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An aerial photograph of a large, multi-story building with a brown tiled roof and white walls. The building has many windows and a prominent entrance. It is surrounded by lush greenery, including trees and a lawn. In the background, there is a parking lot with several cars. The building is the central focus of the image.

**CONSTRUCTION OF THE  
COLLEGE OF SCIENCE AND  
MATHEMATICS LABORATORY  
(DESIGN AND BUILD)**

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CONSTRUCTION OF THE  
COLLEGE OF SCIENCE AND  
MATHEMATICS LABORATORY  
  
(DESIGN AND BUILD)

Western Mindanao State University  
Normal Road, Baliwasan, Zamboanga City

TERMS OF REFERENCE

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## I. BACKGROUND

The Western Mindanao State University (WMSU), recognized as a leading institution of higher learning in the region, continues to strengthen its academic and research capabilities through the development of modern and sustainable facilities. In line with its mandate to deliver quality science education and to address the growing need for technology-driven professionals, the University has identified the importance of establishing a dedicated College of Science and Mathematics Laboratory building.

This initiative is anchored in the government's commitment to invest in higher education facilities under the General Appropriations Act (GAA) for Fiscal Year 2026, which allocates (₱47,000,000.00) for the project. The funding affirms the national priority of enhancing tertiary education by providing conducive learning environments, advanced laboratory spaces, and collaborative areas that foster innovation and technical excellence.

The proposed facility will serve as a vital component of the University's science and mathematics programs, addressing existing limitations in laboratory and instructional spaces while supporting anticipated increases in student enrollment and faculty research activities. Through the adoption of a Design and Build scheme, the project aims to ensure efficiency, accountability, and quality in its implementation, integrating architectural design and structural integrity within a unified delivery framework.

Ultimately, the construction of the three (3) – storey College of Science and Mathematics Laboratory building will advance the University's long-term development goals, reinforce its role as a center for scientific education in Western Mindanao, and contribute to national efforts to promote science, technology, and innovation for sustainable development.

Procurement of design-and-build services for the project will be governed by **Annex "G" of the Revised Implementing Rules and Regulations of R.A. 9184** (Guidelines for the Procurement and Implementation of Contracts for Design and Build Infrastructure Projects) and **Implement Rules and Regulations of R.A. 12009 or the New Government Procurement Act**, along with all applicable building codes, regulations, and Department Orders issued by the Department of Public Works and Highways (DPWH).

## II. PROJECT DESCRIPTION AND LOCATION

The proposed project involves the design and construction of a new College of Science and Mathematics Laboratory building at Western Mindanao State University (WMSU), to be delivered through a Design and Build scheme. The implementation will be carried out in two (2) distinct phases: the design phase and the project construction phase.

During the design phase, the selected contractor will be responsible for preparing and submitting comprehensive design plans that fully comply with the design parameters and performance specifications outlined in this Terms of Reference

(TOR). These plans will be subject to review and approval to ensure they meet the university's requirements and standards.

The construction phase will commence only after all necessary clearances and permits have been secured, and once WMSU has issued a formal notice to proceed. This ensures that all regulatory and institutional prerequisites are satisfied before any physical works begin.

The new building will be designed for a minimum of three (3) storeys, with a roof deck to accommodate water tank. The minimum total floor area of the structure will be **1,279 square meters**, providing ample space for academic, administrative, and support functions in accordance to **CHED Memorandum Order (CMO)** for facilities.

The site for this development is a parcel of land located within Campus B of WMSU. Currently, this area is occupied by the old College of Science and Mathematics building. Existing structures will be demolished to clear the way for the construction of the new facility, ensuring optimal use of the available land and supporting the university's commitment to modernizing its infrastructure.

### III. SCOPE OF WORK

The contract will utilize a design-and-build scheme and will strictly observe the most recent Implementing Rules and Regulations of Republic Act 9184, Annex G, and the New Government Procurement Act – Republic Act 12009. The project will also comply with all relevant national and local laws, codes, and standards, including but not limited to: the National Building Code, Philippine Green Building Code (DPWH, 2015), Fire Code, Architecture Act of 2004, Heritage Law, Batas Pambansa Bilang 344 (Accessibility Law), National Structural Code, Philippine Electrical Code, Mechanical Code, Revised Plumbing Code, Code on Sanitation, Electronics Code, as well as all other applicable environmental regulations and local ordinances. Adherence to these requirements is essential throughout both the design and construction phases to ensure the safety, quality, and legality of the new College of Engineering.

#### A. Design Phase

##### 1. Pre-Design Phase

The focus of this phase is to establish specific parameters, size, and scope of the project, including its location within the site. The Design-Build Contractor shall prepare a conceptual design and undertake architectural studies based on the space requirements provided by WMSU, hereto attached as "Annex A". The Design-Build Contractor in coordination with WMSU, shall finalize the design criteria. It includes, but is not limited to:

## 1.1 Project Initiation

- Conduct conference meetings with WMSU, of such frequency and duration as may be necessary to ascertain the project requirements, purpose/s and/or objectives and general plans.
- Review relevant documentation, including site surveys, and environmental impact assessments.
- Conduct reconnaissance, engineering surveys and utilities locations.
- Perform on-site investigations of connections/tapping points, and existing utilities.

## 1.2 Preliminary Design Development

- Prepare preliminary architectural and engineering designs, layouts, and outline specifications that align with the WMSU managements' vision, incorporating architectural features, layout options, and overall aesthetic considerations.
- Provide preliminary cost estimates, value engineering / value analysis studies, and specific recommendations prior to final design, including but not limited to:
  - Floor Plans for all floors (including complete space allocation)
  - Space programming and analysis
  - Interior Design, Perspective and Rendering
  - Elevations and Sections
  - Isometric Floor Plans with Outline Materials Specifications
  - Schematic layout for all Engineering Services (at least 3 schemes)
- Present to the WMSU management the proposed preliminary designs and other pertinent documents for evaluation and approval prior to the preparation of the Detailed Architectural and Engineering Designs (DAED).

## 1.3 Undertaking Studies/Review:

- Conduct comprehensive studies/review of relevant building codes, pertinent government laws, ordinances, codes, rules and regulations, functional relationships, economics and others to ensure that the proposed design complies with all legal requirements.

## 2. Detailed Architectural and Engineering Design (DAED)

Once the conceptual design is approved, the preparation of Detailed Architectural and Engineering Design will commence, it includes the preparation of the final detailed plans and designs, working drawings, specifications, and detailed cost estimates for the construction of the project. The DAED shall be undertaken with a degree of accuracy that will allow estimates to be made within approximately plus or minus five percent ( $\pm 5\%$ ) of the final quantities.

