

SPECIFICATION	QTY/ LOCATION	FIXTURE
Pozzi/Lav W//Half Ped Pht 1701 Davos W/ B&N (460 x 510 x 450 mm)	1-set Female CR	
Pozzi/Bowl POD-13509 Ratikon One Piece Toilet (640 x 350 x 720mm)	2 sets - Male & Female CR	
Handheld Bidet (Hygienic Spray - American Standard)	2 sets – for all water closets	

XXVI.D. Septic Tank

- Construction of one (1) set of septic tanks (2.1x2.1m) is included in scope of work (see detail).
- Septic tank outlet shall be connected to the nearest campus drainage.
- Provide solid vent pipe with vent cap extending 300 mm above top of mounds.
- Install cleanouts and extension from piping to clean-out at grade as indicated. Use 4-inch- (100-mm-) PVC pipe with threaded PVC cap.
- Apply cementitious waterproofing and 16mm plastering on inner faces and bottom floor of septic tanks.
- Perform testing of completed septic tank system piping and structures according to authorities having jurisdiction. Fill underground structures with water and let stand overnight. If water level recedes, locate and repair leaks and retest. Repeat tests and repairs until there is no leakage.

XXVI.E. Catch Basin

- Provide Thirteen (13) sets of 0.60x0.60x0.695m catch basin with movable cover located as per plan (see detail).
- Use 4" thick Apply 12mm thick plastering on inner faces and exposed surfaces of catch basin.
- Storm drains shall be connected to nearest drainage with 1% slope.

XXVI.F. Waste Tank

- Construction of One (1) set of waste tank (1.10x1.70x1.20m) is included in scope of work (see detail).
- Use 4" Thick for waste tank walls and apply 16mm thick plastering with cementitious water proofing for all internal surfaces and bottom floor of waste tank.
- Waste tank outlet shall be connected to the nearest campus drainage.
- Provide solid vent pipe with vent cap extending 300 mm above top of mounds.

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- e. Perform testing of completed waste tank system piping and structures according to authorities having jurisdiction. Fill underground structures with water and let stand overnight. If water level recedes, locate and repair leaks and retest. Repeat tests and repairs until there is no leakage.

PART F. ELECTRICAL AND AUXILIARY WORKS

XXVII. Electrical & Auxiliary Works

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 furnishing of all materials, labor, equipment, accessories, and all necessary services to complete the electrical system of the project as per plan and specifications.
2. 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.
3. All materials & equipment shall be brand new and approved type for the purpose and location.
4. All transformer units shall be tested at FICELCO prior to installation.
5. 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.
6. The Contractor shall verify site conditions and dimensions before ordering equipment or performing work to avoid conflicts and ensure compatibility before installation.
7. All materials & equipment shall be installed as per manufacturer's specifications and instructions.

XXVII.A. Conduits, Boxes, Fittings & Accessories

- a. Provision and installation of conduits, boxes, fittings and accessories as per plan.
- b. Conduits or raceways through which moisture may contact live parts shall be sealed or plugged at either or both ends.
- c. Provide end bells for conduits terminating on panelboards, boxes and gutters.
- d. Provide long elbows for bends of conduit 32mmØ and above.
- e. Additional pull boxes shall be provided if necessary, to facilitate wire pulling and for maintenance purposes and shall be installed in an inconspicuous location.
- f. Pull boxes shall be accessible to the front.
- g. Pull boxes installed outdoor shall be NEMA 3R type.
- h.

XXVII.B. Wires & Wiring Devices

- a. Provision and installation of complete electrical wirings such as, but not limited to, branch circuit conductors, feeder conductors, service entrance conductors.
- b. All wires shall be copper stranded, 600V.
- c. 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, auxiliary gutter, cable tray, cable bus assembly, trench, cable, or cord.
- d. Provision and installation of all receptacle outlets and switches.
- e. All receptacle outlets shall be 3 prong, universal type with ground and safety shutter.

XXVII.C. Panel Board and Circuit Breakers

- a. Provision and installation of panelboards:

PANEL	CIRCUIT BREAKERS	ENCLOSURE / AUX.
Main Distribution Panel (MDP) /	Main: 2 – 200AT / 250AF, 2P, 240V 42KAIC MCCB w/ mechanical interlock Branches: 2 – 70AT / 100AF, 2P 240V 22KAIC bolt-on MCCB	NEMA 3R GA#16 powder coated enclosure, Swing type dead front, hinged type

