

PHILIPPINE BIDDING DOCUMENTS

Rebidding for the Design-and-Build for the Construction of a Three-Storey Gymnasium, Manila Campus

Government of the Republic of the Philippines

PRE-BID CONFERENCE:

August 28, 2026 (Friday)

9:00 A.M.

**Third Floor, Silid Ugnayan,
Edilberto P. Dagot Hall**

BID OPENING:

September 10, 2026 (Thursday)

9:00 A.M.

**Third Floor, Silid Ugnayan,
Edilberto P. Dagot Hall**

**Sixth Edition
July 2020**

Preface

These Philippine Bidding Documents (PBDs) for the procurement of Infrastructure Projects (hereinafter referred to also as the “Works”) through Competitive Bidding have been prepared by the Government of the Philippines for use by all branches, agencies, departments, bureaus, offices, or instrumentalities of the government, including government- owned and/or -controlled corporations, government financial institutions, state universities and colleges, local government units, and autonomous regional government. The procedures and practices presented in this document have been developed through broad experience, and are for mandatory use in projects that are financed in whole or in part by the Government of the Philippines or any foreign government/foreign or international financing institution in accordance with the provisions of the 2016 revised Implementing Rules and Regulations (IRR) of Republic Act (RA) No. 9184.

The PBDs are intended as a model for admeasurements (unit prices or unit rates in a bill of quantities) types of contracts, which are the most common in Works contracting.

The Bidding Documents shall clearly and adequately define, among others: (i) the objectives, scope, and expected outputs and/or results of the proposed contract; (ii) the eligibility requirements of Bidders; (iii) the expected contract duration; and (iv) the obligations, duties, and/or functions of the winning Bidder.

Care should be taken to check the relevance of the provisions of the PBDs against the requirements of the specific Works to be procured. If duplication of a subject is inevitable in other sections of the document prepared by the Procuring Entity, care must be exercised to avoid contradictions between clauses dealing with the same matter.

Moreover, each section is prepared with notes intended only as information for the Procuring Entity or the person drafting the Bidding Documents. They shall not be included in the final documents. The following general directions should be observed when using the documents:

- a. All the documents listed in the Table of Contents are normally required for the procurement of Infrastructure Projects. However, they should be adapted as necessary to the circumstances of the particular Project.
- b. Specific details, such as the “*name of the Procuring Entity*” and “*address for bid submission*,” should be furnished in the Instructions to Bidders, Bid Data Sheet, and Special Conditions of Contract. The final documents should contain neither blank spaces nor options.
- c. This Preface and the footnotes or notes in italics included in the Invitation to Bid, BDS, General Conditions of Contract, Special Conditions of Contract, Specifications, Drawings, and Bill of Quantities are not part of the text of the final document, although they contain instructions that the Procuring Entity should strictly follow.
- d. The cover should be modified as required to identify the Bidding Documents as to the names of the Project, Contract, and Procuring Entity, in addition to date of issue.

- e. Modifications for specific Procurement Project details should be provided in the Special Conditions of Contract as amendments to the Conditions of Contract. For easy completion, whenever reference has to be made to specific clauses in the Bid Data Sheet or Special Conditions of Contract, these terms shall be printed in bold typeface on Sections I (Instructions to Bidders) and III (General Conditions of Contract), respectively.
- f. For guidelines on the use of Bidding Forms and the procurement of Foreign-Assisted Projects, these will be covered by a separate issuance of the Government Procurement Policy Board.

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Glossary of Terms, Abbreviations, and Acronyms

ABC – Approved Budget for the Contract.

ARCC – Allowable Range of Contract Cost.

BAC – Bids and Awards Committee.

Bid – A signed offer or proposal to undertake a contract submitted by a bidder in response to and in consonance with the requirements of the bidding documents. Also referred to as *Proposal* and *Tender*. (2016 revised IRR, Section 5[c])

Bidder – Refers to a contractor, manufacturer, supplier, distributor and/or consultant who submits a bid in response to the requirements of the Bidding Documents. (2016 revised IRR, Section 5[d])

Bidding Documents – The documents issued by the Procuring Entity as the bases for bids, furnishing all information necessary for a prospective bidder to prepare a bid for the Goods, Infrastructure Projects, and/or Consulting Services required by the Procuring Entity. (2016 revised IRR, Section 5[e])

BIR – Bureau of Internal Revenue.

BSP – Bangko Sentral ng Pilipinas.

CDA – Cooperative Development Authority.

Consulting Services – Refer to services for Infrastructure Projects and other types of projects or activities of the GOP requiring adequate external technical and professional expertise that are beyond the capability and/or capacity of the GOP to undertake such as, but not limited to: (i) advisory and review services; (ii) pre-investment or feasibility studies; (iii) design; (iv) construction supervision; (v) management and related services; and (vi) other technical services or special studies. (2016 revised IRR, Section 5[i])

Contract – Refers to the agreement entered into between the Procuring Entity and the Supplier or Manufacturer or Distributor or Service Provider for procurement of Goods and Services; Contractor for Procurement of Infrastructure Projects; or Consultant or Consulting Firm for Procurement of Consulting Services; as the case may be, as recorded in the Contract Form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein.

Contractor – is a natural or juridical entity whose proposal was accepted by the Procuring Entity and to whom the Contract to execute the Work was awarded. Contractor as used in these Bidding Documents may likewise refer to a supplier, distributor, manufacturer, or consultant.

CPI – Consumer Price Index.

DOLE – Department of Labor and Employment.

DTI – Department of Trade and Industry.

Foreign-funded Procurement or Foreign-Assisted Project – Refers to procurement whose funding source is from a foreign government, foreign or international financing institution as specified in the Treaty or International or Executive Agreement. (2016 revised IRR, Section 5[b]).

GFI – Government Financial Institution.

GOCC – Government-owned and/or –controlled corporation.

Goods – Refer to all items, supplies, materials and general support services, except Consulting Services and Infrastructure Projects, which may be needed in the transaction of public businesses or in the pursuit of any government undertaking, project or activity, whether in the nature of equipment, furniture, stationery, materials for construction, or personal property of any kind, including non-personal or contractual services such as the repair and maintenance of equipment and furniture, as well as trucking, hauling, janitorial, security, and related or analogous services, as well as procurement of materials and supplies provided by the Procuring Entity for such services. The term “related” or “analogous services” shall include, but is not limited to, lease or purchase of office space, media advertisements, health maintenance services, and other services essential to the operation of the Procuring Entity. (2016 revised IRR, Section 5[r])

GOP – Government of the Philippines.

Infrastructure Projects – Include the construction, improvement, rehabilitation, demolition, repair, restoration or maintenance of roads and bridges, railways, airports, seaports, communication facilities, civil works components of information technology projects, irrigation, flood control and drainage, water supply, sanitation, sewerage and solid waste management systems, shore protection, energy/power and electrification facilities, national buildings, school buildings, hospital buildings, and other related construction projects of the government. Also referred to as *civil works or works*. (2016 revised IRR, Section 5[u])

LGUs – Local Government Units.

NFCC – Net Financial Contracting Capacity.

NGA – National Government Agency.

PCAB – Philippine Contractors Accreditation Board.

PhilGEPS - Philippine Government Electronic Procurement System.

Procurement Project – refers to a specific or identified procurement covering goods, infrastructure project or consulting services. A Procurement Project shall be described, detailed, and scheduled in the Project Procurement Management Plan prepared by the agency which shall be consolidated in the procuring entity's Annual Procurement Plan. (GPPB Circular No. 06-2019 dated 17 July 2019)

PSA – Philippine Statistics Authority.

SEC – Securities and Exchange Commission.

SLCC – Single Largest Completed Contract.

UN – United Nations.

Approved Budget for the Contract (ABC). This shall be a lump sum amount that shall cover the cost of design and construction works (at the option of the procuring entity) based on the conceptual design and performance specifications and in accordance with applicable provisions of the law or agency guidelines. The ABC shall be calculated based on either the approximate quantities of work of the conceptual design, from standardized designs or from cost records of previous projects of similar kind.

Bidding Documents for Design and Build Scheme. These shall basically be similar to the Bidding Documents for infrastructure projects and shall also include the performance specifications and parameters to be followed by the design and build contractors and the method for allocation of risks for the design and build contract, among others.

Conceptual Design. This shall describe the general idea of the procuring entity with regard to the completed facility and shall identify the scope or physical components and structures, specific outputs and requirements of the structures and proposed methods of construction, where necessary.

Design and Build Projects. This refers to infrastructure projects where the procuring entity awards a single contract for the architectural/engineering design and construction to a single firm, partnership, corporation, joint venture or consortium.

Performance Specifications and Parameters. The procuring entity shall define the required performance specifications and criteria and its means of measurement based on the operating outputs and in accordance with appropriate design and construction standards, legal and technical obligations and any other relevant government commitments as required by existing laws and regulations. It shall not be drawn up to favor a particular solution, design and construction method.

Preliminary Investigations. These shall include, among others, information on soil, geotechnical, hydrologic, hydraulic, seismic, traffic, and environmental conditions that shall be used to define project design criteria, to set the basis for any changed conditions and establish preliminary project cost estimates.

Preliminary Survey and Mapping. These shall determine boundaries and provide stationing along control lines to establish feature and design criteria location, and identify existing and future right-of-way limits and construction easements associated with the procuring entity's conceptual design.

Project Description. This shall define the objectives, purpose, limitations or constraints, as well as the allocation of risks between the procuring entity and the winning bidder.

Utility Locations. The procuring entity shall provide information on existing utilities in and around the project's area.

Section I. Invitation to Bid



Republic of the Philippines
PHILIPPINE NORMAL UNIVERSITY
Taft Avenue, Manila

Invitation to Bid for Rebidding for the Design-and-Build for the Construction of a Three-Storey Gymnasium, Manila Campus

1. The **Philippine Normal University**, through the **GAA 101 2026** intends to apply the sum of **Two Hundred Million Pesos (₱200,000,000.00)** being the Approved Budget for the Contract (ABC) to payments under the contract for **Rebidding for the Design-and-Build for the Construction of a Three-Storey Gymnasium, Manila Campus (CW 2026-08-013)**. Bids received in excess of the ABC shall be automatically rejected at bid opening.
2. The **Philippine Normal University** will only invite eligible bidders for the above Procurement Project. Completion of the Works is required **Three Hundred Sixty-Five (365) Calendar Days**. Bidders should have completed a contract similar to the Project. The description of an eligible bidder is contained in the Bidding Documents, particularly, in Section II (Instructions to Bidders).
3. Bidding will be conducted through open competitive bidding procedures using non-discretionary “*pass/fail*” criterion as specified in the 2016 revised Implementing Rules and Regulations (IRR) of Republic Act (RA) No. 9184.
4. Interested bidders may obtain further information from **PNU BAC Secretariat** and inspect the Bidding Documents at the address given below from **7:00 A.M. - 4:00 P.M. (Monday-Friday)**.
5. A complete set of Bidding Documents may be acquired by interested bidders on **August 21-September 10, 2026** from given address and website/s below and upon payment of the applicable fee for the Bidding Documents, pursuant to the latest Guidelines issued by the GPPB, in the amount of **Fifty Thousand Pesos (₱50,000.00)**. The Procuring Entity shall allow the bidder to present its proof of payment for the fees in person, by facsimile, or through electronic means.
6. The **Philippine Normal University** will hold a Pre-Bid Conference on **August 28, 2026 (Friday); 9:00 A.M.** at the **Edilberto P. Dagot Hall (Silid Ugnayan)**, which shall be open to prospective bidders.
7. Bids must be duly received by the BAC Secretariat through manual submission at the office address as indicated below on or before **September 10, 2026 (Thursday) at 8:30 A.M.** Late bids shall not be accepted.

8. All bids must be accompanied by a bid security in any of the acceptable forms and in the amount stated in **ITB** Clause 16.
9. Bid opening shall be on **September 10, 2026 (Thursday) at 9:00 A.M.** at the **Edilberto P. Dagot Hall (Silid Ugnayan)**. Bids will be opened in the presence of the bidders' representatives who choose to attend the activity.
10. The **Philippine Normal University** reserves the right to reject any and all bids, declare a failure of bidding, or not award the contract at any time prior to contract award in accordance with Sections 35.6 and 41 of the 2016 revised Implementing Rules and Regulations (IRR) of RA No. 9184, without thereby incurring any liability to the affected bidder or bidders.
11. For further information, please refer to:

*Dr. Leah Amor S. Cortez
Procurement Management Unit
Room 203, Second Floor, Old ITL Building
bac.secretariat@pnu.edu.ph
Telefax: 5317-1768 loc. 730 / 731 / 737 / 738
www.pnu.edu.ph*

12. You may visit the following websites:

For downloading of Bidding Documents: <https://www.pnu.edu.ph/bidding-opportunities/>

August 21, 2026

LEAH AMOR S. CORTEZ
Chairperson, R-BAC

Section II. Instructions to Bidders

1. **Scope of Bid**

The Procuring Entity, **Philippine Normal University** invites Bids for the **Rebidding for the Design-and-Build for the Construction of a Three-Storey Gymnasium, Manila Campus** with Project Identification Number **CW 2026-08-013**.

The Procurement Project (referred to herein as “Project”) is for the construction of Works, as described in Section VI (Specifications).

2. **Funding Information**

2.1. The GOP through the source of funding as indicated below for **GAA 101 2026** in the amount of **Two Hundred Million Pesos (₱200,000,000.00)**.

2.2. The source of funding is:

a. NGA, the General Appropriations Act or Special Appropriations.

3. **Bidding Requirements**

The Bidding for the Project shall be governed by all the provisions of RA No. 9184 and its 2016 revised IRR, including its Generic Procurement Manual and associated policies, rules and regulations as the primary source thereof, while the herein clauses shall serve as the secondary source thereof.

Any amendments made to the IRR and other GPPB issuances shall be applicable only to the ongoing posting, advertisement, or invitation to bid by the BAC through the issuance of a supplemental or bid bulletin.

The Bidder, by the act of submitting its Bid, shall be deemed to have inspected the site, determined the general characteristics of the contracted Works and the conditions for this Project, such as the location and the nature of the work; (b) climatic conditions; (c) transportation facilities; (c) nature and condition of the terrain, geological conditions at the site communication facilities, requirements, location and availability of construction aggregates and other materials, labor, water, electric power and access roads; and (d) other factors that may affect the cost, duration and execution or implementation of the contract, project, or work and examine all instructions, forms, terms, and project requirements in the Bidding Documents.

4. **Corrupt, Fraudulent, Collusive, Coercive, and Obstructive Practices**

The Procuring Entity, as well as the Bidders and Contractors, shall observe the highest standard of ethics during the procurement and execution of the contract. They or through an agent shall not engage in corrupt, fraudulent, collusive, coercive, and obstructive practices defined under Annex “I” of the 2016 revised IRR of RA No. 9184 or other integrity violations in competing for the Project.

5. Eligible Bidders

- 5.1. Only Bids of Bidders found to be legally, technically, and financially capable will be evaluated.
- 5.2. The Bidder must have an experience of having completed a Single Largest Completed Contract (SLCC) that is similar to this Project, equivalent to at least fifty percent (50%) of the ABC adjusted, if necessary, by the Bidder to current prices using the PSA's CPI, except under conditions provided for in Section 23.4.2.4 and the eligibility requirements of Annex G of the 2016 revised IRR of RA No. 9184.

A contract is considered to be "similar" to the contract to be bid if it has the major categories of work stated in the **BDS**.

- 5.3. For Foreign-funded Procurement, the Procuring Entity and the foreign government/foreign or international financing institution may agree on another track record requirement, as specified in the Bidding Document prepared for this purpose.
- 5.4. The Bidders shall comply with the eligibility criteria under Section 23.4.2 of the 2016 IRR of RA No. 9184 and eligibility requirements of Annex "G" of the Revised IRR.

6. Origin of Associated Goods

There is no restriction on the origin of Goods other than those prohibited by a decision of the UN Security Council taken under Chapter VII of the Charter of the UN.

7. Subcontracts

- 7.1. The Bidder may subcontract portions of the Project to the extent allowed by the Procuring Entity as stated herein, but in no case more than fifty percent (50%) of the Project.

The Procuring Entity has prescribed that:

- a. Subcontracting is allowed. The portions of Project and the maximum percentage allowed to be subcontracted are indicated in the **BDS**, which shall not exceed fifty percent (50%) of the contracted Works.
- 72 The Bidder must submit together with its Bid the documentary requirements of the subcontractor(s) complying with the eligibility criteria stated in **ITB** Clause 5 in accordance with Section 23.4 of the 2016 revised IRR of RA No. 9184 pursuant to Section 23.1 thereof.

- 73 The Supplier may identify its subcontractor during the contract implementation stage. Subcontractors identified during the bidding may be changed during the implementation of this Contract. Subcontractors must submit the documentary requirements under Section 23.1 of the 2016 revised IRR of RA No. 9184 and comply with the eligibility criteria specified in **ITB** Clause 5 to the implementing or end-user unit.
- 74 Subcontracting of any portion of the Project do not relieve the Contractor of any liability or obligation under the Contract. The Supplier will be responsible for the acts, defaults, and negligence of any subcontractor, its agents, servants, or workmen as fully as if these were the Contractor's own acts, defaults, or negligence, or those of its agents, servants, or workmen.

8. Pre-Bid Conference

The Procuring Entity will hold a pre-bid conference for this Project on the specified date and time and either at its physical address and/or through videoconferencing/webcasting} as indicated in paragraph 6 of the **IB**.

9. Clarification and Amendment of Bidding Documents

Prospective bidders may request for clarification on and/or interpretation of any part of the Bidding Documents. Such requests must be in writing and received by the Procuring Entity, either at its given address or through electronic mail indicated in the **IB**, at least ten (10) calendar days before the deadline set for the submission and receipt of Bids.

10. Documents Comprising the Bid: Eligibility and Technical Components

- 10.1. The first envelope shall contain the eligibility and technical documents of the Bid as specified in **Section IX. Checklist of Technical and Financial Documents**.
- 10.2. If the eligibility requirements or statements, the bids, and all other documents for submission to the BAC are in foreign language other than English, it must be accompanied by a translation in English, which shall be authenticated by the appropriate Philippine foreign service establishment, post, or the equivalent office having jurisdiction over the foreign bidder's affairs in the Philippines. For Contracting Parties to the Apostille Convention, only the translated documents shall be authenticated through an apostille pursuant to GPPB Resolution No. 13-2019 dated 23 May 2019. The English translation shall govern, for purposes of interpretation of the bid.
- 10.3. A valid PCAB License is required, and in case of joint ventures, a valid special PCAB License, and registration for the type and cost of the contract for this Project. Any additional type of Contractor license or permit shall be indicated in the **BDS**.

- 10.4. A List of Contractor's key personnel (e.g., Project Manager, Project Engineers, Materials Engineers, and Foremen) assigned to the contract to be bid, with their complete qualification and experience data shall be provided. These key personnel must meet the required minimum years of experience set in the **BDS**.
- 10.5. A 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, must meet the minimum requirements for the contract set in the **BDS**.

11. Documents Comprising the Bid: Financial Component

- 11.1. The second bid envelope shall contain the financial documents for the Bid as specified in **Section IX. Checklist of Technical and Financial Documents**.
- 11.2. Any bid exceeding the ABC indicated in paragraph 1 of the **IB** shall not be accepted.
- 11.3. For Foreign-funded procurement, a ceiling may be applied to bid prices provided the conditions are met under Section 31.2 of the 2016 revised IRR of RA No. 9184.

12. Alternative Bids

Bidders shall submit offers that comply with the requirements of the Bidding Documents, including the basic technical design as indicated in the drawings and specifications. Unless there is a value engineering clause in the **BDS**, alternative Bids shall not be accepted.

13. Bid Prices

All bid prices for the given scope of work in the Project as awarded shall be considered as fixed prices, and therefore not subject to price escalation during contract implementation, except under extraordinary circumstances as determined by the NEDA and approved by the GPPB pursuant to the revised Guidelines for Contract Price Escalation guidelines.

14. Bid and Payment Currencies

- 14.1. Bid prices may be quoted in the local currency or tradeable currency accepted by the BSP at the discretion of the Bidder. However, for purposes of bid evaluation, Bids denominated in foreign currencies shall be converted to Philippine currency based on the exchange rate as published in the BSP reference rate bulletin on the day of the bid opening.

14.2. Payment of the contract price shall be made in:

a. Philippine Pesos.

15. Bid Security

15.1. The Bidder shall submit a Bid Securing Declaration or any form of Bid Security in the amount indicated in the **BDS**, which shall be not less than the percentage of the ABC in accordance with the schedule in the **BDS**.

15.2. The Bid and bid security shall be valid until **One Hundred Twenty (120) Calendar Days**. Any bid not accompanied by an acceptable bid security shall be rejected by the Procuring Entity as non-responsive.

16. Sealing and Marking of Bids

Each Bidder shall submit one copy of the first and second components of its Bid.

The Procuring Entity may request additional hard copies and/or electronic copies of the Bid. However, failure of the Bidders to comply with the said request shall not be a ground for disqualification.

If the Procuring Entity allows the submission of bids through online submission to the given website or any other electronic means, the Bidder shall submit an electronic copy of its Bid, which must be digitally signed. An electronic copy that cannot be opened or is corrupted shall be considered non-responsive and, thus, automatically disqualified.

17. Deadline for Submission of Bids

The Bidders shall submit on the specified date and time and either at its physical address or through online submission as indicated in paragraph 7 of the **IB**.

18. Opening and Preliminary Examination of Bids

18.1. The BAC shall open the Bids in public at the time, on the date, and at the place specified in paragraph 9 of the **IB**. The Bidders' representatives who are present shall sign a register evidencing their attendance. In case videoconferencing, webcasting or other similar technologies will be used, attendance of participants shall likewise be recorded by the BAC Secretariat.

In case the Bids cannot be opened as scheduled due to justifiable reasons, the rescheduling requirements under Section 29 of the 2016 revised IRR of RA No. 9184 shall prevail.

18.2. The preliminary examination of Bids shall be governed by Section 30 of the 2016 revised IRR of RA No. 9184.

19. Detailed Evaluation and Comparison of Bids

- 19.1. The Procuring Entity's BAC shall immediately conduct a detailed evaluation of all Bids rated "*passed*" using non-discretionary pass/fail *criteria in accordance with the provisions of Annex "G" under Item No. 11, Sections 11.1 to 11.2 of the Revised IRR of RA 9184*. The BAC shall consider the conditions in the evaluation of Bids under Section 32.2 of 2016 revised IRR of RA No. 9184.
- 19.2. If the Project allows partial bids, all Bids and combinations of Bids as indicated in the **BDS** shall be received by the same deadline and opened and evaluated simultaneously so as to determine the Bid or combination of Bids offering the lowest calculated cost to the Procuring Entity. Bid Security as required by **ITB** Clause 15 shall be submitted for each contract (lot) separately.
- 19.3. In all cases, the NFCC computation pursuant to Section 23.4.2.6 of the 2016 revised IRR of RA No. 9184 must be sufficient for the total of the ABCs for all the lots participated in by the prospective Bidder.

20. Post Qualification

Within a non-extendible period of five (5) calendar days from receipt by the Bidder of the notice from the BAC that it submitted the Lowest Calculated Bid, the Bidder shall submit its latest income and business tax returns filed and paid through the BIR Electronic Filing and Payment System (eFPS), and other appropriate licenses and permits required by law and stated in the **BDS**.

21. Signing of the Contract

The documents required in Section 37.2 of the 2016 revised IRR of RA No. 9184 shall form part of the Contract. Additional Contract documents are indicated in the **BDS**.

