

ELECTRICAL SPECIFICATIONS GENERAL

- A. All work shall be performed or installed in strict accordance with the following (each contractor and subcontractor shall be responsible for compliance):
1. NFPA 70 National Electrical Code (2020 Edition)
2. Florida Building Code (2023, 8th Edition)
3. Florida Fire Prevention Code (2023, 8th Edition)
4. NFPA 72 National Fire Alarm and Signaling Code (2019 Edition)
5. NFPA 101 Life Safety Code (2021)
6. OSHA Regulations
7. All other applicable rules, regulations, and codes of local, state, and federal governments having lawful jurisdiction.
B. Furnish all labor, materials, fixtures, equipment, tools and service necessary for installation, testing, and adjusting of all electrical systems. Electrical systems shall be furnished and installed in compliance with the Drawings, Specifications, and any Addenda thereto.
C. All equipment and materials provided shall meet or exceed specification requirements, be new and unused (unless furnished by the owner), listed under an UL category, and shall be a product of a manufacturer regularly engaged in producing such equipment and materials for at least five years.
D. Drawings and Specification shall be understood to cover, according to their intent and purpose, all complete electrical systems. Work shown on the drawings yet not specified, and work specified yet not shown on the drawings shall be performed as mentioned in both.
E. Minor items and accessories reasonably inferred as necessary for the complete and proper operation of any system shall be provided by contractor or subcontractor for such system whether or not they are specifically called for.
F. The Electrical Contractor shall include in his bid the cost of furnishing, installing, maintaining, and removing all material and equipment required to provide temporary lights and power to perform the work of all trades during construction and until work is complete. Adequate lighting and receptacle outlets for operation and maintenance shall be provided throughout the project - including trailers, trailers, field offices, and temporary toilet enclosures - and shall be extended as construction progresses.
G. Prior to bidding, the Electrical Contractor shall coordinate with the electric power company to ascertain, in detail, the division of work, and the extent of performance by the Power Company.
H. Each panelboard shall be connected directly to the branch circuit breaker (unswitched all control devices, switches, contactors, timeclocks, photocells, etc.). Contractor shall provide additional conductor with switched lighting circuit conductor as necessary to meet this requirement.
I. Labels shall be laminated plastic engraved, with letter size no less than 3/8 inch in height. Exterior labels shall be UV resistant and weatherproof.
J. Furnish all equipment and personnel and conduct all tests required to secure approval of the installation.
K. Safety Tests
1. All systems shall test free from short circuits and grounds, shall be free from mechanical and electrical defects, and shall show an insulation resistance between phase conductors and ground not less than that specified by the cable manufacturer.
2. All systems shall show proper neutral connections.
3. Key-switch interlock mechanisms shall be demonstrated to perform as intended.
M. Upon completion of each part of the electrical system, the contractor shall demonstrate to the Engineer that each branch circuit removed is installed with proper covers, safeties, controls, etc., and that all are in proper working order.
N. A set of "red-lined" electrical drawings shall be carefully maintained at the job site by the contractor. Markings shall be made legibly on the drawings in red on a daily basis so the drawings will continuously show deviations and other relevant information required by the Owner and Engineer. Please note: If Engineer is contracted to draft as-built markings, the resulting documents will not be signed & sealed by the Engineer. Certification of any as-built documents or constructed items, if required, would fall under the responsibility of the contractor.
O. Shop drawings and product data shall be submitted on all equipment, fixtures, etc. Shop drawings shall be labeled in the same designation as individual piece of equipment for which they are being submitted, the proper designation shall be the designation used on the various equipment schedules and in other Sections of this Specification, i.e. Fixture A, Panel B, MDP, etc. Each submittal package shall be combined into a single PDF file and emailed (or otherwise electronically transmitted) to the Engineer.
P. Job condition shall be determined prior to bidding in the following manner:
1. Site visit to determine:
a. Existing conditions
b. How and where materials will be delivered and stored
c. Special problems encountered during construction
2. Examine all Contract Drawings and Specifications to determine:
a. Type of extension to be used
b. Nature and extent of work of other trades
S. General
1. Contract Drawings show the intended arrangements and sizes of principal apparatus and devices to be provided under this Contract. Drawings shall be followed as closely as actual building construction will permit.
2. Dimensions of work as indicated on Plans are not guaranteed to be as-built dimensions.
3. Measurements shall not be scaled from Drawings and used as definite dimensions for layout or fitting of work in place.
4. Layout of equipment, as shown on the plan, shall be checked and exact location determined by dimension of equipment approved by the Architect.
5. Consult the Drawings for all dimensions, locations of partitions, sizes of structural members, foundations, etc.
6. Do not make final layouts until shop or equipment drawings are approved and job conditions verified.
T. Coordination
1. Work shall be coordinated between all Contractors, Subcontractors, Installers, Suppliers, Trades, etc. to:
a. Insure a neatly fitted installation
b. Eliminate interferences
c. Maintain maximum headroom and clearances and any interference which develops or is foreseen and cannot be resolved by the affected trades, shall be handled as follows:
2. Any interference which develops or is foreseen and cannot be resolved by the affected trades, shall be handled as follows:
a. Cease installation of the portion of the work which is in conflict.
b. Continue work on items which are not in conflict.
c. Notify the Architect immediately.
d. Architect's decision shall be final as to any relocation, reworking, removal, or change.
e. No additional compensation will be allowed for removal, relocation, repairs or changes required by interferences.
U. Clear away all debris, surplus materials, etc. resulting from work. Maintain job and equipment in clean, first-class condition.
V. Clean all panel boards, switches, boxes, etc., and leave them in a ready-to-use condition.
W. All panelboard and junction box covers shall be secured with proper screws or bolts.

- X. Where factory finish is provided on equipment, each mared or damaged surface shall be touched-up or refinished in accordance with manufacturer recommendations.
Y. In addition to provisions and stipulation set forth in other Sections of these Specifications, provide various types of protection as follows:
1. Protect finished floors from chips and cutting off by use of metal chip receiving pan and oil-proof floor cover.
2. Protect surfaces and items from over-spray and drips due to painting and finishing work associated with electrical work.
3. Protect gills, diffusers, panels, openings, and vents as necessary to prevent intrusion of smoke, dust, and debris into devices, equipment, and systems. Ensure protection of heat-generating equipment does not cause equipment to overheat.
4. Stored equipment shall be covered to exclude dust and moisture, shall be protected from weather, shall be protected from entry of foreign materials, and shall be protected from theft and vandalism.
Z. Concrete housekeeping pad or pads shall be provided for floor-mounted equipment, U.N.O. Concrete shall be cast no less than 4" thick, shall be rated no less than 3000 PSI, and shall be cast with covered, chamfered top perimeter edges. Housekeeping pad vertical surfaces, chamfers, and a stripe 6" wide around the top perimeter of the pad shall be painted safety yellow.
AA. Contractor shall be responsible for photographing the following items, or ensuring that the items are safely observable - with covers removed or easily removable - during substantial inspection: incoming feeder terminations at main disconnecting means, main bonding jumper, grounding electrode connection(s) at each system (main and separately derived), transfer switch terminations, transformer terminations, system bonding jumper(s) if applicable, isolated neutral at downstream equipment, panels, switchboards, switchgear, motor control centers, starters, disconnects, and pull-boxes. Each penetration of a raceway shall be protected by a wire, conduit, or cable tray shall be protected by a UL listed fire-stop system (tested per ANSI/UL 1479 or ASTM E814) with a rating no less than the rating of the assembly, and in no case less than 1-hour.
AC. Self-illuminated exit signs, emergency lighting fixtures, and emergency lighting drivers shall be connected to unswitched conductors. Such conductors shall be connected directly to the branch circuit breaker (unswitched all control devices, switches, contactors, timeclocks, photocells, etc.). Contractor shall provide additional conductor with switched lighting circuit conductor as necessary to meet this requirement.
DEMOLITION
A. Demolition of each noted item shall include complete removal of associated dedicated circulating back to source.
B. Demolition of circulating shall include complete removal of cables, conductors, raceway, conduit, tubing, conduit bodies, fittings, boxes, labeling, splices, lugs, mounting hardware, hangers, anchors, and supporting means. Empty raceway concealed below concrete floors, within concrete, or within existing-to-remain walls may be abandoned in place. Exposed conduit at floor stub-ups, at wall stub-outs, and at cast-ceiling stub-outs shall be cut off and shall be ground below surface; the affected surface shall be repaired to be flush with adjacent surfaces and shall be refinished to match adjacent surfaces.
C. For each branch circuit removed:
1. The associated circuit schedule and source labeling shall be updated to identify existing breaker as "SPARE".
2. The associated existing branch breaker shall be opened (switched to the "OFF" position).
D. An appropriately sized cover or plug shall be provided to close each opening - in raceways, boxes, and enclosures - caused by work under this project.
E. Surface openings resulting from demolition shall be sealed, patched, repaired, and finished to match existing adjacent surfaces.
F. Each existing-to-remain item damaged by demolition work shall be replaced or repaired to previous condition.
G. Dedicated support accessories - such as concrete pads, tank saddles, support piers, equipment curbs, pole bases, posts, stanchions, trunions, anchors, guy wires, suspension means, and other support accessories - shall be removed if the item supported is removed.
H. Each surface exposed by the removal of a surface-mounted item shall be cleaned and repaired to match adjacent surfaces.
I. Landscaping, sod, sidewalk, asphalt and grading damaged by demolition work shall be repaired to match surrounding area.
J. Disposal of demolished items shall be in accordance with all applicable regulations.
K. Fluids shall be removed from demolished items prior to transport.
EXCAVATION AND BACKFILL
A. Contractor shall coordinate with the General Contractor to determine the extent of his responsibility to perform the excavation and backfilling related to the electrical scope of work.
B. Contractor shall be responsible for contacting the appropriate "CALL BEFORE YOU DIG" authority prior to commencing excavation activities.
ROUGH-IN
A. Contractor shall rough-in for all equipment, fixtures, etc., in building whether or not such equipment is furnished by this Contractor or under other divisions of Specifications or by Owner.
B. Determine in advance the location and size of all openings and chases necessary for proper installation of all work and have openings and chases A provided during construction.
C. Install all inserts for hangers and supports of electrical work as general construction progresses.
D. Rough-in openings in masonry, brick, or stud walls shall be cut, not broken or chiseled.
E. Openings shall not be larger than the coverplate or box which will fit over it.
F. A sleeve shall be required at each location where exposed conduit is to pass through a concrete wall, concrete floor slab, or masonry wall. Sleeves installed below grade or where subject to high water conditions shall be installed water tight.
BASIC MATERIALS & METHODS CONDUIT
A. Rigid metal conduit (RMC) shall be steel, hot dip galvanized, minimum trade size shall be 3/4".
B. Electrical Metallic Tubing (EMT) shall be steel, flexible or hot dip galvanized. EMT fittings shall be compression type, concrete-light.
C. Electrical Metallic Tubing shall be galvanized steel (aluminum not acceptable). Sealite type UA or EF shall be used for all motor connections.
D. Liquid-tight Flexible Metal Conduit shall conform to UL360.
E. Rigid Non-metallic conduit shall be listed for use as electrical raceways. PVC shall be high density Type I Schedule 40, unless noted otherwise.
F. Connectors shall have insulated throats.
G. All fittings and connectors shall be steel or malleable iron. Pot-metal and die cast zinc not acceptable.
H. Power conductors shall be installed in conduit.
I. Fittings or symmetrical bends shall be required

- wherever right angle turns are made in exposed work.
Bends and offsets shall be avoided wherever possible, but where necessary, they shall be made with an approved conduit bending tool or machine.
K. All conduit joints shall be cut square, reamed smooth and drawn up tight.
L. Conduit shall be installed in horizontal and vertical runs in a manner as to ensure against trouble from the collection of trapped condensation and shall be arranged so as to be devoid of traps.
M. Special care shall be used to ensure that aboveground conduit runs are parallel or perpendicular to walls, structural members, building lines, or intersections of vertical planes and ceiling.
N. During construction, all conduit work shall be protected to prevent introduction of water, dust, or debris into conduits, fittings or boxes.
O. Entirely plugged or capped conduit shall be protected from damage, accumulation, debris, and residue prior to use, or the conduit shall be replaced.
P. All conduits in floors or below grade shall be swabbed free of debris and moisture before wires are pulled.
Q. Conduit noted as "SPARE", "EMPTY", or "FOR FUTURE USE" shall be provided with pulling and reeling ends. The photos shall be taken in one place. Outlets shall be labeled on both ends of run.
R. Contractor shall properly supported per NEC and as specified herein.
S. Expansion fittings or other approved devices shall be used to provide for expansion and contraction where conduits cross building expansion joints and as recommended by manufacturer for long runs.
T. Each conduit passing from conditioned to non-conditioned space (such as from interior to exterior) or through walls, partitions, or ceilings with temperature differences greater than 15°F (such as from conditioned building to refrigeration unit) shall be sealed internally with duct seal or similar at the penetration.
U. A flexible grounding strap shall bridge expansion joints and shall be bonded to conduit.
V. Conduit, boxes, devices, lights, and other electrical items shall be located to eliminate interference with movable or serviceable items, such as eyebolts, cranes, equipment access doors, lifts, roll-up doors, valves, or other items that may require clearance.
W. Conduit above slab shall be run concealed in the walls or ceilings unless specifically noted to be exposed. Note exceptions include electrical and mechanical rooms.
X. Conduit under ground shall be buried no less than 24 inches below finished grade for non-service entrance, and no less than 30 inches below finished grade for service entrance (unless utility requires greater depth).
Y. Conduits installed for incoming utilities (such as service entrance power, telephone, data, cable TV, etc.) shall comply with the appropriate utility requirements. Contractor shall coordinate with utility inspection of installation prior to backfill.
Z. Conduit bushings shall be provided at the termination point of all conduit runs.
AA. Underground raceway shall be thoroughly photographed by the contractor prior to backfill or concrete pour. The photos shall be taken in sufficient quantity and in such a manner to enable the Engineer and Owner to accurately discern the raceway routing, burial depth, type of bends (coated RMC, for example) and if applicable, duct bank layout and reinforcing steel.
AB. Routing with conduits less than 2" trade size is intentionally not typically depicted on drawings, but shall be provided. Routing for conduit 2" trade size and larger is typically depicted to show intended routing. Exact routing of conduit shall be determined in the field for ease of installation provided that the following criteria is met:
1. All conduit, home runs, and circuits are made to the panel specified on the drawings, unless specifically noted to be routed via a control device (such as a switch, contactor, or time clock).
2. Conduit runs shall comply with NEC.
3. Conduits shall not conflict with other trades.
4. Conduits shall not encroach on spaces dedicated for clearance or accessibility.
5. Routing shall not render covers or doors inaccessible or non-removable.
6. Final conduit routing shall be made via one of the following methods (method must also be appropriate for the environment installed):
1. Flexible metal conduit with stranded conductors
2. Liquid-tight flexible metal conduit with stranded conductors
3. Armored flexible conduit which shall be waterproof for any locations outside, in kitchens, or any inside area subject to water, heavy moisture, condensation, etc.
AC. SPECIFIC CONDUIT TO BE USED
1. All conduit and fittings shall be in new, unused condition, shall be free from rust, dirt, moisture, kinks, flats, cuts, or other distortions of shape.
2. Concealed and exposed conduit in buildings above slab shall be EMT with compression fittings. IMC and RMC also permitted.
3. Straight conduit embedded in concrete shall be PVC with waterproof joints or PVC-coated RMC.
4. Exposed conduit outside building, above grade shall be RMC with threaded waterproof fittings.
5. Underground straight conduit shall be PVC with waterproof joints.
6. Underground bends, penetrations through slabs-on-grade, and stub-ups from final bands up to equipment shall be PVC-coated RMC with radius of bend no less than 8x trade size of conduit.
SUPPORTS AND HANGERS
Conduit shall be supported on structural building members such as columns, beams, purlins, block, studs, or joists.
B. Conduit shall be supported on galvanized or aluminum brackets, clamps, or straps.
C. Conduit hangers shall be attached to building steel by beam clamps.
D. Hangers and supports shall be attached to wooden stud walls with wood screws.
E. Hangers and supports shall be attached to masonry with expansion type anchors (shield).
F. Supports shall be channel type supports such as manufactured by Uni-Strut, Globe, Kindorf, or equal.
G. Supporting means shall not be attached to roof decking.
PANELBOARDS
A. The panelboards shall be of dead-front construction with code gauge galvanized steel box, and door-in-door hinged front finished in gray lacquer. Doors shall be provided with a plastic amber lock with flush handle and typed directory card and holders.
C. See panel schedule for basis of design brand and model.
D. Furnish and install electrical system as described on Drawings, panel schedules and electrical wiring diagram.
E. Panels shall be surface mounted or recessed (flush) as specified on the panel schedule.
F. All panelboards shall be circuit breaker type unless noted otherwise.
G. Voltage, phase, wires, poles/breaker space as specified on schedules and riser.
H. Solid neutral.
I. Panels rated at 10,000 AIC shall have stab-in breakers. Panels rated greater than 10,000 AIC shall have bolt-on breakers.
J. Provide fully rated panelboards (and breakers). Series-rated panelboards are not permitted, unless specifically noted.
K. Breakers size and quantity as shown on Schedules.
L. Breakers listed as "spare" shall be furnished and installed.
M. Panel listed with "space" shall be provided with extra space for future breakers. Each "space" shall be one single pole, unless noted otherwise. For L-line (and similar) panels, each "space" shall be understood to be the mounting space required to accommodate one