This phase also involves the refinement and detailing of plans, drawings, and specifications. It ensures that all aspects of the design are thoroughly documented and ready for implementation or construction phase.

## **B. Project Construction Phase**

The Design-Build Contractor shall report the entire lifecycle of the construction project. This involves management to ensure adherence to project schedules, budgets, and stringent quality standards. The Design-Build Contractor should provide regular project progress reports and risk assessment.

The Design-Build Contractor shall exercise all reasonable skill, diligence, and prudence in the delivery of their duties and shall always work in the best interest of WMSU. The team will assign technically qualified and experienced personnel to ensure the successful fulfillment of their services.

The Design-Build Contractor shall conduct regular consultation and coordination in relation to its obligation and responsibilities to the Project. The scope encompasses, but is not limited to:

### **1. Pre-Construction Phase**

- Secure all necessary building permits before construction. All incidental fees shall be included in the cost estimate of the building.
- Preparation of the PERT – CPM, Bar Chart, S – Curve, Cash flow Schedule, Manpower and Equipment Utilization Schedule of the construction phase.
- Prepare Construction Safety and Health Program.
- Provide all the necessary documents that the client shall require.

### **2. Construction Phase**

- Implement all works indicated in the approved construction drawings and documents. All revisions and deviation from the approved plans, especially if it will impact the overall cost of the Project, shall be subject to approval.
- Demolition of the old building and disposal of debris.
- Provide soil filling, grading, and other soil protection measures for the building and other elements of the site, in response to the results of soil testing and material test.
- Construct the building and other necessary structures, complete with utilities and finishes, resulting in operable and usable structures.
- Construct sidewalks and curb cutouts paving, driveways, parking lots, and walkways within the project site.
- Provide protection or relocation of existing trees affected by construction (if any).
- Preparation of shop drawings for approval.
- Coordinate with the WMSU regarding the scheduling of delivery and installation of all owners – furnished materials and equipment during construction.
- Conduct all necessary tests and issue reports of results.

- Rectification of punch – listing works to be inspected and issued by WMSU.
  - Provide all other necessary documents that shall be required by WMSU.
3. Post Construction Phase
- Preparation of as – built plans.
  - Turn – over of all manuals, certificates, and warranties of installed items.
  - Occupancy Permit
  - Provide all other necessary documents that shall be required by WMSU.
4. Defects and Liability
- In accordance with Section 62.2.3.2 of the IRR (RA 9184) and Section 90.2.3 (b) of the IRR (RA 12009), the contractor shall be held liable for design, structural defects, and or failure of the completed projects within the warranty period of 15 years (permanent structure/buildings).

#### **IV. SPACE REQUIREMENTS**

Attached as “Appendix A”

*Note:* This proposed space allocation is based on WMSU’s minimum space requirements for the College of Engineering and may be adjusted by the designer during detailed planning to ensure optimal functionality, habitability, and academic efficiency of the facility. Additional components or functional areas not shown in this outline may be incorporated if the designer considers them necessary for the completeness of the college complex, provided these additions remain within the approved floor area and comply with required circulation and common-area standards.

#### **V. DELIVERABLES OF THE DESIGN-BUILD CONTRACTOR (DBC)**

The following submittals and accomplished documents shall be duly completed and turned over by the Design and Build Contractor for the Project:

##### **A. Design Phase**

1. Pre-Design Phase
  - 1.1 Detailed Program of work, approach, work plan and schedule for the implementation of works.
  - 1.2 Reconnaissance, Engineering Surveys and on-site investigations.
  - 1.3 Preparation of the following preliminary drawings and documents for WMSU Approval before the Final Design:
    - Architectural
      - Site Development Plan
      - Floor plans for all floors (including complete space allocation)
      - Space planning/ Space Programming Analysis
      - Interior Design, perspectives and Rendering
      - Acoustic design

- General Elevations & Sections
- Axonometric Floor Plans with Outline Materials Specifications
- Furniture/Fixture and Equipment layout
- Value Engineering/ Value Analysis Study
- Wall/ Partition Works Design: Detailed Connections/ Joineries, Doors and Windows, Ceiling Works.
- Furnishings (Furniture Design, Cabinetries, Counters)
- Specialty Works (Shades and Curtains, Signages, etc.)
- Preliminary Cost Estimates
  
- Civil/Structural
  - Structural Plans
  - Structural Analysis and Design
  - Boring and Load Test
  - Seismic Analysis
  - Preliminary Cost Estimates
  
- Sanitary
  - Detailed Plans (water collection and distribution systems, drainage and sewer system, sewage treatment plants, and sewage disposal systems)
  - Design Analysis and Technical Specifications
  - Plumbing System of additional toilets and integration to main system.
  - Preliminary Cost Estimates
  
- Plumbing
  - Plumbing plans, layouts and details (water supply, fixtures, sewage drainage, and vent system, storm drainage and sewerage system within or adjacent to the building)
  - Isometric drawings of the systems
  - Hot and Water Connection Details
  - Rainwater Collector System
  - Preliminary Cost Estimates
  
- Electrical
  - Site Development Plan
  - Lighting and Power Layout System
  - Load Schedules
  - Riser Diagram
  - Dismantle, reinstall and rewiring the existing 100 kWp Solar Panel
  - Fault Analysis, Voltage Drop Calculation and ARC-flush Hazard Analysis
  - Preliminary Cost Estimates
  
- Mechanical
  - Ventilation Systems
  - Elevator Systems
  - Fire Protection Systems
  - Preliminary Cost Estimates

- **Auxiliary**
  - Schematic Design for CCTV
  - Schematic Design for FDAS
  - Schematic Design for LAN/WAN System
  - Preliminary Cost Estimates

## 2. Detailed Architectural and Engineering Design

Prepare from the approved conceptual design, schematic or design development drawings, and design parameters, including any revisions and refinements as approved and required by WMSU, including but not limited to:

- Survey Plans
- Site Investigation Reports
- Soils and Foundation Investigation Report
- Construction Materials Report
- Demolition Plan of the existing structures within the project site
- Detailed Architectural Plans
- Detailed Structural Design Analysis and Plans
- Detailed Electrical Plans and Electrical Design Analysis
- Detailed Sanitary and Plumbing Plans
- Detailed Mechanical Plans
- Detailed Auxiliary Plans
- General Notes and Technical Specifications describe the type and quality of materials and equipment to be used, the manner of construction, and the general conditions under which the Project is to be constructed.
- Bill of Quantities, Detailed Cost Estimates, including a summary sheet indication the unit prices of construction materials, labor rates, and equipment rentals.
- Complete construction drawings for the work required for the architectural, structural, civil, electrical, plumbing/sanitary, mechanical, and other services-connected equipment, utilities, site planning aspects, related works, and the site development plan of the project's immediate environs.

