.	P	POWER POLE WITH POWER AND COMMUNICATIONS RACEWAY PROVISIONS AS NOTED.	AS NOTED.
▭	WALL MOUNTED LIGHT FIXTURE.	SEE FIXTURE SCHEDULE.	▼	COMMUNICATIONS/DATA OUTLET.	18" AFF TO CENTERLINE UON.
▨	WALL MOUNTED LIGHT FIXTURE (NIGHT LIGHT OR EMERGENCY).	SEE FIXTURE SCHEDULE.	▼	COMMUNICATIONS/DATA OUTLET, FLOOR OR POKE-THRU.	FLUSH IN FLOOR UON.
├○┤	FLUORESCENT STRIP LIGHT FIXTURE.	SEE FIXTURE SCHEDULE.	⏀▼	COMBINATION COMMUNICATIONS/DATA AND DUPLEX RECEPTACLE OUTLET, FLOOR OR POKE-THRU.	FLUSH IN FLOOR UON.
├●┤	FLUORESCENT STRIP LIGHT FIXTURE (NIGHT LIGHT OR EMERGENCY).	SEE FIXTURE SCHEDULE.	TV	CABLE TV OUTLET.	18" AFF TO CENTERLINE UON.
○□→	FLOOD LIGHT FIXTURE.	SEE FIXTURE SCHEDULE.	CR	SECURITY SYSTEM CARD READER OUTLET.	48" AFF TO CENTERLINE UON.
▽ ▽	TRACK LIGHT FIXTURE (STRAIGHT).	SEE FIXTURE SCHEDULE.	PP	SECURITY SYSTEM PUSH-PAD OUTLET.	48" AFF TO CENTERLINE UON.
~○~	TRACK LIGHT FIXTURE (CURVED).	SEE FIXTURE SCHEDULE.	■◀	SECURITY SYSTEM CLOSED CIRCUIT TV CAMERA.	AS NOTED.
⊗	PENDANT MOUNTED LIGHT FIXTURE.	SEE FIXTURE SCHEDULE.	FACP	FIRE ALARM SYSTEM CONTROL PANEL.	78" AFF TO TOP.
▽	ACCENT LIGHT FIXTURE.	SEE FIXTURE SCHEDULE.	FAAP	FIRE ALARM SYSTEM REMOTE ANNUNCIATOR PANEL.	66" AFF TO TOP.
✳	CEILING FAN.	SEE FIXTURE SCHEDULE.	ⓢ	FIRE ALARM SYSTEM SMOKE DETECTOR.	CEILING UON.
⊗	SINGLE-FACE CEILING MOUNTED EXIT SIGN WITH AIMING ARROWS AS INDICATED. FILL REPRESENTS READABLE FACE DIRECTION.	SEE FIXTURE SCHEDULE.	ⓢS	FIRE ALARM SYSTEM DUCT TYPE SMOKE DETECTOR.	IN SUPPLY DUCT > 2,000 CFM IN RETURN DUCT > 15,000 CFM
⊗	TWO-FACE CEILING MOUNTED EXIT SIGN WITH AIMING ARROWS AS INDICATED. FILL REPRESENTS READABLE FACE DIRECTION.	SEE FIXTURE SCHEDULE.	RT	DUCT SMOKE DETECTOR REMOTE TEST BUTTON.	60" AFF TO CENTERLINE UON.
⊗	WALL MOUNTED EXIT SIGN WITH AIMING ARROWS AS INDICATED. FILL REPRESENTS READABLE FACE DIRECTION.	SEE FIXTURE SCHEDULE.	◐	FIRE ALARM SYSTEM HEAT DETECTOR.	CEILING UON.
◀□▶	WALL MOUNTED EMERGENCY BATTERY PACK LIGHT FIXTURE.	SEE FIXTURE SCHEDULE.	▣	FIRE ALARM SYSTEM PULL STATION.	48" AFF TO CENTERLINE UON.
◀⊗▶	COMBINATION EMERGENCY BATTERY LIGHT AND EXIT SIGN WITH AIMING ARROWS AS INDICATED. FILL REPRESENTS READABLE FACE.	SEE FIXTURE SCHEDULE.	T	FIRE ALARM SYSTEM TAMPER SWITCH.	FIELD COORDINATE.
○□	POLE MOUNTED LIGHT FIXTURE.	SEE FIXTURE SCHEDULE.	F	FIRE ALARM SYSTEM FLOW SWITCH.	FIELD COORDINATE.
$	SINGLE-POLE TOGGLE SWITCH.	46" AFF TO CENTERLINE UON.	R	FIRE ALARM SYSTEM RELAY CONTROL MODULE.	FIELD COORDINATE.
$2	TWO-POLE TOGGLE SWITCH.	46" AFF TO CENTERLINE UON.	M	FIRE ALARM SYSTEM MONITORING MODULE.	FIELD COORDINATE.
$3	THREE-WAY TOGGLE SWITCH.	46" AFF TO CENTERLINE UON.	S	FIRE ALARM SYSTEM SURGE SUPPRESSOR.	FIELD COORDINATE.
$4	FOUR-WAY TOGGLE SWITCH.	46" AFF TO CENTERLINE UON.	⧖	FIRE ALARM SYSTEM HORN.	80" AFF TO BOTTOM OR 6" BELOW CEILING UON.
$O	OCCUPANCY SENSOR SWITCH.	46" AFF TO CENTERLINE UON.	⊗	FIRE ALARM SYSTEM STROBE.	80" AFF TO BOTTOM OR 6" BELOW CEILING UON.
$V	VACANCY SENSOR SWITCH.	46" AFF TO CENTERLINE UON.	⧖	FIRE ALARM SYSTEM HORN/STROBE.	80" AFF TO BOTTOM OR 6" BELOW CEILING UON.
$M	MOMENTARY CONTACT TOGGLE SWITCH.	46" AFF TO CENTERLINE UON.	M	FIRE ALARM SYSTEM MINI-HORN.	80" AFF TO BOTTOM OR 6" BELOW CEILING UON.
$K	KEY OPERATED TOGGLE SWITCH.	46" AFF TO CENTERLINE UON.	⌓	FIRE ALARM SYSTEM BELL.	96" AFF TO TOP UON.
$T	TIMER SWITCH.	46" AFF TO CENTERLINE UON.	UP DN	CONDUIT RUN UP OR DOWN AS NOTED.	
Ð600	DIMMER SWITCH. PROVIDE WATTAGE RATING INDICATED.	46" AFF TO CENTERLINE UON.	⫽	PHASE, NEUTRAL, EQUIPMENT GROUND, AND ISOLATED GROUND. ALL HOMERUNS SHALL BE 1/2" CONDUIT WITH 3 #12 UON.	
OS	OCCUPANCY SENSOR SWITCH.	CEILING UON.	─┤	GROUND ROD.	AS NOTED.
VS	VACANCY SENSOR SWITCH.	CEILING UON.	⬡ ○	REFER TO KEYED NOTES.	
PP	LIGHTING CONTROL POWER PACK.	ABOVE CEILING	J J	JUNCTION BOX OR OUTLET BOX.	AS NOTED.
			⌒	CONDUIT CONCEALED IN WALL OR ABOVE CEILING.	SEE SPECIFICATIONS.
			⌒	CONDUIT CONCEALED IN SLAB OR UNDERGROUND.	SEE SPECIFICATIONS.

ABBREVIATIONS		ABBREVIATIONS	
AFF	ABOVE FINISHED FLOOR.	HID	HIGH INTENSITY DISCHARGE.
AFG	ABOVE FINISHED GRADE.	HP	HORSEPOWER.
ATS	AUTOMATIC TRANSFER SWITCH.	IG	ISOLATED GROUND.
BFG	BELOW FINISH GRADE.	LSIG	LONG, SHORT, INSTANTANEOUS, GROUND FAULT.
C	CONDUIT.	N	NEW.
CLG	CEILING MOUNTED.	NEUT	NEUTRAL.
D	DRYER OUTLET (NEMA 14-30R).	NF	NON-FUSED.
DN	CONDUIT DOWN.	NL	NIGHT LIGHT.
E	EXISTING.	NP	NAMEPLATE.
EC	ELECTRICAL CONTRACTOR.	PNL	PANEL.
EG	EQUIPMENT GROUND.	R	RANGE (NEMA 14-50R).
EXP	EXPLOSION PROOF.	RE	RELOCATED.
EWC	ELECTRIC WATER COOLER.	UON	UNLESS OTHERWISE NOTED.
EWH	ELECTRIC WATER HEATER.	UP	CONDUIT UP.
GEC	GROUNDING ELECTRODE CONDUCTOR.	WP	WEATHERPROOF.
GFI	GROUND FAULT INTERRUPTER.	WPI	WEATHERPROOF WHILE-IN-USE COVER.

FIXTURE SCHEDULE

SYMBOL	MANUFACTURER	MODEL NUMBER	VOLTAGE	WATTAGE	LAMPS	MOUNTING	DESCRIPTION
A	BEACON	CLO/24L-55/4K7/5QN/UNV/SQ/WH	UNV	55	LED (INCLUDED)	RECESSED	55W LED RECESSED CLG. NARROW DISTRIBUTION
B	LITHONIA	CLX L96 6000LM SEF RDL 120/277 GZ10 35K 80CRI GLR SPD WH NAPX RFD284745	UNV	39	LED (INCLUDED)	CHAIN HUNG AT 9'-0" A.F.F.	8' CLX, 3500K, 6000LM, LENSED
C	BEACON	TRV-D/36L-80/4K/T3/UNV/DBT/BPC	UNV	80	LED (INCLUDED)	WALL MOUNT AT 12'-0" A.F.G.	TYPE III DN DISTRIBUTION LED WALLPACK WITH COLD WEATHER BATTERY PACK WHITE DARK BRONZE MATTE TEXTURED
EM	DUAL-LITE	VE4DI-02L	UNV	4	LED (INCLUDED)	WALL MOUNT AT 9'-0" A.F.F.	EMERGENCY LIGHTING WALLPACK W/BATTERY BACKUP
X	LITHONIA	LHQM LED R M6	UNV	4.3	LED (INCLUDED)	PENDANT HUNG AT 10'-0" A.F.F.	COMBO LED EXIT FIXTURE

Digitally signed by Harold A Scott
Reason: This document has been electronically signed and sealed by Harold A Scott, P.E. using a Digital Signature. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.
Date: 2021.07.21 12:38:11 -04'00'

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SEAL

Harold Scott
Florida P.E. #54082

PROJECT INFORMATION

PROJECT:

PUBLIX
REDEVELOPMENT -
PORT ST LUCIE

PROJECT ADDRESS:

NWC OF ST LUCIE WEST BLVD & NW BETHANY DR
PORT ST LUCIE

PROJECT NO.: 200344

NOTES

ACTIVE DESIGN PHASE

- ☐ FOR REVIEW ONLY
- ☐ FOR PERMITTING ONLY
- ☐ SCHEMATIC DESIGN
- ☐ DESIGN DEVELOPMENT
- ☐ CONSTRUCTION BIDDING
- ■ CONSTRUCTION DOCUMENTS
- ☐ AS-BUILT RECORD SET

REVISION INFORMATION

NO.	DATE	DESCRIPTION
	07/16/2021	PERMIT SUBMISSION

KEY PLAN

SHEET INFORMATION

SHEET ISSUED:	07/16/2021
DESIGNED BY:	JCK
DRAWN BY:	CMD
REVIEWED BY:	HAS

SHEET TITLE:

ELECTRICAL
LEGEND AND
FIXTURE SCHEDULE

SHEET NO.:

E0.0

ARCH E

ELECTRICAL SPECIFICATIONS - DIVISION 16000

SECTION 16010

GENERAL PROVISIONS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Furnish all labor, materials, and equipment as required by the plans and specifications to provide a complete and operable electrical system. This specification describes the types of materials, methods, and management to be utilized. This includes the work listed in this division as well as equipment furnished under other divisions not specifically mentioned herein.

1.02 CODES AND STANDARDS

A. All equipment, materials, and methods of design and installation are to comply with the 2017 National Electrical Code (NEC), the Occupational Safety and Health Act (OSHA), and the requirements of applicable local codes. Codes and standards of the following organizations may be referred to in this section and shall be considered as the minimum acceptable. A reference herein to any portion of the standard or code is not to be considered as negating any other portion of the standard or code.

1. National Electrical Code (NEC), 2017 ed.
2. National Electric Manufacturers Association (NEMA)
3. Underwriters Laboratories, Inc. (UL)
4. Florida Building Code (FBC), 2020 ed.
5. American Society for Testing & Materials. (ASTM)
6. Institute of Electrical & Electronic Engineers. (IEEE)
7. Florida Fire Prevention Code (Florida Specific Edition of NFPA 101), 2020 ed.

1.03 EQUIPMENT, MATERIAL AND WORKMANSHIP

A. All equipment and material shall be new, free from defects, of current manufacture, and listed by Underwriters Laboratories, Inc., (UL) where UL requirements apply. All materials are to be products of reputable and experienced manufacturers.

B. Provide protection for materials and equipment against loss or damage throughout the contract. Provide protection from the effect of weather prior to installation, store items to be installed in indoor weather protected location.

C. Following installation, protect materials and equipment from corrosion, physical damage and effects of moisture on insulation.

D. Do not cut or notch any structural member or building surface without specific approval of the Structural Engineer.

E. All work will be performed by accomplished, qualified and experienced personnel working under continuous competent supervision.

F. Contractor shall restore fire ratings of all rated assemblies penetrated with the appropriate assembly: WL-1001, CAJ-1045, WL-1049, WL-3214, WJ-1055, or WJ-3094 or equivalent.

1.04 PERMITS

A. Obtain and pay for all permits and inspections pertinent to the electrical installation.

1.05 SITE INSPECTION

A. Prior to submitting a bid, visit the project site and ascertain conditions affecting the proposed work and all existing electrical facilities.

B. Furnish all labor associated with accompanying Engineer during observations of construction.

1.06 TEMPORARY INSTALLATION

A. Provide all temporary lighting and power required by other trades.

B. Temporary installation shall conform to the requirements of the NEC, OSHA, and the State and local governing bodies.

C. Pay all cost for temporary power services and power usage charges until project final acceptance by owner.

1.07 SHOP DRAWINGS

A. Submit electronic submittal data and shop drawings.

B. Submit complete shop drawings for review prior to purchase of the following:

1. Light fixtures.
2. Wiring devices.
3. Panelboards, transformers, safety switches, and fuses.
4. Fire alarm system.
5. Lighting controls.

1.08 RECORD DRAWINGS

A. Maintain a neatly marked set of record drawings showing installation location, and/or routing of conduits, depth of buried cables, pull boxes, junction boxes, and outlets. After final inspection, transfer all record information to the Owner.

PART 2 - EXECUTION

2.01 INSTALLATION

A. The electrical plans show general arrangements and locations for equipment conduit, outlets, etc. Unless detailed or dimensioned, exact locations of conduit, routing of cables and placement of equipment will be governed by structural conditions, physical interference, and locations of electrical termination on equipment. Examine architectural, structural, and mechanical plans and shop drawings for the various equipment in order to determine exact routing and placement of all raceways, cables, and equipment, to assure a workable installation in accordance with NEC.

B. Depiction of conduits may be omitted from the plans for clarity. The contractor shall provide conduit and conductors for all panels, lights, devices, and equipment unless otherwise noted.

2.02 CLEAN-UP

A. Continuously remove debris, cuttings, crates, cartons, etc.

B. Before acceptance, carefully clean all cabinets, panels, boxes, wiring devices, cover plates, etc. Replace all damaged or blemished fixtures.

END OF SECTION

SECTION 16070

ELECTRICAL CONNECTIONS FOR EQUIPMENT

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Provide all labor, materials and equipment as required furnishing connections to all electrical equipment, lights, etc.

PART 2 - PRODUCTS

2.01 GENERAL

A. See Section 16111, Conduit Raceways; Section 16140 Wiring Devices; and Section 16120 Wire and Cables for additional requirements. Provide final connections for equipment consistent with the following:

1. Permanently installed fixed equipment - flexible seal-tite conduit from branch circuit terminal equipment, or raceway; to equipment, control cabinet, terminal junction box, or wiring terminals. Totally enclose all wiring in raceway.
2. Movable and/or portable equipment - wiring device, cord cap, and multi-conductor cord suitable for the equipment and in accordance with NEC requirements (Article 400).
3. Other methods as required by the National Electrical Code and/or as required by special equipment or field conditions.

