TECHNICAL SPECIFICATIONS

COMPLETION OF DORMITORY BUILDING II
PHILIPPINE SCIENCE HIGH SCHOOL - MIMAROPA REGION CAMPUS
BARANGAY RIZAL, ODIONGAN, ROMBLON

I. BACKGROUND

The **PHILIPPINE SCIENCE HIGH SCHOOL-MIMAROPA Region Campus (PSHS-MRC)** through the approved allocation for capital outlays under General Appropriations Act (GAA) of 2024 intends to apply the sum of **TEN MILLION PESOS ONLY (₱10,000,000.00)** being the approved budget of the contract for the implementation of the project **Completion of Dormitory Building II** with the project duration of Two Hundred Forty **(240)** calendar days**.**

II. PROJECT DESCRIPTION

The project will involve the **Completion of Dormitory Building II** of the Philippine Science High School - MIMAROPA Region Campus, Rizal, Odiongan, Romblon which will include but not limited to:

- External wall finishes
- Interior wall finishes
- Floor finishes
- Installation of toilet fixtures and toilet partitions
- Tapping of fire water line
- Tapping of the main water line
- Installation of lighting fixtures and public address system

III. TECHNICAL SPECIFICATIONS

ARCHITECTURAL WORKS

1. Floor Finishes
    a. Toilet and bathroom shall be finished unglazed. Toilet floor tiles shall be 600mm x 600mm vitrified ceramic tiles. Sizes may vary upon advice by the end user.
    b. The walls of toilets and bathrooms shall be 1/2 height of 300mm x 600mm vitrified ceramic tiles.
    c. Use tile adhesive and not Portland cement as an alternative.
    d. Provide at least 25mm drop finish from room FFL. to toilet FFL.
    e. Submit tile sample for approval prior to installation.
    f. All rooms floor and stair finishes shall be smooth plain cement in chlorinated rubber paint finish except for toilets.
2. Painting
    a. All painting works except as hereinafter specified, shall be BOYSEN PAINTS or approved equal.

   b. For Exterior walls - use Elastomeric paint, 1 primer coat, spot putty and sanding, 2-finishing coat including surface preparation (skim coating).
   c. For Interior walls – 2 to 3 skim coat application, 1 to 2 coats of flat latex primer, 2 finishing coats of semigloss latex paint including surface preparation.
   d. For ceiling paints, apply 2 coats of white flat latex paint including surface preparation (use skim coat for slab soffit).
   e. Verify color scheme / swatches for final approval.
3. Windows
   a. Window frames shall be 768 High-end aluminum profile in powder coated finish or approved equal.
   b. Windows shall be ¼" thk. annealed glass
   c. Provide all necessary hardware as per approved by PSHS including rubber gaskets and sealants. Prior to installation, make sure to have at least primer paint the perimeter of window opening.
4. Doors
   a. Door panels shall conform to the standard specs as specified in the drawings.
   b. Provide Hafele brand stainless-steel door knob and hinges or approved equal for lockset and accessories in all door panels.
   c. Glass doors shall be ¼" thk. annealed glass in powder coated aluminum frame finish. Provide a sample for approval.
   d. Fire exit door shall conform to the Fire Code requirements

5. Grills
   a. Provide steel grills at balcony area in front and rear side openings of the bldg. for security purposes.
   b. Finish should be in an epoxy primer and quick drying enamel for topcoat.
   c. Provide sample details for approval.
6. Stairs
   a. Provide stair nosing for all steps.
7. Front and Rear Canopy – Driveway
   a. Canopy should be cladded in Aluminum Composite Panel (ACP) and will serve also as a roofing for canopy.
8. Waterproofing Works
   a. Provide a minimum of 2 coats of flexible type cementitious waterproofing in all toilets, concrete tanks and roof decks. Brand shall be Bostik powermix or approved equal.

9. Metal Works
   a. All handrails shall be stainless steel (S304) materials
   b. Other steel works shall be painted with epoxy primer paint, top coat shall be quick drying enamel.

