



Republic of the Philippines

DEPARTMENT OF SCIENCE AND TECHNOLOGY

Philippine Science High School – Zamboanga Peninsula Region Campus
Cogon, Dipolog City



SCOPE OF WORK
CONSTRUCTION OF DORMITORY BUILDING III
OF
PHILIPPINE SCIENCE HIGH SCHOOL – ZAMBOANGA PENINSULA REGION CAMPUS
BRGY. COGON, DIPOLOG CITY

I. BACKGROUND

The **PHILIPPINE SCIENCE HIGH SCHOOL-ZAMBOANGA PENINSULA REGION CAMPUS (PSHS-ZRC)** through the approved allocation for capital outlay under FY 2023 General Appreciation Act intends to apply the sum of **FOURTEEN MILLION FIVE HUNDRED FIFTY-SIX THOUSAND (P14,556,000.00)**, which is net of the Project Management Cost of Four Hundred Forty-Four Thousand Pesos (P444,000.00). This is the final phase of this project in which, it is expected that all its three floors and basement and development of its perimeter are all complete. **The project duration is 210 calendar days.**

II. PROJECT DESCRIPTION AND LOCATION

The Dormitory Building is located across the Dormitory Building I and beside the Dormitory Building II.

This phase of the **Construction of Dormitory Building III** project shall cover:

- Completion of ALL Floor Levels of the building
- Design and Construction of Generator Set House
- Provision, installation and commissioning of Generator Set
- Construction of Storm Drainage System
- Design and Construction of Stairs/Benches (Site Development)

III. SCOPE OF WORK – CONCEPTUAL DESIGN

The bidder shall prepare and submit:

- ❖ Bill of Quantities (BOQ) and Detailed Cost Estimates of the scope of work for this phase.

Note:

- The labor component of the cost estimates shall follow the ranges provided in the latest wage order of DOLE Region IX.
- The Contractor shall provide itemized breakdown of the units in lots/Lump sums given in the BOQ.

1.0 General Requirements

- 1.1. Mobilization and Demobilization**
- 1.2. Project Billboard**
- 1.3. Temporary Water and Electrical Connection**

- ❖ The Contractor shall pay for the installation of/acquisition of separate connections for electricity and water and the monthly bills for these during the construction phase.

1.4. Design Services

- ❖ Plans and/or shop drawings
- ❖ The As-Built Plan and revised plans (if any) should be prepared, signed, and sealed by the respective registered professionals hired/contracted by the Contractor of this project.

1.5. Construction Safety and Health

- ❖ Personal Protective Equipment, Medicines, First Aid Kit, and other safety and health necessities that must be provided, made available and used by the workers during the construction period.

2.0 Construction of Third Floor Level - The contractor should complete the remaining works in accordance with the following:

- ❖ **Annex A** – Architectural Plans
- ❖ **Annex B** – Plumbing Plans
- ❖ **Annex C** – Electrical Plans
- ❖ **Annex D** – Mechanical Plans / Fire Pro Plans
- ❖ **Annex E** – Electronics Plans / Auxiliary (FDAS, DATA, CCTV and ICT)

2.1. Masonry Works – The contractor will follow the layout and markings present on the third floor.

- Interior 4" CHB – 758.08 sq. meter.
- Exterior 6" CHB – 210 sq. meter.
- Continuation of the vertical canopy.



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- Finishing: Ready for Skim Coat Application

2.2. Architectural Works – The contractor should follow the same as the actual present design installed on the second floor for dimensions, measurements, offsets, and colors of the following:

2.2.1 Doors – with complete accessories (door knobs, hinges, and stopper)

- 16 units of D-8 with stopper
- 32 units of D-6

2.2.2 Windows – 16 units of jalousie window w/ screen and fixed clear glass on analog aluminum frame at the bottom.

2.2.3 Tile Works

- Provision of water proofing membrane at shower and comfort room areas prior to installation of tiles.
- A floor area of 521.32 sq. meters
- A wall area of 288 sq. meters

2.2.4 Ceiling Works – rooms and hallways

- A total area of 521.32 sq. meters

2.2.5 Interior Painting Works

- Wall area of 1,487.52 sq. meters
- Ceiling area of 350.50 sq. meters

2.3. Plumbing Works – The contractor will follow the stub-outs for waste and soil pipe line.

2.3.1. Sanitary Line – Stub-outs were ready and provision of vent lines.

2.3.2. Water Line – Stub-out for the waterline is readily located at the pipe chase.

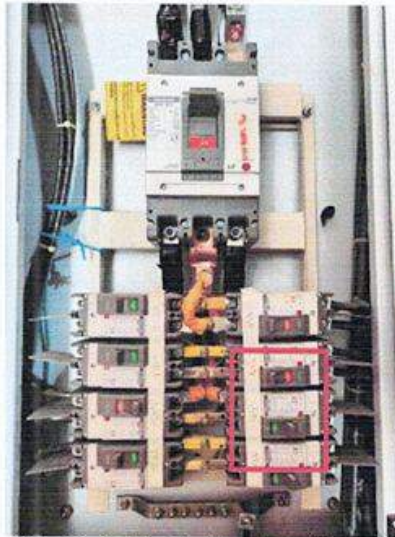
2.3.3. Plumbing Fixtures

- Porcelain Soap Holder – 32 units. To install on each toilet and bathroom.
- Water Closet Flush Type w/ complete accessories – 16 units
- Lavatory with fittings and accessories – 16 units
- Shower with complete accessories – 16 units
- Porcelain Tissue Holder – 16 units
- Stainless Steel Towel Bar Holder – 16 units

2.4. Electrical Works

2.4.1. Provision of electrical wires, conduits, panel boards, circuit breakers, junction boxes, and utility boxes.

- The panel board and breakers for the third floor shall be installed in the electrical room located on the upper ground floor.