- 20A single-pole breaker.
P. Panelboard shall be provided with no less than the number of breaker spaces (poles) or mounting space H indicated on the panel schedules. If not noted, provide no less than 42 poles.
Q. Unless otherwise indicated on Drawings, install all panels with the top of the trim 6" above finished floor level.
R. Install panelboards in location shown on the Drawings.
S. Panelboards shall be mounted with screws, bolts, or anchors as required.
T. Panels shall not be supported by conduit alone.
U. Panelboards shall be internally and externally clean and shall be free from dust, debris, and non-intentional materials. Panelboards shall be vacuumed and wiped down (internally and externally) prior to substantial inspection.
V. Neutral and equipment grounding terminals shall be electrically isolated, unless specifically noted otherwise.
W. Panelboard cover shall be provided with engraved phosphoric plastic identification and wiring color code nameplates. Refer to detail on drawings.
X. Mount a typewritten directory behind glass or plastic on the inside of each panel door, showing panel information, circuit number, and complete description of all outlets on each circuit. Handwritten edits are not acceptable. Directory shall be installed prior to substantial inspection.
CIRCUIT BREAKERS
J. Breakers shall be of the size specified on the Panel Schedules, unless otherwise required to match equipment nameplate MOCP or MOP values.
K. Breakers rated greater than 10,000 AIC shall be bolt-on.
L. Breakers shall have visual trip indicators.
M. Breaker sizes shall be verified against equipment it serves.
N. On three-phase panels, breakers shall alternate between bus-poles to provide a balanced load.
O. Furnish and install all circuit breakers as described on the panel schedules and drawings.
P. Contractor shall be responsible for confirming brand, breaker type, mounting type, kits, accessories, and compatibility of new breakers to be installed in existing panelboards. Existing panelboard information and characteristics shall be field-verified.
Q. Unconnected, spare, and future breakers shall be switched to and remain in the "OFF" (open) position.
FUSES
A. Provide size, type, and class as noted. If specifics are not noted, provide fuse suitable for application.
B. Voltage rating of fuse shall match or exceed circuit voltage.
C. Provide clips or kit as required to correctly mount the specified fuse in designated equipment.
DISCONNECTS
A. Ampere-rated for general disconnects.
B. Horsepower-rated for motor disconnects.
C. Meet Federal Spec. W-S-8855 for Heavy Duty Switches.
D. UL Listed.
E. Grey baked enamel finish.
F. Quick-break operating mechanism.
G. Visible handle.
H. Meets NEMA KS1-1975 for Type HD.
I. Indoor disconnects shall be NEMA 1, unless noted otherwise.
J. Outdoor disconnects shall be NEMA 3R, unless noted otherwise.
K. Supply and install a disconnecting means for each motor where required by N.E.C. or if shown on drawings.
L. Locate disconnect as shown or as near as possible to motor within N.E.C. compliance.
M. Disconnect shall be an integral part of any piece of equipment shall be acceptable in lieu of a safety switch.
N. Switches shall be fused where shown on drawings.
O. Motor-rated switches shall be acceptable as disconnects for motors of 1/3 HP or less.
P. Disconnect switches shall be provided with machine-produced labels (on front cover) to indicate circuit source, circuit number, and load served.
STARTERS
A. Provide magnetic or manual starters and associated equipment as required for each motor.
Each starter shall have properly sized thermal overload protection for the motor it serves, based on nameplate FLA markings.
B. Overloads shall be manual reset type.
D. Supply and install magnetic motor starters with appropriate control buttons or switches for each piece of equipment unless other specifications call for starter to be furnished with equipment.
E. Contractor shall coordinate with both general contractor and mechanical contractor to assure that starter has a disconnect for all equipment.
F. Where both a disconnect switch and motor starter are required in the same location, a combination starter shall be acceptable in lieu of individual components.
WIRING DEVICES
A. Model or part number listed below are for reference and establishing quality.
B. In so far as practical, all wiring devices shall be of the same manufacturer.
C. All catalog numbers listed are Hubbell unless noted.
D. Acceptable manufacturers shall be Hubbell, Pass and Seymour, Leviton, or Arrow-Hart.
E. Provide white device color and cover plate, unless directed otherwise by owner, architect, or .
F. Weather-resistant type receptacles shall be provided for wet locations and exterior locations, non-conditioned locations, devices noted by "W/P", devices otherwise noted to be provided with a weatherproof cover, and all locations required by NEC.
G. Tamper-resistant type receptacles shall be provided in noted locations and in all locations required by NEC.
H. USB receptacles shall be provided in noted locations. USB receptacles shall include tamper-resistance rating. USB receptacles shall have (2) NEMA 5-20R 125VAC receptacles, (1) type A USB port, (1) type B USB port. USB output shall be 5VDC 5A. Hubbell noted otherwise.
I. General Purpose Receptacles and single appliance type receptacles.
1. General purpose receptacles shall be specification grade, 120 volt AC, 20 amp, NEMA 5-20R, grounding type, capable of accepting 15A and 20A plugs.
2. Catalog numbers shall be:
a. Single receptacle: 5361**
b. Duplex receptacle: 5362**
** additional model number letters as required to designate tamper-resistance, GFI, color, weather resistance, etc. as required.
Special purpose receptacle
1. Special purpose receptacles shall be installed as specified on drawings and shown to match equipment and appliance cord.

- 2. Refer to plan and/or equipment schedule for NEMA configuration.
Switches
1. General light switches shall be specification grade, 125-277 volt, 20 amp, heavy duty.
2. Catalog numbers shall be: SPST 1221 DPST 1222 3-Way 1223 4-Way 1224
3. Motor rated switches shall be used for any switches controlling single phase motors.
4. Motor rated switches shall be 120-277 volt and rated in accordance with the voltage and amperage of the motor.
Cover plates
1. In finished areas with flush boxes: All cover plates shall be white thermoplastic smooth nylon for finished areas. Thermoplastic or residential grade materials not acceptable.
2. In areas with exposed raceway and surface-mounted boxes: cover plates shall be galvanized steel, 4" square.
3. Exterior receptacles shall be provided with metallic, gasketed, "extra-duty," weatherproof, while-in-use covers.
4. Weatherproof (yet not necessarily while-in-use) type cover shall only be permitted in locations noted on plans. Such cover shall have gasketed, hinged door(s) over receptacles and shall be weatherproof when no-plug is inserted. Such cover shall not protrude more than 1" from the finished surface.
5. Contractor shall provide adhesive label on each cover plate to indicate source panel and circuit number. Also, circuit number shall be written on back side of cover plate.
6. Catalog numbers:
a. Switches: Single gang—P1, Two gang—P2, Three gang—P3
b. Single Receptacle: 53091
c. Duplex Receptacle Single gang P8, Two gang P82
d. Special purpose outlets: Single gang P7882, Duplex 7423
e. Switch Weatherproof covers: 7420
f. WP while-in-use receptacle cover: WP26E
g. Weatherproof (not while-in-use): 5205WO, 5205WO, 5226
GROUNDING AND GROUND FAULT PROTECTION
A. All equipment and circuits shall be grounded and bonded in accordance with the National Electrical Code, Article 250.
B. Provide ground fault protection for all circuits noted on the drawings as GFI, all receptacles indicated on the drawings via GFI receptacle symbol, all restroom/bathroom receptacles, all receptacles in exterior locations, and for all locations required by N.E.C. Standard receptacles shall be considered ground fault protected with the GFI protection provided in an upstream GFI receptacle or GFI breaker.
C. Provide ground fault protection on all temporary construction circuits as required by OSHA or the National Electrical Code.
D. Service-entrance neutral and separately-derived neutrals shall each be bonded to the grounding electrode system once and as located on the electrical riser diagram.
E. Grounding electrode conductors shall be sized per N.E.C., yet no smaller than shown on drawings.
F. All solid-colored equipment grounding conductor, sized in accordance with Table 250.122 of the N.E.C.
G. All metallic raceway shall be bonded to the equipment grounding conductor.
H. Provide driven ground rods) as close as possible to the service entrance location, sized and separated as shown on the drawings and in accordance with N.E.C.
I. Nearest metallic cold water supply pipe, concrete encased steel, building steel, and other electrodes Disconnected from the grounding electrode system.
J. Mechanical Equipment
1. All mechanical equipment motors shall have grounded cases.
2. All equipment shall have its metallic enclosure, frame, etc. bonded to the circuit equipment grounding conductor.
TELECOM
A. Provide conduit system for Telecom including fish wires, boxes and blank plates.
B. Conduit, cabling, and outlets shall be provided as shown on the drawings and the telecom riser.
C. Consult the local utility representative prior to bidding for any special requirements. All electrical work required by the telecom utility company shall be furnished and performed by the Electrical Contractor.
SURGE PROTECTION DEVICE (SPD)
A. Provide TYPE 2 on panels as shown.
B. Provide SPD with integral audible and visible alarm features to indicate location, a combination starter shall be acceptable in lieu of individual components.
MOV TYPE meeting UL-1449, 3rd edition, Type 2 listing.
1. 120KA Surge Current Rating (L-L and L-G)
2. 20KA Nominal Discharge Current.
3. 200KA SCRR (Short Circuit Current Rating)
4. 150V MCOV (Maximum Continuous Operating Voltage) for 120/240V and 208Y/120V systems, 320V MCOV for 480Y/277V systems.
A. Provide conduit system for Telecom including fish wires, boxes and blank plates.
B. Conduit, cabling, and outlets shall be provided as shown on the drawings and the telecom riser.
C. Consult the local utility representative prior to bidding for any special requirements. All electrical work required by the telecom utility company shall be furnished and performed by the Electrical Contractor.
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3. 200KA SCRR (Short Circuit Current Rating)
4. 150V MCOV (Maximum Continuous Operating Voltage) for 120/240V and 208Y/120V systems, 320V MCOV for 480Y/277V systems.

