		_		
STRUCTU	RED CABLING SYSTEMS		MISCELLA	ANEOUS
SYMBOL	DESCRIPTION (RACEWAY ONLY)		SYMBOL	DESCRIPTION
V	COMMUNICATIONS OUTLET, MOUNTED AT RECEPTACLE HEIGHT UNLESS OTHERWISE NOTED.		<u> </u>	DISCONNECT SWITCH, NON-FUSIBLE 3 POLE, 60 AMP, NF: NON-FUSED, 3R: NEMA 3R ENCLOSURE
	REFER TO INSTALLER FOR MODULE AND FACEPLATE DESCRIPTIONS. CABLES PROVIDED BY OTHERS.		└── <u>3P/60A</u> 3R F:50A	DISCONNECT SWITCH, FUSIBLE 3 POLE, 60 AMP, FUSED AT 50 AMPS, 3R: NEMA 3R ENCLOSI
w •	WALL TELEPHONE OUTLET FOR WALL PHONE. MTD AT 48" ABOVE FINISHED FLOOR TO CENTER		└ᠫ <u>3P/60A</u> 3R	COMBINATION STARTER / DISCONNECT SWITCH, FUSIBLE 3 POLE, 60 AMP, NEMA x SIZE, 3R: NEMA 3R ENCLOSURE
WAP	CEILING MOUNTED WIRELESS ACCESS POINT		\boxtimes	MAGNETIC MOTOR STARTER
	OUTLET. 'X' - MOUNTING (F)LUSH, (S)URFACE, (C)EILING		4	ENCLOSED CIRCUIT BREAKER, AS INDICATED
	COMBINED VOICE / DATA, AUDIO / VIDEO AND POWER OUTLETS IN FLOOR BOX.		└── VFD	VFD-RATED, REMOTE DISCONNECT SWITCH WITH EARLY-BREAK, AUXILIARY CONTACTS FOR VFD DECELERATE-TO-STOP SIGNAL. CONNECT CONTROL WIRING TO ASSOCIATE VFD (AS REQUIRED).
				PANELBOARD, 480 / 277V
				PANELBOARD, 208 /120V
			МН	MANHOLE
			НН	HANDHOLE
			SPD	SURGE PROTECTION DEVICE
				ELECTRICAL METER
			TX	TRANSFORMER
			HP	MOTOR CONNECTION, HP: DENOTES HORSEPOWER RATIN
			<u> </u>	GROUND BUS BAR
			lacktriangle	PUSHBUTTON
				3/4" PLYWOOD TELEPHONE BACKBOARD
				CONCRETE ENCASED DUCTBANK
SECURIT'	Y SYSTEM			HOMERUN TO PANEL INDICATED NUMBER OF ARROWS INDICATE NUMBER OF CIRCUITS

DESCRIPTION (RACEWAY ONLY)

KEYPAD

CARD READER

CARD READER / KEYPAD

DIRECTIONAL MOTION DETECTOR

360 DEGREE MOTION DETECTOR

ELECTRO MAGNETIC LOCK

ELECTRIC STRIKE FRAME

ELECTRIC MORTISE LOCK

DELAYED EGRESS LOCK

DOOR / WINDOW CONTACT

FIXED CCTV CAMERA

WP: WEATHERPROOF

REMOTE DOOR RELEASE BUTTON

INTERCOM MASTER STATION

REQUEST TO EXIT MOTION SENSOR

PERSONAL COMPUTER WORKSTATION

SECURITY CAMERA POLE. POLE TO MATCH

UTILITY PACKAGE SPECIFICATIONS FOR LIGHTING

REQUEST TO EXIT PUSH-BUTTON

POLES IN THE SAME AREA

SECURITY SOUND DETECTOR

INTERCOM SUB-STATION

ALARM SIREN

SECURITY PANEL

DURESS BUTTON

KEY SWITCH

BIOMETRIC READER

	RECEPT	ACLE(S)
	SYMBOL	DESCRIPTION
NEMA 3R ENCLOSURE	\blacksquare	DUPLEX RECEPTACLE, 20 AMP, 120V U.O.N.
: NEMA 3R ENCLOSURE	Φ	DUPLEX RECEPTACLE, 20 AMP, 120V U.O.N. MOUNTED AT 48" UNLESS NOTED OTHERWISE
WITCH, FUSIBLE BR ENCLOSURE	<u></u>	DUPLEX RECEPTACLE, 20 AMP, 120V U.O.N. AUTOMATIC SWITCHED RECEPTACLE
		QUADRUPLEX RECEPTACLE, 20 AMP, 120V U.O.N. HALF-AUTOMATIC SWITCHED RECEPTACLE
ATED	#	QUADRAPLEX RECEPTACLE, 20 AMP, 120V U.O.N.
ECT SWITCH WITH EARLY- FOR VFD DECELERATE-TO- ROL WIRING TO ASSOCIATED	•	QUADRAPLEX RECEPTACLE, 20 AMP, 120V U.O.N. MOUNTED AT 48" UNLESS NOTED OTHERWISE
NG TO ASSOCIATED	Φ	SINGLE RECEPTACLE, 20 AMP, 120V U.O.N.
	Ф	GFI - TYPE DUPLEX RECEPTACLE (WP: DENOTES WEATHERPROOF COVER)
		GFI - TYPE DOUBLE DUPLEX RECEPTACLE
		GFI - DUPLEX RECEPTACLE MOUNTED AT 48" UNLESS OTHERWISE NOTED
		GFI - DOUBLE DUPLEX RECEPTACLE MOUNTED AT 48" UNLESS OTHERWISE NOTED
	•	SPECIAL PURPOSE RECEPTACLE (NEMA RATING AS INDICATED)
		QUADRAPLEX RECEPTACLE, TICK MARKS DENOTE EMERGENCY (TYPICAL ALL RECEPTACLES)
	•	DUPLEX RECEPTACLE - HALF SWITCHED
RSEPOWER RATING	Φ	DUPLEX RECEPTACLE - CEILING MOUNTED
	⊕ ^{IG}	DUPLEX RECEPTACLE WITH ISOLATED GROUND
		DUPLEX RECEPTACLE - FLOOR MOUNTED
)	PP	POWER POLE
	J	JUNCTION BOX - CEILING MOUNTED
R OF CIRCUITS	Ū.	JUNCTION BOX - WALL MOUNTED
SIZE WIRE IN	[J]	JUNCTION BOX - FLOOR / GROUND MOUNTED
LAB OR GRADE		

SYMBOL	DESCRIPTION
	CEILING MOUNTED 2'x2' / 2'x4' LUMINAIRE - RECESSED NORMAL POWER
	CEILING MOUNTED 2'x2' / 2'x4' LUMINAIRE - RECESSED EMERGENCY POWER
	CEILING MOUNTED 1'x4' LUMINAIRE RECESSED OR SURFACE MOUNTED - NORMAL POWER
	CEILING MOUNTED 1'x4' LUMINAIRE RECESSED OR SURFACE MOUNTED - EMERGENCY POW
• •	CEILING MOUNTED 1'x4' LUMINAIRE PENDANT MOUNTED - NORMAL POWER
•	CEILING MOUNTED 1'x4' LUMINAIRE PENDANT MOUNTED - EMERGENCY POWER
-	STRIP LUMINAIRE - NORMAL POWER
	STRIP LUMINAIRE - EMERGENCY POWER
0	DOWNLIGHT LUMINAIRE - NORMAL POWER
	DOWNLIGHT LUMINAIRE - EMERGENCY POWER
Q	WALL MOUNTED LUMINAIRE - NORMAL POWER
•	WALL MOUNTED LUMINAIRE - EMERGENCY POWER
	CEILING FAN
₽ A A	TRACK LIGHTING WITH LUMINAIRE
0	UNDERCOUNTER LUMINAIRE
Y	FLOOD LIGHT LUMINAIRE
	POLE LIGHT LUMINAIRE
	BOLLARD LUMINAIRE
	STEP LIGHT LUMINAIRE
♦	EMERGENCY BATTERY LIGHT UNIT
\bigotimes	EXIT LIGHT - SINGLE FACE WITH DIRECTIONAL ARROW
	EXIT LIGHT - DOUBLE FACE
\$	EXIT LIGHT - WALL MOUNTED

ELECTRIC	CAL ABBREVIATIONS		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
A C C C C C C C C C C C C C C C C C C C	AMPERES ALTERNATING CURRENT AIR CONDITIONING AVAILABLE FAULT CURRENT ARC FAULT CIRCUIT INTERRUPTER AIR HANDLING UNIT AMPERE INTERRUPTING CAPACITY ALUMINUM AUTOMATIC TRANSFER SWITCH AMERICAN WIRE GAUGE CONDUIT CABLE TELEVISION CRITICAL BRANCH CIRCUIT BREAKER CLOSED CIRCUIT TELEVISION CIRCUIT COPPER DIRECT CURRENT DIAMETER EOUIPMENT BRANCH ELECTRICAL CONTRACTOR EXHAUST FAN ELEVATOR EMERGENCY ELECTRICAL METALLIC TUBING EMERGENCY POWER EMERGENCY POWER EMERGENCY POWER EMERGENCY POWER EMERGENCY POWER EXISTING TO BE REMOVED EXISTING TO BE RELOCATED ELECTRIC WATER COOLER EXISTING TO REMAIN FUSE FIRE ALARM FIRE ALARM FIRE ALARM ANNUNCIATOR PANEL FULL LOAD AMPERES FLEXIBLE METAL CONDUIT GROUND GROUND FAULT CIRCUIT INTERRUPTER GROUND GALVANIZED RIGID METAL CONDUIT HAND-OFF-AUTOMATIC SWITCH HEATING, VENTILATION, AIR CONDITIONING HERTZ INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS ISOLATED GROUND	IMC KCMIL KVA LFMC LTG LRA MCB MCC MCP MLO MTD NC NEC NEMA NFPA NL NO P PB PNL PWR QTY REQ RMC RTS RTU SP ST SYM TEL TGB TMCB TYP UG UL V VA VD VFD W WH WP XFMR	INTERMEDIATE METAL CONDUIT THOUSAND CIRCULAR MILS KILOVOLT - AMPERES LIQUID TIGHT FLEXIBLE METAL CONDUIT LIGHTING LOCK ROTOR AMPS METAL CLAD CABLE MAIN CIRCUIT BREAKER MOTOR CONTROL CENTER MOTOR CONTROL CENTER MOTOR CIRCUIT PROTECTION MAIN LUGS ONLY MOUNTED NORMALLY CLOSED NATIONAL ELECTRICAL CODE NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION NIGHT LIGHT NORMALLY OPEN OR NUMBER POLE PUSH BUTTON, PANIC BUTTON OR PULLBOX PANEL POWER QUANTITY REQUIRED RIGID METAL CONDUIT RIGID NON-METALLIC CONDUIT REMOTE TEST STATION ROOF TOP UNIT SPARE SHUNT-TRIP SWITCH SYMMETRICAL TELEPHONE TELECOMMUNICATIONS GROUNDING BUSBAR THERMAL MAGNETIC CIRCUIT BREAKER TYPICAL UNDERGROUND UNDERWRITERS LABORATORY VOLT VOLT - AMPERE VOLTAGE DROP VARIABLE FREQUENCY DRIVE WATER HEATER WATER HEATER WEATHERPROOF TRANSFORMER

WIRE IN CONDUIT CONCEALED, #12 AWG SIZE WIRE IN

WIRE IN CONDUIT CONCEALED BELOW SLAB OR GRADE

1/2" CONDUIT MINIMUM UNLESS OTHERWISE NOTED

CONDUIT EXPOSED

FLEXIBLE CONDUIT

CONDUIT STUB

CONDUIT TURNING UP

CONDUIT TURNING DOWN

 \sim

SYMBOL	DESCRIPTION
\$	SINGLE POWER TOGGLE SWITCH (LETTER DENOTES FIXTURE CONTROLLED)
\$3	THREE-WAY TOGGLE SWITCH
\$4	FOUR-WAY TOGGLE SWITCH
\$м	MOTOR SWITCH
\$ _F	FAN SWITCH
\$ _{3P}	THREE POSITION SELECTOR SWITCH
\$т	TIMER SWITCH (60 MINUTES)
\$LV	LOW VOLTAGE SWITCH
\$ноа	HAND-OFF-AUTOMATIC SWITCH
\$к	KEY SWITCH
\$ _{WP}	SWITCH - WEATHERPROOF
\$os	DUAL TECH WALL SWITCH OCCUPANCY SENSOR
\$pos	DUAL TECH, DUAL-LEVEL OCCUPANCY SENSOR SWITCH
\$ _D	DIMMING SWITCH
(OS)	DUAL TECH OCCUPANCY SENSOR - CEILING MOUNTED
(OS)	DUAL TECH OCCUPANCY SENSOR - WALL MOUNTED
DH	DAYLIGHT HARVESTING SENSOR - CEILING MOUNTED
PC	PHOTOCELL
LC	LIGHTING CONTACTOR
TC	TIME CLOCK
PL	RELAY MODULE WITH 0-10V DIMMING OUTPUT
PR	PLUG LOAD RELAY PACK