Section III. Bid Data Sheet

Bid Data Sheet

ITB Clause	
5.2	For this purpose, contracts similar to the project refer to contracts which have the same major categories of work. The bidder must have completed, a similar contract to this project which must be at least fifty percent (50%) of the Approved Budget for the Contract (ABC). Prospective bidders must submit this contract and will form part of the technical evaluation as evidence. If the bidder has no experience in design and build projects on its own, it may enter subcontracting, partnerships, or joint ventures with design or engineering firms for the design portion of the contract. The party that will accomplish the design should have at least one similar project, the cost of which is equivalent to at least 50% of the 2.3% of the ABC, while the bidder tasked to accomplish the construction component, should have at least one similar project, the cost of which is equivalent to at least 50% of the 97.7% of the ABC. A subcontractor that is identified during contract implementation must comply with the eligibility criteria and documentary requirements. Subcontractors identified by the bidders are subject to the same evaluation process applied to principal bidders; thereby ensuring their eligibility to undertake a government contract.
5.4	In the submission of bids, the first envelope (Technical Proposal) shall contain all the required documents for infrastructure projects under Section 25.2(b) of the IRR of R.A 9184 and the following additional documents: i. Preliminary Conceptual Design Plans in accordance with the degree of details specified by the procuring entity; ii. Design and construction methods; iii. List of design and construction personnel, to be assigned to the contract to be bid, with their complete qualification and experience data; and iv. Value engineering analysis of design and construction method. 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. Lump sum bid prices, which shall include the detailed engineering cost, in the prescribed Bid Form; ii. Detailed estimates including a summary sheet indicating the unit prices of construction materials, labor rates and equipment rentals used in coming up with the bid; and iii. Cash flow by the quarter and payments schedule.

7.1	The contractor shall undertake not less than 50% of the contracted works with its own resources.																													
10. 1	In the submission of bids, the first envelope (Technical Proposal) shall contain all the required documents for infrastructure projects under Section 25.2(b) of the IRR of R.A 9184, <i>and the required documents under Annex “G” No. 10.1 of the revised IRR of RA 9184</i> that covers all items, also required for submission, bidders shall also submit the following additional documents as specified and required in Section VI – Technical Specification under Terms of Reference: VIII. Design Documentation Submittal, Documents, and Review Process During the bid opening, items that include the phrase 'submit technical data sheet' require the submission of evidence (in the form of manufacturer sales literature/catalogs/brochures). This will be part of the criteria for the document evaluation. All technical data sheets require the submission evidence shall be included in the technical documents of the bidding documents.																													
10.3	Contractor shall have a PCAB License General Building at least Category “AA”, size range in Building “Large A”.																													
10.4	The contractor shall provide an adequate number of duly qualified key personnel to perform the class of work stated herein. All key personnel shall be authorized, properly trained, equipped, and organized to perform all works in accordance with the terms and conditions stipulated in the contract within the project duration. The bidder(s) must submit a photocopy of key personnel's updated PRC Registration No., PTR No., TIN no., and Curriculum Vitae. The key personnel must meet the required minimum years of experience set below. <table><tr><th>Key Personnel</th><th>Minimum Years of Total Work Experience</th><th>Minimum Years of Experience in Similar Works on Same Position</th></tr><tr><td colspan="3">I. CIVIL WORKS</td></tr><tr><td>1 – Project Manager (any field of engineering with a license)</td><td>10</td><td>5</td></tr><tr><td>1 – Licensed Project Engineer/ Architect</td><td>10</td><td>5</td></tr><tr><td>1 – DPWH’s Accredited Materials Engineer II</td><td>5</td><td>3</td></tr><tr><td>2 – Safety officer II (COSH)</td><td>5</td><td>3</td></tr><tr><td>1 – Registered Master Plumber</td><td>5</td><td>3</td></tr><tr><td>1 – Registered Electrical Engineer</td><td>5</td><td>3</td></tr><tr><td>1 – Professional Electrical Engineer</td><td>5</td><td>3</td></tr></table>			Key Personnel	Minimum Years of Total Work Experience	Minimum Years of Experience in Similar Works on Same Position	I. CIVIL WORKS			1 – Project Manager (any field of engineering with a license)	10	5	1 – Licensed Project Engineer/ Architect	10	5	1 – DPWH’s Accredited Materials Engineer II	5	3	2 – Safety officer II (COSH)	5	3	1 – Registered Master Plumber	5	3	1 – Registered Electrical Engineer	5	3	1 – Professional Electrical Engineer	5	3
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	1 – Licensed Sanitary Engineer	5	3																														
	1 – Licensed Mechanical Engineer	5	3																														
	1 – Licensed Architect	5	5																														
	1 – Licensed Civil / Structural Engineer	10	5																														
	1 – General Foreman with experience in building	5	3																														
	1 – Licensed Geodetic Engineer	5	3																														
	2 – First aider	1	1																														
10.5	List of contractor’s major equipment units, leased, and/or under purchase agreements, supported by proof of ownership or certification of availability of equipment from the equipment lessor/vendor for the duration of the project, such as official receipt with the name of the owner, contract, and other related proof evidence. The bidder(s) shall have major equipment requirements to be supported with proof of ownership, with certification of availability of the equipment from the owner for the duration of the project, including the following such as official receipt with the name of the owner. <table><tr><th>Construction Equipment</th><th>Required No. of Unit/s (Owned)</th><th>Minimum Capacity /Unit</th></tr><tr><td>Telescopic Crane</td><td>1</td><td>25 Tons.</td></tr><tr><td>Excavator with breaker line</td><td>1</td><td>0.5 cu. M</td></tr><tr><td>1 Bagger Mixer</td><td>2</td><td>-</td></tr><tr><td>Mini Dump Truck</td><td>2</td><td>4200kgs.</td></tr><tr><td>Generator Set (Standby)</td><td>1</td><td>50KVA</td></tr><tr><td>Concrete Cutter</td><td>1</td><td>-</td></tr><tr><td>Plate Compactor</td><td>1</td><td>-</td></tr><tr><td>Electric Rebar Bender</td><td>2</td><td>28mm to 32mm</td></tr><tr><td>Pay Loader</td><td>1</td><td>1.2 cubic meter</td></tr></table>			Construction Equipment	Required No. of Unit/s (Owned)	Minimum Capacity /Unit	Telescopic Crane	1	25 Tons.	Excavator with breaker line	1	0.5 cu. M	1 Bagger Mixer	2	-	Mini Dump Truck	2	4200kgs.	Generator Set (Standby)	1	50KVA	Concrete Cutter	1	-	Plate Compactor	1	-	Electric Rebar Bender	2	28mm to 32mm	Pay Loader	1	1.2 cubic meter
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11.1	The contractor shall submit all the following documents during bid opening: • Bid prices in the Bill of Quantities; • Detailed estimates, including a summary sheet indicating the unit prices of construction materials, labor rates, and equipment rentals used in coming up with the Bid; • Detailed Unit Price Analysis (DUPA); and • Cash flow by quarter or payment schedule
12	Bidder shall submit value engineering. For major projects as specified by the agency, value engineering shall be conducted according to accepted standards and practices. Value engineering shall analyze alternative schemes of achieving the projects objectives in order to delete or reduce non-essential features and lessen the life cycle costs of the projects without sacrificing the quality and integrity of the structure, while maintaining its essential function, performance, and safety.

15.1	The bid security shall be in the form of a Bid Securing Declaration or any of the following forms and amounts: a. The amount of not less than Php 4,000,000.00 <i>[Insert two percent (2%) of ABC]</i>, if bid security is in cash, cashier's/manager's check, bank draft/guarantee or irrevocable letter of credit; b. The amount of not less than Php 10,000,000.00 <i>[Insert five percent (5%) of ABC]</i> if bid security is in Surety Bond.
19.2	Partial bids are not allowed. No further instructions.
20	Secures all necessary building permits, and excavation permits prior to construction. All incidental fees, municipal fees etc. shall be included in the cost estimate of the above-mentioned project.
21	Submit additional contract documents relevant to the Project that may be required by existing laws and/or the Procuring Entity, such as construction schedule and S-curve, manpower schedule, construction methods, equipment utilization schedule, construction safety and health program approved by the DOLE, PERT/CPM, certificate of warranty for project, and other acceptable tools of project scheduling.

Section IV. General Conditions of Contract

1. Scope of Contract

This Contract shall include all such items, although not specifically mentioned, that can be reasonably inferred as being required for its completion as if such items were expressly mentioned herein. All the provisions of RA No. 9184 and its 2016 revised IRR, including the Generic Procurement Manual, and associated issuances, constitute the primary source for the terms and conditions of the Contract, and thus, applicable in contract implementation. Herein clauses shall serve as the secondary source for the terms and conditions of the Contract.

This is without prejudice to Sections 74.1 and 74.2 of the 2016 revised IRR of RA No. 9184 allowing the GPPB to amend the IRR, which shall be applied to all procurement activities, the advertisement, posting, or invitation of which were issued after the effectivity of the said amendment.

2. Sectional Completion of Works

If sectional completion is specified in the **Special Conditions of Contract (SCC)**, references in the Conditions of Contract to the Works, the Completion Date, and the Intended Completion Date shall apply to any Section of the Works (other than references to the Completion Date and Intended Completion Date for the whole of the Works).

3. Possession of Site

31 The Procuring Entity shall give possession of all or parts of the Site to the Contractor based on the schedule of delivery indicated in the **SCC**, which corresponds to the execution of the Works. If the Contractor suffers delay or incurs cost from failure on the part of the Procuring Entity to give possession in accordance with the terms of this clause, the Procuring Entity's Representative shall give the Contractor a Contract Time Extension and certify such sum as fair to cover the cost incurred, which sum shall be paid by Procuring Entity.

32 If possession of a portion is not given by the above date, the Procuring Entity will be deemed to have delayed the start of the relevant activities. The resulting adjustments in contract time to address such delay may be addressed through contract extension provided under Annex "E" of the 2016 revised IRR of RA No. 9184.

4. The Contractor's Obligations

The Contractor shall employ the key personnel named in the Schedule of Key Personnel indicating their designation, in accordance with **ITB** Clause 10.3 and specified in the **BDS**, to carry out the supervision of the Works.

The Procuring Entity will approve any proposed replacement of key personnel only if their relevant qualifications and abilities are equal to or better than those of the personnel listed in the Schedule.

5. Performance Security

- 5.1. Within ten (10) calendar days from receipt of the Notice of Award from the Procuring Entity but in no case later than the signing of the contract by both parties, the successful Bidder shall furnish the performance security in any of the forms prescribed in Section 39 of the 2016 revised IRR.
- 5.2. The Contractor, by entering into the Contract with the Procuring Entity, acknowledges the right of the Procuring Entity to institute action pursuant to RA No. 3688 against any subcontractor be they an individual, firm, partnership, corporation, or association supplying the Contractor with labor, materials and/or equipment for the performance of this Contract.

6. Site Investigation Reports

The Contractor, in preparing the Bid, shall rely on any Site Investigation Reports referred to in the **SCC** supplemented by any information obtained by the Contractor.

7. Warranty

- 7.1. In case the Contractor fails to undertake the repair works under Section 62.2.2 of the 2016 revised IRR, the Procuring Entity shall forfeit its performance security, subject its property(ies) to attachment or garnishment proceedings, and perpetually disqualify it from participating in any public bidding. All payables of the GOP in his favor shall be offset to recover the costs.
- 7.2. The warranty against Structural Defects/Failures, except that occasioned-on force majeure, shall cover the period from the date of issuance of the Certificate of Final Acceptance by the Procuring Entity. Specific duration of the warranty is found in the **SCC**.

8. Liability of the Contractor

Subject to additional provisions, if any, set forth in the **SCC**, the Contractor's liability under this Contract shall be as provided by the laws of the Republic of the Philippines.

If the Contractor is a joint venture, all partners to the joint venture shall be jointly and severally liable to the Procuring Entity.

9. Termination for Other Causes

Contract termination shall be initiated in case it is determined *prima facie* by the Procuring Entity that the Contractor has engaged, before, or during the implementation of the contract, in unlawful deeds and behaviors relative to contract acquisition and implementation, such as, but not limited to corrupt, fraudulent, collusive, coercive, and obstructive practices as stated in **ITB** Clause 4.

10. Dayworks

Subject to the guidelines on Variation Order in Annex “E” of the 2016 revised IRR of RA No. 9184, and if applicable as indicated in the **SCC**, the Dayworks rates in the Contractor’s Bid shall be used for small additional amounts of work only when the Procuring Entity’s Representative has given written instructions in advance for additional work to be paid for in that way.

11. Program of Work

11.1. The Contractor shall submit to the Procuring Entity’s Representative for approval the said Program of Work showing the general methods, arrangements, order, and timing for all the activities in the Works. The submissions of the Program of Work are indicated in the **SCC**.

11.2. The Contractor shall submit to the Procuring Entity’s Representative for approval an updated Program of Work at intervals no longer than the period stated in the **SCC**. If the Contractor does not submit an updated Program of Work within this period, the Procuring Entity’s Representative may withhold the amount stated in the **SCC** from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue Program of Work has been submitted.

12. Instructions, Inspections and Audits

The Contractor shall permit the GOP or the Procuring Entity to inspect the Contractor’s accounts and records relating to the performance of the Contractor and to have them audited by auditors of the GOP or the Procuring Entity, as may be required.

13. Advance Payment

The Procuring Entity shall, upon a written request of the Contractor which shall be submitted as a Contract document, make an advance payment to the Contractor in an amount not exceeding fifteen percent (15%) of the total contract price, to be made in lump sum, or at the most two installments according to a schedule specified in the **SCC**, subject to the requirements in Annex “E” of the 2016 revised IRR of RA No. 9184.

14. Progress Payments

The Contractor may submit a request for payment for Work accomplished. Such requests for payment shall be verified and certified by the Procuring Entity’s Representative/Project Engineer. Except as otherwise stipulated in the **SCC**, materials and equipment delivered on the site but not completely put in place shall not be included for payment.

15. Operating and Maintenance Manuals

- 15.1.** If required, the Contractor will provide “as built” Drawings and/or operating and maintenance manuals as specified in the **SCC**.
- 15.2.** If the Contractor does not provide the Drawings and/or manuals by the dates stated above, or they do not receive the Procuring Entity’s Representative’s approval, the Procuring Entity’s Representative may withhold the amount stated in the **SCC** from payments due to the Contractor.

Section V. Special Conditions of Contract

Special Conditions of Contract

GCC Clause	
2	<i>[If different dates are specified for completion of the Works by section, i.e. “sectional completion,” these dates should be listed here.]</i>
4.1	The Procuring Entity shall give possession of all parts of the site to the contractor upon issuance of the Notice to Proceed. If there is a delay of the site possession, written communication with justification will provide to the contractor. If the delay is caused by the procuring entity, this cannot be used as grounds to impose penalties on the contractor.
6	The site investigation reports are: The prospective bidder(s) may conduct a site inspection, and the certificate of site inspection shall be issued by the head of PNU Facilities Management and Sustainability Office (FMSO), only to bidder(s) who purchased the bid documents.
7.2	In case of permanent structures, such as buildings of types 4 and 5 as classified under the National Building Code of the Philippines and other structures made of steel, iron, or concrete which comply with relevant structural codes (e.g., DPWH Standard Specifications), such as, but not limited to, steel/concrete bridges, flyovers, aircraft movement areas, ports, dams, tunnels, filtration and treatment plants, sewerage systems, power plants, transmission and communication towers, railway system, and other similar permanent structures: Fifteen (15) years warranty.
10	Dayworks are applicable at the rate shown in the Contractor’s original Bid.
11.1	The Contractor shall submit the Program of Work to the Procuring Entity’s Representative within ten (10) calendar days of delivery of the Notice of Award.
11.2	The amount to be withheld for late submission of an updated Program of Work is 1/10% per day of the contract price.

13	An advance payment to the Contractor shall be made in an amount not exceeding fifteen percent (15%) of the total contract, to be made in lump sum, or at the most two installments subject to the requirements in Annex “E” of the 2016 revised IRR of RA No. 9184.
14	Materials and equipment delivered on the site but not completely put in place shall be included for payment.
15.1	The operating and maintenance manuals will turn over after the completion of the project. The contractor shall submit three (3) copies of as-built drawings size of 20” x 30” duly signed and sealed by the designer upon submission of final billing.
15.2	The amount to be withheld for failing to produce “as built” drawings and/or operating and maintenance manuals by the date required is Php100,000.00.

Section VI. Specifications

TERMS OF REFERENCE

I. PROJECT DESCRIPTION

Project Title: Design and Build for the Construction of a Three-Storey Gymnasium, Manila Campus

Project Description:

The three-storey gymnasium will house state-of-the-art facilities intended for physical education (PE) and sports classes/events/activities. This will be an ideal training ground not only for pre-service teachers of PNU, but also for in-service teachers, both in the public and private sectors.

Furthermore, the gymnasium will house the following facilities: 1. Ground Floor - Sports Center (Open Space) with Basketball, Volleyball, Badminton, Pickleball Courts, Stage, etc. 2. Second Floor – Choir Room, Student Org Room, Rondalla, Art Room, Male and Female Locker Rooms 3. Third Floor – Indoor Track (for running/walking), Equipment Storage Room, Coaches' Lounge, Fitness Area, Training and Activity Area, Center for Culture and Sports Development (CCSD) Office.

PERFORMANCE SPECIFICATIONS AND PARAMETERS

Name of Project: **CONSTRUCTION OF A THREE-STOREY GYMNASIUM, MANILA CAMPUS**

Location: **PNU MAIN CAMPUS**

Subject: **SCOPE OF WORKS AND TERMS OF REFERENCE**

OBJECTIVE:

The PNU gymnasium will house state-of-the-art facilities intended for physical education (PE) and sports classes/events/activities. This will be an ideal training ground not only for pre-service teachers of PNU, but also for in-service teachers, both in the public and private sectors.

DESCRIPTION:

The PNU gymnasium will house the following facilities: 1. Ground Floor – Sports Center (Open Space) 2. Second Floor – male and female locker room, shower rooms, activity areas, and performance rooms and 3. Third Floor - Indoor Track (for running/walking), Wellness & Fitness area, Office for Center for Culture and Sports Development (CCSD), Coaches' Lounge, and activity area.

SCOPE OF DIRECT WORKS:

The Work consists of supervision, supply of materials, labor, and equipment, and all other items and services necessary to complete the Project. The Contractor shall execute and complete the Work with full responsibility and in a self-supporting capacity. He shall comply with all Laws, City Ordinances, and all Government Regulations and with other regulatory requirements. He shall be responsible for all damages to persons or property, which may occur in connection with the execution of the Work.

Unless otherwise specified in the contract documents, the Contractor shall be fully responsible for all the direct work required to complete the project, including, but not limited to, the following:

I. GENERAL REQUIREMENTS

1. Mobilization of workers, materials, and construction equipment to be supplied and used by the contractor.

2. Construction of temporary facilities for temporary offices, warehouse, workshop, or staging area.
3. Furnishing of ID cards and uniforms, PPEs, and other safety equipment necessary for the complete protection of workers and others around the project area against the dangers of injuries, sicknesses, or deaths. Also, installation of temporary protection and cover of school facilities.
4. Use of various pieces of equipment, including heavy equipment and scaffolding.
5. The contractor shall secure all the necessary permits, such as municipal fees, licenses, fire permits, zoning fees, electrical fees, sanitary permits, permit to operate the elevator, demolition permits, excavation permits, building occupancy permits, and other permits necessary before construction. All Incidental/municipal fees shall be included in the cost estimate of the above-mentioned project. The FMSO will assist the contractor in all documentation for the application of the necessary permits.
6. Items, materials, and works which are integral and critical for the smooth operation of the project shall be addressed/shouldered by the contractor without additional cost to the procuring entity.
7. Contractor shall have a PCAB License General Building Category "AA", size range in Building "Large A".
8. Bidder must be ISO certified 9001:2015 Quality Management System. Bidder shall submit a valid/latest ISO certification during bid opening.
9. Similar contracts refer to those that involve the same major categories of work. The bidder must have completed a similar contract valued at least fifty percent (50%) of the Approved Budget for the Contract (ABC). Prospective bidders are required to submit evidence of this contract, which shall be included as part of the Technical Specifications and evaluation.
10. During the bid opening, items that include the phrase 'submit technical data sheet' require the submission of evidence (in the form of manufacturer sales literature/catalogs/brochures). This will be part of the criteria for the document evaluation. All technical data sheets require the submission evidence (in the form of manufacturer sales literature/catalogs/brochures) shall be included in the technical documents of the bidding documents.
11. The bidder/s must conduct an on-site inspection on the project mentioned above and submit a site inspection certificate issued by the PNU Facilities Management and Sustainability Office (FMSO) during bid opening. A certificate of site inspection will be given to the bidder/s who procured the bid documents.
12. All designs shall conform to the national building code of the Philippines, fire code, mechanical code, electrical code, plumbing code of the Philippines, and other statutory requirements of the government that will apply in the above-mentioned project. All designs to be submitted for the bid opening must be signed & sealed by licensed engineers and architects.

13. Installation of LOCAL AREA NETWORK CABLE – 1 LOT

- Have a round cable jacket available in LSOH, CMR, CM, and CMX options with a nominal cable O.D. of less than or equal to 7.4mm.
- Have a construction comprised of 4-pairs of 0.57mm (0.02 in) (23AWG) solid bare copper conductors utilizing a center isolation member to maintain pair geometry for optimal NEXT performance.
- Have a Mylar tape surrounding the cable pairs with a drain wire and aluminum foil tape.
- Have a rip cord installed under the jacket for jacket removal.
- Have reverse sequential measurement markings on the jacket.
- Be available in both 305m, 500m, and 1000m reels.

- Be available in jacket colours of Blue – CMR, Gray – CMX, and Violet – LSOH.
- Meet the following electrical characteristics:

ELECTRICAL SPECIFICATIONS

DC Resistance	<8.5 Ω /100m
DC Resistance Unbalance	5%
Mutual Capacitance	5.6 nF/100m
Capacitance Unbalance	<330 pF/100m
Characteristic Impedance (ohms)	1-100 MHz: 100 $\pm$ 15% 100-750 MHz: 100 $\pm$ 22%
NVP	67%
TCL	30-10 log(f/100) dB
Delay Skew	$\leq$ 45ns
PoE	Suitable for PoE & PoE +

PHYSICAL PROPERTIES

	CM/CMR/LSOH
Pulling Tension (max)	110N
Bend Radius (min)	6 x O.D 42mm.
Installation Temperature	0 to 60°C
Storage Temperature	-20 to 75°C
Operating Temperature	-20 to 75°C

- Provide the following worst-case 100m transmission performance guarantees:

TRANSMISSION PERFORMANCE

 GUARANTEED WORST CASE

 TYPICAL

Frequency (MHz)	Insertion Loss (dB)		NEXT (dB)		PS NEXT (dB)		ACR (dB)		PSACR (dB)		ACR-F (dB)		PS ACR-F (dB)		Return Loss (dB)		Propagation Delay (ns)	
1.0	2.1	1.8	75.3	86.0	73.3	82.3	73.2	84.2	71.2	80.5	73.3	91.0	71.3	85.0	20.0	33.0	570	570
4.0	3.8	3.4	66.3	77.0	64.3	73.3	62.5	73.6	60.5	69.9	61.3	79.0	59.3	73.0	23.0	35.5	552	552
10.0	5.9	5.4	60.3	71.0	58.3	67.3	54.4	65.6	52.4	61.9	53.3	71.0	51.3	65.0	25.0	38.0	545	545
16.0	7.5	6.9	57.2	68.0	55.2	64.2	49.8	61.1	47.8	57.3	49.2	67.0	47.2	61.0	25.0	35.2	543	543
20.0	8.4	7.7	55.8	67.0	53.8	62.8	47.4	59.3	45.4	55.1	47.3	65.0	45.3	59.0	25.0	35.0	542	542
31.25	10.5	9.9	52.9	64.0	50.9	59.9	42.4	54.1	40.4	50.0	43.4	61.0	41.4	55.0	23.6	33.1	540	540.4
62.5	15.0	14.3	48.4	59.0	46.4	55.4	33.4	44.7	31.4	41.1	37.4	55.0	35.4	49.0	21.5	32.2	539	538.6
100.0	19.1	18.1	45.3	56.0	43.3	52.0	26.2	37.9	24.2	33.9	33.3	51.0	31.3	45.0	20.1	31.6	538	537.6
200.0	27.6	27.3	40.8	52.0	38.8	47.8	13.2	24.7	11.2	20.5	27.3	45.0	25.3	39.0	18.0	29.8	537	536.5
250.0	31.1	31.1	39.3	50.0	37.3	46.0	8.3	18.9	6.3	14.9	25.3	43.0	23.3	37.0	17.3	28.7	536	536.3
300.0	34.3	35.0	38.1	49.0	36.1	45.0	3.9	14.0	-1.9	10.0	23.8	38.0	21.8	35.0	17.3	28.0	536	536.1
400.0	40.1	40.0	36.3	47.0	34.3	43.0	-3.8	7.0	-5.8	3.0	21.3	36.0	19.3	33.0	17.3	27.1	536	535.8
500.0	45.3	42.0	34.8	47.0	32.8	42.0	-10.4	5.0	-12.4	0.0	19.3	34.0	17.3	32.0	17.3	26.0	536	535.6
550.0*	-	43.0	-	46.0	-	42.0	-	3.0	-	-1.0	-	33.0	-	31.0	-	26.0	536	-
625.0*	-	44.9	-	46.0	-	41.0	-	1.1	-	-3.9	-	33.0	-	29.0	-	25.0	535	-
750.0*	-	49.0	-	45.0	-	41.0	-	-4.0	-	-8.0	-	32.0	-	27.0	-	25.0	535	-

* Values above 500 MHz are informational only

- Offered in kit form to include Z-MAX™ Panel outlets.
- Be made of lightweight, high-strength steel with a durable black finish in 24 & 48 port 1U configurations.
- Have panel outlets that easily snap into place and are automatically grounded without additional steps.
- Have a quick-release lever that allows individual outlets to be easily removed even in tight installations.
- Be available in both flat and angled configurations.
- Have port identification numbers on the front of the panel.
- Accommodate both 24 & 48 ports for each rack mount space (1RMS = 44.5 mm [1.75 in.]).
- Come equipped with an integrated rear wire management system.
- Be provided with high-visibility snap-on magnifying label holders that contain paper labels or Z-MAX icons for port identification.
- Exceed category 6A component compliance through the frequency range of 1 to 250MHz with usable bandwidth to 500MHz.
- Provide full integration of cable shielding through the termination process of the outlet.