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	1 – 100AT / 100AF, 2P 240V 22KAIC bolt-on MCCB 1 – 150AT / 250AF, 2P 240V 42KAIC bolt-on MCCB	door latch w/ key, nameplate and directory holder
Lighting and Power Panel (LPP)	Main: 1 – 70AT / 100AF, 2P, 240V 22KAIC MCCB Branches: *2 – 15AT / 63AF, 2P 240V 10KAIC bolt-on MCB *10 – 20AT / 63AF, 2P 240V 10KAIC bolt-on MCB *2 – 30AT / 63AF, 2P 240V 10KAIC bolt-on MCB <i>Note: 6 sets of 20AT are available</i>	NEMA 3R GA#16 powder coated enclosure, swing type dead front, hinged type door w/ push lock, nameplate and directory holder
Power Panel (PP)	Main: 1 – 150AT / 250AF, 2P, 240V 42KAIC MCCB Branches: 2 – 20AT / 63AF, 2P 240V 10KAIC bolt-on MCB *7 – 30AT / 63AF, 2P 240V 10KAIC bolt-on MCB 4 – 40AT / 63AF, 2P 240V 10KAIC bolt-on MCB *3 – 50AT / 63AF, 2P 240V 10KAIC bolt-on MCB	NEMA 3R GA#16 powder coated enclosure, swing type dead front, hinged type door w/ push lock, nameplate and directory holder



Note: Items with () are for installation only and are already available.*

- b. All panelboards shall have a grounding terminal bus with terminal lugs.
- c. All circuit breakers shall be bolt-on type. Use one brand of circuit breaker only all throughout the system.
- d. All panelboards shall have plastic engraved nameplate & circuit directory. Nameplates shall be fastened with screw and not by adhesive.
- e. The contractor shall furnish a copy of specification / data sheet of panelboards obtained from the manufacturer / fabricator.
- f. Provision and installation of individual circuit breakers for equipment:
 - 20AT, 2P, 240V safety breakers for 1HP ACU at office
 - 20AT, 2P, 240V MCCB NEMA 3R for 1HP ACU at packing area
 - *30AT, 2P, 240V MCCB NEMA 3R for Octagonal mixer
 - *30AT, 2P, 240V MCCB NEMA 3R for Food grinder
 - 40AT, 2P, 240V MCCB NEMA 3R for Air compressor
 - 40AT, 2P, 240V MCCB NEMA 3R for Flour mill
 - 50AT, 2P, 240V MCCB NEMA 3R for Cereal puff machine
 - 50AT, 2P, 240V MCCB NEMA 3R for Dryer




Note: For items with () the Circuit breaker is already available; provide NEMA 3R enclosure only.*

XXVII.D. Lighting Fixtures

- a. This Item includes provision and installation of all lighting fixtures, emergency lights, exit signs, including lamp holders and accessories.
- b. The Contractor shall provide lighting fixtures in accordance with the specifications as summarized below:

SPECIFICATION	LOCATION / AREA	Required Quantity	FIXTURE
*LED Bulb 12W 230V, 6500K daylight E27 base	Hallway, entrances and comfort rooms	12 sets	
18W LED T8 Tube and box type set with housing, 1500 lumens, 6500K daylight	Office and changing area	10 sets	

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20W LED T8 Tube 2200 lumens, 6500K daylight w/ shatterproof and waterproof enclosure	Storage and working areas	30 sets	
Twin head automatic emergency light, 2 x 1W LED, 230V, 6500K daylight	Rooms and exits	8 sets	
LED Exit sign 3W, 230V, green, single face wall mounted	Door exits	4 sets	

Note: Items with (*) are for installation only and are already available.

XXVII.E. Distribution Transformer and Metering

- This scope includes provision, hauling, testing and installation of one-unit 50KVA, 13.2kV / 7.6kV / 240V single phase, 60Hz, pole-mounted, double bushing, oil-immersed self-cooled distribution transformer.
- Distribution transformer shall be installed at nearest utility pole.
- Transformer specifications shall comply with all applicable international and local manufacturing safety standards.
- The transformer unit shall be tested at FICELCO prior to installation.
- Provision and installation of 15Kv Class 100 fuse cut-out and arrester combination.
- Provision and installation of one (1) single phase 240V Electronic Kilowatt-hour meter CL200 c/w meter base, seal and NEMA 3R enclosure
- Accessories shall be provided such as, but not limited to, wire termination kits, mounting support.
- The contractor shall furnish a copy of certificates and specification / data sheet obtained from the manufacturer / distributor.

XXVII.F. Grounding System

- Provision and installation of grounding system.
- The grounding electrode shall be Copper bonded steel rod 20mmØ x 3m. The ground rod shall be flushed underground with a vertical orientation. Use clamp suitable for direct burial.
- Ground resistance shall not exceed 25ohms. A single ground rod that does not have a resistance to ground of 25 ohms or less shall be augmented by one additional rod. Where multiple rods are installed to meet the requirements of the code (PEC), they shall not be less than 1.8m apart.
- Non-current-carrying conductive materials enclosing electrical conductors or equipment, or forming part of such equipment shall be grounded.
- Grounding conductors and bonding jumpers shall be connected by listed pressure connectors or listed clamps. Connection devices or fittings that depend solely on solder shall not be used. Sheet metal screws shall not be used to connect grounding conductors or connection devices to enclosures.
- Ground clamps or other fittings shall be protected from physical damage.

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