1. Furnish materials and equipment and perform labor required to complete fitting and installation of roofing, flashing components, strap and rivet units as well as the application of supplementary materials to make the roof watertight and leak-proof.

B. Execution

1. Care should be exercised in the proper anchorage of all roofing frames.
2. Installation of roofing including valleys, hips, ridge, and flashings shall be as per manufacturer's installation procedure.
3. Side lap fasteners shall be done by rivets and washers paced from 12" to 18" on centers.
4. Provide gutter, flashings, and counter flashings, gauge 0.600mm pre-painted galvanized sheets or any approved equivalent at all critical points where water may seep through.

C. Materials

1. Anahaw roofings with complete accessories
2. 12mm x 12mm hole black netting
3. 2" x 3" Good Lumber
4. 1" x 2" Good Lumber
5. 2" x 8" rafter
6. MS plate ¼" x 2" 4' x 8'
7. 12mmØ x 300mm Anchor bolt

X. FINISHING

All finishing materials should be of best quality. Submit sample for approval of the designer prior to installation.

A. Tile Works

1. Scope of Work

   a. Furnish materials and equipment and perform labor required to complete all types of tile works as indicated and scheduled on the plans.

   b. Samples of each type of tiles including all required beads, moulding, and trim units shall be submitted for the approval of the Architect/Contractor.

2. Execution

a. All surfaces to receive tile work shall be cleaned of loose materials and given proper surface preparation prior to tile work. Tiles shall not be installed on surfaces that are unsuitable and will prevent proper installation of tiles.

b. Keep tile joints parallel and straight over the entire area by using straight edges.

c. Lay tiles from center lines outward and make adjustments at walls.

2. Materials

a. Wall Tiles: 0.50m x 0.50m Seamless homogeneous unglazed tiles

b. Floor Tiles: 0.50m x 0.50m Seamless homogeneous unglazed tiles

B. Ceiling

1. Scope of Work

a. Furnish all required materials, tools, equipment and labor necessary for the completion and installation of all ceiling works in accordance with the details and plans.

b. Provide and install the necessary materials required in areas indicated in the plans.

2. Materials

a. ¼" thk. Moisture – resistant fiber cement board dropped ceiling with complete accessories.

b. G.I Furring Channels x 3m.

c. 2" x 2" x ¼" Angle Bar x 6m.

d. 2" x 6" Hardwood

e. 20mm rattan rope

f. Stainless screw

C. Cement Plaster Finish

1. Scope of Work

a. Furnish all materials and equipment and perform labor needed to complete all cement plaster finishes.

2. Materials

   a. Fine aggregates shall be clean, washed sharp and free from dirt, clay, organic matter or other deleterious substances.

   b. Mortar mixture shall be freshly prepared and uniformly mixed in proportion by volume of one part Portland cement to three (3) parts sand.

3. Execution

   a. Provide all wall indicated with three coats of cement plaster (scratch coat, brown coat, and finish coat). Mix each coat in the proportion of one part Portland cement to three parts sand by volume.

   b. Apply the scratch coat with sufficient material and pressure to ensure a good bond and the scratch to a rough surface. Provide a thickness of 3/8" for scratch coat. Dampen with water before applying brown coat.

   c. Apply brown coat, one day after applying scratch coat, with a thickness of 3/8" and level to a flat even surface. When stiff enough, trowel with a wooden float and cross hatch or bottom lightly and evenly to secure a good mechanical bond for the finish coat. Wet the surface and keep from drying out for at least three (3) days.

   d. Apply finish coat seven (7) days after the application of brown coat. Provide thickness of 1/8", keep the finish coat damp but not saturated for a period of seven (7) days.

D. Painting

1. Scope of Work

   a. This item consists of furnishing all paint materials, varnish, and other related products, tools, equipment, and labor required in undertaking the proper application of painting, varnishing, and related works indicated on the plans. See drawings for location, quantity, and extent of surfaces to receive paint and varnish.