- Be UL listed for plenum environments.
- Be available in black, white, red, gray, yellow, blue, green, orange, ivory, bright white, light ivory, and alpine white.
- Universal design allows the same outlet to be mounted in flat or angled orientation.
- Terminates with an ergonomic and easy-to-use Z-tool to ensure fast and simple terminations.
- Have a patented curved or “crowned” contact shape, eliminating the risk of permanent contact deformation due to mechanical stress, and ensure that arcing that occurs during mating and un-mating under load will not affect the mating integrity of both the outlet and the plug contacts.
- Compliant to IEC 60512-99-001.
- Have an available spring door allowing one-handed operation.
- Have a lacing module that offers linear lacing and zero-cross termination, which eliminates pair crossing.
- Have an available termination tool included with each box of 20 outlets.
- Be backwards compatible to allow lower performing categories of cables or connecting hardware to operate to their full capacity.
- Support industry standards for T568A or T568B wiring options on each individual outlet.
- Allow installation from the front or rear of the faceplate, and allow for the jack to pass through the faceplate without re-termination.
- Provide color-coded, snap-in icons available for circuit identification.
- Allow for a minimum of 5 terminations without signal degradation below standards compliance limits.
- Have a bezel constructed of high-impact, glass-reinforced nylon.
- Have, as an option, an outlet, which can be mounted into an IEC 60603-7 compliant opening (keystone).
- Must be certified by Underwriters Laboratories to United States Standards and C22.2 Canadian Telecommunications Standards.
- Exceed ANSI/TIA-568.2-D and ISO/IEC 11801-1 28AWG category 6A modular cord performance standards.
- Be factory assembled and 100% transmission tested with laboratory-grade network analyzers for proper performance up to 500 MHz.
- Be backwards compatible with lower performing categories.
- Be equipped with identical modular 8-position plugs on both ends, wired straight through with standards-compliant wiring.
- Feature high-performance shielded S/FTP construction for exceptional NEXT performance and innovative 360-degree crimp for excellent plug-to-cable strain relief.
- Utilize an internal load bar to provide consistent terminations and ideal pair geometry.
- Feature a nominal OD of 0.22 in. (5.5 mm) for improved airflow and flexibility in high-density applications.
- Have an integral latch guard that protects the plug from snagging when pulling through pathways or cable managers.
- Have an ultra slim boot to facilitate high-density patching that accepts optional colored clips to enable field color coding that can be easily snapped into place without having to disconnect cords.
- Use a jacket that meets flame resistance requirements for both CM and LS0H.
- Be available in standard lengths of 3, 5, 7, 10, 15, and 20 ft. with custom lengths available upon request.
- Offer standard jacket colors of black, white, red, gray, yellow, blue, green, violet, and orange for proper circuit identification.
- Meet the following performance specifications:

CORD ASSEMBLY	
Compatibility	Category 6A, 6 and 5e RJ 45 outlets
Wiring	T568A/B as specified by part #
Marking	P/N, length, performance level
Operating Temperature	-20 to 75 °C (-4 to 167 °F)
Remote Powering	PoE Type 1,2,3,4 and PoH
Green Features	RoHS, lead-free, halogen-free, PVC free
Plastic Materials	Flame retardant thermoplastic
CABLE	
Wire Size (Nominal)	28 AWG 7x36 Stranded bare copper
Construction	S/FTP
Cable O.D. (Nominal)	5.5 mm (0.22 in.)
Jacket Type	CM/LSOH
Bend Radius	22 mm (0.87 in.)
Attenuation De-Rating Factor	1.9
PLUG	
Number of Plug Insertion Cycles	2500
Min. Plug Retention Force	50N (11.24 lbf)
Contact Resistance	20 mΩ
Input to Output DC Resistance	200 mΩ (signal conductors) 100 mΩ (shield)
Insulation Resistance	500 MΩ
Min. Dielectric Withstand Voltage	1000 V DC or AC peak (contact to contact) 1500 V DC or AC peak (contact to shield)
Current Rating @ 25 C (77 F)	1.5 A
Flammability Rating	UL 94 - V0
Contact Materials	Copper alloy with contact plating of 50 microinches gold or equivalent

Category 6A Shielded SkinnyPatch Cords Recommended

- Be compatible with Cat 6 UTP, 6A UTP, and F/UTP Systems.
 - Be UL listed for plenum environments.
 - The ability to color-code the plug clips in black, white, red, gray, yellow, blue, green, orange, and violet.
 - Terminates with an ergonomic and easy-to-use Z-tool-ZP to ensure fast and simple terminations.
 - Compliant to IEC 60603-7 & 61156.
 - Have a lacing module that offers zero-cross termination, which eliminates pair crossing.
 - Be backwards compatible to allow lower performing categories of cables or connecting hardware to operate to their full capacity.
 - Support industry standards for T568A or T568B wiring options on each individual plug.
 - Allow installation for tight spaces.
 - Allow for a minimum of 5 terminations without signal degradation below standards compliance limits.
- 13.1. Must be certified by Underwriters Laboratories to United States Standards and C22.2 Canadian Telecommunications Standards.
14. After the completion of the project, the bidder shall submit one set of As-Built Plans on Mylar paper, and five copies of all design drawings sized 20 x 30, duly signed and sealed by the engineers and architects. The bidder shall utilize AutoCAD software for the preparation and submission of all drawings, together with the electronic file saved in the 1TB storage device.
15. Value Engineering. For major projects as specified by the agency, value engineering shall be conducted in accordance with accepted standards and practices. Value engineering shall analyze alternative schemes of achieving the project's objectives in order to delete or reduce non-essential features and lessen the life cycle costs of the project without sacrificing the minimum requirements, quality, and integrity of the structure, while maintaining its essential function, performance, and safety. The bidder performs value engineering as stated below:
- 15.1. Conduct of pertinent site surveys and investigation for the construction of PNU University gymnasium to determine the design intervention needed.

- 15.2. The Bidder shall be wholly responsible for all aspects of the value engineering of the PNU university gymnasium, including mechanical, electrical, site development and civil works, architectural design, soil investigation, geotechnical, and soil bearing capacity determination, if needed.
16. After the completion of the project, the contractor shall submit the soft copy of the as-built-plans in CAD format stored in NVME External 1 TB and five (5) copies of 20" x 30" signed and sealed as-built-plans of the following: a) Structural plan; b) Architectural plan; c) Electrical Plan; d) Mechanical plan; e) Plumbing plan; and f) Electronics and Communication plans.
 17. The procuring entity shall provide utility services such as water and electricity to be used during the execution of the project.
 18. Upon the winning bidder's receipt of the Notice to Proceed, the contractor is given 60 days to finalize the submitted plans, including the final bill of quantities and the detailed unit price analysis.
 19. The bidder shall submit a notarized certificate of no record/s pending case to any government agencies.
 20. The Approved Period for the contract is three hundred sixty-five (365) calendar days for the completion of the abovementioned project.
 21. The approved budget contract for the abovementioned project is Php200,000,000.00.
 22. Request for extension will be on the following conditions:
 - 22.1. Due to weather conditions, with supporting documents from the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA).
 - 22.2. Due to the unavailability of materials and equipment, subject to the attached justification from the manufacturer.
 - 22.3. Due to the noise produced by construction, which is affecting university events, conferences, classes, and meetings.
 - 22.4. Due to the perfection of the plans resulting from the contractor's value engineering.
 - 22.5. Due to unforeseen site conditions, client-initiated changes, and non-acquisition of permits.
 - 22.6. Due to the sudden declaration and suspension of works by the government.
 - 22.7. No extension will be granted due to regular holidays. All regular holidays have been included in the contract duration.

II. STRUCTURAL WORKS

A. Site/Earthworks Works

1. Complete site survey, laying out, and staking.
2. Demolition of all unnecessary existing structures that will affect the implementation of the project.
3. Excavation and trimming, backfilling using suitable backfill, complete with proper compaction.
4. Construction of temporary structures to protect adjacent structures.

5. Complete installation and compaction of gravel bedding to all structures cast against earth.
 6. Use of water pumps and other dewatering procedures when necessary.
 7. Supply and application of soil treatment against termites and other similar wood-destroying insects.
 8. Supply and installation of a vapor barrier on structures, especially slab, cast against earth.
 9. Disposal of debris, site cleanup, and demobilization.
- B. Foundation Works
1. Installation of bored piles or other methods of foundation necessary to carry the new building.
- C. Concreting Works
1. Concreting of columns, beams, including tie beams, and suspended slabs using 5000 psi ready-mix concrete.
 2. Concreting of stairs, pedestrian ramps, wall footings, parapet stiffener columns, and beams using 3000 psi ready-mix concrete.
- D. Rebar Works
1. Supply and installation of rebars for all structures using grade 60 steel bars for 16mm diameter and above.
 2. Supply and installation of rebars for all structures using grade 40 steel bars for 12mm diameter and below.
- E. Formworks and Falseworks
1. Supply and installation of formworks and falsework.
- F. Metal Works
1. Supply and installation of steel deck for a portion of the roof deck.
 2. Supply and installation of structural steel for the construction of steel beams and trusses, complete with necessary steel plate connectors and various bolts.

III. ARCHITECTURAL WORKS

- A. Masonry Works
1. Supply and installation of concrete hollow blocks, including reinforcements, compressible fillers, and concrete stiffeners as shown on drawings, described in the specifications, and as otherwise required.
 2. Plastering of exterior and interior walls and other masonry and concrete surfaces.
- B. Doors
1. Supply and installation of frameless tempered glass doors w/ h handle.
 2. Supply and installation of wood doors.

3. Supply and installation of metal doors.
- C. Windows
1. Supply, delivery, and installation of tempered tinted glass windows on powder-coated aluminum frames.
 2. Supply, delivery, and installation of tempered clear glass windows on powder-coated aluminum frames.
 3. Supply, delivery, and installation of tempered tinted glass curtain wall on powder-coated aluminum frames.
- D. Floor Finishes
1. Floor leveling/topping.
 2. Proper surface preparation, supply, and installation of solid hardwood T&G finish with cush rubber pads, complete with lanes, PNU logo, and tag line, and protective topcoat.
 3. Proper surface preparation, supply, and installation of porcelain floor tiles on pure heavy-duty adhesive on wet-pack application.
 4. Proper surface preparation, supply, and application of heavy-duty self-leveling epoxy floor coating.
 5. Proper surface preparation, supply, and installation of vinyl sports flooring with complete lanes on heavy-duty adhesive.
 6. Supply and installation of tactile tiles on ordinary adhesive.
- E. Wall Finishes
1. Supply and installation of 300 x 600mm porcelain tiles on the comfort room walls on pure heavy-duty adhesive.
 2. Supply and installation of WPC Wall cladding on liquid nail and screw.
 3. Supply and installation of an insulated operable partition, complete with accessories and railing, on painted finish.
 4. Supply and installation of Stone Cladding on the entrance Plant boxes.
- F. Ceiling Finishes
1. Supply and installation of fiber cement ceiling board on a light-gauge metal framing system.
 2. Painting of exposed slab and beams using acrylic latex paint.
 3. Supply and installation of fiber cement ceiling board on a tee runner.
 4. Supply and installation of aluminum linear ceiling on standard spacing of light-gauge metal framing system.
- G. Painting Works
1. Complete surface preparation works before the application of paints.

2. Painting of exterior walls, interior walls, and ceiling using acrylic latex paints.
 3. Painting of steel surfaces using quick-drying enamel paints.
- H. Waterproofing Works
1. Supply and application of flexible cementitious waterproofing in toilets.
 2. Supply and installation of torch-applied waterproofing membrane.
- I. Miscellaneous Architectural Works
1. Supply and installation of precast concrete wall, complete with reinforcements, compressible fillers, and concrete stiffeners as shown on drawings, described in the specifications, and as otherwise required.
 2. Supply and installation of PVC grooves.
 3. Supply and installation of PNU logo and "PNU Gymnasium" signage with backlight.
 4. Supply and installation of bleacher seats.
 5. Supply and installation of steel locker cabinets.
 6. Supply and installation of bleachers and basketball hoops.
 7. Supply and installation of granite slab countertops with backsplash.
 8. Supply and installation of 1.50m HT SS304 handrail, complete with supports.
 9. Supply and installation of Facial Mirror (900mm H) with LED Strip backlight.
 10. Supply and installation of PWD Comfort Room Handrail.
 11. Supply and installation of Soap Dispenser.
 12. Supply and installation of Tissue Holder.
 13. Supply and installation of Phenolic Urinal Partition and 200mm D shelves on cubicles.
 14. Supply and installation of 2.00mm Thk etched/engraved Stainless steel Room Signages.
- J. Toilet Partitions
1. Supply and installation of phenolic compact board partitions, complete with stainless-steel fittings and accessories.
- K. Plumbing Fixtures
1. Supply and installation of dual flush water closets with bidet.
 2. Supply and installation of vessel-type lavatories, complete with self-closing tap line.
 3. Supply and installation of wall-hung lavatories.
 4. Supply and installation of stainless-steel shower valves and heads.

5. Supply and installation of self-closing tap line lavatory faucets.
 6. Supply and installation of slop sink hose bib.
 7. Supply and installation of flush water-saving urinals.
- L. Miscellaneous
1. Supply and installation of SS304 Stair Handrails and SS304 stair railing support on all stairs and fire exits.
 2. Supply and installation of SS304 ramp handrails and SS304 ramp railing support on all stairs and fire exits.
 3. Supply and installation of F-type Brass Stair Nosing embedded in the stairs steps.
- M. Landscape Works
1. Softscape, including a variety of plants, garden soils, shrubs, Hardscape Works, including plant boxes, stones, boulders, pots, gravel, bricks on sidewalk, and landscape utilities, including drainage line, area drain, wall lamps, Garden Lights, and Bollards.

IV. ELECTRICAL WORKS

1. Supply and installation of electrical roughing-ins.
2. Supply and installation of electrical wiring devices: switches and outlets.
3. Supply and installation of electrical wires and cables.
4. Supply and installation of panel boards and boxes.
5. Supply and installation of lighting fixtures.
6. Complete Testing of the Electrical System and submit the following test results.
 - a. Insulation Test Result
 - b. No-Load and Full Load Test Result
 - c. Continuity Test Result
 - d. Live test Result
7. As-built electrical drawings showing the updated electrical system.
8. Supply and installation of a complete Solar panel system.

V. MECHANICAL WORKS

1. Supply and installation of air-conditioning units.
2. Supply, delivery, and installation of Ceiling-mounted exhaust Fan with flexible Ducting and ventilating cap.
3. Reinstallation of Existing Industrial Ceiling Fan, including necessary accessories.
4. Supply, delivery, and installation of a machine room less Passenger elevator (3 stops, at least 8-person capacity), including accessories and testing and commissioning.

5. Supply, delivery, and installation of 1 unit - 18 ft 850 watts power Industrial Ceiling Fan, including necessary accessories.
6. Supply, delivery, and installation of 18" Industrial Wall Fans.

VI. PLUMBING AND SANITARY WORKS

1. Supply and installation of all needed Drain, Sewer, and Vents systems, including PVC pipes and fittings, floor drains, catch basins, area drainages, and clean-outs.
2. Construction of a new septic tank and tapping to the existing STP line.
3. Supply and installation of floor drains, cleanouts, and p-traps.
4. Supply and installation of waterline system including PPR, G.I. supply pipes and fittings, valves, connectors, and accessories.
5. Construction of Cistern Tank for Water Supply, including tapping to the water main line.
6. Supply and installation of pumps and equipment for water supply.
7. Supply and installation of an elevated water tank.
8. Leak and pressure test on pipes.

VII. FIRE PROTECTION WORKS

1. Automatic Fire Sprinkler System (AFSS), including Pipes and Fittings, Valves and Accessories, Sprinkler Heads, fire department connection, Control Panels, Fire water Tank/Cistern, and Fire Pump Assembly.
2. Stand Pipe and Hose System including Fire Hose Cabinets, Valves, and Portable Extinguishers.
3. Fire Detection and Alarm System (FDAS), including Addressable Fire Alarm Control Panel, annunciator Panels, Smoke and heat detectors, Manual call points, Notification Devices, and monitor modules.

SCOPE OF INDIRECT WORKS:

The following services shall be included in the indirect work/expenses as deemed necessary:

1. Overhead expenses, which include but are not limited to the following: Engineering and Administrative Supervision, transportation allowances, office expenses, temporary utility services, and premiums on bonds and insurance.
2. Contingency works, which include meetings, coordination, design, and construction of temporary works, if necessary, and other unforeseen events.
3. Miscellaneous works to include material testing whenever necessary for quality control, preparation and submission of shop drawings or working drawings, documents, and/or materials samples as required, and preparation of as-built plans.
4. Contractor's profit and value-added tax.

VIII. DESIGN DOCUMENTATION SUBMITTAL, DOCUMENTS, AND REVIEW PROCESS

The Bidder shall submit the following documents, as a minimum requirement, during the bid opening. These documents must be developments of, or updates to, information previously submitted during the tender process, where applicable.

1. Health and Safety Plan.
2. Architectural plans, structural plans, plumbing plans, electrical plans, mechanical plans, auxiliary plans, electronic plans, structural design analysis, and technical specifications.
3. Electrical drawings including schematics, electrical single line diagrams, and a schedule of loads.
4. Electrical design calculations and details of the grounding system.
5. Bidder shall submit during bid opening a valid/latest certification ISO certified 9001:2015 Quality Management System.
6. Architectural landscape design, including hardscape and softscape specifications.
7. Submit Certificate of Site Inspection issued by the PNU Facilities Management and Sustainability Office (FMSO).
8. The contractor shall submit all the following documents during bid opening:
 - 8.1 Bid prices in the Bill of Quantities;
 - 8.2 Detailed estimates, including a summary sheet indicating the unit prices of construction materials, labor rates, and equipment rentals used in coming up with the Bid;
 - 8.3 Detailed Unit Price Analysis (DUPA); and
 - 8.4 Cash flow by quarter or payment schedule
9. Bidder shall submit a technical data sheet, and this technical data sheet shall be part of the criteria for evaluation (see Technical Specification – submit technical data sheet).
10. All technical documents shall be reviewed by the PNU authorized representative.
11. PNU authorized representative shall evaluate all drawings, calculations, or documents submitted by the Bidder. The bidder shall comply with all the requirements stated in the terms of reference of the procuring entity.
12. The Bidder shall submit three hard copies of blueprints or white print size 20 x 30, all plans/drawings duly signed and sealed by the licensed designer/respective engineers, architects, and hard copies of calculations and other documents.
13. The Bidder shall submit a detailed unit price analysis for each of the pay items.
14. The contractor shall provide an adequate number of duly qualified key personnel to perform the class of work stated herein. All key personnel shall be authorized, properly trained, equipped, and organized to perform all works in accordance with the terms and conditions stipulated in the contract within the project duration. The bidder(s) must submit a photocopy of key personnel's updated PRC Registration No., PTR No., TIN no., and Curriculum Vitae. The key personnel must meet the required minimum years of experience set below.

Key Personnel	Minimum Years of Total Work Experience	Minimum Years of Experience in Similar Works on Same Position
I. CIVIL WORKS		
1 – Project Manager (any field of engineering with a license)	10	5
1 – Licensed Project Engineer/ Architect	10	5
1 – DPWH's Accredited Materials Engineer II	5	3
2 – Safety officer II (COSH)	5	3
1 – Registered Master Plumber	5	3
1 – Registered Electrical Engineer	5	3
1 – Professional Electrical Engineer	5	3
1 – Licensed Electronic Engineer	5	3
1 – Licensed Sanitary Engineer	5	3
1 – Licensed Mechanical Engineer	5	3
1 – Licensed Architect	5	5
1 – Licensed Civil / Structural Engineer	10	5
1 – General Foreman with experience in building	5	3
1 – Licensed Geodetic Engineer	5	3
2 – First aider	1	1

15. List of contractor's major equipment units, leased, and/or under purchase agreements, supported by proof of ownership or certification of availability of equipment from the equipment lessor/vendor for the duration of the project, such as official receipt with the name of the owner, contract, and other related proof evidence. The bidder(s) shall have major equipment requirements to be supported with proof of ownership, with certification of availability of the equipment from the owner for the duration of the project, including the following such as official receipt with the name of the owner.

Construction Equipment	Required No. of Unit/s (Owned)	Minimum Capacity /Unit
Telescopic Crane	1	25 Tons.
Excavator with breaker line	1	0.5 cu. M
1 Bagger Mixer	2	-
Mini Dump Truck	2	4200kgs.
Generator Set (Standby)	1	50KVA
Concrete Cutter	1	-
Plate Compactor	1	-
Electric Rebar Bender	2	28mm to 32mm
Pay Loader	1	1.2 cubic meter

TECHNICAL SPECIFICATIONS

1. WIRELESS ACCESS POINTS – 30 UNITS (submit technical datasheet/brochure)

KEY FEATURES
Can be managed in Standalone mode using an intuitive web-based interface.
Autonomous Wave Control (AWC) provide centralized management, and regularly analyses the wireless network, automatically optimizing AP setting to reduce interference and minimize coverage gaps with no user intervention.
AWC Wireless management is available on our Vista Manager EX network management platform, and from Vista Manager mini running on a number of switch and firewall products.
Support operation in multi-channel, single-channel (Channel Blanket) and hybrid (multi-channel and channel blanket) modes for the most flexible wireless solution available.
Multi-channel operation provides maximum throughput for high-bandwidth clients, while Channel Blanket operation supports seamless roaming for dynamic environments like warehouses and hospitals, as all APs appear as a single virtual AP.
Hybrid mode combines the best of both architectures, enabling an innovative wireless solution that maximizes performance for a superior user experience.