## **B. Project Construction Phase**

### 1. Pre-Construction Phase

- Approved permits/Clearances
- Submission of approved Detailed Engineering Plans including the following:
  - Program of Works (POW)
  - Detailed Cost Estimate / Bill of Quantities (BOQ)
  - Detailed Unit Price Analysis (DUPA) pursuant to DPWH Department Order No. 22 Series of 2015
  - Technical Specifications
- Submission of Project Master Schedule
- Submission of Project Management Plan.

- Original copies of clearances, permits, and licenses required to implement the Project.
- Additional contract documents relevant to the Project required by existing laws and/or WMSU:
  - Construction Schedule
  - Manpower Schedule
  - S-Curve and PERT-CPM
  - Construction Methodology
  - Equipment Utilization Schedule
  - DOLE approved Construction Safety and Health Program
  - Other Acceptable tools of Project Scheduling

## 2. Construction Phase

- Construction kickoff meeting
- Demolition of the old building and disposal of the debris.
- Provide on-site supervision to monitor the general progress and quality of work and to determine whether the work is behind prosecution in accordance with the approved scope of work and specifications.
- Weekly and monthly progress reports
- Weather charts
- Schedule of delivery of materials
- Updates in manpower and equipment deployment.
- Update the Project Master Schedule as needed.
- Checking and approval of material samples, shop drawings and other items pertaining to the schedules and contract documents by WMSU.
- Quality Management Plan outlining standards and processes that are relevant to the project.
- Regular inspections and Quality Audits of the all works.
- For Variation Orders-Change Order/ Extra Work Order Request, prepare:
  - Request for any change order/extra work order and final variation order.
  - Derivation of Time Extension for the proposed Variation Order (Change Order/Extra Work Order), if any
  - Detailed Technical Justifications and legal basis for the proposed changes in the Original Plans and the quantity of items of work.
  - Project Engineer's Report/DBC Resident Engineer Report for the proposed changes in the Original Plans and the quantity of items of work.
  - Detailed Quantity Calculations for new items of work .
  - Updates in S-Curve and PERT/CPM Network Diagram Bar Chart that may be brought about by changes in design and cost
- For Contract Time Extension, Suspension and Resumption Order Request, prepare:
  - Request of any Contract Time Extension/Work Suspension/Work Resumption Order.

- Updates in S-Curve PERT/CPM Network Diagram Bar Chart prior to the request for Contract Time Extension/ Work Suspension/ Work Resumption Order.
  - Project/DBC Engineer's Report relative to the request for Contract Time Extension/ Work Suspension/ Work Resumption Order.
  - Evaluation/Recommendation with justification from WMSU /Project DBC of the requested Contract Time Extension/ Work Suspension/ Work Resumption Order.
  - Preparation of documents required for progress reports and work accomplishment for billing purposes relative to the Project as well as, sample approvals, and other necessary documents for audit purposes until its completion and acceptance.
3. Post-Construction Phase
- Minutes of all progress meeting and consultations.
  - Field reports on all site inspections / investigations.
  - Incident reports when required.
  - Punch list of items that need to be addressed or corrected before final acceptance.
  - Documentation of Testing and Commissioning of equipment.
  - Provide necessary training to the client's personnel on the operation and maintenance of the completed facility, and ensure that end-users are familiar with the proper procedures and functionalities.
  - Turnover the following:
    - Building Permit, Ancillary Permits and other pertinent documents/clearances
    - Occupancy Permit and Permit to Operate Certificate
    - Fire Safety Inspection Certificate
    - Brochures and manuals for operation and maintenance of various equipment and systems installed
    - Shop Drawings
    - As-built Plans/Drawings
    - Status of Punch List
    - Commissioning/Functional Testing and Acceptance Reports (electrical, mechanical, electronics, and sanitary/plumbing works)
    - Materials test result and calibrations of equipment.
    - Safety Reports that details all construction/installation activities including incidents or accidents (if any) occurred in the whole duration of construction, duly signed by Safety Officer/s and Project Manager.
    - Bonds / Insurances
    - Guarantees and warranties from the Contractor / Suppliers.
    - Keys, spare parts, special tools, excess materials, if any.
    - Final Inspection Reports

- Closeout/Final Report
- Certificates of Completion to the Contractors.
- Certificates of Acceptance from WMSU for the completed project.
- All claims, such as billing, change orders, time extensions and similar request.
- Conduct debriefing session with the project team to review the overall performance of the project, and identify areas for improvement.
- Archive all project documentation and records for future reference, ensure that documents are stored in a secure and accessible manner.
- All other reports and documents that may be required by the WMSU.

## VI. CONTRACT DURATION AND IMPLEMENTATION SCHEDULE

The contract duration of the project shall be three hundred thirty calendar days (330), this includes the 30 days design phase and shall commence from the date of the of the issuance of the Notice to Proceed (NTP).

Activities	Months					No. of Days
	1ST	2ND	3RD	4TH TO 11TH	12TH	330
	Design Phase		Project Construction Phase			
<b>A. Design Phase</b>						
1. Pre-Design Phase	10					10
2. DAED	20					20
<b>B. Project Construction Phase</b>						
1. Pre-Construction Phase		5				5
2. Construction Phase		25	30	210		265
3. Post-Construction Phase					30	30
<b>Total Contract Duration</b>						<b>330</b>

## VII. MINIMUM KEY PERSONNEL

As a minimum requirement, the Design-Build Contractor shall field a team of qualified and competent professionals composed of key technical experts, support personnel, and administrative staff—beyond, but not limited to, those identified in this TOR. All personnel must be physically and mentally fit and possess relevant experience in managing and implementing projects of similar nature and complexity.