2. Materials

   a. Tinting colors shall be first grade quality, pigment ground in alkyd resin that disperses and mixes easily with paint to reduce the color desired. Use the same brand of paint and tinting color to effect good paint body.

   b. Concrete neutralizer shall be first grade quality concentrate diluted with clean water and applied as surface conditioner of new interior and exterior walls thus improving paint adhesion and durability.

   c. Silicon water repellent shall be transparent water shield especially formulated to repel rain and moisture on exterior masonry surfaces.

d. Patching compound shall be fine powder type material like calcimine that can be mixed into putty consistency, with oil base primers and paints to fill minor surface dents and imperfections.

e. Varnish shall be a homogeneous solution of resin, drying oil, drier and solvent. It shall be extremely durable clear coating, high resistant to wear and tear without cracking, peeling, whitening, spotting.

f. Sanding sealer shall be quick drying lacquer, formulated to provide quick dry, good holdout of succeeding coats, and containing sanding agents to allow dry sanding of sealer.

g. Glazing putty shall be alkyd-type product for filling minor surface unevenness.

f. Painting Schedule:
For New Concrete/ Masonry Surfaces:
One coat of Acrylic Flat base paint
Two coats of Acrylic Semi-Gloss base paint

3. Execution

a. All paints shall be evenly applied. Coats shall be of proper consistency and well brushed out so as to show a minimum of brush marks.

b. All coats shall be thoroughly dry before the succeeding coat is applied.

c. Where surfaces are not fully covered or cannot be satisfactorily finished in the number of coats specified such preparatory coats and subsequent coats as may be required shall be applied to attain the desire evenness of surface without extra cost to the owner.

d. Where surface is not in proper condition to receive the coat the Engineer shall be notified immediately. Work on the questioned portion(s) shall not start until clearance be proceed is ordered by the Engineer.

e. Hardware, lighting fixture and other similar items shall be removed or protected and re-installed after completion of the work.

XI. PLUMBING WORKS

A. Scope of Work

1. Furnish all materials, tools, equipment, and fixtures as required in the plans for the satisfactory performance of the entire plumbing system and perform labor in accordance with the latest edition of the National Plumbing Code, Mechanical Code of the Philippines, and this specification.
2. All sanitary/plumbing works shall be done under the supervision of a Mechanical/Sanitary Engineer and in strict accordance with these specifications and of the methods as prescribed by the latest edition of the Philippine Plumbing Code, Sanitary Code of the Philippine and the Mechanical Code of the Philippines.

B. Materials

1. Soil and waste pipe shall be "Branded" conforming to ASTM-D1784 and made from class 12454 with dimensions of pipe and fitting conforming to ISO 161/1 and ISO 3606 and furnished in standard cutting length of 3 meters with sockets designed for rubber O-ring seal.
2. Galvanized iron piping shall be schedule 40, type ERW ASTM A-120 or A-53 and fitting ASTM A-126.
3. Gate valves and hose bibs shall be bronze as per ASTM B-62 "Great Volume".
4. Faucets shall be chrome plated with stem length suitable for its intended location. Faucets and other accessories shall be approved brand.
5. Trap each fixture trap, except those cast integral or in combination with fixture in which the top seal is readily accessible for is the trap is removable shall have an accessible brass trap screw of ample size.
6. Clean-out shall be of the same size and materials as soil and waste pipe.
7. Pipe sleeves shall be galvanized iron pipe schedule 40.
8. Pipe support shall be fabricated from flat bar, round bar or angular bar of approximate sizes.
9. Water closets, Lavatories, Urinals and other fixtures and accessories shall be designer approved brand and approved model, for all units.

C. Installation

1. Install all plumbing fixtures free and open in a manner to afford access in cleaning.
2. Water piping shall intended to all fixtures, outlets and equipment from the gate valve installed in the branch near the riser.
3. All piping above ground shall run parallel with the line of the buildings unless otherwise shown in the drawings.
4. All soil and drainage pipe shall be pitched at 2% but in no case flatter than 1%.
5. All joints shall be air and water tight.
6. Roughing-in for pipes and fixtures shall be carried along the line of building constructor correctly located opening of proper sizes shall be provided where required in the wall and floor for the passage of the pipes. All items to be embedded in concrete shall be thoroughly clean.
7. Every plumbing fixture or equipment requiring connection to the drainage system shall be equipped with a trap, which shall be placed as near to the fixture as possible. No fixture shall be double trapped.

D. Septic Vault and Catch Basin

1. All concrete works, steel works, and masonry works for the septic vault and grease trap shall conform to these specifications. Concrete Hollow Blocks shall be machine made and shall have a nominal size of 150mm (6") thick x 200mm (8") x 400mm (16") conforming to the requirements of ASTM C 90.