GENERAL NOTES

- THE ELECTRICAL CONTRACT DOCUMENTS ARE SCHEMATIC IN NATURE AND INDICATE THE GENERAL CONFIGURATION OF SYSTEMS AND WORK. EXAMINE ARCHITECTURAL, CIVIL, STRUCTURAL, MECHANICAL, PLUMBING, FIRE PROTECTION DRAWINGS AND SPECIFICATIONS FOR LOCATIONS AND REQUIREMENTS OF DEVICES, EQUIPMENT, LUMINARIES, AND SYSTEMS. CONTENT INDICATED ON THE SPECIFICATIONS BUT NOT THE DRAWINGS, OR CONTENT INDICATED ON THE DRAWINGS BUT NOT THE SPECIFICATIONS, SHALL BE INTERPRETED AS BEING PRESENT ON BOTH.
- PROVIDE ALL DEVICES, EQUIPMENT, ACCESSORIES, MATERIALS, AND LABOR REQUIRED FOR A COMPLETE, FUNCTIONAL, AND CODE-COMPLIANT ELECTRICAL SYSTEM. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CODES AND STANDARDS INDICATED ON THIS SHEET.
- ALL DEVICES, EQUIPMENT, ACCESSORIES, AND MATERIALS SHALL BE NEW, AND, WHERE APPLICABLE, SHALL BE LISTED BY U.L. OR ANOTHER APPROVED ELECTRICAL TESTING AGENCY.
- COORDINATE LOCATIONS AND REQUIREMENTS OF EQUIPMENT REQUIRING ELECTRICAL SERVICE (I.E. PRINTERS, APPLIANCES, ETC.) WITH APPROVED SHOP DRAWINGS, SPECIFICATION SHEETS, MANUFACTURER'S INSTALLATION LITERATURE, AND EQUIPMENT NAMEPLATE DATA, PRIOR TO ROUGH-IN AND INSTALLATION. PROVIDE ELECTRICAL CONNECTIONS (AS REQUIRED).
- BID SHALL INCLUDE COSTS ASSOCIATED WITH BACKFILLING, CORE DRILLING, DIRECTIONAL BORING, EXCAVATING, AND REPAIRING OF SURFACES.
- PAY ALL FEES, TAXES, AND OTHER COSTS ASSOCIATED WITH THE WORK ENCOMPASSED BY THE ELECTRICAL CONTRACT DOCUMENTS. PROVIDE ALL REQUIRED NOTICES AND OBTAIN ALL REQUIRED PERMITS.
- PROVIDE COOPERATION WITH OTHER TRADES AND PROVIDE ANY INFORMATION REQUIRED TO FACILITATE THE COMPLETION OF THEIR WORK. COORDINATE DEVICE AND EQUIPMENT LOCATIONS AND MOUNTING HEIGHTS WITH OTHER TRADES PRIOR TO ROUGH-IN AND INSTALLATION. COORDINATE CONDUIT ROUTING WITH OTHER TRADES PRIOR TO ROUGH-IN AND INSTALLATION.
- COORDINATE ALL REQUIREMENTS WITH THE LOCAL UTILITY PRIOR TO ROUGH-IN AND INSTALLATION. COORDINATE LOCATIONS OF UTILITY HANDHOLES, AERIAL UTILITY TRANSFORMERS, AND/OR PAD-MOUNTED UTILITY TRANSFORMERS.
- PROVIDE TEMPORARY ELECTRICAL SERVICE(S) FOR USE BY OTHER TRADES DURING PROJECT CONSTRUCTION. UPON COMPLETION OF THE PROJECT, THE TEMPORARY ELECTRICAL SERVICE(S) SHALL BE REMOVED.
- 10. WITHIN THIRTY (30) DAYS OF SYSTEM ACCEPTANCE, PROVIDE RECORD DRAWINGS TO THE OWNER.
- WITHIN THIRTY (30) DAYS OF SYSTEM ACCEPTANCE, PROVIDE AN OPERATING MANUAL AND MAINTENANCE MANUAL TO THE OWNER. THE MANUALS SHALL INCLUDE THE FOLLOWING INFORMATION: SUBMITTAL DATA WITH EQUIPMENT RATINGS AND SELECTED OPTIONS, OPERATION AND MAINTENANCE MANUALS FOR EQUIPMENT REQUIRING MAINTENANCE, NAMES AND ADDRESSES OF A MINIMUM OF ONE (1) QUALIFIED SERVICE AGENCY.
- 2. COORDINATE LOCATIONS AND MOUNTING HEIGHTS OF ALL WALL-MOUNTED ELECTRICAL DEVICES AND EQUIPMENT WITH THE ARCHITECTURAL DRAWINGS, GENERAL CONTRACTOR, CASEWORK/MILLWORK, AND OTHER TRADES PRIOR TO ROUGH-IN AND INSTALLATION.
- 3. EQUIPMENT LOCATIONS SHALL SATISFY THE WORKING CLEARANCE REQUIREMENTS AND DEDICATED SPACE REQUIREMENTS OF NEC ARTICLE 110. PROVIDE SHOP DRAWINGS, DEMONSTRATING COMPLIANCE AND INTER-DISCIPLINARY COORDINATION, FOR ENGINEERING REVIEW.
- 14. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS, SECTIONS, AND ELEVATIONS FOR LOCATIONS AND/OR MOUNTING HEIGHTS OF LUMINARIES LOCATED AT CEILINGS AND/OR WALLS. VERIFY THAT CEILING-MOUNTED LUMINARIES ARE SUITABLE FOR THE FINISHED CEILING SYSTEM INDICATED AND PROVIDE ACCORDINGLY. COORDINATE LOCATIONS AND MOUNTING HEIGHTS OF WALL-MOUNTED LUMINARIES WITH CASEWORK, FURNITURE, AND ARCHITECTURAL ELEMENTS. WHERE ARCHITECTURAL REFLECTED CEILING PLANS INDICATE FIRE-RATED CEILING SYSTEMS, PROVIDE UL-LISTED LUMINAIRE ENCLOSURES (AS REQUIRED).

15. PROVIDE A COMPLETE GROUNDING SYSTEM IN ACCORDANCE WITH APPLICABLE SECTIONS OF THE NEC AND SPECIFICATIONS. BOND SERVICE ENTRANCE ELECTRICAL EQUIPMENT TO BUILDING STEEL, GROUND RODS, METAL WATER MAINS, LIGHTNING PROTECTION SYSTEM GROUNDING ELECTRODES (WHERE PRESENT), AND TELECOMMUNICATIONS SYSTEM GROUNDING ELECTRODES (AS REQUIRED). EQUIPMENT GROUNDING SHALL BE OF THE WIRE TYPE.

- 16. MINIMUM CONDUIT SIZE SHALL BE 3/4".
- 17. MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG. ALL FEEDER AND BRANCH CIRCUIT CONDUCTORS SHALL BE INSTALLED WITHIN CONDUIT, UNLESS OTHERWISE INDICATED. ALL CONDUCTORS SHALL BE COPPER, UNLESS OTHERWISE INDICATED.
- 18. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH CIRCUIT. MULTI-WIRE BRANCH CIRCUITS SHALL BE PROHIBITED.
- 19. CONNECTIONS TO TRANSFORMERS AND MECHANICAL EQUIPMENT SHALL BE MADE WITH FMC OR LFMC, UNLESS OTHERWISE INDICATED.
- 20. WHERE PRACTICABLE, CONDUITS SHALL BE CONCEALED BELOW SLABS, WITHIN WALLS, AND ABOVE FINISHED CEILING SYSTEMS. WHERE CONDUITS ARE EMBEDDED WITHIN CONCRETE SLABS, COORDINATE CONDUIT SIZE LIMITATIONS AND SPACING REQUIREMENTS WITH THE STRUCTURAL DRAWINGS/ENGINEER PRIOR TO INSTALLATION.
- 21. SEAL ALL CONDUIT PENETRATIONS AT FIRE-RATED PARTITIONS.
- 22. COORDINATE ALL CONDUIT PENETRATIONS WITH ARCHITECTURAL DRAWINGS, STRUCTURAL DRAWINGS, FIELD CONDITIONS, AND OTHER TRADES. PROVIDE SEALING FITTINGS TO PROHIBIT CONDENSATION AND/OR THE PASSAGE OF GASES OR VAPORS (AS REQUIRED).
- 23. INCREASE FEEDER AND BRANCH CIRCUIT CONDUCTOR SIZES AS REQUIRED IN ORDER TO MAINTAIN A MAXIMUM, CUMULATIVE VOLTAGE DROP OF 5% AT THE END LOAD. MAXIMUM VOLTAGE DROP SHALL BE DISTRIBUTED AS FOLLOWS: 3% FOR FEEDERS, 2% FOR BRANCH CIRCUITS. WHERE THE VOLTAGE DROP REQUIREMENTS OF THE LOCAL ENERGY CODE ARE MORE STRINGENT, THE REQUIREMENTS OF THE LOCAL ENERGY CODE SHALL TAKE PRECEDENCE. WHERE PHASE AND NEUTRAL CONDUCTOR SIZES ARE INCREASED FOR VOLTAGE DROP, THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE INCREASED PROPORTIONATELY.
- 24. PROVIDE ALL REQUIRED DISCONNECT SWITCHES, STARTERS, AND COMBINATION STARTER/DISCONNECT SWITCHES. MAKE CONNECTIONS TO ALL ELECTRICALLY-DRIVEN DEVICES AND EQUIPMENT PROVIDED BY THE MECHANICAL, PLUMBING, AND FIRE PROTECTION CONTRACTORS. EXAMINE EQUIPMENT NAMEPLATE RATINGS PRIOR TO ROUGH-IN AND INSTALLATION. PROVIDE OVERCURRENT PROTECTION IN ACCORDANCE WITH EQUIPMENT NAMEPLATE RATINGS. PROVIDE ALL POWER SUPPLIES, CONTROL TRANSFORMERS, RELAYS, AND OTHER ACCESSORIES REQUIRED TO FACILITATE THE PROPER OPERATION OF MECHANICAL EQUIPMENT AS DESCRIBED WITHIN THE MECHANICAL ENGINEER'S SEQUENCE OF OPERATIONS.
- 25. ALL INTERIOR ELECTRICAL EQUIPMENT SHALL BE OF NEMA 1 CONSTRUCTION, UNLESS OTHERWISE INDICATED. ALL EXTERIOR ELECTRICAL EQUIPMENT SHALL BE OF NEMA 3R CONSTRUCTION, UNLESS OTHERWISE INDICATED. EQUIPMENT RATINGS SHALL CORRESPOND TO THEIR INSTALLED ENVIRONMENTS.

26. ALL NEW PANELBOARDS AND WITHIN THE SCOPE OF THIS PROJECT SHALL BE

PROVIDED WITH NEW, TYPEWRITTEN DIRECTORIES. CIRCUIT DESCRIPTIONS SHALL CONTAIN ROOM NAMES AND ROOM NUMBERS BASED UPON INSTALLED ROOM SIGNAGE.

27. PROVIDE PHENOLIC, ENGRAVED IDENTIFICATION PLACARDS AT ALL

- PANELBOARDS, DISCONNECT SWITCHES, ENCLOSED CIRCUIT BREAKERS, AND CABINETS. REFER TO DETAILS FOR FURTHER INFORMATION.
- 29. PROVIDE TYPEWRITTEN OR ENGRAVED PANEL AND CIRCUIT IDENTIFICATION AT DEVICE RECEPTACLE OUTLET AND TOGGLE SWITCH COVER PLATES.
- 30. PROVIDE HANDWRITTEN PANEL AND CIRCUIT IDENTIFICATION ON THE EXTERIORS OF ALL JUNCTION BOXES, PULL BOXES, AND WIREWAYS.

ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING:

NFPA 70	NATIONAL ELECTRICAL CODE (2020)
NFPA 101	LIFE SAFETY CODE (2021)
NFPA 110	STANDARD FOR EMERGENCY AND STAND-BY POWER SYSTEM (2021)
2023 FBC.	FLORIDA BUILDING CODE (2023)
2023 FFPC	FLORIDA FIRE PREVENTION CODE (2023)
2023 FBC-EC	FLORIDA BUILDING CODE - ENERGY CONSERVATION (2023)
	LOCAL JURISDICTION CODES AND / OR OWNER DESIGN

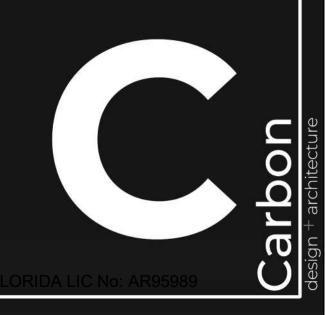
CODES AND STANDARDS

GUIDELINES

ISSIC	DNING	j

PRIOR TO FINAL INSPECTION, THE CONTRACTOR SHALL SUBMIT EVIDENCE TO THE REGISTERED DESIGN PROFESSIONAL (ELECTRICAL ENGINEER-OF-RECORD) OR REGISTERED DESIGN PROFESSIONAL'S REPRESENTATIVE THAT THE LIGHTING CONTROL SYSTEMS HAVE BEEN TESTED TO ENSURE THAT THEY ARE CALIBRATED, ADJUSTED, PROGRAMMED, AND SATISFY THE INTENT OF THESE CONTRACT DOCUMENTS AND THE MANUFACTURERS' WRITTEN INSTRUCTIONS. FUNCTIONAL TESTING SHALL BE PERFORMED IN ACCORDANCE WITH FBC C408.3.1.1 (VACANCY / OCCUPANCY SENSOR CONTROLS), FBC C408.3.1.2 (TIME-SWITCH CONTROLS), AND/OR FBC C408.3.1.3 (DAYLIGHT RESPONSIVE CONTROLS) (AS REQUIRED).

SHEET	INDEX
SHEET NUMBER	SHEET NAME
E-000	LEGEND - ELECTRICAL
E-001	SPECIFICATIONS - ELECTRICAL
E-002	SCHEDULES - ELECTRICAL
E-100	SITE PLAN - ELECTRICAL
E-201	FIRST FLOOR PLAN - POWER
E-301	FIRST FLOOR PLAN - LIGHTING
E-501	RISER DIAGRAM - ELECTRICAL
E-901	DETAILS - ELECTRICAL
E-902	DETAILS - ELECTRICAL
E-903	DETAILS - ELECTRICAL



CITY OF OCALA 501 NE 1st Ave. Ocala, FL 34470

Project No: 24020

Project Na: OCALA SUNTRAN **RESTROOMS & KIOSK**

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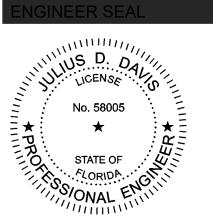
Proj: #01.22029 EOR: JULIUS D. DAVIS, P.E. #58005 THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY JULIUS D. DAVIS, P.E. #58005 USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE

TO THE BEST OF THE ENGINEER'S KNOWLEDGE, THE PLANS AND SPECIFICATIONS COMPLY

NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON

WITH THE APPLICABLE MINIMUM BUILDING CODES

No: Description:



8/12/2024 4:45:49 PM

SPECIFICATIONS - ELECTRICAL

260100 - BASIC ELECTRICAL SCOPE OF WORK REQUIREMENTS:

- A. ALL WORK SHALL BE IN COMPLIANCE WITH THE LATEST APPLICABLE CODES, LAWS AND ORDINANCES AND THE NATIONAL ELECTRICAL CODE. PROVIDE AND INSTALL ALL LABOR, MATERIALS, PERMITS AND INCIDENTALS REQUIRED TO COMPLETE ALL WORK AS SHOWN ON CONTRACT DOCUMENTS.
- DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL SCOPE AND ARRANGEMENT OF THE ELECTRICAL INSTALLATION AND ARE NOT INTENDED TO SHOW EVERY CONNECTION. CONDUIT OR EXACT LOCATION AND EXTENT OF WORK. CONTRACTOR SHALL INSTALL THE WORK COMPLETE. INCLUDING DETAILS AND EQUIPMENT NECESSARY TO PERFORM THE FUNCTION INDICATED ON THE DRAWINGS. SUBMIT SHOP DRAWINGS FOR ALL ELECTRICAL EQUIPMENT ASSOCIATED WITH THE PROJECT UNDER ONE SUBMITTAL. SEPARATE SUBMITTALS MAY BE REJECTED. SUBMIT DIMENSIONED ELECTRICAL ROOM LAYOUTS TO 1/4' SCALE WITH MANUFACTURERS EQUIPMENT LOCATIONS SHOWN
- THEREIN. ALL MATERIALS SHALL BE NEW AND FREE OF DEFECTS AND SHALL BE U.L. LISTED OR BE LISTED WITH AN APPROVED,
- NATIONALLY RECOGNIZED ELECTRICAL TESTING AGENCY. INSPECT ALL NEW MATERIAL AND EQUIPMENT PRIOR TO INSTALLATIONS FOR DAMAGES AND SHALL VERIFY EQUIPMENT
- OPERATES SATISFACTORILY. WARRANT ALL MATERIAL AND EQUIPMENT FURNISHED TO COMPLETE ALL WORK FOR ONE YEAR AFTER FINAL ACCEPTANCE OF COMPLETION. MATERIALS AND EQUIPMENT DEFECTS OF FAILURES DUE TO ABUSE OR WORKMANSHIP NEGLECT SHALL BE MADE GOOD BY THE CONTRACTOR WITHOUT COST TO THE OWNER.
- PROVIDE ONLY NEW, STANDARD UNDERWRITER'S LABORATORY INC. LISTED FIRST-GRADE MATERIALS THROUGHOUT AND SHALL BE MARKED WITH UNDERWRITERS LABORATORY INC. LISTED AND WITH MANUFACTURER'S BRAND OR TRADEMARK. ALL MATERIALS SHALL BE OF ONE MANUFACTURER.
- G. CONTRACTOR SHALL BE EXPERIENCED IN THEIR TRADE. CONTRACTOR'S WORK SHALL PRESENT A NEAT APPEARANCE UPON COMPLETION. MATERIALS AND EQUIPMENT INSTALLED SHALL BE PLUMB, STRAIGHT AND LEVEL.
- H. COORDINATE WITH THE ARCHITECT AND OWNER ON EXACT LOCATION OF WIRING DEVICES AND RACEWAYS FOR OWNER-FURNISHED EQUIPMENT PRIOR TO ROUGH-IN. COORDINATE ELECTRICAL EQUIPMENT AND MATERIALS INSTALLATION WITH OTHER BUILDING COMPONENTS AND TRADES. REVIEW AND COORDINATE BETWEEN ALL CONSTRUCTION DOCUMENTS AND PROJECT SPECIFICATIONS.
- COORDINATE THE INSTALLATION OF REQUIRED SUPPORTING DEVICES AND SLEEVES TO BE SET IN POURED IN PLACE CONCRETE AND OTHER STRUCTURAL COMPONENTS AS THEY ARE CONSTRUCTED. COORDINATE THE CUTTING AND PATCHING OF BUILDING COMPONENTS TO ACCOMMODATE THE INSTALLATION OF ELECTRICAL EQUIPMENT AND MATERIALS IN RENOVATION PROJECTS
- COORDINATE CONNECTION OF ELECTRICAL SYSTEMS AND EQUIPMENT REQUIREMENTS WITH LOCAL UTILITY SERVICES TO
- PROVIDE AND COMPLY WITH THE REQUIREMENTS FOR EACH SERVICE. UPON COMPLETION OF WORK, TEST ALL WIRING AND EQUIPMENT INSTALLATION AND SHALL BE IN PERFECT WORKING CONDITION IN ACCORDANCE WITH THE INTENT OF THE CONTRACT DOCUMENTS. MARK DRAWINGS TO INDICATE ACTUAL
- THE WORD 'PROVIDE' MEANS FOR THE CONTRACTOR TO FURNISH AND INSTALL.

