

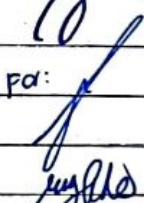
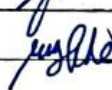


DOCUMENT TRACKING FORM

DIVISION

<input checked="" type="checkbox"/> FAD	<input type="checkbox"/> SSD
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REFERENCE NO.: GSM-2022-042
 DATE: 29 NOV 2022

FROM/TO	PARTICULARS	ACTION/S TAKEN	SIGNATURE	DATE (mm/dd/yy)
MEM	TOR: PROCUREMENT AND IMPLEMENTATION OF THE PROJECT INSTALLATION OF FIRE PROTECTION SYSTEM; PURCHASE REQUEST.	-PREPARE TOR AND PR -3 COPIES EACH AND FORWARD TO HRM.		11/29/22
MPP	-do-	TOR & PR		11/29/22
OCD	-do-	signed; -> PRU	Fcd: 	11/29/22
LFA	PA 2022-11-194	- assigned PR # 6 and to BAC for Bidding		11/29/22

TO ALL DIVISION RECORDS CUSTODIANS: Once document(s)/record(s) is/are signed, please return to the Records Management Unit (RMU) for proper monitoring and filing.



PURCHASE REQUEST

Entity Name: PHILIPPINE SCIENCE HIGH SCHOOL - CALABARZON REGION CAMPUS

Fund Cluster: 1101101

Office/Section :		PR No.:	Date:		
FAD		<u>2022-11-194</u>	<u>November 29, 2022</u>		
Stock / Property No.	Unit	Item Description	Quantity	Unit Cost	Total Cost
<u>1</u>	<u>LOT</u>	<u>PROCUREMENT AND IMPLEMENTATION OF THE PROJECT INSTALLATION OF FIRE PROTECTION SYSTEM (UTILIZING THE DESIGN & BUILD)</u>	<u>1</u>	<u>₱22,500,000.00</u>	<u>₱22,500,000.00</u>

Purpose: TO PROVIDE A DESIGN OF AUTOMATIC FIRE SPRINKLER SYSTEM AND FIRE DETECTION AND ALARM SYSTEM THAT COMPLIES WITH THE LOCAL STANDARDS AND INTERNATIONAL CODES TO SECURE FIRE SAFETY INSPECTION CERTIFICATE (FIC)

Signature : _____
 Requested by: MHELVIN MAGDAVENA
 Designation : RESIDENT ENGINEER

Approved by: _____
 JOSE M. ANDAYA, D.T.
 CAMPUS DIRECTOR



**TERMS OF REFERENCE
FOR THE PROCUREMENT AND IMPLEMENTATION
OF THE PROJECT INSTALLATION OF FIRE PROTECTION SYSTEM
(UTILIZING THE DESIGN AND BUILD SCHEME) / INFRA-2023-02**

I. BACKGROUND OF THE PROJECT

The **PHILIPPINE SCIENCE HIGH SCHOOL-CALABARZON REGION CAMPUS (PSHS-CALABARZONRC)** through the allocation for the Installation of Fire Protection System Utilizing Design and Build Scheme amounting to TWENTY TWO MILLION FIVE HUNDRED THOUSAND PESOS (P22,500,000.00) under FY 2023 National Expenditure Program (NEP) intends to apply the sum of **TWENTY MILLION FIVE HUNDRED THOUSAND PESOS ONLY (P22,500,000.00)** being the APPROVED BUDGET for the CONTRACT (ABC) on the **INSTALLATION OF FIRE PROTECTION SYSTEM (UTILIZING THE DESIGN AND BUILD SCHEME) / INFRA-2023-02**.

The project will involve the Design and Build Scheme leading to the installation of fire protection system pursuant to the technical specifications indicated in this Terms of Reference, and the PSHS System Building Standards and Specifications, enclosed herein.

The project will have an estimated cost of **TWENTY-TWO MILLION FIVE HUNDRED THOUSAND PESOS ONLY (P22,500,000.00)**, including but not limited to all taxes and applicable permits, licenses and clearances, structural works, painting works, roofing works and fire protection system works in which a maximum of 2.5% shall be allocated for the design and the balance for the Civil Works.

II. PROJECT ELEMENTS/COMPONENTS

The construction and design of the installation of fire protection system must comply with the minimum specifications and standards set forth by the National Building Code of the Philippines (PD 1096- R.A. 6541 Revision); Fire Code (RA 9514); Mechanical Engineering Law (RA 5336), Standard for the Installation of Sprinklers latest edition (NFPA-13); Standard for the Installation of Stand Pipes and Hose System (NFPA-14); Standard for the Installation of Stationary Pumps for Fire Protection (NFPA-20); National Fire Alarm & Signaling Code (NFPA-72); Philippine Green Building Code (PD1096); and other related safety, health, labor and sanitary laws.