XII. PROVISION OF SIGNAGE

A. Scope of Work

1. Provide labor, materials, equipment and services necessary to furnish and install signs of size, material, images, arrangements, components and construction, and related work.

2. Include fabrication drawings to show construction details, material descriptions, dimensions of individual components and profile views and finishes for each type of sign.

3. Provide message list for each type of sign material including large-scale details of wording, lettering, and artwork and Braille layout.

A. Installation and Fabrication

1. Field Measurements: Where sizes of signs are determined by dimensions of surfaces on which they are installed, verify dimensions by field measurement prior to fabrication and indicate measurements on shop drawings.

2. Provide panel signs that comply with requirements indicate for materials, thickness, finishes, color, designs, shapes, sizes and details of construction.

   a. Produce smooth panel sign surfaces constructed to remain flat under installed conditions with tolerance of plus or minus 1/32 inch (0.75mm) measured diagonally.

3. Acrylic Sheet: Manufacturer's standard and as follows:
   a. Color: As selected by the Architect from manufacturer's full range;
   b. PVC: Extruded, high-impact acrylic plastic in color as selected or identified;
   c. Cast-Acrylic Sheet or Acrylic Sheet: Provide matte acrylic with overall thickness of 1/8", 1/16" or ¼".

C. Materials

1. S1: Stand Alone Signage 400mmØ x 2" thk. Lighted D.O.T logo; 600mmØ x 2" thk. Lighted metal information sign; 70mm x 130mm x 1" thk. Lighted metal 3D letters; 300mmØ x 2" thk. Lighted TIEZA and LGU logo; 2" x 2" thk. outdoor horizontal wood slats; 6" thk. Concrete flatform with engraved wood lattice and synthetic granite stone Stand Alone Signage.

2. S2: Signage (Just Relax) White acrylic signage with white paint finish and LED strip light 12W (RGB)

3. S3: Restroom Signage 25mm Thk. Hardwood signage with wood stain finish and LED strip light 12W (RGB) – restroom. 25mm Thk. Hardwood signage with wood stain finish and LED strip light 12W (RGB) – arrow. 25mm Thk. Hardwood signage with wood stain finish and LED strip light 12W (RGB) – male.

4. S4: 156mm W x 1522mm H Female Signage 10mm Thk. Hardwood embossed signage with wood stain finish and LED strip light 12W (RGB)

5. S5: 156mm W x 1522mm H Male Signage 10mm Thk. Hardwood embossed signage with wood stain finish and LED strip light 12W (RGB)

6. S6: 454mm W x 1522mm H PWD Signage 10mm Thk. Hardwood embossed signage with wood stain finish and LED strip light 12W (RGB)

7. S7: Aluminum w/ Wood – Walnut Brown finish Façade Signage

8. S8: Laser cut Philippine Map Signage, 1" thk. Wood design, white oak (Luzon), 1" thk. Wood design, walnut (Visayas), 1" thk. Wood design, golden oak (Mindanao)

9. S9: 3mm Black acrylic cut-out; UV printed sticker stainless steel siding all-around DOT, TIEZA and LGU Logo

XIII. ELECTRICAL WORKS

A. Scope of Work

1. The work of the contractor consists of furnishing of all tools, labor, equipment, and materials and performing all operations in connection with the electrical and fire alarm system shown on the drawing, their test and inspection, complete and in accordance with these specifications and drawings and subject to the terms and conditions of the contract, and all other labor and materials not specifically mentioned under sections, to bring the electrical system to operating conditions and be ready for use by the Owner.

B. Applicable Documents

1. The works covered by these specifications shall be governed by the requirements of the Philippine Electrical Code, US Federal Specifications, NEMA standards.

C. Materials

1. Rigid steel conduit shall be hot-dipped galvanized mild steel pipe and shall 3m lengths including coupling.

2. PVC electrical conduit shall be supplied in standard effective lengths of 3.0m.

3. Wires and cables shall be insulated for 600 volts. Feeder and branch circuit wires and cables shall be type TW or THHN as manufactured.

4. Conduit's fittings shall be US Underwriters Laboratories (UL) listed or approved local equivalent.

5. Outlet boxes shall be hot-dipped galvanized or case metal as required. Thickness of pressed steep boxes shall be less than gauge #16.

