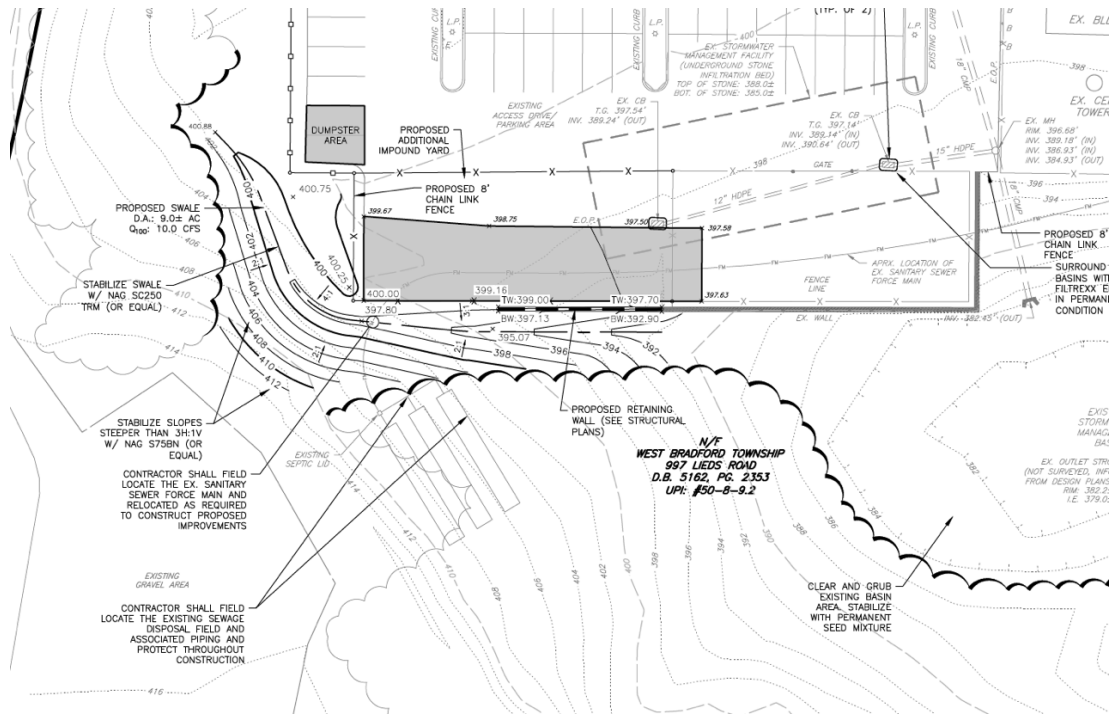


## Addendum #2

Date December 11, 2025

1. This Addendum #2 shall be made part of the contract documents dated 10/30/25 and released for bid.
2. Any provisions of the Contract, which may be in conflict or be inconsistent with any of the paragraphs in this addendum, shall be voided to the extent of such conflict or inconsistency.
3. All bidders have the option to use the provided bid bond form in the bid package or one of their own.
4. No substitutions are permitted for any of the bullet resistant products specified on the bid documents as stated by the Pennsylvania State Police.
5. Dovetail slots are required for brick with concrete backup as noted on sheet S3.0 of the Structural Bid documents. Please note that the brick tie type with CMU backup is different & is noted as such on the same referenced sheet on the Structural Bid documents.
6. Generator pad details can be found on sheet E4.3 of the Electrical Bid documents.
7. There are no specific details for the staging area. This is shown on the plan for the contractor's reference to let them know the area that they are able to utilize for staging & laydown.
8. There is no trash pad detail. The dumpster area shown on the plan is for the contractor to utilize for dumpsters during the construction process. This area is on top of two (2) existing parking stalls in the corner of the parking lot.
9. The shaded area shown on the plan snip below that was sent over represents the impound lot expansion. This shall be graded and then paved in accordance with the "Typical On-Site Paving Section" detail shown on Sheet 3 of 5 of the Civil Plan Set drawings.



10. The Fire Alarm Control Panel manufacturer is Fire Lite model #MS-9200 and is to remain. There is an Annunciator Panel located next to the front door, manufacturer is Fire Lite model #LCD-40L & is also to remain.
11. There is a typo on the electrical bid drawings sheet E2.1 Note 5 that states "EC to install thermostat shall furnish and install thermostat..." The note should read "E.C. shall furnish & install thermostat..."
12. No work is to be performed at the area marked for the Helipad.
13. There are various grey shaded areas on Sheet 2 of the civil plans; some are proposed building additions, and the rest are to be paved with the exception of the "dumpster area" (this is just existing asphalt parking stalls that are to be used by the contractor for dumpsters during construction) and the "contractor parking spaces" which are simply existing stalls delineated on the plan so that the contractor knows which spaces they are able to utilize within the site. Areas to be paved include the parking expansion on the western side of the lot near the entrance driveway, impound lot expansion at the south end of the site, modified driveway to the new garage at the rear of the building, and modified parking area and new driveway to the new garage at the front of the building.



14. There is no extension of the bid due date. Please have all of your respective bids in to the Township by December 19<sup>th</sup> before 2PM.
15. As per the Pre-Bid meeting, bidders should hold pricing for 90 days.
16. The Township will provide oversight and inspection of the retaining wall through JMR's office (civil engineer) and JMR's sub-consultant Rise Engineering who did the wall design & the Township will pay for the associated fees.
17. Fencing detail/specification can be found on the top right corner of Sheet 4 of 5 of the civil plan set. There is also a detail on the wall plan S-1 by Uzman Engineering (now Rise Engineering) that details the typical fence post connection within the wall area.
18. With regard to E & S Control Details - The plans call out geotextile blanket slope installation, permanent channel blanket installation, inlet protection, and temporary and permanent seed mixture. The contractor shall provide a topsoil stockpile and concrete washout in areas to be coordinated with the Owner. The other details such as construction fencing, compost filter sock, rock filter outlet, tree protection, rock entrance and pumped water filter bag are included in the event they are determined to be needed by the Owner or Owner's representative or are incidental to items specified on the plans such as clearing and grubbing of the existing basin.
19. The Township will have JMR's office provide any required E&S or BMP inspection services.
20. The "dumpster area" location shown on Sheet 2 of 5 of the civil plan set is on top of the existing asphalt parking area and intended as a reserved area for the contractor to use for dumpsters during the construction process. This area comprises of two (2) existing parking stalls.
21. The electrical engineer references Specification Section 312000 Earth Moving throughout the electrical documents. The electrical engineer has changed the language on the bid documents to avoid confusion with regard to this item. There will be no Earth Moving spec section. Direction for earth moving in relation to trenching will be on the electrical drawings. Underground conduits shall be a 24" B.F.G. minimum as noted



on the drawings which have been updated & included as a separate attachment to this Addendum. The Specification Section has been updated as well & included as a separate attachment to this Addendum.

22. Temporary fencing will be required around the proposed addition & laydown/staging area.
23. PSP's Contractor is responsible for pulling the temporary conductors for the relocation of the existing generator to serve as the temporary generator. PSP's Contractor shall be responsible for all portable temporary generators as it relates solely to the generator & transformer work per the Approximate Sequence of Work notes on drawing E6.1. The Electrical Contractor is responsible for providing and maintaining throughout the entire construction site and for the entire construction period, temporary construction lighting and GFCI duplex receptacles as per note 1 on ED1.1 and ED1.2.
24. E.C. shall be responsible for all work associated with Divisions 27 and 28 with a few exceptions. Raceways and cabling for security cameras shall be by security vendor. Relocation of the existing generator shall be partially by E.C. and partially by PSP's contractor as per the Approximate Sequence of Work on drawings E6.1. Temporary portable generators shall be by PSP's contractor as it relates solely to the generator & transformer work per the Approximate Sequence of Work notes on drawing E6.1.
25. The Township will not charge for permits and inspections issued and/or completed by the Township's inspector(s). Other third party designs and inspection are the responsibility of the contractor, for example electrical inspection/certification. The Prime Electrical Contractor shall be responsible for contacting & payment of that particular third party agency. The Prime Plumbing Contractor shall be responsible for all Fire Protection design, testing, & fees associated with the third party Fire Protection service.
26. The prevailing wage rates were provided in their entirety for each contractor's reference. It is not the intent for every line item of the prevailing wage rates to be incorporated into this project - only the scope of work specified in the contract documents.



- 27. There is no sheet A1.13 on the Architectural Bid drawings. The Door & Window Schedule is only on sheet A1.12.
28. Specification Section 230900 Part 2 under Manufacturers is listed item 2 which reads: "Control system shall integrate with owner's existing off-site equipment and software platform, Siemens Building Technologies, Inc." is NOT required. Please disregard this item.
29. The ceiling tiles & grid noted as "Basis of Design" in specifications Section 095100 should be used for bidding purposes. There is only one type of ceiling tile & grid product. Any modification of existing ceiling grids to remain should match the existing grid size & type as closely as possible.
30. Although there is a detail on the civil drawings for wheel stops, no wheel stops are required for this project.
31. Fixture type C5 has been specified as LCAT-35HLG high lumen output. Sheet E6.3 has been updated to reflect this information & accompanies this Addendum as a separate attachment.
32. The Bluetooth Timeclock is to be provided by the Electrical Contractor. Model number is NXBTC as manufactured by Hubbell. Sheet E0.1 has been updated to reflect this information & accompanies this Addendum as a separate attachment.

End of Addendum #2

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It is mandatory to fill out this form and email it back to m.faella@archalli.com.

I have received Addendum #2 dated December 11, 2025 consisting of 5 pages.

Name Date

Company

## SECTION 260533

### RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

#### PART 1 - GENERAL

##### 1.1 SUMMARY

###### A. Section Includes:

1. Metal conduits, tubing, and fittings.
2. Nonmetallic conduits, tubing, and fittings.
3. Metal wireways and auxiliary gutters.
4. Surface raceways.
5. Boxes, enclosures, and cabinets.
6. Handholes and boxes for exterior underground cabling.

##### 1.2 ACTION SUBMITTALS

- ###### A. Product Data: For each type of product.

#### PART 2 - PRODUCTS

##### 2.1 METAL CONDUITS, TUBING, AND FITTINGS

- ###### A. Listing and Labeling: Metal conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- ###### B. GRC: Comply with ANSI C80.1 and UL 6.
- ###### C. EMT: Comply with ANSI C80.3 and UL 797.
- ###### D. FMC: Comply with UL 1; zinc-coated steel.
- ###### E. LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.
- ###### F. Fittings for Metal Conduit: Comply with NEMA FB 1 and UL 514B.
1. Fittings for EMT:
    - a. Material: Steel.
    - b. Type: compression.
- ###### G. Expansion Fittings: PVC or steel to match conduit type, complying with UL 651, rated for environmental conditions where installed, and including flexible external bonding jumper.

## 2.2 NONMETALLIC CONDUITS AND FITTINGS

- A. Listing and Labeling: Nonmetallic conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. RNC: Schedule 40 PVC, complying with NEMA TC 2 and UL 651 unless otherwise indicated.
- C. LFNC: Comply with UL 1660.
- D. Fittings for ENT and RNC: Comply with NEMA TC 3; match to conduit or tubing type and material.
- E. Fittings for LFNC: Comply with UL 514B.
- F. Solvents and Adhesives: As recommended by conduit manufacturer.

## 2.3 METAL WIREWAYS AND AUXILIARY GUTTERS

- A. Description: Sheet metal, complying with UL 870 and NEMA 250, Type 1 or Type 3R unless otherwise indicated, and sized according to NFPA 70.
  - 1. Metal wireways installed outdoors shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Fittings and Accessories: Include covers, couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.

