

3. All materials & equipment shall be installed as per manufacturer's specifications and instructions.
4. Items, materials, and equipment not specifically mentioned in this scope or drawing but are necessary and critical for safety and efficient operation of the entire electrical system shall be deemed as included within this scope and shall be provided by the Contractor.
5. The Contractor shall verify site conditions and dimensions before ordering equipment or performing work to avoid conflicts and ensure compatibility before installation.
6. Upon completion of all works, the Contractor shall apply for the permanent electrical service connection of the building. Any additional fees required shall be charged to the contractor.

SUPPLY, DELIVERY AND INSTALLATION OF UNDERGROUND FEEDER CONDUCTORS, RACEWAYS AND TRANSFER SWITCHES.

I. GENERAL

All electrical works shall comply with the provisions of the Philippine Electrical Code (PEC) 2017 Edition with rules and regulations of the national and local authorities concerned in the enforcement of electrical laws and regulations of the utility companies concerned.

All electrical works shall be performed by a **Registered Master Electrician (RME)** or a non-licensed electrical practitioner under the immediate supervision of a **Registered Electrical Engineer (REE)**.

1. The scope of work covers the supply, delivery and installation of underground feeder conductors, raceways and transfer switches (at selected bldgs.) including accessories not specifically mentioned in this scope but are necessary for the complete operation of equipment installed.
2. The Contractor shall thoroughly investigate site conditions and dimensions prior to ordering of equipment or performing work to avoid conflicts and ensure compatibility before installation.
3. Items, materials, and equipment not specifically mentioned in this scope or drawing but are necessary and critical for the safety and efficient operation of the entire electrical system shall be deemed as included within this scope and shall be provided by the Contractor.
4. All materials & equipment shall be brand new and approved type for the purpose and location.
5. All materials and equipment shall be installed as per manufacturer's specifications and recommendations.

II. CONDUITS, BOXES, FITTINGS AND ACCESSORIES

1. The scope of work covers provision and installation of conduits, boxes, fittings and accessories for the underground cabling system.
2. All conduits to be used shall be uPVC thickwall unless otherwise specified in plan.
3. Proper adapters shall be used at every connection between conduits.
4. Connections between conduits shall be secured with adhesive suitable for wet location.

III. ELECTRICAL WIRINGS, CONNECTORS AND ACCESSORIES

1. This scope includes provision and installation of electrical wirings, connectors and accessories.
2. All wires shall be copper type THWN-2 600V unless otherwise specified.
3. All types of splices or terminations made inside handhole enclosures shall be listed as suitable for wet location.
4. No splice shall be made within conduits.
5. All conductors of the same circuit and, where used, the grounded conductor and all equipment grounding conductors and bonding conductors shall be contained within the same raceway or trench.

IV. TRANSFER SWITCHES

1. This scope includes provision and installation of transfer switches at selected buildings: H.E. Building, COED Proper, Motorpool, COED HS, and BSND.
2. Transfer switch shall be located as conveniently as possible for the termination of wires and conduit.

V. HANDHOLES AND TRENCHES

1. This scope includes trench excavation and preparation
 - a. Application of tree cutting permit shall be secured before cutting trees where trenches may pass.
 - b. This also includes demolition and reconstruction of concrete roads and pavement where trenches may pass through.
 - c. Existing soil conditions shall be thoroughly inspected before and after excavation.
 - d. The trench bottom shall be undisturbed, firm and uniform for its entire length.
 - e. If uniformity in the trench is not achieved, it shall be over-excavated and refill the bottom with properly compacted bedding materials.
2. This scope includes construction of handhole enclosures as per plan.
 - a. Concrete strength shall be 3000 psi
 - b. Conduits shall be laid prior to construction of handhole enclosures.
3. This scope includes conduit laying and backfilling
 - a. All trenches shall be thoroughly inspected before laying of conduits,
 - b. All conduit runs shall be maintained as straight as possible.
 - c. Provide comb spacer if necessary to maintain spacing between conduits.
 - d. Excavate materials from under the belled ends of the conduits to assure a smooth horizontal run.
 - e. Placement of conduits shall be done in such a way as to stagger the location of the belled ends both horizontally and vertically.
 - f. Where direction changes are necessary to avoid obstructions in the route, the angular displacement should be maintained as small as possible.
 - g. Where an angular displacement occurs in the run, the radius of curvature connecting the straight sections shall be maintained as large as possible to facilitate cable pulling.
 - h. All open ends of conduits shall be capped during backfilling to prevent ingress of backfill materials.
 - i. Ensure backfilling and tamping is performed thoroughly and uniformly right to the trench wall to minimize voids and ensure compaction.
 - j. Backfill that contains large rocks, paving materials, large or sharply angular substances shall not be placed in excavation