Detailed design will also be submitted by the winning bidder including but not limited to the following:

- Preparation of Schematic Detailed Design Drawings of Automatic Fire Sprinkler System (AFSS) and Fire Detection and Alarm System (FDAS) based on the approved Design Development Drawings and Design Parameters including any revisions and refinements as approved and required by PSHS-CALABARZONRC
- Hydraulic Calculation indicating sizing of pipe line and pump capacity certified by a Professional Mechanical Engineer (PME)
- Complete set of For Construction Drawings for AFSS signed and sealed by a PME.
- Complete set of For Construction Drawings for FDAS signed and sealed by a Professional Electronics and Communication Engineer.
- Preparation of FCD for permit purposes.
- Structural Computations



- General Notes and Technical Specifications describing type and quality of materials and equipment to be used, manner of construction and the general conditions under which the project is to be constructed.
- Detailed Bill of Quantities, Cost Estimates including a summary sheet indicating the unit prices of construction materials, labor rates and equipment rentals.
- Summary of Works

As a rule, contract implementation guidelines for procurement of infrastructure projects shall comply with Annex E and guidelines for the implementation of contracts for Design and Build infrastructure projects shall comply with Annex G of the Revised IRR of RA 9184. The following provisions shall supplement these procedures:

1. No works shall commence unless the contractor has submitted the prescribed detailed drawings as requirements, and the PSHS-CALABARZONRC has given written approval; Work execution shall be in accordance with reviewed and approved documents.
2. The contractor shall be responsible for obtaining all necessary information as to risks, contingencies and other circumstances which may affect the works and shall prepare and submit all necessary documents specified by the concerned Building Officials to meet all regulatory approvals as specified in the contract documents.
3. The contractor shall submit a detailed program of works within fourteen (14) calendar days after issuance of the Notice to Proceed for approval by the procuring entity that shall include among others:
 - The order in which it intends to carry out the work including anticipated timing for each stage of design/detailed engineering and constructions
 - Periods for review of specific outputs and any other submissions and approvals;
 - Sequence of timing for inspection and tests;
 - General description of the design and construction methods to be adopted
 - Number and names of personnel to be assigned for each stage of the work
 - List of equipment required on site for each stage of the work
 - Description of the quality control system to be utilized for the project
4. Any errors, omissions, inconsistencies, inadequacies, or failure submitted by the contractor that does not comply with the requirements shall be rectified, resubmitted and reviewed at the contractor's cost. If the contractor wishes to modify the design or document which has been previously submitted, reviewed, and approved, the contractor shall notify the PSHS-CALABARZONRC within a reasonable period of time and shall shoulder the cost of such changes
5. 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:
 - 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 PSHS-CALABARZONRC
 - Provided that the contractor suffers delay and/or incurs costs due to changes



or errors in the PSHS-CALABARZONRC performance specifications and parameters, the contractor shall be entitled to either one of the following:

- Any extension of time for any such delays under Section 11 of Annex E of the Revised IRR RA 9184;
 - 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 project cost.
- The contract documents shall include the manner and schedule of payment specifying the estimated contract amount and installments in which the contract will be paid.
 - The contractor shall be entitled to advance payment subject to the provisions of Section 4 of Annex E, Revised IRR RA 9184.
 - The PSHS-CALABARZONRC shall define the quality control procedures for the design and construction in accordance with PSHS-CALABARZONRC guidelines and shall issue the proper certificates of acceptance for sections of the works or whole of the works as provided for in the contract documents.
 - The contractor shall provide all necessary equipment, personnel, instruments, documents, and others to carry out specified tests.
 - This design and build project 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 to the liabilities imposed upon the engineer/architect who drew up plans and specifications for building sanctioned under Section 1723 of the New Civil Code of the Philippines.
 - The contractor shall be held liable for design and structural defects and/or failure of the completed project within the warranty period of 15 years for permanent structures/buildings as specified in Section 62.2.3.2 of the Revised IRR of RA 9184.

The project will consist of 2 elements: Design and Build components for the Installation of Fire Protection System of Philippine Science High School CALABARZON Region Campus. The required spaces are listed below

III. CONCEPTUAL DESIGN (300 CALENDAR DAYS)

The Design Project

The proposed Installation of Fire Protection System shall ensure the safety and protections of scholars, teachers and staff in case of emergency caused by fire, with the specifications, enclosed herein.



Buildings	Requirements	Total	Location
Academic Building I & II	Fire pump House and Water Cistern	1	In between this two buildings
Academic Building III & Science Research Facility		1	At the back of the SRF Building
Fabrication Laboratory & E-Learning Hub		1	In between this two buildings
Canteen & Activity Center		1	Rear left side part of the building

FIRE PROTECTION SYSTEM DESIGN GUIDELINES

GENERAL

The contractor for this design and build scheme shall submit complete plans reviewed and certified by a Professional Mechanical Engineer (PME) thru signed and seal that satisfy the requirements of the local and international codes and also the Bureau of Fire Protection in accordance with the existing codes and standards. Design shall be based on the requirements of the following references:

Fire Code of the Philippines latest edition

NFPA -13: Standard for the Installation of Sprinklers latest edition

NFPA- 14: Standard for the Installation of Stand Pipes and Hose System

NFPA- 20: Standard for the Installation of Stationary Pumps for Fire Protection

SITE INSPECTION

The contractor shall conduct site visit to check and inspect the existing structure prior to the preparation of the design proposal. They may opt to secure an architectural as built plan as reference for the design of sprinkler system.