ELECTRICAL WORKS

1. All electrical works herein shall be done in accordance with these plans and specifications, the applicable provisions of the latest edition of the Philippine Electrical Code, the rules and regulations of the local enforcing authority and the requirements of the local power and telephone companies. The electrical works shall be under immediate supervision of a duly licensed Electrical Engineer.
2. Power service to the building shall be 230 volts, Single Phase 60HZ, AC power source, 2-wire + 1-ground.
3. All electrical wiring installation such as lighting, power, fire alarm & CCTV system to be used shall be polyvinyl chloride (PVC) pipe. “Schedule 40”
4. Unless otherwise specified, the minimum size of wire shall be 3.5mm THW/THHN2 and conduit shall be 20mmϕ electrical trade size.
5. All wire shall be copper and thermoplastic insulated type “THHN/THWN” unless otherwise indicated in the plans and shall be manufactured by Phelps dodge or approved equal.
6. All outlet boxes shall be galvanized gauge no. 16, deep type with factory knockouts. Cover all junction boxes (no exposed wire)
7. All wiring devices shall be “National” or approved equal.
8. All materials to be used shall be brand new and must be approved for the particular location and purpose intended.
9. Provide flexible metal conduit and sufficient mica tube from junction boxes to lighting fixtures.

FIRE PROTECTION

1. PIPINGS

   a. Where American Standards are specified, other approved national or local standards may be acceptable, provided copies of these standard Specifications are forwarded to the Engineer for his written DRY CHEMICAL approval.
   b. Black iron, schedule 40 standards, conforming to ASTM A-53 for pipe sizes 150 mm dia. and above only (wet)
   c. Black iron, schedule 40 pipes, standard, conforming to ASTM A-120 for inside building installations (feed mains, cross mains and branch lines)
   d. All fire line piping shall be installed by means of screwed or flanged fittings. Flanged joint shall be used at all sprinkler risers and provided with 1.6 mm thick long neophrene gasket.
   e. Torch cutting shall not be permitted as means of modifying or repairing sprinkler system.

   All welding shall be “shop welding” only and shall be done by electric arc welding process.

2. FITTINGS

   a. Sprinkler system fitting shall be extra heavy pattern. Whenever a change in pipe size is made, one piece of reducing fitting shall be used. Provide mechanical grooved couplings at riser pipes of every floor.
   b. All fittings shall be of malleable iron fittings.

c. Steel pipe flanges mating with steel equipment flanges shall have the same facing as mating flange.
d. Screwed union shall not be used on pipes larger than 50 mm (2”). Coupling and unions of pipes other than screwed type shall be of types approved specifically for sprinkler used.

3. VALVES

a. All valves shall be of the same manufacture for each class of piping.Valves shall permanently bear affixed stamp or tag indicating manufacturer, catalog number, pressure and temperature ratings of isolation gate valve, OS & Y gate valves, angle valves, check valves, fire alarm check valve, pressure relief valves with all cast iron body with bronze trim.

b. Furnish all valves and accessories material necessary for piping not shown on drawings as follows:

1. Vents and drains for equipment to which piping connections are made.

2. Connections to metering instruments and controls including pressure gauges, thermometer, controllers, traps and appurtenances required for proper functioning on instruments in controls.

3. Temporary valves and accessories required for placing equipment into initial service.
4. Piping 50 mm (2”) and smaller required for proper operation of piping system and equipment, including drain valves required to drain all low points in piping.

c. Valve seats shall be renewable except for forged steel and high pressure cast steel valves where Manufacturer’s standard is integral seats.

d. All valves shall be approved by Factory Manual and Underwriters Laboratories, Inc. (UL listed) in accordance with ANSI B 16.1, class 125.

e. Where required and not noted, provided chain - wheel operators, extending chain for chain operated valves to which 1.2 meters of nearest floor or operating platform of valves.

f. Provide floor stand with flanged faces for bolting to floor or platforms and other special devices where specified or noted on drawings.

g. Provide extension stems, universal joints stem guide bearings and other accessories required to locate floor stands in convenient location with interference with other equipment, piping or building parts.

h. Floor control valves within the building shall be approved indicating wedge gate with electrical contact and which will open when valve is partially or totally put in close position.