## 2.4 BOXES, ENCLOSURES, AND CABINETS

- A. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations.
- B. Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A.
- C. Cast-Metal Outlet and Device Boxes: Comply with NEMA FB 1, ferrous alloy, Type FD, with gasketed cover.
- D. Nonmetallic Outlet and Device Boxes: Comply with NEMA OS 2 and UL 514C.
- E. Luminaire Outlet Boxes: Nonadjustable, designed for attachment of luminaire weighing 50 lb. Outlet boxes designed for attachment of luminaires weighing more than 50 lb shall be listed and marked for the maximum allowable weight.
- F. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.
- G. Box extensions used to accommodate new building finishes shall be of same material as recessed box.

- H. Device Box Dimensions: 4 inches square by 2-1/8 inches deep.
- I. Gangable boxes are prohibited.
- J. Hinged-Cover Enclosures: Comply with UL 50 and NEMA 250, Type 1 with continuous-hinge cover with flush latch unless otherwise indicated.
  - 1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
  - 2. Nonmetallic Enclosures: Plastic.
  - 3. Interior Panels: Steel; all sides finished with manufacturer's standard enamel.
- K. Cabinets:
  - 1. NEMA 250, Type 1 galvanized-steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.
  - 2. Hinged door in front cover with flush latch and concealed hinge.
  - 3. Key latch to match panelboards.
  - 4. Metal barriers to separate wiring of different systems and voltage.
  - 5. Accessory feet where required for freestanding equipment.
  - 6. Nonmetallic cabinets shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

## 2.5 HANDHOLES AND BOXES FOR EXTERIOR UNDERGROUND WIRING

- A. General Requirements for Handholes and Boxes:
  - 1. Boxes and handholes for use in underground systems shall be designed and identified as defined in NFPA 70, for intended location and application.
  - 2. Boxes installed in wet areas shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Polymer-Concrete Handholes and Boxes with Polymer-Concrete Cover: Molded of sand and aggregate, bound together with polymer resin, and reinforced with steel, fiberglass, or a combination of the two.
  - 1. Standard: Comply with SCTE 77.
  - 2. Configuration: Designed for flush burial with open bottom unless otherwise indicated.
  - 3. Cover: Weatherproof, secured by tamper-resistant locking devices and having structural load rating consistent with enclosure and handhole location.
  - 4. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
  - 5. Cover Legend: Molded lettering, "ELECTRIC."
  - 6. Conduit Entrance Provisions: Conduit-terminating fittings shall mate with entering ducts for secure, fixed installation in enclosure wall.

### PART 3 - EXECUTION

#### 3.1 RACEWAY APPLICATION

- A. Outdoors: Apply raceway products as specified below unless otherwise indicated:
1. Exposed Conduit: GRC.
  2. Concealed Conduit, Aboveground: GRC.
  3. Underground Conduit: Schedule 40-PVC, direct buried.
  4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
  5. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.
- B. Indoors: Apply raceway products as specified below unless otherwise indicated.
1. Exposed: EMT.
  2. Concealed in Ceilings and Interior Walls and Partitions: EMT.
  3. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.
  4. Damp or Wet Locations: GRC.
  5. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4 nonmetallic in institutional and commercial kitchens and damp or wet locations.
- C. Minimum Raceway Size: 3/4-inch trade size.
- D. Raceway Fittings: Compatible with raceways and suitable for use and location.
1. Rigid Steel Conduit: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.
  2. EMT: Use compression, steel fittings. Comply with NEMA FB 2.10.
  3. Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.
- E. Do not install aluminum conduits, boxes, or fittings in contact with concrete or earth.
- F. Install surface raceways only where indicated on Drawings.

#### 3.2 INSTALLATION

- A. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter. Comply with NECA 102 for aluminum conduits. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.

- B. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.
- C. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for hangers and supports.
- D. Arrange stub-ups so curved portions of bends are not visible above finished slab.
- E. Install no more than the equivalent of three 90-degree bends in any conduit run except for control wiring conduits, for which fewer bends are allowed. Support within 12 inches of changes in direction.
- F. Conceal conduit and EMT within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines.
- G. Support conduit within 12 inches of enclosures to which attached.
- H. Raceways Embedded in Slabs:
  - 1. Run conduit larger than 1-inch trade size, parallel or at right angles to main reinforcement. Where at right angles to reinforcement, place conduit close to slab support. Secure raceways to reinforcement at maximum 10-foot intervals.
  - 2. Arrange raceways to cross building expansion joints at right angles with expansion fittings.
  - 3. Arrange raceways to keep a minimum of 2 inches of concrete cover in all directions.
  - 4. Do not embed threadless fittings in concrete unless specifically approved by Architect for each specific location.
- I. Stub-ups to Above Recessed Ceilings:
  - 1. Use EMT or RMC for raceways.
  - 2. Use a conduit bushing or insulated fitting to terminate stub-ups not terminated in hubs or in an enclosure.
- J. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.
- K. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors including conductors smaller than No. 4 AWG.
- L. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.
- M. Surface Raceways:
  - 1. Install surface raceway with a minimum 2-inch radius control at bend points.
  - 2. Secure surface raceway with screws or other anchor-type devices at intervals not exceeding 48 inches and with no less than two supports per straight raceway section.

Support surface raceway according to manufacturer's written instructions. Tape and glue are not acceptable support methods.

- N. Install raceway sealing fittings at accessible locations according to NFPA 70 and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces.
- O. Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal the interior of all raceways at the following points:
  - 1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
  - 2. Where otherwise required by NFPA 70.
- P. Flexible Conduit Connections: Comply with NEMA RV 3. Use a maximum of 72 inches of flexible conduit for recessed and semi-recessed luminaires, equipment subject to vibration, noise transmission, or movement; and for transformers and motors.
  - 1. Use LFMC in damp or wet locations subject to severe physical damage.
  - 2. Use LFMC or LFNC in damp or wet locations not subject to severe physical damage.
- Q. Mount boxes at heights indicated on Drawings. If mounting heights of boxes are not individually indicated, give priority to ADA requirements. Install boxes with height measured to center of box unless otherwise indicated.
- R. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall. Prepare block surfaces to provide a flat surface for a raintight connection between the box and cover plate or the supported equipment and box.
- S. Horizontally separate boxes mounted on opposite sides of walls so they are not in the same vertical channel.
- T. Locate boxes so that cover or plate will not span different building finishes.
- U. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose.
- V. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.
- W. All work shall comply with NEC Article 511 - Commercial Garages, Repair and Storage.

### 3.3 INSTALLATION OF UNDERGROUND CONDUIT

- A. Direct-Buried Conduit:
  - 1. Excavate trench bottom to provide firm and uniform support for conduit. Prepare trench bottom for pipe less than 6 inches in nominal diameter.

2. Install backfill
3. After installing conduit, backfill and compact. Start at tie-in point, and work toward end of conduit run, leaving conduit at end of run free to move with expansion and contraction as temperature changes during this process. Firmly hand tamp backfill around conduit to provide maximum supporting strength. After placing controlled backfill to within 12 inches of finished grade, make final conduit connection at end of run and complete backfilling with normal compaction.
4. Install manufactured duct elbows for stub-up at poles and equipment and at building entrances through floor unless otherwise indicated. Encase elbows for stub-up ducts throughout length of elbow.
5. Underground Warning Tape: Comply with requirements in Section 260553 "Identification for Electrical Systems."

### 3.4 INSTALLATION OF UNDERGROUND HANDHOLES AND BOXES

- A. Install handholes and boxes level and plumb and with orientation and depth coordinated with connecting conduits to minimize bends and deflections required for proper entrances.
- B. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1/2-inch sieve to No. 4 sieve and compacted to same density as adjacent undisturbed earth.
- C. Elevation: In paved areas, set so cover surface will be flush with finished grade. Set covers of other enclosures 1 inch above finished grade.
- D. Install handholes with bottom below frost line.
- E. Field-cut openings for conduits according to enclosure manufacturer's written instructions. Cut wall of enclosure with a tool designed for material to be cut. Size holes for terminating fittings to be used, and seal around penetrations after fittings are installed.

### 3.5 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

### 3.6 FIRESTOPPING

- A. Install firestopping at penetrations of fire-rated floor and wall assemblies. Comply with requirements in Section 078413 "Penetration Firestopping."

3.7 PROTECTION

- A. Protect coatings, finishes, and cabinets from damage and deterioration.
  - 1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
  - 2. Repair damage to PVC coatings or paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION 260533

## ELECTRICAL DRAWING LIST

E0.1	ELECTRICAL COVER SHEET
ED1	ELECTRICAL GROUND FLOOR DEMOLITION PLAN
E2	ELECTRICAL FIRST FLOOR DEMOLITION PLAN
E2.1	ELECTRICAL GROUND FLOOR POWER PLAN
E2.2	ELECTRICAL FIRST FLOOR POWER PLAN
E2.3	ELECTRICAL POWER DIAGRAMS AND DETAILS
E3.1	ELECTRICAL GROUND FLOOR LIGHTING PLAN
E3.2	ELECTRICAL FIRST FLOOR LIGHTING PLAN
E4.1	ELECTRICAL SITE PLAN
E4.2	ELECTRICAL SITE LIGHTING CALCULATION PLAN
E4.3	ELECTRICAL SITE DETAILS AND DIAGRAMS
E6.1	ELECTRICAL DIAGRAMS
E6.2	ELECTRICAL PANEL SCHEDULES
E6.3	ELECTRICAL LIGHTING SCHEDULE
E6.4	ELECTRICAL LIGHTING CONTROL DIAGRAMS
E6.5	ELECTRICAL LIGHTING CONTROL DIAGRAMS