260519 - CONDUCTORS AND CABLES:

- WIRING GENERAL: CONDUCTORS SHALL BE COPPER AND HAVE CURRENT CARRYING CAPACITIES AS PER N.E.C. WITH 600 VOLT INSULATION AND COMPLY WITH NEMA WC 70. ALUMINUM CONDUCTORS ARE NOT APPROVED. CONDUCTORS SHALL BE #12 MINIMUM, EXCEPT FOR CONTROLS AND FIXTURE WIRE. SOLID FOR #10 AND SMALLER CONDUCTORS, STRANDED FOR #8 AND LARGER.
- FEEDERS: BRANCH CIRCUITS, CLASS 1 AND CLASS 2 CIRCUITS SHALL BE INSULATION TYPE XHHW OR THWN. MAINTAIN STANDARD COLOR CODING OF BLACK, RED AND BLUE FOR 120/208 VOLT, 3 PHASE WIRING AND BROWN, ORANGE AND YELLOW FOR 277/480 VOLT, 3 PHASE WIRING. COLOR CODING SHALL MATCH EXISTING FACILITIES WHERE THE COLOR CODING IS NOT STANDARD. WHITE NEUTRAL AND GREEN GROUND.
- CONCEAL CABLES IN FINISHED WALLS, CEILINGS AND FLOORS UNLESS OTHERWISE INDICATED. INSTALL EXPOSED CABLES PARALLEL AND PERPENDICULAR TO SURFACES OF EXPOSED STRUCTURAL MEMBERS AND FOLLOW SURFACE CONTOURS WHERE POSSIBLE.
- MAKE SPLICES AND TAPS THAT ARE COMPATIBLE WITH CONDUCTOR MATERIAL AND THAT POSSESS EQUIVALENT OR BETTER MECHANICAL STRENGTH AND INSULATION RATINGS THAN UNSPLICED CONDUCTORS. SERVICE ENTRANCE AND PANEL FEEDERS SHALL NOT BE SPLICED. TIGHTEN ELECTRICAL CONNECTORS AND TERMINALS ACCORDING TO MANUFACTURER'S PUBLISHED TORQUE-TIGHTENING VALUES. IF MANUFACTURER'S TORQUE VALUES ARE NOT INDICATED, USE THOSE SPECIFIED IN UL 486A AND UL 486B.
- WIRING AT OUTLETS: INSTALL CONDUCTOR AT EACH OUTLET WITH AT LEAST 12 INCHES OF SLACK. WIRING IN LIGHT POLE HANDHOLES: PROVIDE AT LEAST 18" OF SLACK AT HANDHOLE.

260526 - GROUNDING AND BONDING:

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- A. GROUNDING SHALL BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND LOCAL CODES AND REQUIREMENTS.
- B. FEEDERS AND BRANCH CIRCUITS SHALL HAVE INSTALLED IN THE SAME RACEWAY AS THE CIRCUIT CONDUCTORS, AN INSULATED COPPER GROUNDING CONDUCTOR SIZED IN ACCORDANCE WITH NEC.
- DESCRIPTION OF SYSTEM: IN GENERAL, ALL ELECTRICAL EQUIPMENT (METALLIC CONDUIT, MOTOR FRAMES, PANEL BOARDS, ETC.) SHALL BE BONDED TOGETHER WITH A GREEN INSULATED OR BARE COPPER SYSTEM GROUNDING CONDUCTOR IN ACCORDANCE WITH SPECIFIC RULES OF ARTICLE 250 OF THE N.E.C. FOUIPMENT GROUNDING CONDUCTORS THROUGH THE RACEWAY. SYSTEM SHALL BE CONTINUOUS FROM MAIN SWITCH GROUND BUS TO PANEL GROUND BAR OF EACH PANEL BOARD AND FROM PANEL GROUNDING BAR OF EACH PANEL BOARD TO BRANCH CIRCUIT EQUIPMENT AND DEVICES. CONNECTORS LISTED AND LABELED BY A NATIONALLY RECOGNIZED TESTING LABORATORY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION FOR APPLICATIONS IN WHICH USE AND FOR SPECIFIC TYPES. SIZES AND COMBINATIONS OF CONDUCTORS AND OTHER ITEMS CONNECTED. ALL FEEDER METALLIC CONDUITS AND FLEXIBLE METAL CONDUITS CONNECTIONS TO PANEL CABINETS, EQUIPMENT CABINETS, TRANSFORMER ENCLOSURES, ETC. SHALL BE PROVIDED WITH GROUNDING BUSHINGS.
- ELECTRICAL ROOM GROUND BUSS BARS: NEWTON INSTRUMENT COMPANY INSULATED GROUND BAR, MINIMUM SIZE 1/4" x 4" x 10", COPPER, MANUFACTURER PRE-DRILLED HOLES. ALL GROUND BUSS BARS SHALL BE BONDED TO MAIN ELECTRICAL GROUND BUSS BAR WITH MINIMUM 3/0 COPPER GROUND OR SIZED PER CODE FOR A CONTINUOUS COPPER GROUNDING SYSTEM. UTILIZING BUILDING STEEL OR FOOTING IS NOT ACCEPTABLE. TELECOMMUNICATIONS, IDF, DATA, COMPUTER AND SIMILAR ROOMS: NEWTON INSTRUMENT COMPANY INSULATED GROUND BAR, 1/4" x 4" x 20", COPPER, MANUFACTURER PRE-DRILLED HOLES. BOND GROUND BUSS BAR TO MAIN ELECTRICAL GROUND BUSS BAR WITH MINIMUM 3/0 AWG
- GROUNDING RODS: COPPER-CLAD STEEL, SECTIONAL TYPE; 3/4" INCH IN DIAMETER x 10 FEET. PROVIDE ADDITIONAL LENGTHS IN 10' SECTIONS TO ACHIEVE SPECIFIED MINIMUM RESISTANCE TO GROUND, MEASURED IN OHMS, AT BUILDING SERVICES GROUNDING SYSTEMS. EXOTHERMIC CADWELD SHALL BE USED FOR BUILDING GROUNDING SYSTEM CONNECTION TO DRIVEN GROUND RODS.
- GROUNDING AND BONDING FOR PIPING: METAL WATER SERVICE PIPE: INSTALL INSULATED COPPER GROUNDING CONDUCTORS, IN CONDUIT, FROM BUILDING'S MAIN SERVICE EQUIPMENT OR GROUNDING BUSS, TO MAIN METAL WATER SERVICE ENTRANCES TO BUILDING. BOND EACH ABOVE GROUND PORTION OF GAS PIPING SYSTEM DOWNSTREAM FROM EQUIPMENT SHUT-OFF VALVE. CONCRETE ENCASED ELECTRODE IN BUILDING FOOTER SHALL BE A BARE CONDUCTOR, SAME SIZE AS THE BUILDING SYSTEMS GROUNDING CONDUCTOR, ROUTED MINIMUM 20' AND TIE WIRED TO THE REINFORCING BARS.
- PERFORM GROUNDING TEST: PERFORM TESTS BY FALL-OF-POTENTIAL METHOD ACCORDING TO IEEE 81, USING MEGOHMETER. REPORT MEASURED GROUND RESISTANCES THAT EXCEED 5 OHMS. EXCESSIVE GROUND RESISTANCE: IF RESISTANCE TO GROUND EXCEEDS 5 OHMS, PROVIDE ADDITIONAL DRIVEN GROUNDING RODS UNTIL THE MEASURED GROUND RESISTANCE DOES NOT EXCEED 5 OHMS.

260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS:

- A. HANGERS AND SUPPORTS FOR ELECTRICAL EQUIPMENT AND RACEWAYS SHALL COMPLY WITH THE NEC AND NECA 1 AND NECA 101. SPACE SUPPORTS FOR EMT, IMC AND RMC AS REQUIRED BY THE NEC. MINIMUM ROD SIZE SHALL BE 1/4 INCH IN
- B. CONDUIT AND CABLE SUPPORT DEVICES: STEEL HANGERS, CLAMPS AND ASSOCIATED FITTINGS, DESIGNED FOR TYPES AND SIZES OF RACEWAY OR CABLE TO BE SUPPORTED. EXTERIOR AND WET LOCATIONS SHALL BE STAINLESS STEEL OR ALUMINUM WITH STAINLESS STEEL HARDWARE.
- C. SUPPORT FOR CONDUCTORS IN VERTICAL CONDUIT: FACTORY FABRICATED ASSEMBLY CONSISTING OF THREADED BODY AND INSULATING WEDGING PLUG OR PLUGS FOR NON-ARMORED ELECTRICAL CONDUCTORS OR CABLES IN RISER CONDUITS. PLUGS SHALL HAVE NUMBER. SIZE AND SHAPE OF CONDUCTOR GRIPPING PIECES AS REQUIRED TO SUIT CABLES SUPPORTED.
- D. MOUNTING, ANCHORING AND ATTACHMENT COMPONENTS: ITEMS FOR FASTENING ELECTRICAL ITEMS OR THEIR SUPPORTS TO BUILDING SURFACES INCLUDE: MECHANICAL EXPANSION ANCHORS, INSERT - WEDGE TYPE, ZINC-COATED STEEL OR STAINLESS STEEL FOR USE IN HARDENED PORTLAND CEMENT CONCRETE WITH TENSION, SHEAR AND PULLOUT CAPACITIES APPROPRIATE FOR SUPPORTED LOADS AND BUILDING MATERIALS IN WHICH USED. CONCRETE INSERTS, STEEL OR MALLEABLE-IRON, SLOTTED SUPPORT SYSTEM UNITS SIMILAR TO MSS TYPE 18, COMPLYING WITH MFMA-4 OR MSS SP-58. CLAMPS FOR ATTACHMENT TO STEEL STRUCTURAL ELEMENTS, MSS SP-58, TYPE SUITABLE FOR ATTACHED STRUCTURAL ELEMENT. THROUGH BOLTS, STRUCTURAL TYPE, HEX HEAD AND HIGH STRENGTH. COMPLY WITH ASTM A-325. TOGGLE BOLTS, ALL STEEL SPRINGHEAD TYPE. HANGER RODS, THREADED STEEL. MOUNTING APPARATUS FOR EXTERIOR APPLICATIONS SHALL BE STAINLESS STEEL. EXTERIOR LOCATED SUPPORT APPARATUS SHALL CONSIST OF DIRECT BURIAL CONCRETE POSTS, STAINLESS STEEL OR ALUMINUM CHANNEL AND STAINLESS STEEL SPRINGS, BOLTS WASHERS, ETC.
- E. MULTIPLE RACEWAYS OR CABLES SHALL HAVE L-TRAPEZE TYPE SUPPORTS FABRICATED WITH STEEL SLOTTED OR OTHER SUPPORT SYSTEM, SIZED SO CAPACITY CAN BE INCREASED BY AT LEAST 25 PERCENT IN FUTURE WITHOUT EXCEEDING SPECIFIED DESIGN LOAD LIMITS. SECURE RACEWAYS AND CABLES TO THESE SUPPORTS WITH TWO-BOLT CONDUIT CLAMPS USING SPRING FRICTION ACTION FOR RETENTION IN SUPPORT CHANNEL. SPRING-STEEL CLAMPS DESIGNED FOR SUPPORTING SINGLE CONDUITS WITHOUT BOLTS MAY BE USED FOR 1-1/2 INCH AND SMALLER RACEWAYS SERVING BRANCH CIRCUITS AND COMMUNICATION SYSTEMS ABOVE SUSPENDED CEILINGS.
- F. SUPPORTING RACEWAYS VIA OTHER RACEWAYS CABLE TRAYS AND WIREWAYS ARE NOT APPROVED.