SUBMITTALS

The contractor is required to submit Schematic Design for initial review of the PSHS-CALABARZONRC on the latter part for final review and approval. Hydraulic calculations and pump sizing certified by a Professional Mechanical Engineer (PME) shall be submitted during the schematic design.

FIRE DETECTION ALARM SYSTEM DESIGN GUIDELINES

GENERAL

The contractor for this design and build scheme shall submit complete plans reviewed and certified by a Professional Electronics & Communication Engineer (PECE) thru signed and seal that satisfy the requirements of the local and international



codes and also the Bureau of Fire Protection in accordance with the existing codes and standards.

Design shall be based on the requirements of the following references:

Fire Code of the Philippines latest edition

NFPA 72: National Fire Alarm & Signaling Code

Complete Fire Detection and Alarm System (FDAS) including conduit extensions, fittings, boxes, supports, and accessories, wires and cables, terminal blocks, Fire Alarm Control Panel (FACP), Network Display Unit (NDU), Data Gathering Panel (DGP), Annunciator Panel, UPS, Amplifiers, smoke detectors with sounder base inside offices, smoke detectors at common area, heat detectors, manual pull station, relays, auxiliary contacts, individual relay module for supervisory switch and flow switch of fire protection system, monitoring and control interface modules and devices for local motor controllers, fire protection system, security and access control.

DGP/Annunciators shall be connected and properly interface with the Network Display Unit (NDU) and FACP.

Wiring Class shall be Class A. FDAS shall be interface with Fire Protection System,

SITE INSPECTION

The contractor shall conduct site visit to check and inspect the existing structure prior to the preparation of the design proposal. They may opt to secure an architectural as built plan as reference for the design of Fire Detection Alarm System.

SUBMITTALS

The contractor is required to submit Schematic Design for initial review of the PSHS-CALABARZONRC on the latter part for final review and approval. Schematic Plans must be certified by a Professional Electronics and Communication Engineer (PECE) shall be submitted during the schematic design.

Scope of Work

This specification covers the Installation of Fire Protection System project. The works be considered out, but not limited to, shall be the following:

1. Each two (2) buildings shall consist of functional fire pump house with water cistern storage.
2. All rooms and halls in every building shall consist of automatic fire sprinkler.
3. All rooms and halls in every building shall consist of smoke detector.
4. Damages on areas due to pipe installation within the buildings shall be restore.



5. Consider the existing plan of the building while planning the pipe line that will circulate.

Construction Requirements (300 CALENDAR DAYS)

Plain and Reinforced Concrete Works

Structural Concrete

This covers ready-mixed concrete manufactured and delivered to a purchaser in a freshly mixed and unhardened state as hereinafter specified. Requirements for quality of concrete shall be either as hereinafter specified or as specified by the purchaser. In any case where the requirements of the purchaser differ from those in this specification, the purchaser's specification shall govern. This specification does not cover the placement, consolidation, curing, or protection of the concrete after delivery to the purchaser.

The required strength of concrete is 3,500 psi at 28 days curing.

Reinforcing Steel (Deformed)

All reinforcements shall be weldable deformed bars, new and free from rust, oil, defect, grease or kinks. They shall conform to the AASHTO M 31 (ASTM A 615) – Specification for Billet-Steel Bars for Concrete Reinforcement as manufactured by Pag-Asa Steel Works, Inc., Capitol Steel, and Steel Asia or approved equivalent. Strength of reinforcing steel bars shall conform and have a minimum grade of PNS Grade 40.

Formworks and Falseworks

Concrete forms shall be mortar-tight, true to the dimensions, lines and grades of the structure and with the sufficient strength, rigidity, shape and surface smoothness as to leave the finished works true to the dimensions shown on the Plans or required by the Engineer and with the surface finish as specified. The materials used in the falsework construction shall be of the quantity and quality necessary to withstand the stresses imposed. The workmanship used in falsework shall be of such quality that the falsework will support the loads imposed on it without excessive settlement or take-up beyond that shown on the falsework drawings

Masonry Works

Concrete Hollow Block

Concrete hollow block shall be of standard manufacture machine-vibrated and shall have fine and even texture and well defines edges. Concrete hollow blocks to be used shall conform to the requirements of ASTM Specification C-90 and PNS 16. Dimensions and tolerances shall be as individually specified on plans.

Reinforcing Steel Bar (Deformed) – Concrete Hollow Blocks

Same as with the specification stated with Reinforcing Steel Deformed for Concrete Works, they shall conform ASTM A 615. Strength of reinforcing steel bars shall conform and have a



minimum grade of PNS Grade 40. The minimum reinforcing diameter of deformed bars shall be 10 mm. with GA #16 G.I. Tie wire.

FINISHING WORKS

Cement Plaster Finish

Cement plaster finish shall be true to details and plumb. Finish surface shall have no visible junction marks where one (1) Day's work adjoins the other. Where directed by the Engineer or as shown on the Plans vertical and horizontal groove joints shall be 25 mm wide and 10 mm deep.

Painting Works

The contractor shall properly prepare the surface in every method that they will perform avoid paint problems.