The high throughput of Wi-Fi 6 further increases the performance wireless networks, and with AWC channel blanket, Wireless Access Points can combine their radio signals to create a powerful single virtual AP environment for user devices.
Has the capability to enables plug-and-play wireless network growth, as new APs only need a power connection, and will then automatically create resilient wireless uplink connections to other APs.
Support dynamic environments with multi-path uplinks, and provides an ideal solution for one-time deployments like conferences.
IEEE 802.11ax WiFi6 wireless connectivity delivers performance and throughput that is four times faster than 802.11ac devices. In crowded wireless environments, efficient bandwidth distribution is important.
WiFi 6 offers new features such as OFDMA and bidirectional MU-MIMO that increase the intelligence of the AP in managing multiple client connections at once, providing better throughput, connectivity and overall performance.
Wi-Fi 6 increases the power and flexibility of Channel Blanket (CB) and Smart Connect (SC) wireless solutions. With Channel Blanket, a high-capacity single wireless blanket can connect all devices without any interference or capacity issues for truly seamless roaming. With Smart Connect, no additional data cables are required, and a fully resilient wireless topology can be deployed with plug-and-play simplicity.
Wi-Fi Alliance certified Passpoint enables auto-detection and connection of client devices, removing the need for users to find and authenticate on wireless networks. This provides a flexible Wi-Fi network with a high level of security.
Support for Virtual AP (VAP) functionality, with the assignment of different SSIDs and security policies for each VAP on the physical device.
VAPs can be mapped to VLANs for logical network separation and improved throughput. Enable communication by application, function or users.
Fast roaming 802.11k, 802.11v and 802.11r optimize discovering and selecting the best available AP in the Wi-Fi network. It establishes rapid connectivity for users to seamlessly move between Aps, as the APs exchange security keys, so the client device does not need to re-authenticate on the RADIUS server as they roam.
Radio signal strength on the AP can be scheduled to suit the time of day, with different levels at different times. For example, turning off radio signals late at night, when the Wi-Fi network may not be in use, can prevent unauthorized access and save power.
The two wired LAN uplink ports can be aggregated for link resiliency and increased bandwidth using static link aggregation or the dynamic Link Aggregation Control Protocol (LACP), doubling uplink capacity to 5Gbps.
The solution has the capability (Licensed-based solution) to enables internal LAN threat detection and automatic end-point isolation to protect the network. If a firewall detects suspicious traffic or a threat such as a virus from a wireless device.
WIRELESS
Multi-channel, single-channel, or hybrid operation
OFDMA

Bi-directional Multi-user MIMO
Spatial Reuse
Airtime Fairness
Automatic channel selection
Automatic control of transmission power
Band steering
Fast roaming
RF load balancing
Wireless Distribution System
The AP must support Wi-Fi multiple (WMM) for traffic prioritization
Deploy with no data cables using Smart Connect Technology (need to acquire separate license to enable the feature)
Zero wait DFS
OPERATIONAL
AP must support centrally managed in multi-channel mode up to 3000 Aps
AP must support Centrally managed in single-channel or hybrid mode (multi-channel and single-channel)
AP must support Centrally managed in multi-channel mode using appliance-based Management solution of up to 500Aps
AP must support Standalone up to 500 clients per radio
MANAGEMENT
AP must support graphical user interface (HTTP/HTTPS)
AP must support simple network management protocol (SNMPv1,v2c,v3)
AP must support firmware upgrade
AP must support backup/restore settings
AP must support syslog notification
AP must support external RADIUS server for RADIUS accounting
AP must support DHCP & NTP client
SECURITY FEATURES
AP must support Authentication and Accounting; IEEE 802.1x Authentication and Accounting; IEEE 802.1X Radius support; Shared key Authentication; WPA (Enterprise, Personal);WPA2 (Enterprise, Personal);WPA3 (Enterprise, Personal); Captive Portal (External Radius, Click-Through).
AP must support Encryption; WEP: 64/128 bit (IEEE 802.11a/b/g only);WPA/WPA2: CCMP(AES),TKIP;WPA3:CCMP (AES/CNSA).
AP must support MAC address filtering up to 3072 MAC address.
AP must support SSID hiding/Ignoring.
AP must support Client isolation.

AP must support Neighbor AP detection.
AP must support Kensington lock.
COMPLIANCE
The AP must support certificate for WI-FI certified; RCM; IC; FCC; IMDA (For Singapore); WPC (for India); OFCA (for Hong Kong); NBTC (For Thailand); MIC (For Vietnam); SIRIM (For Malaysia); BSMI/MCC (For Taiwan); SRRC (For China).
The AP must support safety; EN 62368-1; UL 62368-1; UL 2043.
The AP must support Electromagnetic Compatibility EN 301 489-1; EN 301 489-17; EN 55024; EN55032, Class B; EN 55035; EN 60601-1-2; EN 61000-3-2 Class A; EN61000-3-3; EN61000-4-2; EN61000-4-3; EN61000-4-4; EN61000-4-5; EN61000-4-6; EN61000-4-8; EN61000-4-11; VCCI Class B.
The AP must support Radio equipment AS/NZS 4268; EN 300 328; EN 301 893; FCC 47 CFR Part 15, Subpart C; FCC 47 CFR Part 15, Subpart E5.
ENVIRONMENTAL SPECIFICATIONS
Operating temperature range 0°C to 50°C (32°F to 122°F)
Storage temperature range -25°C to 70°C (-13°F to 158°F)
Operating relative humidity range 5% to 90% non-condensing
Storage relative humidity range 5% to 95% non-condensing
Operating altitude range Up to 3,048 meters maximum (10,000 ft)
EMBEDDED ANTENNAS/RADIO CHARACTERISTICS
Omni-directional: Frequency band: 2.4 GHz; Max. peak gain: 4.38 dBi
Omni-directional: Frequency band: 5 GHz; Max. peak gain: 5.93 dBi
Supported frequencies: 2.412 ~ 2.472 GHz; 5.150 ~ 5.250 GHz; 5.250 ~ 5.350 GHz; 5.500 ~ 5.720 GHz; 5.745 ~ 5.825 GHz
Modulation Technique 802.11a/g/n/ac: OFDM; 802.11 ax: OFDMA 802.11b: DSSS, CCK, DQPSK, DBPSK; 802.11ac: BPSK, QPSK, 16QAM, 64QAM,256QAM; 802.11a/g/n: BPSK, QPSK, 16QAM, 64QAM,256QAM; 802.11ax: BPSK, QPSK, 16QAM,64QAM,256QAM,1024QAM
Data Rate IEEE802.11b 11/5.5/2./1Mbps IEEE802.11a/g 54/48/36/24/18/12/9/6Mbps IEEE802.11g/n 6.5-600Mbps (MCS0-31) IEEE802.11g/n 6.5-800Mbps (MCS0-31) IEEE802.11a/ac 6.5-1733.3Mbps (MCS0-9) IEEE802.11a/ax 6.5-2401.9Mbps (MCS0-11)
Media Access: CSMA/CA + Ack with RTS/CTS
Spatial diversity
STANDARDS ETHERNET/WIRELESS
IEEE 802.1AX-2008 Link Aggregation (static and dynamic)

IEEE 802.3 10BASE-T
IEEE 802.3u 100BASE-TX
IEEE 802.3ab 1000BASE-T
IEEE 802.3bz 2.5GBASE-T and 5GBASE-T("multi-gigabit")
IEEE 802.3x Flow Control
IEEE 802.3at Power over Ethernet+
IEEE802.1Q VLAN tagging
IEEE 802.11 a/b/g/n/ac/ax 4x4:4ss MU MIMO
IEEE 802.11k Radio Resource Measurement of Wireless LANs
IEEE 802.11v Basic Service Set Transition Management Frames
IEEE 802.11r Fast Basic Service Set Transition
IEEE 802.11e WMM for Quality of Service
IEEE 802.11i WPA/WPA2/WPA3 802.1x for Security
POWER CHARACTERISTIC
Power Supply 100-240VAC
Maximum Power Consumption 24W (19W average) non POE with Max Heat Dissipation 81.84 BTHu for non POE
Maximum Power Consumption 22.03W (17W average) and Max Heat Dissipation 75.12 BTHu for PoE

2. WIRELESS CONTROLLER – 1 LOT (submit technical datasheet/brochure)

GENERAL FEATURES
The singular interface into the entire network includes the dashboard showing status, details, event information, and a topology map. Critical issues, such as internal security threats, environmental alarms, and more are highlighted on the network map and in the event log—and an integrated Syslog server adds further capabilities for easy resolution. Asset management enables firmware and configuration backup and upgrade of one, many, or all devices.
Management features include a customizable health monitoring dashboard for at-a-glance network status, easy management of LAN traffic using QoS and ACLs, simplified creation of inter-branch VPN connections, security management and more.
View all wired and wireless network devices, with easy access to the GUI of any node for specific control—and also see connected endpoint devices, with details readily available. The map is automatically created, and devices can be grouped to show branch and building layout, with sites able to be collapsed or expanded for simplicity and scalability.
Device discovery works seamlessly with optional plugins Nozomi Guardian, Forescout Continuum, and Microsoft InTune. Discovered endpoints like printers, servers, sensors, and more, are shown on the map and in asset management. Nozomi and InTune endpoint security alerts are also displayed.

Simplify management by creating and editing VLANs across multiple switches at once with a few mouse clicks, while the color-coded VLAN map highlights network connectivity.
Powerful features like automatic backup, upgrade and configuration simplify management. Automated device recovery enables zero-touch replacement to reduce network administration.
AI guidance on network configuration and features is available for free. The licensed agentic AI assistant reduces the burden of network management by carrying out administration tasks, and providing a summary of network events any time you ask.
Manage and monitor APs, with floor maps, wireless coverage heat maps, and client counts. Automatically optimizes AP output and channel for a superior user experience. Innovative Channel Blanket hybrid wireless provides a network with both high throughput and seamless roaming, while Smart Connect enables simplified deployment, and a resilient solution using wireless uplink connectivity.
Discover and manage devices with the Simple Network Management Protocol (SNMP) plug-in. Use the view you prefer, while notifications and alerts support proactive management.
KEY FEATURES
Manage switches, firewalls, APs, and endpoint devices
Automatically-created topology map with grouping of devices into branches or buildings, and expanding or collapsing of sites for scalability
Intent-based features
Configurable health monitoring for at-a-glance network status, with automated event actions
Agentic AI assistant (licensed) reduces the burden of network management
Send event notifications to Microsoft Teams or Slack
High-priority network issues and critical events are highlighted on the map, and in the event log
Automatic wireless output and channel control
Channel Blanket hybrid wireless
Smart Connect wireless uplinks
device discovery, and optional plugins Nozomi Guardian, Forescout Continuum, and Microsoft InTune discover and manage endpoint devices
Intelligent edge security lets you view endpoints attempting connection, and manually or automatically allow or block access
Real-time traffic, protocol, and application monitoring
Simplified VLAN creation and management
Centralized device firmware and config backup, recovery, and upgrade
Simplified VLAN creation and management
Support multiple networks with flexible management access
WIRED NETWORKING
Using the configurable health dashboard to monitor overall status, and key network devices and servers.

Monitoring of CPU, memory, storage, and temperature of the devices. See network health status and trends at a glance, and simplify fault resolution.
Monitoring link health across the network, including latency, jitter, packet loss, and interface status.
Managing traffic, and automated control of the priority and performance of key applications right through the network, using centralized visual Quality of Service (QoS) administration.
Easily visualizing Access Control Lists (ACLs) in a matrix format to quickly and simply check for coverage inconsistencies, and ensure user data and different traffic types are managed in line with business policies. Configure rules for any network or destination to manage traffic through the network.
WIRELESS NETWORKING
Regularly analyzes wireless networks, and dynamically updates APs for improved connectivity and performance, by automatically minimizing coverage gaps and reducing interference.
Multi-channel, single-channel (Channel Blanket), and hybrid (multi-channel and Channel Blanket) wireless network modes, supports maximum data throughput and seamless roaming.
Smart Connect technology provides plug-and-play wireless network growth, as new APs only need a power connection to automatically create resilient wireless uplink connections to other APs.
SNMP PLUG-IN
The SNMP plug-in can acquire detailed information and statistics from a broad range of networking devices. Different views enable users to manage devices the way they prefer.
It supports management of up to 2000 devices, and in large networks it automatically searches for SNMP agents and displays each device found in tree form for easy view of the overall network topology.
INTELLIGENT EDGE SECURITY
View agentless endpoints that do not have full authentication capability, but attempt network access.
Local RADIUS and the Allied Telesis Subscription based RADIUS server are both supported for control of endpoints security policies.
When using the third-party Nozomi Guardian or Microsoft InTune plugins, endpoint security alerts are displayed.
With Nozomi Guardian endpoint security alerts, endpoints can be automatically blocked to protect the network based on the severity of the security alert.

3. **EDGE MULTI-GIG NETWORK POE SWITCH – 2 units** (submit technical datasheet/brochure)

KEY FEATURES
Autonomous Management Framework Plus (AMFPlus)
Multi-gigabit ports 10M/100M/1/2.5/5G
G.8032 ERPS for resilient rings
Gigabit uplinks 10

Up to 90W PoE++ power per port
Active Fiber Monitoring (AFM)
OpenFlow for SDN
Active Fiber Monitoring (AFM)
Upstream Forwarding Only (UFO)
Precision Time Protocol (PTP) Transparent mode1
Link Monitoring
Flexible ACLs
Loop and storm protection
OpenFlow for SDN
NETCONF/RESTCONF with YANG data modelling
SPECIFICATIONS
The switch must support 24 x 100M/1/2.5/5 Gigabit ports
The switch must support 2 x 1/10 Gigabit SFP+ ports
The switch must support PoE++ (90W) enabled ports
The switch must support 280Gbps switching fabric
The switch must support 208.3Mpps forwarding rate
PERFORMANCE
The switch must support up to 100 multicast entries
The switch support 9KB L2 Jumbo Frames
The switch support 4094 configurable VLANs
The switch supports up to 32K MAC addresses
The switch support 1GB DDR3 SDRAM and 256MB flash memory
The switch support packet buffer memory of 3MB
DIAGNOSTIC TOOLS
Built-In Self-Test (BIST)
PING Polling and Traceroute for IPv4 and IPv6
Optical Digital Diagnostic Monitoring (DDM)
Find-me device locator
Automatic link flap detection and port shutdown
Cable fault locator (TDR)
Uni-Directional Link Detection (UDLD)
Active Fiber Monitoring detects tampering on optical links
Port and VLAN mirroring (RSPAN)
Link Monitoring

IP FEATURES
IPv4 static routing and RIP
IPv4 and IPv6 dual stack
Device management over IPv6 networks with SNMPv6, Telnetv6 and SSHv6 and SyslogV6
DHCP client for IPv4 and IPv6
MANAGEMENT
Autonomous management framework plus (AMFPlus) enables powerful centralized management and zero-touch device installation and recovery. With built-in starter FREE license.
Console management port on the front panel for ease of access.
Comprehensive SNMP MIB support for standards-based device management.
NETCONF/RESTCONF northbound interface with YANG data modelling.
Event-based triggers allow user-defined scripts to be executed upon selected system events.
Eco-friendly mode allows ports and LEDs to be disabled to save power.
USB interface allows software release files and configurations and other files to be stored for backup and distribution to other devices.
Powerful CLI scripting engine with built-in text editor.
Web-based Graphical User Interface (GUI).
Industry-standard CLI with context-sensitive help.
Management stacking allows up to 24 devices to be managed from a single console.
QUALITY OF SERVICE (QOS)
IP precedence and DiffServ marking based on Layer2, 3 and 4 headers
Taildrop for queue congestion control
Extensive remarking capabilities
Policy-based QoS based on VLAN, port, MAC and general packet classifiers
Limit bandwidth per port or per traffic class down to 64Kbps
8 priority queues with a hierarchy of high priority queues for real time traffic, and mixed scheduling for each switch port
Policy-based storm protection
Wire speed traffic classification with low latency essential for VoIP and real-time streaming media applications
SECURITY FEATURES
Access Control Lists (ACLs) based on layer 3 and headers, per VLAN or port
Configurable ACLs for management traffic
Dynamic ACLs assigned via port authentication
ACL Groups enable multiple hosts/ports to be included in a single ACL, reducing configuration

Auth-fail and guest VLANs
RADIUS and TACACS+ Authentication Authorization and Accounting (AAA)
Bootloader can be password protected for device security
BPDU protection
DHCP snooping, IP source guard and Dynamic ARP Inspection (DAI)
Local RADIUS server for user and device authentication
Dynamic VLAN assignment
MAC address filtering and MAC address lock-down
Network Access and Control (NAC) features manage endpoint security
Learn limits (intrusion detection) for single ports or LAGs
Strong password security and encryption
VLAN SUPPORT
IEEE 802.1ad Provider bridges (VLAN stacking, Q-in-Q)
IEEE 802.1Q Virtual LAN (VLAN) bridges
IEEE 802.1v VLAN classification by protocol and port
IEEE 802.3ac VLAN tagging
ENVIRONMENTAL SPECIFICATIONS
Operating temperature range 0°C to 50°C (32°F to 122°F) Derated by 1°C per 305 meters (1,000 ft)
Storage temperature range -25°C to 70°C (-13°F to 158°F)
Operating relative humidity range of 5% to 90% non-condensing
Storage relative humidity range of 5% to 95% non-condensing
Operating altitude 2,000 meters maximum (6,562 ft)
POWER CHARACTERISTICS
Maximum power consumption of 86W @ No PoE Load
Maximum power consumption of 540W @ Full PoE+ Load
Maximum PoE Power of 370Watts
Maximum of 24ports for PoE (7.5W)
Maximum of 24ports for PoE (15W)
Maximum of 12ports for PoE+ (30W)
Maximum of 8ports for PoE+ (45W)
Maximum of 6ports for PoE++ (60W)
Maximum of 4ports for PoE++ (90W)
ELECTRICAL, SAFETY & RoHS COMPLIANCE
EMC: EN55032 class A, FCC class A, VCCI class A, ICES-003 class A

Immunity: EN55035, EN61000-3-levels 2 (Harmonics), and 3 (Flicker) – AC models only
Standards: UL62368-1, CAN/CSA-C22.2 No.62368-1, EN62368-1, EN60825-1, AS/ NZS62368.1
Certification: UL, cUL
EU RoHS compliant
China RoHS compliant
LATENCY SPECIFICATIONS
Latency at 1GBPs is about 4.5microsecond
Latency at 2.5Gbps is about 8.6microsecond
Latency at 5Gbps is about 6microsecond
Latency at 10Gbps is about 3microsecond
ETHERNET STANDARDS
IEEE 802.2 Logical Link Control (LLC)
IEEE 802.3 Ethernet
IEEE 802.3ab 1000BASE-T
IEEE 802.3ae 10 Gigabit Ethernet
IEEE 802.3af Power over Ethernet (PoE)
IEEE 802.3at Power over Ethernet up to 30W (PoE+) IEEE 802.3az Energy Efficient Ethernet (EEE)
IEEE 802.3bt Power over Ethernet up to 90W (PoE++) IEEE 802.3bz 2.5GBASE-T and 5GBASE-T (“multi-gigabit”) IEEE 802.3u 100BASE-X
IEEE 802.3x Flow control - full-duplex operation
IEEE 802.3z 1000BASE-X
IPv4 STANDARDS
RFC768 - User Datagram Protocol (UDP)
RFC791 - Internet Protocol (IP)
RFC792 & RFC793 - Internet Control Message Protocol (ICMP) & Transmission Control Protocol (TCP)
RFC826 - Address Resolution Protocol (ARP)
RFC894 - Standard for the transmission of IP datagrams over Ethernet networks Broadcasting Internet datagrams Broadcasting Internet datagrams in the presence of subnets
RFC919 - Broadcasting Internet datagrams Broadcasting Internet datagrams in the presence of subnets
RFC922 - Broadcasting Internet datagrams in the presence of subnets
RFC932 - Subnetwork addressing scheme

RFC950 - Internet standard subnetting procedure
RFC1042 - Standard for the transmission of IP datagrams over IEEE 802 networks
RFC1071 - Computing the Internet checksum
RFC1122 - Internet host requirements
RFC1191 - Path MTU discovery
RFC1518 - An architecture for IP address allocation with CIDR
RFC1519 - Classless Inter-Domain Routing (CIDR)
RFC1812 - Requirements for IPv4 routers
RFC1918 - IP addressing
RFC2581 - TCP congestion control
IPv6 STANDARDS
Path MTU discovery for IPv6 - RFC1981
IPv6 specification - RFC2460
Transmission of IPv6 packets over Ethernet networks - RFC2464
IPv6 router alert option - RFC2711
Default address selection for IPv6 - RFC3484
IPv6 global unicast address format - RFC3587
DNS extensions to support IPv6 - RFC3596
IPv6 scoped address architecture - RFC4007
Unique local IPv6 unicast addresses - RFC4193
Transition mechanisms for IPv6 hosts and routers - RFC4213
IPv6 addressing architecture - RFC4291
Internet Control Message Protocol (ICMPv6) - RFC4443
Neighbor discovery for IPv6 - RFC4861
IPv6 Stateless Address Auto-Configuration (SLAAC) - RFC4862
IPv6 socket API for source address selection - RFC5014
Deprecation of type 0 routing headers in IPv6 - RFC5095
ROUTING INFORMATION PROTOCOL (RIP)
Routing Information Protocol (RIP) - RFC1058
RIP-2 MD5 authentication - RFC2082
RIPv2 - RFC2453
QUALITY OF SERVICE (QOS)
IEEE 802.1p Priority tagging
RFC 2211 Specification of the controlled-load network element service
RFC 2474 DiffServ precedence for eight queues/port

RFC 2475 DiffServ architecture
RFC 2597 DiffServ Assured Forwarding (AF)
RFC 2697 A single-rate three-color marker
RFC 2698 A two-rate three-color marker
RFC 3246 DiffServ Expedited Forwarding (EF)
RESILIENCY FEATURES
ITU-T G.8032 Ethernet Ring Protection Switching (ERPS)
IEEE 802.1ag Connectivity Fault Management (CFM), Continuity Check Protocol (CCP)
IEEE 802.1AX Link aggregation (static and LACP)
IEEE 802.1D MAC bridges
IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)
IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) I
IEEE 802.3ad Static and dynamic link aggregation
SERVICES
RFC 854 Telnet protocol specification
RFC 855 Telnet option specifications
RFC 857 Telnet echo option
RFC 858 Telnet suppress go ahead option Telnet terminal-type option
RFC 1091 Trivial File Transfer Protocol (TFTP) SMTP service extension
RFC 1350 Trivial File Transfer Protocol (TFTP)
RFC 1985 SMTP service extension
RFC 2049 MIME
RFC 2131 DHCPv4 client
RFC 2616 Hypertext Transfer Protocol- HTTP/1.1
RFC 2821 Simple Mail Transfer Protocol (SMTP)
RFC 2822 Internet message format
RFC 3046 DHCP relay agent information option (DHCP option 82)
RFC 3315 DHCPv6 client
RFC 3396 Encoding long options in DHCPv4
RFC 3646 DNS configuration options for DHCPv6
RFC 3993 Subscriber-ID suboption for DHCP relay agent option
RFC 4330 Simple Network Time Protocol (SNTP) version 4
RFC 4954 SMTP service extension for authentication
RFC 5905 Network Time Protocol (NTP) version 4
FEATURE LICENSES

VLAN Q-in-Q and PTP license -VLAN Q-in-Q -PTP Transparent Mode1 - VLAN translation
OpenFlow license OpenFlow v1.3 for 1 year or 5 years

4. NETWORK PoE SWITCH – 2 UNITS
(submit technical datasheet/brochure)

KEY FEATURES
Autonomous Management Framework Plus (AMFPlus) Edge Node
VCStack up to 4 switches
VCStack LD for long distance stacking
EPSR transit node
Active Fiber Monitoring (AFM)
Eco-Friendly
Device GUI for web-based Management
NETCONF/RESTCONF with YANG data modelling
IPFIX (IP Flow Information Export)
SPECIFICATIONS
The switch must support 20 x 10/100/1000Base-Tx ports
The switch must support 4 x 100M/1/2.5 Gigabit ports
The switch must support 4 x 1/10 Gigabit SFP+ ports
The switch must support 24 x PoE enabled ports
The switch must support 160Gbps switching fabric
The switch must support 119Mpps forwarding rate
PERFORMANCE
The switch support 10KB L2 & 9KB L3 Jumbo Frames
The switch support 4094 configurable VLANs
The switch supports up to 16K MAC addresses
The switch support 1GB DDR3 SDRAM
The switch support packet buffer memory of 3MB
DIAGNOSTIC TOOLS
Built-In Self-Test (BIST)
PING Polling and Traceroute for IPv4 and IPv6
Optical Digital Diagnostic Monitoring (DDM)
Find-me device locator