260533 - RACEWAYS AND BOXES:

- A. LISTING AND LABELING: METAL CONDUITS AND NON-METALLIC CONDUITS. TUBING AND FITTINGS SHALL BE LISTED AND LABELED AS DEFINED IN NFPA 70 AND MARKED FOR INTENDED LOCATION AND APPLICATION.CONDUIT GENERAL: RIGID SHALL BE MINIMUM 1", GALVANIZED OUTSIDE AND INSIDE BY HOT DIPPING, E.M.T. SHALL BE MINIMUM 3/4" AND SHALL BE ELECTRO-GALVANIZED. PROVIDE MINIMUM 1" CONDUIT WITH 4" SQUARE BACK BOX FOR DATA.
- B. CONDUITS SHALL BE AS MANUFACTURED BY ALLIED, PITTSBURGH STANDARD, REPUBLIC, THOMAS & BETTS, TRIANGLE, WHEATI AND OR YOUNGSTOWN
- C. PROVIDE END BUSHINGS ON ALL CONDUITS. PROVIDE PULL STRINGS IN ALL EMPTY RACEWAYS. PULL STRINGS SHALL BE NYLON AND SHALL BE IMPERVIOUS TO MOISTURE. PULL STRINGS SHALL HAVE A TENSILE STRENGTH NOT LESS THAN 200 LBS. METALLIC RACEWAY MAY BE BONDED TO CABINETS, BOXES AND PANELBOARDS BY DOUBLE LOCKNUT AND BUSHING TO ENSURE THE METALLIC PARTS ARE ALL EFFECTIVELY GROUNDED.
- D. CONDUIT ABOVE GRADE OR CONCEALED IN WALLS SHALL BE EMT (INTERIOR ONLY), IMC OR GALVANIZED. CONDUIT BELOW GRADE SHALL BE RIGID GALVANIZED (HEAVY WALL), IMC OR PVC (SCHEDULE 40). CONNECTION TO VIBRATING EQUIPMENT. (INCLUDING TRANSFORMERS AND HYDRAULIC. PNEUMATIC. ELECTRIC SOLENOID OR MOTOR-DRIVEN EQUIPMENT). FMC. EXCEPT USE LFMC IN DAMP OR WET LOCATIONS, MAXIMUM LENGTH 72 INCHES. CONCEAL CONDUIT WITHIN FINISH WALLS,
- CEILINGS AND FLOORS UNLESS OTHERWISE INDICATED. E. CONDUIT OUTSIDE AND EXPOSED TO PHYSICAL DAMAGE OR IN DAMP OR WET LOCATIONS SHALL BE RIGID GALVANIZED
 - (HFAVY WALL). SEALANT: PROVIDE A CLOSED CELL SILICONE FOAM SEALANT RATED TO PROVIDE A RATING EQUAL TO THE WALL, CEILING OR FLOOR ASSEMBLY RATING. PROVIDE SEALS FOR THE EXTERIOR OF CONDUIT PENETRATIONS CONSISTING OF A CAST-IN-PLACE SLEEVE WITH A COMPRESSIBLE RUBBER GASKET BETWEEN THE CONDUIT AND THE SLEEVE. PROVIDE SEALS FOR THE INTERIOR OF THE CONDUIT PENETRATIONS CONSISTING OF GLAND TYPE SEALING BUSHING OR CLOSED CELL SILICONE FOAM. PROVIDE DUCT SEAL INSIDE AN APPROPRIATE SEAL-OFF FITTING TO SEAL THE INTERIOR OF THE CONDUIT SYSTEM FROM WATER SEEPAGE OR HAZARDOUS GASES.
- COUPLINGS: ALL COUPLINGS AND CONNECTORS FOR EMT SHALL BE OF COMPRESSION TYPE. H. OUTLET SHALL BE STANDARD TYPE WITH KNOCKOUTS, MADE OF HOT DIPPED GALVANIZED STEEL AS MANUFACTURED BY
- STEEL CITY, RACO OR APPLETON. BOX EXTENSIONS USED TO ACCOMMODATE NEW BUILDING FINISHES SHALL BE OF SAME MATERIAL AS RECESSED BOX. I. CEILING OUTLET BOXES SHALL BE 4 INCH OCTAGON, 1-1/2 INCH DEEP OR LARGER WHEN REQUIRED DUE FOR NUMBER OF
- CONDUCTORS OR CONDUIT ENTRY. LUMINAIRE OUTLET BOXES: NON-ADJUSTABLE. DESIGNED FOR ATTACHMENT OF LUMINAIRE WEIGHING 50 LB. OUTLET BOXES DESIGNED FOR ATTACHMENT OF LUMINAIRES WEIGHTING MORE THAN 50 LB. SHALL BE LISTED AND MARKED FOR THE MAXIMUM ALLOWABLE WEIGHT. OUTLET BOXES SHALL BE PROVIDED WITH APPROVED 3/8 INCH FIXTURE STUDS WHERE REQUIRED. PROVIDE JUNCTION OR
- PULL BOXES WHERE SHOWN ON THE DRAWINGS AS REQUIRED TO FACILITATE INSTALLING CONDUCTORS. BOXES SHALL BE SIZED IN ACCORDANCE WITH THE NEC. ALL JUNCTION BOXES SHALL BE ACCESSIBLE, HORIZONTALLY SEPARATE BOXES MOUNTED ON OPPOSITE SIDES OF WALLS SO THEY ARE NOT IN THE SAME VERTICAL CHANNEL AND TO MAINTAIN WALL
- K. METAL FLOOR BOXES: CAST METAL FOR SLAB ON SLAB ON GRADE OR SHEET METAL, FULLY ADJUSTABLE, RECTANGULAR. METAL FLOOR BOXES SHALL BE LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY AND MARKED FOR INTENDED LOCATION AND APPLICATION.

260544 - SLEEVES AND SEALS FOR ELECTRICAL RACEWAYS AND CABLING:

- A. COORDINATE SLEEVE SELECTION AND APPLICATION FOR RACEWAYS AND CABLES THROUGH FIRE RATED PENETRATIONS WITH 'THROUGH-PENETRATION FIRESTOP SYSTEMS' SPECIFIED IN ARCHITECTURAL DRAWINGS AND SPECIFICATIONS. FOR FIRE-RATED ASSEMBLY PENETRATIONS, MAINTAIN INDICATED FIRE RATING OF WALLS, PARTITIONS, CEILINGS AND FLOORS AT CABLE PENETRATIONS. INSTALL SLEEVES AND SEAL WITH FIRESTOP MATERIALS ACCORDING TO LISTING.
- B. SLEEVE INSTALLATION FOR NON-FIRE-RATED ELECTRICAL PENETRATIONS: WALL SLEEVES, GALVANIZED-STEEL SHEET; 0.0239 INCH MINIMUM THICKNESS: ROUND TUBE CLOSED WITH TABS FOR SCREW-FASTENING THE SLEEVE TO THE BOARD. SLEEVES FOR RECTANGULAR OPENINGS: FOR SLEEVE CROSS-SECTION RECTANGLE PERIMETER LESS THAN 50 INCHES AND WITH NO SIDE LARGER THAN 16 INCHES, THICKNESS SHALL BE 0.052 INCH FOR SLEEVE CROSS-SECTION RECTANGLE PERIMETER 50 INCHES OR MORE AND ONE OR MORE SIDES LARGERS THAN 16 INCHES, THICKNESS SHALL BE 0.138 INCH. CUT SLEEVES TO LENGTH FOR MOUNTING FLUSH WITH BOTH WALL SURFACES. EXTEND SLEEVES INSTALLED IN FLOORS 2 INCHES ABOVE FINISHED FLOOR LEVEL. SIZE PIPE SLEEVES TO PROVIDE 1/4 INCH ANNULAR CLEAR SPACE BETWEEN SLEEVE AND CABLE UNLESS SLEEVE SEAL IS TO BE INSTALLED. SEAL SPACE OUTSIDE OF SLEEVES WITH GROUT FOR PENETRATIONS OF CONCRETE AND MASONRY AND WITH APPROVED JOINT COMPOUND FOR GYPSUM BOARD ASSEMBLIES. ROOF PENETRATION SLEEVES - SEAL PENETRATION OF INDIVIDUAL CABLES WITH FLEXIBLE BOOT-TYPE FLASHING UNITS APPLIED IN COORDINATION WITH ROOFING WORK. ABOVE GROUND EXTERIOR-WALL PENETRATIONS - SEAL PENETRATIONS USING SLEEVES AND MECHANICAL SLEEVE SEALS AND SIZE SLEEVES TO ALLOW FOR 1 INCH ANNULAR CLEAR SPACE BETWEEN PIPE AND SLEEVE FOR INSTALLING MECHANICAL SLEEVE SEALS. UNDERGROUND EXTERIOR-WALL PENETRATIONS - INSTALL CAST-IRON 'WALL PIPES' FOR SLEEVES, SIZE SLEEVES TO ALLOW FOR 1 INCH ANNULAR CLEAR SPACE BETWEEN CABLE AND SLEEVE FOR INSTALLING MECHANICAL SLEEVE SEALS.

260553 - ELECTRICAL IDENTIFICATION:

- A. NAMEPLATES: ENGRAVED PLASTIC LAMINATE NAMEPLATES: PROVIDE ENGRAVING PHENOLIC PLASTIC LAMINATE IN SIZES AND THICKNESS INDICATED, ENGRAVED WITH 1/16 INCH THICK LINES WITH SQUARE STANDARD PICA LETTERING AND WORDING AS SPECIFIED HEREIN, BLACK FACE AND WHITE LETTER FOR NORMAL SYSTEMS AND RED AND WHITE FOR EMERGENCY AND FIRE ALARM SYSTEMS. PUNCH FOR MECHANICAL FASTENING, EXCEPT WHERE ADHESIVE MOUNTING IS NECESSARY BECAUSE OF SUBSTRATE. MATERIAL THICKNESS SHALL BE 1/16 INCH. PROVIDE BEVELED EDGE IN ORDER TO ELIMINATE SHARP CORNERS. PROVIDE SELF-TAPPING STAINLESS STEEL ROUND HEAD SCREWS. PROVIDE CONTACT TYPE PERMANENT ADHESIVE WHERE SCREWS CANNOT OR SHALL NOT PENETRATE THE SUBSTRATE. ADHESIVE NAMEPLATE SHALL BE PERMANENTLY INSTALLED. TITLES SHALL BE 1/2" INCH HIGH AND ALL OTHER LETTERING SHALL BE 1/4 INCH HIGH.
- B. JUNCTION BOX IDENTIFICATION: PROVIDE NEAT INDELIBLE FELT TIP. STENCILED MARKING ON JUNCTION BOXES. LETTER SIZES SHALL BE 1 INCH HIGH MINIMUM. PROVIDE NON-STENCILED MARKINGS INSIDE THE JUNCTION BOX. LABEL TO INDICATE THE CIRCUITS CONTAINED THEREIN.
- PULLBOX IDENTIFICATION: PROVIDE NEAT INDELIBLE FELT TIP, STENCILED MARKING ON PULLBOX COVERS. LETTER SIZES SHALL BE 1 INCH HIGH MINIMUM. PROVIDE NON-STENCILED MARKINGS INSIDE THE PULLBOX AND ON THE EXTERIOR EDGE TO MATCH THE COVER MARKINGS. LABEL TO INDICATE THE CIRCUITS CONTAINED THEREIN, SOURCE PANEL AND DESTINATION.

<u> 262416 - PANELBOARDS:</u>

- ELECTRICAL COMPONENTS, DEVICES AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70 BY A QUALIFIED TESTING AGENCY AND MARKED FOR INTENDED LOCATION AND APPLICATION. PANELBOARDS SHALL BE AS MANUFACTURED BY EATON, GENERAL ELECTRIC, SIEMENS OR SQUARE D.
- PROVIDE PANELBOARDS WITH MAIN BREAKER OR MAIN LUBS WHERE SHOWN ON THE DRAWINGS, OF A DEAD FRONT, DISTRIBUTED PHASE SEQUENCE DESIGN. PROVIDE WITH COPPER BUSES. PANELBOARDS SHALL BE EQUIPPED WITH HINGED TRIM FRONT COVER AND KEYED ALIKE. PANELBOARDS CAN BE EITHER FULLY RATED OR SERIES RATED.
- DISTRIBUTION TYPE PANELBOARDS SHALL BE USED FOR 600 AMP AND LARGER PANELBOARDS. CIRCUIT BREAKERS AND MAIN CIRCUIT BREAKERS SHALL BE ELECTRONIC TRIP CIRCUIT BREAKERS WITH RMS SENSING. FIELD REPLACEABLE RATING PLUG OR ELECTRONIC TRIP WITH FIELD ADJUSTABLE SETTINGS FOR INSTANTANEOUS TRIP, LONG AND SHORT-TIME PICKUP AND ADJUSTABLE LEVELS. FRAME AND TRIP SIZES INDICATED IN THE SCHEDULES. MAIN CIRCUIT BREAKERS SHALL BE 100 PERCENT RATED MAINS.
- D. LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS SHALL BE USED FOR 400 AMP AND SMALLER PANELBOARDS UNLESS OTHERWISE NOTED. CIRCUIT BREAKERS SHALL BE BOLT-ON QUICK-MAKE, QUICK-BREAK THERMAL-MAGNETIC TYPE WITH FRAME AND TRIP SIZES INDICATED IN THE SCHEDULES. ADJUSTABLE MAGNETIC TRIP SETTING FOR CIRCUIT-BREAKER FRAME SIZES 250 AMP AND LARGER. BREAKERS SHALL TRIP FREE OF THE HANDLE AND TRIPPING SHALL BE INDICATED BY THE HANDLE ASSUMING A POSITION BETWEEN OFF AND ON. MULTI-POLE BREAKERS SHALL BE INTERNAL, COMMON TRIP WITH SINGLE OPERATING HANDLE; EXTERNAL HANDLE TIES ARE NOT ACCEPTABLE.
- FOR FLUSH MOUNTED PANELBOARDS STUB FOUR (4) 1 INCH EMPTY CONDUITS FROM PANELBOARD INTO ACCESSIBLE CEILING SPACE OR SPACE DESIGNATED TO BE CEILING SPACE IN THE FUTURE. ARRANGE CONDUCTORS IN GUTTERS INTO
- GROUPS AND BUNDLE AND WRAP WITH WIRE TIES. FIELD QUALITY CONTROL: PERFORM TESTS AND INSPECTIONS. TEST INSULATION RESISTANCE FOR EACH PANELBOARD BUSS, COMPONENT, CONNECTING SUPPLY, FEEDER AND CONTROL CIRCUIT. TEST CONTINUITY OF EACH CIRCUIT. PERFORM EACH VISUAL AND MECHANICAL INSPECTION AND ELECTRICAL TEST STATED IN NETA ACCEPTANCE TESTING SPECIFICATION. CERTIFY COMPLIANCE WITH TEST PARAMETERS AND CORRECT MALFUNCTIONING UNITS ON-SITE, WHERE
- POSSIBLE AND RE-TEST TO DEMONSTRATE COMPLIANCE; OTHERWISE, REPLACE WITH NEW UNITS AND RE-TEST. DIRECTORIES: A TYPE PANELBOARD DIRECTORY SHALL BE PROVIDED FOR EACH PANELBOARD AND SHALL INDICATE THE ACTUAL CIRCUIT NUMBER USED, ROOM NAME AND TYPE OF LOAD. ROOM NAMES SHALL BE THE ACTUAL NAME OR ROOM NUMBER USED NOT NECESSARILY AS SHOWN ON THE DRAWINGS. WHERE PANEL SCHEDULES ARE INDICATED ON THE DRAWINGS AS 'RECEPTACLES' OR 'LIGHTING', ETC. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INCLUDE THE SPECIFIC AREA SERVED.

262726 - WIRING DEVICES:

- WIRING DEVICES, COMPONENTS AND ACCESSORIES SHALL BE LISTED AND LABELED AS DEFINED IN NFPA 70 BY A QUALIFIED TESTING AGENCY AND MARKED FOR INTENDED LOCATION AND APPLICATION. WIRING DEVICES SHALL BE AS MANUFACTURED BY COOPER, HUBBELL, LEVITON OR PASS & SEYMOUR.
- PROVIDE WHITE COLORED DEVICES FOR NORMAL POWER, UNLESS OTHERWISE NOTED. PROVIDE RED COLORED DEVICES FOR EMERGENCY POWER. PROVIDE BRUSHED STAINLESS STEEL COVER PLATES. COORDINATE WITH ARCHITECT FOR FINAL COLOR SELECTION OF DEVICES AND COVER PLATES
- RECEPTACLES: SPECIFICATION GRADE 20 AMP. 125 VOLT. 3 WIRE GROUNDED. MOUNTED AT 18" A.F.F. TO THE CENTERLINE UNLESS NOTED OTHERWISE. COLOR SHALL MATCH TOGGLE SWITCHES.
- TOGGLE SWITCHES: HEAVY DUTY SPECIFICATION GRADE 20 AMP, 120/277 VAC, HEAVY DUTY, QUIET TYPE: SINGLE POLE, TWO POLE, THREE WAY OR FOUR WAY AS REQUIRED FOR APPLICATION.
- FLUORESCENT DIMMERS: PRESET SLIDE CONTROL: LUTRON OR EQUIVALENT, COMPATIBLE WITH DIMMABLE BALLAST. OCCUPANCY SENSOR SWITCHES, 120/277 VAC, WALL MOUNTED SINGLE POLE - LEVITON OR EQUIVALENT.
- LED DIMMERS: PRESET SLIDE CONTROL: LUTRON OR EQUIVALENT, COMPATIBLE WITH DIMMABLE DRIVER. H. INSTALL DEVICE PLATES IN FULL CONTACT WITH WALL SURFACE OR SURFACE MOUNTED BOX. PLATES SHALL NOT
- PROJECT OUT FROM THE WALL OR FROM THE EDGE OF THE BOX ALL DEVICE PLATES FOR RECEPTACLES AND SWITCHES SHALL BE LABELED. SHOW PANEL DESIGNATION AND BRANCH
- CIRCUIT SERVING EACH RECEPTACLE.