(The Main Distribution Panel Board)

- LP3 and PP3 main breakers of third floor (red square marking) are already existing and ready for tapping which will be the source of lighting and power outlets for the third floor level.

2.4.2. Electrical fixtures

- Pin lights with LED bulb – 134 units (112 units of 5W and 24 units of 9W)
- Square Surface Type Down Light with 9 Watts LED Bulb – 4 units
- Ceiling Mounted Exhaust Fan 12" – 32 units
- Ceiling Fans – 16 units
- Universal Outlets 2 Gang – 64 units
- Switches

2.5. Mechanical Works (Fire Protection)

- See plan for references
- Ready to tap to the riser.

2.6. Auxiliary Works

2.6.1. CCTVs

- Provision of 2 units of IP-Based Indoor Dome Camera (Fixed)
- Provision of 2 units of IP-Based Indoor Bullet Camera (Fixed)
- To install at hallways and stairs

2.6.2. Indoor Access Point – 3 units

- Data access points (long range)
- High-efficiency 4x4 Wi-Fi 6 (802.11ax)
- 5GHz band (4x4 MU-MIMO and OFDMA) with 2.4Gbps throughput rate
- 2.4GHz band (4x4 MIMO) with 600 Mbps throughput rate
- Powered by 802.3at PoE
- IP54-rated water and dust protection for indoor/outdoor mounting versatility



(Example)

2.6.3. Fire Detection Alarm System w/ Alarm Bell and Manual Call Point (Conventional Type Fire Alarm System)

- Provision of 21 units of Smoke detector
- The contractor taps to the Fire Control Alarm System at the Upper Ground Floor

3.0 Completion of Second Floor Level

3.1. Electrical Fixtures

3.1.1. Ceiling Mounted Exhaust Fan 12” – Provision of 16 units additional exhaust fan at shower rooms and tap to the existing vent pipe crossing on the line. The supply of the unit should be connected to the switch line of the light. **See Annex**

3.1.2. Wall Mounted Study Lamps with replaceable LED Bulb – 64 units with 5 Watts LED Bulb including switches, wires, and conduits.



(Example only)

3.1.3. Universal Outlets 2 Gang – 64 units including electrical wires and conduits.

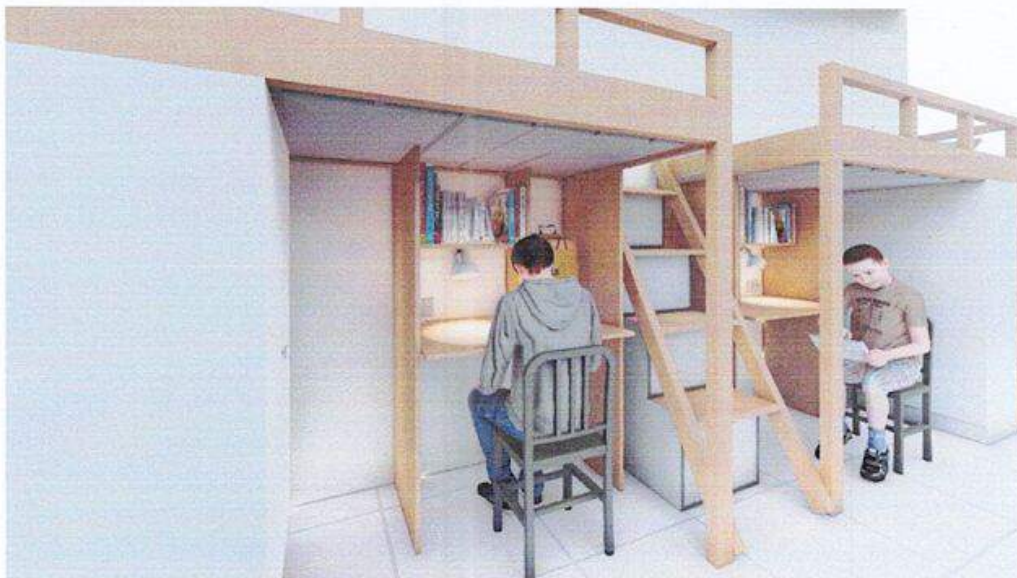
3.2. Provision of Loft Beds with 2 Cabinets – 32 sets

- Design, construction, and installation of loft beds.
- Provision of 2 units Wardrobe of Cabinet per set of Loft Bed.
- Conduct site inspection first before fabrication of loft beds.

Conceptual Design



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3.3. Auxiliary Works

3.4.1. CCTVs

- Provision of 2 units of IP-Based Indoor Dome Camera (Fixed)
- Provision of 2 units of IP-Based Indoor Bullet Camera (Fixed)
- To install at hallways and stairs

3.4.2. Indoor Access Point – 3 units

- Data access points (long range)
- High-efficiency 4x4 Wi-Fi 6 (802.11ax)
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- Powered by 802.3at PoE
- IP54-rated water and dust protection for indoor/outdoor mounting versatility



(Example)

4.0 Completion of Upper Ground Floor Level

4.1. **Provision of Counter Top at Manager's Room** – use 3/4" thick Granite Slab with the height of 1.10m reception counter.

4.2. **Completion of Balcony Access Way (Tile Works and Railing Works)**

- Tile Works – 42 sq.m. The material to be used shall be Non Slip Floor Tiles.
- Balcony Railings – Design and construct. The material must be Stainless Steel.