Automatic link flap detection and port shutdown
Cable fault locator (TDR)
Uni-Directional Link Detection (UDLD)
Active Fiber Monitoring detects tampering on optical links
Port mirroring
MANAGEMENT
Front panel 7-segment LED provides at-a-glance status and fault information
Autonomous Management Framework Plus (AMF Plus) enables powerful centralized management and zero-touch device installation and recovery
AMF Plus license operating in the network provides all standard AMF network management and automation features, and also enables the AMF Plus intent-based networking
Enables a self-defending network to automatically block the spread of malware by quarantining suspect end user devices (subscription-based solution)
Console management port on the front panel for ease of access
NETCONF/RESTCONF northbound interface with YANG data modelling
Eco-friendly mode allows ports and LEDs to be disabled to save power
Industry-standard CLI with context-sensitive help
Powerful CLI scripting engine with built-in text editor
Web-based Graphical User Interface (GUI)
USB interface allows software release files, configurations and other files to be stored for backup and distribution to other devices
Event-based triggers allow user-defined scripts to be executed upon selected system events Wirespeed forwarding
QUALITY OF SERVICE (QOS)
Type of Services (ToS) IP precedence and DiffServ marking based on layer 2, 3 and 4 headers
Taildrop for queue congestion control
Extensive remarking capabilities
Policy-based QoS based on VLAN, port, MAC and general packet classifiers
Limit bandwidth per port or per traffic class down to 64Kbps
8 priority queues with a hierarchy of high priority queues for real time traffic, and mixed scheduling for each switch port
Policy-based storm protection
Wirespeed traffic classification with low latency essential for VoIP and real-time streaming media applications
SECURITY FEATURES
Access Control Lists (ACLs) based on layer 3 and 4 headers
Configurable auth-fail and guest VLANs

Authentication, Authorization and Accounting (AAA)
Bootloader can be password protected for device security
BPDU protection
DHCP snooping, IP source guard and Dynamic ARP Inspection (DAI)
Dynamic VLAN assignment
MAC address filtering and MAC address lock-down
Network Access and Control (NAC) features manage endpoint security
Port-based learn limits (intrusion detection)
Private VLANs provide security and port isolation for multiple customers using the same VLAN
Secure Copy (SCP)
Secure File Transfer (SFTP) client
Strong password security and encryption
Simple Certificate Enrollment Protocol (SCEP) supports secure management
Tri-authentication: MAC-based, web-based and IEEE 802.1x
Web-based authentication
VLAN SUPPORT
Generic VLAN Registration Protocol (GVRP)
IEEE 802.1Q Virtual LAN (VLAN) bridges
IEEE 802.1v VLAN classification by protocol and port
LLDP-MED ANSI/TIA-1057
Voice VLAN
ENVIRONMENTAL SPECIFICATIONS
Operating temperature range 0°C to 50°C (32°F to 122°F) Derated by 1°C per 305 meters (1,000 ft)
Storage temperature range -25°C to 70°C (-13°F to 158°F)
Operating relative humidity range of 5% to 90% non-condensing
Storage relative humidity range of 5% to 95% non-condensing
Operating altitude 3,000 meters maximum (9,843 ft)
POWER CHARACTERISTICS
Maximum power consumption of 70W @ No PoE Load
Maximum power consumption of 510W @ Full PoE+ Load
Maximum PoE Power of 370Watts
Maximum of 24ports for PoE (7.5W)
Maximum of 24ports for PoE (15W)
Maximum of 12ports for PoE+ (30W)

ELECTRICAL, SAFETY & RoHS COMPLIANCE
EMC: EN55024 FCC Class A, EN55032 Class A, EN61000-3-2, EN61000-3-3, VCCI Class A, RCM
Immunity: EN55024, EN61000-3-levels 2 (Harmonics), and 3 (Flicker) – AC models only
Standards: UL60950-1, CSA-C22.2 No. 60950-1, EN60950-1, UL62368-1
Certifications: cUL, cULus, TUV
EU RoHS compliant
China RoHS compliant
LATENCY SPECIFICATIONS
Latency at 100Mbps is about 8.29 microsecond
Latency at 1GBPs is about 7.63microsecond
Latency at 2.5Gbps is about 7.41microsecond
Latency at 5Gbps is about 4.97 microsecond
Latency at 10Gbps is about 1.63 microsecond
ETHERNET STANDARDS
IEEE 802.2 Logical Link Control (LLC)
IEEE 802.3 Ethernet
IEEE 802.3ab 1000BASE-T
IEEE 802.3ae 10 Gigabit Ethernet
IEEE 802.3af Power over Ethernet (PoE)
IEEE 802.3at Power over Ethernet up to 30W (PoE+)
IEEE 802.3bt Power over Ethernet up to 90W (PoE++) IEEE 802.3bz 2.5GBASE-T and 5GBASE-T (“multi-gigabit”) IEEE 802.3u 100BASE-X
IEEE 802.3x Flow control - full-duplex operation
IEEE 802.3u & 802.3z 100Base-X & 1000Base-X
IPv4 STANDARDS
RFC768 - User Datagram Protocol (UDP)
RFC791 - Internet Protocol (IP)
RFC792 & RFC793 - Internet Control Message Protocol (ICMP) & Transmission Control Protocol (TCP)
RFC826 - Address Resolution Protocol (ARP)
RFC894 - Standard for the transmission of IP datagrams over Ethernet networks Broadcasting Internet datagrams Broadcasting Internet datagrams in the presence of subnets
RFC919 - Broadcasting Internet datagrams Broadcasting Internet datagrams in the presence of subnets

RFC922 - Broadcasting Internet datagrams in the presence of subnets
RFC932 - Subnetwork addressing scheme
RFC950 - Internet standard subnetting procedure
RFC951 - Bootstrap Protocol (BootP)
RFC1027 - Proxy ARP
RFC1035 - DNS Client
RFC1042 - Standard for the transmission of IP datagrams over IEEE 802 networks
RFC1071 - Computing the Internet checksum
RFC1122 - Internet host requirements
RFC1191 - Path MTU discovery
RFC1518 - An architecture for IP address allocation with CIDR
RFC1519 - Classless Inter-Domain Routing (CIDR)
RFC1591 - Domain Name System (DNS)
RFC1812 - Requirements for IPv4 routers
RFC1918 - IP addressing
RFC2581 - TCP congestion control
IPv6 STANDARDS
Path MTU discovery for IPv6 - RFC1981
IPv6 specification - RFC2460
Transmission of IPv6 packets over Ethernet networks - RFC2464
Connection of IPv6 domains via IPv4 clouds - RFC3056
Default address selection for IPv6 - RFC3484
DNS extensions to support IPv6 - RFC3596
IPv6 scoped address architecture - RFC4007
Unique local IPv6 unicast addresses - RFC4193
IPv6 addressing architecture - RFC4291
Internet Control Message Protocol (ICMPv6) - RFC4443
Neighbor discovery for IPv6 - RFC4861
IPv6 Stateless Address Auto-Configuration (SLAAC) - RFC4862
IPv6 socket API for source address selection - RFC5014
Deprecation of type 0 routing headers in IPv6 - RFC5095
Pv6 Router Advertisement (RA) flags option - RFC5175
IPv6 Router Advertisement (RA) guard - RFC6105
ROUTING INFORMATION PROTOCOL (RIP)
Routing Information Protocol (RIP) - RFC1058

RIPng protocol applicability statement - RFC2081
RIP-2 MD5 authentication - RFC2082
RIPv2 - RFC2453
QUALITY OF SERVICE (QOS)
IEEE 802.1p Priority tagging
RFC 2211 Specification of the controlled-load network element service
RFC 2474 DiffServ precedence for eight queues/port
RFC 2475 DiffServ architecture
RFC 2597 DiffServ Assured Forwarding (AF)
RFC 2697 A single-rate three-color marker
RFC 2698 A two-rate three-color marker
RFC 3246 DiffServ Expedited Forwarding (EF)
RESILIENCY FEATURES
VRRP RFC5798
IEEE 802.1AXLink aggregation (static and LACP)
IEEE 802.1D MAC bridges
IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)
IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) I
EEE 802.3ad Static and dynamic link aggregation
SERVICES
RFC 854 Telnet protocol specification
RFC 855 Telnet option specifications
RFC 857 Telnet echo option
RFC 858 Telnet suppress go ahead option Telnet terminal-type option
RFC 1091 Trivial File Transfer Protocol (TFTP) SMTP service extension
RFC 1350 Trivial File Transfer Protocol (TFTP)
RFC 1985 SMTP service extension
RFC 2049 MIME
RFC 2131 DHCPv4 client
RFC 2616 Hypertext Transfer Protocol- HTTP/1.1
RFC 2821 Simple Mail Transfer Protocol (SMTP)
RFC 2822 Internet message format
RFC 3046 DHCP relay agent information option (DHCP option 82)
RFC 3315 DHCPv6 client
RFC 3633 IPv6 prefix options for DHCPv6

RFC 3646 DNS configuration options for DHCPv6
RFC 3993 Subscriber-ID sub option for DHCP relay agent option
RFC 4330 Simple Network Time Protocol (SNTP) version 4
RFC 5905 Network Time Protocol (NTP) version 4
FEATURE LICENSES
Continuous PoE
Mixed stacking license

5. LICENSES (EDGE SWITCH, WIRELESS CONTROLLER, WIRELESS ACCESS POINTS, ACCESS SWITCH AND TECHNICAL SUPPORT)

LICENSES
One-year base license for Wireless Controller – 1 LOT
CLOUD-PLUS-BASE – One Year Base AMF Plus Master for 10 nodes, 1-year license for AMF CLOUD. Requires AW+ 5.5.2-2.1 – 1 LOT
One year license for Autonomous Wireless Controller (AWC) plug in for 10 APs (Requires wireless controller) – 3 LOTS (1 LOT = 10 Aps)
SNMP – One year license for SNMP plugin (requires wireless controller) – 1 LOT Inclusive: Priority Technical Support/Professional Services/Advance Replacement Services/Software & firmware Updates

6. COMMERCIAL AND INDUSTRIAL GRID FORMING ESS SOLAR PANEL BATTERY – 1 LOT (submit technical datasheet/brochure)

6.1 ENERGY STORAGE SYSTEM PARAMETERS

Rated capacity	: 241 – 300 kWh
Maximum cycle efficiency	: 91.3%
Depth of charge and discharge	: 0~100%
Dimensions (W x D x H)	: 1150mm×1800mm×2100mm
Weight	: <2.8 T
Operating temperature range	: -30 °C ~ 55 °C (>50°C Derating)
Storage temperature range	: -35 °C ~ 60 °C
Operating humidity range	: 0 ~ 100%RH (non-condensing)
Maximum operating altitude	: 4,000 - 5000m
System temperature control mode	: Hybrid cooling
Balance mode	: Active balance
SOC calibration mode Automatic	: Automatic
Fire suppression mode	: Pack-level oxygen barrier, Directional gas exhaust, Top explosion vent, Aerosol
Auxiliary power supply	: 176~300 Vac, single phase, ≤5 kW
Power consumption standby	: ≤150 W
Communication port	: Ethernet / Optical fiber
Communication protocol	: Modbus TCP Protection degree IP55
EMC protection rat	: IP55
EMC protection rating	: Class B
Noise (rated operating condition)	: ≤65 dB(A)

Lightning protection	: Type II (AC port)
Protection mode	: Anti-islanding protection, residual current detection, insulation resistance detection, AC overcurrent protection, and AC cable connection protection
Environment	: RoHS6
Certification standards	: UL9540A; UN38.3; IEC 62477-1; IEC 62040-1; IEC 61000-6-1/2/3/4; IEC 62619; IEC 60529; VDE-AR-E 2510-2/50; IEC 62933-5-1/2; IEC 61727; EN 50549; GB/T 34120

6.2 BATTERY PARAMETERS (DC)

Cell material	: LFP
Rated battery capacity	: 314Ah
System battery configuration	: 240S1P
Number of battery packs	: 4
Operating voltage range	: 648~852 V
Rated DC current	: 140A

6.3 POWER CONVERSION SYSTEM (PCS) Parameters (AC)

Rated output power	: 108 - 158 kW
Rated AC current	: 155.9 – 160 A
AC voltage & frequency	: 380 / 400 / 415 V (3P4W), 50 / 60 Hz
Adjustable power factor range	: -1 +1
AC current harmonics THDi (rated output power@on-grid)	: ≤1.5 %
AC Voltage harmonics THDu (linear load @off-grid)	: ≤2.0 %
Warranty	: Two-year basic warranty
With complete accessories	: Wires, connectors etc.

7. SMART MONITOR AND CONTROLLER – 1 Lot (submit technical datasheet/brochure)

Description. The smart monitor and controller is a highly integrated commercial and integrated controller that supports grid connection, seamless on/off-grid switching, and off-grid control scenarios. It supports various microgrid features, such as detection of grid exception, synchronous control, and one-click automatic black start. In addition, it supports optical fiber and GE/FE ring networking, and provides functions such as device access and convergence, protocol conversion, data collection, data storage, centralized monitoring, centralized maintenance, and power control.

7.1 COMMUNICATIONS PORTS

WAN	: WAN x 1, 10/100/1000 Mbit/s
LAN	: LAN x 1, 10/100/1000 Mbit/s
GE	: GE x 4, 10 / 100 / 1000 Mbps*
MBUS	: Maximum AC voltage: 1000 V (±10%); maximum communication distance: 500 m
Optical fiber	: SFP x 2, 1000 Mbit/s, 1310 nm wavelength, 10 km transmission distance using single mode optical fibers
RS485	: COM x 3, maximum communication distance: 1000 m
2G/3G/4G	: Supported
ELV DI/DO	: DI x 4, DO x 2. DI ports can receive passive dry contact signals, and DO ports support a maximum of 12 V signal voltage.
Electrical DI (HV)/DO (HV)	: DI (HV) x 4, contact voltage range: 100V AC~277 V AC

DO (HV) x 8, contact voltage range : 100V AC~277 V AC, 1 fast DO port action time <1ms to support seamless on/off-grid switching

AI/DI : AI x 4 (three channels of current-type input + one channel of voltage-type input). The AI mode can be set to DI mode through software. Current-type: 0–20 mA or 4–20 mA; input precision: less than 10 mA Voltage-type: 0–10 V; input precision: less than 1 V

7.2 ELECTRICITY MEASUREMENT

Voltage measurement : 6 ports; measurement precision: 0.5% Measurement range: L-N: 57.7–277 V (L-L: 100–480 V) (three-phase three-wire or three-phase four-wire)

Current measurement : 3 ports; measurement range: 5 A; measurement precision: 0.5%

Frequency measurement : measurement range: 40Hz-70Hz; measurement precision: ±0.01Hz

7.3 SOFTWARE FUNCTIONS

Scenario : ESS and PV+ESS in grid-connected; seamless on/off-grid switching; off-grid operation

Maximum number of connected devices : Only PV: 80*inverters; Only Battery: 50*ESS cabinets, 10MWh; PV+Battery: 30*inverters+20*ESS cabinets

Southbound protocol : Modbus-RTU, Modbus-TCP, and GOOSE

Northbound protocol : Modbus-TCP, IEC 60870-5-104, and GOOSE

7.4 DISPLAY

LED : LED x 3 – RUN, ALM, 4G

USB : USB 2.0 x 1

App : WLAN connection, used for commissioning

7.5 ENVIRONMENT

Operating temperature : –40°C to +60°C (–40°F to +140°F)

Storage temperature : –40°C to +70°C (–40°F to +158°F)

Relative humidity (non-condensing) : 5%–95%

Maximum altitude : 5000 m (16,404 ft.)

7.6 ELECTRICAL SPECIFICATIONS

AC power supply : Adapter: 100–240 V, 50 Hz/60 Hz

DC power supply : 12/24 V

Power consumption : Typical: 12.5 W; maximum: 16.5 W

7.7 MECHANICAL SPECIFICATIONS

Dimensions (W x H x D) : 225 mm x 160 mm x 44 mm (excluding mounting ears and antennas)

Weight : 2 kg (4.4 lb.)

Installation mode : Wall-mounted, guide rail-mounted, or desk-mounted

8. SMART POWER SENSOR 80A or Higher – 1 LOT (submit technical datasheet/brochure)

Dimension (W×H×D)	: 72 x 100 x 80 mm
Mounting type	: DIN35 Rail
Power grid type	: 3P4W/3P3W
Input voltage (linevoltage)	: 90 ~ 500 Vac
Power consumption	: ≤ 1.5 W
Line voltage	: 90 ~ 1000 Vac (> 500 with external PT 1)
Phase voltage	: 52~577 Vac
Current	: 0 ~ 80 A(>80 with external CTs 2)
Voltage/ Current	: ±0.5 %
Power / Energy	: ±1 %
Frequency	: ±0.01 Hz
Interface	: RS485
Baud rate	: 4800/9600/19200/115200 (Default9600bps)
Communication protocol	: Modbus-RTU
Operating temperature range	: -25 °C~ 60 °C
Storage temperature range	: -40 °C~ 70 °C
Operating humidity	: 5 %RH ~ 95 %RH (non-condensing)
Accessories	: RS485Cable(10m/33ft.), 3 CT 250 A/50 mA (5 m)
Warranty	: One year on parts and service

9. SMART PV INVERTER CONTROLLER 50KW – 1 LOT **(submit technical datasheet/brochure)**

Max. Efficiency	: 98.5% @400V, 98.7% @480V
European Efficiency	: 98.2%
Max. Input Voltage	: 1,100 V
Max. Current per MPPT	: 30/33/33/30A
Max. Current per Input	: 23 A
Max. Short Circuit Current per	: MPPT 40/44/44/40A
Start Voltage	: 180 V
MPPT Operating Voltage Range	: 180 V ~ 1,000 V
Rated Input Voltage	: 600 V
Number of Inputs	: 8
Number of MPP Trackers	: 4
Rated AC Active Power	: 50,000 W
Max. AC Apparent Power	: 55,000 VA
Max. AC Active Power (cosφ=1)	: 55,000 W
Rated Output Voltage	: 380 Vac / 400 Vac / 480 Vac, 3W+(N) + PE
Rated AC Grid Frequency	: 50 Hz / 60 Hz
Rated Output Current	: 76.0 A @ 380Vac, 72.2 A @ 400Vac, 60.1 A @ 480Vac
Max. Output Current	: 84.0 A @ 380Vac, 79.8 A @ 400Vac, 66.5 A @ 480Vac
Adjustable Power Factor Range	: 0.8 LG 0.8 LD
Max. Total Harmonic Distortion	: <3% Input-side
Disconnection Device	: Yes
Anti-islanding Protection	: Yes
AC Overcurrent Protection	: Yes
DC Reverse-polarity Protection	: Yes
PV-array String Fault Monitoring	: Yes
DC Surge Arrester	: Type I + II
AC Surge Arrester	: Type II
DC Insulation Resistance Detection	: Yes
Residual Current Monitoring Unit	: Yes
Arc Fault Protection	: Yes
Ripple Receiver Control	: Yes
Integrated PID Recovery	: Yes
Display	: LED Indicators, Integrated WLAN + APP

RS485	: Yes
Smart Dongle	: WLAN/Ethernet via Smart Dongle-WLAN-FE (Optional) 4G / 3G / 2G via Smart Dongle-4G (Optional)
Monitoring BUS (MBUS)	: Yes (Isolation Transformer required) DC MBUS Compatible Optimizer : MERC-1100/1300W-P
Dimensions (W x H x D)	: 640 x 530 x 270 mm (25.2 x 20.9 x 10.6 inch) Weight (with mounting plate) : 50 kg
Operating Temperature Range	: -25°C ~ 60°C (-13°F ~ 140°F)
Cooling Method	: Smart Air Cooling
Max. Operating Altitude	: 4,000 m (13,123 ft.)
Relative Humidity	: 0% RH ~ 100% RH
DC Connector	: Amphenol HH4
AC Connector	: Waterproof Connector + OT/DT Terminal
Protection Degree	: IP 66
Topology	: Transformer less
Safety	: EN 62109-1/-2, IEC 62109-1/-2, IEC 62116, IEC 60068, IEC 61683
Grid Connection Standards	: IEC 61727, VDE-AR-N4105, VDE 0124-1-1, UTE C 15-712-, CEI 0-16, CEI 0-21, EN-50549, C10/11, MEA, PEA, DEWA, G99
Warranty	: One year on parts and service
With complete accessories	: Wires, connectors etc.

10. STEP DOWN TRANSFORMER – 1 LOT
(submit technical datasheet/brochure)

Compatible to the Smart PV Inverter
Complete accessories: wires, connectors etc.
Warranty: One year on parts and service

11. SOLAR PANEL 635 or Higher – 100 PCS.

(submit technical datasheet/brochure)

With mounting accessories
Wires and Cable
Screw, clips etc.