PART 3 - EXECUTION

3.01 INSTALLATION OF ELECTRICAL CONNECTIONS

A. Make electrical connections in accordance with connector manufacturer's written instructions and with recognized industry practices, and complying with requirements of NEC and NECA's "Standard of Installation" to ensure that products fulfill requirements.

B. Connect electrical power supply conductors to equipment conductors in accordance with equipment manufacturer's written instructions and wiring diagrams.

C. Verify all electrical loads (voltage, phase, full load amperes, number and point of connections, minimum circuit ampacity, etc.) for equipment furnished under other Sections of this specification, by reviewing respective shop drawings furnished under each section. Report any variances from electrical characteristics noted on the electrical drawings to the Engineer before proceeding with rough-in work.

D. Obtain and review the equipment shop drawings to determine particular final connection requirements before rough in begins for each equipment item.

E. Refer to basic materials and methods Section 16120, Conductors, for identification of electrical power supply conductor terminations.

F. Contractor shall obtain Fire Protection drawings where ESFR fire protection is installed. Maintain 12" clearance between all ESFR sprinkler heads and light fixtures, raceways, or any other electrical component.

END OF SECTION

SECTION 16111

CONDUIT RACEWAYS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Furnish all labor, materials and equipment as required to install all flexible or rigid conduit, couplings, supports and nonmetallic ducts, as shown on the Plans.

PART 2 - PRODUCTS

2.01 MATERIALS

A. GENERAL: Provide conduit, and fittings of types, grades, sizes, and weights (wall thicknesses) as indicated; with minimum trade size of 1/2" above grade and 3/4" below grade.

B. Electrical Metallic Tubing (EMT) with die cast or steel set-screw fitting for dry and damp locations, compression fitting for wet locations.

C. RIGID METAL CONDUIT (RMC) with threaded fittings.

D. RIGID NON-METALLIC CONDUIT (RNC): Schedule 40, with matching glue-on socket fittings.

E. FLEXIBLE METALLIC CONDUIT (FMC): Galvanized interlocked steel strip with positive locking cadmium plated steel or malleable iron fittings.

F. LIQUID-TIGHT FLEXIBLE METAL CONDUIT (LT): Provide liquid-tight, flexible metal conduit; constructed of single strip, flexible continuous, interlocked, and double-wrapped steel; galvanized inside and outside; coated with liquid-tight jacket of flexible polyvinyl chloride (PVC) with positive locking cadmium plated steel or malleable iron fittings and compression type steel ferrule and neoprene gasket sealing rings.

G. EXPANSION FITTINGS: OZ Type AX, or equivalent to suit application.

2.02 SCHEDULE OF LOCATIONS

A. RMC in all areas where exposed to physical damage to an elevation of 48" AFF/AFG.

B. EMT for all above grade areas in or on the building unless noted otherwise.

C. RNC for all areas below grade.

D. Make connections to motors and equipment with FMC and LT as environmental conditions dictate.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install conduit concealed in all areas where possible.

B. Coordinate installation of conduit in masonry work.

C. Plug ends of conduits to prevent entry of dirt or moisture.

D. Route all exposed conduits parallel or perpendicular to building lines.

E. Do not exceed number of bends in conduit beyond that allowed by the NEC.

F. Keep conduits at least 12" away from gas lines and hot water pipes and in no case permit conductors to reach higher than rated temperatures.

G. Fasten raceways securely in place. Firmly fasten conduit within three feet of each outlet, junction box, cabinet, or fitting. Support metallic conduit in accordance with the NEC. Use raceway fasteners designed for the purpose.

H. Provide pull boxes as dictated by wire pulling requirements. Unless shown otherwise, face into secondary or unfinished rooms.

END OF SECTION

SECTION 16120

BUILDING WIRE AND CABLE

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Furnish all labor, materials, and equipment as required to install all wires and cables as in the Plans, and as required to connect all electrical services and equipment.

PART 2 - PRODUCTS

2.01 MATERIALS

A. All wiring shall be copper unless specifically noted otherwise on plans.

B. Minimum size conductors:

1. Branch circuits, # 12 AWG THHN/THWN.
2. Control circuits, # 14 AWG THHN/THWN.

C. MC Cable may be used in lieu of conduit and wire where installed in accordance with all of the following conditions.

1. Concealed only.
2. Per requirements of the NEC and local codes.
3. Branch circuits 30 amps and below.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Color coding shall be as follows:

Voltage	Phase A	Phase B	Phase C	Neutral
277/480	Brown	Orange	Yellow	Gray
120/208	Black	Red	Blue	White
120/240	Black	Red	-----	White

B. Provide a green grounding conductor in all raceways except service entrance.

C. Provide conductors with identification tags as manufactured by Brady or approved equal.

D. Install wires and cables continuous without splices from source of supply to distribution equipment and from source of supply to motors, lighting, or power outlets. Do not use pull boxes for making splices. Do not install splices in conduits or trench.

END OF SECTION

SECTION 16130

PULL AND JUNCTION BOXES

PART 1 - GENERAL

1.01 DESCRIPTION

A. Construct junction or pull boxes less than 100 cubic inches as "standard outlet boxes".

B. Construct junction or pull boxes greater than 100 cubic inches as "cabinets".

C. Provide all covers of same gauge metal and include screws.

PART 2 - PRODUCTS

2.01 STANDARD OUTLET BOXES

A. Make of material resistant to corrosion or suitably protected, both internally and externally by galvanizing.

B. Boxes installed in damp or wet locations shall be U.L. approved for the purpose.

C. Metal boxes to meet NEC construction specifications.

D. Boxes exposed or surface mounted shall be die-cast or permanent- mold cast aluminum body with threaded external hub and cast cover.

2.02 CABINETS

A. 14 gauge sheet steel with corrosion resistant finish.

B. Ample space for wires, connections and equipment.

C. Cabinet fronts: Sheet steel panels with hinged door and locking provisions.

D. Flush cabinets: Cover shall be approximately 3/4" larger than cabinet on all sides, set with front firmly against the finished wall surface.

E. Telephone cabinets: Size and depths as noted on Drawings, with fire-retardant wood backboards attached with hot-dipped zinc-coated galvanized steel or stainless-steel fasteners.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install junction boxes so that covers are readily accessible after the completion of the installation.

B. Mount rigidly in place with front of box level and plumb.

C. Secure flush covers with corrosion resistant screws or bolts.

D. Provide each pull box with sufficient clamps to which cables shall be secured in neat and orderly fashion permitting ready identification.

E. Mount pull boxes connected to concealed conduits with covers flush with the finished wall.

END OF SECTION

SECTION 16140

WIRING DEVICES

PART 1 - GENERAL

1.01 WORK INCLUDED

A. The work under this section includes wall switches, receptacles, occupancy sensors, wall dimmers, device plates and box covers, poke-through service fittings, access floor boxes, photocells and time clocks.

PART 2 - PRODUCTS

2.01 DESCRIPTION

A. WALL SWITCHES: 2-pole (White): Leviton CS220-2W.

B. RECEPTACLES (single duplex or simplex on a branch circuit): 20-amp, 120V commercial grade. Duplex (White): Leviton CR20-W. Simplex (White): Leviton 5801-W.

C. VACANCY SENSORS (Manual ON/Auto OFF): Wall-mounted, passive-infrared, line-voltage, single-pole. Maximum load of 1200VA at 120V or 2700VA at 277V. Leviton ODS10-TD. Set delayed time off to 10 minutes unless otherwise noted in plans.

D. TIME CLOCK: Single or multi-circuit as indicated on the plans. Intermatic ET90000 series.

PART 3 - EXECUTION

3.01 GENERAL

A. All devices are to be installed in 4" square boxes, except when installed in masonry.

B. Cover plates in dry interior finished locations shall be smooth white nylon.

C. Cover plates in dry interior unfinished locations shall be raised steel type.

D. Cover plates in damp locations shall be gasketed cast aluminum style designed to remain weatherproof without a plug inserted in accordance with NEC 406.8(A).

E. Cover plates in wet locations shall be cast aluminum, identified as "extra duty", and shall remain weatherproof with or without a plug inserted in accordance with NEC 406.9(B).

F. Note mounting heights indicated by the symbology and notes on the plans.

G. All devices shall have a bonding pigtail conductor from grounding terminal to the metal box system. Self-grounding receptacles using mounting screws as bonding means are not approved.

H. Except as otherwise indicated on the Drawings, mount devices flush, with long dimension vertical, and grounding pin on receptacles on bottom. Group adjacent switches and receptacles under a single, multi-gang wall plate.

3.02 LIGHTING CONTROLS CERTIFICATION

A. Functional Testing: Prior to passing final inspection, the electrical contractor shall hire an independent 3rd party testing agency and shall provide evidence that the lighting control systems have been tested to ensure that control hardware and software are calibrated, adjusted, programmed and in proper working condition in accordance with the construction documents and manufacturer's instructions. Functional testing shall be in accordance with Florida Energy Code Sections C408.3.1.1 through C408.3.1.3 for the applicable control type.

B. Documentation Requirements: The contractor shall provide the building owner or the building owner's authorized agent all documents listed in Florida Energy Code Sections C408.3.2.1 through C408.3.2.3 within 90 days of the date of receipt of the certificate of occupancy.

END OF SECTION

SECTION 16170

GROUNDING AND BONDING

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Grounding electrodes and conductors, equipment grounding conductors and bonding.

1.02 REFERENCES

A. NFPA 70 - National Electrical Code.

1.03 PERFORMANCE REQUIREMENTS

A. Grounding Electrode System Resistance: 25 ohms.

PART 2 - PRODUCTS

2.01 ROD ELECTRODE

A. Material: Copper-clad steel.

B. Diameter: 5/8" minimum.

C. Length: 8' minimum. Rod shall be driven at least 7'-6" deep.

D. Provide the number of rods required to obtain proper ground resistance.

2.02 MECHANICAL CONNECTORS

A. The mechanical connector bodies shall be manufactured from high-strength, high-conductivity cast copper alloy material. Bolts, nuts, washers and lock washers shall be made of Silicon Bronze and supplied as a part of the connector body and shall be of the two bolt type.

B. Split bolt connector types are NOT allowed.

C. The connectors shall meet or exceed UL 467 and be clearly marked with the catalog number, conductor size and manufacturer.

2.03 COMPRESSION CONNECTORS

A. The compression connectors shall be manufactured from pure wrought copper. The conductivity of this material shall be no less than 99% by IACS standards.

B. The installation of the connectors shall be made with a compression, tool and die system, as recommended by the manufacturer of the connectors.

C. The connectors shall be clearly marked with the manufacturer, catalog number, conductor size and the required compression tool settings.

D. Each connector shall be factory filled with an oxide-inhibiting compound.

2.04 EXOTHERMIC CONNECTIONS

A. WIRE

1. Material: Stranded copper (aluminum not permitted).
2. Grounding Electrode Conductor: Size as shown on drawings, specifications or as required by NFPA 70, whichever is larger.

PART 3 EXECUTION

3.01 GENERAL

A. Install Products in accordance with manufacturer's instructions.

B. Mechanical connections shall be accessible for inspection and checking. No insulation shall be installed over mechanical ground connections.

C. Attach grounds permanently before permanent building service is energized.

D. Install rod electrodes at locations indicated or as required by Code, whichever requires the most rods. Install additional rod electrodes as required to achieve specified resistance to ground.

E. Provide bonding to meet NEC Requirements including, but not limited to, bonding between telephone, television, fire alarm, and security systems.

3.02 FIELD QUALITY CONTROL

A. Inspect grounding and bonding system conductors and connections for tightness and proper installation.

B. Measure ground resistance from system grounding electrode connection at service entrance (neutral-ground bond removed) to earth ground reference point using suitable ground testing equipment. Resistance shall not exceed 25 ohms.

END OF SECTION

SECTION 16426

DISTRIBUTION EQUIPMENT

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Standard and custom products equivalent to Square D, NQ, NF, I-Line panelboards, as well as safety switches, and starters.

PART 2 - PRODUCTS

2.01 MATERIALS

A. All distribution gear shall have a ground bus.

B. For 4-wire systems, the neutral bus shall be the equivalent ampacity as the phase bus bars.

C. Provide permanent plastic engraved nametag on piece of service equipment indicating main number (if applicable), panel name, power source, panel voltage, and available fault current. See fault current calculations on plans. Fault current rating at panel is the Destination Fault rating shown on the calculation. Contact engineer if further clarification is required. Engraved nametags shall be attached by pop-rivets. Double sided tape is unacceptable. An example nameplate is provided below for reference. Modify example to indicate specific panel name, voltage, and available fault current.

PANEL 'NL1A'
SOURCE: UTILITY
120/208V
12,345 AMPS AVAILABLE FAULT CURRENT

D. Provide permanent plastic engraved identification tags for each disconnecting means identifying the equipment served and the circuit source. Engraved identification tags shall be attached by pop-rivets. Double sided tape is unacceptable.

E. Provide a typewritten directory card in each panelboard. Directory card shall reflect all as-built changes. Handwritten changes to the directory card information are unacceptable.

F. All panelboardsshall use bolt-on circuit breaker over-current devices.

G. Provide circuit breakers UL listed as Type HACR for air conditioning equipment branch circuits.

H. Where panel schedules show 20A single-pole breakers serving multi-wire branch circuits (shared neutral), the contractor shall do one of the following:

a. Provide or multi-pole circuit breakers or listed handle tie to simultaneously disconnect all circuits.
b. Provide each circuit with a dedicated neutral conductor.

Note: Option 'b' is not permitted where multi-wire branch circuit feeds furniture systems. Circuit conductors shall be installed as shown and option 'a' shall be followed.

I. Circuit breakers serving fire alarm system equipment shall be red in color or have a red plastic engraved nametag with text "FIRE ALARM CIRCUIT" attached to panel dead-front next to the circuit breaker. All fire alarm circuit breakers shall be provided with lock-on handle devices.

J. Safety switches used for service disconnecting means and tenant services shall be Heavy Duty, 100,000 AIC minimum. All others may be General Duty.

K. Provide Class L fuses for individual motors, 50 hp and larger and for service mains larger than 600A; Class J for service mains 600A and under, including tenant meter disconnects downstream of service mains; Class RK5 fuses for all other applications.

L. Refer to panel schedules for ampacities, voltage, phase, NEMA rating, mounting configuration, AIC rating, and accessories.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install panelboards plumb with wall finishes with height 6'-6” AFF to top.

B. Provide filler plates for unused spaces in panelboards.

C. Stub three (3) empty 3/4" conduits to accessible location above ceiling or below floor out of each recessed panelboard.

D. Inspect for physical damage, proper alignment, anchorage, and grounding. Check proper installation and tightness of connections.

E. Rigidly mount disconnects and starters adjacent to load served, maintaining working clearance required by NEC.

END OF SECTION

SECTION 16461

DRY TYPE TRANSFORMERS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Dry-type distribution transformers with primary and secondary voltages of 600V and less and capacity ratings through 2000kVA.

1.02 QUALITY ASSURANCE

A. Transformers shall comply with NEMA TP-1.

B. All insulating materials are to exceed NEMA ST20 standards and be rated for 220 deg C UL component recognized insulation system.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Transformers 15kVA and larger shall be 150 deg C temperature rise above 40 deg C ambient. Transformers 25kVA and larger shall have a minimum of 4 - 2.5% full capacity primary taps.

B. Provide factory weather shields where transformers are installed outdoors.

C. Provide factory wall brackets where 30 KVA and below transformers are wall mounted.

D. Where transformers larger than 30 KVA are shown suspended, provide (4) 3/8" threaded rods and (2) lengths of Unistrut to suspend at elevation shown.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Do not install conductors above manufacturer's maximum wiring height level within transformer.