4. SWAY BRACES, HANGERS, SUPPORTS AND SEISMIC BRACINGS

a. Sway Bracing : Steel flat bars, structural grade 7 mm minimum thickness, with corrosion protection; shape /or type as shown on plans.

1. Sway Bracings Installation;

1.1 Adequate sway bracing shall be provided to oppose longitudinal or transverse pipe movements.

1.2 Lateral bracings shall withstand a force equal to 50% of the weight of the water contained in piping, valves and fittings. Spacing shall be 40 ft. (12m) maximum distances along main lines.

1.3 Longitudinal bracing shall withstand a force equal to 50% of the weight of crossmain and feedmain within the zone of water contained in piping, valves and fittings. Spacing shall be 80 ft. (24 m) maximum distances along main lines.

1.4 Piping anchorages shall not be secured on two (2) dissimilar parts of the building which will move differently.

b. Pipe Hangers: Steel flat bars, structural grade, 7 mm minimum thickness, with corrosion protection, shape as shown on plans and 13 mm diameter bars with corrosion protection as shown on plans.

1. Hangers Installation

1.1 Approved inserts may be used for the support of hangers, anchorages in concrete. Expansion shield should be used in a horizontal position on the sides of concrete beams and shall be above the bottom reinforcements.

1.2 Increaser couplings shall be attached immediately adjacent to the expansion shields.

1.3 When pipes 100 mm diameter and larger are supported in the vertical position, the supports shall be at a minimum spacing of 3.0 meters (10') on center. Holes in concrete for expansion shield shall be made of the proper size and depth, as specified for the type of shield used, to provide a uniform contact with the shield over its entire length and circumference.

1.4 Maximum distance between hangers shall be 3.65 meters (12') for size mm (1"). Provide at least one hanger for each length of branch line, one between each two cross main branches, one hanger for each 4.75 meters (15') length of feed mains. The distance between the hanger and the canter line of upright sprinkler shall be not less than 76 mm (3").

c. Support on Risers (Four Way Bracing)

Risers shall be adequately supported either by attachments directly to the riser or by hangers located on the horizontal connections close to the risers. Supports shall be provided at the ground level and for every second level and at the topmost level of the riser.

d. Seismic Separation Bracing

Seismic separation assembly shall be provided at every piping crosses at every construction joint of the building Separation assembly shall composed of fittings, pipe, and approved Victaulic coupling that permits movement in all directions and is sufficient to withstand differential motion during an earthquake. For nominal 4" dia. (100 mm) and above sizes of pipes the separation distances shall not exceed 8 inches (203 m) maximum. For other separation distances and pipe sizes, lengths, and distances should be modified proportionally.

e. Restraints

Install seismic restraints on piping. Comply with requirements in NFPA 13 for seismic-restraint device materials and installation.

5. PIPE PAINTINGS

a. Sprinkler heads, valve stems and the like shall not be painted.
b. After installation and test and before the installation of ceiling fixtures or boards, all piping shall be prime painted and coated with two coats of gloss red quick drying enamel.

6. ACCEPTANCE TESTS

a. The Contractor shall conduct tests in the presence of an inspector or authority having jurisdiction.
b. Isolated leak tests or partial tests of areas may be performed prior to installation of ceiling materials in the area to preclude any damage and during the total system final tests.
c. To remove foreign materials which may have entered the piping during installation of same, flushing or underground connection is required before sprinkler piping is connected.
d. Hydrostatic Tests:

    1. Minimum tests pressure shall not be less than to 200PSI on the system pressure. Exceeding System pressure requirements to the minimum test pressure shall be tested applying additional test pressure of 50PSIG on the system for at least twenty four (24) hours minimum.