Plumbing Works

The contractor shall tap from the existing main water supply for the supply of all fire pump house and water cistern.

Electrical Works

The contractor shall provide all electrical requirements to energize the fire protection system.

Roof Framing and Roofing Works

The contractor shall provide all the roof framing requirements necessary or specified by the design or Engineer. The contractor shall install Pre-Painted Metal Sheets (0.5mmTHK, Rib Type, Long Span, Chocolate Brown), Roofing accessories for flashing and Ridge/Hip Rolls shall be gauge 26.

Fire Protection Sprinkler and Fire Alarm System

AUTOMATIC FIRE SPRINKLER SYSTEM.

Supply and installation of complete Automatic Fire Sprinkler System, Fire Extinguishing System in accordance of plan, specification, codes, standards, governing rules and regulations. These includes supply and installation of sprinkler heads, pipes and fittings, risers, feed main, cross main, branch line, droppings, all necessary valves and accessories, riser nipples, cross-tee, elbow, trims, hangers and supports, fire hose cabinets with complete accessories as per BFP standards, fire department connection, testing hose header, wall hydrants, pipe sleeves including rebar and any stirrups as required by structural, block-out including rebar supports, fire stopping materials/fire sealant, sway brace, seismic bracing, painting, coupling, flow switch, floor control valves, sight glass, gauges, pumps and motors including controllers, sensing line, tagging ITC, auxiliary drain, stub-out, flanges, mechanical grooved coupling (fix/rigid, flexible), remote annunciator panel, conduits (IMC, PVC, metal or liquid tight flexible conduit), wires/cables (Fire rated and non-firerated) and all necessary



equipment, pipes and fittings, materials, accessories, controllers, special fittings that make the system complete and operational that will satisfy the owner. This includes all necessary permits to be secured as required by the Local government or governing laws.

FIRE DETECTION ALARM SYSTEM

Complete Fire Detection and Alarm System (FDAS) including conduit extensions, fittings, boxes, supports, and accessories, wires and cables, terminal blocks, Fire Alarm Control Panel (FACP), Network Display Unit (NDU), Data Gathering Panel (DGP), Annunciator Panel, UPS, Amplifiers, smoke detectors with sounder base inside offices, smoke detectors at common area, heat detectors, manual pull station, relays, auxiliary contacts, individual relay module for supervisory switch and flow switch of fire protection system, monitoring and control interface modules and devices for local motor controllers, fire protection system, security and access control. DGP/Annunciators shall be connected and properly interface with the Network Display Unit (NDU) and FACP. Wiring Class shall be Class A. FDAS shall be interface with Fire Protection System,

TAPPING AND TERMINATION WORKS.

All tapping works to the existing stub-out or interfacing to other trades or system shall be done by the contractor.

PUMPS AND MOTORS. The contractor shall be responsible to tap/terminate the power supply of the installed pumps and motors from the load side of the controller to the motor itself and responsible to provide the required conduit, wires and cables, flexible conduit (metal/liquid tight) and all materials, pipes and fittings, special fittings to make the system complete and operational that will satisfy the owner.

CONTROLLERS. The contractor shall be responsible to supply and install the controller with necessary conduits, wires and cables, flexible conduit (metal/liquid tight), tagging and all necessary materials, fittings that will make the system complete and operational that will satisfy the owner. Electrical contractor to terminate power supply/line side of the controller from the Meter Center or Electrical room. Controller is provided with dry contact for auxiliary/FDAS interface.

The Contractor shall be responsible to tap or connect the supply pipe or suction of pump to the existing water supply.

The Contractor shall be responsible to tap or connect all necessary connections to any interfacing to other trades as it requires to make the system complete and operational.

All termination for the entire Auxiliary System including necessary tools, materials and equipment not limited to terminal lugs, backboards, panels, terminal blocks, bolts, nuts, washers, insulating tapes, terminating kits, crimpers, consumables, etc.

PRE-CONSTRUCTION TESTING

The Contractor shall be responsible to conduct a pre-construction testing to make sure that the installed pipes, fitting, accessories and necessary connections are in good condition and



no leaks prior to embedding and before make necessary connection to the system. The contractor is required to submit methodology on how it will handle or conduct the pre-construction testing.

The FDAS Systems Contractor shall assume full responsibility of the existing works as turned over by the Electrical Contractor. The FDAS Systems Contractor shall conduct actual site inspection to verify and confirm the remaining item/balance of works. In case that the existing conduit works are incomplete and not ready for cabling, the Electrical Contractor shall rectify and complete the conduit works.

TESTING AND COMMISSIONING

The contractor shall be responsible for the testing and commissioning of the system installed to make sure that the system is complete, working or operational as per plan, codes, standards, governing rules and regulations. The contractor is required to provide THIRD PARTY Testing and Commissioning group to validate the system. This includes the preparation, submission, incorporation, compilation of all documents, manuals, warranties, technical brochures and all items required for testing and commissioning test package. Contractor also to provide the necessary testing tools, equipment and preparation during the course of the testing and commissioning process.