- 20A single-pole breaker.
P. Panelboard shall be provided with no less than the number of breaker spaces (poles) or mounting space H indicated on the panel schedules. If not noted, provide no less than 42 poles.
Q. Unless otherwise indicated on Drawings, install all panels with the top of the trim 6" above finished floor level.
R. Install panelboards in location shown on the Drawings.
S. Panelboards shall be mounted with screws, bolts, or anchors as required.
T. Panels shall not be supported by conduit alone.
U. Panelboards shall be internally and externally clean and shall be free from dust, debris, and non-intentional materials. Panelboards shall be vacuumed and wiped down (internally and externally) prior to substantial inspection.
V. Neutral and equipment grounding terminals shall be electrically isolated, unless specifically noted otherwise.
W. Panelboard cover shall be provided with engraved phosphoric plastic identification and wiring color code nameplates. Refer to detail on drawings.
X. Mount a typewritten directory behind glass or plastic on the inside of each panel door, showing panel information, circuit number, and complete description of all outlets on each circuit. Handwritten edits are not acceptable. Directory shall be installed prior to substantial inspection.
CIRCUIT BREAKERS
J. Breakers shall be of the size specified on the Panel Schedules, unless otherwise required to match equipment nameplate MOCP or MOP values.
K. Breakers rated greater than 10,000 AIC shall be bolt-on.
L. Breakers shall have visual trip indicators.
M. Breaker sizes shall be verified against equipment it serves.
N. On three-phase panels, breakers shall alternate between bus-poles to provide a balanced load.
O. Furnish and install all circuit breakers as described on the panel schedules and drawings.
P. Contractor shall be responsible for confirming brand, breaker type, mounting type, kits, accessories, and compatibility of new breakers to be installed in existing panelboards. Existing panelboard information and characteristics shall be field-verified.
Q. Unconnected, spare, and future breakers shall be switched to and remain in the "OFF" (open) position.
FUSES
A. Provide size, type, and class as noted. If specifics are not noted, provide fuse suitable for application.
B. Voltage rating of fuse shall match or exceed circuit voltage.
C. Provide clips or kit as required to correctly mount the specified fuse in designated equipment.
DISCONNECTS
A. Ampere-rated for general disconnects.
B. Horsepower-rated for motor disconnects.
C. Meet Federal Spec. W-S-8855 for Heavy Duty Switches.
D. UL Listed.
E. Grey baked enamel finish.
F. Quick-break operating mechanism.
G. Visible handle.
H. Meets NEMA KS1-1975 for Type HD.
I. Indoor disconnects shall be NEMA 1, unless noted otherwise.
J. Outdoor disconnects shall be NEMA 3R, unless noted otherwise.
K. Supply and install a disconnecting means for each motor where required by N.E.C. or if shown on drawings.
L. Locate disconnect as shown or as near as possible to motor within N.E.C. compliance.
M. Disconnect shall be an integral part of any piece of equipment shall be acceptable in lieu of a safety switch.
N. Switches shall be fused where shown on drawings.
O. Motor-rated switches shall be acceptable as disconnects for motors of 1/3 HP or less.
P. Disconnect switches shall be provided with machine-produced labels (on front cover) to indicate circuit source, circuit number, and load served.
STARTERS
A. Provide magnetic or manual starters and associated equipment as required for each motor.
Each starter shall have properly sized thermal overload protection for the motor it serves, based on nameplate FLA markings.
B. Overloads shall be manual reset type.
D. Supply and install magnetic motor starters with appropriate control buttons or switches for each piece of equipment unless other specifications call for starter to be furnished with equipment.
E. Contractor shall coordinate with both general contractor and mechanical contractor to assure that starter has a disconnect for all equipment.
F. Where both a disconnect switch and motor starter are required in the same location, a combination starter shall be acceptable in lieu of individual components.
WIRING DEVICES
A. Model or part number listed below are for reference and establishing quality.
B. In so far as practical, all wiring devices shall be of the same manufacturer.
C. All catalog numbers listed are Hubbell unless noted.
D. Acceptable manufacturers shall be Hubbell, Pass and Seymour, Leviton, or Arrow-Hart.
E. Provide white device color and cover plate, unless directed otherwise by owner, architect, or .
F. Weather-resistant type receptacles shall be provided for wet locations and exterior locations, non-conditioned locations, devices noted by "W/P", devices otherwise noted to be provided with a weatherproof cover, and all locations required by NEC.
G. Tamper-resistant type receptacles shall be provided in noted locations and in all locations required by NEC.
H. USB receptacles shall be provided in noted locations. USB receptacles shall include tamper-resistance rating. USB receptacles shall have (2) NEMA 5-20R 125VAC receptacles, (1) type A USB port, (1) type B USB port. USB output shall be 5VDC 5A. Hubbell noted otherwise.
I. General Purpose Receptacles and single appliance type receptacles.
1. General purpose receptacles shall be specification grade, 120 volt AC, 20 amp, NEMA 5-20R, grounding type, capable of accepting 15A and 20A plugs.
2. Catalog numbers shall be:
a. Single receptacle: 5361**
b. Duplex receptacle: 5362**
** additional model number letters as required to designate tamper-resistance, GFI, color, weather resistance, etc. as required.
Special purpose receptacle
1. Special purpose receptacles shall be installed as specified on drawings and shown to match equipment and appliance cord.

ABBREVIATIONS

Table with 2 columns: Abbreviation and Description. Includes A (AMPERE), AC (ABOVE COUNTER), AFC (AVAILABLE FAULT CURRENT), etc.

LIGHTING LEGEND

Table with 2 columns: Symbol and Description. Includes 2X4' LIGHT FIXTURE, 2X2' LIGHT FIXTURE, WALL-MOUNTED LINEAR FIXTURE, etc.

POWER LEGEND

Table with 2 columns: Symbol and Description. Includes DUPLEX RECEPTACLE, DOUBLE DUPLEX RECEPTACLES, CEILING DOUBLE DUPLEX RECEPTACLES, etc.

SYSTEMS LEGEND

Table with 2 columns: Symbol and Description. Includes TELECOM OUTLET, CABLE FOR WIRELESS ACCESS POINT, TELECOM FLOOR OUTLET, etc.

ELECTRICAL SHEET INDEX

Table with 2 columns: Sheet Number and Description. Includes E001 ELECTRICAL SPECIFICATIONS, LEGEND, AND ABBREVIATIONS, E201 LIGHTING, etc.

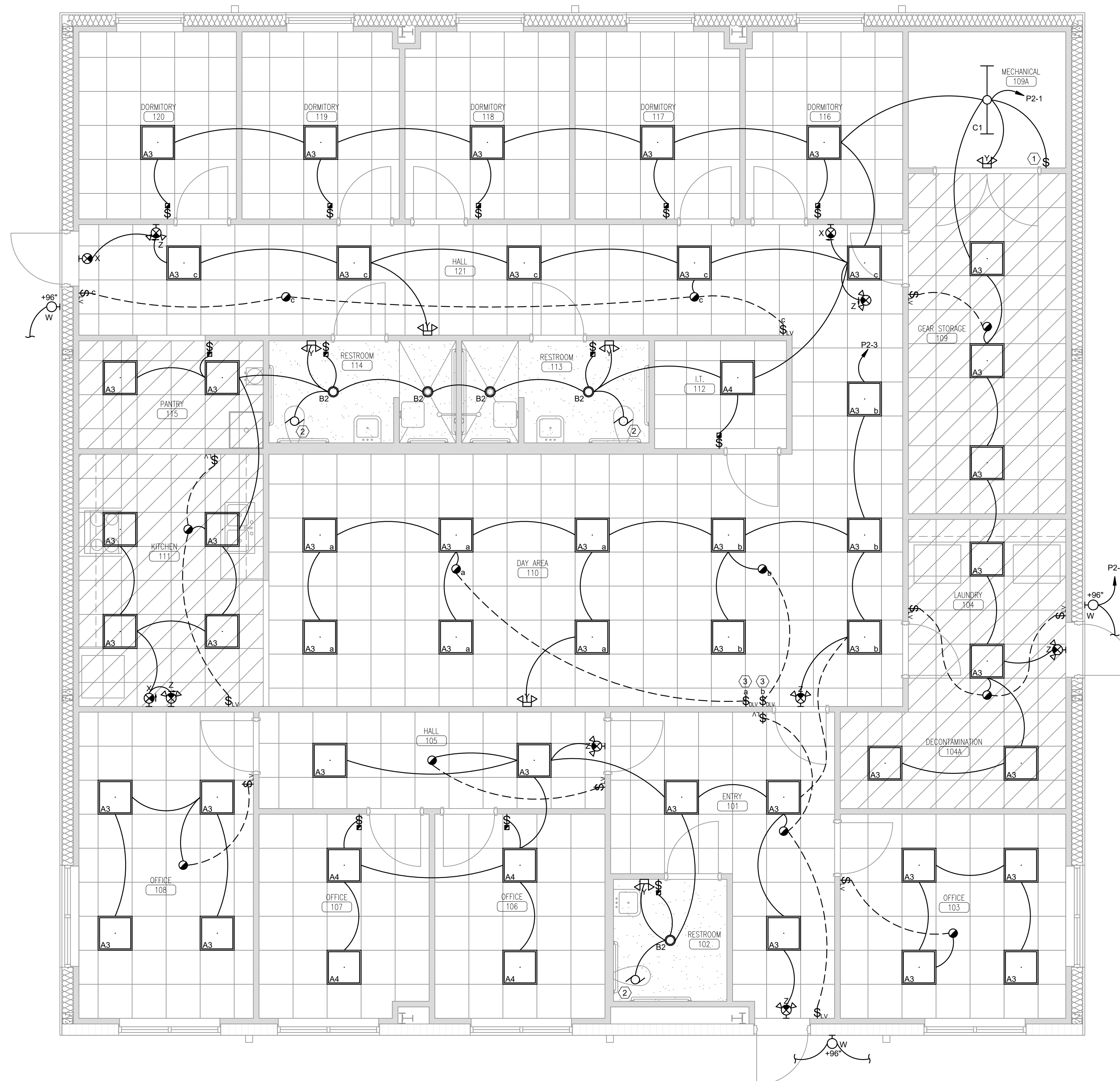
Professional seal for Chad J. Fralick, State of Florida Professional Engineer, License No. 73811. Includes project information for New Fire Department Administration Building.

COBURN AND ASSOCIATES CONSULTING ENGINEERS. Includes address (1579 NW LAKE JEFFERY ROAD, LAKE CITY, FLORIDA), phone (813)454-3748, and website (www.coburnandassociates.com).

INTERIOR LIGHTING COMPLIANCE								
PER 2023 FBC - ENERGY CONSERVATION, 8TH ED. - TABLE 605.3.2(2) SPACE-BY-SPACE METHOD								
SPACE	CLASSIFICATION	AREA	ALLOW. W/SQFT	ALLOW. WATTS	INSTALLED	AUTO CONTROL DEVICE	ON/OFF	
101	ENTRY	CORRIDOR (OTHERWISE)	175	0.41	72	69	CLG PR	AUTO/AUTO
102	RESTROOM	RESTROOM (OTHERWISE)	48	0.63	30	20	WALL SW PIR	AUTO/AUTO
103	OFFICE	OFFICE (ENCLOSED)	159	0.74	118	92	CLG PR	MANUAL/AUTO
104	LAUNDRY	LAUNDRY/WASHING AREA	105	0.53	56	45	CLG PR	AUTO/AUTO
104A	DECONTAM	LAUNDRY/WASHING AREA	75	0.53	40	45	CLG PR	AUTO/AUTO
105	HALL	CORRIDOR (OTHERWISE)	115	0.41	47	45	CLG PR	AUTO/AUTO
106	OFFICE	OFFICE (ENCLOSED)	120	0.74	89	68	WALL SW PIR	MANUAL/AUTO
107	OFFICE	OFFICE (ENCLOSED)	118	0.74	87	68	WALL SW PIR	MANUAL/AUTO
108	OFFICE	OFFICE (ENCLOSED)	184	0.74	136	92	CLG PR	MANUAL/AUTO
109	GEAR STOR	STORAGE ROOM	185	0.28	70	69	CLG PR	MANUAL/AUTO
109A	MECH	ELEC/MECH ROOM	74	0.43	32	25	NONE	MANUAL/MANUAL
110	DAY AREA	LOUNGE/BREAKROOM (OTHERWISE)	553	0.59	326	184	CLG PR	MANUAL/AUTO
111	KITCHEN	FOOD PREP AREA	181	1.09	175	92	CLG PR	MANUAL/AUTO
112	L1	ELEC/MECH ROOM	49	0.43	21	34	WALL SW PIR	MANUAL/AUTO
113	RESTROOM	RESTROOM (OTHERWISE)	66	0.63	42	40	WALL SW PIR	AUTO/AUTO
114	RESTROOM	RESTROOM (OTHERWISE)	66	0.63	42	40	WALL SW PIR	AUTO/AUTO
115	PANTRY	FOOD PREP AREA	69	1.09	75	45	WALL SW PIR	MANUAL/AUTO
116	DORM	FIRE STATION SLEEPING QUARTERS	105	0.23	23	23	WALL SW PIR	MANUAL/AUTO
117	DORM	FIRE STATION SLEEPING QUARTERS	105	0.23	24	33	WALL SW PIR	MANUAL/AUTO
118	DORM	FIRE STATION SLEEPING QUARTERS	105	0.23	24	33	WALL SW PIR	MANUAL/AUTO
119	DORM	FIRE STATION SLEEPING QUARTERS	102	0.23	23	23	WALL SW PIR	MANUAL/AUTO
120	DORM	FIRE STATION SLEEPING QUARTERS	102	0.23	23	23	WALL SW PIR	MANUAL/AUTO
121	HALL	CORRIDOR (OTHERWISE)	360	0.41	148	138	CLG PR	AUTO/AUTO
TOTALS (WATTS)				1,724	1,332			

LIGHTING FIXTURE SCHEDULE					
MARK	WATTS	LUMENS	CCT	DESCRIPTION	
A3	23	3,000	3,500	2X2 LED FLAT PANEL LAY-IN FIXTURE, SMOOTH DIFFUSE LENS, 0-10V DIMMABLE, SIGNIFY DAY-BRITE #2F230L835-2-D5-UNV-DIM	
A4	34	3,300	3,500	SIMILAR TO A3, EXCEPT FOR WATTS & LUMENS. SIGNIFY DAY-BRITE #2F230L835-2-D5-UNV-DIM	
B2	20	2,000	3,500	6" ROUND LED DOWNLIGHT, 0-10V DIMMABLE, WIDE BEAM, OPEN TRIM, CLEAR DIFFUSE REFLECTOR, SUITABLE FOR USE ABOVE SHOWER. SIGNIFY LIGHTOLIER #6AN-26RDL20935WOC0210U	
C1	26	900	4000K	4" LINEAR STRIP LIGHT, FROSTED ACRYLIC LENS, SURFACE MOUNTED OR SUSPENDED AS APPLICABLE. SIGNIFY DAYBRITE# F554301840-UNV-DIM	
W	10	1,000	4,000	EXTERIOR WALL SCONCE, INTEGRAL PHOTOCELL CONTROL, 9% UPLIGHT, BRONZE FINISH, 70CM MIN., LISTED FOR WET LOCATION. SIGNIFY STONICO HLPW7-10-WW-G3-120-PCB-SZ	
X	<5	N/A	N/A	EXIT SIGN, RED LETTERS, SELF-POWERED WITH RECHARGEABLE NI-CAD BATTERY UPON LOSS OF NORMAL VOLTAGE, THERMOPLASTIC HOUSING, PROVIDE WITH AUTOTEST. BEGHELLI #PX-R-5A-AT	
Y	<5	N/A	N/A	EMERGENCY LIGHT, 2 HEADS (1.5W EACH), WHITE LED, THERMOPLASTIC HOUSING, SELF-POWERED WITH RECHARGEABLE NI-CAD BATTERY UPON LOSS OF NORMAL VOLTAGE. PROVIDE WITH AUTOTEST. BEGHELLI #PEH-1-AT	
Z	<5	N/A	N/A	COMBINATION EXIT SIGN AND EMERGENCY LIGHTS, RED LETTERS, 2 HEADS, THERMOPLASTIC HOUSING, SELF-POWERED WITH RECHARGEABLE NI-CAD BATTERY UPON LOSS OF NORMAL VOLTAGE. PROVIDE WITH AUTOTEST. BEGHELLI #PCH-R-5A-AT	

LIGHTING FIXTURE SCHEDULE NOTES:
1. FIXTURES SHALL HAVE 80 CRI (MIN.), UNLESS HIGHER CRI IS NOTED.
2. FIXTURES SHALL BE SUITABLE FOR CONNECTION TO 120V CIRCUITS, U.N.D.
3. MODEL NUMBERS LISTED ABOVE ARE BASIS OF DESIGN. CONTRACTOR MAY SUBMIT ALTERNATE EQUALS.