B. Do not enter transformer from the bottom.

END OF SECTION

SECTION 16500

INTERIOR LIGHTING

PART 1 - GENERAL

1.01 SUBMITTALS

A. Product Data: Submit manufacturer's data on lighting units, including certified dimension drawings of components including, but not necessarily limited to, brackets, hardware and fixtures.

1.02 QUALITY ASSURANCE

A. Comply with NEC requirements as applicable to wiring types and lengths for fixture whips. Provide lighting components and fittings that are UL-listed and labeled.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Lighting fixtures shall be the type indicated on Drawings and as specified. Fixtures of same type shall be of identical make, design, and appearance. Size of lighting fixtures shall be as specified for the lamp or fixture wattage indicated on Drawings. Specific manufacturer and model number references are indicated as a standard of quality and other manufacturers may be supplied if, in the sole opinion of the engineer, the substitute meets or exceeds the specifications. In some instances, the architect may also require approval of fixture due to the architectural features of the specified fixtures. The contractor shall gain approval of any fixtures requiring architectural approval PRIOR to bid.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Clean surfaces of dirt, cement, plaster and debris. Furnish cleansers compatible with material surfaces being cleaned.

B. Replace defective LED and driver.

C. Support recessed fixtures in ceilings as follows: Fixtures shall be supported by structure above.

D. Recessed fixtures shall fit snugly against ceilings to prevent light leakage.

END OF SECTION

SECTION 16721

FIRE ALARM SYSTEMS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. The general provisions of the contract including General and Special Conditions and General Requirements shall apply to all work under this Section.

1.02 WORK INCLUDED

A. Furnish all labor, material and equipment necessary for a complete and operational fire alarm system. Perform an acceptance test and make adjustments as required by the Authorities Having Jurisdiction.

1.03 STANDARDS

A. Except as modified by governing codes and by the Contract Documents, comply with the latest applicable provisions and latest recommendations of the following:

1. National Fire Alarm Code (NFPA 72)
2. Florida Building Code
3. American National Standard Institute
4. National Electrical Manufacturers Association
5. Underwriters Laboratories
6. FM Global
7. Applicable National Fire Protection Association Standards

1.04 SUBMITTALS

A. Submit prior to ordering equipment:

1. Wiring diagrams showing connections between all system components.
2. Description of system operation.
3. Manufacturer's literature marked to show model and catalog number for all equipment.
4. A complete layout of the entire system including conduit routing, conduit sizes, wire sizes and types. Obtain AutoCAD background to create shop drawings from Architect. Engineer will not furnish electronic plans or sign and seal shop drawings.
5. Battery sizing calculations indicating circuit loading and power supply loading. Voltage drop calculations shall be submitted for all notification appliance circuits exceeding 1.5 Amps or 300' length.
6. Submittals and shop drawings shall be as a complete set. Partial submittal will not be acceptable.
7. Drawings shall not be on less than 1/8" scale and shall identify all symbols used.

B. Submit prior to building occupancy

1. Contractor shall submit, upon completion of system verification, a point-by-point check list indicating the date and time of each item inspected and issue a Record of Completion confirming that the inspection has been completed and the system is installed and functioning in accordance with the specifications.

PART 2 - PRODUCTS

2.01 GENERAL

A. Any equipment proposed, as equal to that herein specified must be proven by the Contractor. Submit to the Engineer: the manufacturer's name, model numbers of substitute equipment and materials, engineering data sheets, COST SAVINGS TO OWNER, and a list of ten (10) installations of similar equipment which have been satisfactorily installed and in continuous operation on a user's premises over a period of three (3) years. See section 16010 for additional substitution request requirements.

2.02 SEQUENCE OF OPERATION

A. Activation of any manual pull station, smoke detector (except duct detectors), heat detector, or sprinkler system flow detector shall initiate an alarm sequence as follows:

1. Sound all audible notification appliances (horns/speakers) until silenced by the alarm silence switch at the fire alarm control panel.
2. Flash all visual notification appliances (strobes) until system is reset.
3. Release all doors normally held open by door control devices.
4. Deactivate all security system control devices that normally hold exit doors closed.
5. Activate/Deactivate mechanical controls on the air handling systems per plans and specifications.
6. Send a supervised signal to notify the central monitoring station. Signal shall include Point Contact Identification identifying the device(s) in alarm.
7. Display an alarm condition on the fire alarm control panel display and remote annunciator. Flash an alarm LED on the fire alarm control panel and the remote annunciator until the alarm has been acknowledged at the fire alarm control panel or the remote annunciator. Latch the alarm led upon alarm acknowledgement. After the alarm has been acknowledged, flash the alarm led on the fire alarm control panel and the remote annunciator again upon receipt of a subsequent alarm from another device. Display the new alarm information on the fire alarm control panel display.
8. In addition to the operations listed above, the activation of any smoke detector in the elevator lobby, elevator machine room, or elevator shaft shall also recall the elevator cab in accordance with the following sequence:
    a. Recall the elevator cab to the primary egress floor (as designated by the AHJ) unless the smoke detector activated is the one in the elevator lobby on the primary floor.
    b. Recall the elevator cab to the secondary egress floor (as designated by the AHJ) if the smoke detector activated is the one in the elevator lobby on the primary floor.
9. In addition to the operations listed above, the activation of any heat detector in the elevator machine room, elevator pit, or elevator shaft shall also operate the elevator shunt-trip circuit breaker for the elevator main line feed in accordance with ASME A17.1.

B. Activation of any mechanical system duct detector shall initiate a supervisory alarm sequence as follows:

1. Deactivate the respective air handler or group of air handlers as required by NFPA 90A and the Florida Building Code section 606.1. Smoke detection in any air handler shall shut down all air handlers serving a common area (smoke compartment). Smoke detection in an air handler which derives its return air from a return air plenum shall shut down all air handlers fed from the common plenum.
2. Send a supervisory alarm signal to notify the central monitoring station. Signal shall include Point Contact Identification identifying the device(s) in alarm.
3. Display a supervisory alarm condition on the fire alarm control panel display and remote annunciator. Flash an alarm LED on the fire alarm control panel and the remote annunciator until the alarm has been acknowledged at the fire alarm control panel or the remote annunciator. Latch the alarm led upon alarm acknowledgement. After the alarm has been acknowledged, flash the alarm LED on the fire alarm control panel and the remote annunciator again upon receipt of a subsequent alarm from another device. Display the new alarm information on the fire alarm control panel display.

C. Activation of any sprinkler system tamper switch shall initiate a supervisory alarm sequence as follows:

1. Send a supervisory alarm signal to notify the central monitoring station. Signal shall include Point Contact Identification identifying the device(s) in alarm.
2. Display a supervisory alarm condition on the fire alarm control panel display and remote annunciator. Flash an alarm LED on the fire alarm control panel and the remote annunciator until the alarm has been acknowledged at the fire alarm control panel or the remote annunciator. Latch the alarm led upon alarm acknowledgement. After the alarm has been acknowledged, flash the alarm LED on the fire alarm control panel and the remote annunciator again upon receipt of a subsequent alarm from another device. Display the new alarm information on the fire alarm control panel display.

D. Activation of any elevator lobby, hoistway, and associated machine room smoke detectors used solely for elevator recall, and heat detectors used solely for elevator power shutdown shall initiate a supervisory alarm sequence as follows:

1. Send a supervisory alarm signal to notify the central monitoring station. Signal shall include Point Contact Identification identifying the device(s) in alarm.
2. Display a supervisory alarm condition on the fire alarm control panel display and remote annunciator. Flash an alarm LED on the fire alarm control panel and the remote annunciator until the alarm has been acknowledged at the fire alarm control panel or the remote annunciator. Latch the alarm led upon alarm acknowledgement. After the alarm has been acknowledged, flash the alarm LED on the fire alarm control panel and the remote annunciator again upon receipt of a subsequent alarm from another device. Display the new alarm information on the fire alarm control panel display.

E. Loss of primary power, short circuit, open faults, ground faults, missing detectors, abnormal detector status, disabled devices, and abnormal control functions shall initiate audible and visible trouble signals at the control unit and remote annunciator and shall send a trouble signal to the central monitoring station.

2.03 INTELLIGENT/ADDRESSABLE CONTROL PANELS

A. Provide intelligent analog addressable control panels unless otherwise indicated on the drawings.

B. The control panel shall have sufficient notification appliance circuits (NAC) to operate all notification appliances simultaneously and have 20% spare capacity remaining for the addition of future notification appliances. NAC circuits shall be wired Class B, Style Y.

C. The control panel shall be provided with battery backup capable of operating the system in non-alarm conditions for 24 hours and in alarm conditions under maximum load for 5 minutes.

D. One signaling line circuit (SLC) system:

1. Fire alarm control panel shall be intelligent analog addressable control panel with the following features and options:
    a. 198 intelligent device capacity (99 analog detectors and 99 monitor/control modules). Style 4, 6 or 7 as indicated on the drawings.
    b. Drift compensation.
    c. Auto detector test.
    d. Maintenance alert.
    e. Dead front panel.
    f. Digital Communicator.
2. Fire-Lite ES-200X

2.04 CELLULAR ALARM COMMUNICATOR

A. Telguard TG-7FS

2.05 INTELLIGENT/ADDRESSABLE INITIATING DEVICES

A. Provide intelligent/addressable initiating devices compatible with intelligent/addressable control panels when intelligent/addressable control panels are specified on the drawings.

B. Pull Stations

1. Manual pull stations shall be non-code, non-break-glass, double action type.
2. Individually addressed.
3. Notifier model NOT-BG12LX
4. Notifier model NBG-12LX
5. Exterior (WP) - Notifier model NBG-12LOB with miniature monitoring module in gasketed back box. (Fire Warden or Standard System)

C. Smoke Detectors

1. Smoke detector shall be photoelectric type. Detector shall be analog addressable low-profile and shall have an LED, which will blink when polled by the control panel and turn steady red on alarm.
2. Fire-Lite #SD365

D. Duct Smoke Detectors

1. Smoke detector shall be photoelectric type. The detector housing shall be UL listed per UL 268A specifically for use in air-handling systems. The detector shall operate at air velocities of 500 to 4,000 feet per minute. The housing shall be capable of mounting to either rectangular or round ducts without adapter brackets. An integral filter system shall be included to reduce dust and residue effects on detector and housing, thereby reducing maintenance and servicing. Sampling tubes shall either be telescoping or be easily installed after the housing is mounted to the duct by passing through the duct housing.
    a. Operating temperature range: 32°F to 131°F (0°C to 55°C).
    b. Operating humidity range: 10% to 93% relative humidity.
    c. Air duct velocity range: 500 to 4,000 ft/min.
2. Fire-Lite #D355PL

2.06 ADDRESSABLE MONITORING MODULES

A. Notifier model NMM-100/NMM-100P/NZM-100/NDM-100

B. Notifier model FMM-1/FMM-101/FZM-1/FDM-1

2.07 ADDRESSABLE RELAY MODULES

A. Notifier model NC-100R

B. Notifier model FRM

2.08 HORNS

A. Horns shall be an electronic sounder type and operate at 24 VDC. Sounder shall be listed to Underwriters Laboratories Standard 464 for fire protection signaling systems. Sounder shall have eight tone options, selected by means of clip(s).

A. Wheelock Model MA12/24D (MODIFY TO SYSTEM SENSOR).

2.09 STROBES

A. Strobe shall BE listed to UL 1971 Standard for the Hearing Impaired and shall be approved for Fire Protective Service. Strobe shall be wired as a Primary Signaling Notification appliance. Strobe shall also comply with the Americans with Disabilities Act requirements for visible signaling appliances. Strobe shall operate on 24 VDC from a regulated DC supply or full-wave rectified, unfiltered supply. The signaling strobe shall be powered independently from the horn. Strobe shall have no measurable inrush current in excess of operating peak current. The strobe light shall consist of a Xenon flash tube and associated lens/reflector system. All strobes shall be designed for one flash per second with continuously applied minimum voltage and flash in synchronization. All strobes shall be capable of mounting to a standard 4" x 4" x 1-1/2" back-box and shall be semi-flush mount with separate mounting plate. Provide minimum candela ratings (per UL 1971) as indicated on the drawings.

B. Wall mounted: System Sensor model SR

C. Wall mounted exterior (WP): System Sensor model SRK

D. Ceiling mounted: System Sensor model SCR

E. Ceiling mounted exterior (WP): System Sensor model SCRK

2.010 HORN/STROBES

B. Above specified strobe plus; Horns shall be an electronic sounder type and operate at 24 VDC. Sounder shall be listed to Underwriters Laboratories Standard 464 for fire protection signaling systems. Sounder shall have eight tone options, selected by means of clip(s).

C. Wall mounted: System Sensor model P2R

D. Wall mounted exterior (WP): System Sensor model P2RK

E. Ceiling mounted: System Sensor model SCR

F. Ceiling mounted exterior (WP): System Sensor model SCRK

2.011 FIRE ALARM CABLE

A. Initiating circuits shall be 2 conductor #18 type FPLP cable. West Penn Wire # D60975

B. Initiating circuit installed in underground conduit shall be 2#14 THWN.

C. Signaling line circuits shall be 2 conductor shielded type FPLP data cable.

1. #18, West Penn Wire # D60975
2. #16, West Penn Wire # D60990

D. Notification circuits shall be 2 conductor type FPLP cable minimum size #14 AWG. West Penn Wire # 995. Provide larger size if required by circuit voltage drop calculations. Where installed in conduit, THHN conductors may be substituted for fire alarm cable.

PART 3 - EXECUTION

3.01 WIRING:

A. All conductors shall be installed in conduit.

B. Signal Line Circuits (SLC) shall be wired as Class B, Style 4.

C. Notification Appliance Circuits (NAC) shall be wired as Class B, Style Y.

D. Label wiring at all termination points.

E. Provide surge protection on all line voltage and low voltage circuits.

3.02 DETECTOR INSTALLATION

A. Smoke detectors shall not be installed until after the construction clean up of all trades is final.

B. Any smoke detectors installed prior to the final construction clean up shall be cleaned or replaced with new detectors.

C. Provide remote test station in a location acceptable to the Authority Having Jurisdiction for all detectors installed concealed, such as above ceiling smoke detectors.

3.03 ACCEPTANCE TEST

A. Prior to scheduling acceptance test, check system and perform preliminary testing to verify that the system operates correctly and is ready for an acceptance test.

B. Perform an acceptance test in the presence of the Owner and the Fire Marshal.

C. Test all functions of the system in accordance with the inspection, testing and maintenance requirements of the National Fire Alarm Code. Record each device and function tested.

D. Verify accuracy of record documents.

END OF SECTION

SECTION 16741

TELEPHONE AND DATA SYSTEM

PART 1 - GENERAL

1.01 QUALITY ASSURANCE

A. Comply with applicable requirements of NEMA and UL standards. Provide products and components that have been UL listed and labeled.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Outlet boxes shall consist of 4" square deep boxes. Provide minimum 3-1/2" deep boxes unless required otherwise by field conditions.

B. Provide backboard in telephone equipment rooms consisting of 3/4" deep X 4' wide X 8' high AC plywood unless noted otherwise on plans.

C. Provide backboards in tenant spaces consisting of 3/4" deep X 4' wide X 4' high AC plywood unless noted otherwise on plans.

D. Telephone system ground bar shall be equal to Erico model IBTB.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Provide minimum 1" conduits from outlet boxes to accessible space above ceiling. Where hard ceilings are installed, route conduit to nearest accessible location.

B. Paint both sides of telephone backboards with 2 coats of fire retardant paint prior to installation.

C. Use long sweep rigid 90-degree elbows on telephone service entrance conduits.

D. Provide (1) 1-1/4" conduit from main telephone terminal board to telephone terminal board in tenant unless noted otherwise on plans.

E. Provide Erico ground bar at each telephone backboard location. Provide a #6 Green copper ground from each ground bar to main telephone systems ground or to building grounding electrode system.