The FDAS Systems Contractor shall conduct complete and comprehensive testing and commissioning for the entire Electrical and Auxiliary System including all related Life Safety and Support Systems. Manpower, tools, equipment, lighting, electric and water consumption, and other consumables during testing and commissioning shall be shouldered by the Auxiliary Systems Contractor. The contractor also required to provide necessary tools, equipment (with updated calibration certificate) required during the test. The FDAS Systems Contractor shall prepare, submit and secure approval of test procedures and forms (Test Packs) prior to each test. Test results shall be duly signed and sealed by a duly license Professional Electronics and Communications Engineer (PECE).

IV. SELECTION OF DESIGN AND BUILD CONTRACTOR

The procurement and implementation of the project using the "Design and Build" scheme 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 Campus Director of PSHS-CALABARZONRC will create the Design and Build Committee (DBC) and Technical Working Group (TWG), to be composed of highly technical personnel in the field of architecture and engineering/construction. The DBC and 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.

Eligibility Requirements

The eligibility requirements for Design and Build infrastructure projects shall comply with the applicable provisions of Section 23 of the IRR of RA9184.



Eligibility and Technical Documents

a) Class "A" Documents
Legal Documents

(i) Registration certificate from SEC, Department of Trade and Industry (DTI) for sole proprietorship, or CDA for cooperatives.

(ii) Mayor's/Business permit issued by the city or municipality where the principal place of business of the prospective bidder is located, or the equivalent document for Exclusive Economic Zones or Areas

A recently expired Mayor's/Business permit together with the official receipt as proof that the prospective bidder has applied for renewal within the period prescribed by the concerned local government unit, shall be accepted by the PhilGEPS for the purpose of updating the PhilGEPS Certificate of Registration and Membership in accordance with Section 8.5.2 of this IRR.⁴²

(iii) Tax clearance per E.O. 398, s. 2005, as finally reviewed and approved by the Bureau of Internal Revenue (BIR).

Technical Documents

(iv) Statement of the bidder of all its ongoing government and private contracts, including contracts awarded but not yet started, if any, whether similar or not similar in nature and complexity to the contract to be bid.

(v) Statement of the bidder's Single Largest Completed Contract (SLCC) similar to the contract to be bid. All of the above statements shall include all information required in the PBDs prescribed by the GPPB.

The two statements required shall indicate for each contract the following:

- v.1) name of the contract;
- v.2) date of the contract;
- v.3) contract duration;
- v.4) owner's name and address;
- v.5) nature of work;
- v.6) contractor's role (whether sole contractor, subcontractor, or partner in a JV) and percentage of participation;
- v.7) total contract value at award;
- v.8) date of completion or estimated completion time;
- v.9) total contract value at completion, if applicable;
- v.10) percentages of planned and actual accomplishments, if applicable; and
- v.11) value of outstanding works, if applicable.



The statement of the Bidder's SLCC shall be supported by the Notice of Award and/or Notice to Proceed, Project Owner's Certificate of Final Acceptance issued by the Owner other than the Contractor or the Constructors Performance Evaluation System (CPES) Final Rating, which must be at least satisfactory. In case of contracts with the private sector, an equivalent document shall be submitted,

- (vi) In the case of procurement of Infrastructure Projects, a valid Philippine Contractors Accreditation Board (PCAB) License or Special PCAB License in case of Joint Ventures, and registration for the type and cost of the contract to be bid.
- (vii) Relevant statements of all on-going, completed, awarded but not yet started design/design and build related contracts, curriculum vitae of key staff, partners or principal officers; and
- (viii) Valid licenses issued by the Professional Regulatory Commission (PRC) for design professionals.

Financial Documents

- (ix) The bidder's audited financial statements, showing, among others, the bidder's total and current assets and liabilities, stamped "received" by the BIR or its duly accredited and authorized institutions, for the preceding calendar year which should not be earlier than two (2) years from the date of bid submission.^(a)
- (x) The bidder's computation of Net Financial Contracting Capacity (NFCC). However, in the case of procurement of Goods, a bidder may submit a committed Line of Credit from a Universal or Commercial Bank, in lieu of its NFCC computation.^(a)

b) Class "B" Documents

- (xi) For Infrastructure Projects, JV bidders shall submit a JVA in accordance with R.A. 4566 and its IRR.

Submission and Receipt of Bids

Bidders shall submit their bids through their duly authorized representative using the forms specified in the Bidding Documents in two (2) separate sealed bid envelopes, or two (2) password-protected Bidding Documents in compressed archive folders, in case of electronic bid submission, and which shall be submitted simultaneously. The first shall contain the technical component of the bid, including the eligibility requirements under Section 23.1 of this IRR for the procurement of Goods and Infrastructure Projects, and the second shall contain the financial component of the bid.