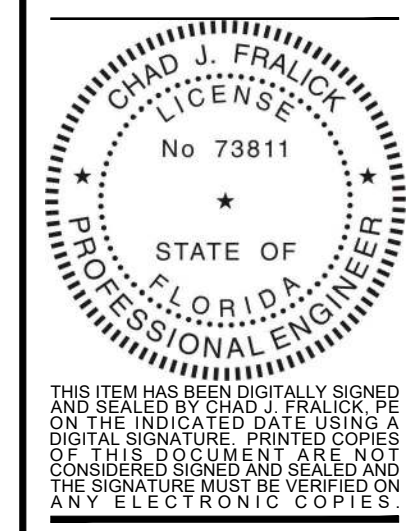


SHEET NOTES

- A. TYPE X, Y, AND Z FIXTURES, AND FIXTURES NOTED AS 'N' SHALL BE CONNECTED TO NON-SWITCHED CIRCUIT CONDUCTOR DIRECTLY FROM THE BREAKER. PROVIDE ADDITIONAL NON-SWITCHED CONDUCTOR IN LIGHTING RUN FOR THIS PURPOSE.
- B. OCCUPANCY SENSORS SHALL BE CONFIGURED FOR ON/OFF CONTROL AS NOTED IN 'INTERIOR LIGHTING COMPLIANCE' TABLE.

SHEET KEYNOTES

- 1. MANUAL-ONLY LIGHTING CONTROL FOR SAFETY. TO COMPLY WITH NEC 110.26(D).
- 2. CONNECT CEILING EXHAUST FAN (120V, 1PH, <100W) TO ROOM LIGHTING CIRCUIT.
- 3. DIMMING CONTROL.



NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
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LAKE CITY, FLORIDA
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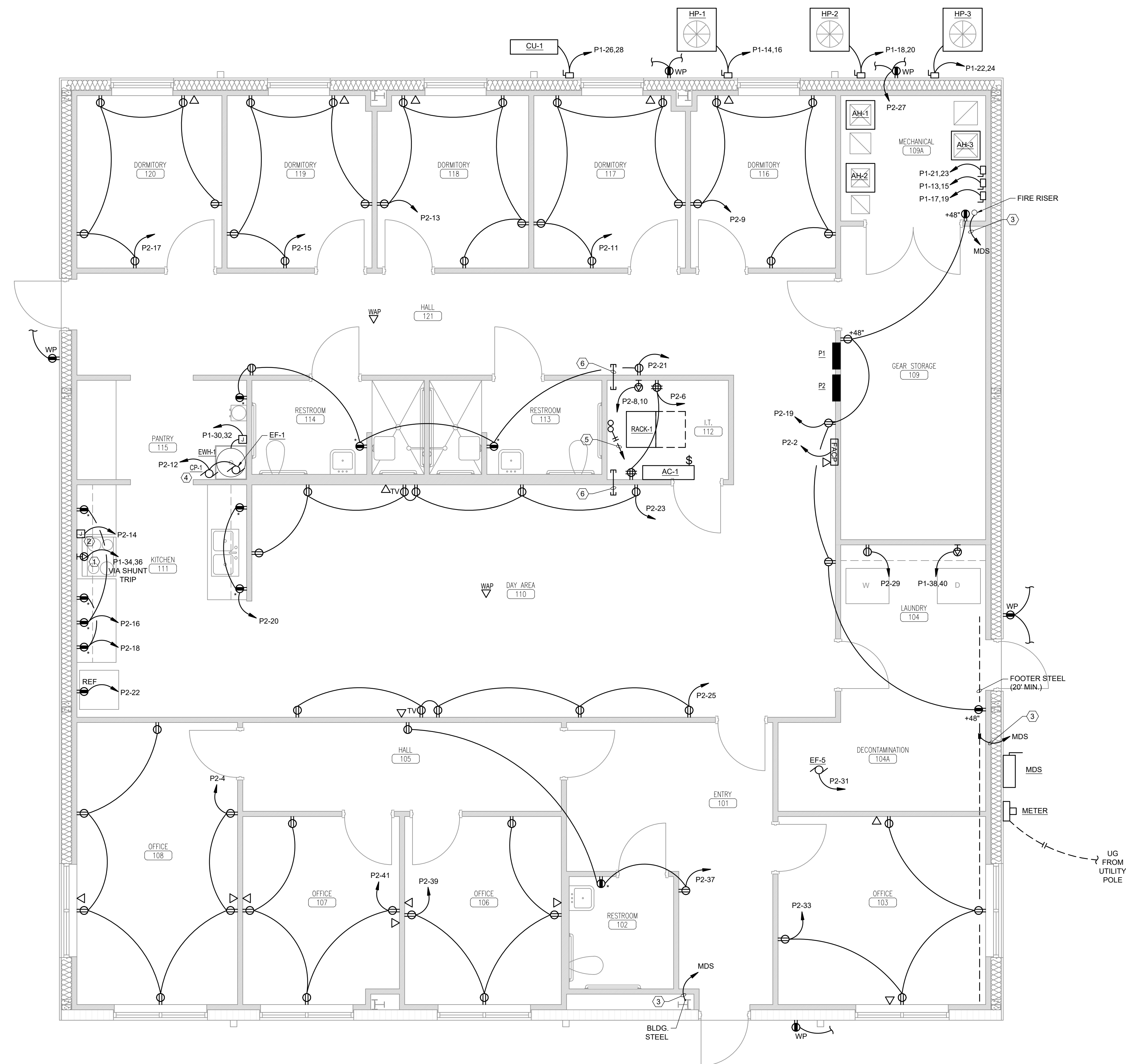
#	Date	Note

LIGHTING
CONSTRUCTION DOCUMENTS

COBURN AND ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 577
HIGH SPRINGS, FLORIDA 32655-0577
(386)454-3748
FLORIDA LICENSED ENGINEERS EB 0003687
CA JOB NUMBER 2390

DATE
09/12/2024
2338
E201

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



SHEET NOTES

A. NOT USED THIS SHEET.

SHEET KEYNOTES

1. APPLIANCE CIRCUIT SHALL BE ROUTED THRU LC-1.
2. J-BOX FOR CONNECTION TO HOOD.
3. BOND TO GROUNDING ELECTRODE SYSTEM PER NEC 250 WITH GEC.
4. SEE HOT WATER RECIRCULATION DETAIL.
5. (2)2°C. TO UTILITY FOR TELECOM AND SPARE.
6. 3" C. SLEEVE THRU WALL ABOVE CEILING FOR ROUTING OF TELECOM CABLES.



NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
 1579 NW LAKE JEFFERY ROAD
 LAKE CITY, FLORIDA
 CCBCC PROJECT NUMBER

#	Date	Note

POWER

CONSTRUCTION DOCUMENTS

COBURN AND ASSOCIATES
 CONSULTING ENGINEERS
 P.O. BOX 577
 HIGH SPRINGS, FLORIDA 32655-0577
 (386)454-3748
 FLORIDA LICENSED ENGINEERS EB 0003687
 CA JOB NUMBER 2390

POWER AND SYSTEMS PLAN
 SCALE: 1/4" = 1'-0"

DATE
 09/12/2024

2338

E202

FIRE ALARM SPECIFICATIONS & NOTES

- THESE ENGINEERING DRAWINGS HAVE BEEN PROVIDED TO MEET THE MINIMUM FIRE ALARM DESIGN CRITERIA IN ACCORDANCE WITH FAC 61G15-32 AND 61G15-30.003.
- THESE DRAWINGS ARE SCHEMATIC IN NATURE AND ARE NOT INTENDED TO SHOW ALL POSSIBLE CONDITIONS. IT IS INTENDED THAT A COMPLETE FIRE ALARM SYSTEM BE PROVIDED WITH ALL THE NECESSARY EQUIPMENT, WIRING, CONDUIT, AND CONTROLS, COMPLETELY COORDINATED WITH ALL DISCIPLINES. THE MINIMUM FIRE ALARM DESIGN CRITERIA IN THESE DOCUMENTS SHALL BE STRICTLY CONFORMED TO IN ACCORDANCE WITH 61G15-30.008. ANY ITEMS AND LABOR REQUIRED FOR A COMPLETE FIRE ALARM SYSTEM, IN ACCORDANCE WITH ALL APPLICABLE CODES, STANDARDS, LOCAL AUTHORITIES, AND THESE CONTRACT DOCUMENTS SHALL BE FURNISHED AT NO ADDITIONAL COST TO THE OWNER. THE FIRE ALARM CONTRACTOR SHALL CAREFULLY REVIEW ALL CONTRACT DOCUMENTS AND THE DESIGN OF OTHER TRADES BEFORE PREPARING SHOP DRAWINGS.
- FIRE ALARM CONTRACTOR SHALL BE AWARE OF THE TYPE OF FINISHES, DECOR, AND OCCUPANCY. COORDINATION WITH THE STAKEHOLDERS SHALL BE PERFORMED BY THE FIRE ALARM CONTRACTOR FOR PLACEMENT OF ALARM DEVICES.
- FIRE ALARM INSTALLATION SHALL BE SUPERVISED BY TECHNICIAN(S) WITH CURRENT CERTIFICATION AS A NICET LEVEL III IN FIRE ALARM.
- FIRE ALARM PATHWAYS IN ALL AREAS SHALL BE IN 3/4" EMT. ALL FIRE ALARM WIRING SHALL BE ROUTED THROUGH CONDUIT THAT IS STRICTLY DEDICATED FOR FIRE ALARM; NO OTHER SYSTEMS MAY UTILIZE FIRE ALARM RACEWAY.
- ALL FIRE ALARM CONDUIT AND BOX COVERS SHALL BE PAINTED RED. PRE-COLORED RACEWAY IS ACCEPTABLE.
- FIRE ALARM CIRCUITS SHALL NOT HAVE SPLICES. CIRCUITS SHALL BE EXTENDED FROM DEVICE AND APPLIANCE SCREW TERMINALS.
- THE FOLLOWING TESTS SHALL BE COMPLETED WITHOUT FAILURE:
 - All systems shall test free from short circuits and grounds, shall be free from mechanical and electrical defects.
 - Strobes shall be shown to be synchronized.
 - Pull stations shall be shown to function as intended.
 - Equipment and shutdown interlocks shall be demonstrated to operate as intended, if applicable.
 - Transmission of signals to building FACP and monitoring station shall be demonstrated.
 - Contractor shall coordinate and schedule with monitoring station prior to tests.
- Contractor shall submit detailed shop drawings including battery calculations, voltage drop calculations, conduit routing, riser diagrams, and product data for all equipment. Each submittal package shall be combined into a single PDF file and emailed (or otherwise electronically transmitted) to Architect/Engineer. CAD file floor plans are available from the AE team upon request, after contract is awarded.
- Labels
 - All addressable devices shall be provided with a label indicating address.
 - All notification devices shall be provided with a label indicating NAC circuit number and device number.
 - Equipment fed with 120V shall be labeled with the source panel and circuit number.
- Exterior devices shall be weatherproof, suitable for the location, and provided with the appropriate gasketing. Backboxes for exterior items shall be cast metal.

MINIMUM FIRE ALARM SYSTEM CRITERIA

- 61G15-32.008 Design of Fire Alarms, Signaling Systems, and Control Systems.**
- Fire alarms and detection systems include fire protection supervision, emergency alarm circuits, activation of life safety system controls and remote signaling of emergency conditions. Items to be considered in the design or analysis of fire alarm and detection systems are, as applicable to the particular project: occupancy and classification, monitoring, control and communication, cabling and supervision requirements, installation requirements, interoperability and performance requirements.
 - The design specifications shall be based on the Florida Building Code, the Florida Fire Prevention Code, or as required by the local authority having jurisdiction. The Florida Building Code and the Florida Fire Prevention Code are incorporated by reference in Rule 61G15-18.011, F.A.C.
 - For Engineering Documents pertaining to Fire Protection Systems exempted by the threshold requirements for mandatory use of professional engineering services, the Engineer of Record shall determine the level of detail shown on plans for a Fire Protection system. All such plans shall include a disclaimer stating the Fire Protection system is exempt from professional engineering services and shall provide a clear understanding of the minimum system requirements expected to be installed by the contractor and permitted by the authority having jurisdiction (AHJ). In the event the Engineer of Record provides more information and direction than is minimally required, he or she shall be held responsible for the technical accuracy of the work in accordance with applicable codes, standards, and sound engineering principles. - REFER TO E001 & E203.
 - To ensure minimum design quality of Fire Alarm and Detection Systems Engineering Documents, said documents shall include as a minimum the following information when applicable:
 - The documents shall be clear, with a symbols legend, system riser diagram showing all initiation and notification components, and cabling requirements. The documents shall indicate locations where fire ratings are required as determined by the system's survivability requirements, and shall identify the general occupancy of the protected property and each room and area unless it is clear from features shown. - REFER TO E001 & E203.
 - Locate initiation and notification devices and connections to related systems on the floor plans and sections when needed for clarity. Related systems include elevator controls, smoke control systems, dampers, door release, any other systems or elements directly or indirectly controlled or monitored. - REFER TO E001 & E203.
 - Strobe intensity and speaker output ratings for all notification devices. - REFER TO E203 FOR STROBE INTENSITY, SPEAKERS NOT REQUIRED FOR OCCUPANCY TYPE.
 - Identify the Class of circuits as listed in NFPA 72, which is contained within and incorporated into the Florida Fire Prevention Code. - REFER TO FIRE ALARM RISER, NON-REDUNDANT CLASS B, UNLESS NOTED OTHERWISE ON PLANS.
 - Identify the functions required by the alarm and control systems including the transmission of emergency signals being monitored or annunciated. - REFER TO FIRE ALARM MATRIX.
 - Indicate whether the fire alarm is conventional zoned or digital addressable, and indicate all zoning. - REFER TO FIRE ALARM RISER.
 - Locate surge protective devices and required protective features. - REFER TO FIRE ALARM RISER.
 - Identify and locate system devices that are subject to environmental factors, and indicate requirements for the protection of equipment from temperature, humidity or corrosive atmospheres, including coastal salt air. - REFER TO E203 PLAN.
 - The documents shall include a site plan of the immediate area around the protected building, structure or equipment when alarm devices are required outside the structure. - REFER TO SHEET E203 FOR EXTERIOR EXTERIOR BELL LOCATION.
 - In buildings where smoke detection will be obstructed by walls, beams or ceiling features, the Engineer of Record shall provide applicable design and details to direct the installer to mitigate the obstructions. In buildings with smoke detection under a pitched roof, the plans shall indicate the roof pitch and a building section shall be provided as part of the Engineering Design Documents. - NOT APPLICABLE.
 - For fire detection systems utilizing smoke detection in situations where smoke stratification is anticipated, the design shall provide the necessary criteria to mitigate the detection problems. - NOT APPLICABLE.
 - Systems designed using Performance Based criteria shall be identified and referenced to design guides or standards approved by the local authority having jurisdiction consistent with standards adopted by the Florida Fire Prevention Code and the Florida Building Code. - NOT APPLICABLE.
 - The system design must indicate if the system is to provide a general evacuation signal or a zoned evacuation for all high-rise buildings or multi-tenanted properties as defined in section 2 of the Florida Building Code, Building. - GENERAL EVAC SIGNAL.
 - Wiring requirements for underground, wet locations, campus style wiring, protection against damage and burial depth shall be specified or indicated on the engineering design documents. - REFER TO E001 SPECS AND E203.
 - Requirements for operations and maintenance procedures, manuals, system documentation, and instruction of Owner's operating personnel, as needed to operate the systems as intended. - DOCUMENTS SHALL BE PROVIDED BY CONTRACTOR AND TURNED OVER TO OWNER UPON SYSTEM COMMISSIONING.
 - In the event that the Engineer of Record elects to specify specific equipment and to show the required wiring, battery and voltage drop (circuit analysis) calculations shall be completed. The calculations shall be completed using the equipment manufacturer's data and applicable NFPA 72 procedures. - NOT APPLICABLE; SPECIFIC MANUFACTURER IS NOT SPECIFIED.
 - System test requirements shall be noted on the Engineering Design Documents. - SYSTEM TESTING SHALL BE PERFORMED IN ACCORDANCE WITH NFPA 72 AND FIRE ALARM MATRIX.
 - When the Engineer of Record determines that special requirements are required by the owner, insurance underwriter or local fire code amendments these requirements shall be documented or referenced on the Engineering Design Documents. - NONE APPLICABLE.
 - This rule shall be reviewed, and if necessary, repealed, modified, or renewed through the rulemaking process five years from the effective date. - NOTED.