## POWER LEGEND:

	GROUND TO EARTH
	CIRCUIT BREAKER. "A" AND "3P" IDENTIFY CIRCUIT BREAKER AMPACITY AND 3 POLES UNLESS OTHERWISE NOTED.
	FUSED DISCONNECT. "A" AND "3P" IDENTIFY DISCONNECT AMPACITY AND 3 POLES UNLESS OTHERWISE NOTED.
	FUSE. "A" IDENTIFIES FUSE AMPACITY.
	NON-FUSIBLE DISCONNECT SWITCH. "A" IDENTIFIES DISCONNECT SWITCH AMPACITY RATING. "NEMA #1" IDENTIFIES NEMA ENCLOSURE TYPE.
	TYPICAL BRANCH CIRCUITING HOME RUN SYMBOL. GENERALLY 15A BRANCH CIRCUITS CONSISTS OF (2) #14 AWG CU. AND (1) #14 AWG CU. GND. IN 3/4" CONDUIT AND 20A BRANCH CIRCUITS CONSISTS OF (2) #12 AWG CU. AND (1) #12 AWG CU. IN 3/4" CONDUIT UNLESS OTHERWISE NOTED. PROVIDE AN ADDITIONAL ISOLATED GROUND WIRE FOR ALL ISOLATED GROUND CIRCUITS. "F" IDENTIFIES PANEL BOARD CIRCUIT NUMBER. REFER TO CIRCUITING NOTES FOR SPECIFIC PANEL DESIGNATION.
	20A, 120V AC, NEMA 5-20R, DUPLEX RECEPTACLE. MOUNTING HEIGHT TO CENTER OF DEVICE = 18" AFF TO CENTER OF DEVICE BOX U.O.N.. + = ABOVE COUNTER HEIGHT MOUNT (COORDINATE WITH MILLWORK). E.C. SHALL INSTALL TAMPER RESISTANT RECEPTABLES IN DWELLING UNITS. RECEPTACLE OUTLET BOXES INSTALLED IN RATED WALLS SHALL HAVE A MINIMUM OF 2 1/2 HOUR FIRE RATING. RECEPTACLE OUTLET BOXES INSTALLED IN RATED STAIRWELL WALLS SHALL HAVE A MINIMUM OF 2 HOUR FIRE RATING.
	20A, 120V AC, NEMA 5-20R, GROUND FAULT CIRCUIT INTERRUPTER (GFCI) TYPE DUPLEX RECEPTACLE. MOUNTING HEIGHT TO CENTER OF DEVICE = 18" A.F.F., + = ABOVE COUNTER HEIGHT MOUNT (COORDINATE WITH MILLWORK).
	20A, 120V AC, NEMA 5-20R, GROUND FAULT CIRCUIT INTERRUPTER (GFCI) TYPE DOUBLE DUPLEX RECEPTACLE. MOUNTING HEIGHT TO CENTER OF DEVICE = 18" A.F.F., + = ABOVE COUNTER HEIGHT MOUNT (COORDINATE WITH MILLWORK).
	20A, 120V AC, NEMA 5-20R, ISOLATED GROUND DUPLEX RECEPTACLE. PROVIDE ADDITIONAL ISOLATED GROUND WIRE FOR ALL ISOLATED GROUND CIRCUITS. MOUNTING HEIGHT TO CENTER OF DEVICE = 18" A.F.F., + = ABOVE COUNTER HEIGHT MOUNT (COORDINATE WITH MILLWORK).
	20A, 120V AC, NEMA 5-20R, GROUND FAULT CIRCUIT INTERRUPTER (GFCI) DUPLEX RECEPTACLE WITH WEATHERPROOF COVER. COVER SHALL BE IDENTIFIED AS EXTRA DUTY. MOUNTING HEIGHT = 18" A.F.F. TO CENTER OF DEVICE BOX U.O.N.
	SPECIAL PURPOSE ELECTRICAL RECEPTACLE. NEMA CONFIGURATION AS SHOWN NEXT TO RECEPTACLE.
	JUNCTION BOX OR EQUIPMENT CONNECTION.
	SINGLE-POLE OR TWO-POLE (AS REQUIRED), 250V AC, 1 HP RATED, TOGGLE TYPE MANUAL MOTOR STARTED UNIT WITH MELTING ALLOY TYPE THERMAL OVERLOAD RELAY, APPROPRIATELY SIZED THERMAL UNITS, NEMA TYPE 1 OR 4 (AS REQUIRED) ENCLOSURE, AND HANDLE GUARD/LOCK-OFF. SQUARE D CLASS 2510 FG OR FW TYPES (AS REQUIRED) OR APPROVED EQUAL. THREE-POLE, 250V AC, 1 OR 2 HP RATED (AS REQUIRED), TOGGLE TYPE MANUAL MOTOR STARTER UNIT WITH MELTING ALLOY TYPE THERMAL OVERLOAD RELAY, APPROPRIATELY SIZED THERMAL UNITS, NEMA TYPE 1 ENCLOSURE AND HANDLE GUARD/LOCK-OFF. SQUARE D CLASS 2510 K TYPE OR APPROVED EQUAL.
	ELECTRICAL POWER PANEL

## LIGHTING LEGEND:

	20A, 120-277V AC, SINGLE ROCKER SWITCH. SWITCH MOUNTING HEIGHT = 48" A.F.F. TO TOP OF DEVICE BOX, U.O.N..
	20A, 120/277V AC, WALL MOUNTED OCCUPANCY SWITCH, SWITCH MOUNTING HEIGHT = 48" A.F.F. TO TOP OF DEVICE BOX, U.O.N. SWITCH SHALL BE MODEL NUMBER LHMTS-1-N AS MANUFACTURED BY HUBBELL.
	20A, 120/277V AC, WALL MOUNTED VACANCY SWITCH, 0-10V DIMMING, SWITCH MOUNTING HEIGHT = 48" A.F.F. TO TOP OF DEVICE BOX, U.O.N. SWITCH SHALL BE MODEL NUMBER LHMTS-2-N AS MANUFACTURED BY HUBBELL.
	24V DC, FOUR BUTTON DIGITAL WALL SWITCH, SWITCH MOUNTING HEIGHT = 48" A.F.F. TO TOP OF DEVICE BOX, U.O.N. SWITCH SHALL BE MODEL NUMBER NWS-ORLO AS MANUFACTURED BY HUBBELL OR EQUAL. DIGITAL WALL SWITCH SHALL BE FED BY ROOM CONTROLLER. CABLING BETWEEN CONTROLLER AND DIGITAL WALL SWITCH SHALL BE CAT-5 CABLE WITH RJ45 CONNECTORS.
	20A, 120/277V AC, TIMER SWITCH, SWITCH MOUNTING HEIGHT = 48" A.F.F. TO TOP OF DEVICE BOX, U.O.N. SWITCH SHALL BE MODEL NUMBER DTS06W AS MANUFACTURED BY HUBBELL.
	20A, 120/277V AC, ASTRONOMICAL CLOCK TIMER SWITCH, SWITCH MOUNTING HEIGHT = 48" A.F.F. TO TOP OF DEVICE BOX, U.O.N. SWITCH SHALL BE MODEL NUMBER WST120 AS MANUFACTURED BY HUBBELL.
	2000 SQ. FT. COVERAGE CEILING MOUNTED OCCUPANCY SENSOR. ADAPTIVE TECHNOLOGY, DUAL TECHNOLOGY (ULTRASONIC AND PASSIVE INFRARED). MODEL NUMBER NXS-0MDT2 AS MANUFACTURED BY HUBBELL. SENSOR SHALL BE PROVIDED WITH A RJ45 ADAPTOR.
	20A, 120V AC, 60HZ, ROOM CONTROLLER, SINGLE RELAY, 0-10V DIMMING, UL LISTED, U.O.N. CONTROLLER SHALL BE MODEL NUMBER NRC-1RD-UNV AS MANUFACTURED BY HUBBELL OR EQUAL. BY LEVITON. CABLING BETWEEN LOW VOLTAGE DEVICES AND ROOM CONTROLLER SHALL BE CAT-5 PLENUM RATED CABLE. E.C. SHALL MOUNT ROOM CONTROLLER SECURELY ABOVE DROP CEILING IN ACCESSIBLE SPACE IN AN ACCESS PANEL LOCATED OUT OF SITE IN AN ACCESSIBLE LOCATION.
	20A, 120V AC, 60HZ, ROOM CONTROLLER, TWO RELAY, 0-10V DIMMING, UL LISTED, U.O.N. CONTROLLER SHALL BE MODEL NUMBER NRC-2RD-UNV AS MANUFACTURED BY HUBBELL OR EQUAL. BY LEVITON. CABLING BETWEEN LOW VOLTAGE DEVICES AND ROOM CONTROLLER SHALL BE CAT-5 PLENUM RATED CABLE. E.C. SHALL MOUNT ROOM CONTROLLER SECURELY ABOVE DROP CEILING IN ACCESSIBLE SPACE IN AN ACCESS PANEL LOCATED OUT OF SITE IN AN ACCESSIBLE LOCATION.
	BLUETOOTH TIME CLOCK, RJ45 PLUG IN CONNECTOR, POWERED FROM THE ROOM CONTROLLER. MODEL NUMBER NXC15 AS MANUFACTURED BY HUBBELL.

## COMMUNICATIONS LEGEND:

	TELEVISION OUTLET. PROVIDE STANDARD SQUARE DEVICE BOX, TILE RING (DEPTH AS REQUIRED), DEVICE PLATE (COLOR AS SPECIFIED BY ARCHITECT/ENGINEER AND/OR OWNER), AND RG-6 CABLE TO THE NEAREST SPLITTER POINT WITHIN THE APARTMENT. MOUNTING HEIGHT = 18" A.F.F. TO CENTER OF DEVICE UNLESS OTHERWISE NOTED.
	DATA OUTLET CONSISTING OF ONE 4" SQUARE BOX, TILE RING (DEPTH AS REQUIRED), DEVICE PLATE (COLOR AS SPECIFIED BY ARCHITECT/ENGINEER AND/OR OWNER), 3/4" CONDUIT STUBBED UP INTO THE NEAREST ACCESSIBLE CEILING, AND (2) CAT-6 CABLES FROM DEVICE BOX BACK TO LAN ROOM UNLESS OTHERWISE NOTED. E.C. SHALL TERMINATE EACH CAT-6 CABLE ON A RJ45 EA/TIA 568B KEYSTONE IN THE DEVICE BOX. MOUNTING HEIGHT = 18" A.F.F. TO THE CENTER OF DEVICE BOX UNLESS OTHERWISE NOTED.
	TELEPHONE OUTLET CONSISTING OF ONE 4" SQUARE BOX, TILE RING (DEPTH AS REQUIRED), DEVICE PLATE (COLOR AS SPECIFIED BY ARCHITECT/ENGINEER AND/OR OWNER), AND (1) CAT-6 CABLE FROM DEVICE BOX BACK TO LAN ROOM UNLESS OTHERWISE NOTED. E.C. SHALL TERMINATE EACH CAT-6 CABLE ON A RJ45 EA/TIA 568B KEYSTONE IN THE DEVICE BOX. MOUNTING HEIGHT = 18" A.F.F. TO THE CENTER OF DEVICE BOX UNLESS OTHERWISE NOTED.
	CEILING MOUNTED WIRELESS ACCESS POINT CONSISTING OF ONE 4" SQUARE BOX, TILE RING (DEPTH AS REQUIRED), DEVICE PLATE (COLOR AS SPECIFIED BY ARCHITECT/ENGINEER AND/OR OWNER), AND (1) CAT-6 CABLE FROM DEVICE BOX BACK TO LAN ROOM WITH AN 10'-0" OF CABLING COILED FOR POSSIBLE FUTURE RELOCATION UNLESS OTHERWISE NOTED. E.C. SHALL TERMINATE EACH CAT-6 CABLE ON A RJ45 EA/TIA 568B KEYSTONE IN THE DEVICE BOX. MOUNTING HEIGHT = 18" A.F.F. TO THE CENTER OF DEVICE BOX UNLESS OTHERWISE NOTED.
	HEAT PUMP UNIT. PROVIDED BY MECHANICAL CONTRACTOR
	EXHAUST FAN. PROVIDED BY MECHANICAL CONTRACTOR
	ELECTRIC BASEBOARD HEATER. PROVIDED BY MECHANICAL CONTRACTOR
	ELECTRIC CABINET UNIT HEATER. PROVIDED BY MECHANICAL CONTRACTOR
	ELECTRIC UNIT HEATER. PROVIDED BY MECHANICAL CONTRACTOR
	ELECTRIC WALL UNIT HEATER. PROVIDED BY MECHANICAL CONTRACTOR

## MECHANICAL EQUIPMENT LEGEND:

	HEAT PUMP UNIT. PROVIDED BY MECHANICAL CONTRACTOR
	EXHAUST FAN. PROVIDED BY MECHANICAL CONTRACTOR
	ELECTRIC BASEBOARD HEATER. PROVIDED BY MECHANICAL CONTRACTOR
	ELECTRIC CABINET UNIT HEATER. PROVIDED BY MECHANICAL CONTRACTOR
	ELECTRIC UNIT HEATER. PROVIDED BY MECHANICAL CONTRACTOR
	ELECTRIC WALL UNIT HEATER. PROVIDED BY MECHANICAL CONTRACTOR