262813 - FUSES:

- A. FUSES SHALL BE LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY AND MARKED FOR INTENDED LOCATION AND APPLICATION. PANELBOARDS SHALL BE AS MANUFACTURED BY COOPER BUSSMANN, FERRAS SHAWMUT, LITTLEFUSE OR EDISON. FUSES SHALL BE NON-RENEWABLE CARTRIDGE TYPE RATED 600 V AC AND LESS FOR USE IN ENCLOSED SWITCHES, FUSIBLE PANELBOARDS, SWITCHBOARDS, ENCLOSED CONTROLLERS, MOTOR CONTROL CENTERS AND CONTROL CIRCUITS.
- B. FUSE APPLICATIONS: SERVICE ENTRANCE, CLASS L. TIME DELAY, FEEDERS, CLASS RK5, FAST ACTING, MOTOR BRANCH CIRCUITS AND OTHER BRANCH CIRCUITS: CLASS RK5. TIME DELAY. CONTROL CIRCUITS: CLASS CC. TIME DELAY.
- INSTALLATION: INSTALL FUSES IN FUSIBLE DEVICES. ARRANGE FUSES SO RATING INFORMATION IS READABLE WITHOUT REMOVING FUSE. FUSES SHALL BE SIZED IN ACCORDANCE WITH THE MANUFACTURER'S MAXIMUM OVER-CURRENT

262816 - ENCLOSED SWITCHES:

- GENERAL: ALL DISCONNECT SWITCHES SHALL BE HEAVY-DUTY TYPE, UNLESS SPECIFICALLY NOTED OTHERWISE.
- SWITCHES SHALL BE FUSIBLE OR NON-FUSIBLE AND SIZED AS NOTED ON THE DRAWINGS. B. SWITCHES SHALL BE 240 VOLT RATED ON SYSTEMS UP TO AND INCLUDING 120/240V. ALL SWITCHES SERVING MOTOR
- LOADS SHALL BE HORSEPOWER RATED. ALL SWITCHES SERVING VFD'S SHALL HAVE AN AUXILIARY CONTACT TO DIS-ENGAGE THE VFD WHEN SWITCHED OFF. PROVIDE SWITCHES WITH AN EXTERNALLY OPERATED HANDLE: QUICK MAKE QUICK BREAK MECHANISM; THE HANDLE
- SHALL BE INTERLOCKED WITH THE SWITCH COVER BY MEANS OF A DEFEATABLE INTERLOCK DEVICE. THE SWITCH SHALL BE LOCKABLE IN THE 'OFF' POSITION WITH A PADLOCK.

265100 - INTERIOR LIGHTING:

- LUMINAIRES SHALL BE FURNISHED AS SHOWN IN THE LUMINAIRE SCHEDULE AND BE LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY AND MARKED FOR INTENDED LOCATION AND APPLICATION. IT SHALL SPECIFICALLY BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY EXACT TYPE OF CEILING AND RECESSING DEPTH OF ALL RECESSED FIXTURES AND TO FURNISH THE MOUNTING TRIMS AND ACCESSORIES OF THE SPECIFIED AND / OR APPROVED FIXTURES FOR THE CEILING TO BE INSTALLED. FIXTURES SHALL BE SUPPORTED INDEPENDENTLY OF CEILING
- B. LED LUMINAIRES SHALL BE UL 8750 LISTED AND TESTED IN ACCORDANCE WITH LM-79 AND LM-80 STANDARDS. THE LED LUMINAIRE SHALL HAVE A LUMINOUS EFFICACY OF AT LEAST 90 LUMENS / W, A COLOR TEMPERATURE OF 3500K OR 4000K. A CRI OF AT LEAST 80, AN ESTIMATED LIFE OF AT LEAST 50,000 HOURS AT L70 LUMEN MAINTENANCE AND SHALL INCLUDE A MINIMUM 5 YEAR WARRANTY ON THE ENTIRE LUMINAIRE INCLUDING THE DRIVER.

265600 EXTERIOR LIGHTING:

- A. LUMINAIRES SHALL BE FURNISHED AS SHOWN IN THE LUMINAIRE SCHEDULE AND COMPLY WITH UL 1598 AND BE LISTED AND LABELED FOR INSTALLATION IN WET LOCATIONS AS DEFINED IN NFPA 70 AND MARKED FOR INTENDED LOCATION AND APPLICATION. LATERAL LIGHT DISTRIBUTION SHALL COMPLY WITH IESNA RP-8. THE CONTRACTOR SHALL FURNISH STAINLESS STEEL MOUNTING HARDWARE AND REQUIRED ACCESSORIES OF THE SPECIFIED AND / OR APPROVED
- B. LED LUMINAIRES SHALL BE UL 8750 LISTED AND TESTED IN ACCORDANCE WITH LM-79 AND LM-80 STANDARDS. THE LED LUMINAIRE SHALL HAVE A LUMINOUS EFFICACY OF AT LEAST 90 LUMENS/W, A COLOR TEMPERATURE OF 3500K OR 4000 K. A CRI OF AT LEAST 80, AN ESTIMATED LIFE OF AT LEAST 50,000 HOURS AT L70 LUMEN MAINTENANCE AND SHALL INCLUDE A MINIMUM 5-YEAR WARRANTY ON THE ENTIRE LUMINAIRE INCLUDING THE DRIVER.

GENERAL SYSTEM NOTES

. LEGEND SHEET AND NOT ALL SYMBOLS MAY BE USED ON DRAWINGS.

- REFERENCE PLAN SHEETS TO DETERMINE REQUIRED SCOPE OF WORK.
- THE DRAWINGS ARE DIAGRAMMATIC, AND NOT ALL REQUIRED OFFSETS IN CONDUIT, CABLE TRAY, BOXES, AND PATHWAY TRANSITIONS ARE SHOWN. COORDINATE EXACT DIMENSIONAL LOCATIONS WITH EXISTING CONDITIONS AND OTHER TRADES PRIOR TO INSTALLATION.
- PROVIDE A MINIMUM OF ONE PULL BOX FOR EVERY 100 FEET OF STRAIGHT CONDUIT RUNS AND A PULL BOX FOR MORE THAN TWO (2) 90 DEGREE BENDS IN A CONDUIT RUN. DEBURR, CLEAN, CAP, AND TAG ALL CONDUITS AND FURNISH WITH A MINIMUM OF TWO (2) PULL STRINGS.
- INSTALL DEVICES IN AN ORDERLY MANNER AT THE SAME ELEVATION AS ADJACENT DEVICES, COORDINATED BETWEEN TRADES. WHERE INSTALLED DEVICES FEED OR ARE ASSOCIATED WITH FURNITURE, COORDINATE EXACT LOCATIONS WITH FINAL FURNITURE PLAN AND CASEWORK INSTALLER, PRIOR TO INSTALLATION.
- COORDINATE OSP / UNDERGROUND COMMUNICATION PATHWAYS WITH CIVIL ENGINEER PRIOR TO INSTALLATION. COORDINATE OSP / UNDERGROUND COMMUNICATION PATHWAYS INTO BUILDING WITH STRUCTURAL ENGINEER PRIOR TO INSTALLATION. WHERE POSSIBLE COLLATE COMMUNICATIONS OSP / UNDERGROUND PATHWAYS WITH ELECTRICAL OSP / UNDERGROUND PATHWAYS, U.O.N.
- COORDINATE ALL REQUIRED CABLING AND COMPONENTS WITH SYSTEM VENDOR AND/OR INSTALLER.
- ALL 120V POWER WIRING SHALL BE INSTALLED IN A SEPARATE CONDUIT.
- ALL CONDUIT ABOVE GRADE SHALL BE METALLIC, ALL CONDUIT BELOW GRADE SHALL BE PVC UNLESS OTHERWISE NOTED ON DRAWINGS.
- ALL CONDUIT, WIRING AND ASSOCIATED BACK BOXES SHALL BE FULLY
- CONCEALED WITHIN WALLS, FLOORS AND CEILINGS. THE MAXIMUM PULLING TENSION SHALL NOT EXCEED 25 POUNDS TO AVOID
- STRETCHING THE CONDUCTORS. COORDINATE LOCATION OF ALL FIRE RATED PENETRATIONS PRIOR TO PROCEEDING WITH INSTALLATION. ALL PENETRATIONS THROUGH FIRE

SYSTEM IN ACCORDANCE WITH NFPA AND THE AUTHORITY HAVING

BE SCHEDULED THROUGH THE ARCHITECTS AND/OR OWNER.

JURISDICTION. COORDINATE EXTERIOR AND WALL MOUNTED CAMERA LOCATIONS AND MOUNTING HEIGHTS PRIOR TO ROUGH-IN. COORDINATION MEETINGS SHALL

RATED BARRIERS SHALL BE COMPLETELY SEALED WITH A LISTED FIRE STOP



CITY OF OCALA

501 NE 1st Ave.

Ocala, FL 34470

Proiect Na: OCALA SUNTRAN

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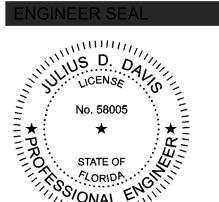
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No: Description:



8/12/2024 4:45:49 PM

GENERAL NOTES

- COORDINATE ALL ELECTRICAL REQUIREMENTS WITH THE DIVISION 22 CONTRACTOR, DIVISION 23 CONTRACTOR AND APPROVED EQUIPMENT SUBMITTALS PRIOR TO ROUGH-IN AND INSTALLATION. REFER TO MECHANICAL AND PLUMBING DRAWINGS FOR FURTHER
- FOR ALL VFD-DRIVEN EQUIPMENT, PROVIDE A VFD-RATED CABLE ASSEMBLY BETWEEN THE VFD OUTPUT AND ASSOCIATED EQUIPMENT AS FOLLOWS; XLPE INSULATION RATED AT 2,000V, SHIELDED, 100% EQUIPMENT GROUND. CONDUIT AND CONDUCTORS BETWEEN SOURCE AND VFD INPUT SHALL BE AS SCHEDULED.

ELE	CTF	RICA	L M	ECH	IANICA	AL EQUIPMENT SCHEDULE										
			FLA							STARTER			DIS	SCONNECT		
TAG	HP	LOAD	(AMPS)	VOLTA	GE PHASE	CONDUIT/WIRE (AWG)	PANEL	CIRCUIT NUMBER	NEMA SIZE	ENCLOS. TYPE	FURN. BY (DIV.)	SWITCH SIZE	NO. OF POLES	ENCLOS. TYPE	FURN. BY (DIV.)	COMMENTS
AC-1		42 VA	0.2	208	V 1	3/4" CONDUIT WITH 3#12 AND 1#12 GROUND	MB	11,13					2		26	PROVIDE MOTORIZED DISCONNECT SWITCH
AC-2		42 VA	0.2	208	V 1	3/4" CONDUIT WITH 3#12 AND 1#12 GROUND	MB	11,13					2		26	PROVIDE MOTORIZED DISCONNECT SWITCH
AC-3		42 VA	0.2	208	V 1	3/4" CONDUIT WITH 3#12 AND 1#12 GROUND	MB	11,13					2		26	PROVIDE MOTORIZED DISCONNECT SWITCH
CU-1		3910 VA	18.8	208	V 1	1" CONDUIT WITH 3#8 AND 1#10 GROUND	MB	11,13				60A	2	NEMA 3R	26	PROVIDE NON-FUSED DISCONNECT SWITCH
EF-1		24 VA	.2	120 '	V 1	3/4" CONDUIT WITH 2#12 AND 1#12 GROUND	MB	7							23	PROVIDE MOTORIZED DISCONNECT SWITCH
EF-2		24 VA	.2	120 '	V 1	3/4" CONDUIT WITH 2#12 AND 1#12 GROUND	MB	21							23	PROVIDE MOTORIZED DISCONNECT SWITCH
ERV-1		30 VA	0.5	208	V 2	3/4" CONDUIT WITH 2#12 AND 1#12 GROUND	MB	35,37				30A	2	NEMA 1	26	PROVIDE NON-FUSED DISCONNECT SWITCH
EWH-1		3000 VA	14.4	208	V 2	3/4" CONDUIT WITH 3#12 AND 1#12 GROUND	MB	30,32				30A	2	NEMA 1	26	PROVIDE NON-FUSED DISCONNECT SWITCH

IMAGE	TYPE	DESCRIPTION	MANUFACTURER	MOUNTING	LUMENS	LAMP/WATTAGE	VOLTAGE
	A	2X2 LUMINAIRE (CCT SWITCH TO 3500)	DAYBRITE: 2SBP3040L8CS 2 UNV DIM	RECESSED	4207	LED/39W	MVOLT
	A1	2X2 LUMINAIRE WITH DRYWALL CEILING ADAPTOR (CCT SWITCH TO 3500K)	DAYBRITE: 2SBP3040L8CS 2 UNV DIM FMA22	NEOLOGEB	4201	ELBIOOVV	MVOLI
	В	4' STRIP FIXTURE (CCT SWITCH TO 4000K)	DAYBRITE: SDS 4 2448 8CST UNV DIM	SURFACE	4850	LED/42W	MVOLT
	С	4' VANDAL WRAP	H.E. WILLIAMS: AVX 4 L16/BLU CPC (MAX45W) DIM UNV	SURFACE	Z	BLUE LED/45W	MVOLT
	C1	4' VANDAL WRAP	H.E. WILLIAMS: AVX 4 L62 835 WPC DIM UNV	WALL @ 8' AFF	6200	LED/57W	MVOLT
EXIT	X	EXIT SIGN	BEGHELLI: PX R SA	SURFACE		LED	MVOLT
(3)	EM	EMERGENCY UNIT	BEGHELLI: BBX SE WH	WALL	600L/HEAD	LED	MVOLT
	WP	WALL PACK (LUMEN SWITCH TO 40% AND CCT SWITCH TO 4000K)	TRULY GREEN SOLUTIONS: WPFS S L C U D EM	WALL	3404	LED/23W	MVOLT

GENERAL NOTES

2. EXIT LIGHTS SHALL BE CONNECTED TO THE NEAREST UNSWITCHED CIRCUIT.

3. FINAL FIXTURE COLORS AND FINISHES SHALL BE SELECTED AND APPROVED BY OWNER/ARCHITECT.
4. COOPER, LITHONIA, AND COLUMBIA LIGHTING MAY SUBMIT APPROVED EQUIVALENTS.