FIRE ALARM SYMBOLS

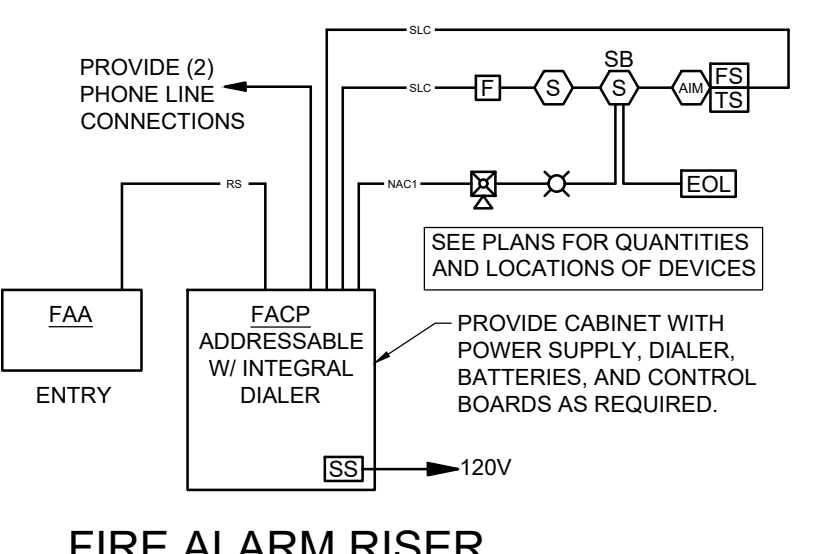
- PULL STATION, DUAL ACTION RED, MOUNTED AT 42" AFF TO BOTTOM OF DEVICE, ADDRESSABLE
- COMBINATION HORN/STROBE, RED, MIN. CANDELA AS NOTED, MOUNTED 82" AFF TO BOTTOM OF DEVICE
- WALL-MOUNTED STROBE, RED, MIN. CANDELA AS NOTED, MOUNTED 82" AFF TO BOTTOM OF DEVICE
- SMOKE DETECTOR, PHOTO-ELECTRIC, ADDRESSABLE
- SMOKE DETECTOR WITH LOW FREQUENCY SOUNDER BASE WITH SUPERVISORY CONNECTION TO FIRE ALARM SYSTEM (FOR SLEEPING UNIT)
- FIRE ALARM CONTROL PANEL
- FIRE ALARM ANNUNCIATOR
- SURGE SUPPRESSOR (SPD)
- ADDRESSABLE INPUT MODULE
- FLOW SWITCH
- TAMPER SWITCH
- END-OF-LINE TERMINATOR

SHEET NOTES

- CONTRACTOR SHALL DETERMINE AND PROVIDE CONDUCTOR QUANTITIES AND CONTROL PANEL COMPONENTS AS REQUIRED FOR A FULLY FUNCTIONAL SYSTEM.
- THE RISER ON THIS SHEET IS FOR DIAGRAMMATIC PURPOSES ONLY. SEE PLANS FOR QUANTITIES AND LOCATIONS OF DEVICES. CONTRACTOR SHALL PROVIDE COMPLETE RISER DIAGRAM WITH QUANTITIES, ADDRESSES, AND DETAILED WIRING IN SHOP DRAWING SUBMITTAL.

SHEET KEYNOTES

- NOT USED THIS SHEET.



SYSTEM INPUTS	SYSTEM OUTPUTS												
	FIRE ALARM PANEL INDICATION						NOTIFICATION						
	A	B	C	D	E	F	G	H	I	J	K	L	M
GENERAL FIRE DETECTION INITIATING DEVICES	●	●	●	●	●	●	●	●	●	●	●	●	●
MANUAL FIRE ALARM BOXES	●	●	●	●	●	●	●	●	●	●	●	●	●
SMOKE DETECTORS (NON-SLEEPING UNIT)	●	●	●	●	●	●	●	●	●	●	●	●	●
WATER FLOW SWITCH (SPRINKLER)	●	●	●	●	●	●	●	●	●	●	●	●	●
TAMPER SWITCH (SPRINKLER)	●	●	●	●	●	●	●	●	●	●	●	●	●
SMOKE DETECTOR (TYPICAL SLEEPING UNIT)	●	●	●	●	●	●	●	●	●	●	●	●	●
TROUBLE CONDITIONS	●	●	●	●	●	●	●	●	●	●	●	●	●
GROUND FAULT	●	●	●	●	●	●	●	●	●	●	●	●	●
NOTIFICATION APPLIANCE SHORT CIRCUIT	●	●	●	●	●	●	●	●	●	●	●	●	●
OPEN CIRCUIT	●	●	●	●	●	●	●	●	●	●	●	●	●
LOW BATTERY	●	●	●	●	●	●	●	●	●	●	●	●	●
AC POWER FAILURE	●	●	●	●	●	●	●	●	●	●	●	●	●
TELEPHONE LINE FAULT	●	●	●	●	●	●	●	●	●	●	●	●	●
NOTIFICATION FUNCTIONS	●	●	●	●	●	●	●	●	●	●	●	●	●
SILENCE FEATURE ON FACP	●	●	●	●	●	●	●	●	●	●	●	●	●

FIRE ALARM OPERATION MATRIX



NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
 1579 NW LAKE JEFFERY ROAD
 LAKE CITY, FLORIDA
 COBCC PROJECT NUMBER

#	Date	Note

FIRE ALARM
 CONSTRUCTION DOCUMENTS

COBURN AND ASSOCIATES
 CONSULTING ENGINEERS
 P.O. BOX 577
 HIGH SPRINGS, FLORIDA 32655-0577
 (386)454-3748
 FLORIDA LICENSED ENGINEERS EB 0003687
 CA JOB NUMBER 2380

DATE
 09/12/2024
2338
E203

FIRE ALARM PLAN
 SCALE: 1/4" = 1'-0"



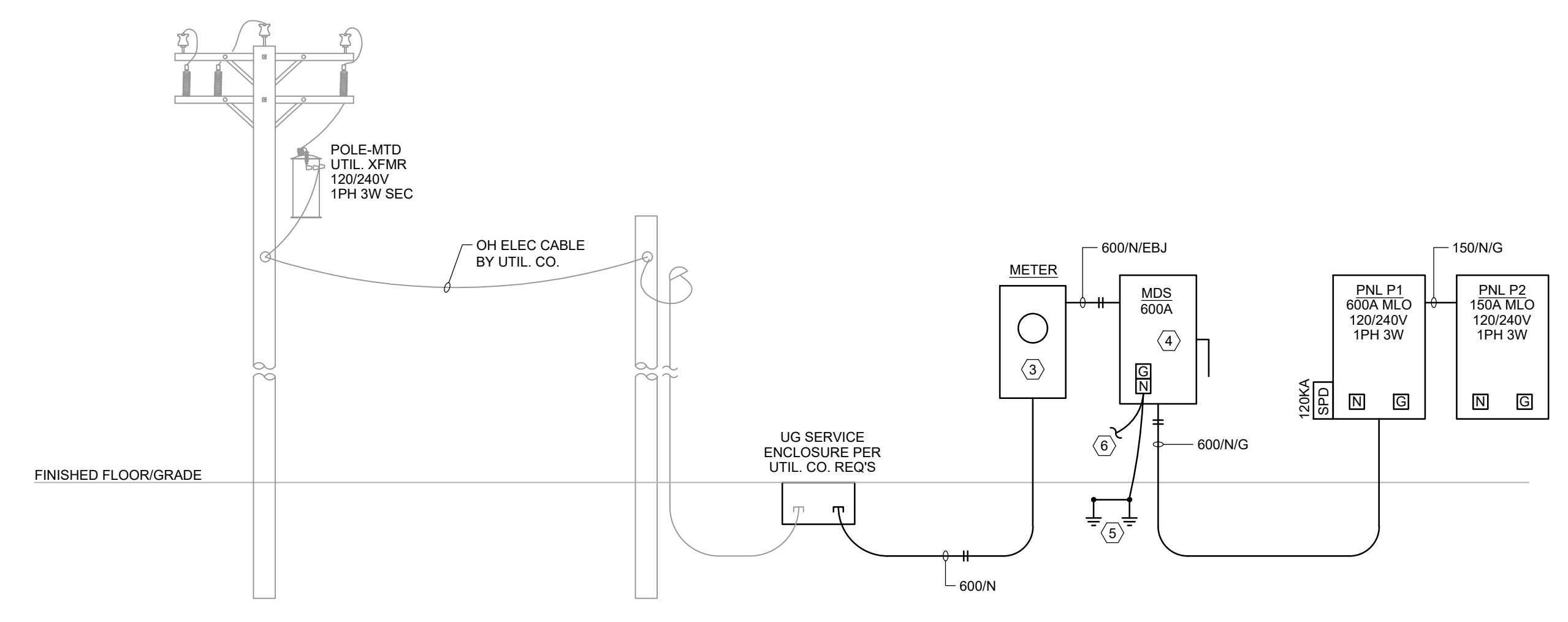
#	Date	Note

SHEET NOTES

A. NOT USED THIS SHEET.

SHEET KEYNOTES

- PROVIDE BREAKER WITH LOCK-OPEN ACCESSORY WHICH COMPLIES WITH NEC 110.25.
- PROVIDE BREAKER WITH RED HANDLE AND LOCK-ON FEATURE.
- 600A SELF-CONTAINED METER SOCKET, COORDINATE W/ UTILITY COMPANY.
- SERVICE-ENTRANCE RATED FUSED SWITCH, 600A CLASS J FUSES, NEMA 3R ENCLOSURE, HEAVY DUTY.
- PROVIDE (2) 3/4" DIAM. X 10' LONG DRIVEN GROUND RODS, 20' MIN. SEPARATION.
- BOND TO GROUNDING ELECTRODES PER NEC 250. SEE PLAN FOR LOCATIONS.
- PROVIDE SHUNT TRIP BREAKER FOR RANGE, INTERLOCK SHUNT TRIP WITH STATION ALARM TO OPEN BREAKER UPON STATION ALARM.



ELECTRICAL RISER DIAGRAM

FEEDER SCHEDULE

NAME	PHASE (AWG)	N (AWG)	G (AWG)	EBL (AWG)	CONDUIT (1PH 3W)	CONDUIT (1PH 2W)	AMPACITY
20	12	12	12	-	3/4"	3/4"	20
30	10	10	10	-	3/4"	3/4"	30
50	8	8	8	8	3/4"	3/4"	50
60	6	6	10	8	3/4"	3/4"	65
70	4	4	8	8	1"	1"	85
80	4	4	8	8	1"	1"	85
90	3	3	8	8	1-1/4"	1"	100
100	3	3	8	8	1-1/4"	1"	100
125	1	1	6	6	1-1/2"	-	130
150	1/0	1/0	6	6	1-1/2"	-	150
175	2/0	2/0	6	4	2"	-	175
200	3/0	3/0	6	4	2"	-	200
225	4/0	4/0	4	2	2"	-	230
250	250	250	4	2	2-1/2"	-	255
300	350	350	4	1/0	3"	-	310
380	500	500	3	1/0	3"	-	380
400	(2) 3/0	(2) 3/0	(2) 3	(2) 1/0	(2) 2"	-	400
400*	600	600	3	1/0	3-1/2"	-	420
500	(2) 250	(2) 250	(2) 2	(2) 1/0	(2) 2-1/2"	-	510
600	(2) 350	(2) 350	(2) 1	(2) 2/0	(2) 3"	-	620
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

SIZES NOTED ABOVE ARE MINIMUM VALUES (AWG OR KCMIL).

ASSUMPTIONS FOR ITEMS ABOVE:
 - AMPACITY BASED ON CU THHN/THWN-2 CONDUCTORS
 - CONDUIT SIZES BASED ON PVC SCHED 40, EMT, IMC, OR RMC
 - AMPACITY BASED ON TERMINATIONS & EQUIP RATED 75 DEGREE C
 - CONTRACTOR IS AWARE OF CIRCUIT/FEEDER VOLTAGE

EXAMPLES:
 60/G
 1PH 2W FEEDER WITH EQUIPMENT GROUNDING CONDUCTOR: 2-#6AWG PHASE CONDUCTORS, NO NEUTRAL, AND 1-#10AWG EQUIPMENT GROUNDING CONDUCTOR IN A 3/4" CONDUIT

100N/EBJ
 1PH 3W FEEDER WITH EQUIPMENT BONDING JUMPER:
 2-#5AWG PHASE CONDUCTORS, 1-#5AWG NEUTRAL CONDUCTOR, AND 1-#8AWG EQUIPMENT BONDING JUMPER IN A 1-1/4" CONDUIT

20/G
 1PH 2W FEEDER WITH EQUIPMENT GROUNDING CONDUCTOR:
 2-#12AWG PHASE CONDUCTORS (OR ONE PHASE AND ONE NEUTRAL IF 120V OR 277V), AND 1-#12AWG EQUIPMENT GROUNDING CONDUCTOR IN 3/4" CONDUIT.