F. Provide a pull string in all conduits.

END OF SECTION

SMA
ARCHITECTURE
and INTERIORS

SCOTT MALENOCK ARCHITECTURE, LLC
100 COLONIAL CENTER PKWY
SUITE 230
LAKE MARY, FL 32746
PHONE: (407) 585-0330
FAX: (407) 585-0336
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ARCHITECTURE NO.:

APOLLO
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Job # 31001
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SEAL

Harold Scott
Florida P.E. #54082

PROJECT INFORMATION

PROJECT:
PUBLIX
REDEVELOPMENT -
PORT ST LUCIE

PROJECT ADDRESS:
NWC OF ST LUCIE WEST BLVD & NW BETHANY DR
PORT ST LUCIE

PROJECT NO.: 200344

NOTES

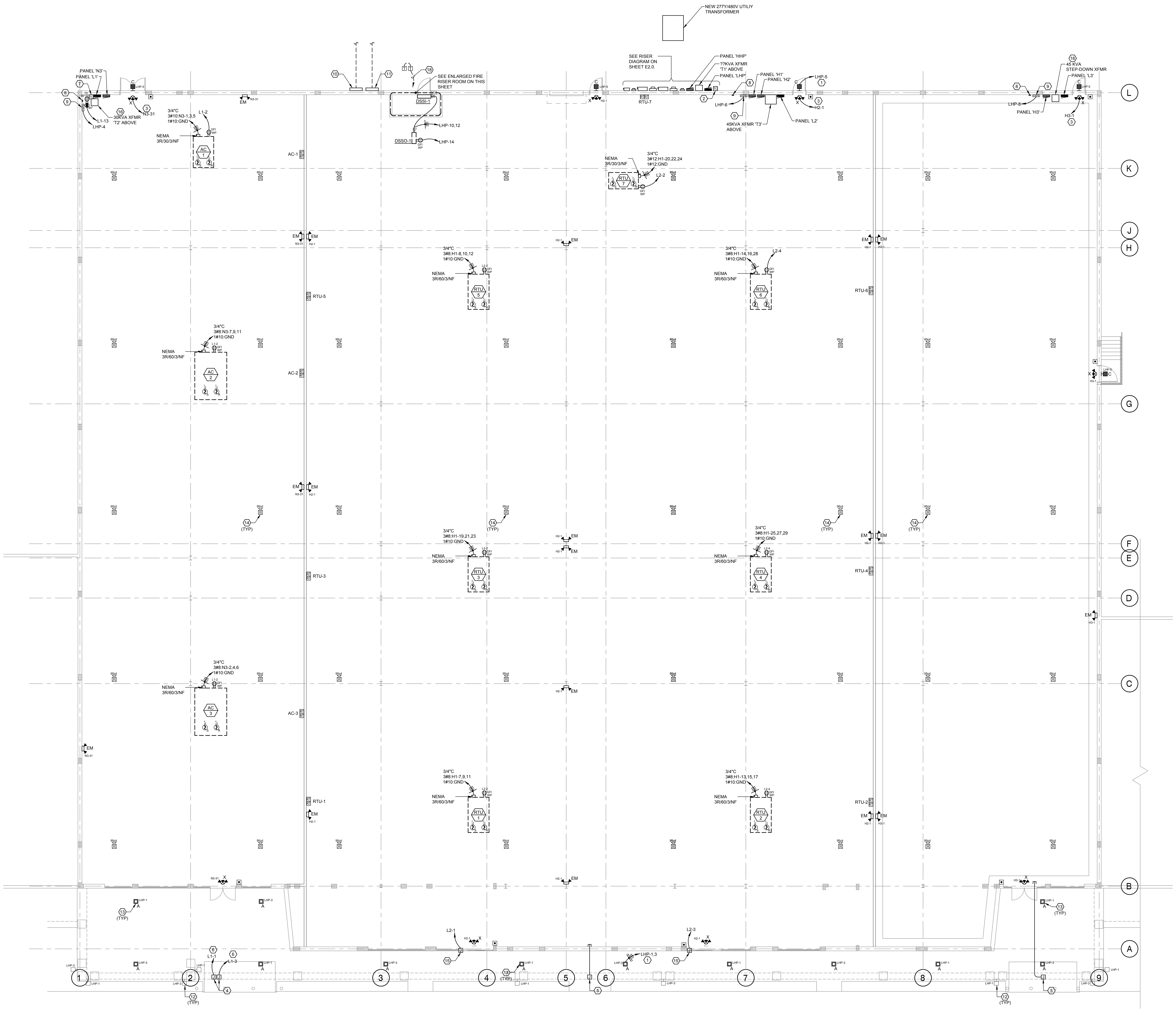
ACTIVE DESIGN PHASE
☐ FOR REVIEW ONLY
☐ FOR PERMITTING ONLY
☐ SCHEMATIC DESIGN
☐ DESIGN DEVELOPMENT
☐ CONSTRUCTION BIDDING
■ CONSTRUCTION DOCUMENTS
☐ AS-BUILT RECORD SET

REVISION INFORMATION

NO.	DATE	DESCRIPTION
	07/16/2021	PERMIT SUBMISSION

KEY PLAN

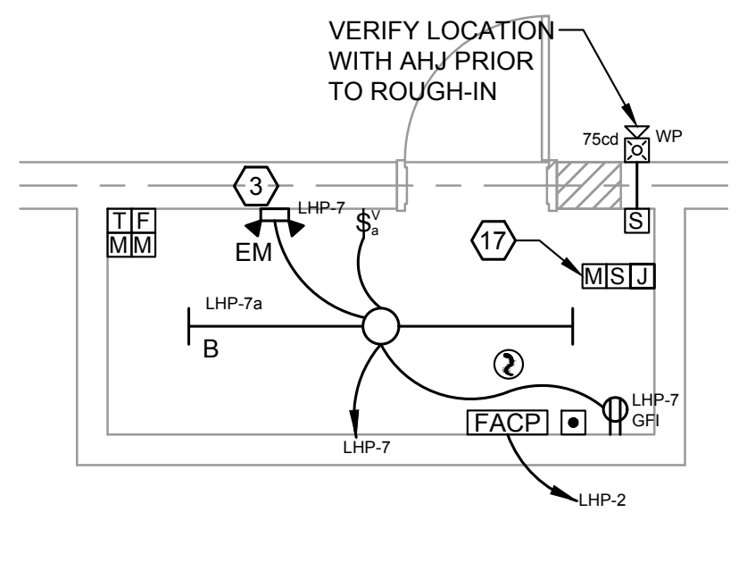
SHEET INFORMATION
SHEET ISSUED: 07/16/2021
DESIGNED BY: JCK
DRAWN BY: CMD
REVIEWED BY: HAS
SHEET TITLE: ELECTRICAL SPECIFICATIONS
SHEET NO.: E0.1



ELECTRICAL PLAN

SCALE: 1/8" = 1'-0"

NORTH



ENLARGED FIRE RISER ROOM

SCALE: 1/4" = 1'-0"

NORTH

KEYED NOTES ⬡

1. ROUTE CIRCUIT VIA TIMECLOCK.
2. PROVIDE ASTRONOMICAL 4-CIRCUIT HOUSE TIMECLOCK. INTERMATIC #ET90415CR OR EQUAL. MOUNT NEXT TO PANEL 'LHP'. COORDINATE BEHAVIORS WITH OWNERS REP.
3. CONNECT ALL EMERGENCY FIXTURES AND EXIT SIGNS TO AN UNSWITCHED "ALWAYS-HOT" CONDUCTOR.
4. PROVIDE J-BOX FLUSH IN FAÇADE FOR TENANT SIGNAGE. DO NOT PENETRATE ROOF OR PARAPET WALL WITH CONDUIT. SEE ARCHITECTURAL ELEVATIONS AND SECTIONS FOR MORE INFORMATION.
5. PROVIDE JUNCTION BOX MOUNTED BEHIND FASCIA FOR FUTURE TENANT SIGNAGE. STUB 3/4"C INTO TENANT SPACE. DO NOT PENETRATE ROOF OR PARAPET WALL WITH CONDUIT. SEE ARCHITECTURAL ELEVATIONS AND SECTIONS FOR MORE INFORMATION.
6. ROUTE CIRCUIT VIA TENANT TIMECLOCK.
7. PROVIDE ASTRONOMICAL 2-CIRCUIT HOUSE TIMECLOCK. ET90415C OR EQUAL FOR SIGNAGE CONTROL. MOUNT NEXT TO PANEL 'L1'. COORDINATE BEHAVIORS WITH TENANT REP.
8. PROVIDE (1)2" CONDUIT WITH PULLSTRING FOR FUTURE TENANT CATV SERVICE TO EXTERIOR CATV CABINET AND (1)2" CONDUIT WITH PULLSTRING FOR FUTURE TENANT TELEPHONE SERVICE TO EXTERIOR TELEPHONE CABINET. STUB UP AT 6" ABOVE FINISH FLOOR AND PROVIDE TEMPORARY CAP.
9. PROVIDE FIRE ALARM POWER SUPPLY WITH 1"C WITH PULLSTRING TO FIRE ALARM CONTROL PANEL IN FIRE RISER ROOM.
10. PROVIDE NEMA 3R LOCKABLE EXTERIOR TELEPHONE CABINET PER UTILITY COMPANY STANDARDS. STUB UP (2)2"C WITH PULLSTRING IN GRASSY AREA BEHIND BUILDING. COORDINATE EXACT POINT OF CONNECTION LOCATION WITH UTILITY COMPANY PRIOR TO BID.
11. PROVIDE NEMA 3R LOCKABLE EXTERIOR CATV CABINET PER UTILITY COMPANY STANDARDS. STUB UP (1)4"C WITH PULLSTRING IN GRASSY AREA BEHIND BUILDING. COORDINATE EXACT POINT OF CONNECTION LOCATION WITH UTILITY COMPANY PRIOR TO BID.
12. RECONNECT EXISTING WALL SCONCE TO NEW CONTROLLED CIRCUIT AS SHOWN.
13. REPLACE EXISTING CANOPY LIGHTS WITH NEW CANOPY LIGHTS AS SHOWN. CONNECT NEW CANOPY LIGHTS TO NEW CONTROLLED CIRCUITS AS SHOWN.
14. PENDANT MOUNT FIRE ALARM DEVICE AT 12'-0" A.F.F.
15. PROVIDE POWER FOR AUTOMATIC DOORS. COORDINATE EXACT REQUIREMENTS WITH TENANT REPRESENTATIVE PRIOR TO ROUGH-IN.
16. SEE HANGING TRANSFORMER DETAIL ON SHEET E2.0.
17. PROVIDE 6" X 6" X 4" JUNCTION BOX FOR SURGE DEVICES AND MONITORING MODULES. COORDINATE EXACT LOCATION WITH FIRE ALARM CONTRACTOR. 3/4"C TO PIV INSTALLED UNDER SITE CONTRACT.
18. PROVIDE 3/4"C WITH PULLSTRING FROM RETAIL BUILDING PIV LOCATION TO BUILDING FIRE ALARM CONTROL PANEL. TAMPER SWITCH(ES) AT PIV AND WIRING BY RETAIL CONTRACTOR.

GENERAL NOTES

1. EMERGENCY FIXTURES AND EXIT SIGNS SHALL BE WIRED WITH AN "ALWAYS-HOT" CONDUCTOR SUCH THAT IT IS CONNECTED AHEAD OF ANY LOCAL CONTROLS.
2. ALL CONDUITS WITH CIRCUIT CONDUCTORS SHALL HAVE A COPPER EQUIPMENT GROUNDING CONDUCTOR SIZED IN ACCORDANCE WITH N.E.C. 250.
3. COORDINATE WITH ALL OTHER TRADES, VENDORS AND PLANS FOR ADDITIONAL WORK REQUIRED BY THIS CONTRACTOR. WORK SHOWN ON OTHER PLANS AND STATED AS "BY E.C." OR "BY ELECTRICAL CONTRACTOR" SHALL BE PROVIDED BY THIS CONTRACTOR AND ALL COSTS INCLUDED IN BASE BID.
4. THE ELECTRICAL CONTRACTOR SHALL PROVIDE 3RD PARTY LIGHTING CONTROL CERTIFICATION AS REQUIRED BY SPECIFICATION SECTION 16140.
5. ALL EMPTY CONDUITS SHALL HAVE PULLSTRING.
6. COORDINATE ALL ELECTRICAL UTILITY REQUIREMENTS PRIOR TO BID. BID SHALL BE DEEMED TO INCLUDE CONDUIT NECESSARY TO CONNECT AT LOCATION DIRECTED BY UTILITY, WHICH MY BE DIFFERENT THAN DEPICTED ON THIS PLAN. CONTACT NATE HOLZMACHER WITH FP&L AT 775-337-7013 OR nate.holzmacher@fpl.com.
7. COORDINATE ALL TELEPHONE COMPANY REQUIREMENTS PRIOR TO BID. BID SHALL BE DEEMED TO INCLUDE CONDUIT NECESSARY TO CONNECT AT LOCATION DIRECTED BY UTILITY, WHICH MY BE DIFFERENT THAN DEPICTED ON THIS PLAN. CONTACT IVAN ARILL WITH AT&T AT 321-388-9719 OR ia7286@att.com.
8. COORDINATE ALL CATV COMPANY REQUIREMENTS PRIOR TO BID. BID SHALL BE DEEMED TO INCLUDE CONDUIT NECESSARY TO CONNECT AT LOCATION DIRECTED BY UTILITY, WHICH MY BE DIFFERENT THAN DEPICTED ON THIS PLAN. CONTACT WAYNE EARICK WITH COMCAST AT 954-895-9436 OR wayne.earick@comcast.com.

SMA
ARCHITECTURE
and INTERIORS

SCOTT MALENOCK ARCHITECTURE, LLC
100 COLONIAL CENTER PKWY
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CA-28878
6544 U.S. Hwy 41 North, Suite 209B,
Apollo Beach, FL 33572
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Job # 31001

SEAL

Harold Scott
Florida P.E. #54082

PROJECT INFORMATION

PROJECT:

PUBLIX
REDEVELOPMENT -
PORT ST LUCIE

PROJECT ADDRESS:

NWC OF ST LUCIE WEST BLVD & NW BETHANY DR
PORT ST LUCIE

PROJECT NO.: 200344

NOTES

ACTIVE DESIGN PHASE

- ☐ FOR REVIEW ONLY
- ☐ FOR PERMITTING ONLY
- ☐ SCHEMATIC DESIGN
- ☐ DESIGN DEVELOPMENT
- ☐ CONSTRUCTION BIDDING
- ■ CONSTRUCTION DOCUMENTS
- ☐ AS-BUILT RECORD SET

REVISION INFORMATION

NO.	DATE	DESCRIPTION
	07/16/2021	PERMIT SUBMISSION

KEY PLAN

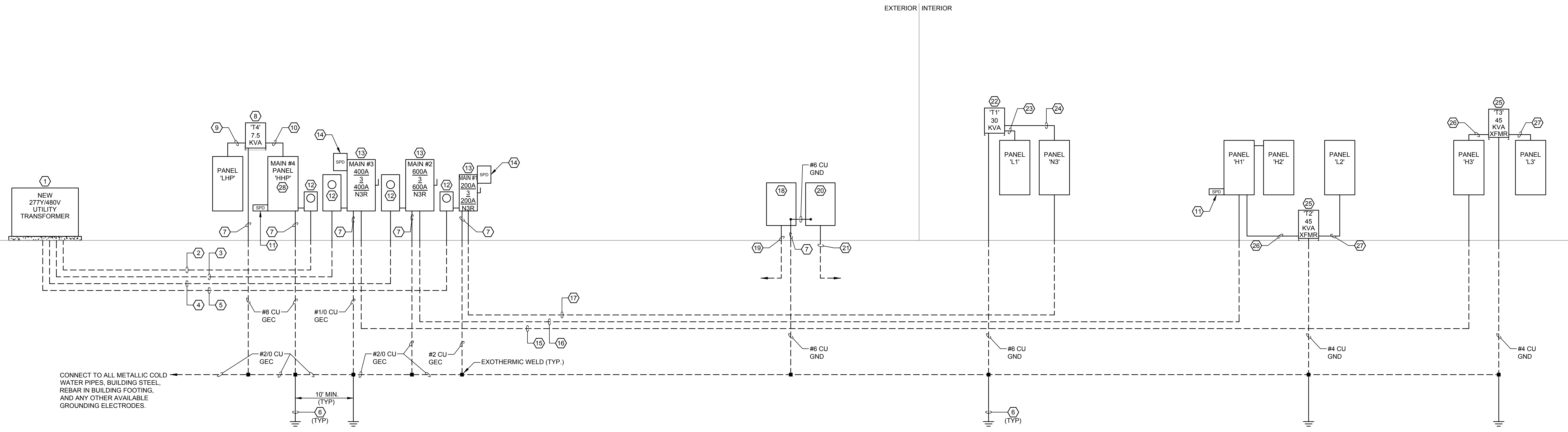
SHEET INFORMATION

SHEET ISSUED: 07/16/2021
DESIGNED BY: JCK
DRAWN BY: CMD
REVIEWED BY: HAS
SHEET TITLE:

ELECTRICAL PLAN

SHEET NO.:

E1.0



RISER DIAGRAM

SCALE: NONE

RISER KEYED NOTES ⬡

1. UTILITY COMPANY PAD MOUNTED TRANSFORMER. COORDINATE EXACT LOCATION WITH CIVIL PLANS. INSTALL PRIMARY CONDUIT AND TRANSFORMER PAD AS REQUIRED PER UTILITY COMPANY REQUIREMENTS. OBTAIN UTILITY COMPANY PLANS AND COORDINATE ALL REQUIREMENTS WITH UTILITY COMPANY PRIOR TO BID.
2. PROVIDE 4#1 CU IN 1 1/4"C.
3. PROVIDE 4#600 KCMIL CU IN 4"C.
4. PROVIDE (2) SETS OF 4#350 KCMIL CU IN 3"C EACH.
5. PROVIDE 4#3/0 CU IN 2 1/2"C.
6. PROVIDE 5/8" X 8' COPPER-CLAD GROUND ROD. LOCATE GROUND RODS NO MORE THAN 6" AWAY FROM THE EXTERIOR WALL.
7. INSTALL GEC IN SCHEDULE 80 PVC CONDUIT WHERE EXPOSED ABOVE GRADE.
8. PROVIDE 7.5 KVA 480V SINGLE PHASE PRIMARY TO 1200/240V SECONDARY STEP-DOWN TRANSFORMER. TRANSFORMER SUPPORTING MEANS BY G.C.
9. PROVIDE 3#8 CU & 1#8 CU G.E.C. IN 1"C.
10. PROVIDE 2#12 CU & 1#12 CU E.G. IN 1/2"C.
11. PROVIDE SURGE PROTECTION DEVICE, UL LISTED 1449, 4TH EDITION, 100kA PER PHASE. ASCO POWER PROTECTION TECHNOLOGIES MODEL #425277YP10AWAJ10. NIPPLE INTO PANEL DIRECTLY ACROSS FROM 30A/3P BREAKER AND CONNECT CONDUCTORS PROVIDED WITH SPD.
12. PROVIDE UTILITY METER SOCKET PER UTILITY COMPANY STANDARDS.
13. PROVIDE FUSED DISCONNECT SWITCH, SIZE AS INDICATED. PROVIDE ENGRAVED LABEL ON EXTERIOR OF DISCONNECT INDICATING MAIN NUMBER.
14. PROVIDE SURGE PROTECTION DEVICE, UL LISTED 1449, 4TH EDITION, TYPE 1, 100kA PER PHASE WITH THRU-DOOR DISCONNECT. ASCO POWER TECHNOLOGIES MODEL #460277YP10ATTG10. MOUNT WITH NIPPLE ON END OF DEVICE GOING DIRECTLY INTO MAIN DISCONNECT SWITCH. ALL WIRING SHALL BE RUN IN A STRAIGHT LINE FROM THE LUGS OF MAIN DISCONNECT SWITCH TO SPD. ANY BENDS IN WIRING IS STRICTLY PROHIBITED. CONNECT SPD TO WITH #6 CU TO LOAD SIDE LUGS.
15. PROVIDE 4#600 KCMIL CU & 1#3 CU E.G. IN 4"C.
16. PROVIDE (2) SETS OF 4#350 KCMIL CU & 1#1 CU E.G. IN 3"C EACH.
17. PROVIDE 4#3/0 CU & 1#6 CU E.G. IN 2 1/2"C.
18. PROVIDE NEMA 3R LOCKABLE EXTERIOR CATV CABINET PER UTILITY COMPANY STANDARDS. PROVIDE AND INSTALL ERICO IBTB GROUND BAR.
19. PROVIDE (1) 4"C TO WITH PULLSTRING TO UTILITY POINT OF CONNECTION. COORDINATE ALL REQUIREMENTS WITH CATV COMPANY REPRESENTATIVE.
20. PROVIDE NEMA 3R LOCKABLE EXTERIOR TELEPHONE CABINET PER UTILITY COMPANY STANDARDS. PROVIDE AND INSTALL ERICO IBTB GROUND BAR.
21. PROVIDE (2) 2"C TO WITH PULLSTRING TO UTILITY POINT OF CONNECTION. COORDINATE ALL REQUIREMENTS WITH TELEPHONE COMPANY REPRESENTATIVE.
22. PROVIDE 30 KVA 480V DELTA PRIMARY TO 120Y/280V WYE SECONDARY STEP-DOWN TRANSFORMER 'T1'. SEE HANGING TRANSFORMER DETAIL ON THIS SHEET.
23. PROVIDE 3#1 CU & 1#6 CU G.E.C. IN 1 1/2"C.
24. PROVIDE 3#6 CU & 1#10 CU E.G. IN 3/4"C.
25. PROVIDE 45 KVA 480V DELTA PRIMARY TO 120Y/280V WYE SECONDARY STEP-DOWN TRANSFORMER. SEE HANGING TRANSFORMER DETAIL ON THIS SHEET.
26. PROVIDE 3#4 CU & 1#8 CU E.G. IN 1 1/4"C.
27. PROVIDE 3#2/0 CU & 1#4 CU G.E.C. IN 2"C.
28. PROVIDE ENGRAVED PLATE INDICATING MAIN NUMBER ON FROM OF PANEL.

TRANSFORMER LOAD SUMMARY

MAIN #1 (PANELS 'N3' & 'L1')	47.5 KVA
MAIN #2 (PANELS 'H1', 'H2' & 'L2')	162.0 KVA
MAIN #3 (PANELS 'H3' & 'L3')	0.1 KVA
MAIN #4 (PANELS 'HHP' & 'LHP')	4.7 KVA
TOTAL	214.3 KVA
AMPERES 480 V, 3 PHASE	257.7 Amps

MAIN #1 FAULT CURRENT CALCULATION

UTILITY/ORIGIN VOLTS:	480	TRANSFORMER KVA:	500	UTILITY/ORIGIN FAULT:	14484

FEEDER						ORIGIN		DESTINATION	
ORIGIN	DESTINATION	LENGTH	WIRE	SIZE	SETS	X/R RATIO	FAULT	X/R RATIO	FAULT
UTILITY XFMR	MAIN #1 (DISCONNECT)	25	CU	3/0	1	12.00	14484	6.22	13772
MAIN #1 (DISCONNECT)	PANEL N3	135	CU	3/0	1	6.22	13772	2.04	10285
PANEL N3	XFMR T1 (PANEL L1)	10	CU	6	1	6.22	10285	3.22	9818
XFMR T1 (PANEL L1)	PANEL L1	10	CU	1	1	1.75	1611	1.73	1603

STEP-DOWN TRANSFORMER CALCULATIONS

FAULT CURRENT FOR TRANSFORMER T1

XFMR KVA	30
XFMR DEG C RISE	150
PRIMARY VOLTAGE	480
SECONDARY VOLTAGE	208
XFMR IMPEDANCE	4.8
SECONDARY X/R	1.75
FAULT CURRENT	1611

GENERAL NOTES:
1. THE UTILITY/ORIGIN FAULT CURRENT VALUE LISTED WAS PROVIDED BY THE UTILITY COMPANY DURING DESIGN OR CALCULATED BASED ON CUSTOMARY TRANSFORMER IMPEDANCE VALUES AND SHOULD BE CONSIDERED "PRELIMINARY". THE ELECTRICAL CONTRACTOR SHALL BE SOLEY RESPONSIBLE TO CONFIRM THE ACTUAL TRANSFORMER FAULT CURRENT VALUE OF THE TRANSFORMER TO BE INSTALLED WITH THE SERVING UTILITY PRIOR TO BID AND INCLUDE ALL COSTS TO INCREASE GEAR AIC RATINGS AS A RESULT OF AN INCREASE IN FAULT CURRENT VERSUS THE VALUE INDICATED ABOVE. THE ELECTRICAL CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY IF THE UTILITY FAULT CURRENT IS DIFFERENT THAN INDICATED ABOVE TO OBTAIN AN UPDATED FAULT CURRENT CALCULATION. CHANGES ORDERS FOR DIFFERENT GEAR AIC RATING RESULTING FROM A CHANGE IN UTILITY FAULT CURRENT WILL NOT BE ACCEPTED.
2. EQUIPMENT AIC (SCCR) RATING SHALL BE NO LESS THAN 110% OF THE DESTINATION FAULT VALUE.
3. SERIES RATING OF CIRCUIT BREAKERS IS PERMITTED IN ALL LOCATIONS WHERE PERMITTED BY LOCAL JURISDICTION. WHERE SERIES RATING IS UTILIZED, PROVIDE MANUFACTURERS TESTING DOCUMENTATION FOR ALL BREAKERS WITH SUBMITTALS.
4. FEEDER LENGTHS INDICATED IN THIS CALCULATION ARE NOT TO BE USED FOR BIDDING PURPOSES. CONTRACTOR SHALL BE SOLELY RESPONSIBLE TO VERIFY ALL FEEDER LENGTHS BASED ON THE ACTUAL INSTALLED LOCATION OF TRANSFORMER AND ELECTRICAL GEAR. IF ANY FEEDER LENGTH DIFFERS BY MORE THAN 10%, THE CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY TO OBTAIN AN UPDATED FAULT CURRENT CALCULATION. ANY COST CHANGE DUE TO INCREASES IN FAULT CURRENT RESULTING FOR SHORTER FEEDER RUNS ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

MAIN #2 FAULT CURRENT CALCULATION

UTILITY/ORIGIN VOLTS:	480	TRANSFORMER KVA:	500	UTILITY/ORIGIN FAULT:	14484

FEEDER						ORIGIN		DESTINATION	
ORIGIN	DESTINATION	LENGTH	WIRE	SIZE	SETS	X/R RATIO	FAULT	X/R RATIO	FAULT
UTILITY XFMR	MAIN #2 (DISCONNECT)	20	CU	350	2	12.00	14484	10.20	14233
MAIN #2 (DISCONNECT)	PANEL H1	30	CU	350	2	10.20	14233	8.39	13867
PANEL H1	PANEL H2	10	CU	1	1	8.39	13867	5.52	13508
PANEL H1	XFMR T2 (PANEL L2)	10	CU	4	1	8.39	13867	4.08	13325
XFMR T2 (PANEL L2)	PANEL L2	10	CU	2/0	1	1.17	2495	1.16	2478

STEP-DOWN TRANSFORMER CALCULATIONS

FAULT CURRENT FOR TRANSFORMER T2

XFMR KVA	45
XFMR DEG C RISE	150
PRIMARY VOLTAGE	480
SECONDARY VOLTAGE	208
XFMR IMPEDANCE	4.6
SECONDARY X/R	1.17
FAULT CURRENT	2495

GENERAL NOTES:
1. THE UTILITY/ORIGIN FAULT CURRENT VALUE LISTED WAS PROVIDED BY THE UTILITY COMPANY DURING DESIGN OR CALCULATED BASED ON CUSTOMARY TRANSFORMER IMPEDANCE VALUES AND SHOULD BE CONSIDERED "PRELIMINARY". THE ELECTRICAL CONTRACTOR SHALL BE SOLEY RESPONSIBLE TO CONFIRM THE ACTUAL TRANSFORMER FAULT CURRENT VALUE OF THE TRANSFORMER TO BE INSTALLED WITH THE SERVING UTILITY PRIOR TO BID AND INCLUDE ALL COSTS TO INCREASE GEAR AIC RATINGS AS A RESULT OF AN INCREASE IN FAULT CURRENT VERSUS THE VALUE INDICATED ABOVE. THE ELECTRICAL CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY IF THE UTILITY FAULT CURRENT IS DIFFERENT THAN INDICATED ABOVE TO OBTAIN AN UPDATED FAULT CURRENT CALCULATION. CHANGES ORDERS FOR DIFFERENT GEAR AIC RATING RESULTING FROM A CHANGE IN UTILITY FAULT CURRENT WILL NOT BE ACCEPTED.
2. EQUIPMENT AIC (SCCR) RATING SHALL BE NO LESS THAN 110% OF THE DESTINATION FAULT VALUE.
3. SERIES RATING OF CIRCUIT BREAKERS IS PERMITTED IN ALL LOCATIONS WHERE PERMITTED BY LOCAL JURISDICTION. WHERE SERIES RATING IS UTILIZED, PROVIDE MANUFACTURERS TESTING DOCUMENTATION FOR ALL BREAKERS WITH SUBMITTALS.
4. FEEDER LENGTHS INDICATED IN THIS CALCULATION ARE NOT TO BE USED FOR BIDDING PURPOSES. CONTRACTOR SHALL BE SOLELY RESPONSIBLE TO VERIFY ALL FEEDER LENGTHS BASED ON THE ACTUAL INSTALLED LOCATION OF TRANSFORMER AND ELECTRICAL GEAR. IF ANY FEEDER LENGTH DIFFERS BY MORE THAN 10%, THE CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY TO OBTAIN AN UPDATED FAULT CURRENT CALCULATION. ANY COST CHANGE DUE TO INCREASES IN FAULT CURRENT RESULTING FOR SHORTER FEEDER RUNS ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

MAIN #3 FAULT CURRENT CALCULATION

UTILITY/ORIGIN VOLTS:	480	TRANSFORMER KVA:	500	UTILITY/ORIGIN FAULT:	14484

FEEDER						ORIGIN		DESTINATION	
ORIGIN	DESTINATION	LENGTH	WIRE	SIZE	SETS	X/R RATIO	FAULT	X/R RATIO	FAULT
UTILITY XFMR	MAIN #3 (DISCONNECT)	15	CU	600	1	12.00	14484	10.46	14129
MAIN #3 (DISCONNECT)	PANEL H3	100	CU	600	1	10.46	14129	6.07	12113
PANEL H3	XFMR T3 (PANEL L3)	10	CU	4	1	6.07	12113	3.64	11654
XFMR T3 (PANEL L3)	PANEL L3	10	CU	2/0	1	1.17	2466	1.16	2449

STEP-DOWN TRANSFORMER CALCULATIONS

FAULT CURRENT FOR TRANSFORMER T3

XFMR KVA	45
XFMR DEG C RISE	150
PRIMARY VOLTAGE	480
SECONDARY VOLTAGE	208
XFMR IMPEDANCE	4.6
SECONDARY X/R	1.17
FAULT CURRENT	2466

GENERAL NOTES:
1. THE UTILITY/ORIGIN FAULT CURRENT VALUE LISTED WAS PROVIDED BY THE UTILITY COMPANY DURING DESIGN OR CALCULATED BASED ON CUSTOMARY TRANSFORMER IMPEDANCE VALUES AND SHOULD BE CONSIDERED "PRELIMINARY". THE ELECTRICAL CONTRACTOR SHALL BE SOLEY RESPONSIBLE TO CONFIRM THE ACTUAL TRANSFORMER FAULT CURRENT VALUE OF THE TRANSFORMER TO BE INSTALLED WITH THE SERVING UTILITY PRIOR TO BID AND INCLUDE ALL COSTS TO INCREASE GEAR AIC RATINGS AS A RESULT OF AN INCREASE IN FAULT CURRENT VERSUS THE VALUE INDICATED ABOVE. THE ELECTRICAL CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY IF THE UTILITY FAULT CURRENT IS DIFFERENT THAN INDICATED ABOVE TO OBTAIN AN UPDATED FAULT CURRENT CALCULATION. CHANGES ORDERS FOR DIFFERENT GEAR AIC RATING RESULTING FROM A CHANGE IN UTILITY FAULT CURRENT WILL NOT BE ACCEPTED.
2. EQUIPMENT AIC (SCCR) RATING SHALL BE NO LESS THAN 110% OF THE DESTINATION FAULT VALUE.
3. SERIES RATING OF CIRCUIT BREAKERS IS PERMITTED IN ALL LOCATIONS WHERE PERMITTED BY LOCAL JURISDICTION. WHERE SERIES RATING IS UTILIZED, PROVIDE MANUFACTURERS TESTING DOCUMENTATION FOR ALL BREAKERS WITH SUBMITTALS.
4. FEEDER LENGTHS INDICATED IN THIS CALCULATION ARE NOT TO BE USED FOR BIDDING PURPOSES. CONTRACTOR SHALL BE SOLELY RESPONSIBLE TO VERIFY ALL FEEDER LENGTHS BASED ON THE ACTUAL INSTALLED LOCATION OF TRANSFORMER AND ELECTRICAL GEAR. IF ANY FEEDER LENGTH DIFFERS BY MORE THAN 10%, THE CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY TO OBTAIN AN UPDATED FAULT CURRENT CALCULATION. ANY COST CHANGE DUE TO INCREASES IN FAULT CURRENT RESULTING FOR SHORTER FEEDER RUNS ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