- COORDINATE COLORS AND FINISHED WITH ARCHITECT AND / OR OWNER PRIOR TO
- WHERE A LUMINAIRE IS AVAILABLE IN TRIM-BASED AND TRIMLESS CONFIGURATIONS, COORDINATE THE APPROPRIATE CONFIGURATION WITH THE ARCHITECT PRIOR TO COORDINATE CEILING TYPES WITH THE ARCHITECT PRIOR TO ORDERING. ONE (1)
- LUMINAIRE TYPE MAY BE LOCATED WITHIN MULTIPLE CEILING TYPES. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR FURTHER INFORMATION. PROVIDE INDEPENDENT SUPPORTS TO THE BUILDING STRUCTURE IN ACCORDANCE WITH
- THE APPLICABLE DIVISION 26 SPECIFICATION SECTIONS. WHERE A LUMINAIRE IS EQUIPPED WITH A DIMMABLE DRIVER, BUT IS NOT DEPICTED AS CONTROLLED VIA A DIMMER SWITCH ON THE LIGHTING PLANS, TERMINATE THE 0-10V CONTROL WIRING IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS TO
- ALLOW FOR ON / OFF SWITCHING. VERIFY COMPATIBILITY BETWEEN DIMMER SWITCHES AND DIMMABLE DRIVERS PRIOR TO
- ORDERING.
- COORDINATE LUMINAIRE LOCATIONS, MOUNTING HEIGHTS (WHERE APPLICABLE), SUSPENSION HEIGHTS (WHERE APPLICABLE) AND SUSPENSION METHODS (WHERE
- APPLICABLE) WITH ARCHITECT PRIOR TO ORDERING, ROUGH-IN AND INSTALLATION. START-UP: ELECTRICAL CONTRACTOR SHALL CONTACT LIGHTING CONTROL MANUFACTURER AT LEAST THIRTY (30) DAYS BEFORE TURNOVER OF PROJECT. LIGHTING CONTROL MANUFACTURER WILL BE ON SITE TO PROGRAM THE LIGHTING CONTROL SYSTEM WITH FEEDBACK FROM OWNER.



Client:

CITY OF OCALA 501 NE 1st Ave. Ocala, FL 34470

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Project No: 24020 Project Na: OCALA SUNTRAN RESTROOMS & KIOSK

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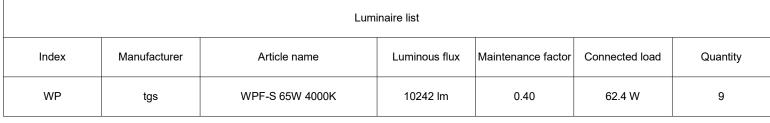
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PERMIT COMMENTS

08/12/24

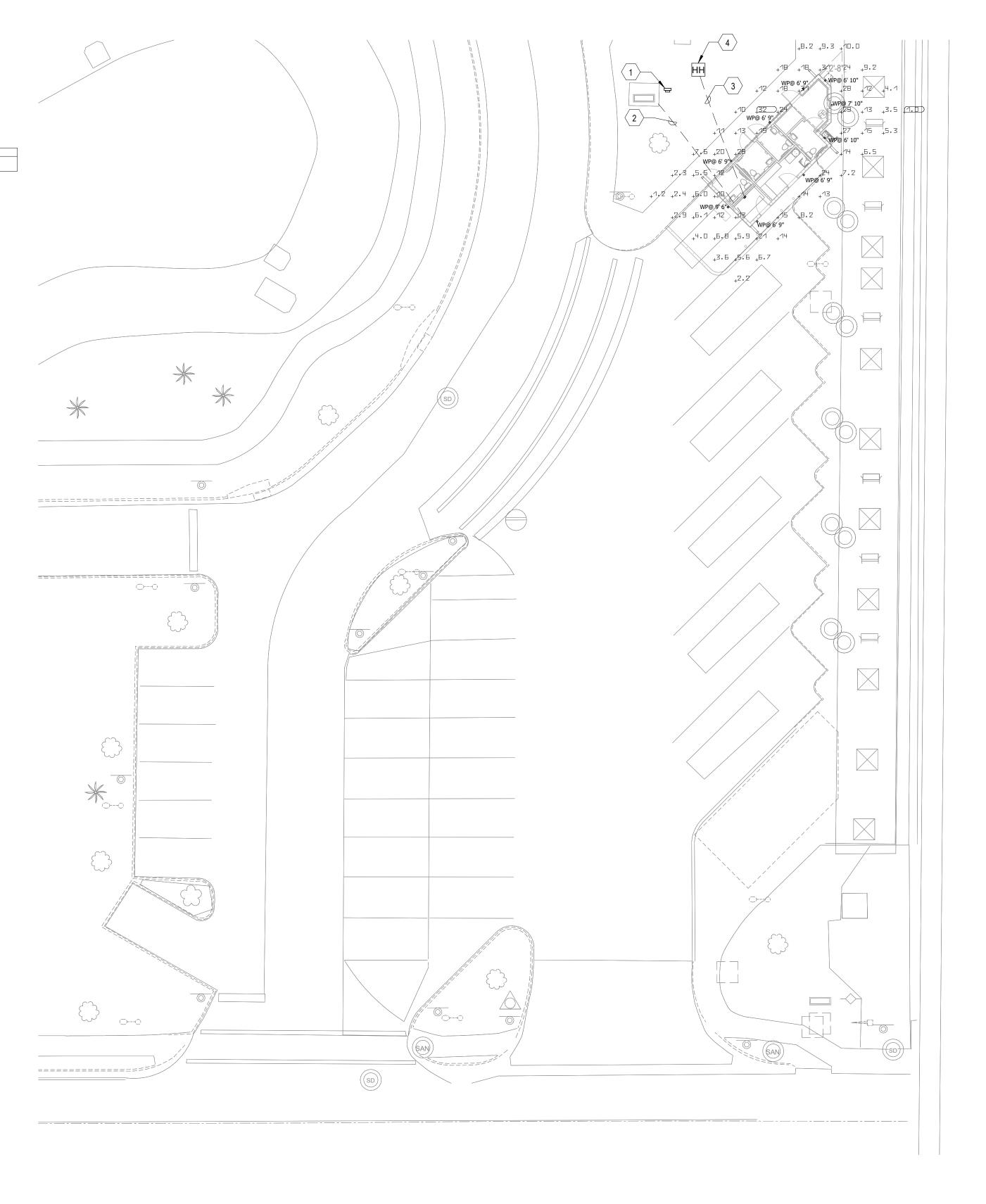
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Name	Parameter	Min	Max	Average	Mean/Min	Max/Min
Building Exterior	Perpendicular illuminance	1.01 fc	32.2 fc	12.6 fc	12.39	31.83

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1) SITE PLAN - ELECTRICAL 1/16" = 1'-0"



GENERAL NOTES

KEY NOTES

PROPOSED UTILITY TRANSFORMER AND METER LOCATION.

SHEET E-501 FOR FEEDER INFORMATION.

2 PROPOSED ROUTING OF UTILITY TRANSFORMER SECONDARY FEEDER. REFER TO

PROVIDE (2) 2" CONDUIT WITH INNER DUCT AND DUCT SEAL ON CONDUIT ENDS FOR TELECOMMUNICATION SERVICE. COORDINATE TELECOMMUNICATION SERVICE REQUIREMENT AND INSTALLATION WITH TELECOMMUNICATION PROVIDED.

PROPOSE LOCATION FOR TELECOMMUNICATION SERVICE CONNECT. PROVIDE 12" X 12" X 12" TRAFFIC RATED PULL BOX WITH LED LABEL "COMMUNICATIONS".

NUMBER

PROVIDE IN-GRADE HANDHOLES AS REQUIRED TO INSTALL POWER AND SIGNAL CABLES.

Ocala, FL 34470

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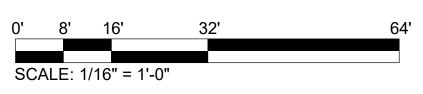
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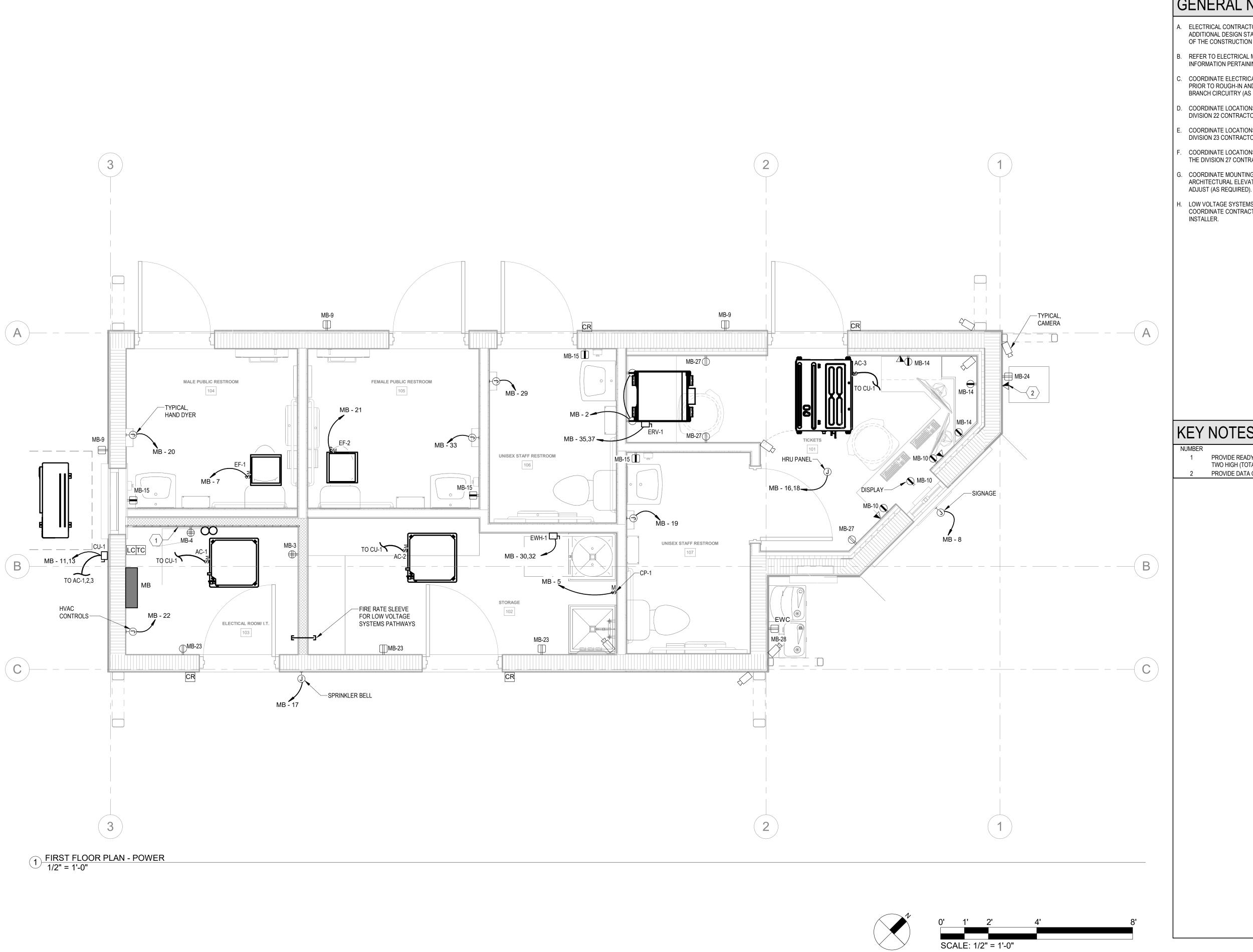
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ELECTRICAL CONTRACTOR SHALL REFER TO THE ELECTRICAL SPECIFICATIONS FOR ADDITIONAL DESIGN STANDARDS. THE ELECTRICAL SPECIFICATIONS ARE A BINDING PART OF THE CONSTRUCTION DOCUMENTS.

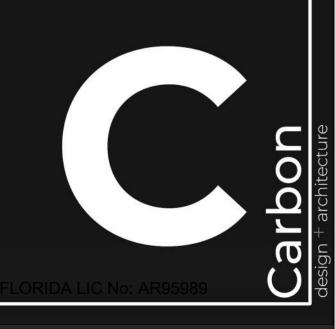
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- REFER TO ELECTRICAL MECHANICAL EQUIPMENT SCHEDULES FOR ELECTRICAL INFORMATION PERTAINING TO MECHANICAL AND PLUMBING.
- COORDINATE ELECTRICAL REQUIREMENTS OF ALL EQUIPMENT WITH MANUFACTURER PRIOR TO ROUGH-IN AND INSTALLATION. ADJUST DEVICE TYPES, SIZES, LOCATIONS AND BRANCH CIRCUITRY (AS REQUIRED).
- COORDINATE LOCATIONS AND REQUIREMENTS OF ALL PLUMBING EQUIPMENT WITH THE DIVISION 22 CONTRACTOR PRIOR TO ROUGH-IN AND INSTALLATION.
- COORDINATE LOCATIONS AND REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH THE DIVISION 23 CONTRACTOR PRIOR TO ROUGH-IN AND INSTALLATION.
- COORDINATE LOCATIONS AND REQUIREMENTS OF ALL TECHNOLOGY EQUIPMENT WITH THE DIVISION 27 CONTRACTOR PRIOR TO ROUGH-IN AND INSTALLATION.
- COORDINATE MOUNTING HEIGHTS AND LOCATIONS OF ALL DEVICES WITH ARCHITECTURAL ELEVATIONS, CASEWORK, FIELD CONDITIONS AND OTHER TRADES,
- LOW VOLTAGE SYSTEMS SUCH AS SECURITY AND DATA ARE SHOWN FOR REFERENCE. COORDINATE CONTRACTOR'S RESPONSIBILITY WITH SYSTEMS SUPPLIER AND/OR

KEY NOTES

PROVIDE READYSPEC FIRE RATED BACKBOARD UTILIZING 48" X 48" PANELS STACKED TWO HIGH (TOTAL OF 8' IN HEIGHT) BEGINNING 6" AFF.

2 PROVIDE DATA OUTLET WITH OUTDOOR RATED COVER.



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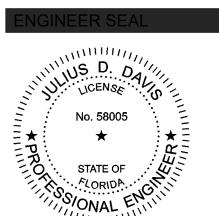
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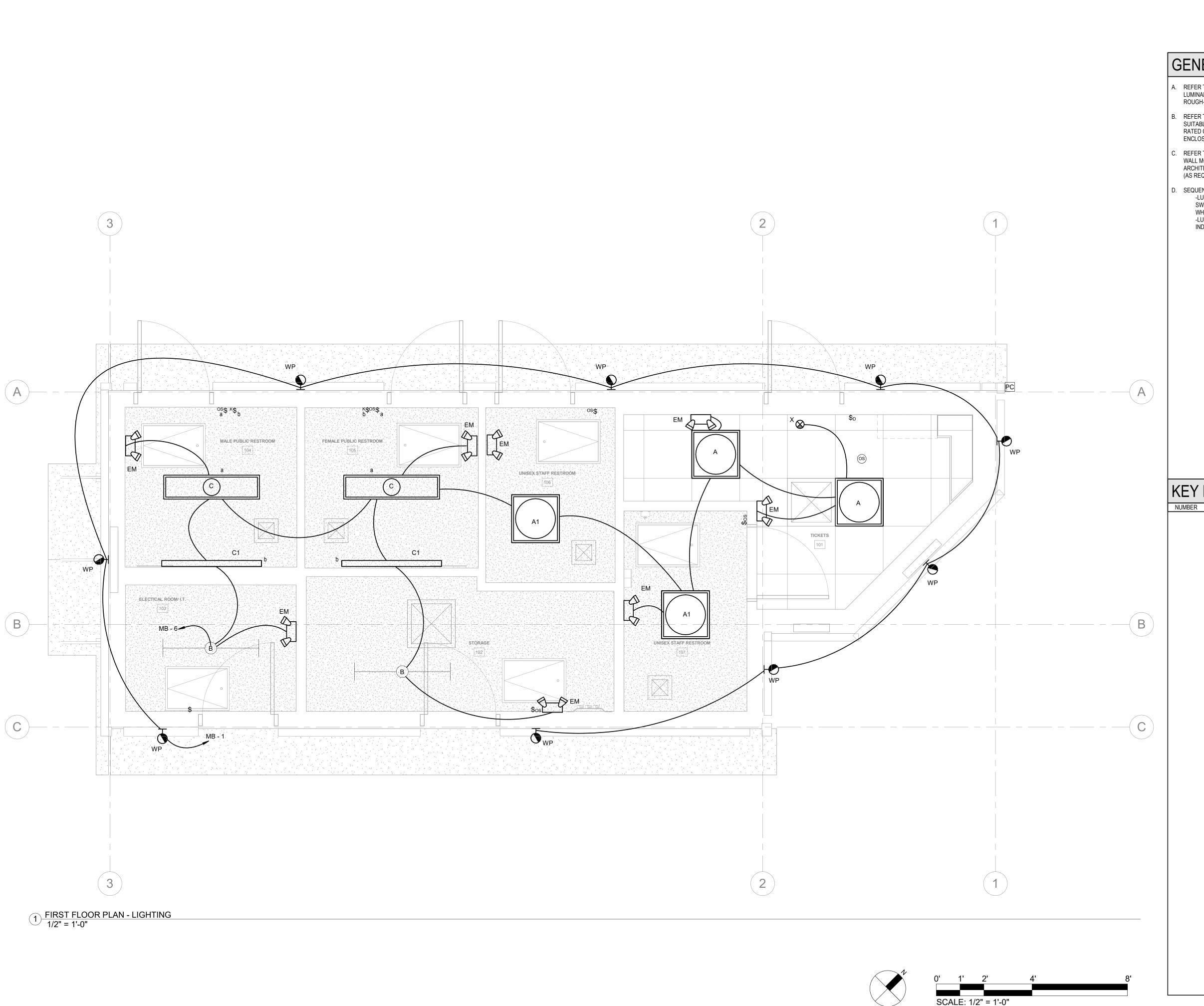
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REFER TO ARCHITECTURAL CEILING PLANS FOR LOCATIONS OF ALL CEILING - MOUNTED LUMINARIES. COORDINATE LOCATIONS WITH ARCHITECT AND OTHER TRADES PRIOR TO ROUGH-IN. ADJUST AS REQUIRED.