4.3. **Completion of Laundry Area**

- See Plan for details and specification

4.4. **ICT Works**

- **CCTVs** – 4 units of IP-Based Bullet Type and 6 units of IP-Based Dome Type indoor CCTVs
- **Indoor Access Points (long range)** – 4 units
- **Data Cabinet** – 6ft
- **Switch (48 ports managed POE)** – 1 unit
- **Patch Panel (48 ports)** – 1 unit
- **Patch Cord (1 meter)** – 150 pcs
- **Enterprise Back up Battery/UPS** (up to 6 hours back up time) – 1 unit
- **NVR (Network Video Recorder)** – 1 unit
- **Smart TV 55" (Compatible for Networking)** – 1 unit
- **CAT-6 RJ45 connector** – 150 pcs
- **Rubber Boots Cat-6 connectors** – 150 pcs
- **PDU-Power Distribution Units (8 outlets)** – 2 units
- **Cable Manager 2RU** – 1 unit

5.0 Construction of Lower Ground Floor Level

Conceptual Design



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5.1. Provision of CHB Piling Wall Partition and Door Grilles at both stairs

- See Architectural Plan
- With finishing and painted

5.2. Concrete Accent Wall Finishing for Wall and Suspend Slab of Lower Ground Floor

- With top coat finish
- Stucco finish or equivalent

5.3. Tile Works (Interior and Exterior)

- Interior (FL-1) - 516.53 sq.meters
- Exterior (FL-7) – 42 sq.meters

5.4. Auxiliary Works

5.4.1. Fire Detection Alarm System w/ Alarm Bell and Manual Call Point (Conventional Type Fire Alarm System)

- Provision of 21 units of Smoke detector
- The contractor taps to the Fire Control Alarm System at the Upper Ground Floor

5.4.2. Indoor Access Point – 4 units

- Data access points (long range)
- High-efficiency 4x4 Wi-Fi 6 (802.11ax)
- 5GHz band (4x4 MU-MIMO and OFDMA) with 2.4Gbps throughput rate
- 2.4GHz band (4x4 MIMO) with 600 Mbps throughput rate
- Powered by 802.3at PoE
- IP54-rated water and dust protection for indoor/outdoor mounting versatility



(Example)

5.5. Completion of Manager's Room and Storage Room

- Counter Top - use 3/4" thick Granite Slab with the height of 1.10m reception counter.

5.6. Doors

- D-2 – 2 units
- D-8 – 3 units
- D-11 – 2 units

5.7. Windows

- W-1 – 4 units
- W-4 – 1 unit

5.8. Ceiling Works

- The design and details are shown in the plans.
- **See Annex**

5.9. Wall Finishes (WPC Fluted Panel Indoor, 6mm Mirrors)

- The design and details are shown in the plans.
- **See Architectural Plan**

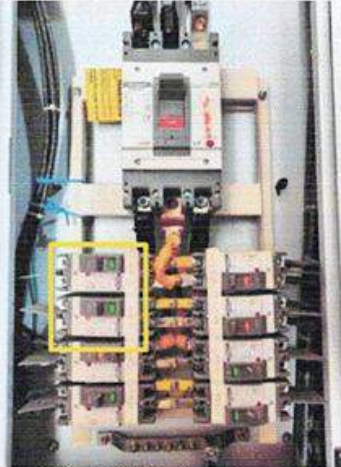
5.10. Wooden Vertical Slats Partitions

- The design and details are shown in the plans.
- **See Architectural Plan**

5.11. Electrical Works

5.11.1. Provision of electrical wires, conduits, panel boards, breakers, junction boxes and utility boxes.

- The panel board and breakers shall be installed in the electrical room located on the upper ground floor.



(The Main Distribution Panel Board)

- PP1A and LP1A main breakers (yellow square marking) are already existing and ready for tapping which will be the source of lighting and power outlets for the lower ground floor level.

5.11.2. Electrical Fixtures

- **Lighting Fixtures**

 Track Light Spot Light 9 Watts (Daylight) - 2 sets

 TROFFER LIGHT 2-16W LED TUBE (Suspended mounting style) - 43 units

 Round Surface Type Down light with LED Bulb 9 Watts - 20 units

 PINLIGHT WITH LED BULB (9 WATTS) - 22 units

- **Universal Outlets – 22 units**
- **Ceiling Fans – 25 units**
- **Switches, Electrical Wires and Conduits**

5.12. Mechanical Works (Fire Protection)

- See plan for references
- Ready to tap to the riser

6.0 **Exterior Waterproofing** – Cementitious waterproofing prior to painting of the exterior surfaces of the building. See existing design and elevation plan. An estimated area of 1,349.04 sq. meter.



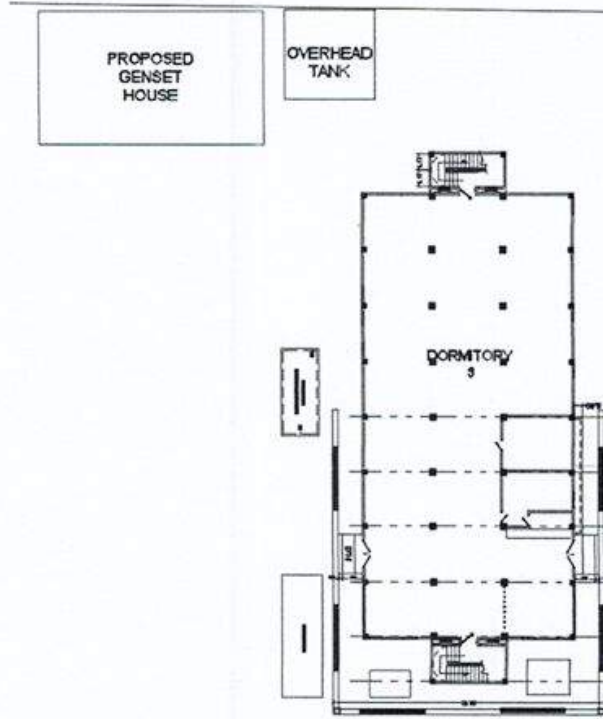
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7.0 **Exterior Painting** – An outdoor paint should be applied on the exterior surfaces suitable for any weather conditions. An estimated area of 1,349.04 sq. Meter.