IX. SPACE REQUIREMENTS AND SPECIFICATIONS

NO.	SPACE/DESCRIPTION	TOTAL FLOOR AREA / sq.m. ±	FINISHES		
			CEILING	WALL	FLOOR
1.0	GROUND FLOOR				

	Main Entrance Stairs	145.50	Aluminum linear ceiling on standard metal furring channels, 4.5mm Thk. Fiber Cement Board on 1" x 2" Metal Furring Spaced at 600mm x 600mm – Acrylic Paint Finish, Flat	-Plain Cement Finish – Acrylic Finish, Semi-Gloss 2" ø Stainless Steel Handrail Stone Cladding on the plant box	600mm x 600mm Non-Skid Outdoor Porcelain Tiles with F-type Brass Nosing on Steps
	Porch 1	34.44	Aluminum linear ceiling on standard metal furring channels, 4.5mm Thk. Fiber Cement Board on 1" x 2" Metal Furring Spaced at 600mm x 600mm – Acrylic Paint Finish, Flat	-Plain Cement Finish – Acrylic Finish, Semi-Gloss 2" ø Stainless Steel Handrail on steps	600mm x 600mm Non-Skid Outdoor Floor Tiles
	Porch 2	19.74	Plain Cement Finish – Acrylic Finish, Flat	-Plain Cement Finish – Acrylic Finish, Semi-Gloss 2" ø Stainless Steel Handrail on steps	600mm x 600mm Non-Skid Outdoor Floor Tiles
	Basketball Court	576	-	-	Solid Hardwood T&G finish indoor Basketball
					court Flooring (Maple) with complete Lanes and 4m Diameter PNU Logo at center

	Common Area	252.43	Plain Cement Finish – Acrylic Finish, Flat	-Plain Cement Finish – Acrylic Finish, Semi-Gloss WPC Outdoor Wall Cladding	Heavy-duty self-Leveling Epoxy Finish
	Stairs	31.50	Plain Cement Finish – Acrylic Finish, Flat	-Plain Cement Finish – Acrylic Finish, Semi-Gloss 2" ø Stainless Steel Handrail Tinted Tempered Glass Curtain Wall	Heavy-duty self-Leveling Epoxy Finish with F-type Brass Nosing on Steps
	Fire Exit Stairs	46.29	Plain Cement Finish – Acrylic Finish, Flat	-Plain Cement Finish – Acrylic Finish, Semi-Gloss 2" ø Stainless Steel Handrail Tinted Tempered Glass Curtain Wall	Heavy-duty self-Leveling Epoxy Finish with F-type Brass Nosing on Steps
	Pump Room	19.61	Plain Cement Finish – Acrylic Finish, Flat	Plain Cement Finish – Acrylic Finish, Semi-Gloss	Heavy-duty self-Leveling Epoxy Finish
	Electrical Room	9.53	Plain Cement Finish – Acrylic Finish, Flat	Plain Cement Finish – Acrylic	Heavy-duty self-Leveling Epoxy Finish
				Finish, Semi-Gloss	
	Lights and Sounds Control Rooms	7.01	4.5mm Thk. Fiber Cement Board on 1" x 2" Metal Furring Spaced at 600mm x 600mm – Acrylic Paint Finish, Flat	Plain Cement Finish – Acrylic Finish, Semi-Gloss	Heavy-duty self-Leveling Epoxy Finish

	IT Control Rooms	6.08	4.5mm Thk. Fiber Cement Board on 1" x 2" Metal Furring Spaced at 600mm x 600mm – Acrylic Paint Finish, Flat	Plain Cement Finish – Acrylic Finish, Semi-Gloss	Heavy-duty self-Leveling Epoxy Finish
	Bleacher Area	81.00	Plain Cement Finish – Acrylic Finish, Flat	Plain Cement Finish – Acrylic Finish, Semi-Gloss	Heavy-duty self-Leveling Epoxy Finish with F-type Brass Nosing on Steps HDPE seats on steel supports
	Pedestrian Ramp	27.84	Aluminum linear ceiling on standard metal furring channels, 4.5mm Thk. Fiber Cement Board on 1" x 2" Metal Furring Spaced at 600mm x 600mm – Acrylic Paint Finish, Flat	Plain Cement Finish – Acrylic Finish, Semi-Gloss 2" ø Stainless Steel Handrail	Plain Cement Finish with 300mm x 300mm Tactile Tiles
	Access Ramp	27.84	Aluminum linear ceiling on standard metal furring channels,	Plain Cement Finish – Acrylic Finish, Semi-Gloss	Plain Cement Finish with 300mm x
			4.5mm Thk. Fiber Cement Board on 1" x 2" Metal Furring Spaced at 600mm x 600mm – Acrylic Paint Finish, Flat	2" ø Stainless Steel Handrail	300mm Tactile Tiles

	PWD Ramp	17.82	Plain Cement Finish – Acrylic Finish, Flat	Plain Cement Finish – Acrylic Finish, Semi-Gloss 2" ø Stainless Steel Handrail	Plain Cement Finish with 300mm x 300mm Tactile Tiles
	Female Dressing Room	20.17	4.5mm Thk. Fiber Cement Board on 1" x 2" Metal Furring Spaced at 600mm x 600mm – Acrylic Paint Finish, Flat	Plain Cement Finish – Acrylic Finish, Semi-Gloss	Heavy-duty self-Leveling Epoxy Finish
	Male Dressing Room	21.31	4.5mm Thk. Fiber Cement Board on 1" x 2" Metal Furring Spaced at 600mm x 600mm – Acrylic Paint Finish, Flat	Plain Cement Finish – Acrylic Finish, Semi-Gloss	Heavy-duty self-Leveling Epoxy Finish
	Stage	66.72	4.5mm Thk. Fiber Cement Board on 1" x 2" Metal Furring Spaced at 600mm x 600mm – Acrylic Paint Finish, Flat	Plain Cement Finish – Acrylic Finish, Semi-Gloss	Solid Hardwood T&G finish indoor Flooring (Maple) with Brass Nosing on Steps
	Back Stage	11.75	4.5mm Thk. Fiber Cement Board on 1" x 2" Metal	Plain Cement Finish – Acrylic	Heavy-duty self-Leveling Epoxy Finish
			Furring Spaced at 600mm x 600mm – Acrylic Paint Finish, Flat	Finish, Semi-Gloss	
	Female Toilet	17.27	4.5mm Thk. Fiber Cement Board on 1" x 2" Metal Furring Spaced at 600mm x 600mm – Acrylic Paint Finish, Flat	300mm x 600mm 3 meters Height Porcelain Wall Tiles	600mm x 600mm Non-Skid Porcelain Floor Tiles

	Male Toilet	19.33	4.5mm Thk. Fiber Cement Board on 1" x 2" Metal Furring Spaced at 600mm x 600mm – Acrylic Paint Finish, Flat	300mm x 600mm 3 meters Height Porcelain Wall Tiles	600mm x 600mm Non-Skid Porcelain Floor Tiles
	Gender Neutral/PWD Toilet	3.22	4.5mm Thk. Fiber Cement Board on 1" x 2" Metal Furring Spaced at 600mm x 600mm – Acrylic Paint Finish, Flat	300mm x 600mm 3 meters Height Porcelain Wall Tiles	600mm x 600mm Non-Skid Porcelain Floor Tiles
2.0	SECONDFLOOR				
	Common Area	291.56	Plain Cement Finish – Acrylic Finish, Flat	-Plain Cement Finish – Acrylic Finish, Semi-Gloss 1.5m HT. Stainless steel handrail and support	Heavy-duty self-Leveling Epoxy Finish
	Stairs	31.50	Plain Cement Finish – Acrylic Finish, Flat	-Plain Cement Finish – Acrylic Finish, Semi-Gloss	Heavy-duty self-Leveling Epoxy Finish with F-type
				2" ø Stainless Steel Handrail Tinted Tempered Glass Curtain Wall	Brass Nosing on Steps
	Fire Exit Stairs	40.40	Plain Cement Finish – Acrylic Finish, Flat	-Plain Cement Finish – Acrylic Finish, Semi-Gloss 2" ø Stainless Steel Handrail Tinted Tempered Glass Curtain Wall	Heavy-duty self-Leveling Epoxy Finish with F-type Brass Nosing on Steps

	Equipment Storage Room	19.01	Plain Cement Finish – Acrylic Finish, Flat	Plain Cement Finish – Acrylic Finish, Semi-Gloss	Heavy-duty self-Leveling Epoxy Finish
	Electrical Room	9.53	Plain Cement Finish – Acrylic Finish, Flat	Plain Cement Finish – Acrylic Finish, Semi-Gloss	Heavy-duty self-Leveling Epoxy Finish
	Male Comfort Room	26.74	4.5mm Thk. Fiber Cement Board on 1" x 2" Metal Furring Spaced at 600mm x 600mm – Acrylic Paint Finish, Flat	300mm x 600mm 3 meters Height Porcelain Wall Tiles	600mm x 600mm Non-Skid Porcelain Floor Tiles
	Female Comfort Room	26.36	4.5mm Thk. Fiber Cement Board on 1" x 2" Metal Furring Spaced at 600mm x 600mm – Acrylic Paint Finish, Flat	300mm x 600mm 3 meters Height Porcelain Wall Tiles	600mm x 600mm Non-Skid Porcelain Floor Tiles
	Gender Neutral/PWD Toilet	3.43	4.5mm Thk. Fiber Cement Board on	300mm x 600mm 3 meters Height	600mm x 600mm Non-
			1" x 2" Metal Furring Spaced at 600mm x 600mm – Acrylic Paint Finish, Flat	Porcelain Wall Tiles	Skid Porcelain Floor Tiles
	Male Locker Room	12.58	4.5mm Thk. Fiber Cement Board on 1" x 2" Metal Furring Spaced at 600mm x 600mm – Acrylic Paint Finish, Flat	Plain Cement Finish – Acrylic Finish, Semi-Gloss	600mm x 600mm Non-Skid Porcelain Floor Tiles
	Female Locker Room	12.95	4.5mm Thk. Fiber Cement Board on 1" x 2" Metal Furring Spaced at 600mm x 600mm – Acrylic Paint Finish, Flat	Plain Cement Finish – Acrylic Finish, Semi-Gloss	600mm x 600mm Non-Skid Porcelain Floor Tiles

	Choir	39.55	600mm x 600mm x 4.5mm Thk. Fiber Cement Board on Tee Runner – Acrylic Paint Finish, Flat	Plain Cement Finish – Acrylic Finish, Semi- Gloss	Heavy-duty self-Leveling Epoxy Finish
	Rondalla	39.55	600mm x 600mm x 4.5mm Thk. Fiber Cement Board on Tee Runner – Acrylic Paint Finish, Flat	Plain Cement Finish – Acrylic Finish, Semi- Gloss	Heavy-duty self-Leveling Epoxy Finish
	Art Room	39.55	600mm x 600mm x 4.5mm Thk. Fiber Cement Board on Tee Runner – Acrylic Paint Finish, Flat	Plain Cement Finish – Acrylic Finish, Semi- Gloss	Heavy-duty self-Leveling Epoxy Finish
	Student Org. Room	39.55	600mm x 600mm x 4.5mm Thk. Fiber Cement	Plain Cement Finish – Acrylic	
			Board on Tee Runner – Acrylic Paint Finish, Flat	Finish, Semi- Gloss	Heavy-duty self-Leveling Epoxy Finish
	Storage Room	56.09	4.5mm Thk. Fiber Cement Board on 1" x 2" Metal Furring Spaced at 600mm x 600mm – Acrylic Paint Finish, Flat	Plain Cement Finish – Acrylic Finish, Semi- Gloss	Heavy-duty self-Leveling Epoxy Finish
3.0	THIRD FLOOR				
	Common Area	199.29	Plain Cement Finish – Acrylic Finish, Flat 4.5mm Thk. Fiber Cement Board on 1" x 2" Metal Furring Spaced at 600mm x 600mm – Acrylic Paint Finish, Flat	Plain Cement Finish – Acrylic Finish, Semi- Gloss	Heavy-duty self-Leveling Epoxy Finish

	Indoor Running Track	357.62	-	1.5m HT. Stainless steel handrail and support	Heavy Duty Vinyl Indoor Sports Flooring
	Stairs	31.50	Plain Cement Finish – Acrylic Finish, Flat	-Plain Cement Finish – Acrylic Finish, Semi- Gloss 2" ø Stainless Steel Handrail Tinted tempered Glass Curtain Wall	Heavy-duty self- Leveling Epoxy Finish with F- type Brass Nosing on Steps
	Fire Exit Stairs	40.40	Plain Cement Finish – Acrylic Finish, Flat	-Plain Cement Finish – Acrylic Finish, Semi- Gloss	Heavy-duty self-Leveling Epoxy Finish with F-type
				2" ø Stainless Steel Handrail Tinted tempered Glass Curtain Wall	Brass Nosing on Steps
	Fitness Area	165.21	600mm x 600mm x 4.5mm Thk. Fiber Cement Board on Tee Runner – Acrylic Paint Finish, Flat	Plain Cement Finish – Acrylic Finish, Semi- Gloss	Heavy-duty self-Leveling Epoxy Finish
	Activity Area	87.90	600mm x 600mm x 4.5mm Thk. Fiber Cement Board on Tee Runner – Acrylic Paint Finish, Flat	Plain Cement Finish – Acrylic Finish, Semi- Gloss	Heavy-duty self-Leveling Epoxy Finish
	Equipment Storage Room	19.01	4.5mm Thk. Fiber Cement Board on 1" x 2" Metal Furring Spaced at 600mm x 600mm – Acrylic Paint Finish, Flat	Plain Cement Finish – Acrylic Finish, Semi- Gloss	Heavy-duty self-Leveling Epoxy Finish

	Electrical Room	9.53	4.5mm Thk. Fiber Cement Board on 1" x 2" Metal Furring Spaced at 600mm x 600mm – Acrylic Paint Finish, Flat	Plain Cement Finish – Acrylic Finish, Semi-Gloss	Heavy-duty self-Leveling Epoxy Finish
	Male Comfort Room	12.04	4.5mm Thk. Fiber Cement Board on 1" x 2" Metal Furring Spaced at 600mm x 600mm – Acrylic Paint Finish, Flat	300mm x 600mm 3 meters Height Porcelain Wall Tiles	600mm x 600mm Non-Skid Porcelain Floor Tiles
	Female Comfort Room	14.98	4.5mm Thk. Fiber Cement Board on 1" x 2" Metal Furring Spaced at 600mm x 600mm – Acrylic Paint Finish, Flat	300mm x 600mm 3 meters Height Porcelain Wall Tiles	600mm x 600mm Non-Skid Porcelain Floor Tiles
	Gender Neutral/PWD Toilet	3.22	4.5mm Thk. Fiber Cement Board on 1" x 2" Metal Furring Spaced at 600mm x 600mm – Acrylic Paint Finish, Flat	300mm x 600mm 3 meters Height Porcelain Wall Tiles	600mm x 600mm Non-Skid Porcelain Floor Tiles
	Janitorial Closet	1.80	4.5mm Thk. Fiber Cement Board on 1" x 2" Metal Furring Spaced at 600mm x 600mm – Acrylic Paint Finish, Flat	300mm x 600mm 0.6 meters Height Porcelain Wall Tiles Plain Cement Finish – Acrylic Finish, Semi-Gloss	600mm x 600mm Non-Skid Porcelain Floor Tiles
	Coach/Trainer Lounge	17.29	600mm x 600mm x 4.5mm Thk. Fiber Cement Board on Tee Runner – Acrylic Paint Finish, Flat	Plain Cement Finish – Acrylic Finish, Semi-Gloss	Heavy-duty self-Leveling Epoxy Finish

	Center for Sports Culture and Arts Development	28.01	600mm x 600mm x 4.5mm Thk. Fiber Cement Board on Tee Runner – Acrylic Paint Finish, Flat	Plain Cement Finish – Acrylic Finish, Semi-Gloss	600mm x 600mm Porcelain Floor Tiles
	Center for Sports Culture and Arts Development Comfort Room	1.61	4.5mm Thk. Fiber Cement Board on 1" x 2" Metal Furring Spaced at 600mm x 600mm	300mm x 600mm 3 meters Height Porcelain Wall Tiles	600mm x 600mm Non-Skid Porcelain Floor Tiles
			– Acrylic Paint Finish, Flat		
4.0	ROOF DECK				
	Roof Deck	508.53	-	Plain Cement Finish – Acrylic Finish, Semi-Gloss with full height Membrane Waterproofing	Plain Cement with Membrane Waterproofing
	Pump Room	18.53	Plain Cement Finish – Acrylic Finish, Flat	Plain Cement Finish – Acrylic Finish, Semi-Gloss	Plain Cement with Membrane Waterproofing with concrete topping on Heavy-duty self-Leveling Epoxy Finish
	Utility Room	18.53	Plain Cement Finish – Acrylic Finish, Flat	Plain Cement Finish – Acrylic Finish, Semi-Gloss	Plain Cement with Membrane Waterproofing with concrete topping on Heavy-duty self-Leveling Epoxy Finish

	Fire Exit Stairs	42.27	Plain Cement Finish – Acrylic Finish, Flat	-Plain Cement Finish – Acrylic Finish, Semi-Gloss 2" ø Stainless Steel Handrail Tinted tempered Glass Curtain Wall	Heavy-duty self-Leveling Epoxy Finish with F-type Brass Nosing on Steps
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DESIGN CONSIDERATIONS AND OUTPUT

The building design and specifications shall conform to, but not be limited to, the following standards set by:

- National Building Code of the Philippines (PD1096)
- National Structural Code of the Philippines
- Fire Code of the Philippines (RA 9514)
- Accessibility Law (BP 344)
- Electrical Code of the Philippines
- Mechanical Code of the Philippines
- Plumbing Code of the Philippines (RA 1378)
- Applicable Local regulations and Ordinances

SUBMITTALS (at suitable scale on 20" x 30" white print paper):

Architectural Plan

1. Site Development Plan showing road network, driveways, parking space plan and perimeter lighting.
2. Vicinity Map
3. Perspective
4. Floor Plans
5. Elevation Plans
 - a. Front Elevation
 - b. Rear Elevation
 - c. Right Side Elevation
 - d. Left Side Elevation
6. Section Plans
 - a. Longitudinal Section
 - b. Cross Section
 - c. Bay section
7. Schedule of Doors & Windows
8. Toilet Details
 - a. Blow-up Plans
 - b. Interior Elevations
9. Main Stair, Fire Exit Detail
 - a. Blow-up Plans per floor
 - b. Sections showing details of railing and steps materials
10. Reflected Ceiling Plans
11. Schedule of Floor, Wall, and Ceiling Finishes
12. Blow-up Detail of Rooms
13. Roof Plan

14. Landscape plans

Structural Plans

1. Structural Design Criteria and Design Notes
2. Foundation Plan
3. Floor Framing Plans
4. Schedule of slab, beams, and girders
5. Schedule of columns
6. Schedule of footings
7. Roof framing plan
8. Truss details

Plumbing Plans

1. General Notes
2. Legend & Symbols
3. Water System Layout
4. Sewer Line Layout
5. Detailed Blow-up Plans of Toilets
6. Storm and Surface Drain Layout
7. Isometric Diagram
8. Detail of Septic Tank, water tank and Catch Basin/Area Drain
9. Cistern Tank Plans

Electrical Plans

1. Power Riser Diagram
2. Power Layout System (including Solar Power Supply)
3. Lighting Layout System
4. Grounding System
5. Load Schedules
6. Entrance post details
7. Electrical Calculation

Mechanical Plans

1. General Notes
2. Legends and Symbols
3. Air conditioning system layout and details
4. Fire Protection System plans and details
5. Elevator Detail
6. Other Mechanical equipment plans and details as applicable

Auxiliary Plans

1. CCTV Layout
2. BGM Layout
3. Fire Detection Layout
4. Data Cabling Layout

OTHER SUBMITTALS (A4 white print paper):

1. Structural Design Analysis
2. Technical Specifications

X. PROJECT MINIMUM REQUIREMENTS

Item No.	
I	GENERAL REQUIREMENTS
1.00	Mobilization/Demobilization
2.00	Temporary Facilities
3.00	Construction Safety and Security, including Temporary Fences
4.00	Project Billboard
5.00	Equipment (Including Heavy Equipment and scaffolding)
6.00	Detailed Architectural and Engineering Design
7.00	Permits and Licenses
II	STRUCTURAL WORKS
1.00	Site / Earthworks
1.01	Site Survey (Layout and Stakeout)
1.02	Demolition of existing structures
1.03	Excavation, Backfilling, and Compaction
1.04	Protection of Adjacent Structures
1.05	Gravel Bedding
1.06	Dewatering Works
1.07	Soil Treatment
1.08	Vapor Barrier
1.09	Disposal of Debris and Site Cleanup
2.00	Concreting Works
2.01	Footings, Columns, Beams/Girders, incl. Tie Beams, Suspended Slabs, 5000 psi @ 28 Days
2.02	Stairs, Pedestrian Ramps, Wall Footing, Parapet Stiffener, Columns and Beams, 3000 psi @ 28 Days
3.00	Rebar Works
3.01	Rebar Works, Grade 60
3.02	Rebar Works, Grade 40
4.00	Formworks
4.01	Formworks and Falseworks
5.00	Metal Works
5.01	Steel Deck (1.2mm Thk, Grade 80)
5.02	Structural Steel (Wide flanges, Angle Bars, etc)
5.03	HSS200x100x10mm
5.04	Various Steel Plates
5.05	Various Bolts
III	ARCHITECTURAL WORKS
1.00	Masonry Works
1.01	CHB Laying, 150mm and 100mm Thk.
1.02	Plastering Works, Exterior & Interior
1.03	Floor Levelling/Cement Topping (25mm Thk.)
2.00	Doors

2.01	10mm Thk. Frameless Tempered Glass Door w/ Stainless H-Handle, Lockset, and complete accessories
2.02	Powder-coated metal doors on metal jambs with tempered vision glass panels on a 50mm x 100mm metal jamb and heavy-duty hardware (including lever-type door locksets, hinges, door closers, panic devices for fire exit doors, and other door accessories)
2.03	Double door, powder-coated metal doors on metal jambs with tempered vision glass panels on a 50mm x 100mm metal jamb with lever-type door knob, heavy-duty hinges, and door closer, complete with lockset and accessories
2.04	Marine plywood flush hollow core door with louver, complete with lever-type door locksets, heavy-duty hinges, and painted finish
2.05	Powder-coated metal doors on metal jambs with metal louvers on a 50mm x 100mm metal jamb with stainless kick plate, lever-type door knob, heavy-duty hinges, and door closer, complete with lockset and accessories
2.06	Powder-coated metal doors on metal jambs with tempered vision glass panels on a 50mm x 100mm metal jamb with panic device, heavy-duty hinges, and door closer, complete with lockset and accessories
2.07	Marine plywood flush hollow core door with louver, complete with stainless kick plate, lever-type door locksets, heavy-duty hinges, and painted finish
2.08	Powder-coated metal doors on metal jambs with metal louvers on a 50mm x 100mm metal jamb with lever-type door knob, deadlock, heavy-duty hinges, and door closer, complete with lockset and accessories
3.00	Windows
3.01	8mm Tempered Tinted Glass Awning & Fixed Windows on Aluminum Powder Coated Aluminum Frames w/ 16mm square bar grills, painted
3.02	6mm Tempered Tinted Glass Awning Glass Windows on Aluminum Powder Coated Frame with frosted sticker on portion of Comfort Room
3.03	8mm Tempered Tinted Glass Awning Windows on Aluminum Powder Coated Aluminum Frames w/ 16mm square bar grills, painted
3.04	6mm Tempered Clear Glass Fixed Glass Windows on Aluminum Powder Coated Frame
3.05	Curtain wall - 8mm Tempered Tinted Glass Awning & Fixed Windows on Aluminum Powder Coated Aluminum Frames
3.06	Curtain wall - 8mm Tempered Tinted Glass Fixed Windows on Aluminum Powder Coated Aluminum Frames
4.00	Floor Finishes
4.01	Solid hardwood T&G Finish Indoor Basketball Court Flooring (Maple), Complete with Lanes and 4m Diameter Center PNU Logo
4.02	Heavy-duty Self-leveling Epoxy
4.03	600mm x 600mm Non-skid Porcelain Tiles on Heavy-duty Tile Adhesive
4.04	Heavy-duty Indoor Sports Running Track Flooring Complete with lanes
4.05	600mm x 600mm Non-skid Outdoor Porcelain Tiles on Heavy-duty Tile Adhesive
4.06	Plain cement finish w/ 300mm x 300mm tactile tiles
4.07	Plain Cement Finish (50mm Thk with 150 x 150 x 6.0mm welded wire mesh for waterproofing membrane protection)
4.08	600mm x 600mm Porcelain Tiles on Heavy-duty Tile Adhesive
5.00	Wall Finishes
5.01	300x 600mm Porcelain Wall Tiles
5.02	WPC Outdoor Wall Cladding
5.03	Stone Cladding on entrance Plant boxes

6.00	Ceiling Finishes
6.01	4.5mm Thk Fiber Cement Ceiling Boards on Light Gauge Steel Framing
6.02	Aluminum linear ceiling on standard metal furring channels
6.03	600mm x 600mm x 4.5mm Thk fiber cement board on tee runner, painted
7.00	Painting Works
7.01	Exterior Walls
7.02	Interior Walls
7.03	Fiber Cement painting ceiling
7.04	Concrete Ceiling and exposed beams
7.05	Steel finishes
8.00	Waterproofing Works
8.01	Toilets: Flexible Cementitious Waterproofing
8.02	Deck: Waterproofing Membrane
9.00	Roofing Works
9.01	Supply and Installation of Rib-Type Long Span Roofing, 0.60mm Thk, pre-painted, complete with insulation, hardware, and accessories
9.02	Supply and Installation of Continuous Ridge Ventilator Roofing, same as Main Roofing, complete with Rain Shields and Drainage, Bird Screens, and other necessary accessories
9.03	Supply and Installation of Roofing Bent Accessories, 0.60mm Thk, pre-painted, complete with hardware and accessories
9.04	Supply and Installation of Fascia, complete with hardware and accessories
10.00	Miscellaneous Architectural Works
10.01	Lightweight Precast Moulding
10.02	PVC Grooves
10.03	Stainless PNU logo and "PNU Gymnasium" Signage with backlight
10.04	Bleacher seats
10.05	Basketball Hoop (1 pair)
10.06	Electronic Basketball Scoreboard
10.07	Granite slab Countertop with backsplash
10.08	1.50m HT SS304 handrail complete with supports
10.09	Facial Mirror (900mm H) with LED Strip backlight
10.10	SUS304 PWD Comfort room Handrail
10.11	Soap Dispenser
10.12	SUS304 Tissue Holder
10.13	2.0mm Thk etched/engraved Stainless steel Room Signages
10.14	SUS304 Stair and Ramp Railings and Handrails
10.15	F-type Brass Stair Nosing
10.16	12mm thick Phenolic Compact laminate under-counter cabinet on every CR counter, pantry, and control rooms
11.00	Toilet and Urinal Partitions
11.01	12mm Thk Phenolic Compact Board Toilet with Stainless Steel Pedestal
11.02	12mm Thk Phenolic Compact Board Urinal Partition and 200mm D shelves on cubicles
12.00	Toilet / Plumbing Fixtures
12.01	Dual flush Water Closets w/ Bidet
12.02	Vessel type Lavatories