The Design-Build Contractor is also responsible for ensuring that its team fully understands the duties and responsibilities outlined in this TOR and for providing all necessary resources, tools, and support needed to meet the general requirements of the engagement

Key Personnel and Qualifications/Experience	License/Certification Required
<b>A. Design Phase</b>	
<p>Project Design Manager</p> <ul style="list-style-type: none"> <li>• Licensed Civil Engineer/Architect</li> <li>• At least five (5) years' experience as Project Design Manager of architectural and engineering related.</li> <li>• Specializes in incorporating sustainable principles into the overall design, including energy efficiency, use of eco-friendly materials, and environmental impact assessments.</li> <li>• Minimum of five (5) completed projects or similar scope and nature in the last five (5) years.</li> </ul>	<b>VALID PRC</b>
<p>Principal Architect</p> <ul style="list-style-type: none"> <li>• Licensed Architect</li> <li>• At least five (5) years' experience in the architectural design / planning and have worked with both architectural and engineering design teams</li> <li>• Must have a minimum of five (5) years' experience as Team Leader.</li> <li>• Must have experience as principal architect in the architectural and engineering design/planning of at least two (2) completed projects or similar scope and nature handled within the last five (5) years.</li> </ul>	<b>VALID PRC</b>
<p>Structural Engineer</p> <ul style="list-style-type: none"> <li>• Licensed Civil Engineer</li> <li>• At least five (5) years' experience in structural analysis and design.</li> <li>• Minimum of two (2) completed projects or similar scope and nature handled within the last five (5) years.</li> </ul>	<b>VALID PRC and ASEP/SEAD/DIPLOMA or Equivalent Certificate</b>
<p>Quantity Surveyor (QS)/Cost Engineer</p> <ul style="list-style-type: none"> <li>• Licensed Civil Engineer</li> <li>• Preferably 5 years' extensive work experience in the preparation of quantity survey and cost estimates for building projects (government and private) of similar or greater magnitude and complexity as the proposed project.</li> <li>• Was involved in at least two (2) completed construction projects or similar projects.</li> <li>• Must have and experience in Electronic Documentation System Tool</li> </ul>	<b>VALID PRC</b>

<p>Professional Electrical Engineer</p> <ul style="list-style-type: none"> <li>• Licensed Professional Electronics Engineer (PECE)</li> <li>• At least five (5) years' in planning and design of Auxiliary System</li> <li>• At least two (2) years' extensive experience in the design of Building Management Systems (BMS).</li> <li>• Minimum of two (2) completed projects or similar scope and nature handled within the last five (5) years.</li> </ul>	<p><b>VALID PRC</b></p>
<p>Professional Electronics Engineer</p> <ul style="list-style-type: none"> <li>• Licensed Professional Electronics and Communication Engineer (PECE).</li> <li>• At least Five (5) years' experience in the planning and design of Structured Cabling System (SCS) and Building Management System (BMS).</li> <li>• Minimum of two (2) completed construction projects of bigger or similar scope and nature handled within the last five (5) years.</li> </ul>	<p><b>VALID PRC</b></p>
<p>Professional Mechanical Engineer</p> <ul style="list-style-type: none"> <li>• Licensed Professional Mechanical Engineer (PME).</li> <li>• At least Five (5) years' experience in the preparation of mechanical and fire protection systems including design energy-efficient HVAC (heating, ventilation, and air conditioning) systems design.</li> </ul>	<p><b>VALID PRC</b></p>
<p>Sanitary Engineer</p> <ul style="list-style-type: none"> <li>• Licensed Sanitary Engineer.</li> <li>• Preferably 5 years' extensive work experience in the design of sewer, drainage and water distribution systems.</li> <li>• Minimum of two (2) completed construction projects of bigger or similar scope and nature handled within the last five (5) years.</li> </ul>	<p><b>VALID PRC</b></p>
<p>CAD Draftsman</p> <ul style="list-style-type: none"> <li>• Preferably 5 years' work experience, one for Architecture and one for each engineering specialty.</li> <li>• At least Bachelor's Degree in Architecture or Engineering</li> <li>• Proficient in AutoCAD 2D &amp; 3D software, Sketch Up, Revit, Lumion, Enscape or any similar drafting software.</li> </ul>	<p><b>AutoCAD Operator Certificate/ Training</b></p>

<b>B. Project Construction Phase</b>	
<p><b>Project Manager</b></p> <ul style="list-style-type: none"> <li>• Licensed Civil Engineer/Architect</li> <li>• At least five (5) years' experience as Project Design Manager of architectural and engineering related.</li> <li>• Specializes in incorporating sustainable principles into the overall design, including energy efficiency, use of eco-friendly materials, and environmental impact assessments.</li> <li>• Minimum of five (5) completed projects or similar scope and nature in the last five (5) years.</li> </ul>	<b>VALID PRC</b>
<p><b>Site Engineer</b></p> <ul style="list-style-type: none"> <li>• Licensed Civil Engineer.</li> <li>• in construction supervision.</li> <li>• Minimum of two (2) completed construction projects of bigger or similar scope and nature handled within the last five (5) years.</li> </ul>	<b>VALID PRC</b>
<p><b>Electrical Engineer</b></p> <ul style="list-style-type: none"> <li>• Registered Electrical Engineer (REE)</li> <li>• At least five (5) years' experience in construction supervision.</li> <li>• Minimum of two (2) completed construction projects of bigger or similar scope and nature handled within the last five (5) years.</li> </ul>	<b>VALID PRC</b>
<p><b>Electronic Engineer</b></p> <ul style="list-style-type: none"> <li>• Licensed Electronics Engineer (ECE).</li> <li>• Preferably five (5) years' work experience.</li> <li>• At least two (2) years' experience in construction supervision.</li> <li>• Minimum of two (2) completed construction projects of bigger or similar scope and nature handled within the last five (5) years.</li> </ul>	<b>VALID PRC</b>
<p><b>Mechanical Engineer</b></p> <ul style="list-style-type: none"> <li>• Licensed Mechanical Engineer.</li> <li>• At least five (5) years' experience in construction supervision.</li> <li>• Minimum of two (2) completed construction projects of bigger or similar scope and nature handled within the last five (5) years.</li> </ul>	<b>VALID PRC</b>
<p><b>Sanitary Engineer</b></p> <ul style="list-style-type: none"> <li>• Licensed Sanitary Engineer.</li> <li>• At least five (5) years' experience in construction supervision.</li> </ul>	<b>VALID PRC</b>

<ul style="list-style-type: none"> <li>• Minimum of two (2) completed construction projects of bigger or similar scope and nature handled within the last five (5) years.</li> </ul>	
<p><b>Certified Safety Officer</b></p> <ul style="list-style-type: none"> <li>• DOLE accredited Occupational Safety &amp; Health Practitioner with a valid COSH and BOSH Certificate</li> <li>• Preferably 5 years' experience in building construction</li> <li>• Was involved in at least 2 completed construction projects of bigger or similar projects.</li> </ul>	<p><b>DOLE accredited with a valid COSH and BOSH Certificate</b></p>

The Design-Build Contractor shall give priority to hiring architects, engineers, and draftsmen who are locally based, particularly those with demonstrated experience and training in vertical construction and design. Additional personnel deemed necessary for the full and timely completion of the project shall likewise be provided by the Design-Build Contractor at no extra cost to WMSU.