8.0 **Aluminum Grilles (Analog) 1" x 3" at Staircase** – Installation of aluminum louver designed on both staircases to prevent the rainwater from penetrating the building.

9.0 **Power House** – Design and construction of a simple power house that can accommodate one (1) set of 500KVA Diesel Generator and an allowance space for maintenance. These includes lightings, masonry works, painting works, smooth concrete flooring, and roofing. This is located beside the overhead tank around 40 meters away from the building.



(Location of Genset House)

10.0 **Generator Set** – Provision, installation and configuration of one (1) unit of 500KVA diesel generator. These includes **Manual Transfer Switch (MTS)** 1 Assy. in NEMA-1 Enclosure 1250AT, 3-Phase, 3-Pole, 240V, 60hz, Molded Case Circuit Breaker with 1TVSS 100kA 3 Phase – Delta Connected System (3 years warranty), Panel Boards, circuit breakers, wires and electrical conduits.

LENGTH	WIDTH	HEIGHT	WEIGHT
4500mm	1500mm	2200mm	4900kg

GENERATOR SET DATA	
Standby Rating (kW/kVA)	400KW / 500KVA
Voltage Output	220VAC
Ampere Rating (Full Load)	1314Amp at 220VAC
Phase/Frequency/Speed	3Phase/60Hz/1800RPM

DIESEL ENGINE SPECIFICATIONS	
Number of Cylinders	6
Engine Build	In-line
Governor Type/Class	Electronic
Aspiration and Cooling	Turbocharged, After-cooled
Starting System	24VDC
Rated Speed	1800RPM
Fuel Consumption (Full Load)	97 liters per hour @ full load
Lubrication Oil Capacity	50 liters

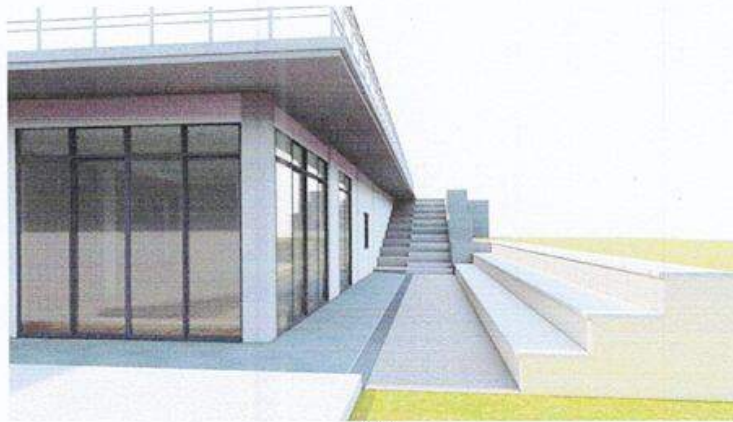
ALTERNATOR SPECIFICATIONS	
Output Voltage	220VAC
Phase and Frequency	3Phase/60Hz
Standby Rating (kW/kVA)	400KW / 500KVA
Full Load Ampere Rating	1314Amp at 220VAC
Voltage Regulation	± 1%
Insulation Class	Class H
AVR and Exciter	Brushless, Self-Excite
Control Panel	Digital - Smartgen

11.0 Site Development with Storm Drainage System – Design and construction of landscape, benches and step stairs. Provision of trench drain with G.I. Steel Grating. **See Architectural Plan.**



(Example)

CONCEPTUAL DESIGN OF STEP STAIR BENCHES



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BILL OF QUANTITIES AND COST ESTIMATE GUIDE

ITEM NO.	DESCRIPTION	Unit	Qty	Unit Cost	Amount
1.0.	General Requirements				
1.1.	Mobilization / Demobilization		lot		
1.2.	Project Billboard		lot		
1.3.	Temporary Facilities		lot		
1.4.	Construction Safety and Health		lot		
1.5.	Design Services		lot		
2.0	Construction of Third Floor Level				
2.1.	Masonry Works		Sq.m		
2.2.	Architectural Works				
2.2.1.	Doors		lot		
2.2.2.	Windows		lot		
2.2.3.	Tile Works		Sq.m		
2.2.4.	Ceiling Works		Sq.m		
2.2.5.	Interior Painting Works		Sq.m		
2.3.	Plumbing Works				
2.3.1.	Sanitary Line		lot		
2.3.2.	Water Line		lot		
2.3.3.	Plumbing Fixtures		lot		
2.4.	Electrical Works				