- REFER TO ARCHITECTURAL CEILING PLANS FOR FINISHED CEILING TYPES. PROVIDE SUITABLE ACCESSORIES AND / OR MOUNTING HARDWARE (AS REQUIRED). WHERE FIRE RATED CEILING SYSTEMS ARE INDICATED, PROVIDE LISTED, PREFABRICATED, FIRE RATED ENCLOSURES (AS REQUIRED).
- REFER TO ARCHITECTURAL ELEVATIONS FOR LOCATIONS AND MOUNTING HEIGHTS OF ALL WALL MOUNTED LUMINARIES. COORDINATE LOCATIONS AND MOUNTING HEIGHTS WITH ARCHITECT, STRUCTURAL ENGINEER AND OTHER TRADES PRIOR TO ROUGH-IN, ADJUST (AS REQUIRED).
- SEQUENCE OF OPERATIONS: -LUMINAIRE WITHIN RESTROOMS CONTROLLED BY OCCUPANCY SENSOR SHALL SWITCH OFF AFTER NOT DETECTING INDIVIDUAL(S) FOR 20 MINUTES. FULL OUTPUT WHEN INDIVIDUAL(S) ARE DETECTED.
 -LUMINAIRES WITHIN TICKETS SHALL SWITCH OFF AFTER NOT DETECTING INDIVIDUAL(S) FOR 20 MINUTES. MANUAL ON.

KEY NOTES

NOTES

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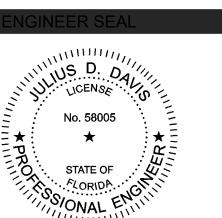
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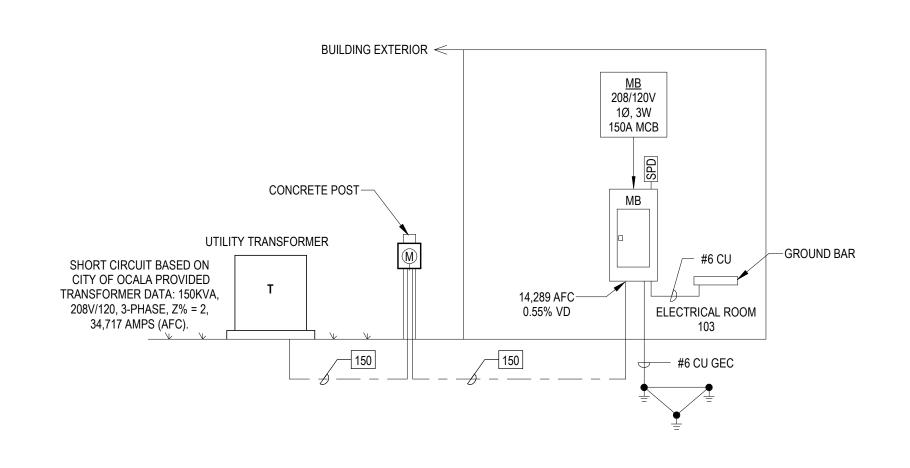


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Notes:		Location: ELECTICA Supply From: Mounting: SURFACE Enclosure:		l. I		Volts: Phases: Wires:		3 Single		N	A.I.C. Rating: 25KA Mains Type: MCB Mains Rating: 150 A MCB Rating: 150 A		
Notes	СКТ	Circuit Description	Trip	Poles		A		В	Poles	Trip	Circuit Desc	ription CK	Γ Note
	1	BLDG EXTERIOR LIGHTING	20 A	1	585 VA	360 VA			1	20 A	RECEPT. RM 101	2	
	3	RECEPT. RM103	20 A	1			360 VA	360 VA	1	20 A	RECEPT. RM103	4	
	5	CP-1	15 A	1	180 VA	506 VA			1	20 A	ROOMS 101 TO 107 LI	GHTS 6	
	7	EF-1	15 A	1			24 VA	180 VA	1	20 A	EXTERIOR SIGNAGE	8	
	9	RECEPT. BLDG EXTERIOR	20 A	1	540 VA	540 VA			1	20 A	RECEPT. RM 101	10	
	11		40.4	_			2018 VA	A 0 VA	1	20 A	SPARE	12	
	13	CU-1	40 A	2	2018 V	4 540 VA			1	20 A	RECEPT. RM 101	14	
	15 17	RECEPT. RM 104 TO 107 SPRINHLER BELL	20 A 15 A	1	180 VA		720 VA	180 VA	2	15 A	HRU PANEL	16 18	
	19	HAND DYER RM 107	20 A	1			1000 VA	1000 VA	1	20 A	HAND DYER RM 104	20	
	21	EF-2	15 A	1	24 VA	180 VA	1000 17	1000 111	1	15 A	HVAC CONTROLS	22	
	23	RECEPT. RM 102,103	20 A	1		100 111	540 VA	1000 VA	1	20 A	TICKET DISPENSER	24	
	25	SPARE	20 A	1	0 VA	0 VA	0.0.7	1000 171	1	20 A	SPARE	26	
	27	RECEPT. RM 101	20 A	1	V 17 1	V 1.71	540 VA	1000 VA	1	20 A	RECEPT. EWC	28	
	29	HAND DYER RM 106	20 A	1	1000 V	A 1500 VA	0.0	1000 171				30	
	31	SPARE	20 A	1	1000 17	1000 171	0 VA	1500 VA	2	20 A	EWH-1	32	
	33	HAND DYER RM 105	20 A	1	1000 V	A 0 VA	0 171	1000 171	1	20 A	SPARE	34	
	35				1000 17		15 VA	0 VA	1	20 A	SPARE	36	
	37	ERV-1	15 A	2	15 VA	0 VA		V 171	1	20 A	SPARE	38	
	39	SPACE		1	10 171	0 171		0 VA	1	20 A	SPARE	40	
	41	SPACE		1				V V/ V	1		SPACE	42	
	43	SPACE		1					1		SPACE	44	
	45	SPACE		1					1		SPACE	46	
	47	SPACE		1					1		SPACE	48	
	49	SPACE		1					1		SPACE	50	
	51		00.4				0 VA		1		SPACE	52	
Ī	53	SPD	30 A	2	0 VA				1		SPACE	54	
			Tota	I Load:	91	61 VA	104	437 VA				,	
			Tota	Amps:		88 A		99 A					
	Legen												
_oad C	lassifi	cation		ected Lo	oad	Demand Fa		Estimated I			Panel	Totals	
ighting				087 VA		125.00%		1358 \					
HVAC/N		₹		036 VA		100.00%		4036 \			Total Conn. Load:		
RECEP	Т.			500 VA		100.00%		5500 \			Total Est. Demand:		
ИISC.			8	978 VA		100.00%	6	8978 \	VA		Total Conn.:		
											Total Est. Demand:	96 A	
lotes:													

		System Information				
		•		Phase		
		120	208	1		
1.09	KVA @ 1.25 DF=		1.363	KVA		
5.50	KVA, 1ST 10KVA	+ 50% OF	REMAI	NDER=		5.500 KVA
4.04	KVA @ 1.00 DF=		4.040	KVA		
0.00	KVA @ .65 DF=		0.000	KVA		
0.00	KVA, TOTAL @10	0%=		-	0.000 KVA	
0.00	KVA LARGEST M	OTOR AT	125% =		0.000 KVA	
0.00	KVA @ 1.00 DF=		0.000	KVA		
8.98	KVA @ 1.00 DF=		8.980	KVA		
19.61	Κ\/Δ					
	Total Dema	nd Load	19.883	KVA		
	5.50 4.04 0.00 0.00 0.00 0.00 8.98	4.04 KVA @ 1.00 DF= 0.00 KVA @ .65 DF= 0.00 KVA, TOTAL @10 0.00 KVA LARGEST M 0.00 KVA @ 1.00 DF= 8.98 KVA @ 1.00 DF=	Voltag 120 1.09 KVA @ 1.25 DF= 5.50 KVA, 1ST 10KVA + 50% OF 4.04 KVA @ 1.00 DF= 0.00 KVA @ .65 DF= 0.00 KVA, TOTAL @100%= 0.00 KVA LARGEST MOTOR AT 0.00 KVA @ 1.00 DF= 8.98 KVA @ 1.00 DF=	Voltage 120 208 1.09 KVA @ 1.25 DF= 1.363 5.50 KVA, 1ST 10KVA + 50% OF REMAIN 4.04 KVA @ 1.00 DF= 4.040 0.00 KVA @ .65 DF= 0.000 0.00 KVA, TOTAL @100%= 0.00 KVA LARGEST MOTOR AT 125% = 0.00 KVA @ 1.00 DF= 0.000 8.98 KVA @ 1.00 DF= 8.980 19.61 KVA 94.28 AMPS	120 208 1 1.09 KVA @ 1.25 DF=	Voltage Phase 120 208 1 1.09 KVA @ 1.25 DF= 1.363 KVA 5.50 KVA, 1ST 10KVA + 50% OF REMAINDER= 4.04 KVA @ 1.00 DF= 4.040 KVA 0.00 KVA @ 65 DF= 0.000 KVA 0.00 KVA, TOTAL @100%= 0.000 KVA 0.00 KVA LARGEST MOTOR AT 125% = 0.000 KVA 0.00 KVA @ 1.00 DF= 0.000 KVA 8.98 KVA @ 1.00 DF= 8.980 KVA

ODDED CONDUCTOD EEEDED SCHEDIJLE (00/75 DATED)											
OPPER CONDUCTOR FEEDER SCHEDULE (90/75 RATED)											
MBOL	NUMBER	PHASE CONDUCTORS	NEUTRAL CONDUCTORS	GROUNDING CONDUCTORS	CONDUIT SIZE	REMARKS					
IVIBOL	OF SETS	(QUANTITY) SIZE - AWG	(QUANTITY) SIZE - AWG	(QUANTITY) SIZE - AWG	(QUANTITY) SIZE	KEIVIAKNO					
150	1	(3) #1/0	(1) #1/0		(1) 2"						



150 1 (3) #1/0

GENERAL NOTES

- CONDUIT RUNS ON THIS RISER ARE SHOWN DIAGRAMMATICALLY AND DO NOT REFLECT ACTUAL FIELD CONDITIONS. PRIOR TO COMMENCEMENT OF WORK, THE CONTRACTOR SHALL FIELD VERIFY ALL ROUTING WITH EXISTING CONDITIONS AND ALL OTHER TRADES.
- COORDINATE SERVICE ENTRANCE CONNECTIONS WITH THE UTILITY CUSTOMER SERVICE PROJECT MANAGER PRIOR TO COMMENCEMENT OF WORK AND PROVIDE ACCORDINGLY FOR A COMPLETE ELECTRICAL INSTALLATION.

- THE CONTRACTOR SHALL MAINTAIN THE FIRE RATING OF ALL WALL AND FLOOR PENETRATIONS THROUGH WHICH CONDUITS PASS.
- ALL ELECTRICAL EQUIPMENT SHALL BE PROPERLY LABELED TO INDICATE POTENTIAL ELECTRICAL ARC FLASH HAZARDS IN ACCORDANCE WITH N.E.C. ARTICLE 110.16.
- INCREASE FEEDER CONDUCTOR AND CONDUIT SIZES (AS REQUIRED) IN ORDER TO MAINTAIN A MAXIMUM CUMULATIVE VOLTAGE DROP OF FIVE (5) PERCENT AT THE FURTHEST DOWNSTREAM EQUIPMENT. VOLTAGE DROP SHALL BE DISTRIBUTED AMONGST FEEDERS AND BRANCH CIRCUITS IN ACCORDANCE WITH GENERAL NOTES AND FLORIDA ENERGY CODE REQUIREMENTS. WHERE EQUIPMENT IS UNABLE TO ACCOMMODATE UPSIZED CONDUCTORS, PROVIDE LUG KITS (AS REQUIRED). WHERE LUG KITS ARE UNABLE TO ACCOMMODATE UPSIZED CONDUCTORS, SPLICE AND TRANSITION TO A SMALLER CONDUCTOR SIZE AT THE POINT OF TERMINATION VIA AN AUXILIARY GUTTER, PULL BOX, WIREWAY, OR OTHER SUITABLE DEVICE.
- CONTRACTOR TO COORDINATE WITH CITY OF OCALA ELECTRIC UTILITY FOR NEW ELECTRICAL SERVICE. PROVIDE REQUIRED SERVICE APPLICATION, LOAD DATA SHEET (LDS), GREEN STICKER ON METER CAN, ETC.. ADD NOTE TO LDS "A SECOND SET OF (4) HOLÉ SPADE LUGS (QUANTITY 4) BACK-TO-BACK WILL BE REQUIRED AND TRANSFORMER WILL NEED TO BE DE-ENERGIZED."