## BASIC ELECTRICAL REQUIREMENTS:

- GENERAL: ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE 2020 NATIONAL ELECTRICAL CODE (NEC) AND NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA) STANDARDS UNLESS MORE STRINGENT REQUIREMENTS ARE INDICATED. ALL ELECTRICAL WORK SHALL BE PERFORMED IN A NEAT AND WORKMANLIKE MANNER BY A LICENSED ELECTRICIAN, OR A CERTIFIED APPRENTICE WORKING UNDER THE DIRECT SUPERVISION OF A LICENSED ELECTRICIAN, USING THE BEST METHODS KNOWN TO THE TRADE AND SHALL PRESENT A NEAT AND PROFESSIONAL APPEARANCE. WHEN COMPLETED, THE OWNER RESERVES THE RIGHT TO TAKE, WITHOUT ADDITIONAL COST, THE LOCATION OF ANY APPARATUS OR EQUIPMENT, PROVIDED SUCH CHANGE DOES NOT ADD MORE THAN 10 FT. TO THE FEEDER AND IS ORDERED BEFORE INSTALLATION OF THE AFFECTED PORTION OF THE WORK IS COMMENCED. CONTRACTOR SHALL BRING ALL CONFLICTS ON THE DRAWINGS TO THE OWNERS ATTENTION FOR HIS RESOLUTION. SUCH RESOLUTION SHALL BE IMPLEMENTED WITH OUT COST TO THE OWNER.
- THE CONTRACTOR SHALL SURVEY THE PROJECT SITE PRIOR TO THE BID TO ASSESS ACTUAL FIELD CONDITIONS. FAILURE TO PERFORM THIS INSPECTION WORK SHALL BE CONSIDERED TO PERFORM THE WORK WITH OUT EXTRA CHARGES DESPITE THE IGNORANCE OF REASONABLY ANTICIPATED CONDITIONS.
- ROUGH-INS: THE CONTRACTOR SHALL VERIFY AND COORDINATE THE ROUGH-IN REQUIREMENTS OF EACH ITEM OF EQUIPMENT WITH THE CONTRACTOR SUPPLYING THE EQUIPMENT.
- INSTALLATION: THE ELECTRICAL DRAWINGS INDICATE THE EXTENT AND GENERAL LOCATION AND ARRANGEMENT OF EQUIPMENT AND MATERIALS. THE CONTRACTOR SHALL BECOME FAMILIAR WITH ALL DETAILS OF THE WORK AND VERIFY ALL DIMENSIONS IN THE FIELD SO THAT EQUIPMENT AND MATERIALS WILL BE PROPERLY LOCATED AND READILY ACCESSIBLE. THE CONTRACTOR SHALL SEQUENCE, COORDINATE, AND INTEGRATE THE VARIOUS ELEMENTS OF ELECTRICAL SYSTEMS, EQUIPMENT, AND MATERIALS. COMPLY WITH THE FOLLOWING REQUIREMENTS:
  - VERIFY ALL DIMENSIONS BY FIELD MEASUREMENTS.
  - COORDINATE ELECTRICAL SYSTEMS, EQUIPMENT, AND MATERIALS INSTALLATION WITH OTHER BUILDING COMPONENTS AND TRADES.
  - ARRANGE FOR CHASSES, SLOTS, AND OPENINGS IN OTHER BUILDING COMPONENTS DURING PROGRESS OF CONSTRUCTION, TO ALLOW FOR INSTALLATION OF ELECTRICAL SYSTEMS, EQUIPMENT, AND MATERIALS.
  - SEQUENCE, COORDINATE, AND INTEGRATE INSTALLATION OF ELECTRICAL SYSTEMS, EQUIPMENT, AND MATERIALS FOR EFFICIENT FLOW OF THE WORK.
  - WHERE MOUNTING HEIGHTS ARE NOT INDICATED, INSTALL ELECTRICAL SYSTEMS, EQUIPMENT, AND MATERIALS TO PROVIDE MAXIMUM HEADROOM POSSIBLE.
  - INSTALL ELECTRICAL SYSTEMS, EQUIPMENT, AND MATERIALS TO CONFORM WITH APPROVED SUBMITTAL DATA TO THE GREATEST EXTENT POSSIBLE. CONFORM TO THE ARRANGEMENTS INDICATED ON THE ELECTRICAL DRAWINGS.
  - REQUIREMENTS THAT DIFFER FROM THOSE SHOWN ONLY IN DIAGRAMATIC FORM WHERE COORDINATION REQUIREMENTS CONFLICT WITH INDIVIDUAL SYSTEM REQUIREMENTS, REFER CONFLICT TO THE ARCHITECT/ENGINEER OR OWNER'S REPRESENTATIVE FOR RESOLUTION.
  - IN GENERAL, INSTALL ELECTRICAL SYSTEMS, EQUIPMENT, AND MATERIALS LEVEL AND PLUMB, PARALLEL AND PERPENDICULAR TO BUILDING LINES AND/OR FEATURES AND/OR OTHER BUILDING SYSTEMS.
  - INSTALL ELECTRICAL EQUIPMENT TO FACILITATE SERVICING, MAINTENANCE, AND REPAIR OR REPLACEMENT OF EQUIPMENT AND COMPONENT PARTS. AS MUCH AS PRACTICAL, CONNECT EQUIPMENT FOR EASE OF DISCONNECTING, WITH MINIMUM OF INTERFERENCE WITH OTHER INSTALLATIONS.
  - INSTALL ELECTRICAL SYSTEMS, EQUIPMENT, AND MATERIALS GIVING RIGHT-OF-WAY PRIORITY TO SYSTEMS REQUIRED TO BE INSTALLED AT A SPECIFIC SLOPE(NCL, SPRINKLER SYSTEMS).
- CUTTING AND PATCHING: ALL ELECTRICAL WORK SHALL BE CAREFULLY LAID OUT IN ADVANCE, AND WHERE CUTTING, PATCHING, OR PATCHING IS REQUIRED, PATCHES SHALL BE LAID OUT IN ADVANCE AND SHALL BE IDENTIFIED FOR THE PROPER INSTALLATION, SUPPORT, OR ANCHORAGE OF CONDUIT OR OTHER ELECTRICAL WORK, THIS WORK SHALL BE CAREFULLY DONE. ANY RESULTING DAMAGE TO THE BUILDING OR OTHER SYSTEMS, EQUIPMENT, OR MATERIALS SHALL BE REPAIRED BY SKILLED MECHANICS OF THE TRADES INVOLVED, AT NO ADDITIONAL COST TO THE OWNER.
- PRODUCTS: SYSTEMS, EQUIPMENT, AND MATERIALS DESCRIBED ON THE ELECTRICAL DRAWINGS ESTABLISH THE MINIMUM STANDARDS FOR QUALITY AND STYLE AND SHALL BE THE BASIS OF THE BID. ALL SYSTEMS, EQUIPMENT, AND MATERIALS SHALL BE NEW AND SHALL BE THE UL LABEL OR BE UL LISTED, WHERE APPLICABLE, AND SHALL BE INSTALLED IN ACCORDANCE WITH THE NEC AND NEMA STANDARDS.
- SUBSTITUTIONS: WHERE SYSTEMS, EQUIPMENT, OR MATERIALS ARE SPECIFIED BY MANUFACTURER OR BRAND NAME AND CATALOG NUMBER, SUCH SPECIFICATION SHALL ESTABLISH THE MINIMUM STANDARDS FOR QUALITY AND STYLE AND SHALL BE THE BASIS OF THE BID. SYSTEMS, EQUIPMENT, AND MATERIALS SO SPECIFIED SHALL BE FURNISHED UNDER THE CONTRACT UNLESS CHANGED BY WRITTEN AGREEMENT. SHOULD THE CONTRACTOR PROPOSE TO FURNISH PRODUCTS OTHER THAN THOSE SPECIFIED, AS PERMITTED BY "OR APPROVED EQUAL" CLAUSES, HE SHALL SUBMIT A WRITTEN REQUEST FOR S&D SUBSTITUTIONS THROUGH APPROPRIATE CHANNELS TO THE ARCHITECT/ENGINEER FOR HIS REVIEW. SUCH REQUEST SHALL BE ACCOMPANIED WITH COMPLETE DESCRIPTIVE LITERATURE INCLUDING, BUT NOT LIMITED TO, CATALOG CUT SHEETS, BROCHURES, CIRCULARS, SPECIFICATIONS, PERFORMANCE DATA, INSTALLATION INSTRUCTIONS, SHOP DRAWINGS, AND OTHER PRINTED INFORMATION IN SUFFICIENT DETAIL AND SCOPE TO VERIFY COMPLIANCE WITH THE REQUIREMENTS OF THE CONTRACT. DESCRIPTIVE LITERATURE SHALL BE CLEAR, CONCISE, AND LOGICALLY ARRANGED. ALL DATA WHICH IS, AND IS NOT, APPLICABLE SHALL BE CLEARLY IDENTIFIED AS SUCH. IF REQUESTED, THE CONTRACTOR SHALL SUBMIT SAMPLES OF BOTH PROPOSED AND APPROVED ITEMS FOR INSPECTION. DESCRIPTIVE LITERATURE ON PROPOSED SUBSTITUTIONS SHALL BE RETURNED WITHOUT REVIEW IF NOT PROPERLY PREPARED. ACCEPTANCE OR REJECTION OF PROPOSED SUBSTITUTIONS SHALL BE UP TO THE DISCRETION OF THE ARCHITECT/ENGINEER AND/OR THE OWNER.
- SUBMITTALS: THE CONTRACTOR SHALL FOLLOW THE GENERAL PROVISIONS OF THE CONTRACT AND ESTABLISHED PROCEDURES. SUBMITTALS SHALL CONSIST OF COMPLETE DESCRIPTIVE LITERATURE INCLUDING, BUT NOT LIMITED TO, CATALOG CUT SHEETS, BROCHURES, CIRCULARS, SPECIFICATIONS, PERFORMANCE DATA, INSTALLATION INSTRUCTIONS, SHOP DRAWINGS, AND OTHER PRINTED INFORMATION IN SUFFICIENT DETAIL AND SCOPE TO VERIFY COMPLIANCE WITH THE REQUIREMENTS OF THE CONTRACT. DESCRIPTIVE LITERATURE SHALL BE CLEAR, CONCISE, AND LOGICALLY ARRANGED. ALL DATA WHICH IS, AND IS NOT, APPLICABLE SHALL BE CLEARLY IDENTIFIED AS SUCH. IF REQUESTED, THE CONTRACTOR SHALL SUBMIT SAMPLES OF SPECIFIED ITEMS FOR INSPECTION. DESCRIPTIVE LITERATURE SHALL BE RETURNED WITHOUT REVIEW IF NOT PROPERLY PREPARED. THE FOLLOWING SYSTEMS, EQUIPMENT, AND MATERIALS, AS A MINIMUM, REQUIRE SUBMITTALS:
  - ANY PROPOSED SUBSTITUTIONS.
  - WIRING DEVICES.
  - PANELBOARDS.
  - DISCONNECT SWITCHES.
  - CIRCUIT BREAKERS.
  - LIGHTING FIXTURES INCLUDING BALLASTS/DRIVERS.
  - FIRE ALARM CONTROL SYSTEM.
- RECORD DRAWINGS: THE CONTRACTOR SHALL MAINTAIN AT THE SITE A CLEAN, UNDATED SET OF BLUE- OR BLACK-LINE WHITE PRINTS OF CONTRACT DRAWINGS. THIS RECORD SET OF CONTRACT DRAWINGS SHALL BE MARKED TO SHOW THE ACTUAL INSTALLATION AND WHERE THE ACTUAL INSTALLATION VARIES SUBSTANTIALLY FROM THE ELECTRICAL WORK AS ORIGINALLY SHOWN. MARK WHICHEVER DRAWINGS ARE MOST CAPABLE OF SHOWING CONDITIONS FULLY AND ACCURATELY. GIVE PARTICULAR ATTENTION TO CONCEALED ELEMENTS THAT WOULD BE DIFFICULT TO MEASURE AND RECORD AT A LATER DATE. MARK RECORD DRAWINGS WITH A RED EMPLOYABLE PENCIL. USE OTHER COLORS TO DISTINGUISH BETWEEN VARIATIONS. SEPARATE CATEGORIES OF THE ELECTRICAL WORK. NOTE CONTRACT MODIFICATIONS AND APPROVED SUBSTITUTIONS WHERE APPLICABLE.
- PROTECTION OF INSTALLED SYSTEMS, EQUIPMENT, AND MATERIALS: PROTECT INSTALLED SYSTEMS, EQUIPMENT, AND MATERIALS FROM DAMAGE UNTIL FINAL ACCEPTANCE BY THE OWNER. REPAIR OR REPLACE, AT NO ADDITIONAL COST TO THE OWNER, DAMAGED SYSTEMS, EQUIPMENT, AND MATERIALS TO THE SATISFACTION OF THE ARCHITECT/ ENGINEER AND/OR OWNER.
- CLEANING: UPON COMPLETION OF INSTALLATION, INSPECT INTERIOR AND EXTERIOR OF ALL ELECTRICAL EQUIPMENT. REMOVE PAINT SPLATTERS AND OTHER SPOTS, DIRT, AND DEBRIS. TOUCH-UP SCRATCHES AND MARKS OF FINISH TO MATCH ORIGINAL FINISH.
- CERTIFICATIONS: THE FOLLOWING SHALL BE OBTAINED AND SUBMITTED TO THE OWNER PRIOR TO FINAL PAYMENT:
  - ELECTRICAL SYSTEMS: A CERTIFICATE OF FINAL INSPECTION AND APPROVAL BY THE AUTHORITIES HAVING JURISDICTION.
- WARRANTY: THE CONTRACTOR SHALL SUBMIT A WRITTEN WARRANTY TO THE OWNER, PRIOR TO FINAL PAYMENT, THAT WARRANTS THE INSTALLATION SHALL REMAIN FREE OF DEFECTS FOR A PERIOD OF ONE YEAR AFTER FINAL ACCEPTANCE BY THE OWNER. THE WARRANTY SHALL BE VOID IF THE CONTRACTOR IS NOT THE INSTALLER OF THE EQUIPMENT. THE CONTRACTOR SHALL ALSO STATE THAT THE ON-SITE RESPONSE TIME TO REQUESTS FOR ASSISTANCE WILL BE 24 HOURS FOR NON-EMERGENCY CONDITIONS AND 2 HOURS FOR EMERGENCY CONDITIONS.