6. Circuit breakers for panel boards shall be molded case circuit breaker with quick-made, quick-break, trip-free mechanisms. They shall meet US Federal Specifications and NEMA standard.

7. Panel board shall be as manufactured by bolt-on type NEMA or approved equal.

8. Wiring devices such as switches and convenience outlets shall have ratings of 15 amperes, 250V and 16 amperes, 250V, respectively.

D. Installation

1. Grounding

   The following shall be grounded in accordance with the drawings and the requirements of the Philippine Electrical Code with standards grouping practices:

   Metallic conduit and raceway system including gutters, cabinets and boxes.

   Non-current carrying metal parts of all electrical equipment including fixtures and motors.

2. Feeders

   Distribution voltage shall be 240V, 1-phase, 3-wire feeder conductors and conduit shall be installed as shown on the drawing and no change in size shall be made without consent of the Owner. Feeder conductors shall be continuous and without splices between terminals.

3. Branch Circuit

   The drawing indicates the general methods of installations of all circuit wiring and the outlet which are to be supplied from this circuit. Branch circuit conduits shall be run from outlets to panel boards as directed as the building conditions will allow. Circuit allocations shall be indicated on the drawings where it becomes necessary to correct any outlet to circuit other than shown on the drawings. This shall be done without extra charge and only upon written consent of the Owner. No wire smaller than $2.0mm^2$ (#14AWG) and $3.5mm^2$ (#12 AWG) shall be used for any lighting and power circuits, respectively.

4. Panel boards and cabinets

Panel boards shall be mounted with their centers at 1.40m above the floor unless otherwise indicated by field conditions.

5. Locations of outlets and switches

   The approximate location of each fixture receptacle, special purpose outlet and switch is indicated on the drawings. The exact location is to be determined later at the site as the work progresses.

6. Wires and boxes

   No wire shall be drawn into the raceway until works, which may cause injury to the wires, is completed and until permission is given by the Owner in writing. Only powdered lubricant not injurious to cable insulation and raceways shall be used only when lubrication is necessary.

7. Splices

   Branch circuit splices shall be soldered or joined by used insulated splicing device (wire nuts). All soldered joints shall be made mechanically strong before soldering and shall be carefully soldered without the use of acid, then taped with rubber tape to a thickness equal to that of the insulation and with a covering of friction tape of two layer. . Where solid conductors are to be connected directly to devices without the use of lugs, such as lighting switches and plug receptacles, the wires shall be formed into a clockwise loop fitted around the screws.

8. Outlets, switches and junction boxes

   The contractor shall install standard boxes at all outlets for lights, appliances and switches and other point as required by the constructions.

9. Conduit System

   Not more than four 90 degrees bond shall occur in any run. When it becomes necessary to have more than four 90 degrees bends in any run, an intermediate pull box shall be installed to facilitate pull-in wires. All conduits run shall as called for on the drawings. Conduits shall be installed in such manner as not to weaken or interfere with the structure or the building. No horizontal runs embedded conduit shall be permitted in solid wall and partitions. Conduits below grade line shall be encased in concrete enveloped with minimum thickness of 50mm (2") or embedded in floor slab. Exposed conduit shall run parallel or at right angles with lines of the buildings and shall be securely fastened in place by means of approved fastening. Conduits support shall be fastened to walls by means of screws or bolts with expansion sleeves. The use of wooden or lead plug is not permitted. Conduits shall be cut by hacksaw, the ends shall be reamed after being firmly attached to cabinets or boxes by means of locknuts.

10. Lighting Fixtures

    The Contractor shall furnish and install all lighting fixture as indicated on the drawings, including mounting channels and supports.

11. Testing

a. Ground test

The entire installation shall be free from improper ground and from short circuits. Each panel shall be tested with means connected. Lamps removed or omitted from the sockets and all switches closed. Each individual power equipment shall be connected for proper and intended operation. In no case shall the resistance be less than that allowed by the Regulations for electrical equipment of building. Failures shall be corrected in any manner satisfactory to the Architect and Engineer.

b. Performance test

The electrical contractor shall test all system of entire electrical installation for proper operational conditions. These conditions shall apply to the power and lighting installation, voltage drop, grounding defects.

XV. PRE-FABRICATED ITEMS, FIXTURES AND ACCESSORIES

1. All items should be of best quality and approved by the designer prior to installation.

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