12.03	Wall-Hung Lavatories
12.04	Shower Valves, PP Single with SS Rain Shower Head
12.05	Lavatory Faucet
12.06	Slop Sink Hose bib
12.07	Urinals
13.00	Landscape Works
13.01	Softscape works, including a variety of plants, garden soils, and shrubs
13.02	Hardscape Works, including plant boxes, stones, boulders, pots, gravel bedding on the parking area, and bricks on the sidewalk
13.03	Landscape Utilities, including drainage line, area drains, wall lamps, Garden Lights, and Bollards
IV	ELECTRICAL WORKS
1.0	Service Entrance
1.01	Electrical Post (including necessary accessories to complete the system operational)
1.02	Cut-off Switch (Stainless)
1.03	Manholes
1.04	Electrical Pipes and Fittings
1.05	Grounding system (including necessary accessories to complete the system operational)
1.06	Wires & Cables (including necessary accessories to complete the system operational)
2.0	Lighting and Power System
2.01	Roughing -ins ((Including all necessary fittings, supports, painting works, fire retardant sealants, and other accessories, in place)
2.02	Wires & Cables (including connectors, tapes, etc.)
2.03	Lighting Fixtures & Wiring Devices (including necessary supports, boxes & dropped flexible
3.0	Main and Sub-main Distribution System
3.01	Roughing -ins (Including all necessary fittings, supports, painting works, fire retardant sealants, and other accessories, in place)
3.02	Wires and Cables (including necessary supports, boxes & dropped flexible)
4.0	Panel Boards & Enclosed Circuit Breaker
4.01	Panel Boards (According to plans and specifications, complete with accessories and others to make the equipment functional)
4.02	ECB's
5.0	SOLAR PANELS
5.01	Supply, delivery, and installation of Solar Inverter equipment (Smart PV Controller, Smart Power Sensor, and Smart Logger)
5.02	Supply, delivery, and installation of 100 units, 600-750 watts panel capacity Solar Panel Roof Panel
5.03	Supply, delivery, and installation of 240-300 kWh Battery Storage with automatic fire suppression
5.04	Installation, framing, rough-ins, wiring, testing, and commissioning
6.0	Testing and Commissioning
6.01	Complete Testing of Electrical System
V	MECHANICAL WORKS

1.00	Airconditioning and Ventilation
1.01	Supply, delivery, and installation of 20 units - 2.5 HP SPLIT TYPE WALL MOUNTED INVERTER Air Conditioning Unit (including necessary accessories to complete the system operational, Testing, and Commissioning).
1.02	Supply, delivery, and installation of 2 units - 1.5 HP SPLIT TYPE WALL MOUNTED INVERTER Air Conditioning Unit (including necessary accessories to complete the system operational, Testing, and Commissioning).
2.00	Reinstallation of Existing Industrial Ceiling Fan, including necessary accessories
3.00	Supply, delivery, and installation of a machine room less Passenger elevator (3 stops, at least 8-person capacity), including accessories and testing and commissioning (submit technical data sheet)
4.00	Supply, delivery, and installation of 1 unit - 18 ft 850 watts power Industrial Ceiling Fan, including necessary accessories
5.00	Supply, delivery, and installation of 12" Ceiling-mounted exhaust Fan with flexible Ducting and Ventilating Cap
6.00	Supply, delivery, and installation of 18" Industrial Wall Fans
V	PLUMBING AND SANITARY WORKS
1.0	Drain, Sewer, and Vent System
1.01	PVC Pipes and Fittings
1.02	Floor Drain, catch basins, area drains, and Cleanouts
1.03	Septic Tank (Including tapping to STP line)
	(HDPE pipes and fittings, 5HP submersible pump with motor controller and wiring)
2.00	Water Lines system
2.01	PPR Supply Pipes and Fittings, Valves, Connectors, Water Meter, and other accessories,
2.02	Cistern Tank (Water Supply & Fire Protection, including tapping to water main Supply line)
3.00	Pumps, Equipment, and Controllers
3.01	Transfer Pumps assembly
3.02	Constant Pressure Pumps assembly
4.00	Elevated Water Tank
VI	FIRE PROTECTION WORKS
1.00	Automatic Fire Sprinkler System (AFSS), including Pipes and Fittings, Valves and Accessories, Sprinkler Heads, fire department connection, Control Panels, Fire water Tank/Cistern, and Fire Pump Assembly
2.00	Stand Pipe and Hose System including Fire Hose Cabinets, Valves, and Portable Extinguishers
3.00	Fire Detection and Alarm System (FDAS), including Addressable Fire Alarm Control Panel, annunciator Panels, Smoke and Heat Detector, Manual call points, Notification Devices, and Monitor modules
4.00	Testing and commissioning, and FRC
VII	AUXILIARY AND IT WORKS

1.0	Installation of LAN, EDGE MULTI-GIG NETWORK POE SWITCH -2 units with accessories, NETWORK PoE SWITCH – 2 UNITS, wireless fidelity (WiFi) 6th Gen. - 30 units with accessories, cloud-based wifi controller - 1 lot, accessories, Satellite Dish Internet connectivity with 1 TB Bandwidth capacity (1 year subscription), rough ins, testing and commissioning, LICENSES: One year base license for Wireless Controller – 1 LOT, CLOUD-PLUS-BASE – One Year Base AMF Plus Master for 10 nodes,1-yearlicenseforAMFCLOUD. Requires AW+ 5.5.2-2.1 – 1 LOT, One year license for Autonomous Wireless Controller (AWC) plug in for 10 APs (Requires wireless controller) – 3 LOTS (1 LOT = 10 Aps), SNMP – One year license for SNMP plugin (requires wireless controller) – 1 LOT, Inclusive: Priority Technical Support/Professional Services/Advance Replacement Services/Software & firmware Updates and Installation and configuration of Local Area Network - 1 Lot (please see scope of works and technical specification).
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XI. DETAILED UNIT PRICE ANALYSIS (DUPA) FORM

DETAILED UNIT PRICE ANALYSIS (DUPA)					
NAME OF PROJECT:					
LOCATION:					
Item No. / Description					
Unit of Measurement					
Output per hour					
	Designation	No. of Person	No. of Hours	Hourly Rate	Amount
A.	Labor				
	Sub-Total for A				
	Name and Capacity	No. of Units	No. of Hours	Rental Rate	Amount
B.	Equipment				
	Sub-Total for B				
C.	Total (A + B)				
D.	Output per hour =				
E.	Direct Unit Cost (C / D)				
	Name and Specifications	Unit	Quantity	Unit Cost	Amount
F.	Materials				
	Sub-Total for F				
G.	Direct Unit Cost (E + F)				
H.	Overhead, Contingencies & Miscellaneous (OCM)				% of G
I.	Contractor Profit (CP)				% of G
J.	Value Added Tax (VAT)				12% of (G + H + I)
K.	Total Unit Cost				G + H + I + J
Prepared / Submitted by: Signature Over Printed Name Company					

XII. Items to be turned over to the PNU.

University Gym Bldg. – Salvageable Items

No.	Item	Remarks
1	Stage Spotlights	For turnover to the University To be dismantled by a third party - Microdata
2	High bay light and Troper lights	For turnover to the University To be dismantled by PNU Admin
3	All Electrical Panels, pull boxes, electric meter, wire, and cables attached to the building	For turnover to the University To be dismantled by PNU Admin
4	Public address and sound system - Speakers - Megaphone	For turnover to the University To be dismantled by PNU Admin
5	LED wall and wall mount support	For turnover to the University To be dismantled by a third party - Mega Speech Lab
6	CCTV cameras, pull box, wiring, and cables	For turnover to the University To be dismantled by PNU Admin
7	Data Cabling, tray, conduits, and a Wi-Fi router	For turnover to the University To be dismantled by PNU Admin
8	Data Cabinet	For turnover to the University To be dismantled by PNU Admin
9	Fire alarm system	For turnover to the University To be dismantled by PNU Admin
10	Industrial Ceiling Fan	For turnover to the University To be dismantled by a third party - Microdata
11	Wall-mounted Exhaust Fan	For turnover to the University To be dismantled by PNU Admin
12	Wire mesh, supports, and insulation	For turnover to the University To be dismantled by the Contractor
13	New roofing and accessories (Long Span Rib type)	For turnover to the University To be dismantled by the Contractor
14	Old Roofing and accessories	For turnover to the University To be dismantled by the Contractor
15	Steel Framing (hot purlins and C-purlins)	For turnover to the University To be dismantled by the Contractor
16	Stage Lights steel supports	For turnover to the University To be dismantled by Third party - Mega Speech Lab
17	Wall grills	For turnover to the University To be dismantled by the Contractor
18	Furnitures and furnishing	For turnover to the University To be dismantled by PNU Admin
19	Downspouts and accessories	For turnover to the University To be dismantled by the Contractor

20	Equipment and appliances (Air conditioning unit, Electric fan, ceiling fan)	For turnover to the University To be dismantled by PNU Admin
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Culture and Sports Building – Salvageable Items

No.	Item	Remarks
1	All Lighting Fixtures	For turnover to the University To be dismantled by PNU Admin
2	All Electrical Panels, pull boxes, electric meter, wire, and cables attached to the building	For turnover to the University To be dismantled by PNU Admin
3	Public address and sound system - Speakers - Megaphone	For turnover to the University To be dismantled by PNU Admin
4	CCTV cameras, pull box, wiring, and cables	For turnover to the University To be dismantled by PNU Admin
5	Data Cabling, tray, conduits, and a Wi-Fi router	For turnover to the University To be dismantled by PNU Admin
6	Data Cabinet	For turnover to the University To be dismantled by PNU Admin
7	Fire alarm system	For turnover to the University To be dismantled by PNU Admin
8	Gym equipment and sport materials	For turnover to the University To be dismantled by PNU Admin
9	Furnitures and furnishing	For turnover to the University To be dismantled by PNU Admin
10	Equipment and appliances (Air conditioning unit, Electric fan, ceiling fan)	For turnover to the University To be dismantled by PNU Admin

XIII. PRELIMINARY INVESTIGATIONS

INITIAL SITE OBSERVATION

Topography and Soil Condition (Visual Observation)

Based on initial visual inspection:

- The existing gymnasium is generally suitable for large-scale construction with minimal visible elevation changes.
- No major signs of soil instability such as deep cracks, erosion, or sinking areas were observed at surface level.
- A geotechnical investigation is required to determine soil bearing capacity and foundation suitability for a three-storey structure.

Accessibility

- Adequate entry points for light and heavy equipment (subject to improvement if needed)

Utilities and Services

Initial observation indicates the availability or proximity of essential utilities:

- Water supply is available nearby
- There is an existing electric supply which may subject for improvement
- There is an existing drainage system which may subject for development
- Telecommunication is yet to be observed

Further coordination with utility providers is recommended.

Surrounding Environment

The area appears generally suitable for a gymnasium due to:

- Existing location of gymnasium inside university premises
- Minimal immediate obstruction for structural expansion

However, consideration must be given to noise impact during events and construction activities.

Potential Site Constraints

The following preliminary constraints were observed:

- Possible need for land clearing and grading works
- Drainage improvement may be required to prevent flooding during heavy rainfall
- Limited space for temporary construction staging (if applicable)

Safety and Environmental Observations

No immediate environmental hazards were observed during the visit. However, potential concerns include:

- Dust and noise generation during construction
- Waste management during site preparation
- Safety risks due to proximity of existing facilities

Proper safety protocols and environmental mitigation measures must be implemented.

Initial Assessment

Based on the preliminary observation, the existing gymnasium appears generally suitable for the proposed renovation/construction of a three-storey gymnasium.

It is recommended that the following activities be conducted prior to project implementation:

- Geotechnical soil investigation
- Topographic survey
- Hydrological and drainage assessment
- Environmental impact screening
- Traffic and access planning
- Detailed architectural and structural design studies

The suitability of the site must be confirmed through comprehensive engineering investigations, construction management plan, and compliance with applicable building and environmental standards.

XIV. APPROVED BUDGET FOR THE CONTRACT

BUDGETARY ESTIMATE

LOCATION: PNU MAIN CAMPUS

	DESCRIPTION	UNIT	QTY	UNIT COST	TOTAL AMOUNT
I.	GENERAL REQUIREMENTS				
	Mobilization/Demobilization, Temporary Facilities, Construction Safety and Health, Temporary Fence, Project Billboard, Equipment, Scaffolding Works, Detailed Architectural and Engineering Design, Permits and licenses.	Lot	1.00		
II.	STRUCTURAL WORKS				
	Site survey, Demolition of existing structures, Excavation, Backfilling and Compaction, Protection of adjacent structures, Gravel bedding, Dewatering works, Soil treatment, Vapor barrier, Disposal of debris, Site clean-up, Concrete works, Rebar works, Formworks, Metal works including trusses, Steel plates, bolts, and roofing accessories.	Lot	1.00		
III.	ARCHITECTURAL WORKS				
	Masonry works, Doors and Windows, Floor finishes, Wall finishes, Ceiling finishes, Painting works, Waterproofing works, Roofing works, Toilet and urinal partitions, Plumbing fixtures, Miscellaneous works, and Landscape works, including softscape, hardscape, and landscape utilities (drainage lines, area drains, wall lamps, garden lights, and bollards).	Lot	1.00		
IV.	ELECTRICAL WORKS				
	Service Entrance, Lighting, and Power System, including rough-in, wires and cables, Main and sub-main distribution system, Panel boards & enclosed circuit breaker, Solar panel, and Testing and commissioning.	Lot	1.00		
V.	MECHANICAL WORKS				
	Air Conditioning and Ventilation System, Machine roomless passenger elevator, Ceiling-mounted exhaust fan, Industrial ceiling fan, Industrial wall fan, and reinstallation of existing industrial ceiling fan, including necessary accessories.	Lot	1.00		
VI.	PLUMBING WORKS				

	Drainage system including PVC pipes, floor drains, catch basin, and area drains; Sewer line system including PVC pipes, septic tank, and tapping to existing STP line with pump and controller, Vent system, Water supply system including PPR pipes, Cistern tank for Water supply, Elevated water tank, Pump including complete assembly of transfer pump & constant pressure pumps, equipment, and controllers.	Lot	1.00		
VII.	FIRE PROTECTION WORKS				
	Automatic Fire Sprinkler System (AFSS), including Pipes and Fittings, Valves and Accessories, Sprinkler Heads, fire department connection, Control Panels, Fire water Tank/Cistern, and Fire Pump Assembly; Stand Pipe and Hose System including Fire Hose Cabinets, Valves, and Portable Extinguishers; Fire Detection and Alarm System (FDAS), including Addressable Fire Alarm Control Panel, annunciator Panels, Smoke and Heat Detector, Manual call points, Notification Devices, and Monitor modules; and Testing and commissioning, and FRC.	Lot	1.00		
VIII.	AUXILIARY AND IT WORKS				
	Installation of LAN, EDGE MULTI-GIG NETWORK POE SWITCH -2 units with accessories, NETWORK PoE SWITCH – 2 UNITS, wireless fidelity (WiFi) 6th Gen. - 30 units with accessories, cloud-based wifi controller - 1 lot, accessories, Satellite Dish Internet connectivity with 1 TB Bandwidth capacity (1 year subscription), rough ins, testing and commissioning, LICENSES: One year base license for Wireless Controller – 1 LOT, CLOUD-PLUS-BASE – One Year Base AMF Plus Master for 10 nodes, 1-year license for AMF CLOUD. Requires AW+ 5.5.2-2.1 – 1 LOT, One year license for Autonomous Wireless Controller (AWC) plug in for 10 APs (Requires wireless controller) – 3 LOTS (1 LOT = 10 Aps), SNMP – One year license for SNMP plugin (requires wireless controller) – 1 LOT, Inclusive: Priority Technical Support/Professional Services/Advance Replacement Services/Software & firmware Updates and Installation and configuration of Local Area Network - 1 Lot (please see scope of works and technical specification)	Lot	1.00		
	TOTAL ESTIMATED PROJECT COST				

XV. PROPOSED DESIGN AND CONSTRUCTION SCHEDULE

PROJECT SCHEDULE

PROJECT TITLE: CONSTRUCTION OF A THREE-STOREY GYMNASIUM, MANILA CAMPUS
LOCATION: TAFT AVENUE COR. AYALA BLVD, ERMITA, MANILA

Item	2026						2027					
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Design Phase												
General Requirements												
Structural Works												
Architectural Works												
Electrical Works												
Plumbing Works												
Mechanical Works												
Auxiliary Works												

Total of 365 Days

XVI. CONSTRUCTION SAFETY AND HEALTH PROGRAM

Construction Safety and Health Program

I. CONTRACTOR'S SAFETY RESPONSIBILITIES

1. Eliminate potential hazards by providing appropriate safeguards, personal protective equipment and safe work tasks.
2. Provide necessary personal protective equipment and enforce its use and care.
3. Provide effective training, which is required by the "standards", as a minimum for the employees.
4. Become familiar and comply with applicable Philippine Occupational Safety and Health (OSH) Standards and make copies of medical records as well as all safety and health programs available for employees to review.
5. Review, consider for approval, and execute appropriate action on safety policies developed by safety committees or safety director.
6. Ensure a high level of productivity and safety performance and hold project management staff accountable.
7. Assign an individual(s) [competent person] the authority for the implementation of the safety program at each worksite.

II. SAFETY DIRECTOR'S RESPONSIBILITIES

1. Monitor supervisory management and employee activity to ensure that the corporate programs are carried out in a timely manner.
2. Shall coordinate safety information between projects to assure that all projects will benefit from each other's efforts.
3. Coordinate all safety activities including jobsite inspections, and distribution of safety materials. Perform jobsite inspections periodically and follow up corrective actions.
4. Maintain all incident and accident records.
5. Analyze accident records and manifest inclination.
6. Promote safety training on all levels.
7. Periodically review safety rules and standards with employees to confirm that the company is meeting its intent and purpose.
8. Review assigned supervising how to handle emergency course of action at each jobsite location.
9. Confirm that all required signs are posted, in bulletin boards are maintained in clear and legible condition.
10. Provide a detailed report to upper management on the results of the safety program.

III. PROJECT IN CHARGE / FOREMAN'S RESPONSIBILITIES

1. Know safety rules and work practices that apply to the work and supervise. Take action to confirm that all employees in your charge understand the safety rules that apply to them. Always take immediate action to correct safety rule violations. Threatening or Scheme cannot be tolerated.
2. Responsible and Duty to make daily observations of employees to ensure that they perform their work safely and continue this observation regularly, once safe working habits are established.
3. Take action to correct and control hazardous conditions within your work areas. If beyond your control, remove the employee until the condition is safe. Eradicate unsafe conditions and prevent an accident.
4. Investigate and analyze every accident, however moderate that occurs to any of your co-workers. Control the causes of minor incidents to help avoid future accidents.
5. Encourage workers to report the unsafe conditions or procedures. Listen to your workers and don't take their safety complaints lightly. No job should proceed when a question of safety remains unanswered. Seek advice from your project manager when necessary.
6. Setting a good example to your co-worker. Illustrate a safety in your own work habits and personal conduct. Always wear personal protective equipment in areas where Personal Protective Equipment is required.
7. Train your employees on the proper safety procedures, including the use of additional safeguards such as Personal Protective Equipment.
8. Complete and file a report on each and every incident and accident that occurs at your jobsite. If you have question or require reporting forms, contact your project manager.
9. Conduct weekly safety toolbox meetings.
10. Make safety suggestions.
11. Serve on safety committee.
12. Take an active part and participate in safety meetings.
13. Non-compliance of these rules as well as other Philippine laws or regulations may be legal violations subject to civil and/or criminal penalties.

IV. EMPLOYEE'S RESPONSIBILITIES

1. Whenever you are involved in an accident that results in personal injury or property damage, no matter how slight, the accident must be reported to your supervisor or other management personnel prior to the end of the work shift and have a First Aid immediately.
2. Report any condition or practice you think might cause injury and/or damage to equipment promptly to your supervisor.
3. Do not operate any equipment which you are not knowledgeable and incapable to operate and which is not in a safe condition. Report immediately the condition that you believe is unsafe to your foreman.
4. All prescribed Safety Equipment and Personal Protective Equipment must be used when required and must be maintained in good working condition. It is your personal responsibility to use equipment. The use Personal Protective Equipment is a non-negotiable item.
5. Obey all Safety Rules, Government Regulations, Signs, Markings, and Instructions. Be particularly familiar with the rules and regulations that apply directly to you in the work area.
6. Lifting heavy loads materials or lightweight machine, use the approved lifting technique. Ask for help to the authorized personnel
7. Do not engage in shenanigans; avoid distracting others; be chivalrous on your fellow workers.
8. Always use the right tools and equipment for the job. If you are not familiar with the safe way to use a particular tool and equipment, ask your supervisor. When using your own tools on the job site, make sure all guards, ground pins, etc., are in place.
9. Good housekeeping must always be practiced. Return all Tools, Equipment, and Material on their proper places. Keep floors clean and passageway clear.
10. The use of drugs and/or intoxicating beverages on the jobsite is prohibited. Being under the influence of alcohol or drugs when on the jobsite is indefensible. Immediate discharge for being under the influence and/or using drugs or alcohol.
11. Unsecured clothing and jewelry cannot be worn when operating a machinery and equipment.
12. Proper safety shoes shall be worn at all jobsites. Open toed shoes and sneakers will not be permitted to be worn at any jobsite. If you are observed wearing open toed shoes or sneakers, you will not be permitted to work until you return with proper footwear.
13. Do not handle chemicals unless you have been trained in the safe handling the procedure.

14. Hardhats always wear all the time.
15. Eye protection and Earmuffs shall be worn during hazard equipment use.
16. Compliance with safety and health rules and regulations is a condition of employment.

V. BASIC SAFETY RULES

1. Compliance with applicable Philippine State City, Client and company safety rules and regulations is a condition of employment.
2. All injuries, regardless of how minor or major injury, must be reported to your supervisor or Safety Officer immediately.
3. Hard hats will be worn by all employees at the project site. Alterations or modifications of the hard hat or liner are prohibited. Crane operators, when in an enclosed cab, have the option of not wearing a hard hat due to the possible obstruction of view.
4. Safety glasses will be worn as the minimum-required eye protection at all times. Additional eye and face protection such as mono-goggles and face shields are required for such operations as grinding, jack hammering, utilizing compressed air or handling chemicals, acids and caustics. Burning goggles for cutting, burning or brazing and welding hoods for welding, etc., are required.
5. Personal Fall Protection Equipment Requirements
 - Full body harnesses and lanyard safety harness shall be worn and secured any time there is a fall hazard of more than six (6) feet.
 - Lifelines shall be erected to provide fall protection where work is required in areas where permanent protection is not in place. Horizontal lifelines shall be a minimum of 2-inch diameter wire rope. Vertical lifelines shall be 3/4-inch manila rope or equivalent and shall be used in conjunction with an approved rope grab.
 - Structural steel erectors are required to "Buckle up" with full body harness and lanyard.
 - Employees using lanyards to access the work or position themselves on a wall or column, etc., must use an additional safety lanyard for fall protection.
 - Manlifts must be used properly. As soon as an employee enters an articulating boom lift and before the lift is started, the employee must put on the harness and attach the lanyard to the lift. Employees are not required to wear harnesses on scissor lifts.
6. Clothing must provide adequate protection to the body. Long sleeves must have at least a tee sleeve. Long sleeves and long pants will be worn at all times. No shorts are to be worn on project site. All employees, except welders and burners, must tuck shirt tails inside trousers. Burners and welders will not be permitted to wear polyester or nylon clothing. Sturdy work boots with rigid, slip resistant soles are required. No clogs, tennis shoes or loafers are permitted. Steel-toed are the only alternative to the leather work boot.
7. All personnel will be required to attend safety meetings as stipulated by project requirements in order to meet Philippine Occupational Safety and Health (OSH) Standards.
8. Firearms, alcoholic beverages or illegal drugs are not allowed on company property or in company vehicles at any time. When drugs are prescribed by a physician, the Project-In-Charge / Foreman must be informed. The use or possession of illegal drugs or alcoholic beverages on the jobsite will result in immediate termination.
9. Housekeeping shall be an integral part of every job. Project-In-Charge, foremen, lead man and employees are responsible for keeping their work areas clean and hazard-free. Clean up is required when a job is finished at the end of the day.
10. Burning and cutting equipment shall be checked daily before being used. Flash back arresters shall be installed at the regulators on both oxygen and LP bottles. All gas shall be shut-off and hoses disconnected from bottles and manifolds at the end of the work day. Caps shall be replaced on bottles when gauges are removed. When gauges are removed and caps replaced the oxygen and LP bottles shall be separated into storage areas no less than 20 feet apart with a "No Fire or Smoking" sign posted and a fire extinguisher readily available.
11. All tools must be in good working condition. Defective tools will not be used. Examples defective tools include chisels with mushroomed heads, hammers with loose or split handles, guards missing on saws or grinders etc.
12. All Extension Cords, Drop Cords and Electrical Tools shall be checked properly, grounded with Ground Fault Interrupters (GFI's) and color-coded by a designated competent person each month. This shall be part of the assured grounding program. Cords and equipment that do not

meet requirements shall be immediately tagged and removed from service until repairs have been made. "Shenanigans" on the jobsite is strictly prohibited. Running on the jobsite is allowed only in extreme emergencies.