NEW EQUIPMENT SCHEDULE

MARK	DESCRIPTION	VOLTS/PH	FLA	MCA	BKR	FEEDER	DISCONNECTING MEANS	NOTES
AC/GU-1	1.5T MINI-SPLIT	240/1	10.4	13	20	20/G	30A, 2P, NF, GD, NEMA 1	
AH-1	4T AIR HANDLER	240/1	38	48	50	50/G	60A, 2P, NF, GD, NEMA 1	
AH-2	3.5T AIR HANDLER	240/1	36	45	45	50/G	60A, 2P, NF, GD, NEMA 1	
AH-3	5T AIR HANDLER	240/1	38	48	50	50/G	60A, 2P, NF, GD, NEMA 1	
HP-1	4T HEAT PUMP	240/1	21.3	26	40	30/G	60A, 2P, NF, GD, NEMA 3R	
HP-2	3.5T HEAT PUMP	240/1	19.5	24	40	30/G	60A, 2P, NF, GD, NEMA 3R	
HP-3	5T HEAT PUMP	240/1	26.5	32	50	30/G	60A, 2P, NF, GD, NEMA 3R	
EW-1	12.8KW ELEC WATER HEATER	240/1	51.9	64.1	70	70/G	BRANCH CKT BKR	

EQUIPMENT SCHEDULE NOTES:
 BREAKER, FEEDER, STARTER, AND DISCONNECT SWITCH CHARACTERISTICS INDICATED ABOVE ARE BASIS OF DESIGN VALUES. SIZES AND RATINGS OF ELECTRICAL EQUIPMENT SHALL BE ADJUSTED AS REQUIRED TO ACCOMMODATE MANUFACTURER M.C.A. (MINIMUM CIRCUIT AMPACITY) AND M.O.C.P. (MAXIMUM OVERCURRENT PROTECTION) RATINGS AS NOTED ON EQUIPMENT NAMEPLATES. FEEDER SIZES SHALL NOT DECREASE.

SHORT CIRCUIT CALCULATIONS

UTIL XF	KVA (S)	VS	PH	1/2 (S)	MA (S)	SCC-BEG (S)	SCC-END (S)
100	240	1	1.4	100	INFINITE	30,162	
CABLE FROM	CABLE TO	V	PH	SETS	WIRE	COND	FT (S)
UTIL XF	MDS	240	1	2	350 CU	NDN	100
MDS	P1	240	1	2	350 CU	NDN	40
P1	P2	240	1	1	1/0 CU	MAG	5

RISE LOCATION CLASS VR A TABLE VALUE SCC-BEG (S) SCC-END (S)

MDS	J	250	600	25000	19,425	10,000
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SHORT CIRCUIT CALCULATION NOTES:
 CALCULATIONS ABOVE ARE BASED ON ASSUMPTIONS NOTED, INCLUDING THE MAXIMUM ASSUMED UTILITY TRANSFORMER KVA, MINIMUM ASSUMED TRANSFORMER IMPEDANCE, AND MINIMUM ASSUMED FEEDER DISTANCE. CONTRACTOR SHALL VERIFY ASSUMPTIONS FOR VALIDITY PRIOR TO ORDERING EQUIPMENT. IF ACTUAL CONDITIONS ARE FOUND TO BE OUTSIDE OF THE MAXIMUM OR MINIMUM VALUES LISTED, CONTACT DESIGN ENGINEER FOR RE-CALCULATION. THIS TABLE LENGTHS IN THIS TABLE WHEN NORMALLY LOW TO REFLECT A CONSERVATIVE SHORT CIRCUIT CALCULATION. THEREFORE THE FEEDER LENGTHS NOTED ABOVE SHALL NOT BE USED FOR MATERIAL TAKE OFF'S.

1-PHASE PANEL SCHEDULE P1

DESCRIPTION	BKR A/P	LOAD TYPE	CT NO	PHASE VA	CT NO	LOAD TYPE	BKR A/P	DESCRIPTION
SHUNT TRIP POWER	20/1	1	0	11,859	2	V	150/2	PANEL P2 (4-SPACES)
SPARE	20/1	3	0	0	4	V	---	---
SPARE	20/1	5	0	0	6	---	---	---
SPARE	20/1	7	0	0	8	---	---	---
SPACE	9	0	0	0	10	---	---	SPACE
SPACE	11	0	0	0	12	---	---	SPACE
AH-1	50/2	V	13	4,570	2,256	14	M	40/2 HP-1
---	---	V	15	4,570	2,256	16	M	---
AH-2	45/2	V	17	4,366	2,340	18	M	50/2 HP-2
---	---	V	19	4,366	2,340	20	M	---
AH-3	50/2	V	21	4,570	3,180	22	M	40/2 HP-3
---	---	V	23	4,570	3,180	24	M	---
SPACE	25	0	1,248	0	26	M	20/2	AC/UC-1
SPACE	27	0	1,248	0	28	M	---	---
SPACE	29	0	6,150	0	30	S	70/2	LOCK
SPACE	31	0	6,150	0	32	S	---	---
SPACE	33	0	4,000	0	34	G	50/2	RANGE
SPACE	35	0	4,000	0	36	G	---	---
SPACE	37	0	2,500	0	38	G	---	--- (SHUNT TRIP)
SPD	30/2	39	0	2,500	40	G	30/2	DRYER
---	---	41	0	0	42	---	---	---

VA TOTAL EACH PHASE: 47,939

CONNECTED NEC FEEDER: 1,457 5,400
 VA LIGHTING 14,760 12,380
 VA RECEPTACLE 22,450 24,050
 VA MOTOR 40,405 40,405
 VA W/ MULTIPLIER 12,300 15,375

LOAD TYPE:
 L = LIGHTING
 R = RECEPTACLE
 M = MOTOR
 G = GENERAL
 S = SPECIAL
 V = VARIED
 * = NON CONCURRENT

Lighting per NEC 215-2 & 220-12, Receptacle per NEC 220-14 & 220-41, Motor per NEC 430-24.

VA TOTAL CONNECTED: 91,392 381
 TOTAL NEC FEEDER: 97,610 407

1-PHASE PANEL SCHEDULE P2

DESCRIPTION	BKR A/P	LOAD TYPE	CT NO	PHASE VA	CT NO	LOAD TYPE	BKR A/P	DESCRIPTION
LTG - DORM & KITCHEN	20/1	V	1	869	100	2	G	20/1 FACP
LTG - LOUNGE & OFFICES	20/1	V	3	808	1,080	4	R	20/1 RECS - 108
LTG - EXTERIOR	20/1	L	5	30	720	6	R	20/1 RECS - I.T. RM
SPARE	20/1	AFCI	7	0	1,000	8	G	30/2 LT. REC
RECS - DORM 116	20/1	R	9	900	1,000	10	G	---
RECS - DORM 117	20/1	R	11	900	100	12	M	20/1 CP-1, LF-1
RECS - DORM 118	20/1	R	13	900	100	14	V	20/1 HOOD
RECS - DORM 119	20/1	R	15	900	360	16	R	20/1 RECS - KITCHEN
RECS - DORM 120	20/1	R	17	900	360	18	R	20/1 RECS - KITCHEN
RECS - 104, 109	20/1	R	19	900	360	20	R	20/1 RECS - KITCHEN
RECS - RR	20/1	R	21	900	1,000	22	G	20/1 REF
RECS - DAY AREA	20/1	R	23	1,080	0	24	20/1	SPARE
RECS - DAY AREA	20/1	R	25	900	0	26	20/1	SPARE
RECS - EXTERIOR	20/1	R	27	900	0	28	20/1	SPARE
WASHER REC	20/1	G	29	1,200	0	30	20/1	SPARE
DECON FAN	20/1	M	31	50	0	32	20/1	SPARE
RECS - 103	20/1	R	33	720	0	34	20/1	SPARE
SPARE	20/1	G	35	5	0	36	20/1	SPARE
RECS - ENTRY	20/1	R	37	540	0	38	20/1	SPARE
RECS - 106	20/1	R	39	720	0	40	20/1	SPARE
RECS - 107	20/1	R	41	720	0	42	20/1	SPARE

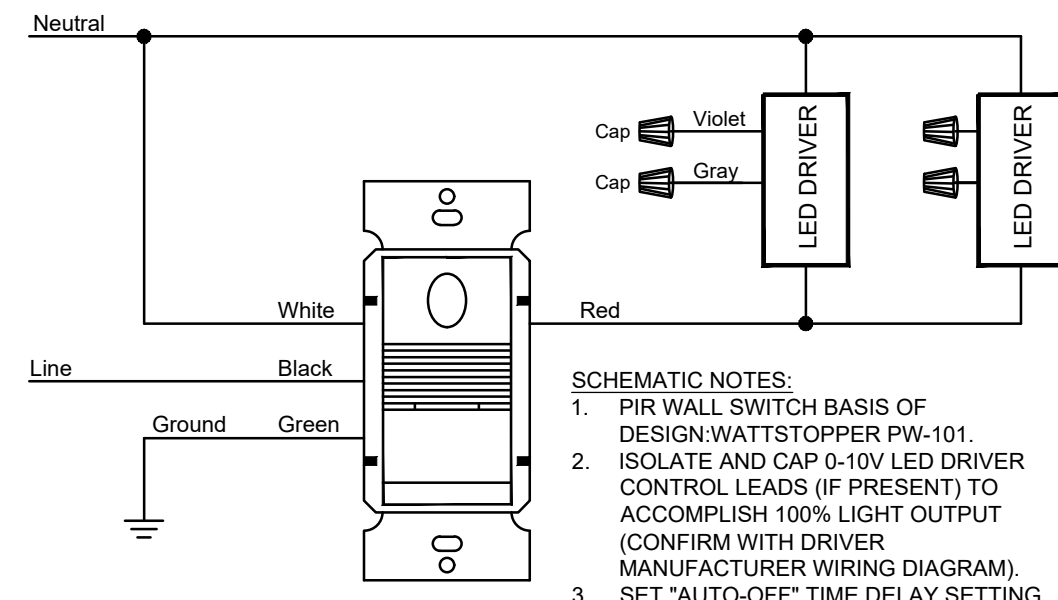
VA TOTAL EACH PHASE: 11,859 9,163

CONNECTED NEC FEEDER: 1,457 5,400
 VA LIGHTING 14,760 12,380
 VA RECEPTACLE 22,450 24,050
 VA MOTOR 500 550
 VA GENERAL 4,305 4,305
 VA W/ MULTIPLIER 0 0

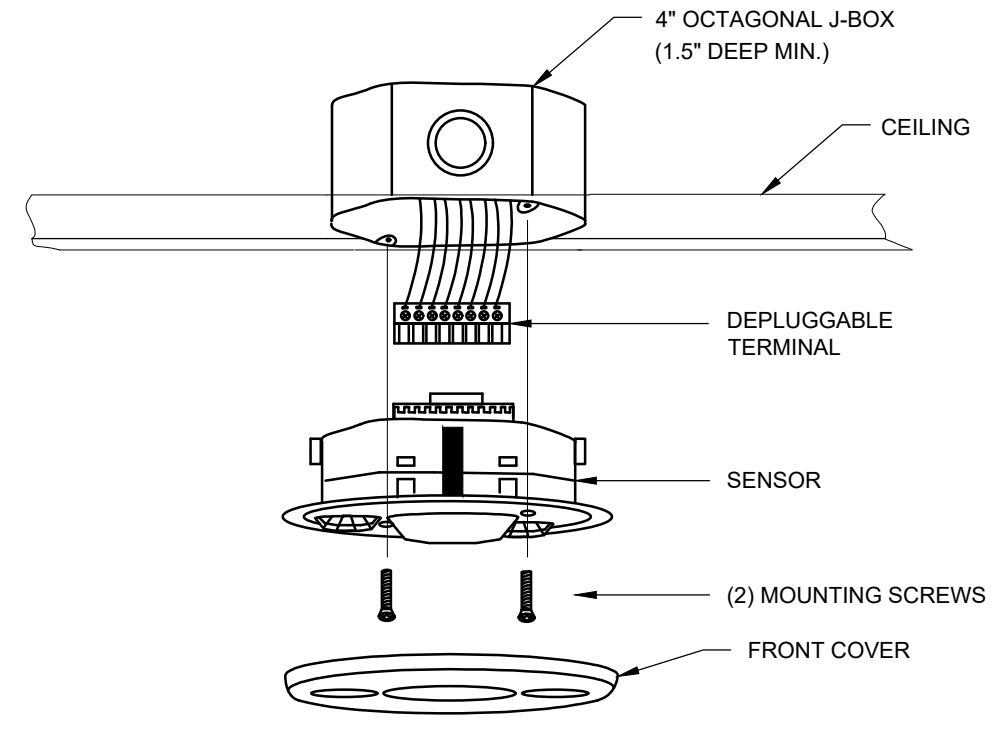
LOAD TYPE:
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 R = RECEPTACLE
 M = MOTOR
 G = GENERAL
 S = SPECIAL
 V = VARIED
 * = NON CONCURRENT

Lighting per NEC 215-2 & 220-12, Receptacle per NEC 220-14 & 220-41, Motor per NEC 430-24.