    2. No visible leakage for inside sprinkler piping will be allowed. Fore underground mains and laid - ins, exceeding the permissible leakage or joints necessary repair shall be made.

3. All control valve water pressure to insure proper operating tests. Use clean, non - corrosive water.

4. Fire connection shall be tested.

e. The Contractor shall furnish the Owner a written statement to the effect that the work covered by the Contract has been completed and tested, before requesting for final approval of the installation from the Fire Department Authority.

f. Testing of drainage facilities shall be made by opening the main drain valve while the control valve is wide open.
g. Test certificate shall be filled out and signed by the Owner's and Contractor's representative.
h. System operations and maintenance chart shall be submitted to the Owners upon completion of the Contract. This shall include, among others, the locations of the control valves and care of the new equipment.

PLUMBING AND SANITARY WORKS

1. All plumbing works included herein shall be executed according to the provision of the Philippine Plumbing code, the national building code & the rules & regulations of the city or municipality where the project will be built.
2. Coordinate the plumbing drawing with other related drawings and specification, the engineer shall be notified immediately of any discrepancy found therein.
3. All pipes shall be installed as indicated on plans, any relocations required for proper execution of other trades shall be with prior approval of the architect or engineer.
4. Proposed sanitary utilities shall conform to the actual location, depth and invert elevation of all existing pipes and structure as verified by the contractor.
5. Refer to architectural plans for area drain, catch basin, floor drains and clean out location.
6. All slopes for horizontal drainage shall maintain 2% unless otherwise specified.
7. Size of water supply pipes to fixtures shall be in accordance with the manufacturer's instructions.
8. The contractor shall verify all existing utilities at site, coordinate the works with the line service connecting point unless otherwise specified.
9. All pipe sizes and dimensions are in millimeters unless otherwise specified.
10. All hangers shall not be anchored at purlins, unless otherwise approved by the structural engineer.
11. Material specifications

    a. Water lines- riser, down feed, main distribution and tapping water lines shall be galvanized iron pipe (G.I.) schedule 40, similar to "supreme" pipe.
    b. Roughing-ins of water lines shall be polypropylene random copolymer (PPRC) pipe, PN-20, standard conforming to DIN-8077-8078, shall be fusion type.
    c. Sewer pipes- shall be polyvinyl chloride (PVC) pipe, series 1000,
    d. Waste pipes- shall be polyvinyl chloride (PVC) pipe, series 1000,
    e. Vent pipes- shall be polyvinyl chloride (PVC) pipes, series 1000,

f. Storm drainage lines- for inside building, shall be polyvinyl chloride (PVC) pipes, series 1000, and reinforced concrete drain pipe for outside building.
g. Underdrains/ perimeter drain pipes - shall be polyvinyl chloride (PVC) pipes, series 1000,".
h. Gate valves- 50 mmΦ and smaller, rising stem, all bronze, female threaded, minimum of 125 PSIG working pressure, , shall be rising outside screw and yoke

12. Pumps
    a. Type of Pump: Duplex Type Horizontal Suction, Multistage Pump with stainless steel impeller, shaft and intermediate chamber, cast iron pump head and base, coupled to electric vertical motor. Roughing-ins of water lines shall be polypropylene random copolymer.
    b. Electric Motor Drive: shall be variable speed motor for variable frequency drive operation, 230 volts (verify EE consultant), 3-phase, 60 cycles

Prepared by:

JEFFREY JOHN T. FETALVERO
Resident Engineer, DBC Member
PSHS-MRC

ADRIAN B. FAJANILAN
Resident Engineer, DBC Member
PSHS-MRC

MAUREEN R. MARQUEZ
Resident Engineer, DBC Member
PSHS-MRC

Recommending Approval:

IVY MAY F. FAMATIGA
Planning Head
PSHS-MRC

Approved:

ROMEO C. ONGPOY
Campus Director
PSHS-MRC