## FIRE ALARM LEGEND:

	ADDRESSABLE BUILDING FIRE ALARM SYSTEM SMOKE DETECTOR
	ADDRESSABLE BUILDING FIRE ALARM SYSTEM HEAT DETECTOR.
	ADDRESSABLE BUILDING FIRE ALARM SYSTEM COMBINATION SMOKE/ CARBON MONOXIDE DETECTOR.
	PULL STATION
	FIRE ALARM SYSTEM SPEAKER/STROBE
	FIRE ALARM SYSTEM STROBE.

## ELECTRICAL MATERIALS:

- RACEWAYS:
  - RIGID GALVANIZED STEEL (RGS) CONDUIT: ANSI C80.1
  - ELECTRICAL METALLIC TUBING (EMT) AND FITTINGS: ANSI C80.3 WITH COMPRESSION TYPE FITTINGS.
  - LIQUIDTIGHT FLEXIBLE METAL CONDUIT: UL 360. FLEXIBLE STEEL CONDUIT WITH PVC JACKET.
- BOXES:
  - SHEET METAL: NEMA OS 1.
  - CAST METAL: NEMA FB 1, TYPE FD, CAST FERROALLOY BOX WITH GASKETED COVER.
  - HINGED COVER ENCLOSURES: NEMA 250, GALVANIZED STEEL ENCLOSURE WITH CONTINUOUS HINGE COVER, QUICK RELEASE TYPE LATCHES, REMOVABLE INTERIOR PANEL, AND MANUFACTURER'S STANDARD GRAY ENAMEL INSIDE AND OUT.
- WIRES AND CABLES:
  - CONDUCTOR MATERIAL: ANNEALED COPPER.
  - INSULATION: THHN/THWN CONFORMING TO WC 5.
  - CONDUCTORS #10 AWG AND SMALLER SHALL BE SOLID; CONDUCTORS #8 AWG AND LARGER SHALL BE STRANDED. MC CABLE IS PERMITTED WHERE PERMITTED BY CODE FOR BRANCH CIRCUIT, AND SHALL ULTIZE SOLID CONDUCTORS. ALUMINUM CONDUCTORS ARE PERMITTED FOR 100A OR LARGER.
  - GROUND CONDUCTORS #10 AWG AND SMALLER SHALL HAVE GREEN THHN/THWN INSULATION.
- WIRING DEVICES:
  - GENERAL:
    - GFCI RECEPTABLES SHALL BE LISTED TAMPER & WEATHER RESISTANT HUBBELL OF SERIES OR EQUAL.
    - COMMERCIAL: HUBBELL OR SERIES OR EQUAL.
  - COLOR: WHITE, BLACK, GRAY, IVORY, OR BROWN TO BE AS SELECTED BY THE ARCHITECT/ ENGINEER AND/OR THE OWNER.
  - RECEPTABLES: COMPLY WITH UL 498, "ELECTRICAL ATTACHMENT PLUGS AND RECEPTABLES," "HEAVY DUTY SPECIFICATION GRADE EXCEPT AS OTHERWISE INDICATED." GROUND FAULT CIRCUIT INTERRUPTER (GFCI) TYPE RECEPTABLES SHALL CONTAIN SELF TESTING CAPABILITIES AND COMPLY WITH UL 943, "GROUND FAULT CIRCUIT INTERRUPTERS," WITH INTEGRAL NEMA 5-20R DUPLEX RECEPTACLE DESIGNED FOR INSTALLATION IN A 2-3/4" DEEP DEVICE BOX WITHOUT ADAPTER.
  - TOGGLE SWITCHES: 20A, 120-277V AC, QUIET TYPE, SPECIFICATION GRADE AND SHALL COMPLY WITH UL 20, "GENERAL USE SNAP SWITCHES," SINGLE-POLE, TWO-POLE, THREE-WAY, AND FOUR-WAY AS INDICATED AND/OR REQUIRED.
  - DEVICE PLATES: SINGLE AND COMBINATION TYPES WHICH MATE AND MATCH WITH CORRESPONDING WIRING DEVICES. SMOOTH MATCHING NYLON IN ALL AREAS.
  - MANUFACTURER: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS AS MANUFACTURED BY HUBBELL, INC., OR APPROVED EQUAL BY COOPER WIRING DEVICES.
- GROUNDING:
  - GROUNDING AND BONDING PRODUCTS: OF TYPES INDICATED AND/OR OF SIZES AND RATINGS TO COMPLY WITH THE NEC. WHERE TYPES, SIZES, RATINGS, AND QUANTITIES ARE IN EXCESS OF NEC REQUIREMENTS, THE MORE STRINGENT REQUIREMENTS AND THE GREATER SIZE, RATING, AND QUANTITY INDICATIONS SHALL GOVERN.
  - CONDUCTOR MATERIAL: COPPER.
  - WIRE AND CABLE CONDUCTORS: CONFORM TO NEC TABLE 8, EXCEPT AS OTHERWISE INDICATED, FOR CONDUCTOR PROPERTIES, INCLUDING STRANDING.
  - CONNECTOR PRODUCTS: UL LISTED AND LABELED AS GROUNDING CONNECTORS FOR THE MATERIALS USED.
- PANELBOARDS:
  - CIRCUIT BREAKERS: PROVIDE TYPE, RATING, AND FEATURES INDICATED. BOLT-ON EXCEPT WHERE PLUG-IN FOR USE ON EXISTING PANELBOARDS (NOT BEING UPGRADED) TANDEM CIRCUIT BREAKERS SHALL NOT BE USED. MULTIPOLE CIRCUIT BREAKERS SHALL HAVE AN INTERNAL COMMON TRIP AND A SINGLE HANDLE.
  - ENCLOSURES: NEMA TYPE 1, UNLESS OTHERWISE INDICATED.
  - FRONT: SECURED TO BOX WITH CONCEALED TRIM CLAMPS EXCEPT AS INDICATED. FRONT FOR SURFACE MOUNTED PANELBOARDS SHALL BE SAME DIMENSIONS AS BOX.
  - DIRECTORY FRAME: METAL WITH CLEAR PLASTIC COVER MOUNTED ON INSIDE OF PANELBOARD DOOR.
  - BUS WORK: HARD DRAWN COPPER OF 98% CONDUCTIVITY.
  - MAIN AND NEUTRAL LUGS: COMPRESSION TYPE.
  - EQUIPMENT GROUND BUS: ADEQUATE FOR FEEDER AND BRANCH CIRCUIT EQUIPMENT GROUND CONDUCTORS. BONDED TO BOX.
  - PROVISIONS FOR FUTURE DEVICES: EQUIP WITH MOUNTING BRACKETS, BUS CONNECTION, AND NECESSARY APPURTENANCES, FOR THE CIRCUIT BREAKER AMPERE RATINGS INDICATED FOR FUTURE INSTALLATION OF DEVICES.
  - MAIN AND SUBFED LUGS: PROVIDE WHERE INDICATED.
  - NAMEPLATE: CUSTOM ENGRAVED PLASTIC LAMINATE, WHITE LETTERS ON BLACK FIELD, FOR EACH PANELBOARD MOUNTED WITH EPOXY OR INDUSTRIAL CEMENT OR ADHESIVE.
  - MANUFACTURER: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS AS MANUFACTURED BY GENERAL ELECTRIC, SQUARE-D, CUTLER HAMMER CO., OR SIEMENS.
- DISCONNECTS AND CIRCUIT BREAKERS:
  - FUSIBLE SWITCH, 800A AND SMALLER: NEMA KS 1, TYPE HD, CLIPS TO ACCOMMODATE SPECIFIED FUSES. ENCLOSURE SUITABLE FOR THE ENVIRONMENT WHERE INSTALLED, HANDLE LOCKABLE WITH TWO (2) PAD LOCKS, AND INTERLOCKED WITH COVER IN "CLOSED" POSITION. ENCLOSURES SHALL COMPLY WITH NEMA KS 1; TYPE 1 INDOOR DRY LOCATIONS.
  - MOLDED CASE CIRCUIT BREAKER: NEMA AB 1, HANDLE LOCKABLE WITH TWO (2) PADLOCKS. FRAME SIZE, TRIP RATING, NUMBER OF POLES, AND AUXILIARY DEVICES AS INDICATED. ENCLOSURES SHALL COMPLY WITH NEMA AB 1; TYPE 1, INDOOR DRY LOCATIONS. CIRCUIT BREAKERS SHALL HAVE A MINIMUM INTERRUPTING CAPACITY OF 10KAC.
  - MANUFACTURER: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS AS MANUFACTURED BY GENERAL ELECTRIC, SQUARE-D, CUTLER HAMMER CO., OR SIEMENS.
- LIGHT FIXTURES (REFER TO FIXTURE SCHEDULE ON DRAWING E-603)

## FIRE ALARM SYSTEM:

- UTILIZE THE EXISTING FIRE ALARM SYSTEM IN BUILDING TO SUPPORT THE NEW FIRE ALARM DEVICES. PROVIDE ALL NEW EQUIPMENT, BATTERIES, DEVICES, NOTIFICATION APPLIANCE PANELS, WIRING, TESTING AND STARTING AS REQUIRED FOR A COMPLETE, CODE COMPLIANCE INSTALLATION AND FUNCTIONING SYSTEM.
- ALL FIRE ALARM WORK SHALL BE COORDINATED WITH THE BUILDING OWNER AND THE EXISTING FIRE ALARM VENDOR.
- THE MOST RECENTLY ADOPTED CODES OF THE FOLLOWING REFERENCES: ADA - AMERICANS WITH DISABILITIES ACT, IBC - INTERNATIONAL BUILDING CODE, NFPA - NATIONAL FIRE ALARM AND SIGNALING CODE, NFPA 72 - NATIONAL FIRE ALARM AND SIGNALING CODE, ALL STATE OF PENNSYLVANIA, LOCAL CODES AND ORDINANCES IN EFFECT AS THEY APPLY TO THIS PROJECT.