- a) The first envelope shall contain the following technical information/documents, at the least:



- (i) The prospective bidder shall submit all the required Class "A" and Class "B" documents for infrastructure projects as stated here in eligibility requirements.
- (ii) Bid security in accordance with **ITB** Clause 18. If the Bidder opts to submit the bid security in the form of:
 - (ii.1) a bank draft/guarantee or an irrevocable letter of credit issued by a foreign bank, it shall be accompanied by a confirmation from a Universal or Commercial Bank; or
 - (ii.2) a surety bond accompanied by a certification coming from the Insurance Commission that the surety or insurance company is authorized to issue such instruments.
- (iii) Project Requirements, which shall include the following:
 - (iii.1) Organizational chart for the contract to be bid;
 - (iii.2) List of contractor's personnel (e.g., Project Manager, Project Engineers, Materials Engineers, and Foremen), to be assigned to the contract to be bid, with their complete qualification and experience data. These personnel must meet the required minimum years of experience set in the **BDS**; and
 - (iii.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 the equipment lessor/vendor for the duration of the project, as the case may be, which must meet the minimum requirements for the contract set in the **BDS**; and
 - (iii.4) Omnibus Sworn statement in accordance with Section 25.3 of the IRR of RA 9184 and using the form prescribed in Section IX. Bidding Forms.
 - (iii.5) Schematic documents. The schematic documents must be based on the approved design brief. The following shall be submitted on 20x30in boards using appropriate scale:
 - A. Preliminary Conceptual Design Plans of Automatic Fire Sprinkler System (AFSS) with Pump House and Cistern Tank and Fire Detection and Alarm System (FDAS) based on the approved Design Development Drawings and Design Parameters including any revisions and refinements as approved and required by PSHS-CALABARZONRC;
 - B. Hydraulic Calculation indicating sizing of pipe line and pump capacity certified by a Professional Mechanical Engineer (PME);
 - C. Site Development Plan
 - (iii.6) Design and construction methods;
 - (iii.7) Value engineering analysis of design and construction method.
 - Cost-saving, measured on a per square meter average figure
 - Time-saving in design and construction duration



- Operational efficiency to take advantage of natural lighting and ventilation in some areas and use of efficient toilet.
- (iii.8) List of design and construction personnel, to be assigned to the contract to be bid, with their complete qualification and experience data.
- (iii.9) Construction Safety and Health Program received by DOLE for bidding purposes
- b) The second envelope (Financial Proposal) shall contain all the required documents for infrastructure projects under Section 25.3 of the IRR of R.A 9184 and the following additional documents:
- (i) Original of duly signed and accomplished Financial Bid Form; and
 - (ii) Original of duly signed Bid Prices in the Bill of Quantities; and
 - (iii) Cash Flow by Quarter; and
 - (iv) Original of duly signed detailed cost estimates; and
 - (v) Summary Sheet indicating the unit prices of materials, labor rates and equipment rental for the construction; and
 - (vi) Manpower Schedule; and
 - (vii) Equipment Utilization Schedule; and
 - (viii) PERT-CPM, Bar chart and S-curve showing weekly accomplishment and cumulative percentage.

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 23.4.2 of the IRR of RA 9184 on eligibility requirements shall be observed.

FOR DESIGN PERSONNEL

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



- A. PROFESSIONAL MECHANICAL ENGINEER (FOR FIRE PRO)**
The Professional Mechanical Engineer must be duly-licensed with at least ten (10) years of experience as PME specialized in Fire Protection design.
- B. MECHANICAL ENGINEER**
The Mechanical Engineer must be duly-licensed with at least five (5) years of experience in fire protection design and construction.
- C. PROFESSIONAL ELECTRONICS AND COMMUNICATION ENGINEER (FOR FDAS)**
The Professional Electronics and Communication Engineer with at least ten (10) years of experience as PECE specialized in FDAS design.
- D. ELECTRICAL ENGINEER**
The Electrical Engineer must be duly-licensed with at least five (5) years of experience in FDAS design and construction.
- E. CAD OPERATOR/DRAFTSMAN**
The CAD Operator/Draftsman must be with at least two (2) years of experience as CAD operator/draftsman.

The key professionals listed are required. The DESIGN & BUILD CONTRACTOR may, as needed and at its own expense, add additional professionals and/or support personnel for the optimal performance of all Architectural and Engineering Design Services, as stipulated in these Terms of Reference for the PROJECT. Prospective bidders shall attach each individual's resume and PRC license of the (professional) staff

CONSTRUCTION PERSONNEL

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

- A. PROJECT MANAGER (FIRE PRO & FDAS)**
The Project Manager shall be a licensed mechanical engineer with at least six (6) years relevant experience on fire pro installations and FDAS installations projects in different locations. The Project Manager should have a proven record of managerial capability through the directing/managing of major works, including projects of a similar magnitude.
- B. PROJECT ENGINEER / QAQC ENGINEER (FIRE PRO)**
The Project Engineer/QAQC Engineer shall be a licensed mechanical engineer with at least three (3) years of experience as project engineer of fire pro installations in similar and comparable projects and shall preferably be knowledgeable in the application of rapid construction technologies.
- C. MATERIALS ENGINEER**
The Materials Engineer must be duly licensed and DPWH accredited with at least five (5) years of experience in similar and comparable projects and shall preferably be knowledgeable in the application of rapid construction technologies.



D. PROJECT ENGINEER / QAQC ENGINEER (FDAS)

The Project Engineer/QAQC Engineer shall be a licensed electrical engineer or licensed Electronics and communication engineer with at least three (3) years of experience as project engineer of FDAS installations in similar and comparable projects and shall preferably be knowledgeable in the application of rapid construction technologies.