MAIN #4 FAULT CURRENT CALCULATION

UTILITY/ORIGIN VOLTS:	480	TRANSFORMER KVA:	500	UTILITY/ORIGIN FAULT:	14484

FEEDER						ORIGIN		DESTINATION	
ORIGIN	DESTINATION	LENGTH	WIRE	SIZE	SETS	X/R RATIO	FAULT	X/R RATIO	FAULT
UTILITY XFMR	MAIN #4 (PANEL HHP)	25	CU	1	1	12.00	14484	4.14	13521
MAIN #4 (PANEL HHP)	XFMR T4 (PANEL LHP)	10	CU	12	1	4.14	13521	0.97	9486
XFMR T4 (PANEL LHP)	PANEL LHP	10	CU	8	1	0.55	802	0.54	789

STEP-DOWN TRANSFORMER CALCULATIONS

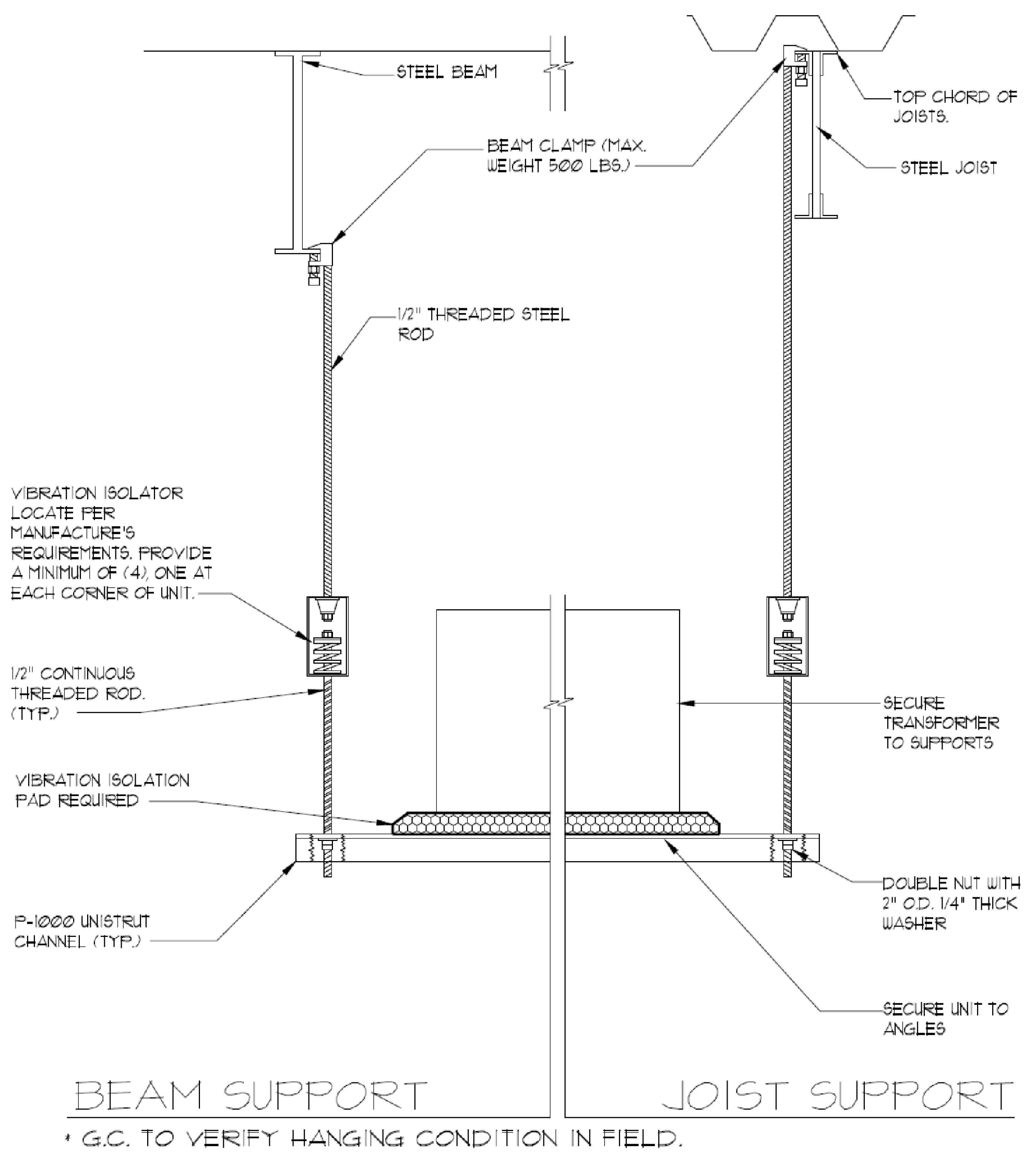
FAULT CURRENT FOR TRANSFORMER T4

XFMR KVA	7.5
XFMR DEG C RISE	115
PRIMARY VOLTAGE	480
SECONDARY VOLTAGE	208
XFMR IMPEDANCE	2.5
SECONDARY X/R	0.55
FAULT CURRENT	802

GENERAL NOTES:
1. THE UTILITY/ORIGIN FAULT CURRENT VALUE LISTED WAS PROVIDED BY THE UTILITY COMPANY DURING DESIGN OR CALCULATED BASED ON CUSTOMARY TRANSFORMER IMPEDANCE VALUES AND SHOULD BE CONSIDERED "PRELIMINARY". THE ELECTRICAL CONTRACTOR SHALL BE SOLEY RESPONSIBLE TO CONFIRM THE ACTUAL TRANSFORMER FAULT CURRENT VALUE OF THE TRANSFORMER TO BE INSTALLED WITH THE SERVING UTILITY PRIOR TO BID AND INCLUDE ALL COSTS TO INCREASE GEAR AIC RATINGS AS A RESULT OF AN INCREASE IN FAULT CURRENT VERSUS THE VALUE INDICATED ABOVE. THE ELECTRICAL CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY IF THE UTILITY FAULT CURRENT IS DIFFERENT THAN INDICATED ABOVE TO OBTAIN AN UPDATED FAULT CURRENT CALCULATION. CHANGES ORDERS FOR DIFFERENT GEAR AIC RATING RESULTING FROM A CHANGE IN UTILITY FAULT CURRENT WILL NOT BE ACCEPTED.
2. EQUIPMENT AIC (SCCR) RATING SHALL BE NO LESS THAN 110% OF THE DESTINATION FAULT VALUE.
3. SERIES RATING OF CIRCUIT BREAKERS IS PERMITTED IN ALL LOCATIONS WHERE PERMITTED BY LOCAL JURISDICTION. WHERE SERIES RATING IS UTILIZED, PROVIDE MANUFACTURERS TESTING DOCUMENTATION FOR ALL BREAKERS WITH SUBMITTALS.
4. FEEDER LENGTHS INDICATED IN THIS CALCULATION ARE NOT TO BE USED FOR BIDDING PURPOSES. CONTRACTOR SHALL BE SOLELY RESPONSIBLE TO VERIFY ALL FEEDER LENGTHS BASED ON THE ACTUAL INSTALLED LOCATION OF TRANSFORMER AND ELECTRICAL GEAR. IF ANY FEEDER LENGTH DIFFERS BY MORE THAN 10%, THE CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY TO OBTAIN AN UPDATED FAULT CURRENT CALCULATION. ANY COST CHANGE DUE TO INCREASES IN FAULT CURRENT RESULTING FOR SHORTER FEEDER RUNS ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

NOTES:

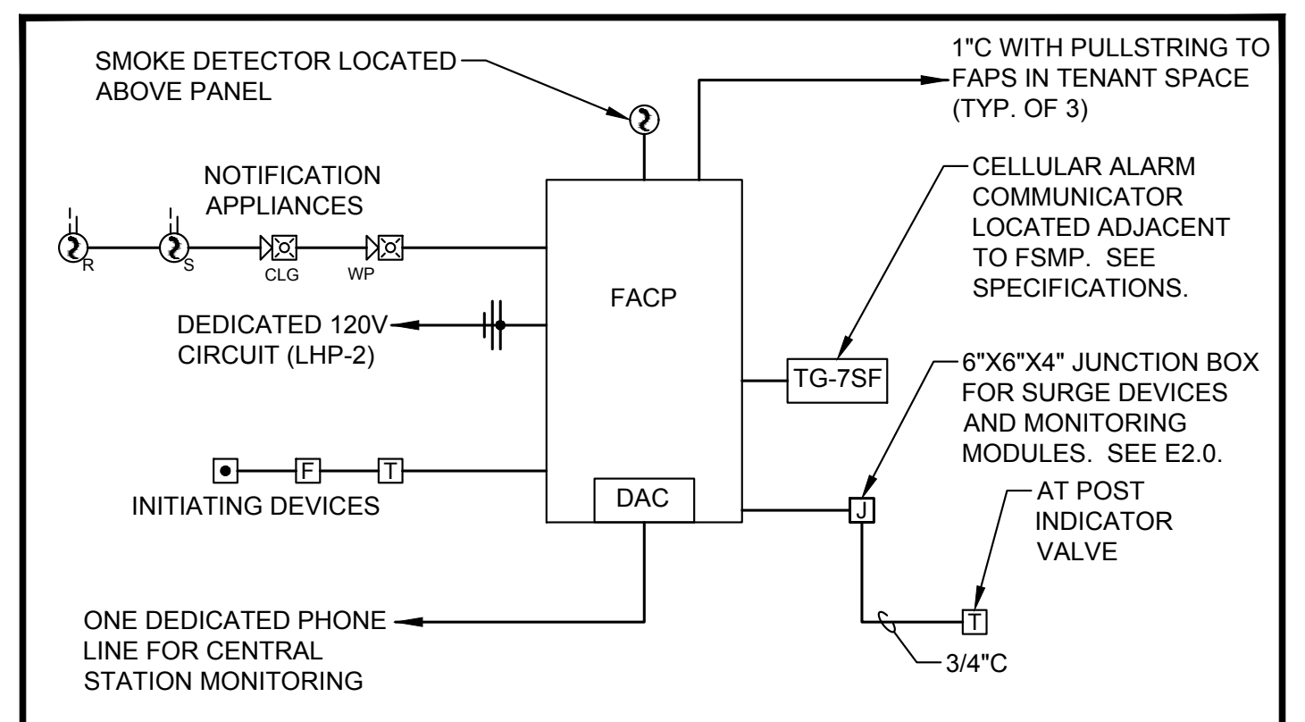
1. CONSULT WITH LANDLORD'S STRUCTURAL ENGINEER FOR LOCATION AND HANGING REQUIREMENTS FOR EQUIPMENT 300 LBS. OR MORE.
2. SIZE OF STRUCTURAL SUPPORTS (ROD ANGLES, ETC.) ARE MIN. AND SHALL BE SIZED BY TENANT OR TENANT'S CONTRACTOR AS REQUIRED FOR PROPER SUPPORT AND STRUCTURAL INTEGRITY.
3. DO NOT DRILL HOLES IN EXISTING STRUCTURAL MEMBERS UNLESS APPROVED BY LANDLORD IN WRITING.
4. ATTACHMENT TO TOP CHORD OF TRUSS IS REQUIRED.



* G.C. TO VERIFY HANGING CONDITION IN FIELD.

HANGING TRANSFORMER DETAIL

SCALE: NONE



NOTE: ELECTRICAL CONTRACTOR SHALL PROVIDE A COMPLETE FIRE ALARM SYSTEM IN ACCORDANCE WITH THE REQUIREMENTS OF THE PROJECT SPECIFICATIONS. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL CONDUIT FOR FIRE ALARM SYSTEM.

FIRE ALARM CONTROL PANEL DETAIL

SCALE: NONE

SMA
ARCHITECTURE
and INTERIORS

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Phone: 813.938.5803 / Fax: 813.938.5805
Job # 31001

SEAL

Harold Scott
Florida P.E. #54082

THE DESIGN PROFESSIONAL DENIES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS AND THE DESIGN INTENT THEY CONVEY, OR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO OBTAIN AND/ OR FOLLOW THE DESIGN PROFESSIONAL'S GUIDANCE WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES, AMBIGUITIES OR CONFLICTS WHICH ARE ALLEGED.

PROJECT INFORMATION

PROJECT:

PUBLIX
REDEVELOPMENT -
PORT ST LUCIE

PROJECT ADDRESS:

NWC OF ST LUCIE WEST BLVD & NW BETHANY DR
PORT ST LUCIE

PROJECT NO.: 200344

NOTES

ACTIVE DESIGN PHASE

- ☐ FOR REVIEW ONLY
- ☐ FOR PERMITTING ONLY
- ☐ SCHEMATIC DESIGN
- ☐ DESIGN DEVELOPMENT
- ☐ CONSTRUCTION BIDDING
- ■ CONSTRUCTION DOCUMENTS
- ☐ AS-BUILT RECORD SET

REVISION INFORMATION

NO.	DATE	DESCRIPTION
	07/16/2021	PERMIT SUBMISSION

KEY PLAN

SHEET INFORMATION

SHEET ISSUED: 07/16/2021
DESIGNED BY: JCK
DRAWN BY: CMD
REVIEWED BY: HAS
SHEET TITLE:

ELECTRICAL
RISER DIAGRAM
AND NOTES

SHEET NO.:

E2.0

ARCH E

PANEL: 'HHP'

VOLTAGE: 480 /Y277 | PHASE: 3 | MOUNTING: SURFACE
AMPS: 100 AMP MCB | WIRE: 4 | NEMA: 3R | AIC: (SEE CALC)
ACCESSORIES:

CONNECTED LOAD (KVA)																	CONNECTED LOAD (KVA)					
LTG	REC	MISC	COOL	HEAT	MTR	AMPS	POLE	LOAD DESCRIPTION (#) = See Breaker Notes	CKT	A	B	C	CKT	LOAD DESCRIPTION (#) = See Breaker Notes	AMPS	POLE	LTG	REC	MISC	COOL	HEAT	MTR
1.1	0.2	1.1	0.0	0.0	0.0	20	2	7.5KVA XFMR [PANEL 'LHP']	1	■			2	SPARE	20	1						
0.6	0.2	1.1	0.0	0.0	0.0	-	-	----------	3		■		4	SPARE	20	1						
								SPACE	5			■	6	SPARE	20	1						
								SPACE	7	■			8	SPACE								
								SPACE	9		■		10	SPACE								
								SPACE	11			■	12	SPACE								
								SPACE	13	■			14	SPACE								
								SPACE	15		■		16	SPACE								
								SPACE	17			■	18	SPACE								
								SPACE	19	■			20	SPACE								
								SPACE	21		■		22	SPACE								
								SPACE	23			■	24	SPACE								
						30	3	SPD	25	■			26	SPACE								
						-	-	----------	27		■		28	SPACE								
						-	-	----------	29			■	30	SPACE								

	A	B	C	CONNECTED LOAD	CONNECTED LOAD DEMAND FACTOR APPLIED	DEMAND LOAD
LTG	1.1	0.6	0.0	1.7 KVA	LIGHTING AT 125% OF CONNECTED LOAD	2.1 KVA
REC	0.2	0.2	0.0	0.4 KVA	RECEPTACLE LOAD AT 100% OF FIRST 10 KVA PLUS 50% OF REMAINDER	0.4 KVA
MISC	1.1	1.1	0.0	2.2 KVA	MISCELLANEOUS NON-CONTINUOUS LOAD AT 100% OF CONNECTED LOAD	2.2 KVA
COOL	0.0	0.0	0.0	0.0 KVA		0.0 KVA
HEAT	0.0	0.0	0.0	0.0 KVA		0.0 KVA
MTR	0.0	0.0	0.0	0.0 KVA		0.0 KVA

Breaker Notes ( ):
7.
8.
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12.