2.4.1.	Provision of electrical wires, conduits, panel boards, circuit breakers, junction boxes, and utility boxes.	lot	
2.4.2.	Electrical Fixtures	lot	
2.5.	Mechanical Works (Fire Protection)	lot	
2.6.	Auxiliary Works		
2.6.1.	CCTVs	lot	
2.6.2.	Indoor Access Point	sets	
2.6.3.	Fire Detection Alarm System w/ Alarm Bell and Manual Call Point (Conventional Type Fire Alarm System)	lot	
3.0	Completion of Second Floor Level		
3.1.	Electrical Fixtures		
3.1.1.	Ceiling Mounted Exhaust Fan 12"	sets	
3.1.2.	Wall Mounted Study Lamps with Replaceable LED Bulb	sets	
3.1.3.	Universal Outlets 2 Gang	pcs	
3.2.	Provision of Loft Beds with 2 Cabinets	sets	
3.3.	Auxiliary Works		
3.3.1.	CCTVs	lot	
3.3.2.	Indoor Access Point	sets	
4.0.			
4.1.	Provision of Counter Top at Manager's Room	lot	
4.2.	Completion of Balcony Access Way (Tile Works and Railing Works)	lot	
4.3.	Completion of Laundry Area	lot	
4.4.	ICT Works	lot	
5.0			
5.1.	Provision of CHB Piling Wall Partition and Door Grilles at both stairs	lot	
5.2.	Concrete Accent Wall Finishing and Suspended Slab of Lower Ground Floor	lot	
5.3.	Tile Works	Sq.m	
5.4.	Auxiliary Works		
5.4.1.	Fire Detection Alarm System w/ Alarm Bell and Manual Call Point (Conventional Type Fire Alarm System)	lot	
5.4.2.	Indoor Access Point	sets	
5.5.	Completion of Manager's Room and Storage Room	lot	
5.6.	Doors	lot	
5.7.	Windows	lot	
5.8.	Ceiling Works	lot	
5.9.	Wall Finishes (WPC Fluted Panel, 6mm Mirrors)	lot	
5.10.	Wooden Vertical Slats Partitions	lot	
5.11.	Electrical Works		
5.11.1.	Provision of electrical wires, conduits, panel boards, breakers, junction boxes and utility boxes.	lot	
5.11.2.	Electrical Fixtures	lot	
5.12.	Mechanical Works (Fire Protection)	lot	
6.0.	Exterior Waterproofing	Sq.m	
7.0.	Exterior Painting	Sq.m	
8.0.	Aluminum Grilles (Analog) 1" x 3" at Staircase	lot	
9.0.	Powerhouse	lot	
10.0.	Generator Set	lot	

11.0.	Site Development with Storm Drainage System		lot		
		TOTAL			

Completion of Academic Building III must comply with the minimum specifications and standards set forth by the National Building Code of the Philippines (R.A. 6541); Civil Engineering Law (R.A. 544); Fire Code of the Philippines and related safety, health, labor and sanitary laws.

Note:

- *The scope of work of this project is not limited to the items listed in the table. The Contractor may include items that are required in their proposed design.*
- *The Contractor is required to perform an actual site assessment for accurate quantification of materials and span of works. Any item deficiency on the bidding documents submitted as against the actual requirement in site will be to the account of the Contractor and not be subject for variation order.*

IV. SELECTION OF DESIGN AND BUILD CONTRACTOR

The procurement and implementation shall be in accordance with the provisions of RA 9184, specifically, its Annex G. Bidding shall be conducted by the Bids and Awards Committee (BAC) constituted to conduct the procurement of the project. The TWG shall prepare the design brief and performance specifications and parameters, review the detailed engineering design, and assist the BAC in the evaluation of technical proposals in accordance with the criteria set.

A. Eligibility Requirements

a. Eligibility Documents

Class "A" Documents

- i. PhilGEPS Certificate of Registration and Membership (Platinum)
- ii. Mayor's/Business permit issued by the city or municipality where the principal place of business of the prospective bidders is located;
- iii. Registration Certificate from the Securities and Exchange Commission (SEC), Department of Trade and Industry (DTI) for sole proprietorship, or Cooperative Development Authority (CDA) for cooperatives;
- iv. Tax clearance per E.O. 398, s. 2005, as finally reviewed and approved by the Bureau of Internal Revenue (BIR)
- v. Statement of all on-going, completed, awarded but not yet started design/design and build related contracts
- vi. Single Largest Completed Contracts (SLCCs) similar to the project to be bid that must be at least fifty percent (50%) of the ABC to be bid (in a joint venture/consortia, one should have at least one similar project, both in design and construction, with at least 50% of the cost)
 SLCC must be supported by any of the following documents:
 -Owner's Certificate of Final Acceptance issued by the project owner other than the Contractor
 - Final rating of at least Satisfactory in the Constructors Performance Evaluation System (CPES). *In case of contracts with the private sector, an equivalent document shall be submitted.*
- vii. PCAB licenses and registration for the type and cost of the contract for this project;
(Classification: General Building; License Category: C&D; Size Range: Small B)

- viii. Audited financial statements, showing, among others, the prospective bidder's total and current assets and liabilities, stamped "received" by the BIR for the preceding calendar year which should not be earlier than two (2) years from the date of bid submission;
- ix. NFCC computation
NFCC = [(Current assets minus current liabilities) (15)] minus the value of all outstanding or uncompleted portions of the projects under ongoing contracts, including awarded contracts yet to be started, coinciding with the contract to be bid.