VA TOTAL CONNECTED: 21,022 88
 TOTAL NEC FEEDER: 22,635 94



TYPICAL PIR WALL SWITCH SCHEMATIC

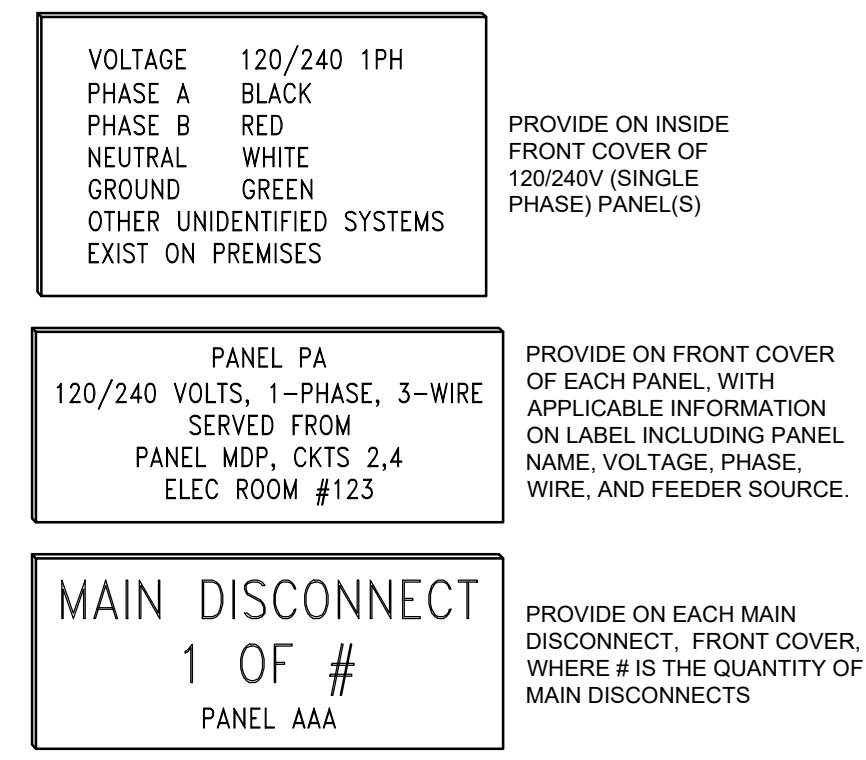


TYPICAL CEILING SENSOR MOUNTING

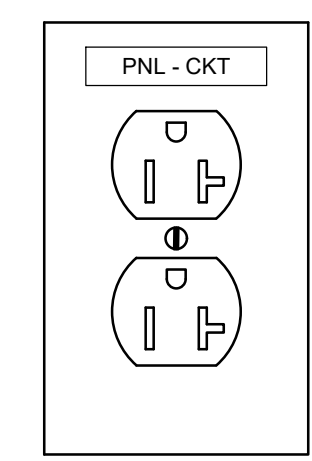
PROVIDE SIGNS ON NOTED EQUIPMENT. SIGNS SHALL BE LAMINATED BLACK PHENOLIC RESIN WITH SOLID WHITE CORE WITH ENGRAVED LETTERING MINIMUM OF 3/8 INCH HEIGHT.

SIGNS ON INTERIOR ITEMS MAY BE ATTACHED USING ADHESIVE. SIGNS ON EXTERIOR ITEMS SHALL BE ATTACHED USING WEATHERPROOF/UV RESISTANT ADHESIVE.

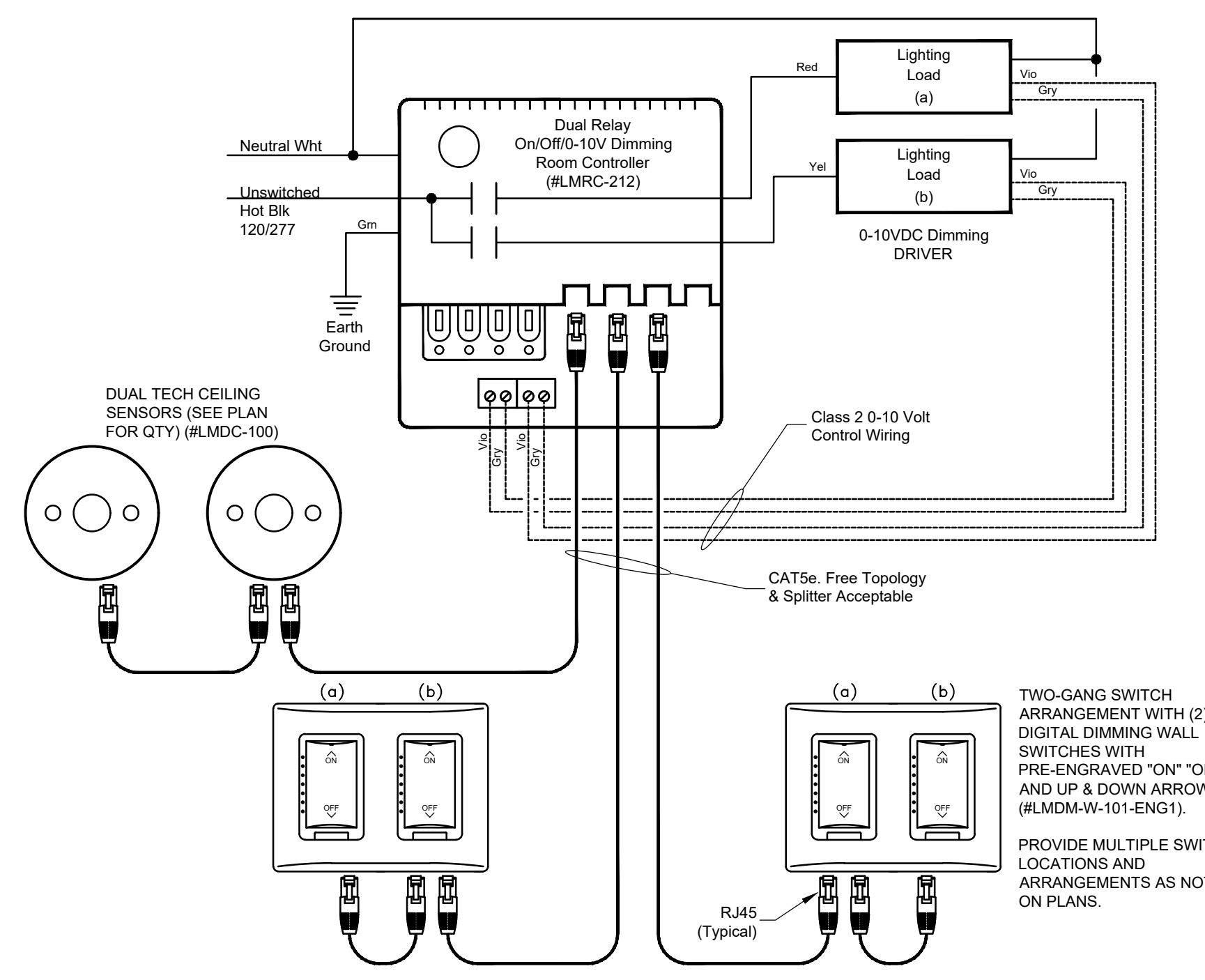
EXAMPLES ARE DEPICTED BELOW.



EXAMPLE NAMEPLATE DETAILS

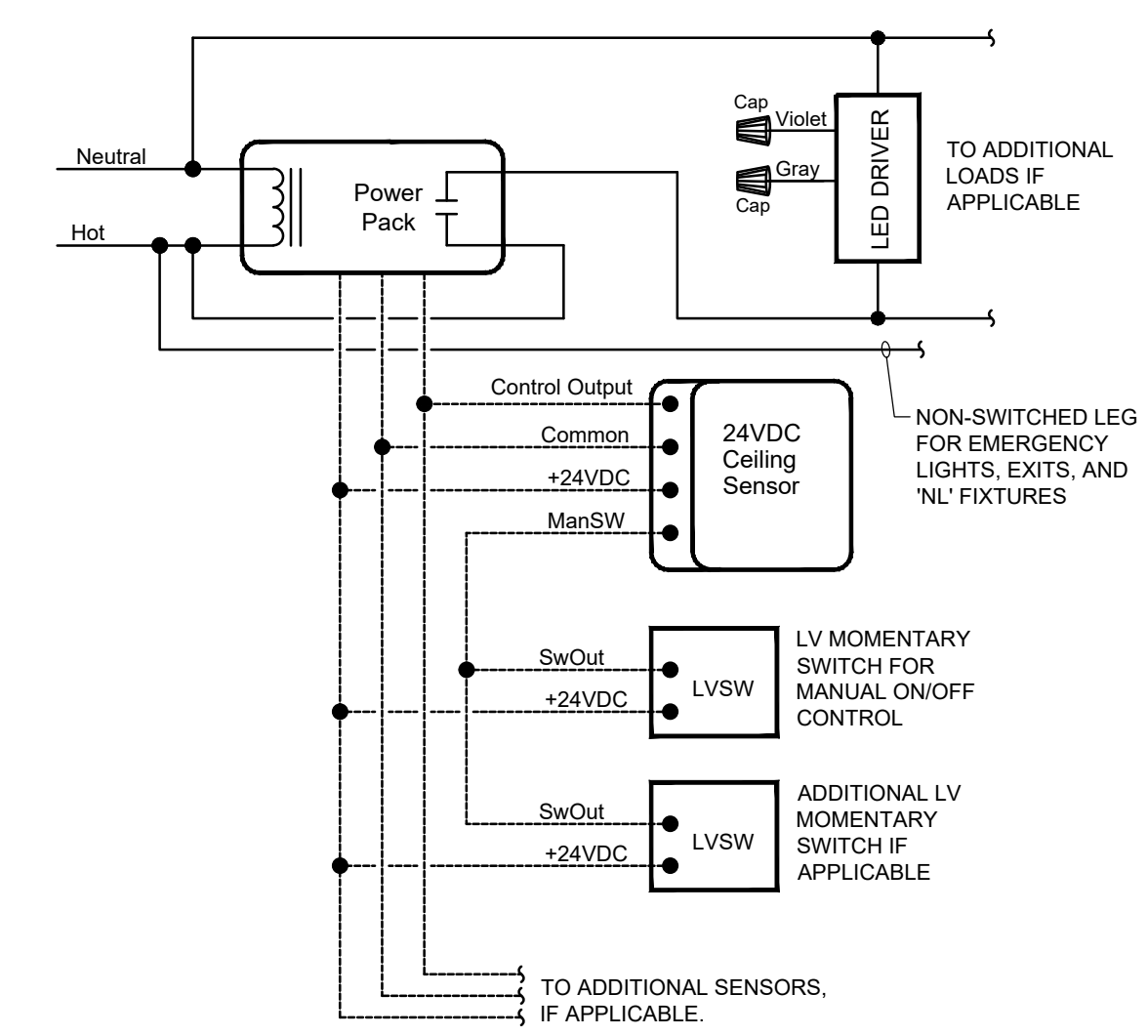


TYPICAL RECEPTACLE DETAIL



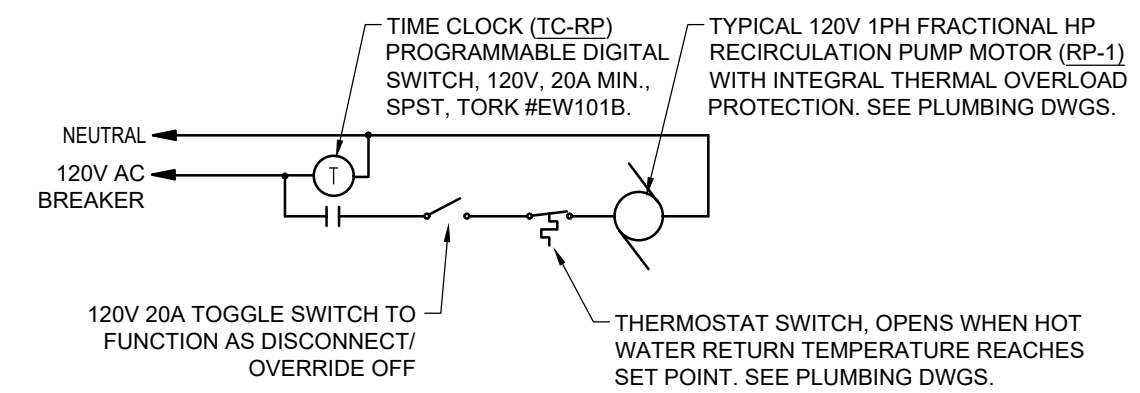
SCHEMATIC NOTES:
 1. BASIS OF DESIGN MODEL NUMBERS NOTED ABOVE ARE WATTSTOPPER.
 2. SET SENSOR "AUTO-OFF" TIME DELAY SETTING FOR 20 MINUTES.

MULTIPLE DIMMING CIRCUITS & CEILING SENSOR SCHEMATIC

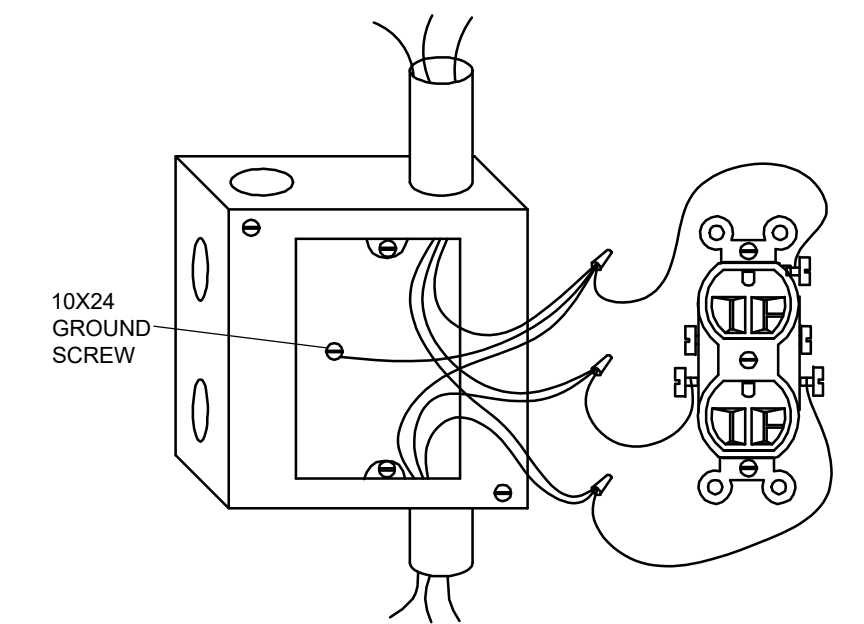


SCHEMATIC NOTES:
 1. BASIS OF DESIGN MODEL NUMBERS (WATTSTOPPER):
 1.1. DUAL TECHNOLOGY (SONAR AND PASSIVE INFRARED) CEILING SENSOR: DT-300
 1.2. 24VDC POWER PACK: SZ-200
 1.3. MOMENTARY SWITCH: LVSW-101
 2. ISOLATE AND CAP 0-10V LED DRIVER CONTROL LEADS (IF PRESENT) TO ACCOMPLISH 100% LIGHT OUTPUT (CONFIRM WITH DRIVER MANUFACTURER WIRING DIAGRAM).
 3. CONFIGURE SETTINGS FOR "MANUAL-ON" OPERATION, EXCEPT RESTROOMS, STAIRS, LOBBY, AND CORRIDORS SHALL BE SET FOR "AUTO-ON" OPERATION.
 4. SET SENSOR "AUTO-OFF" TIME DELAY SETTING FOR 20 MINUTES.
 5. WHITE DEVICES AND FACEPLATES, UNLESS DIRECTED OTHERWISE BY ARCHITECT OR OWNER.
 6. SEE PLAN FOR SWITCH AND SENSOR QUANTITIES.