## ELECTRICAL METHODS:

- WIRING METHODS: UNLESS OTHERWISE INDICATED, WIRING SHALL CONSIST OF CABLES AND WIRES INSTALLED IN RGS CONDUIT, EMT, LIQUIDTIGHT FLEXIBLE METAL CONDUIT, MC CABLES WHERE PERMITTED BY NEC. RACEWAYS SHALL BE CONCEALED WITH FINISHED WALLS AND CEILINGS UNLESS OTHERWISE INDICATED. PENETRATIONS REQUIRED TO FEED ROOF MOUNTED EQUIPMENT, RACEWAYS WILL NOT BE ROUTED EXPOSED OUTSIDE OF THE BUILDING.
- RACEWAYS: RACEWAYS SHALL BE PROVIDED WHERE INDICATED AND REQUIRED AND SHALL BE INSTALLED AS SPECIFIED BELOW, UNLESS OTHERWISE INDICATED. MINIMUM RACEWAY SIZE SHALL BE 3/4 IN. RGS CONDUIT SHALL BE USED FOR ALL OUTDOOR INSTALLATIONS. EMT SHALL BE USED FOR ALL INDOOR INSTALLATIONS. LIQUIDTIGHT FLEXIBLE METAL CONDUIT, 6 FT MAXIMUM LENGTH, SHALL BE USED FOR ALL CONDUIT TERMINATIONS AT EQUIPMENT SUBJECT TO VIBRATION. BUSHINGS, MANUFACTURED FITTINGS, OR BOXES PROVIDING EQUIVALENT MEANS OF PROTECTION SHALL BE INSTALLED ON THE INSULATING TYPE WIRE WHERE REQUIRED BY THE N.E.C. ONLY LISTED ADAPTERS SHALL BE USED TO CONNECT EMT TO RGS CONDUIT AND CAST METAL BOXES AND CONDUIT BODIES. PENETRATIONS OF SLABS AND FIRE RATED WALLS SHALL BE FIRESTOPPED.
- KEEP RACEWAYS AT LEAST 6 IN. AWAY FROM PARALLEL RUNS OF FLUES AND STEAM OR HOT WATER PIPING. INSTALL HORIZONTAL RACEWAY RUNS HIGHER THAN WATER AND STEAM PIPING. RACEWAYS CROSSING STRUCTURAL EXPANSION JOINTS SHALL BE PROVIDED WITH SUITABLE EXPANSION FITTINGS OR OTHER SUITABLE MEANS TO COMPENSATE FOR THE BUILDING EXPANSION AND CONTRACTION. RACEWAYS SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO WALLS, STRUCTURAL MEMBERS AND FEATURES, MECHANICAL DUCT AND PIPING SYSTEMS, OR INTERSECTIONS OF VERTICAL PLANES AND CEILINGS. CHANGES IN DIRECTION OF RUNS SHALL BE ACCOMPLISHED WITH SYMMETRICAL BENDS OR CAST METAL FITTINGS. FIELD-MADE ELBOWS AND OFFSETS SHALL BE MADE WITH AN APPROVED HOKEY OR CONDUIT BENDING MACHINE. CRUSHED OR DEFORMED RACEWAY SHALL NOT BE INSTALLED. CARE SHALL BE TAKEN TO PREVENT THE LODGMENT OF DIRT, AND CONSTRUCTION MATERIALS AND DEBRIS IN RACEWAYS DURING THE COURSE OF CONSTRUCTION. CLOGGED RACEWAYS SHALL BE ENTIRELY FREED OF OBSTRUCTIONS OR SHALL BE REPLACED.
- RGS CONDUIT AND EMT SHALL BE SECURELY AND RIGIDLY FASTENED IN PLACE AT INTERVALS OF NOT MORE THAN 10 FT AND WITHIN 3 FT OF FITTINGS AND BOXES WITH APPROVED PIPE STRAPS, WALL BRACKETS, CONDUIT CLAMPS, CONDUIT HANGERS, THREADED C-CLAMPS, OR CEILING TRAPEZE. C-CLAMPS OR BEAM CLAMPS SHALL HAVE STRAP OR ROD TYPE RETAINERS. LOADS AN SUPPORTS SHALL BE COORDINATED WITH SUPPORTING STRUCTURES TO PREVENT DEFORMATION OR DAMAGE TO STRUCTURES, BUT NO LOAD SHALL BE APPLIED TO JOIST BRIDGING. FASTENINGS SHALL BE WOOD SCREWS OR SCREW TYPE NAILS TO WOOD; BY TOGGLE BOLTS ON HOLLOW CMU; BY EXPANSION BOLTS ON CONCRETE OR BRICK; AND BY MACHINE SCREWS, WELDED THREADED STUDS, HEAT TREATED OR SPRING STEEL TENSION CLAMPS ON STEEL TRUSS OR I-BEAM. THE WELDING SHALL BE IN A PROVIDER CHARGE AND PROVIDED WITH LOCK WASHERS AND NUTS MAY BE USED IN LIEU OF EXPANSION BOLTS OR MACHINE SCREWS. RACKING OR PIPE STRAPS SHALL NOT BE WELDED TO STEEL STRUCTURES. IN PARTITIONS OF LIGHT STEEL CONSTRUCTION, SHEET METAL SCREWS MAY BE USED. CONDUIT SHALL NOT BE SUPPORTED USING WIRE OR NYLON TIES. RACEWAYS SHALL BE INSTALLED AS A COMPLETE SYSTEM AND BE INDEPENDENTLY SUPPORTED FROM THE STRUCTURE RACEWAYS. SUPPORTING MATERIALS SHALL NOT BE SHARED BETWEEN ELECTRICAL RACEWAYS AND MECHANICAL DUCTS OR PIPING. MOUNTING HARDWARE SHALL NOT PRESENT SHARP EDGES WHERE PERSONNEL CONTACT IS POSSIBLE. IN MECHANICAL SPACES, "MINERLAC" SUPPORTS SHALL NOT BE USED BELOW 10' A.F.F.
- BOXES: BOXES SHALL BE PROVIDED IN RACEWAY SYSTEMS WHEREVER REQUIRED FOR PULLING OF WIRES, MAKING CONNECTIONS, AND MOUNTING OF DEVICES OR LIGHTING FIXTURES. IN GENERAL, BOXES SHALL BE CONSTRUCTED OF HOT-DIPPED GALVANIZED FINISHED SHEET STEEL. BOXES FOR METALLIC RACEWAYS SHALL BE 4 IN. NOMINAL SIZE AND SHALL BE OF THE CAST METAL HUB TYPE AND GASKETED WHEN LOCATED OUTSIDE OF THE BUILDING. BOXES SHALL BE LISTED AS SUITABLE FOR THE ENVIRONMENTAL CONDITIONS OF THE LOCATION THEY ARE INSTALLED. BOXES FOR MOUNTING OF LIGHTING FIXTURES SHALL BE NOT LESS THAN 4 IN. SQUARE EXCEPT SMALLER BOXES SHALL BE INSTALLED WHERE REQUIRED BY FIXTURE CONFIGURATION. UNLESS OTHERWISE INDICATED, DEVICE BOXES FOR RECEPTABLES SHALL BE MOUNTED WITH THE CENTER OF THE DEVICE BOX APPROXIMATELY 18 IN. AFF. INDICATED DEVICE BOXES FOR TOGGLE SWITCHES SHALL BE MOUNTED WITH THE CENTER OF THE DEVICE BOX APPROXIMATELY 48 IN. AFF. BOXES AND BOX SUPPORTS SHALL BE FASTENED TO WOOD WITH WOOD SCREWS OR SCREW TYPE NAILS OF EQUAL HOLDING STRENGTH, WITH BOLTS AND METAL EXPANSION SHIELDS ON CONCRETE AND WITH MACHINE SCREWS WITH TOGGLE BOLTS ON HOLLOW CMU; AND WITH MACHINE SCREWS OR WELDED STUDS ON STEEL WORK. THREADED STUDS DRIVEN IN BY POWDER CHARGE AND PROVIDED WITH LOCKWASHERS AND NUTS, OR NAIL TYPE NYLON ANCHORS MAY BE USED IN LIEU OF EXPANSION SHIELDS OR MACHINE SCREWS. HANGERS SHALL NOT BE FASTENED OR SUPPORTED FROM JOIST BRIDGING.
- WIRES AND CABLES: EXAMINE RACEWAYS AND BUILDING FINISHES TO RECEIVE WIRES AND CABLES FOR COMPLIANCE WITH INSTALLATION TOLERANCES AND OTHER CONDITIONS. DO NOT PROCEED WITH INSTALLATION UNLESS SATISFACTORY CONDITIONS HAVE BEEN CORRECTED. PULL WIRES AND CABLES INTO RACEWAYS USING THE SAME RACEWAY AS THE RACEWAY TO BE INSTALLED. USE PULLING COMPOUND OR LUBRICANT WHERE NECESSARY; COMPOUND USED MUST NOT DEGRADATE CONDUCTORS OR INSULATION. USE PULLING MEANS, INCLUDING FISH TAPE, CABLE, ROPE, AND BASKET-WEAVE WIRE/CABLE GRIPS THAT WILL NOT DAMAGE WIRES/CABLES OR RACEWAYS. INSTALLED EXPOSED CABLE, PARALLEL AND PERPENDICULAR TO WALLS, STRUCTURAL MEMBERS AND FEATURES, MECHANICAL DUCT AND PIPING SYSTEMS, OR INTERSECTIONS OF VERTICAL PLANES AND CEILINGS SHALL BE SUPPORTED ON 3 FT MAXIMUM CENTERS. VERTICAL RUNS OF MC CABLES SHALL BE SUPPORTED ON 6 FT MAXIMUM CENTERS. EXPOSED PLENUM CABLE SHALL BE SUPPORTED ON 3 FT MAXIMUM CENTERS. THE NUMBER OF SPLICES SHALL BE KEPT TO AN ABSOLUTE MINIMUM. WIRING AT EACH OUTLET SHALL BE INSTALLED WITH AT LEAST 8 IN. SLACK.
- BRANCH CIRCUIT CONDUCTORS SHALL BE A MINIMUM OF #12 AWG. FOR 120/208V CIRCUITS, WHERE THE DISTANCE EXCEEDS ONE HUNDRED FEET TO THE FIRST DEVICE, THE SIZE OF THE WIRES SHALL BE INCREASED FROM THAT SPECIFIED BY THE FOLLOWING AMOUNTS:
 

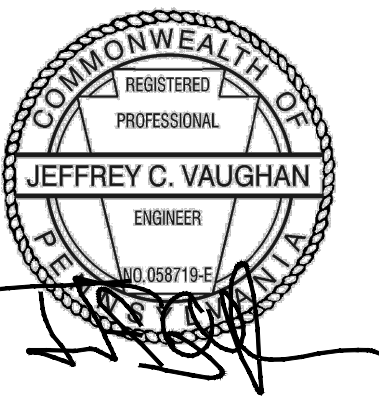
LENGTH	HOMERUN	REMAINDER OF CIRCUIT
0 TO 100 FT.	AS SPECIFIED	AS SPECIFIED
101 TO 175 FT.	ONE STANDARD SIZE	AS SPECIFIED
176 TO 300 FT.	TWO STANDARD SIZES	ONE STANDARD SIZE
301 TO 450 FT.	THREE STANDARD SIZES	TWO STANDARD SIZES