The Design-Build Contractor shall also submit copies of the Professional Regulation Commission (PRC) licenses and Professional Tax Receipts (PTR) of all assigned personnel, along with a list of their ongoing and completed projects—both private and government—covering the past five (5) years.

Unless otherwise approved by WMSU, the personnel assigned to the project shall be limited to those identified in the submitted Work Plan and List of Key Personnel. No changes to the key staff shall be made without prior consent. Should any member of the team resign, be removed, or otherwise become unavailable, the Design-Build Contractor shall immediately provide a replacement with qualifications equal to or superior to those of the original personnel, subject to acceptance by HOPE.

**VIII. APPROVED BUDGET FOR THE CONTRACT (ABC)**

In recognition of the faithful, satisfactory, and complete performance of all works and obligations under the design-and-build services, WMSU shall compensate the Design-Build Contractor in an amount not exceeding the Approved Budget for the Contract, totaling **FORTY SIX MILLION SIXTY THOUSAND PESOS (₱46,060,000.00)**. Such payment shall be made only after compliance with all required procedures under the Republic Act 9184 and 12009 and the Government Accounting and Auditing Manual. The stated contract amount is deemed inclusive of all applicable taxes, fees, and charges.

**IX. TERMS OF PAYMENT**

**A. ADVANCE PAYMENT**

An advance payment of up to fifteen percent (15%) as indicated in the table below, payable in Philippine pesos, may be released upon the DBC's

submission of a written request for each phase of work to support mobilization expenses. This advance shall be deducted by WMSU in equal installments from the succeeding progress billing statements until fully liquidated.

## B. TERMS OF PAYMENT

The payment scheme below shall be observed in the processing of payments in favor of the Design-Build Contractor. PAYMENT shall be subject to ten percent (10%) retention money. WMSU shall release to the Design-Build Contractor the total retention money only after the full acceptance of the Project, and upon clearance of all liabilities relative to the Project.

Mode of Payment		Percentage
<b>A. Design Phase</b>		<b>3%</b>
1	Down Payment / Mobilization Fee Shall be released upon signing of contract between the Design-Build Contractor and WMSU	15%
2	Pre-Design Phase The <b>35% of the 3%</b> of the DBC's fee shall be released after submission of documents required as specified in <b>Section V: Deliverables of the Design and Build Contractor</b>	35%
3	DAED To be paid in two (2) equal payments. <ul style="list-style-type: none"> <li><b>1st tranche</b> equivalent to <b>25% of the 3%</b> of the DBC's fee shall be released after submission of documents required as specified in <b>Section V: Deliverables of the Design and Build Contractor</b></li> <li><b>2nd tranche</b> equivalent to <b>25% of the 3%</b> of the DBC's fee shall be released after submission of documents required as specified in <b>Section V: Deliverables of the Design and Build Contractor</b></li> </ul>	50%
<b>B. Project Construction Phase</b>		<b>97%</b>
1	Down Payment / Mobilization Fee Shall be released upon approval of the Detailed Architectural and Engineering Design	15%
2	Pre-Construction Phase Equivalent to <b>5% of the 97%</b> of the Design-Build Contractor's fee shall be released after submission of documents required as specified in <b>Section V: Deliverables of the Design and Build Contractor</b>	5%

3	Construction Phase Post-Construction Phase  To be paid through progress billing and shall be released after submission of documents required as specified in <b>Section V: Deliverables of the Design and Build Contractor</b>	75%
4	Post-Construction Phase  Final billing shall be released after submission of documents required as specified in <b>Section V: Deliverables of the Design and Build Contractor</b>	5%

## X. SUBMISSION AND RECIEPT OF BIDS

### A. Technical Proposal

In the submission of bids, the first envelope (Technical Proposal) shall contain all the required documents for infrastructure projects under Section 25.3 (b) of the IRR of R.A. 9184 and the following additional documents:

1. Preliminary Conceptual Design
  - Architectural Floor Plans (Schematic Layout)
  - Elevations and Sections (Conceptual)
  - 3D Perspective or Renderings
  - Site Development Plan (Refer to Annex B)
  - Concept statement or Design Narrative
2. Design and Construction Method
3. List of Design and Construction Personnel with their complete qualification and experience data.
4. Value engineering analysis of design and construction method.

### B. Financial Proposal

In the submission of bids, 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:

1. Lump-sum bid prices, which shall include the detailed engineering cost, in the prescribed Bid form.
2. Detailed estimates, including a summary sheet indicating the unit prices of construction materials, labor rates, and equipment rental used in coming up with the bid.
3. Cash flow by the quarter and payments schedule.

## XI. BILL OF QUANTITIES

Item No.	Item Description	Qty.	Unit	Unit Price	Amount
A	Design Phase	1	l.s.		In words:
					In figures:
B	Project Construction Phase	1	l.s.		In words:
					In Figures:
<b>TOTAL</b>					In words:
					In Figures:

## XII. BID EVALUATION AND CRITERIA

### A. First – Step Procedure

1. The first step of the evaluation shall involve the review of the preliminary conceptual designs and track record submitted by the contractor as indicated in the bid documents using a non-discretionary “pass/fail” criteria that involve compliance with the following requirements:
  - a. Adherence of preliminary design plans to the required performance specifications and parameters and degree of details;
  - b. Concept of approach and methodology for detailed engineering, design and construction with emphasis on the clarity, feasibility, innovativeness and comprehensiveness of the plan approach, and the quality of interpretation of project problems, risks, and suggested solutions;
  - c. Quality of personnel to be assigned to the project which covers suitability of key staff to perform the duties of the particular assignments and general qualifications and competence including education and training of the key staff;
2. For complete or unique undertakings, such as those involving highly specialized or advanced engineering technology, eligible bidders may be required, at the option of the agency concerned, to make an oral presentation within three (3) calendar days after the dealing for submission of technical proposals.

## B. Second – Step Procedure

1. Only those bids that passed the above criteria shall be subjected to the second step of evaluation. The BAC shall inform the results, and Eligible Bidders shall be notified.
2. The BAC shall open the Financial Proposal of each “Passed” eligible bidder in the presence of the Bidder’s Authorized Representatives and shall read out the process. The points shall be ranked, in descending order, from highest to lowest.
3. The BAC shall review the bid process of eligible bidders and determine the **MOST ECONOMICAL AND ADVANTAGEOUS RESPONSIVE BIDDER (MEARB)**.