Breaker Notes ( ):
1.
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DEMAND LOAD: 4.7 KVA
DEMAND CURRENT: **5.6 AMPS**

NOTE: MULTI-WIRE BRANCH CIRCUIT BREAKERS SHALL BE PROVIDED WITH LISTED HANDLE TIES TO DISCONNECT EACH PHASE CONDUCTOR SHARING A NEUTRAL, OR PROVIDE MULTI-POLE CIRCUIT BREAKERS, OR PROVIDE DEDICATED NEUTRALS.

PANEL: 'LHP'

VOLTAGE: 208 /120 | PHASE: 1 | MOUNTING: SURFACE
AMPS: 40 AMP MCB | WIRE: 3 | NEMA: 3R | AIC: (SEE CALC)
ACCESSORIES:

CONNECTED LOAD (KVA)																CONNECTED LOAD (KVA)					
LTG	REC	MISC	COOL	HEAT	MTR	AMPS	POLE	LOAD DESCRIPTION (#) = See Breaker Notes	CKT	A	B	CKT	LOAD DESCRIPTION (#) = See Breaker Notes	AMPS	POLE	LTG	REC	MISC	COOL	HEAT	MTR
0.5						20	1	LTG-CANOPY(1)	1	■		2	FACP(2)	20	1			0.1			
0.5						20	1	LTG-CANOPY(1)	3		■	4	FAPS - TENANT 1(2)	20	1			0.1			
0.5						20	1	LTG-REAR SIDES(1)	5	■		6	FAPS - TENANT 2(2)	20	1			0.1			
0.1	0.2					20	1	REC-LTG-FIRE RISER ROOM	7		■	8	FAPS - TENANT 3(2)	20	1			0.1			
						20	1	SPARE	9	■		10	DSSI-1/DSSO-1	15	2			0.9			
						20	1	SPARE	11		■	12	----------	-	-			0.9			
								SPACE	13	■		14	REC-ROOF TOP	20	1		0.2				
								SPACE	15		■	16	SPACE								
								SPACE	17	■		18	SPACE								
								SPACE	19		■	20	SPACE								
								SPACE	21	■		22	SPACE								
								SPACE	23		■	24	SPACE								
								SPACE	25	■		26	SPACE								
								SPACE	27		■	28	SPACE								
								SPACE	29	■		30	SPACE								

	A	B	CONNECTED LOAD	CONNECTED LOAD DEMAND FACTOR APPLIED	DEMAND LOAD
LTG	1.1	0.6	1.7 KVA	LIGHTING AT 125% OF CONNECTED LOAD	2.1 KVA
REC	0.2	0.2	0.4 KVA	RECEPTACLE LOAD AT 100% OF FIRST 10 KVA PLUS 50% OF REMAINDER	0.4 KVA
MISC	1.1	1.1	2.2 KVA	MISCELLANEOUS NON-CONTINUOUS LOAD AT 100% OF CONNECTED LOAD	2.2 KVA
COOL	0.0	0.0	0.0 KVA		0.0 KVA
HEAT	0.0	0.0	0.0 KVA		0.0 KVA
MTR	0.0	0.0	0.0 KVA		0.0 KVA

Breaker Notes ( ):
7.
8.
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12.

Breaker Notes ( ):
1. ROUTE CIRCUIT VIA HOUSE TIMECLOCK
2. PROVIDE WITH LOCK-ON HANDLE
3.
4.
5.
6.

DEMAND LOAD: 4.7 KVA
DEMAND CURRENT: **22.5 AMPS**

NOTE: MULTI-WIRE BRANCH CIRCUIT BREAKERS SHALL BE PROVIDED WITH LISTED HANDLE TIES TO DISCONNECT EACH PHASE CONDUCTOR SHARING A NEUTRAL, OR PROVIDE MULTI-POLE CIRCUIT BREAKERS, OR PROVIDE DEDICATED NEUTRALS.

PANEL: 'N3'

VOLTAGE: 480 /Y277 | PHASE: 3 | MOUNTING: SURFACE
AMPS: 225 AMP MLO | WIRE: 4 | NEMA: 1 | AIC: (SEE CALC)
ACCESSORIES:

CONNECTED LOAD (KVA)																	CONNECTED LOAD (KVA)					
LTG	REC	MISC	COOL	HEAT	MTR	AMPS	POLE	LOAD DESCRIPTION (#) = See Breaker Notes	CKT	A	B	C	CKT	LOAD DESCRIPTION (#) = See Breaker Notes	AMPS	POLE	LTG	REC	MISC	COOL	HEAT	MTR
			2.2	0.5	0.5	30	3	AC-1	1	■			2	AC-3	45	3				4.7	0.5	1.0
			2.2	0.5	0.5	-	-	----------	3		■		4	----------	-	-				4.7	0.5	1.0
			2.2	0.5	0.5	-	-	----------	5			■	6	----------	-	-				4.7	0.5	1.0
			4.7	0.5	1.0	45	3	AC-2	7	■			8	30KVA XFMR [PANEL 'L1']	45	3	1.2	0.9	0.0	0.0	0.0	0.0
			4.7	0.5	1.0	-	-	----------	9		■		10	----------	-	-	1.2	0.0	0.0	0.0	0.0	0.0
			4.7	0.5	1.0	-	-	----------	11			■	12	----------	-	-	0.0	0.0	0.0	0.0	0.0	0.0
								SPACE	13	■			14	SPACE								
								SPACE	15		■		16	SPACE								
								SPACE	17			■	18	SPACE								
								SPACE	19	■			20	SPACE								
								SPACE	21		■		22	SPACE								
								SPACE	23			■	24	SPACE								
								SPACE	25	■			26	SPACE								
								SPACE	27		■		28	SPACE								
								SPACE	29			■	30	SPACE								
0.1						20	1	LTG-EM/EXIT(1)	31	■			32	SPACE								
								SPACE	33		■		34	SPACE								
								SPACE	35			■	36	SPACE								
								SPACE	37	■			38	SPACE								
								SPACE	39		■		40	SPACE								
								SPACE	41			■	42	SPACE								

	A	B	C	CONNECTED LOAD	CONNECTED LOAD DEMAND FACTOR APPLIED	DEMAND LOAD
LTG	1.3	1.2	0.0	2.5 KVA	LIGHTING AT 125% OF CONNECTED LOAD	3.1 KVA
REC	0.9	0.0	0.0	0.9 KVA	RECEPTACLE LOAD AT 100% OF FIRST 10 KVA PLUS 50% OF REMAINDER	0.9 KVA
MISC	0.0	0.0	0.0	0.0 KVA		0.0 KVA
COOL	11.6	11.6	11.6	34.8 KVA	COOLING LOAD > HEATING LOAD. COOLING USED FOR CALCULATION	34.8 KVA
HEAT	1.6	1.6	1.6	4.7 KVA	HEATING LOAD < COOLING LOAD. HEATING OMITTED FROM CALCULATION	0.0 KVA
MTR	2.6	2.6	2.6	7.9 KVA	125% OF LARGEST MOTOR PLUS 100% OF ALL OTHER MOTORS	8.6 KVA

Breaker Notes ( ):
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12.

Breaker Notes ( ):
1. PROVIDE WITH LOCK-ON HANDLE
2.
3.
4.
5.
6.

DEMAND LOAD: 47.5 KVA
DEMAND CURRENT: **57.1 AMPS**

NOTE: MULTI-WIRE BRANCH CIRCUIT BREAKERS SHALL BE PROVIDED WITH LISTED HANDLE TIES TO DISCONNECT EACH PHASE CONDUCTOR SHARING A NEUTRAL, OR PROVIDE MULTI-POLE CIRCUIT BREAKERS, OR PROVIDE DEDICATED NEUTRALS.

PANEL: 'L1'

VOLTAGE: 208 /Y120 | PHASE: 3 | MOUNTING: SURFACE
AMPS: 100 AMP MCB | WIRE: 4 | NEMA: 1 | AIC: (SEE CALC)
ACCESSORIES:

CONNECTED LOAD (KVA)																	CONNECTED LOAD (KVA)					
LTG	REC	MISC	COOL	HEAT	MTR	AMPS	POLE	LOAD DESCRIPTION (#) = See Breaker Notes	CKT	A	B	C	CKT	LOAD DESCRIPTION (#) = See Breaker Notes	AMPS	POLE	LTG	REC	MISC	COOL	HEAT	MTR
1.2						20	1	SIGN(1)	1	■			2	REC-ROOF TOP	20	1		0.5				
1.2						20	1	SIGN(1)	3		■		4	SPACE								
								SPACE	5			■	6	SPACE								
								SPACE	7	■			8	SPACE								
								SPACE	9		■		10	SPACE								
								SPACE	11			■	12	SPACE								
	0.4					20	1	REC-SECURITY/TEL	13	■			14	SPACE								
								SPACE	15		■		16	SPACE								
								SPACE	17			■	18	SPACE								
								SPACE	19	■			20	SPACE								
								SPACE	21		■		22	SPACE								
								SPACE	23			■	24	SPACE								
								SPACE	25	■			26	SPACE								
								SPACE	27		■		28	SPACE								
								SPACE	29			■	30	SPACE								
								SPACE	31	■			32	SPACE								
								SPACE	33		■		34	SPACE								
								SPACE	35			■	36	SPACE								
								SPACE	37	■			38	SPACE								
								SPACE	39		■		40	SPACE								
								SPACE	41			■	42	SPACE								

	A	B	C	CONNECTED LOAD	CONNECTED LOAD DEMAND FACTOR APPLIED	DEMAND LOAD
LTG	1.2	1.2	0.0	2.4 KVA	LIGHTING AT 125% OF CONNECTED LOAD	3.0 KVA
REC	0.9	0.0	0.0	0.9 KVA	RECEPTACLE LOAD AT 100% OF FIRST 10 KVA PLUS 50% OF REMAINDER	0.9 KVA
MISC	0.0	0.0	0.0	0.0 KVA		0.0 KVA
COOL	0.0	0.0	0.0	0.0 KVA		0.0 KVA
HEAT	0.0	0.0	0.0	0.0 KVA		0.0 KVA
MTR	0.0	0.0	0.0	0.0 KVA		0.0 KVA

Breaker Notes ( ):
7.
8.
9.
10.
11.
12.

Breaker Notes ( ):
1. ROUTE CIRCUIT VIA TENANT TIMECLOCK
2.
3.
4.
5.
6.

DEMAND LOAD: 3.9 KVA
DEMAND CURRENT: **10.8 AMPS**

NOTE: MULTI-WIRE BRANCH CIRCUIT BREAKERS SHALL BE PROVIDED WITH LISTED HANDLE TIES TO DISCONNECT EACH PHASE CONDUCTOR SHARING A NEUTRAL, OR PROVIDE MULTI-POLE CIRCUIT BREAKERS, OR PROVIDE DEDICATED NEUTRALS.

PANEL: 'H1'

VOLTAGE: 480 /Y277 | PHASE: 3 | MOUNTING: SURFACE
AMPS: 600 AMP MCB | WIRE: 4 | NEMA: 1 | AIC: (SEE CALC)
ACCESSORIES:

CONNECTED LOAD (KVA)																	CONNECTED LOAD (KVA)					
LTG	REC	MISC	COOL	HEAT	MTR	AMPS	POLE	LOAD DESCRIPTION (#) = See Breaker Notes	CKT	A	B	C	CKT	LOAD DESCRIPTION (#) = See Breaker Notes	AMPS	POLE	LTG	REC	MISC	COOL	HEAT	MTR
0.1	0.0	0.0	0.0	0.0	0.0	100	3	PANEL 'H2'	1	■			2	45KVA XFMR [PANEL 'L2']	70	3	0.0	0.7	1.2	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	-	-	----------	3		■		4	----------	-	-	0.0	0.5	1.2	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	-	-	----------	5			■	6	----------	-	-	0.0	0.0	0.0	0.0	0.0	0.0
			3.1	7.5	0.8	40	3	RTU-1	7	■			8	RTU-5	40	3				3.1	7.5	0.8
			3.1	7.5	0.8	-	-	----------	9		■		10	----------	-	-				3.1	7.5	0.8
			3.1	7.5	0.8	-	-	----------	11			■	12	----------	-	-				3.1	7.5	0.8
			3.1	7.5	0.8	40	3	RTU-2	13	■			14	RTU-6	40	3				3.1	7.5	0.8
			3.1	7.5	0.8	-	-	----------	15		■		16	----------	-	-				3.1	7.5	0.8
			3.1	7.5	0.8	-	-	----------	17			■	18	----------	-	-				3.1	7.5	0.8
			3.1	7.5	0.8	40	3	RTU-3	19	■			20	RTU-7	20	3				1.6	2.5	0.5
			3.1	7.5	0.8	-	-	----------	21		■		22	----------	-	-				1.6	2.5	0.5
			3.1	7.5	0.8	-	-	----------	23			■	24	----------	-	-				1.6	2.5	0.5
			3.1	7.5	0.8	40	3	RTU-4	25	■			26	SPACE								
			3.1	7.5	0.8	-	-	----------	27		■		28	SPACE								
			3.1	7.5	0.8	-	-	----------	29			■	30	SPACE								
								SPACE	31	■			32	SPACE								
								SPACE	33		■		34	SPACE								
								SPACE	35			■	36	SPACE								
						30	3	SPD	37	■			38	SPACE								
						-	-	----------	39		■		40	SPACE								
						-	-	----------	41			■	42	SPACE								

	A	B	C	CONNECTED LOAD	CONNECTED LOAD DEMAND FACTOR APPLIED	DEMAND LOAD
LTG	0.1	0.0	0.0	0.1 KVA	LIGHTING AT 125% OF CONNECTED LOAD	0.1 KVA
REC	0.7	0.5	0.0	1.3 KVA	RECEPTACLE LOAD AT 100% OF FIRST 10 KVA PLUS 50% OF REMAINDER	1.3 KVA
MISC	1.2	1.2	0.0	2.4 KVA	MISCELLANEOUS NON-CONTINUOUS LOAD AT 100% OF CONNECTED LOAD	2.4 KVA
COOL	20.2	20.2	20.2	60.6 KVA	COOLING LOAD < HEATING LOAD. COOLING OMITTED FROM CALCULATION	0.0 KVA
HEAT	47.5	47.5	47.5	142.5 KVA	HEATING LOAD > COOLING LOAD. HEATING USED FOR CALCULATION	142.5 KVA
MTR	5.0	5.0	5.0	15.1 KVA	125% OF LARGEST MOTOR PLUS 100% OF ALL OTHER MOTORS	15.7 KVA

Breaker Notes ( ):
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Breaker Notes ( ):
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6.

DEMAND LOAD: 162.0 KVA
DEMAND CURRENT: **194.8 AMPS**

NOTE: MULTI-WIRE BRANCH CIRCUIT BREAKERS SHALL BE PROVIDED WITH LISTED HANDLE TIES TO DISCONNECT EACH PHASE CONDUCTOR SHARING A NEUTRAL, OR PROVIDE MULTI-POLE CIRCUIT BREAKERS, OR PROVIDE DEDICATED NEUTRALS.