13. Adequate precautions must be taken to protect employees and equipment from hot work such as welding or burning. Fire extinguishing equipment shall be no further than 50 feet away from all hot works. Used fire extinguishers must be returned to personnel in charge to be recharged immediately. Use of welding blinds is required in high traffic areas.
14. All scaffolding and work platforms must be built and maintained in accordance with Philippine Occupational Safety and Health (OSH) Standards specifications. All ladders must be in safe condition without broken rungs or split side rails. Damaged ladders shall be removed from service. Ladders shall be secured at the top and bottom and extend three (3) feet past the working surface. Metal ladders around electrical work are prohibited. A step ladder shall never be used as an extension ladder. A step ladder must only be used when fully opened with braces locked.
15. Crowfoot wrench connections on air hoses shall be wired to prevent accidental disconnection. Compressed air shall not be used to dust off hands and face or clothing.
16. Report all unsafe conditions and near accidents to Project-In-Charge / Foreman so corrective action can be taken.
17. All floor openings or excavations shall be barricaded on all sides to ensure employees are aware of the hazards. Floor holes shall be covered with the covers secured and clearly marked.
18. Warning signs, barricades and tags will be used to the fullest extent and shall be obeyed.

VI. HAZARDS SPECIFIC POLICIES

A. ADMINISTRATIVE

1. Jobsite Safety & Health Poster Displayed
2. Emergency Phone List Posted

B. SAFETY MEETINGS

1. Held Tool-box meeting weekly
2. Signed by all in Attendance
3. Cover Topics Pertaining To Your Job

C. HAZARD COMMUNICATION

1. Written Program on Site
2. Chemical Inventory List Posted
3. All Drums & Containers Labeled
4. Employees Trained

D. ELECTRICAL

1. Electric Cords Inspected - No Splices in Cord
2. Electric Power Tools Inspected
3. New Installations (not connected to electricity supply)
4. Alterations and Additions (existing installations)
5. Maintenance of Installations and Equipment
6. Workshop Tasks
7. Live wire work
8. Test that the electricity supply is isolated Always check that the test equipment is operating Correctly
9. Isolation of Installations and Equipment
10. Isolation and Tagging
11. Checking the test instrument
12. Testing that the electricity supply is isolated
13. Rechecking the test instrument
14. **Locks or Tags** Occupational safety Health authority (OSHA) considers using a lock safer than just using a tag.
15. **Lock out and Tag Out (LO/TO)** Protects you from the unexpected start-up of machines or releases of store energy during service. In **Lock Out** place a lock on disconnect switch, circuit breaker, valve handle to make sure it cannot be moved from the off or closed position. in **Tag Out** you attach a written warning tag at the place where the equipment would be energized such as at the On switch or on a valve that opens a supply line.
16. Circuit Protection make sure the markings on the old and new fuses match

17. Resetting Circuit-protection Devices should replace the fuse or reset the breaker, and wait for a while to see if the power stays on, check if any smokes, heat or unusual odor, if you notice anything out of order, de-energize the circuit as soon as possible, don't replace the fuse or reset the breaker a second time until it finds and correct the problem.
 18. Current Overload for the equipment malfunctions or overheats, if too many electrical tools are on the same circuit, Temporary power surge in the circuit from lightning or electric motor start up.
 19. Insulation between two conductors melts or wears through, creating a short circuit back to the power source.
 20. Rules Circuit-Protection devices – not to create an octopus connection, never bypass, bridge nor disable any circuit protection devices, and never replace any circuit-protection device in an energized or live circuit, always be sure that the power is safety off, and replace a fuse with an exact duplicate, if too High do not protect the circuit, if too Low could explode and shower pieces of metals.
 21. Never use Lock-Out and Tag-Out (LO/TO) for locking personal or unauthorized items
- E. MACHINE**
1. Machine Guarding is the device that prevents access to moving parts like grills, screens, covers, hoods, location and distance, gates, perimeter fences, windows gutters.
 2. Machine Safeguarding is the device that reacts to a workers presence. It may start or stop the operation of a machine when you attempt to access it, like Guards, devices, Locations/Distance, Miscellaneous aid.
 3. Point Of Operation Guards in Place
 4. Pulley Belt Assemblies Guarded
 5. Gear Assemblies Guarded
 6. Shafts Guarded
 7. Check for Any Oil Leaks
 8. Two Hand Controls Working Properly
 9. Electric Wiring in Safe Condition
 10. Lockout Policy & Tag Procedures Used
- F. TOOLS**
1. Tool Casings in Safe Condition
 2. Wiring for All Power Tools in Safe Condition
 3. Electric Tools Grounded (Unless Double Insulated)
 4. Extension Cords Grounded and In Safe Condition
 5. Hands Tools in Safe Condition
 6. Tools Stored In Designated Location
 7. Ladders Free Of Cracks & Damage
- G. CONFINED SPACE**
1. Air Monitoring
 2. Power Ventilation
 3. Stand-By/Rescue Trained Person
 4. Equipment & Electrical Lockout/Tag Out
- H. SCAFFOLDING OVER 10 FEET**
1. Top, Midrail & Toe boards
 2. Mudsills
 3. Platform span and Firm support
 4. Supported On Solid Base
 5. Cross Bracing Properly Installed
 6. Fully Planked & Proper Overlay
 7. Scaffolding Handrail
 8. Guardrail
- I. LADDERS**
1. Extended 36 Inches above Landing
 2. Secured - Tied Off
 3. Solid Rungs - No Cracks in Rungs
 4. Proper Angle - 1/4 Working Length of Ladder

5. Provided At Breaks in Elevations 19" Or More
- J. **WELDING EQUIPMENT AND OPERATIONS**
1. Oxygen & Acetylene Welding Equipment Equipped With Flash Arrestors
 2. Compressed Gas Cylinders Secured Upright & Capped When In Storage
 3. Cylinders Mounted On a Cart or Secured in an Upright Position
 4. Oxygen Separated from Flammables and Combustibles by at least 20' or a 5' High Non-Combustible Wall When Stored
 5. Gas Hoses and Gauges in Safe Condition
 6. Proper Eye Protection Available and Used
 7. Wear proper clothing fiber like cotton or wool
 8. Wear Leather aprons and Sleeves
 9. Wear high top shoes
- K. **FIRE PROTECTION**
1. Surface protection (non-slip flooring)
 2. Fixed barrier (handrails, guardrails)
 3. Surface opening protection in floors and other walking surfaces where have access, must be protected by guard railing or secured wood or metal covers, the must be capable of supporting all loads to which it may be subjected. And the covering must be identified to indicate there is an opening below,
 4. Travel restrain system intended to limit workers to stroll and unable to reach a location where there is a risk of falling.
 5. Extinguishers Charged and Accessible
 6. Standpipes, Hoses, Sprinkler Heads and Valves in Safe Condition and Accessible
 7. Stairs Clear and In Safe Condition
 8. Hollow Pan Stairways Filled
 9. Exits and Exit Paths Clearly Marked
 10. Flammables Properly Stored (Gasoline, Paint Solvents, Acetylene, Propane Tanks, Etc.)
 11. Evacuation Plan Available
 12. Fire Ball Extinguisher or Extinguisher Bomb
- L. **MATERIAL HANDLING EQUIPMENT**
1. Carts in Safe Condition
 2. Cart Wheels Free & Rolling Smoothly
 3. Hoist Opening Equipped With Removable Railing
 4. Hoist Cables & Hooks Inspected
 5. Materials Secured Stacked
 6. Employees Trained and/or Certified To Operate Equipment
 7. Bulk Handling Materials Equipment
 8. Automated Storage and Retrieval Systems (AS/RS)
 9. Automated guided vehicles (AGVs)
- M. **PERSONAL PROTECTIVE EQUIPMENT**
1. Hard Hats
 2. Work Area Protection, Signage, and Reflective Vests Working Near Traffic
 3. Eye Protection - Chipping, Burning, Conc. Etc.
 4. Ear Protection
 5. Personal Flotation Devices & Life Rings Working Near Water
 6. Gloves Used
 7. Proper Work Shoes (No Sneakers or Open Toe Shoes)

Section VII. Drawings

Please see attached Plans/Drawings.

Section VIII. Bill of Quantities

To be provided by the bidder (Design-and-Build Scheme).

Contract ID :
Project Name :
Location :

BILL OF QUANTITIES

Pay Item No.	Description	Unit	Quantity	Unit Price (Pesos)	Amount (Pesos)
(1)	(2)	(3)	(4)	(5)	(6)
	Total Direct Cost				
	Indirect Cost				
	OCM				
	Contractor's Profit				
	VAT				
	TOTAL COST				

Submitted by:

Name and Signature of Bidder's Representative
Position
Name of Bidder

Date:

Section IX. Checklist of Technical and Financial Documents

Checklist of Technical and Financial Documents

I. TECHNICAL COMPONENT ENVELOPE

Class “A” Documents

Legal Documents

- ☐ (a) Valid PhilGEPS Registration Certificate (Platinum Membership) (all pages);
Or
- ☐ (b) Registration certificate from Securities and Exchange Commission (SEC), Department of Trade and Industry (DTI) for sole proprietorship, or Cooperative Development Authority (CDA) for cooperatives or its equivalent document;
And
- ☐ (c) Mayor’s or 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;
And
- ☐ (d) Tax clearance per E.O. No. 398, s. 2005, as finally reviewed and approved by the Bureau of Internal Revenue (BIR).

Technical Documents

- ☐ (e) Statement of the prospective 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; **and**
- ☐ (f) Statement of the bidder’s Single Largest Completed Contract (SLCC) similar to the contract to be bid, except under conditions provided under the rules;
and
- ☐ (g) 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; **and**
- ☐ (h) Original copy of Bid Security. If in the form of a Surety Bond, submit also a certification issued by the Insurance Commission;
or
Original copy of Notarized Bid Securing Declaration; **and**
- (i) Project Requirements, which shall include the following:
 - ☐ a. Organizational chart for the contract to be bid;
 - ☐ b. List of contractor’s key 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;
 - ☐ c. List of contractor’s major equipment units, which are owned, leased, and/or under purchase agreements, supported by proof of ownership or certification of availability of equipment from the equipment lessor/vendor for the duration of the project, as the case may be;

- ☐ (j) Original duly signed Omnibus Sworn Statement (OSS); **and** if applicable, Original Notarized Secretary's Certificate in case of a corporation, partnership, or cooperative; or Original Special Power of Attorney of all members of the joint venture giving full power and authority to its officer to sign the OSS and do acts to represent the Bidder.
- (k) 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
- (l) Valid licenses issued by the Professional Regulatory Commission (PRC) for design professionals.

Financial Documents

- ☐ (m) The prospective bidder's audited financial statements, showing, among others, the prospective 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; **and**
- ☐ (n) The prospective bidder's computation of Net Financial Contracting Capacity (NFCC).

Class "B" Documents

- ☐ (o) If applicable, duly signed joint venture agreement (JVA) in accordance with RA No. 4566 and its IRR in case the joint venture is already in existence; **or** duly notarized statements from all the potential joint venture partners stating that they will enter into and abide by the provisions of the JVA in the instance that the bid is successful.

II. FINANCIAL COMPONENT ENVELOPE

- ☐ (p) Original of duly signed and accomplished Financial Bid Form; **and**

Other documentary requirements under RA No. 9184

- ☐ (q) Original of duly signed Bid Prices in the Bill of Quantities; **and**
- ☐ (r) Detailed estimates including a summary sheet indicating the unit prices of construction materials, labor rates and equipment rentals used in coming up with the bid; **and**
- ☐ (s) Cash flow by the quarter and payments schedule.

Bid Securing Declaration Form

[shall be submitted with the Bid if bidder opts to provide this form of bid security]

REPUBLIC OF THE PHILIPPINES)

CITY OF _____) S.S.

BID SECURING DECLARATION **Project Identification No.: *[Insert number]***

To: *[Insert name and address of the Procuring Entity]*

I/We, the undersigned, declare that:

1. I/We understand that, according to your conditions, bids must be supported by a Bid Security, which may be in the form of a Bid Securing Declaration.
2. I/We accept that: (a) I/we will be automatically disqualified from bidding for any procurement contract with any procuring entity for a period of two (2) years upon receipt of your Blacklisting Order; and, (b) I/we will pay the applicable fine provided under Section 6 of the Guidelines on the Use of Bid Securing Declaration, within fifteen (15) days from receipt of the written demand by the procuring entity for the commission of acts resulting to the enforcement of the bid securing declaration under Sections 23.1(b), 34.2, 40.1 and 69.1, except 69.1(f), of the IRR of RA No. 9184; without prejudice to other legal action the government may undertake.
3. I/We understand that this Bid Securing Declaration shall cease to be valid on the following circumstances:
 - a. Upon expiration of the bid validity period, or any extension thereof pursuant to your request;
 - b. I am/we are declared ineligible or post-disqualified upon receipt of your notice to such effect, and (i) I/we failed to timely file a request for reconsideration or ☒ I/we filed a waiver to avail of said right; and
 - c. I am/we are declared the bidder with the Lowest Calculated Responsive Bid, and I/we have furnished the performance security and signed the Contract.

IN WITNESS WHEREOF, I/We have hereunto set my/our hand/s this _____ day of *[month]* *[year]* at *[place of execution]*.

*[Insert NAME OF BIDDER OR ITS AUTHORIZED
REPRESENTATIVE]
[Insert signatory's legal capacity]
Affiant*

[Jurat]

[Format shall be based on the latest Rules on Notarial Practice]

Omnibus Sworn Statement (Revised)

[shall be submitted with the Bid]

REPUBLIC OF THE PHILIPPINES)
CITY/MUNICIPALITY OF _____) S.S.

AFFIDAVIT

I, [Name of Affiant], of legal age, [Civil Status], [Nationality], and residing at [Address of Affiant], after having been duly sworn in accordance with law, do hereby depose and state that:

1. *[Select one, delete the other:]*

[If a sole proprietorship:] I am the sole proprietor or authorized representative of [Name of Bidder] with office address at [address of Bidder];

[If a partnership, corporation, cooperative, or joint venture:] I am the duly authorized and designated representative of [Name of Bidder] with office address at [address of Bidder];

2. *[Select one, delete the other:]*

[If a sole proprietorship:] As the owner and sole proprietor, or authorized representative of [Name of Bidder], I have full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for [Name of the Project] of the [Name of the Procuring Entity], as shown in the attached duly notarized Special Power of Attorney;

[If a partnership, corporation, cooperative, or joint venture:] I am granted full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for [Name of the Project] of the [Name of the Procuring Entity], as shown in the attached [state title of attached document showing proof of authorization (e.g., duly notarized Secretary's Certificate, Board/Partnership Resolution, or Special Power of Attorney, whichever is applicable)];

3. [Name of Bidder] is not "blacklisted" or barred from bidding by the Government of the Philippines or any of its agencies, offices, corporations, or Local Government Units, foreign government/foreign or international financing institution whose blacklisting rules have been recognized by the Government Procurement Policy Board, **by itself or by relation, membership, association, affiliation, or controlling interest with another blacklisted person or entity as defined and provided for in the Uniform Guidelines on Blacklisting;**

4. Each of the documents submitted in satisfaction of the bidding requirements is an authentic copy of the original, complete, and all statements and information provided therein are true and correct;

5. [Name of Bidder] is authorizing the Head of the Procuring Entity or its duly authorized representative(s) to verify all the documents submitted;

6. *[Select one, delete the rest:]*

[If a sole proprietorship:] The owner or sole proprietor is not related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical

Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

[If a partnership or cooperative:] None of the officers and members of *[Name of Bidder]* is related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

[If a corporation or joint venture:] None of the officers, directors, and controlling stockholders of *[Name of Bidder]* is related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

7. *[Name of Bidder]* complies with existing labor laws and standards; and
8. *[Name of Bidder]* is aware of and has undertaken the responsibilities as a Bidder in compliance with the Philippine Bidding Documents, which includes:
 - a. Carefully examining all of the Bidding Documents;
 - b. Acknowledging all conditions, local or otherwise, affecting the implementation of the Contract;
 - c. Making an estimate of the facilities available and needed for the contract to be bid, if any; and
 - d. Inquiring or securing Supplemental/Bid Bulletin(s) issued for the *[Name of the Project]*.
9. *[Name of Bidder]* did not give or pay directly or indirectly, any commission, amount, fee, or any form of consideration, pecuniary or otherwise, to any person or official, personnel or representative of the government in relation to any procurement project or activity.
10. **In case advance payment was made or given, failure to perform or deliver any of the obligations and undertakings in the contract shall be sufficient grounds to constitute criminal liability for Swindling (Estafa) or the commission of fraud with unfaithfulness or abuse of confidence through misappropriating or converting any payment received by a person or entity under an obligation involving the duty to deliver certain goods or services, to the prejudice of the public and the government of the Philippines pursuant to Article 315 of Act No. 3815 s. 1930, as amended, or the Revised Penal Code.**

IN WITNESS WHEREOF, I have hereunto set my hand this ____ day of ____, 20__ at _____, Philippines.

[Insert NAME OF BIDDER OR ITS AUTHORIZED REPRESENTATIVE]

[Insert signatory's legal capacity]
Affiant

[Jurat]

[Format shall be based on the latest Rules on Notarial Practice]

Bid Form for the Procurement of Infrastructure Projects

[shall be submitted with the Bid]

BID FORM

Date : _____

Project Identification No. : _____

To: *[name and address of Procuring Entity]*

Having examined the Philippine Bidding Documents (PBDs) including the Supplemental or Bid Bulletin Numbers *[insert numbers]*, the receipt of which is hereby duly acknowledged, we, the undersigned, declare that:

- a. We have no reservation to the PBDs, including the Supplemental or Bid Bulletins, for the Procurement Project: *[insert name of contract]*;
- b. We offer to execute the Works for this Contract in accordance with the PBDs;
- c. The total price of our Bid in words and figures, excluding any discounts offered below is: *[insert information]*;
- d. The discounts offered and the methodology for their application are: *[insert information]*;
- e. The total bid price includes the cost of all taxes, such as, but not limited to: *[specify the applicable taxes, e.g. (i) value added tax (VAT), (ii) income tax, (iii) local taxes, and (iv) other fiscal levies and duties]*, which are itemized herein and reflected in the detailed estimates,
- f. Our Bid shall be valid within the a period stated in the PBDs, and it shall remain binding upon us at any time before the expiration of that period;
- g. If our Bid is accepted, we commit to obtain a Performance Security in the amount of *[insert percentage amount]* percent of the Contract Price for the due performance of the Contract, or a Performance Securing Declaration in lieu of the the allowable forms of Performance Security, subject to the terms and conditions of issued GPPB guidelines¹ for this purpose;
- h. We are not participating, as Bidders, in more than one Bid in this bidding process, other than alternative offers in accordance with the Bidding Documents;
- i. We understand that this Bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal Contract is prepared and executed; and
- j. We understand that you are not bound to accept the Lowest Calculated Bid or any other Bid that you may receive.

¹ currently based on GPPB Resolution No. 09-2020

- k. We likewise certify/confirm that the undersigned, is the duly authorized representative of the bidder, and granted full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for the [Name of Project] of the [Name of the Procuring Entity].
- l. We acknowledge that failure to sign each and every page of this Bid Form, including the Bill of Quantities, shall be a ground for the rejection of our bid.

Name: _____
Legal Capacity: _____
Signature: _____
Duly authorized to sign the Bid for and behalf of: _____
Date: _____

Contract Agreement Form for the Procurement of Infrastructure Projects (Revised)

*[not required to be submitted with the Bid, but it shall be submitted within ten (10) days after
receiving the Notice of Award]*

CONTRACT AGREEMENT

THIS AGREEMENT, made this *[insert date]* day of *[insert month]*, *[insert year]* between *[name and address of PROCURING ENTITY]* (hereinafter called the "Entity") and *[name and address of Contractor]* (hereinafter called the "Contractor").

WHEREAS, the Entity is desirous that the Contractor execute *[name and identification number of contract]* (hereinafter called "the Works") and the Entity has accepted the Bid for *[contract price in words and figures in specified currency]* by the Contractor for the execution and completion of such Works and the remedying of any defects therein.

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. In this Agreement, words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to.
2. The following documents as required by the 2016 revised Implementing Rules and Regulations of Republic Act No. 9184 shall be deemed to form and be read and construed as part of this Agreement, viz.:

- a. Philippine Bidding Documents (PBDs);
 - i. Drawings/Plans;
 - ii. Specifications;
 - iii. Bill of Quantities;
 - iv. General and Special Conditions of Contract;
 - v. Supplemental or Bid Bulletins, if any;
- b. Winning bidder's bid, including the Eligibility requirements, Technical and Financial Proposals, and all other documents or statements submitted;

Bid form, including all the documents/statements contained in the Bidder's bidding envelopes, as annexes, and all other documents submitted (e.g., Bidder's response to request for clarifications on the bid), including corrections to the bid, if any, resulting from the Procuring Entity's bid evaluation;

- c. Performance Security;
- d. Notice of Award of Contract and the Bidder's conforme thereto; and
- e. Other contract documents that may be required by existing laws and/or the Procuring Entity concerned in the PBDs. **Winning bidder agrees that additional contract documents or information prescribed by the GPPB that are subsequently required for submission after the contract execution, such as the Notice to Proceed, Variation Orders, and Warranty Security, shall likewise form part of the Contract.**

3. In consideration for the sum of *[total contract price in words and figures]* or such other sums as may be ascertained, *[Named of the bidder]* agrees to *[state the object of the contract]* in accordance with his/her/its Bid.
4. The *[Name of the procuring entity]* agrees to pay the above-mentioned sum in accordance with the terms of the Bidding.

IN WITNESS whereof the parties thereto have caused this Agreement to be executed the day and year first before written.

<i>[Insert Name and Signature]</i>	<i>[Insert Name and Signature]</i>
<i>[Insert Signatory's Legal Capacity]</i>	<i>[Insert Signatory's Legal Capacity]</i>
for:	for:
<i>[Insert Procuring Entity]</i>	<i>[Insert Name of Supplier]</i>

Acknowledgment

[Format shall be based on the latest Rules on Notarial Practice]

**Statement of All Ongoing Government & Private Construction Contracts including
contracts awarded but not yet started**

Business Name : _____
Business Address : _____

Name of Contract/Location Project Cost	a. Owner Name b. Address c. Telephone Nos.	Nature of Work	Contractor's Role		a. Date Awarded b. Date Started c. Date of Completion	% of Accomplishment		Value of Outstanding Works
			Description	%		Planned	Actual	
<u>Government</u>								
<u>Private</u>								
Total Cost								

Note: This statement shall be supported with:

- 1 Notice of Award and/or Contract
- 2 Notice to Proceed issued by the owner
- 3 Statement of Time Elapsed signed by the owner or Project Engineer of the owner

Submitted by : _____
(Printed Name & Signature)
Designation : _____
Date : _____

Statement of Single Largest Completed Contract (SLCC) similar to the project

Business Name : _____
 Business Address : _____

Name of Contract	a. Owner Name b. Address c. Telephone Nos.	Nature of Work	Contractor's Role		a. Amount at Award b. Amount at Completion c. Duration	a. Date Awarded b. Contract Effectivity c. Date Completed
			Description	%		
<u>Government</u>						
<u>Private</u>						

Note: This statement shall be supported with:

- 1 Contract
- 2 CPES rating sheets and/or Certificate of Completion
- 3 Certificate of Acceptance

Submitted by : _____
 (Printed Name & Signature)
 Designation : _____
 Date : _____