<b>EVALUATION FOR MEARB</b>			
<b>Criteria</b>		<b>Numerical Weight</b>	<b>Points</b>
<b>A</b>	<b>Preliminary Conceptual Design Plans</b>	<b>32</b>	
	Design Concept & Creativity		
	Functionality & Space Planning		
	Compliance with TOR & Performance Parameters		
	Presentation Quality		
<b>B</b>	<b>Design and Construction Method</b>	<b>18</b>	
	Design Development Approach		
	Construction Methodology & Sequence		
	Safety and Quality		
<b>C</b>	<b>List of Design and Construction Personnel</b>	<b>6</b>	
	Organization, Qualification, and Experience of employees or staff assigned to perform the contract.		
<b>D</b>	<b>Value Engineering Analysis</b>	<b>24</b>	
	Identification and Quality of Alternatives		
	Cost-Benefit & Lifecycle Analysis		
	Technical Feasibility & Constructability		
	Innovation, Sustainability & Maintainability		
<b>TOTAL FOR TECHNICAL PROPOSAL</b>		<b>80</b>	
<b>E</b>	<b>Price</b>	<b>20</b>	
<b>TOTAL POINTS</b>		<b>100</b>	

Note: The passing for Technical Proposal or additional documents is 40.

### **XIII. OBLIGATION OF THE DESIGN-BUILD CONTRACTOR (DBC)**

The DBC shall undertake all works necessary for the Architectural and Engineering (A&E) Design, and Project Construction of the proposed Construction of the College of Engineering School Infrastructure to the highest standards of professional and ethical competence and integrity. In general, the primary roles and responsibilities of the DBC includes, but is not limited to the following:

1. Conduct preliminary engineering studies and activities required for the above services of the proposed Construction of the College of Engineering School Infrastructure, in compliance with the provisions of relevant laws, ordinances, codes, rules and regulations.
2. Consult and verify with WMSU to ascertain the requirements of the proposed project.
3. The DBC shall secure all clearances, permits, and documentation required for the application or registration of the new College of the Engineering on its own account and expense. This involves ensuring strict adherence to the criteria and standards outlined by respected certification bodies.
4. The result of above services should fulfill design criteria standards.
5. The result of above services should accommodate the limitations expressed by WMSU including the requirement of this TOR such as in the aspect of payment, work schedule and the quality of building to be designed.
6. The result of above services should fulfill the regulations, standards and technical guidance of buildings that are generally in effect.
7. The DBC shall assist WMSU to manage and oversee the entire lifecycle of the project. This involves meticulous management to ensure adherence to project schedules, budgets, and stringent quality standards.
8. Consolidate project records and operating manuals and guides for easy reference.
9. Assist in the preparation and issuance of Certificate of Completion of Works, and other necessary documents for audit purposes until its completion and acceptance.
10. Certify that is has inspected and examined the proposed project site, its surroundings, and existing infrastructure and facilities related to the execution of the work and has obtained all the pieces of information that are considered necessary for the proper implementation of the work covered in the Bidding Documents.
11. Ensure that all works at the stages of design, construction, restoration of affected areas, and testing and commissioning shall be carried out efficiently and effectively.
12. Provide WMSU with complete reports such as technical analysis, maps, and details regarding the existing conditions and proposed improvements within the site.

13. Be accountable for accidents that might occur during the execution of the project and install warning signs and barriers in accordance with Department of Labor and Employment (DOLE) guidelines and construction safety procedures in the Bidding Documents for the safety of the public and the avoidance of any accidents.
14. Be professionally liable for the design and shall submit all its designs, plans and as parts of its Technical Proposal using Bid Forms and Qualification information. The contractor shall be liable for design and structural defects and/or failure of completed projects within the periodic specified in IRR/R.A. 9184.
15. Implement designs, plans, and drawings in accordance with Minimum Performance Standards and Specifications, and submit basic architectural plans as required in its approach and methodology, bid forms and qualification information.
16. Ownership of all designs, drawings, specifications and copies thereof, prepared and furnished by the DBC in the performance of the services of this agreement shall be the property of WMSU and shall not be used by the DBC without the prior written approval of the former. Print and electronic copies of such documents shall be turned over to WMSU.
17. In addition, all data and information related to the Project shall be treated with strict confidentiality. The same shall not be released or revealed to a third party without prior written consent of WMSU.
18. The DBC and its affiliates shall abide by and comply with all applicable laws, rules and regulations of any Philippine government or regulatory body having jurisdiction over their professional practice and the services provided in this Agreement.

#### **XIV. OBLIGATION OF WESTERN MINDANAO STATE UNIVERSITY (WMSU)**

1. Provide available data to the DBC. WMSU informs that data and information in the Bidding Documents are for reference and does not guarantee that these are entirely correct, up to date, and applicable to the Project. The DBC is responsible for the accuracy and applicability of all data, including the above, that it would use in its design and build proposal and services, as provided in annex "G"/IRR R.A. No. 9184.
2. Provide sufficient, properly qualified operating and technical personnel, as required by the Contractor, to facilitate the proper execution of the project at or before the specified time outlined in the Terms of Reference and/or Updated Project Plan.
3. Approve the DBC's design without diminishing its sole full responsibility for the quality and integrity thereof as contractor.
4. Monitor the implementation of the projects in coordination.
5. Pay the contractor's submitted accomplishment accepted in conformity with the payment schedule in the approved contract, in accordance with the designs approved by WMSU and government accounting and auditing rules and regulations.

6. Designate an on-site representative for the Project.
7. Perform other responsibilities as may be specified in the contract agreement.
8. WMSU and its employees shall not enter into business arrangements with DBC, or receive any commissions, fees, and favors in the form of substantial gifts or entertainment from DBC.

#### **XV. SUSPENSION AND TERMINATION OF AGREEMENT**

In the event that the DBC defaults, fails, or refuses to perform the required services in a manner consistent with the agreed-upon results, or otherwise violates the provisions of this Terms of Reference, WMSU may issue a Notice of Suspension of Payment. Upon issuance of such notice, WMSU may suspend payment, whether in full or in part.

#### **XVI. LIQUIDATED DAMAGES**

The DBC binds itself to pay liquidated damages in case of any breach of the provisions of the Contract. The DBC shall be charged and pay liquidated damages equal to one-tenth of one percent (0.1%) of the cost of the unperformed portion for everyday of delay. Once the cumulative amount of liquidated damages reaches ten percent (10%) of the amount of the contract, WMSU shall rescind the contract, without prejudice to other courses of action or other remedies open to it.