TYPICAL NON-DIMMING CEILING SENSOR SCHEMATIC

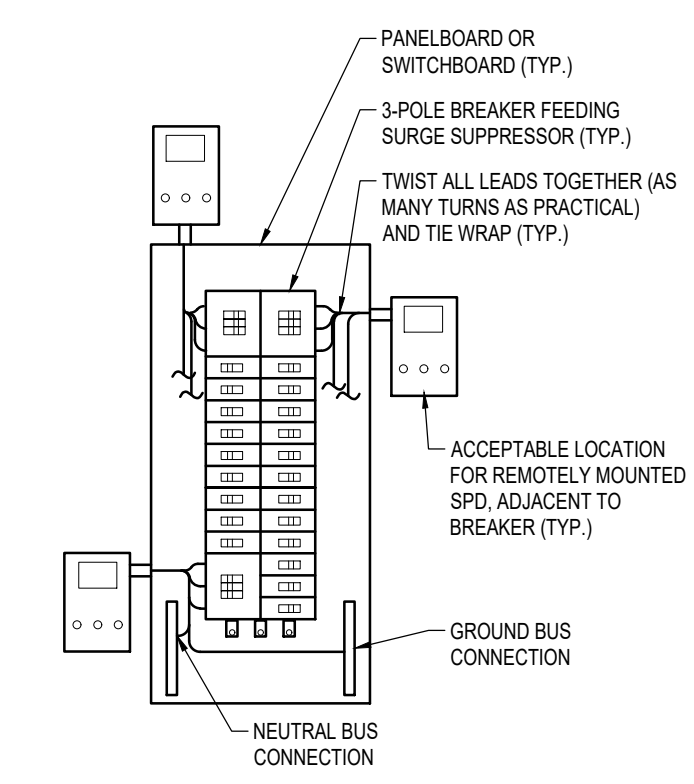


HOT WATER RECIRCULATION PUMP CONTROL DIAGRAM

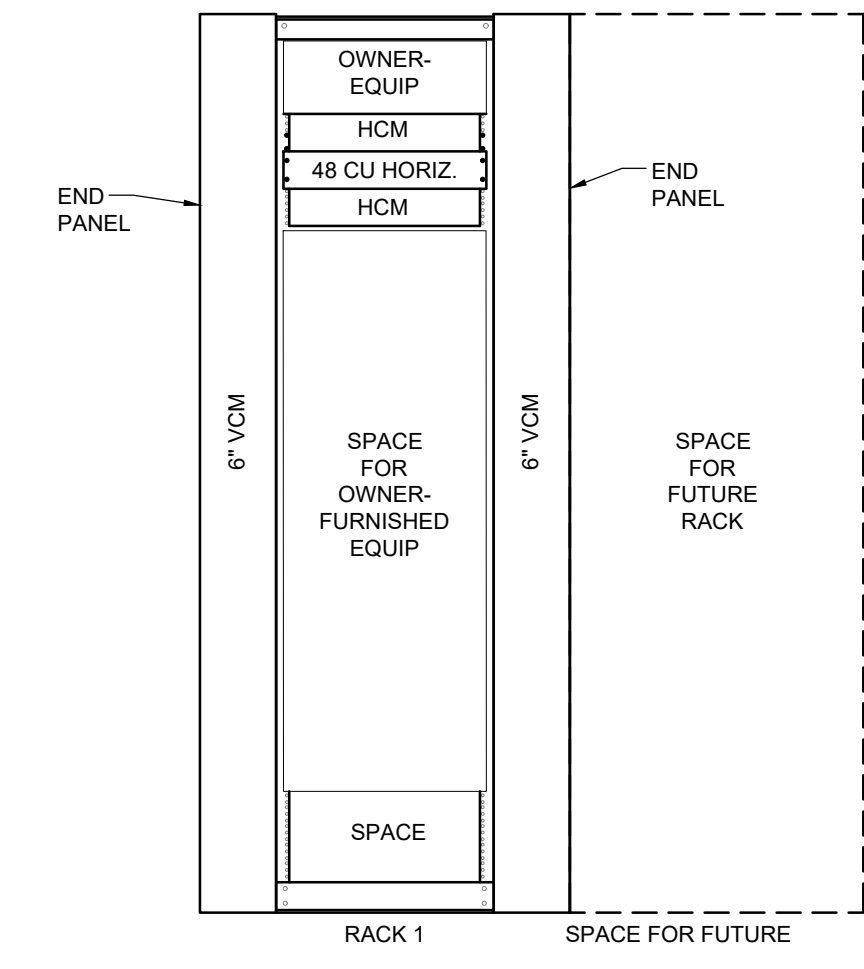


- NEUTRAL CONDUCTORS SHALL BE CONNECTED INDEPENDENTLY OF THE DEVICE AND PIGTAILED TO THE DEVICE.
- HOT CONDUCTORS SHALL BE CONNECTED INDEPENDENTLY OF THE DEVICE AND PIGTAILED TO THE DEVICE.
- UNUSED SCREW TERMINALS ON DEVICE SHALL BE TIGHTENED PRIOR TO INSTALLATION INTO OUTLET BOX.
- INSTALL SEPARATE GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR. CONDUCTOR SHALL BE CONNECTED TO CIRCUIT EQUIPMENT GROUNDING CONDUCTOR AND BONDED TO OUTLET BOX.

TYPICAL OUTLET WIRING DETAIL



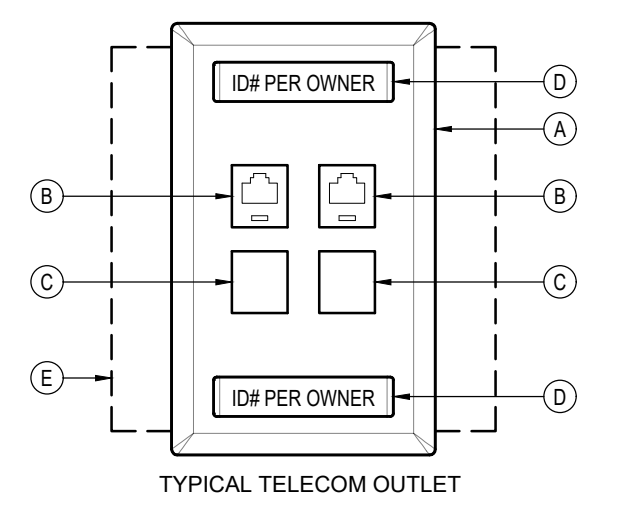
REMOTE-MOUNT SPD DETAIL



I.T. ROOM RACK DETAIL

EQUIPMENT RACK ABBREVIATIONS
 48 CU HORIZ 2RU 48-PORT CAT6 COPPER HORIZONTAL CABLE PATCH PANEL (PANDUIT #DP48888TGY)
 HCM HORIZONTAL CABLE MANAGEMENT (2RU, UNLESS NOTED OTHERWISE)
 VCM VERTICAL CABLE MANAGEMENT WITH DOORS

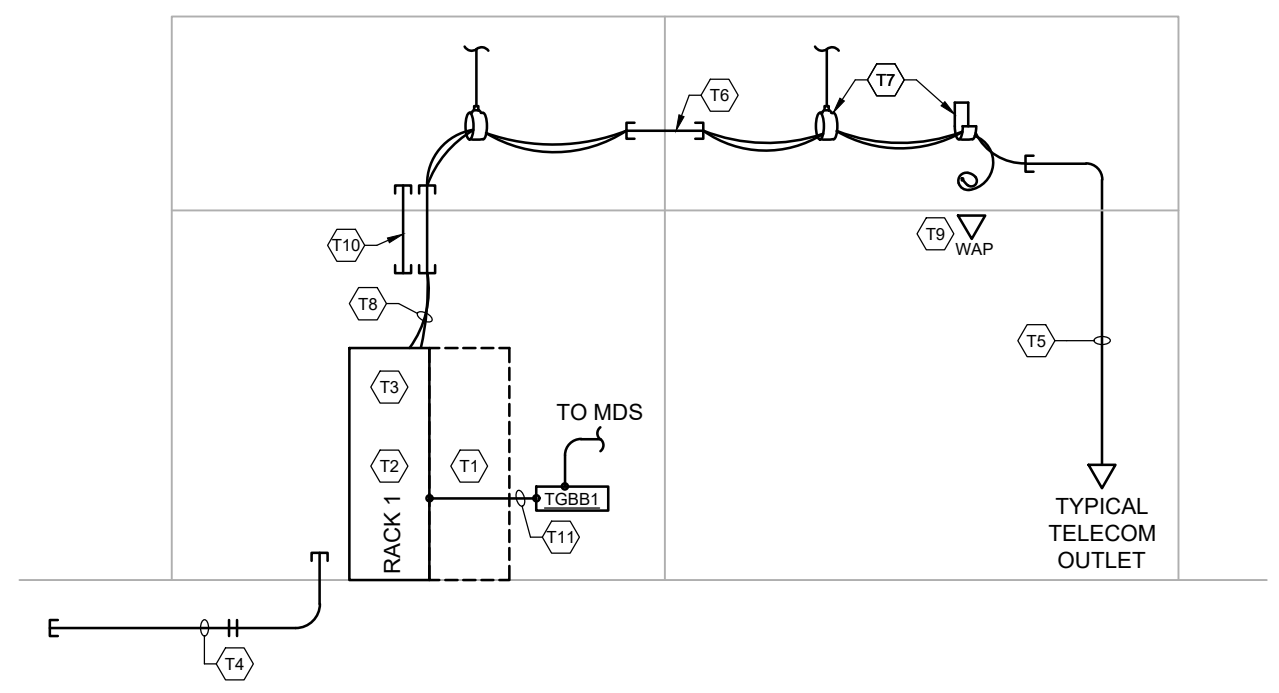
RACK DETAIL NOTES:
 1. OWNER SHALL FURNISH & INSTALL FIBER BOXES, BACKBONE CABLE, NETWORK SWITCHES, ROUTERS, POE SWITCHES, UPS, AND PATCH CABLES FOR I.T. ROOMS.
 2. CONTRACTOR SHALL PROVIDE RACK, CABLE MANAGEMENT ACCESSORIES, PATCH PANELS, HORIZONTAL CABLES, AND SHALL MAKE ALL FINAL TERMINATIONS OF HORIZONTAL CABLES TO PATCH PANELS AND TELECOM OUTLETS. COMPONENTS SHALL BE COORDINATED WITH OWNER'S I.T. TO MATCH COUNTY STANDARDS.
 3. I.T. ROOM RACK DETAILS ARE BASIS OF DESIGN. CONTRACTOR SHALL SUBMIT RACK LAYOUT DRAWINGS FOR OWNER I.T. DEPARTMENT REVIEW AND APPROVAL PRIOR TO COMMENCING WORK.



TYPICAL TELECOM OUTLET DETAIL (CAT6)

- COMMUNICATIONS FACEPLATE, 4-PORT, WHITE COLOR, WITH LABEL WINDOWS. (PANDUIT NETKEY #N4K4FWY)
- SNAP-IN 8-PIN MODULAR PUNCHDOWN JACK ASSEMBLY, CAT 6, WHITE COLOR, T568B PIN ASSIGNMENTS (PANDUIT NETKEY #N6888MWH). SEE PLANS FOR QUANTITY OF CABLES (AND COUPLERS) AT EACH OUTLET LOCATION.
- SNAP-IN BLANK TAB MODULE, WHITE (PANDUIT NETKEY #N6888MWH-X). EACH UNUSED PORT ON THE 4-PORT FACEPLATE SHALL BE PROVIDED WITH BLANK TAB, AS APPLICABLE.
- COMMUNICATIONS OUTLET IDENTIFIER ON LASER PRINTED INSERT UNDER FACTORY PLASTIC COVER. COORD. WITH OWNER FOR EXACT NOMENCLATURE.
- BACKBOX SHALL BE 4" SQUARE 2-1/8" DEEP WITH SINGLE-GANG MUD RING.

- TELECOM RISER KEYED NOTES:
- SPACE FOR FUTURE RACK.
 - RACK, SEE DETAIL.
 - TERMINATE ALL HORIZONTAL CABLES TO PATCH PANELS. COORDINATE WITH OWNER'S I.T. DEPARTMENT.
 - PROVIDE (2) 2" C. WITH PULL-STRING FOR INCOMING TELECOM SERVICE AND SPARE. STUB UP INTO I.T. ROOM.
 - 1" (MIN.) WITH 2 CAT6 CABLES PER TELECOM OUTLET LOCATION AS INDICATED ON PLANS. PROVIDE NON-METALLIC BUSHING ON CONDUIT END. STUB OUT 6" MIN. ABOVE CEILING.
 - PROVIDE SLEEVE THRU WALL, 12" BEYOND FACE OF WALL ON BOTH SIDES. NON-METALLIC BUSHINGS ON BOTH ENDS. SEE PLANS FOR QUANTITIES, SIZES, AND LOCATIONS.
 - SUPPORT CABLES ABOVE CEILING VIA LOOPS OR J-HOOKS AT INTERVALS NOT GREATER THAN 5' (UNLESS OTHERWISE REQUIRED TO BE SHORTER TO PREVENT DAMAGE).
 - HORIZONTAL CABLING FROM OUTLET (OR DEVICE) TO I.T. ROOM SHALL HAVE SUFFICIENT LENGTH TO ENABLE TERMINATION AT OWNER-DIRECTED PATCH PANEL LOCATION.
 - PROVIDE CABLE WITH RJ45 CONNECTOR FOR WIRELESS ACCESS POINT. PROVIDE 6" SPARE CABLE LENGTH, COILED ABOVE CEILING.
 - PROVIDE (2) 3" SLEEVES THRU CEILING GRID FOR ROUTING OF CABLES. PROVIDE BUSHINGS ON BOTH ENDS.
 - BOND RACKS, CHASES, AND OTHER METALLIC ITEMS TO TELECOM GROUND BUS BAR WITH #6 CU BONDING JUMPERS. BOND BAR DIRECTLY TO GROUND BAR IN MDS VIA 1/0 CU BONDING JUMPER.
- CAT6 OUTER JACKET COLORS SHALL BE BASED ON CABLE APPLICATION AS FOLLOWS (UNLESS DIRECTED OTHERWISE BY OWNER'S I.T.):
 GREEN - WIRELESS ACCESS POINTS
 RED - SECURITY/LIFE-SAFETY/FIRE
 BLUE - VOICE/DATA



TELECOM RISER DIAGRAM



THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY CHAD J. FRALOCK ON THE INDICATED DATE USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT VALID UNLESS SIGNED AND SEALED BY THE SIGNATURE. MORE INFORMATION ON ANY E-LECTRONIC COPIES.

NEW FIRE DEPARTMENT ADMINISTRATION BUILDING
 1579 NW LAKE JEFFERY ROAD
 LAKE CITY, FLORIDA
 COBCC PROJECT NUMBER

#	Date	Note

DETAILS

CONSTRUCTION DOCUMENTS