KEY NOTES

NUMBER

Client:

CITY OF OCALA 501 NE 1st Ave. Ocala, FL 34470

Project No: 24020

Project Na: OCALA SUNTRAN RESTROOMS & KIOSK

Carbon design & architecture 263 13th Avenue South

Suite 375 St. Petersburg, FL 33701 O:: 941.362.4312 W:: www.carbonAE.com

6005 Benjamin Rd. Suite A Tampa, FL 33634 O:: 888.891.9713 W:: www.voltairinc.com COA: #27158 Proj: #01.22029

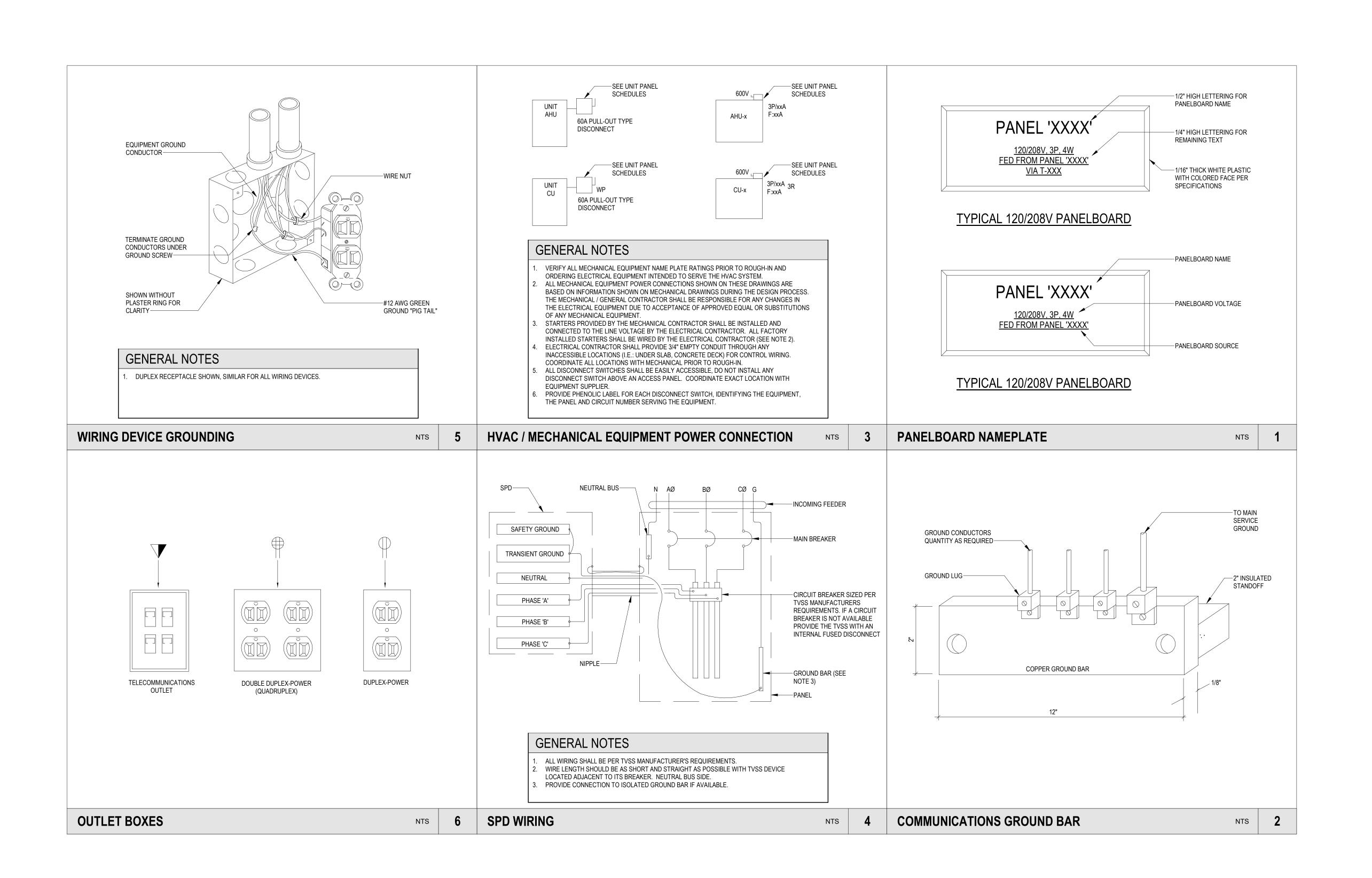
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TO THE BEST OF THE ENGINEER'S KNOWLEDGE, THE PLANS AND SPECIFICATIONS COMPLY WITH THE APPLICABLE MINIMUM BUILDING CODES

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1 RISER DIAGRAM - ELECTRICAL NO SCALE



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Client: CITY OF OCALA 501 NE 1st Ave. Ocala, FL 34470

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Project No: 24020 Project Na: OCALA SUNTRAN RESTROOMS & KIOSK

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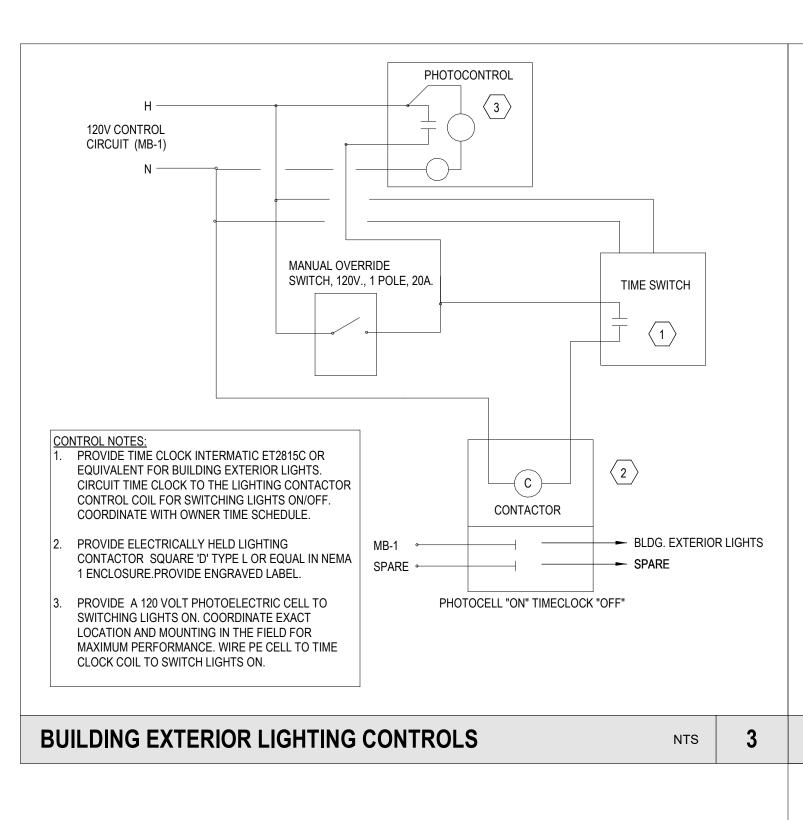
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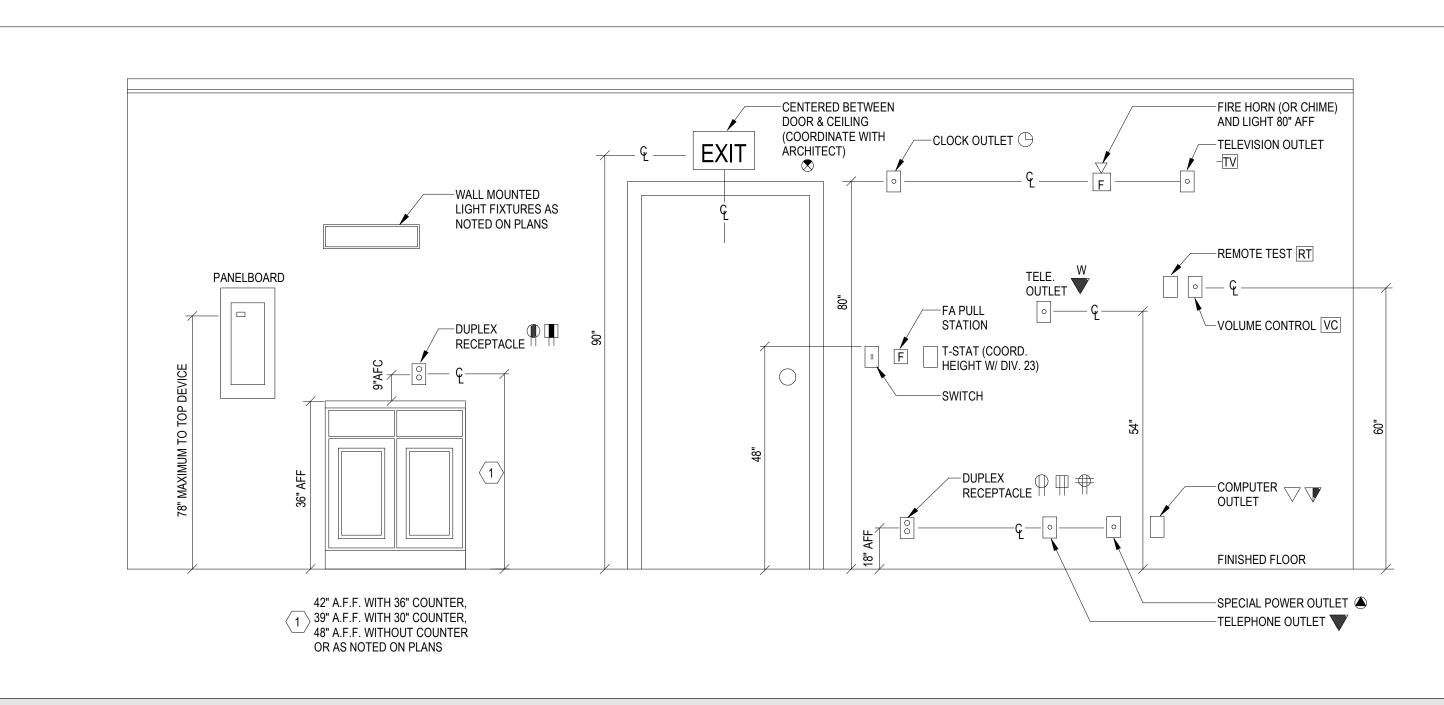
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DEVICE MOUNTING HEIGHTS NTS **EQUIPMENT** GROUND BAR-SERVICE EQUIPMENT METAL FRAME OR -ENCLOSURE (TYP) BUILDING STEEL-BONDING -NEUTRAL BUS CAST IRON GRATE JUMPER-**GROUND WELL** CONNECTION OF FULL SIZE FULL SIZE GROUNDING ELECTRODE G.E.C. TO BUILDING STEEL-CONDUCTOR, (G.E.C.), PER N.E.C. 250.66. (SEE ELECTRICAL RISER DIAGRAM) PRECAST CONCRETE GROUND INSPECTION -#4 CU GROUND CONDUCTOR TO BUILDING FOUNDATION REINFORCING STEEL. CONCRETE-ENCASED GROUNDING FULL SIZE G.E.C. ELECTRODE PER N.E.C. 250.52 (A) MINIMUM (SEE RISER DIAGRAM)-OF 20'-0" -METAL UNDERGROUND WATER PIPE -EXOTHERMIC CONNECTION -NONMETALLIC CONDUIT 3/4" x 10' COPPER-CLAD SLEEVE, TYPICAL GROUND ROD-20'-0" MIN. -3/4"x10' COPPERCLAD STEEL GROUND ROD, (MINIMUM OF 3), WITH INSPECTION WELD INSPECTION WELL DETAIL **GENERAL NOTES** OBTAIN TWENTY-FIVE (25) OHMS MAXIMUM RESISTANCE READ WITH AN OHM METER, USING TWO (2) REFERENCE RODS. IF TWENTY-FIVE (25) OHMS CANNOT BE ACHIEVED, CONTRACTOR SHALL PROVIDE ADDITIONAL GROUND RODS UNTIL TWENTY-FIVE (25) OHMS HAS BEEN OBTAINED. **GROUNDING ELECTRODE SYSTEM** NTS



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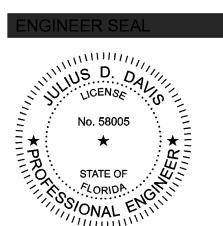
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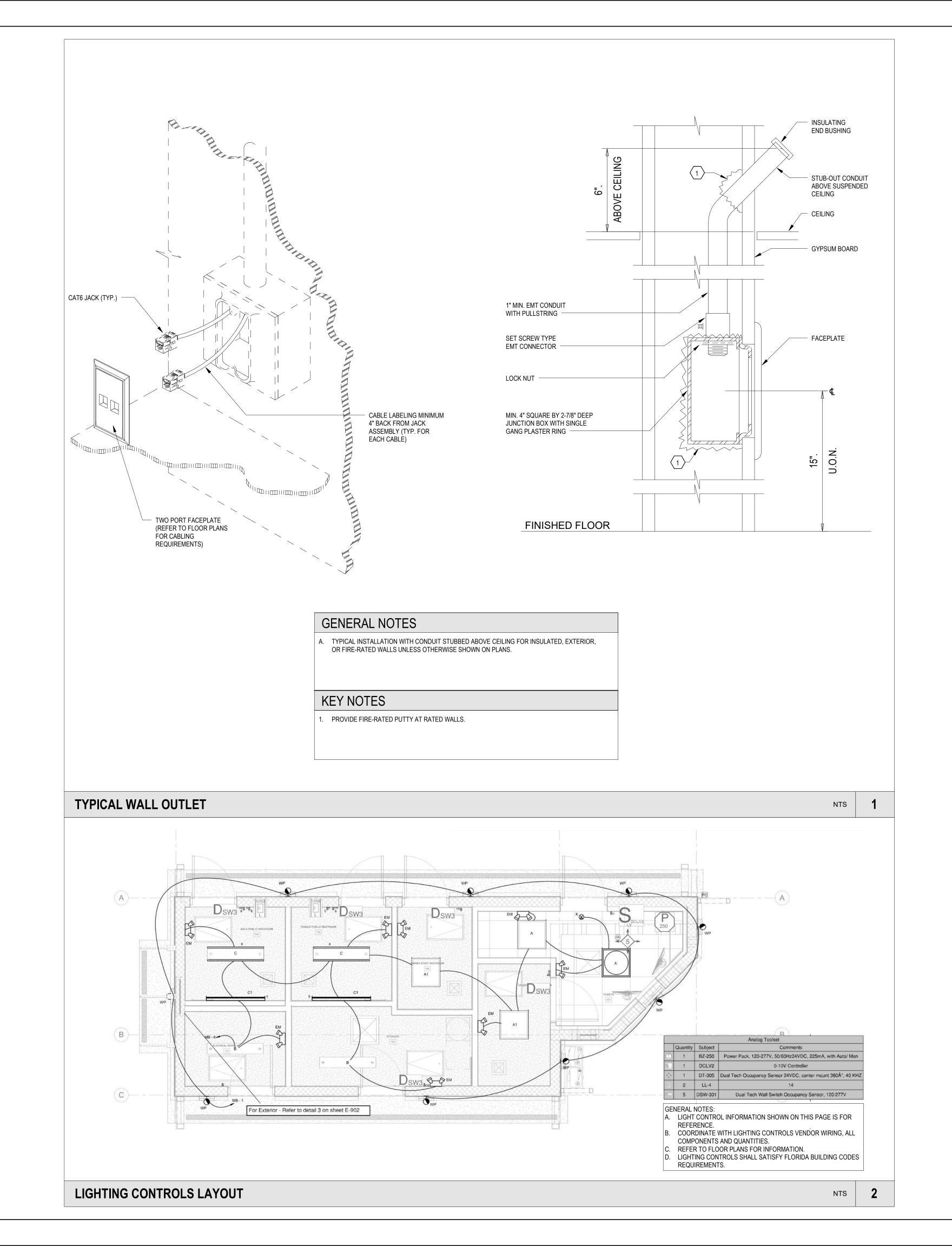
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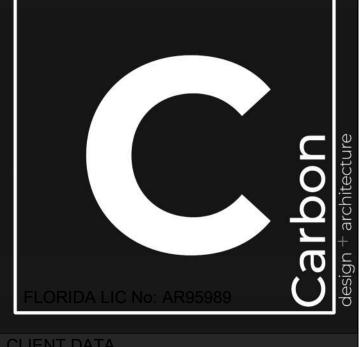


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DETAILS - ELECTRICAL



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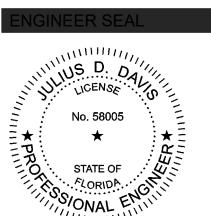
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