#### **XVII. WARRANTIES OF THE DESIGN-BUILD CONTRACTOR**

1. The DBC warrants that it shall conform strictly with the terms and conditions of the Terms of Reference.
2. The DBC warrants and guarantees the reliability of their service and that their manpower complement is hardworking, qualified, reliable and dedicated to do the service required to the satisfaction of WMSU. It shall employ highly skilled, well behaved and honest employees with proper identification cards displayed conspicuously while working inside the premises of WMSU. It shall not obtain the services of any personnel of WMSU to work in any category.
3. The DBC shall comply with the laws governing employee's compensation, PhilHealth, Social Security, labor standards and other laws, rules and regulations applicable to its personnel employed on account of the contracted services.
4. The DBC, in the performance of its services, shall secure and maintain at its own expense all registration, licenses or permits required by national or local laws and shall comply with the rules, regulations and directives of regulatory authorities and commissions.
5. The DBC, shall coordinate with authorized and/or designated personnel of WMSU in the performance of their services.
6. The DBC shall be liable for loss, damage, or injury as may be due directly through the fault or negligence of its personnel. It shall assume responsibility, and WMSU shall be released from any responsibility arising therein.

7. The DBC shall comply with all the documentation to be required by the Commission on Audit (COA) even after completion of the Project at no additional cost to WMSU.

#### **XVIII. PROJECT ACCEPTANCE**

1. The DBC shall coordinate with WMSU to ensure that the completed construction works are in accordance with the Construction Contract documents (plans and specifications) approved by WMSU and all other obligations contained in separate documents made part of the Contract;
2. WMSU shall release the retention fee upon Final Acceptance of the project;

#### **XIX. CONFLICT OF INTEREST**

The DBC shall render professional, objective, and impartial advice, and must consistently uphold the paramount interests of WMSU, without regard for potential future engagements. The DBC shall strictly avoid any circumstance that may create a conflict of interest with its other projects or personal interests. Furthermore, the DBC shall not be engaged for any undertaking that conflicts with its existing or prior commitments to other entities, or that may compromise its ability to execute the Project in the best interest of WMSU. (Refer to Section 47.2 of the 2016 Revised IRR of RA 9184.)

APPENDIX – A

SPACE REQUIREMENTS  
FOR  
CONCEPTUAL DESIGN



Minimum total floor area: **1279 sq.m**

#### Ground Floor

- College Library (Minimum of 46 seating capacity) with Tables and Stool, Full Windows from Column to Column
- Regular Classroom (9x7 sq.m, minimum of 1 rooms with 40 seating capacity per room)
- Faculty Room (Minimum capacity of 19 table) with pantry and common toilet, Air Conditioning Unit (ACU)
- Electrical and Auxiliary Room
- Male Toilet
- PWD/Gender Neutral Toilet
- Stairs
- Corridor
- Fire Exit

#### Second Floor

- Regular Classroom (9x7 sq.m, minimum of 3 rooms with 40 seating capacity per room)
- Female Toilet
- Access Stairs
- Corridor
- Fire Exit Stair

#### Third Floor

- Laboratory (9x7 sq.m minimum of 3 room with 30 seating capacity) with Fume Hood, Laboratory Wash bin or Chemical Basin with 2 sinks (3 sets), Shower room
- Female Toilet
- Access Stairs
- Corridor
- Fire Exit Stair

#### Roof Deck

- Minimum of two (2) Stainless Steel Water Tanks (2000L Capacity each)
- Chemical Storage Room with partitions and shelves

**APPENDIX – B**

**SITE DEVELOPMENT  
FOR  
CONCEPTUAL DESIGN**



**APPENDIX – C**

**DRAWING GUIDELINES  
FOR  
CONCEPTUAL DESIGN**

## GENERAL DRAWING GUIDELINES FOR CONCEPTUAL DESIGN

### I. General

- a. All drawings shall be computer-drafted. Drawings shall be both in printed and electronic copies.
- b. Keep the same orientation for all plans. The **north** orientation shall be indicated in all architectural floor plans. The orientation of the architectural plans shall be consistent with all the engineering plans.
- c. Existing buildings and new works shall be clearly indicated and labelled in the site plans.

### II. Architectural Floor Plans (Schematic Layout)

- a. All plans shall be at 1:100 meters.
- b. Elevations callouts shall be indicated on the floor plans and shall be consistent with the elevation drawing.
- c. Section line callouts on the floor plans shall be consistent with section drawing.
- d. Floor elevations shall be indicated in the floor plans. This shall be in reference to the natural grade line or the established finished floor lines of the adjoining existing buildings

### III. Elevations and Sections (Conceptual)

- a. Provide at least four elevations.
- b. Indicate measurements for finish floor levels and notable building heights (e.g. roof/s, parapet/s, canopies, spires, towers and other projections) where applicable.
- c. Indicate measurements for other surface features/elements.
- d. Finish floor lines and top of truss/roof deck lines shall be consistent to all the elevations, sections and structural plans and details.
- e. The height from finish ground line to finish ground floor line shall higher than the recorded floor level of the area for the past five (5) years.

### IV. 3D Perspective or Renderings

- a. In the most appreciable scale, show the entire structure's façade or a prominent features; include appropriate elements to scale the structure's volume (e.g. human figures, vehicles, tress, and vegetation, adjacent structures.).

### V. Site Development Plan

- a. The site development plan shall have a scale not smaller than 1:200 meters and shall show the structures in relation to each other and its natural or built surroundings.
- b. Site Development plan shall include the following:
  - Contour and survey of the lot, including bearing and distance of the property line.
  - Road network and curbs and sidewalks.

- Parking spaces.
  - Reference location of existing trees.
  - Reference location and footprint of existing buildings, with the corresponding building names and dimensions, including distances between buildings and the nearest property line.
  - Reference location of utilities, e.g. water reservoirs, septic tank, wastewater treatment plant, powerhouse, transformers, waste storage area, security outpost and waiting sheds.
  - Site furniture and other site features.
- c. Identify building/structure name and its corresponding number of storeys/ levels.
  - d. Reflect modules and total dimensions of structures.
  - e. Indicate dimensions of all other site elements.

**APPENDIX – D**

**PERFORMANCE SPECIFICATIONS  
AND PARAMETERS**

## **I. ARCHITECTURAL DESIGN PARAMETERS**

The Architectural Works shall be in accordance with the following laws, codes and standards.