Class " B " Documents

- i. Joint Venture agreement, if applicable.
- ii. Special PCAB license in case of a Joint Venture.

b. Technical Documents

- i. Bid Security (in any form)
- ii. Project Requirements
 - ii.1. Organizational Chart
 - ii.2. List of Contractor's Personnel (design and construction) with complete qualification and experience data (with valid licenses issued by the PRC)
 - ii.3. List of Contractor's major equipment units, which are owned, leased and/or under purchase agreements, supported by proof of ownership, certification of availability of equipment from equipment lessor/vendor for the duration of the project.
- iii. Omnibus Sworn Statement
- iii. Preliminary Conceptual Design Plan (Schematic Drawings) in accordance with the degree of details specified under Section III SCOPE OF WORK – DESIGN

These drawings shall be scaled presentation comprising, but not limited to:

- necessary details on illustrating the size, dimensions, materials intended to be used and specifications indicated in the Scope of Work. These shall be printed on A3-sized sheets.
- Another complete set of the drawings should be printed on A4-sizes sheets bound and submitted together with the other technical documents.
- iv. Design and Construction Methods
- v. Value Engineering analysis of design and construction method
Prospective bidders shall prepare a value engineering analysis report of their proposed design and construction method to be applied for the project. Importance shall be made on the following criteria:
 - Cost-saving, measured on a per square meter average figure
 - Time-saving in design and construction duration, measured using the HOPE and approved PERT-CPM of the project.
 - Operational efficiency

c. Financial Component

- i. Financial Bid Form
- ii. Bill of Quantities
- iii. Detailed Cost Estimates
- iv. Summary Sheet indicating the unit prices of materials, labor rates and equipment rental
- v. Payment Schedule

Three (3) sets of documents [i.e., one (1) original and two (2) photocopies] – each set containing the eligibility, technical and financial components shall be submitted. These sets of documents should be hard-bound or soft-bound or ring-bound, provided with bookmarks on the side corresponding to the table of contents.

B. Eligibility Criteria

- a. The eligibility of design and build Contractors shall be based on the legal, technical and financial requirements above-mentioned. In the technical requirements, the design and build Contractor (as solo or in joint venture/consortia) should be able to comply with the experience requirements under the IRR of RA 9184, where one of the parties (in a joint venture/consortia) should have at least one similar project, both in design and construction, with at least 50% of the cost of the Approved Budget for the Contract (ABC).
- b. If the bidder has no experience in design and build projects on its own, it may enter into subcontracting, partnerships or joint venture with design or engineering firms for the design portion of the contract.
- c. The relevant provisions under Section 23.5. of the IRR of RA 9184 on eligibility criteria shall be observed.

V. DESIGN / CONSTRUCTION PERSONNEL

The key professionals and the respective qualifications of the **DESIGN / CONSTRUCTION PERSONNEL** shall be as follows:

1. Project Engineer

The Project Engineer shall be a licensed civil engineer with at least two (2) years of experience in building construction and civil works.

2. Foreman

The Foreman must be duly accredited with at least two (2) years of experience in building construction and civil works.

3. Safety Officer

The Safety Officer must be an accredited safety practitioner by the Department of Labor and Employment (DOLE) and has undergone the prescribed 40-hour Construction Safety and Health Training (COSH).

4. Electrical Engineer

The Electrical Engineer must be a registered Professional Electrical Engineer with at least three (3) years of experience in the design of lighting, power distribution and preferably knowledgeable in developments in emergent efficient lighting technologies and energy management.

5. Master Plumber

The Sanitary Engineer or Master Plumber must be duly-licensed with at least three (3) years of experience in similar and comparable projects in Drainage Systems and Waste Water Management Systems and preferably knowledgeable in emergent, alternative effluent collection and treatment systems.

6. Mechanical Engineer

The Mechanical Engineer must be a Professional Mechanical Engineer with at least three (3) years of experience in HVAC and fire protection systems and preferably knowledgeable in emergent, alternative energy-efficient HVAC technologies.

7. Electronics and Communication Engineer

The Electronics and Communication Engineer must be a registered Professional Electronics Engineer with at least three (3) years of experience in the related field and knowledgeable in fire detection system.

The above key personnel listed are required. The CONTRACTOR may, as needed and at its own expense, add additional professionals and/or support personnel for the optimal performance of all Construction Services, as stipulated in this Scope of Work, for the PROJECT. Prospective

bidders shall attach each individual's resume and PRC license (if applicable), proof of qualifications, and related documents as necessary.

VI. DETAILED ENGINEERING REQUIREMENT

1. Upon award of the design and build contract, the winning bidder shall be responsible for the preparation and submission of all necessary detailed engineering investigations, surveys and designs in accordance with the provisions of Annex "A" of this IRR (with the exception of the Bidding Documents and the ABC).
2. The procuring entity shall ensure that all necessary schedules with regards to the submission, confirmation and approval of the detailed engineering design and the details of the construction methods and procedures shall be included in the contract documents.
3. The procuring entity shall review, order rectifications, and approved or disapprove – for implementation only – the submitted plans within these schedules. All instructions for rectification shall be in writing stating the reasons for such rectification. The design and build Contractor shall be solely responsible for the integrity of the detailed engineering design and the performance of the structure irrespective of the approval/confirmation by the procuring entity.

VII. PROJECT IMPLEMENTATION

As a rule, contract implementation guidelines for the procurement of infrastructure projects shall comply with Annex "E" of the IRR of RA 9184.