E. CAD OPERATOR

The CAD operator must be with at least two (2) years of experience as a cad operator/draftsman in similar and comparable projects.

F. 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).

G. TECHNICIANS

At least 2 (two) technicians must be with at least five (5) years' experience in fire pro and FDAS installation and maintenance. And a holder of certificate of competency/national certificate related to the requirement.

The above key personnel listed are required. The DESIGN & BUILD 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 these Terms of Reference, for the PROJECT. Prospective bidders shall attach each individual's resume and PRC license of the (professional) staff, proof of qualifications, and related documents as necessary.

V. PRELIMINARY DESIGN AND CONSTRUCTION STUDIES

No bidding and award of design and build contracts shall be made unless the required preliminary design and construction studies have been sufficiently carried out and duly approved by the Head of the Procuring Entity that shall include, among others, the following:

- i. Project Description
- ii. Conceptual Design
- iii. Performance Specifications and Parameters
- iv. Preliminary Survey and Mapping
- v. Preliminary Investigations
- vi. Utility Locations
- vii. Approved Budget for the Contract
- viii. Proposed Design and Construction Schedule
- ix. Minimum requirements for a Construction Safety and Health Program for the project being considered
- x. Tender/Bidding Documents, including Instructions to Bidders and Conditions of Contract

The above data are for reference only. The procuring entity does not guarantee that these data are fully correct, up to date, and applicable to the project at hand. The contractor is responsible



for the accuracy and applicability of all data, including the above, that it will use in its design and build proposal and services.

The acquisition of right-of-way and the conduct of eminent domain proceedings shall still be the responsibility of the procuring entity, which shall include a preliminary budget for this purpose.

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 the necessary schedules with regard 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 rectification, and approve 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. SCOPE OF WORKS AND PROJECT IMPLEMENTATION

A. Design

The Philippine Science High School - CALABARZON Region Campus, through the PSHS System Design and Build Committee for Design and Build Scheme, shall provide the design brief description of the project in accordance to RA9184 Annex G Sec. 11.

In compliance with the design and build Terms of Reference, the DESIGN AND BUILD CONTRACTOR shall submit a detailed program of work within fourteen (14) 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 design/detailed engineering and 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 design and 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
- 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, civil, electrical, plumbing, 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.
- j. Prepare layouts, specifications and estimates of all furniture and equipment required for the fit-out of the project, specifically items that are owner-furnished materials.
- 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. Provide value engineering analysis on all prepared construction documents.
- m. Coordinate with all offices and agencies concerned, within and outside the Campus regarding utility connections, permits and other requirements needed.
- n. 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 drawn using CAD software and 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 DESIGN & BUILD CONTRACTOR may only proceed with the CONSTRUCTION PHASE after the approval of the HOPE of the drawings, designs and bill of estimates as recommended by the Technical Working Group (TWG) and upon accomplishing all necessary PRE-CONSTRUCTION tasks.

B. Pre-Construction

- a. Secure all necessary building permits prior to construction. All incidental fees shall be included in the cost estimate of the project.
- b. Preparation of the PERT-CPM of the construction phase.
- c. Provide all other necessary documents that shall be required by B&D Committee

C. Construction Phase

- a. Implement all works indicated in the approved construction drawings and documents. All revisions and deviation from the approved plans, especially if it shall impact the overall cost of the project, shall be subject for approval.



- b. Provide soil filling, grading and other soil protection measures of the building and other elements of the site including soil and materials testing.
- c. Construct the buildings and other necessary structures, complete with utilities and finishes, resulting in operable and usable structures.
- d. Provide protection or relocation of existing trees indigenous to the area, and proper removal and replacement of all introduced trees and vegetation affected by the construction.
- e. Layout piping, conduits, manholes, boxes and other lines for utilities including tapping to existing utility lines. Facilitate the connection of all utilities (power, water, sewer, structured cabling and telephone) with their corresponding utility companies. All application fees shall be included in the project cost.
- f. Preparation of shop-drawings for approval.
- g. Coordinate with the B&D Committee regarding scheduling of delivery and installation of all owner-furnished materials and equipment during construction.
- h. Conduct all necessary tests (to be required by B&D Committee) and issue reports of results.
- i. Rectification of punch-listing works to be inspected and issued by the B&D Committee and/or the End-user.
- j. Provide all other necessary documents that shall be required by the B&D Committee.

D. Post Construction Phase

- a. Preparation of as-built plans
- b. Turn-over of all manuals, certificates and warranties of installed items.

E. Variation Orders

- a. 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.
- b. 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. 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

F. 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 DESIGN & BUILD CONTRACTOR shall propose the most reasonable time schedule for the completion of the project. It is expected that this period will not exceed 300 calendar days from the date of the issuance of the Notice to Proceed (NTP): Forty-five (45) calendar days for the Design Phase and Two Hundred Fifty-five (255) calendar days for the Construction Phase.