- WIRING DEVICES: INSTALL WIRING DEVICES WHERE INDICATED IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTION, APPLICABLE REQUIREMENTS OF THE NEC, AND RECOGNIZED INDUSTRY PRACTICES. INSTALL WIRING DEVICES IN DEVICE BOXES WHICH ARE CLEAN AND FREE FROM DIRT AND CONSTRUCTION MATERIALS AND DEBRIS. INSTALL WIRING DEVICES AFTER DEVICE WORK IS COMPLETE. INSTALL DEVICE PLATES AFTER PAINTING WORK IS COMPLETE. TIGHTEN CONNECTORS AND TERMINALS, INCLUDING SCREWS AND BOLTS, IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED TORQUE-TIGHTENING VALUES. FRONT OF ENERGIZING CIRCUITS, TEST WIRING FOR ELECTRICAL CONTINUITY AND SHORTS. ENSURE PROPER POLARITY OF CONNECTIONS IS MAINTAINED. SUBSEQUENT TO ENERGIZING, TEST WIRING DEVICES AND DEMONSTRATE COMPLIANCE WITH REQUIREMENTS.
- GROUNDING: ELECTRICAL SYSTEMS AND EQUIPMENT, METALLIC RACEWAYS AND BOXES, CABLE SHIELDS, METALLIC CABLE SHEATHS AND ARMOR, AND OTHER NON-CURRENT CARRYING METALLIC PARTS OF EQUIPMENT SHALL BE GROUNDED IN CONFORMANCE WITH THE NEC. EQUIPMENT GROUND CONDUCTORS SHALL COMPLY WITH NEC ARTICLE 250 FOR SIZES AND QUANTITIES, EXCEPT WHERE LARGER SIZES AND/OR MORE CONDUCTORS ARE INDICATED. PROVIDE SEPARATE INSTALLED GROUND CONDUCTOR IN ALL RACEWAYS, REGARDLESS OF RACEWAY TYPE. SEPARATELY DERIVED SYSTEMS AS DEFINED BY THE NEC SHALL BE GROUNDED IN CONFORMANCE WITH NEC ARTICLE 250 PARA. 26. TERMINATE EQUIPMENT GROUND WIRES FOR FEEDERS AND BRANCH CIRCUITS WITH PRESSURE TYPE GROUND LUGS. WHERE METALLIC CONDUITS TERMINATE AT METALLIC HOUSINGS WITHOUT MECHANICAL AND ELECTRICAL CONNECTION TO HOUSING, TERMINATE EACH CONDUIT WITH A GROUNDING BUSHING. CONNECT GROUNDING BUSHINGS WITH A GROUND WIRE TO THE GROUND RUS IN THE HOUSING. BOND ELECTRICALLY NONCONTINUOUS CONDUITS AT BOTH ENTRIES AND EXITS WITH GROUNDING BUSHINGS AND GROUND WIRES. TIGHTEN GROUNDING AND BONDING CONNECTIONS AND TERMINALS, INCLUDING SCREWS AND BOLTS, IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED TORQUE-TIGHTENING VALUES.
- PANELBOARDS: INSTALL PANELBOARDS AND ACCESSORY ITEMS IN ACCORDANCE WITH NEMA PB 1.1, "GENERAL INSTRUCTIONS FOR PROPER INSTALLATION, OPERATION, AND MAINTENANCE OF PANELBOARDS RATED 600 VOLTS OR LESS," AND MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS. MOUNT PANELBOARDS PLUMB AND RIGID WITHOUT DISTORTION OF BOX AND WITH THE TOP OF THE TRIM AT 78 IN. AFF UNLESS OTHERWISE INDICATED. PROVIDE IDENTIFICATION AND ACCURATE CIRCUIT IDENTIFICATION IN EACH PANELBOARD BY REFLECTIVE OF FINAL CIRCUIT CONFIGURATION. PROVIDE FILLER PLATES IN ALL UNUSED SPACES. TRAIN WIRES IN PANELBOARDS GUTTERS NEATLY IN GROUPS, BUNDLE, AND WRAP WITH WIRE TIES. GROUND