In compliance with the design and build Terms of Reference, the DESIGN AND BUILD CONTRACTOR shall submit a detailed program of work within ten (10) calendar days after the issuance of the Notice to Proceed for approval by the procuring entity that shall include, among others:

- a. The order in which it intends to carry out the work including anticipated timing for each stage of construction;
- b. Periods for review of specific outputs and any other submissions and approvals;
- c. Sequence of timing for inspections and tests as specified in the contract documents;
- d. General description of the construction methods to be adopted;
- e. Number and names of personnel to be assigned for each stage of the work;
- f. List of equipment required on site for each major stage of the work;
- g. Description of the quality control system to be utilized for the project.
- h. Provide value engineering analysis on all prepared construction documents.
- i. Prepare from the approved schematic design documents, the complete construction drawings and detailed technical specifications, cost estimates and the bill of quantities, setting forth in detail the work required for the architectural, structural, electrical, plumbing/sanitary, mechanical and other service-connected equipment, utilities, site planning aspects and related works, electronic and communications and the site development plan of the PROJECT's immediate environs.
- k. Prepare the scope of work for construction based on the prepared bill of quantities and cost estimates while fitting within the approved budget.
- l. Coordinate with all offices and agencies concerned, within and outside the Campus regarding utility connections, permits and other requirements needed.
- m. Periodically coordinate and present the status of the design phase to the Head of Procuring Entity and the PSHS Design & Build Committee.

All drawings included in the contract documents should be plotted on 20" x 30" sheets. All other textual submittals shall be printed and ring-bound on A4-sized sheets.

Where required, design components shall be designed in coordination with the agencies concerned (e.g., coordinate with electric company for power lines and concerned company/agency for water and sewage lines).

Partial and earlier submission of the construction drawings, such as those affecting the preliminary stages of construction (site works, foundation works, etc.) shall be allowed. The CONTRACTOR may only proceed with the CONSTRUCTION PHASE after the approval of PSHS Design & Build (D&B) Committee of the drawings, designs and bill of estimates as recommended by the Technical Working Group (TWG) and upon accomplishing all necessary PRE-CONSTRUCTION tasks.

a. Pre-Construction

- a) Secures all necessary building permits prior to construction. All incidental fees shall be included in the cost estimate of the building.
- b) Prepares of the PERT-CPM of the construction phase.
- c) Provides all other necessary documents that shall be required by the Design & Build Committee.

b. Construction Phase

- a) Implement all works indicated in the approved construction drawings and specifications.
- b) Preparation of shop-drawings for construction guide.
- c) Report and coordinate with the D&B Committee regarding scheduling of inspection, mock-ups and construction issues.
- d) Conduct all necessary tests (to be required by D&B Committee) and issue reports of results.
- e) Rectification of punch-listing works issued by the TWG/Inspectorate Team.
- f) Provide all other necessary documents that shall be required by the D&B Committee.

c. Post Construction Phase

- a) Final Inspection to be conducted by TWG-Infrastructure and the Contractor's Representative/Project Engineer.
- b) Turn-over of all manuals, certificates and warranties of installed items.
- c) Secures building certificate of occupancy and fire safety inspection certificate.

d. Variation Orders

Any errors, omissions, inconsistencies, inadequacies or failure submitted by the Contractor that do not comply with the requirements shall be rectified, resubmitted and reviewed at the Contractor's cost. If the Contractor wishes to modify any design or document which has been previously submitted, reviewed and approved, the Contractor shall notify the procuring entity within a reasonable period of time and shall shoulder the cost of such changes.

As a rule, changes in design and construction requirements shall be limited only to those that have not been anticipated in the contract documents prior to contract signing and approval. The following guidelines shall govern approval for change or variation orders:

- i. Change Orders resulting from design errors, omissions or non-conformance with the performance specifications and parameters and the contract documents by the Contractor shall be implemented by the Contractor at no additional cost to the procuring entity.
- ii. ii. Provided that the Contractor suffers delay and/or incurs costs due to changes or errors in the procuring entity's performance specifications and parameters, he shall be entitled to either one of the following:
 - a. an extension of time for any such delays under Section 10 of Annex "E"; or
 - b. payment for such costs as specified in the contract documents, provided, that the cumulative amount of the variation order does not exceed ten percent (10%) of the original contract.

e. Defects and Liability

- a. All design and build projects shall have a minimum Defects Liability Period of one (1) year after contract completion or as provided for in the contract documents. This is without prejudice, however, to the liabilities imposed upon the engineer/architect who drew up the plans and specification for a building sanctioned under Section 1723 of the New Civil Code of the Philippines.
- b. The Contractor shall be held liable for design and structural defects and/or failure of the completed project within the warranty periods specified in Section 62.2.3.217 of the IRR.

VIII. OVERALL PROJECT TIME SCHEDULE

The CONTRACTOR shall propose the most reasonable time schedule for the completion of the project. **It is expected that this period will not exceed TWO HUNDRED TEN (210) CALENDAR DAYS from the date of the issuance of the Notice to Proceed (NTP).**

IX. THE IMPLEMENTING AGENCY'S GENERAL RESPONSIBILITY

The implementing agency for the project is the PSHS-ZRC with final approval for all decisions and actions from the Campus Director through FAD Chief and the TWG on Infrastructure. The TWG on Infrastructure shall:

- a) Prepare the design brief for the project in accordance with PSHS Systems' policies, existing codes, traditions, standards, and the conditions and design criteria enumerated in the SCOPE OF WORK.
- b) Coordinate with CONTRACTOR pertaining to issues during the construction.
- c) Assist in the coordination of the CONTRACTOR with various utility agencies during the detailed design and implementation phases of the project.
- d) Conduct regular coordination meetings between the CONTRACTOR and the end-user to facilitate the implementation of the project.