IX. THE IMPLEMENTING AGENCY'S GENERAL RESPONSIBILITY

The implementing agency for the project is the Campus Director of PSHS-CALABARZONRC the B&D Committee 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 Terms of Reference.
- b) Coordinate with DESIGN & BUILD CONTRACTOR and the Campus Director of PSHS-CALABARZONRC with regards to the design and implementation of the project.
- c) Assist in the coordination of the DESIGN & BUILD CONTRACTOR with various utility agencies during the detailed design and implementation phases of the project.
- d) Conducts regular coordination meetings between the DESIGN & BUILD CONTRACTOR and the end-user to facilitate the implementation of the project.

X. THE DESIGN & BUILD CONTRACTOR'S GENERAL RESPONSIBILITY

- a) The DESIGN & BUILD 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 DESIGN & BUILD 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 DESIGN & BUILD CONTRACTOR shall provide the school with complete reports such as technical analysis, maps and details regarding the existing conditions and proposed improvements within the site.
- d) The DESIGN & BUILD 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 DESIGN & BUILD CONTRACTOR shall inform the school of critical events during construction, especially when such events can potentially disrupt school activities.
- f) The DESIGN & BUILD CONTRACTOR shall be PCAB accredited and shall have a Construction Safety and Health Program and designed specifically for the CONSTRUCTION OF FABRICATION LABORATORY Utilizing the Design and Build Scheme.
- g) The DESIGN & BUILD CONTRACTOR will be held accountable for accidents that might occur during the execution of the project. The DESIGN & BUILD 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 DESIGN & BUILD 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 DESIGN & BUILD 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 DESIGN & BUILD CONTRACTOR for the project:



A. FOR THE DESIGN PHASE

- a) Construction plans (signed and sealed) that include Architectural, Civil, Structural, Electrical, Structured Cabling, Mechanical, Fire Protection and Plumbing plans (12 sets hard copy and soft copy)
- b) Technical specifications (7 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) Site survey, topographic survey, survey of existing trees, geotechnical report including soil test and all other pertinent data related to the conditions of the project site
- f) Documents required for securing the Building Permit
- g) Drawings and reports that the B&D Committee may require for the periodic update concerning the status of the design phase.

B. FOR THE CONSTRUCTION PHASE

- a) As-built plans (hard copy and soft copy)
- b) All necessary permits (Fees shall be included in the contract)
- c) Shop drawings (hard copy and soft copy)
- d) PERT-CPM
- e) Test results
- f) Guarantees, warranties and other certificates
- g) Fire and Life Safety Assessment Report 2 and 3 (FALAR 2 and 3)
- h) Certificate of Occupancy
- i) Fire Safety Inspection Certificate (FSIC)
- j) All other necessary documents to be required by B&D Committee

XII. CODES AND STANDARDS

The project shall be designed, engineered, installed, tested, commissioned 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 DESIGN & BUILD CONTRACTOR should be specialists highly skilled in their respective trades, performing all labor according to first-class standards. A full-time Project Engineer/Architect and Construction Safety Engineer shall be assigned by the DESIGN & BUILD CONTRACTOR at the job site during the construction of the project.

All work to be subcontracted shall be declared by the DESIGN & BUILD CONTRACTOR and shall be approved by the Campus Director of PSHS-CALABARZONRC and its respective technical offices. Tapping for utilities such as power supply, water supply and sewage drainage shall be coordinated and all works involved, including access to utilities tapping point,



excavation, removal of obstructions, concrete breaking, backfilling and restoration of affected areas, shall be coordinated and included in the scope of work and cost of the project.

Any errors, omissions, inconsistencies, inadequacies, or failure submitted by the DESIGN & BUILD CONTRACTOR that do not comply with the requirements shall be rectified, resubmitted, and reviewed at the DESIGN & BUILD CONTRACTOR'S cost. If the DESIGN & BUILD CONTRACTOR wishes to modify any design or document which has been previously submitted, reviewed, and approved, the DESIGN & BUILD 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.

Materials and systems for structured cabling shall be in accordance with standards set by the PSHS System.

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

XV. MODE OF PAYMENT

- a) The PSHS-CALABARZONRC shall pay the winning DESIGN & BUILD CONTRACTOR progress payments based on billings for actual works accomplished, as certified by B&D 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 DESIGN & BUILD CONTRACTOR prior to any deduction. The total retention money shall be released only upon Final Acceptance of the Project. The winning DESIGN & BUILD 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 DESIGN & BUILD CONTRACTOR may request in writing which must be submitted to form part of the Contract Documents, for an advanced payment equivalent to fifteen percent (15%) of the total Contract Price. The advance payment shall be made once the DESIGN & BUILD 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 advanced payment.



- d) First Payment/Billing shall have an accomplishment of at least 20%. Succeeding billing and payment shall be made on a MONTHLY BASIS.
- e) The following documents must be submitted to the B&D Committee before processing of payments to the DESIGN & BUILD CONTRACTOR can be made:
 - i. Progress Billing
 - ii. Request for payment by the DESIGN & BUILD 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. DESIGN & BUILD CONTRACTOR's affidavit (if accomplishment is more than 60%)

Note: The DESIGN & BUILD CONTRACTOR can bill the PSHS-CALABARZONRC of up to a maximum of 90% accomplishment.

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