LIGHTING FIXTURE SCHEDULE

TYPE	VOLTAGE	LAMP DATA		DESCRIPTION	PROPOSED MANUFACTURER / SERIES	REMARKS
		TYPE	QTY			
A1	120V	LED 19W 3500K	N/A	2'x4' LED LAY-IN FIXTURE, 0-10V DIMMING DRIVER, EXTRA LOW WATT LUMEN OUTPUT, 2,500 MINIMUM LUMENS, FROSTED ACRYLIC CENTER LENS, DAMP LOCATION LISTED, GRID LAY-IN CEILING TYPE, 80 CRI, WHITE FINISH, IC-RATED	COLUMBIA LIGHTING / LCAT24-35XWG SERIES (OR PRE-APPROVED EQUAL BY ENGINEER)	FIXTURES LABELED "EM" SHALL CONTAIN INTEGRAL BATTERY BACKUP
A2	120V	LED 29W 3500K	N/A	2'x4' LED LAY-IN FIXTURE, 0-10V DIMMING DRIVER, VERY LOW WATT LUMEN OUTPUT, 3,300 MINIMUM LUMENS, FROSTED ACRYLIC CENTER LENS, DAMP LOCATION LISTED, GRID LAY-IN CEILING TYPE, 80 CRI, WHITE FINISH, IC-RATED	COLUMBIA LIGHTING / LCAT24-35VWG SERIES (OR PRE-APPROVED EQUAL BY ENGINEER)	FIXTURES LABELED "EM" SHALL CONTAIN INTEGRAL BATTERY BACKUP
A3	120V	LED 27W 3500K	N/A	2'x4' LED LAY-IN FIXTURE, 0-10V DIMMING DRIVER, MEDIUM WATT LUMEN OUTPUT, 3,500 MINIMUM LUMENS, FROSTED ACRYLIC CENTER LENS, DAMP LOCATION LISTED, GRID LAY-IN CEILING TYPE, 80 CRI, WHITE FINISH, IC-RATED	COLUMBIA LIGHTING / LCAT24-35MWG SERIES (OR PRE-APPROVED EQUAL BY ENGINEER)	FIXTURES LABELED "EM" SHALL CONTAIN INTEGRAL BATTERY BACKUP
A4	120V	LED 33W 3500K	N/A	2'x4' LED LAY-IN FIXTURE, 0-10V DIMMING DRIVER, LOW WATT LUMEN OUTPUT, 4,500 MINIMUM LUMENS, FROSTED ACRYLIC CENTER LENS, DAMP LOCATION LISTED, GRID LAY-IN CEILING TYPE, 80 CRI, WHITE FINISH, IC-RATED	COLUMBIA LIGHTING / LCAT24-35LWG SERIES (OR PRE-APPROVED EQUAL BY ENGINEER)	FIXTURES LABELED "EM" SHALL CONTAIN INTEGRAL BATTERY BACKUP
A5	120V	LED 36W 3500K	N/A	2'x4' LED LAY-IN FIXTURE, 0-10V DIMMING DRIVER, MEDIUM LUMEN OUTPUT, 4,900 MINIMUM LUMENS, FROSTED ACRYLIC CENTER LENS, DAMP LOCATION LISTED, GRID LAY-IN CEILING TYPE, 80 CRI, WHITE FINISH, IC-RATED	COLUMBIA LIGHTING / LCAT24-35MLG SERIES (OR PRE-APPROVED EQUAL BY ENGINEER)	FIXTURES LABELED "EM" SHALL CONTAIN INTEGRAL BATTERY BACKUP
A6	120V	LED 40W 3500K	N/A	2'x4' LED LAY-IN FIXTURE, 0-10V DIMMING DRIVER, HIGH LUMEN OUTPUT, 5,700 MINIMUM LUMENS, FROSTED ACRYLIC CENTER LENS, DAMP LOCATION LISTED, GRID LAY-IN CEILING TYPE, 80 CRI, WHITE FINISH, IC-RATED	COLUMBIA LIGHTING / LCAT24-35HLG SERIES (OR PRE-APPROVED EQUAL BY ENGINEER)	FIXTURES LABELED "EM" SHALL CONTAIN INTEGRAL BATTERY BACKUP
B1	120V	LED 31.6W 3500K	N/A	MULTIPURPOSE LINEAR LED FIXTURE, 0-10V DIMMING DRIVER, MEDIUM LUMEN OUTPUT, MINIMUM 4,400 LUMENS, CURVED FROSTED ACRYLIC LENS, WIDE DISTRIBUTION, WHITE FINISH, DAMP LOCATION LISTED	COLUMBIA LIGHTING / MPS4-35ML SERIES (OR PRE-APPROVED EQUAL BY ENGINEER)	FIXTURES LABELED "EM" SHALL CONTAIN INTEGRAL BATTERY BACKUP
B2	120V	LED 27W 3500K	N/A	MULTIPURPOSE LINEAR LED FIXTURE, 0-10V DIMMING DRIVER, MEDIUM WATT LUMEN OUTPUT, MINIMUM 3,500 LUMENS, CURVED FROSTED ACRYLIC LENS, WIDE DISTRIBUTION, WHITE FINISH, DAMP LOCATION LISTED	COLUMBIA LIGHTING / MPS4-35MW SERIES (OR PRE-APPROVED EQUAL BY ENGINEER)	FIXTURES LABELED "EM" SHALL CONTAIN INTEGRAL BATTERY BACKUP
B3	120V	LED 24W 3500K	N/A	MULTIPURPOSE LINEAR LED FIXTURE, 0-10V DIMMING DRIVER, VERY LOW WATT LUMEN OUTPUT, MINIMUM 3,200 LUMENS, CURVED FROSTED ACRYLIC LENS, WIDE DISTRIBUTION, WHITE FINISH, DAMP LOCATION LISTED	COLUMBIA LIGHTING / MPS4-35WV SERIES (OR PRE-APPROVED EQUAL BY ENGINEER)	FIXTURES LABELED "EM" SHALL CONTAIN INTEGRAL BATTERY BACKUP
C1	120V	LED 13W 3500K	N/A	2'x2' LED LAY-IN FIXTURE, 0-10V DIMMING DRIVER, VERY LOW WATT LUMEN OUTPUT, 1,600 MINIMUM LUMENS, FROSTED ACRYLIC CENTER LENS, DAMP LOCATION LISTED, GRID LAY-IN CEILING TYPE, 80 CRI, WHITE FINISH, IC-RATED	COLUMBIA LIGHTING / LCAT22-35VWG SERIES (OR PRE-APPROVED EQUAL ENGINEER)	FIXTURES LABELED "EM" SHALL CONTAIN INTEGRAL BATTERY BACKUP
C2	120V	LED 17W 3500K	N/A	2'x2' LED LAY-IN FIXTURE, 0-10V DIMMING DRIVER, MEDIUM LOW WATT LUMEN OUTPUT, 2,200 MINIMUM LUMENS, FROSTED ACRYLIC CENTER LENS, DAMP LOCATION LISTED, GRID LAY-IN CEILING TYPE, 80 CRI, WHITE FINISH, IC-RATED	COLUMBIA LIGHTING / LCAT22-35MWG SERIES (OR PRE-APPROVED EQUAL ENGINEER)	FIXTURES LABELED "EM" SHALL CONTAIN INTEGRAL BATTERY BACKUP
C3	120V	LED 21W 3500K	N/A	2'x2' LED LAY-IN FIXTURE, 0-10V DIMMING DRIVER, LOW WATT LUMEN OUTPUT, 2,800 MINIMUM LUMENS, FROSTED ACRYLIC CENTER LENS, DAMP LOCATION LISTED, GRID LAY-IN CEILING TYPE, 80 CRI, WHITE FINISH, IC-RATED	COLUMBIA LIGHTING / LCAT22-35LWG SERIES (OR PRE-APPROVED EQUAL ENGINEER)	FIXTURES LABELED "EM" SHALL CONTAIN INTEGRAL BATTERY BACKUP
C4	120V	LED 26W 3500K	N/A	2'x2' LED LAY-IN FIXTURE, 0-10V DIMMING DRIVER, MEDIUM LUMEN OUTPUT, 3,400 MINIMUM LUMENS, FROSTED ACRYLIC CENTER LENS, DAMP LOCATION LISTED, GRID LAY-IN CEILING TYPE, 80 CRI, WHITE FINISH, IC-RATED	COLUMBIA LIGHTING / LCAT22-35MLG SERIES (OR PRE-APPROVED EQUAL ENGINEER)	FIXTURES LABELED "EM" SHALL CONTAIN INTEGRAL BATTERY BACKUP
C5	120V	LED 29W 3500K	N/A	2'x2' LED LAY-IN FIXTURE, 0-10V DIMMING DRIVER, HIGH LUMEN OUTPUT, 4,200 MINIMUM LUMENS, FROSTED ACRYLIC CENTER LENS, DAMP LOCATION LISTED, GRID LAY-IN CEILING TYPE, 80 CRI, WHITE FINISH, IC-RATED	COLUMBIA LIGHTING / LCAT22-35HLG SERIES (OR PRE-APPROVED EQUAL ENGINEER)	FIXTURES LABELED "EM" SHALL CONTAIN INTEGRAL BATTERY BACKUP
D1	120V	LED 9W 3500K	N/A	1/2" DOWNLIGHT, OPEN REFLECTOR, WIDE DISTRIBUTION, CLEAR LENS, SPECULAR ANODIZED REFLECTOR, MINIMUM, 1,000 LUMENS, 80 CRI, DAMP LOCATION LISTED, IC-RATED	THE WILLIAMS LIGHTING / 6DR-TL-L10/835-DIM-UNV-OW-OF-CS-1 (OR PRE-APPROVED EQUAL ENGINEER)	
EX1	120V AC / 3V DC	RED LED	N/A	SINGLE OR DOUBLE FACE EXIT SIGN, HIGH IMPACT THERMOPLASTIC CONSTRUCTION, COORDINATE MOUNTING WITH ARCHITECT, CHEVRON ARROWS (AS NECESSARY), LONG LIFE NICAD BATTERY, 90 MINUTE EMERGENCY OPERATION	COMPASS LIGHTING / CE SERIES (OR PRE-APPROVED EQUAL ENGINEER)	EXIT SIGNS LABELED "FL" SHALL BE MOUNTED CLOSE TO FLOOR.
H1	120V	LED 145W 3000K	N/A	AREA SITE LIGHT, DIE-CAST ALUMINUM CONSTRUCTION, TYPE 4W DISTRIBUTION, 19,000 MINIMUM LUMENS, WET LOCATION LISTED, FINISH TO BE SELECTED BY OWNER/ARCHITECT.	EXO LIGHTING / ASL2-320L-145-3K7-4W (OR PRE-APPROVED EQUAL ENGINEER)	FIXTURE SHALL BE INSTALLED ON EXISTING POLE AND ON EXISTING BRANCH CIRCUIT. E.C. SHALL VERIFY THAT THE CIRCUIT FEEDING THE NEW FIXTURES DOES NOT EXCEED THE ALLOWABLE WATTAGE PER THE NEC. E.C. SHALL BE RESPONSIBLE FOR ALL COMPONENTS NECESSARY TO MOUNT FIXTURES TO EXISTING POLES.
H2	120V	LED (2) 145W 3000K	N/A	AREA SITE LIGHT, DIE-CAST ALUMINUM CONSTRUCTION, TYPE 4W DISTRIBUTION, 19,000 MINIMUM LUMENS, WET LOCATION LISTED, FINISH TO BE SELECTED BY OWNER/ARCHITECT.	EXO LIGHTING / ASL2-320L-145-3K7-4W (OR PRE-APPROVED EQUAL ENGINEER)	FIXTURE SHALL BE INSTALLED ON EXISTING POLE AND ON EXISTING BRANCH CIRCUIT. E.C. SHALL VERIFY THAT THE CIRCUIT FEEDING THE NEW FIXTURES DOES NOT EXCEED THE ALLOWABLE WATTAGE PER THE NEC. E.C. SHALL BE RESPONSIBLE FOR ALL COMPONENTS NECESSARY TO MOUNT FIXTURES TO EXISTING POLES. 2 FIXTURES TO BE MOUNTED IN "T" SHAPE.
H3	120V	LED 145W 3000K	N/A	AREA SITE LIGHT, DIE-CAST ALUMINUM CONSTRUCTION, TYPE 4W DISTRIBUTION, 19,000 MINIMUM LUMENS, WET LOCATION LISTED, FINISH TO BE SELECTED BY OWNER/ARCHITECT.	EXO LIGHTING / ASL2-320L-145-3K7-4W (OR PRE-APPROVED EQUAL ENGINEER)	FIXTURE SHALL BE INSTALLED ON NEW POLE. EXISTING BRANCH CIRCUIT SHALL BE SPICED AND EXTENDED TO FEED NEW POLE MOUNTED FIXTURE. E.C. SHALL VERIFY THAT THE CIRCUIT FEEDING THE NEW FIXTURES DOES NOT EXCEED THE ALLOWABLE WATTAGE PER THE NEC. E.C. SHALL BE RESPONSIBLE POLE AND ALL COMPONENTS NECESSARY TO MOUNT FIXTURE TO NEW POLE.
J1	120V	LED 4W 3000K	N/A	LED WALL PACK, DIE-CAST ALUMINUM CONSTRUCTION, TYPE 4W DISTRIBUTION, 5,400 MINIMUM LUMENS, WET LOCATION LISTED, PHOTOCONTROL BUTTON, FINISH TO BE SELECTED BY OWNER/ARCHITECT.	BEACON LIGHTING / VPW2-48L-45-3K7-4W-PC (OR PRE-APPROVED EQUAL ENGINEER)	LIGHT FIXTURE SHALL BE MOUNTED ABOVE SALLY PORT AT 9'-0" A.F.G. UNLESS OTHERWISE NOTED. LIGHT FIXTURE SHALL BE CONTROLLED BY INTEGRAL PHOTOCONTROL BUTTON.
J2	120V	LED 9W 3000K	N/A	LED WALL PACK, DIE-CAST ALUMINUM CONSTRUCTION, TYPE 4W DISTRIBUTION, 12,100 MINIMUM LUMENS, WET LOCATION LISTED, PHOTOCONTROL BUTTON, FINISH TO BE SELECTED BY OWNER/ARCHITECT.	BEACON LIGHTING / VPW3-36L-100-3K7-4W-PC (OR PRE-APPROVED EQUAL ENGINEER)	LIGHT FIXTURE SHALL BE MOUNTED ABOVE GARAGE DOOR AT 15'-0" A.F.G. UNLESS OTHERWISE NOTED. LIGHT FIXTURE SHALL BE CONTROLLED BY INTEGRAL PHOTOCONTROL BUTTON.
J3	120V	LED 23W 3000K	N/A	LED WALL PACK, DIE-CAST ALUMINUM CONSTRUCTION, TYPE 4W DISTRIBUTION, 2,900 MINIMUM LUMENS, WET LOCATION LISTED, PHOTOCONTROL BUTTON, FINISH TO BE SELECTED BY OWNER/ARCHITECT.	BEACON LIGHTING / VPW1-24L-25-3K7-4W-PC (OR PRE-APPROVED EQUAL ENGINEER)	LIGHT FIXTURE SHALL BE MOUNTED ABOVE EXTERIOR DOOR AT 8'-0" A.F.G. UNLESS OTHERWISE NOTED. LIGHT FIXTURE SHALL BE CONTROLLED BY INTEGRAL PHOTOCONTROL BUTTON.
K1	120-277V	LED 120W 3000K	N/A	COMMERCIAL GRADE LED FLOOD LIGHT, DIE-CAST ALUMINUM CONSTRUCTION, 13,000 MINIMUM LUMENS, WET LOCATION LISTED, FINISH TO BE SELECTED BY OWNER/ARCHITECT.	EXO LIGHTING / SGF2-120 (OR PRE-APPROVED EQUAL ENGINEER)	FIXTURES SHALL BE INSTALLED ON EXISTING BRANCH CIRCUIT AND CONTROLLED WITH INTEGRAL PHOTOCCELL.
L1	120-277V	LED 30W 3000K	N/A	13" LED WALL SCONCE, VANDAL RESISTANT, IMPACT RESISTANT POLYCARBONATE LENS, 0-10V DIMMING, 3,500 MINIMUM LUMENS, WET LOCATION LISTED, FINISH TO BE SELECTED BY OWNER/ARCHITECT.	KIM LIGHTING / PVNTR-12-30 (OR PRE-APPROVED EQUAL ENGINEER)	FIXTURES SHALL BE INSTALLED ON EXISTING BRANCH CIRCUIT AND CONTROLLED WITH INTEGRAL PHOTOCCELL.
M1	120V	LED 115W 3000K	N/A	AREA SITE LIGHT, DIE-CAST ALUMINUM CONSTRUCTION, TYPE 3 DISTRIBUTION, 14,000 MINIMUM LUMENS, WET LOCATION LISTED, FINISH TO BE SELECTED BY OWNER/ARCHITECT.	EXO LIGHTING / ASL1-160L-115-3K7-3 (OR PRE-APPROVED EQUAL ENGINEER)	FIXTURE SHALL BE INSTALLED ON SURFACE MOUNTED ON WALL ON EXISTING BRANCH CIRCUIT. E.C. SHALL VERIFY THAT THE CIRCUIT FEEDING THE NEW FIXTURES DOES NOT EXCEED THE ALLOWABLE WATTAGE PER THE NEC. E.C. SHALL BE RESPONSIBLE FOR ALL COMPONENTS NECESSARY TO MOUNT FIXTURE TO WALL.
N1	120V	LED 30W 3000K	N/A	4' LED SURFACE MOUNTED FIXTURE, ALUMINUM CONSTRUCTION, WET LOCATION LISTED, 7.3W/FT, ADJUSTABLE LIGHTING ANGLE, .	KLUS DESIGN LIGHTING / REGULOR EXTRUSION SERIES (OR PRE-APPROVED EQUAL ENGINEER)	FIXTURE SHALL BE MOUNTED UNDER LIP ON EXTERIOR MONUMENT SIGN. E.C. SHALL BE RESPONSIBLE FOR ALL COMPONENTS NECESSARY TO MOUNT FIXTURE TO WALL.

SEAL



ARCHITECTURE • PLANNING  
INTERIOR DESIGN • GRAPHIC ARTS

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10/30/25

PROJECT NAME

TROOP J

997 Lieds Rd  
Coatesville, PA

CHESTER COUNTY PA

12.12.25 ADDENDUM #2

MARK DATE DESCRIPTION

REVISIONS

PROJECT NO: 2022-123

DRAWN BY: EMB

CHK'D BY: JCV

DATE: 4/26/24

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ELECTRICAL LIGHTING  
SCHEDULE

DRAWING NUMBER



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