X. THE CONTRACTOR'S GENERAL RESPONSIBILITY

- a) The CONTRACTOR shall certify that he has, at his own expense, inspected and examined the proposed project site, its surroundings and existing infrastructure and facilities related to the execution of the work and has obtained all the pieces of information that are considered necessary for the proper execution of the work covered under these Terms of Reference.
- b) The CONTRACTOR shall ensure that all works at the stages of design, construction, restoration of affected areas, and testing and commissioning shall be carried out efficiently and effectively.
- c) The CONTRACTOR shall provide the school with complete reports such as technical analysis and details regarding the existing conditions and proposed improvements within the site.
- d) The CONTRACTOR shall consider the academic calendar and critical dates and occasions within the School, in order to align his work schedule with the academic calendar of the school to avoid unnecessary disruption of school activities due to construction activities such as closure of water and power supply and non-usage of the existing roads.
- e) The CONTRACTOR shall inform the school of critical events during construction, especially when such events can potentially disrupt school activities.
- f) The CONTRACTOR shall be PCAB-accredited and shall have a Construction Safety and Health Program approved by DOLE and designed specifically for this project.

- g) The CONTRACTOR shall be held accountable for accidents that might occur during the execution of the project. The CONTRACTOR is required to install warning signs and barriers for the safety of the general public and the avoidance of any accidents and provide appropriate and approved type personal protective equipment for their construction personnel.
- h) The CONTRACTOR shall be professionally liable for the design and shall submit a signed and sealed copy of the approved construction documents to form part of the Contract Documents.
- i) Only the plans approved by the Head of Procuring Entity (HOPE) shall be signed and sealed by the CONTRACTOR, and thereafter shall be the plans used for construction.
- j) All works designed and constructed should be guaranteed to seamlessly fit into the overall system general design standards of the PSHS System.

XI. PROJECTED SUBMITTALS DURING THE PROJECT

The following submittals and accomplished documents shall be duly completed and turned-over by the CONTRACTOR for the project:

- a) Building Permit
- b) Technical specifications (3 sets hard copy and soft copy)
- c) Detailed cost estimate (3 sets hard copy and soft copy)
- d) Bill of quantities (3 sets hard copy and soft copy)
- e) Shop Drawing (hard copy and soft copy)
- f) PERT-CPM
- g) As-built plans (signed and sealed in one (1) original and two (2) reproducible copies) Electronic copies shall also be submitted in native files Autodesk software and pdf.
- h) Secures building certificate of fire safety inspection certificate
- i) Guarantees, warranties and other certificates
- j) Operation and Maintenance Manual if applicable

XII. CODES AND STANDARDS

The project shall be designed, engineered, installed, tested and handed over in conformity with the Building and Design Standards of the PSHS System and with the latest editions of the National Building Code of the Philippines, the National Structural Code of the Philippines, the Philippine Electrical Code, Philippine Mechanical Code, the National Plumbing Code of the Philippines, National Fire Code of the Philippines and other relevant codes and standards.

XIII. INSTALLATION AND WORKMANSHIP

Personnel of the CONTRACTOR should be specialists highly skilled in their respective trades, performing all labor according to first-class standards. A full time Project Engineer/Civil Engineer shall be assigned by the CONTRACTOR at the job site during the construction of the project.

All works to be subcontracted shall be declared by the CONTRACTOR and shall be approved by the Campus Director of PSHS-ZRC and its respective technical offices.

Any errors, omissions, inconsistencies, inadequacies or failure submitted by the CONTRACTOR that do not comply with the requirements shall be rectified, resubmitted and reviewed at the CONTRACTOR'S cost. If the CONTRACTOR wishes to modify any design or document which has been previously submitted, reviewed and approved, the CONTRACTOR shall notify the procuring entity within a reasonable period of time and shall shoulder the cost of such changes.

XIV. MATERIALS

All materials and equipment shall be standard products of manufacturers engaged in the production of such materials and equipment and shall be the manufacturer's latest standard design.

The materials and workmanship supplied shall be of the best grade and constructed and/or installed in a practical and first class manner. It will be completed in operation, nothing being omitted in the way of labor and materials required and it will be delivered and turned over in good condition, complete and perfect in every respect.

All materials shall be in conformance with the latest standards and with inspection and approval from Committee.


XV. MODE OF PAYMENT

- a) The PSHS-ZRC shall pay the winning CONTRACTOR progress payments based on billings for actual works accomplished, as certified by D&B Committee of the PSHS System. In no case shall progress billing be made more than once every thirty (30) calendar days. Materials or equipment delivered on the site but not completely put in place or used in the project shall not be included for payment.
- b) All progress payment shall be subject to retention of ten percent (10%) based on the amount due to the winning CONTRACTOR prior to any deduction. The total retention money shall be released only upon Final Acceptance of the Project. The winning CONTRACTOR may, however, request for its release prior to Final Acceptance subject to the guidelines set forth in R.A. 9184 and its Implementing Rules and Regulations.
- c) The CONTRACTOR may request in writing, which must be submitted to form part of the Contract Documents, for an advance payment equivalent to fifteen percent (15%) of the total Contract Price. The advance payment shall be made once the CONTRACTOR issues its irrevocable standby letter of credit from a reputable bank acceptable to the PSHS System, or GSIS Surety Bond of equivalent value, within fifteen (15) days from the signing of the Contract Agreement to cover said advance payment.
- d) First Payment/Billing shall have an accomplishment of at least 20%.
- e) The following documents must be submitted to the D&B Committee before processing of payments to the CONTRACTOR can be made:
 - i. Progress Billing
 - ii. Request for payment by the CONTRACTOR
 - iii. Pictures/photographs of original site conditions (for First Billing only)
 - iv. Pictures/photographs of work accomplished
 - v. Accomplishment Report
 - vi. Material Testing Results
 - vii. Payment of utilities (power and water consumption)
 - viii. CONTRACTOR's affidavit (if accomplishment is more than 60%)


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