PANEL: 'H2'

VOLTAGE: 480 /Y277 | PHASE: 3 | MOUNTING: SURFACE
AMPS: 100 AMP MLO | WIRE: 4 | NEMA: 1 | AIC: (SEE CALC)
ACCESSORIES:

CONNECTED LOAD (KVA)																	CONNECTED LOAD (KVA)					
LTG	REC	MISC	COOL	HEAT	MTR	AMPS	POLE	LOAD DESCRIPTION (#) = See Breaker Notes	CKT	A	B	C	CKT	LOAD DESCRIPTION (#) = See Breaker Notes	AMPS	POLE	LTG	REC	MISC	COOL	HEAT	MTR
0.1						20	1	LTG-EMEXIT(1)	1	■			2	SPACE								
								SPACE	3		■		4	SPACE								
								SPACE	5			■	6	SPACE								
								SPACE	7	■			8	SPACE								
								SPACE	9		■		10	SPACE								
								SPACE	11			■	12	SPACE								
								SPACE	13	■			14	SPACE								
								SPACE	15		■		16	SPACE								
								SPACE	17			■	18	SPACE								
								SPACE	19	■			20	SPACE								
								SPACE	21		■		22	SPACE								
								SPACE	23			■	24	SPACE								
								SPACE	25	■			26	SPACE								
								SPACE	27		■		28	SPACE								
								SPACE	29			■	30	SPACE								

	A	B	C	CONNECTED LOAD	CONNECTED LOAD DEMAND FACTOR APPLIED	DEMAND LOAD
LTG	0.1	0.0	0.0	0.1 KVA	LIGHTING AT 125% OF CONNECTED LOAD	0.1 KVA
REC	0.0	0.0	0.0	0.0 KVA		0.0 KVA
MISC	0.0	0.0	0.0	0.0 KVA		0.0 KVA
COOL	0.0	0.0	0.0	0.0 KVA		0.0 KVA
HEAT	0.0	0.0	0.0	0.0 KVA		0.0 KVA
MTR	0.0	0.0	0.0	0.0 KVA		0.0 KVA

Breaker Notes ( ):
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12.

Breaker Notes ( ):
1. PROVIDE WITH LOCK-ON HANDLE
2.
3.
4.
5.
6.

DEMAND LOAD: 0.1 KVA
DEMAND CURRENT: **0.2 AMPS**

NOTE: MULTI-WIRE BRANCH CIRCUIT BREAKERS SHALL BE PROVIDED WITH LISTED HANDLE TIES TO DISCONNECT EACH PHASE CONDUCTOR SHARING A NEUTRAL, OR PROVIDE MULTI-POLE CIRCUIT BREAKERS, OR PROVIDE DEDICATED NEUTRALS.

PANEL: 'L2'

VOLTAGE: 208 /Y120 | PHASE: 3 | MOUNTING: SURFACE
AMPS: 150 AMP MCB | WIRE: 4 | NEMA: 1 | AIC: (SEE CALC)
ACCESSORIES:

CONNECTED LOAD (KVA)																	CONNECTED LOAD (KVA)					
LTG	REC	MISC	COOL	HEAT	MTR	AMPS	POLE	LOAD DESCRIPTION (#) = See Breaker Notes	CKT	A	B	C	CKT	LOAD DESCRIPTION (#) = See Breaker Notes	AMPS	POLE	LTG	REC	MISC	COOL	HEAT	MTR
		1.2				20	1	AUTODOORS	1	■			2	REC-ROOF TOP	20	1		0.7				
		1.2				20	1	AUTODOORS	3		■		4	REC-ROOF TOP	20	1		0.5				
								SPACE	5			■	6	SPACE								
								SPACE	7	■			8	SPACE								
								SPACE	9		■		10	SPACE								
								SPACE	11			■	12	SPACE								
								SPACE	13	■			14	SPACE								
								SPACE	15		■		16	SPACE								
								SPACE	17			■	18	SPACE								
								SPACE	19	■			20	SPACE								
								SPACE	21		■		22	SPACE								
								SPACE	23			■	24	SPACE								
								SPACE	25	■			26	SPACE								
								SPACE	27		■		28	SPACE								
								SPACE	29			■	30	SPACE								
								SPACE	31	■			32	SPACE								
								SPACE	33		■		34	SPACE								
								SPACE	35			■	36	SPACE								
								SPACE	37	■			38	SPACE								
								SPACE	39		■		40	SPACE								
								SPACE	41			■	42	SPACE								

	A	B	C	CONNECTED LOAD	CONNECTED LOAD DEMAND FACTOR APPLIED	DEMAND LOAD
LTG	0.0	0.0	0.0	0.0 KVA		0.0 KVA
REC	0.7	0.5	0.0	1.3 KVA	RECEPTACLE LOAD AT 100% OF FIRST 10 KVA PLUS 50% OF REMAINDER	1.3 KVA
MISC	1.2	1.2	0.0	2.4 KVA	MISCELLANEOUS NON-CONTINUOUS LOAD AT 100% OF CONNECTED LOAD	2.4 KVA
COOL	0.0	0.0	0.0	0.0 KVA		0.0 KVA
HEAT	0.0	0.0	0.0	0.0 KVA		0.0 KVA
MTR	0.0	0.0	0.0	0.0 KVA		0.0 KVA

Breaker Notes ( ):
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Breaker Notes ( ):
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5.
6.

DEMAND LOAD: 3.7 KVA
DEMAND CURRENT: **10.2 AMPS**

NOTE: MULTI-WIRE BRANCH CIRCUIT BREAKERS SHALL BE PROVIDED WITH LISTED HANDLE TIES TO DISCONNECT EACH PHASE CONDUCTOR SHARING A NEUTRAL, OR PROVIDE MULTI-POLE CIRCUIT BREAKERS, OR PROVIDE DEDICATED NEUTRALS.

PANEL: 'H3'

VOLTAGE: 480 /Y277 | PHASE: 3 | MOUNTING: SURFACE
AMPS: 400 AMP MLO | WIRE: 4 | NEMA: 1 | AIC: (SEE CALC)
ACCESSORIES:

CONNECTED LOAD (KVA)																	CONNECTED LOAD (KVA)					
LTG	REC	MISC	COOL	HEAT	MTR	AMPS	POLE	LOAD DESCRIPTION (#) = See Breaker Notes	CKT	A	B	C	CKT	LOAD DESCRIPTION (#) = See Breaker Notes	AMPS	POLE	LTG	REC	MISC	COOL	HEAT	MTR
0.1						20	1	LTG-EM/EXIT(1)	1	■			2	45KVA XFMR [PANEL 'L3']	70	3	0.0	0.0	0.0	0.0	0.0	0.0
						20	1	SPARE	3		■		4	----------	-	-	0.0	0.0	0.0	0.0	0.0	0.0
						20	1	SPARE	5			■	6	----------	-	-	0.0	0.0	0.0	0.0	0.0	0.0
								SPACE	7	■			8	SPACE								
								SPACE	9		■		10	SPACE								
								SPACE	11			■	12	SPACE								
								SPACE	13	■			14	SPACE								
								SPACE	15		■		16	SPACE								
								SPACE	17			■	18	SPACE								
								SPACE	19	■			20	SPACE								
								SPACE	21		■		22	SPACE								
								SPACE	23			■	24	SPACE								
								SPACE	25	■			26	SPACE								
								SPACE	27		■		28	SPACE								
								SPACE	29			■	30	SPACE								
								SPACE	31	■			32	SPACE								
								SPACE	33		■		34	SPACE								
								SPACE	35			■	36	SPACE								
								SPACE	37	■			38	SPACE								
								SPACE	39		■		40	SPACE								
								SPACE	41			■	42	SPACE								

	A	B	C	CONNECTED LOAD	CONNECTED LOAD DEMAND FACTOR APPLIED	DEMAND LOAD
LTG	0.1	0.0	0.0	0.1 KVA	LIGHTING AT 125% OF CONNECTED LOAD	0.1 KVA
REC	0.0	0.0	0.0	0.0 KVA		0.0 KVA
MISC	0.0	0.0	0.0	0.0 KVA		0.0 KVA
COOL	0.0	0.0	0.0	0.0 KVA		0.0 KVA
HEAT	0.0	0.0	0.0	0.0 KVA		0.0 KVA
MTR	0.0	0.0	0.0	0.0 KVA		0.0 KVA

Breaker Notes ( ):
7.
8.
9.
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12.

Breaker Notes ( ):
1. PROVIDE WITH LOCK-ON HANDLE
2.
3.
4.
5.
6.

DEMAND LOAD: 0.1 KVA
DEMAND CURRENT: **0.2 AMPS**

NOTE: MULTI-WIRE BRANCH CIRCUIT BREAKERS SHALL BE PROVIDED WITH LISTED HANDLE TIES TO DISCONNECT EACH PHASE CONDUCTOR SHARING A NEUTRAL, OR PROVIDE MULTI-POLE CIRCUIT BREAKERS, OR PROVIDE DEDICATED NEUTRALS.

PANEL: 'L3'

VOLTAGE: 208 /Y120 | PHASE: 3 | MOUNTING: SURFACE
AMPS: 150 AMP MCB | WIRE: 4 | NEMA: 1 | AIC: (SEE CALC)
ACCESSORIES:

CONNECTED LOAD (KVA)																	CONNECTED LOAD (KVA)					
LTG	REC	MISC	COOL	HEAT	MTR	AMPS	POLE	LOAD DESCRIPTION (#) = See Breaker Notes	CKT	A	B	C	CKT	LOAD DESCRIPTION (#) = See Breaker Notes	AMPS	POLE	LTG	REC	MISC	COOL	HEAT	MTR
								SPACE	1	■			2	SPACE								
								SPACE	3		■		4	SPACE								
								SPACE	5			■	6	SPACE								
								SPACE	7	■			8	SPACE								
								SPACE	9		■		10	SPACE								
								SPACE	11			■	12	SPACE								
								SPACE	13	■			14	SPACE								
								SPACE	15		■		16	SPACE								
								SPACE	17			■	18	SPACE								
								SPACE	19	■			20	SPACE								
								SPACE	21		■		22	SPACE								
								SPACE	23			■	24	SPACE								
								SPACE	25	■			26	SPACE								
								SPACE	27		■		28	SPACE								
								SPACE	29			■	30	SPACE								
								SPACE	31	■			32	SPACE								
								SPACE	33		■		34	SPACE								
								SPACE	35			■	36	SPACE								
								SPACE	37	■			38	SPACE								
								SPACE	39		■		40	SPACE								
								SPACE	41			■	42	SPACE								

	A	B	C	CONNECTED LOAD	CONNECTED LOAD DEMAND FACTOR APPLIED	DEMAND LOAD
LTG	0.0	0.0	0.0	0.0 KVA		0.0 KVA
REC	0.0	0.0	0.0	0.0 KVA		0.0 KVA
MISC	0.0	0.0	0.0	0.0 KVA		0.0 KVA
COOL	0.0	0.0	0.0	0.0 KVA		0.0 KVA
HEAT	0.0	0.0	0.0	0.0 KVA		0.0 KVA
MTR	0.0	0.0	0.0	0.0 KVA		0.0 KVA

Breaker Notes ( ):
7.
8.
9.
10.
11.
12.

Breaker Notes ( ):
1.
2.
3.
4.
5.
6.

DEMAND LOAD: 0.0 KVA
DEMAND CURRENT: **0.0 AMPS**

NOTE: MULTI-WIRE BRANCH CIRCUIT BREAKERS SHALL BE PROVIDED WITH LISTED HANDLE TIES TO DISCONNECT EACH PHASE CONDUCTOR SHARING A NEUTRAL, OR PROVIDE MULTI-POLE CIRCUIT BREAKERS, OR PROVIDE DEDICATED NEUTRALS.

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ARCHITECTURE
and INTERIORS

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Apollo Beach, FL 33572
Phone: 813.938.5803 / Fax: 813.938.5805
Job # 31001

SEAL

Harold Scott
Florida P.E. #54082

PROJECT INFORMATION

PROJECT:
PUBLIX
REDEVELOPMENT -
PORT ST LUCIE

PROJECT ADDRESS:
NWC OF ST LUCIE WEST BLVD & NW BETHANY DR
PORT ST LUCIE

PROJECT NO.: 200344

NOTES

ACTIVE DESIGN PHASE

- ☐ FOR REVIEW ONLY
- ☐ FOR PERMITTING ONLY
- ☐ SCHEMATIC DESIGN
- ☐ DESIGN DEVELOPMENT
- ☐ CONSTRUCTION BIDDING
- ■ CONSTRUCTION DOCUMENTS
- ☐ AS-BUILT RECORD SET

REVISION INFORMATION

NO.	DATE	DESCRIPTION
	07/16/2021	PERMIT SUBMISSION

KEY PLAN

SHEET INFORMATION

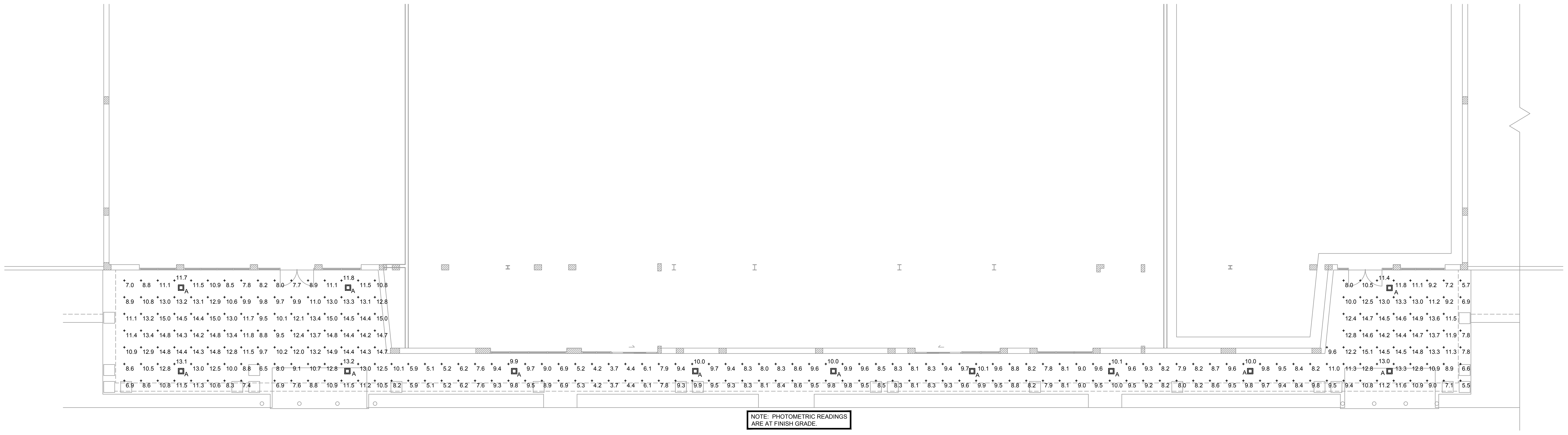
SHEET ISSUED: 07/16/2021
DESIGNED BY: JCK
DRAWN BY: CMD
REVIEWED BY: HAS
SHEET TITLE:

PANEL SCHEDULES

SHEET NO.:

E3.0

ARCH E



NOTE: PHOTOMETRIC READINGS
ARE AT FINISH GRADE.

NORTH

CANOPY PHOTOMETRIC PLAN

SCALE: 1/8" = 1'-0"

Schedule

Symbol	Label	Manufacturer	Catalog Number	Description	Number Lamps	Lumens Per Lamp	Light Loss Factor	Wattage
▣	A	BEACON	CLO-24L-55-4K7-5QN-UNV	Recessed Canopy with Type V-Square-Narrow Optics	1	6266	0.95	54.4

PHOTOMETRIC SUMMARY				
CANOPY CALCULATIONS +				
AVERAGE	MAXIMUM	MINIMUM	MAXIMUM/MINIMUM	AVERAGE/MINIMUM
10.3	15.1	3.7	4.1:1	2.8:1

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SMA

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and INTERIORS

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SEAL

Harold Scott
Florida P.E. #54082

THE DESIGN PROFESSIONAL DENIES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS AND THE DESIGN INTENT THEY CONVEY, OR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO OBTAIN AND/ OR FOLLOW THE DESIGN PROFESSIONAL'S GUIDANCE WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES, AMBIGUITIES OR CONFLICTS WHICH ARE ALLEGED.

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CANOPY
PHOTOMETRIC
PLAN

SHEET NO.:

E4.0