### **A. Codes and Standards**

#### **i. Laws and Codes**

- National Building Code of the Philippines and its latest amended IRR
- Philippine Green Building Code (DPWH, 2015)
- RA 9266 or Architectural Law and its Latest and Amended IRR
- BP 344 or Accessibility Law and its Latest and Amended IRR
- AO 35, s. 1994 or, AO Pertaining to the Control of Radiation Hazards
- RA 9514 New Fire Code of the Philippines
- Anthropometrics Standards
- Existing Local Codes and Ordinances
- And other Laws that applies to the projects

#### **ii. Standards**

- Bureau of Product Standards (BPS)
- Underwriters Laboratory (UL)

### **B. Proposal should include the following:**

- Table of Content
- Perspective/s
- Location Pan
- Site Development Plan
- Interior Perspective/s
- Floor Plans
- Roof Plans
- Elevations in four sides of the building
- Cross section
- Longitudinal section
- Accessibility feature details (ramp details, warning tactile block layout, etc.)
- Reflected Ceiling Plan
- Toilet details including PWD toilet
- Toilet Counter Details
- Step Details
- Fire Exit Stair Details
- Access Stair Details
- Floor Tiles Pattern details and Specifications
- Gutter Details
- Spandrel Details
- Railing details
- Schedules of Doors and Windows
- Ceiling Details and Ceiling Manhole Details
- Pantry details

- Schedule of Finishes (walls, floor, ceiling)
- Mounted height details
- Bay section along façade of the building
- Bay section along rear of the building
- Built-in Cabinet details (overhead cabinets, undercounter cabinets, etc.) (if any)
- Electrical Room details
- And other Architectural details that implies to the project

## II. STRUCTURAL/CIVIL WORKS DESIGN PARAMETERS

The Civil/Structural Design shall be in accordance with the following Philippines laws, Codes and Standards

### A. Codes and Standards

- i. Laws and Codes
  - National Structural Code of the Philippines (NSCP) 2015
  - National Building Code of the Philippines and its Latest and Amended IRR
  - Philippine Green Building Code (DPWH, 2015)
  - Civil Engineering Law R.A. 544
  - RA 9514 New Fire Code of the Philippines
  - Accessibility Law
  - Local Codes and Ordinances
  - And other Laws that applies to the projects
- ii. Standards
  - Bureau of Product Standards (BPS)
  - Philippine National Standards (PNS)
  - DPWH Blue Book
  - American Concrete Institute (ACI)
  - American Society for Testing Materials (ASTM)
  - American Welding Society (AWS)
  - American Institute of Steel Construction (AISC)

### B. Proposal should include the following:

- General Construction Note
- Foundation Plan
- Column Details
- Framing Plan
- Beam and Girder Schedule
- Column Schedule
- Footing Schedule
- Column Detail
- Beam Detail
- Girder Detail
- Slab Detail

- Framing Plan of Stair
- Typical Floor Level Stair Detail
- Detail of Elevator Shaft
- Schedule of Slab Reinforcements
- End-wall Detail
- Roof Framing Plan
- Detail Elevation of Truss
- Schedule of Truss Members
- Detail of Truss Anchorage and Connections
- Detail Section of RC Ramp
- Spot Detail (Media Agua)
- Fire Exit Detail
- Slope Protection Detail

### **III. ELECTRICAL & AUXILIARY DESIGN PARAMETERS**

The Electrical System Design Parameter shall be accordance with the following Philippine laws, Codes and Standards.

#### **A. Codes and Standards**

- i. Laws and Codes
  - Philippine Electrical Code
  - National Electrical Code
  - RA 9514 New Fire Code of the Philippines
  - National Building Code of the Philippines and its Latest and Amended IRR
  - Philippine Green Building Code (DPWH, 2015)
  - Existing Local Codes and Ordinances
  - And other Laws that applies to the projects
- ii. Standards
  - Bureau of Product Standards (BPS)
  - Underwriters Laboratory (UL)
  - National Fire Protection Association
  - International Electro Technical Commission (IEC)
  - Illumination Engineering Society (IES)
  - National Electrical Manufacturer's Association (NEMA)

#### **B. Proposal should include the following:**

- Lighting and Power Layout Plan to include ACU outlet and Emergency Light outlet
- Load Schedules
- Fault Analysis, Voltage Drop Calculations and Arc – flush Hazard Analysis
- Single Line Diagram
- General Notes and Specification
- Legend and Symbols
- Cable Schedule

- Electrical Riser Diagram
- Location / Site Plans (Location of Possible Tapping point and possible for location for the Generator)
- Lightings Specification (Wattage, Lumens, Color, Temperature, IP Rating, shall be LED type)
- AC units shall be of inverter type
- Dismantle, reinstall and rewire of existing 100 kWp roof Solar Panel to include servicing of solar modules
- Service entrance shall be 3 phase, 4 wires, 230V underground (color coded as R,B,Y, and Green for ground conductor) and tap to existing terminal box
- Relocate and reinstall the existing 125 kVA generator set with enclosure
- Provide four (4) convenience outlets for wall fan and two (2) convenience outlets for general use in every classroom as provision
- Provide two (2) aircon outlets to all faculty rooms, stock room and laboratory rooms as provision
- All panelboards shall be center main and bolted type
- Provide emergency light and exit signage at hallways leading to stairways and emergency exit doors

#### **IV. SANITARY / PLUMBING DESIGN**

The Sanitary / Plumbing Design shall be in accordance with the following Philippine Laws, Codes and Standards.

##### **A. Codes and Standards**

- i. Laws and Codes
  - National Building Code of the Philippines and its Latest and Amended IRR
  - Philippine Green Building Code (DPWH, 2015)
  - RA 9514 New Code of the Philippines
  - National Plumbing Code of the Philippines (NPCP)
  - 2024 Uniform Plumbing Code of the Philippines (UPC)
  - PD 856 Sanitation Code of the Philippines
  - Existing local Codes and Ordinances
  - And other Laws that applies to the projects
- ii. Standards
  - Bureau of Product Standards (BPS)
  - Philippine National Standards for Drinking-Water
  - Underwriters Laboratory (UL)
  - DOH National / Laboratory (NRL)
  - DOH Health Care Waste Management Manual
  - National Water Resources Board (NWRB)
  - National Plumbers Association of the Philippines (NAMPA)
  - Philippine Society of Sanitary Engineers, Inc. (PSSE)

B. Proposal should include the following:

- Plumbing Notes and Legend
- Plumbing General Specifications
- Water Line Layout
- Water Line Layout (Isometric)
- Sewer Line Layout
- Sewer Line Layout (Isometric)
- Rain Water Collection Line Layout
- Rain Water Collection Line Layout (Isometric)
- Detail of Septic Tank
- Detail of Laboratory Waste/Wastewater Pretreatment System
- Detail of Cistern Tank
- Details of Rainwater Collector
- Details of Catch Basin and Drainage Canal
- Hot Water Connection Details
- Overhead Water Tank Details
- Blow-up Details

**V. MECHANICAL WORKS DESIGN PARAMETERS**

The Mechanical Design and Fire Protection System Design shall be in accordance with the following Philippine Laws, Codes and Standards.

A. Codes and Standards

i. Laws and Codes

- National Building Code of the Philippines and its Latest and Amended IRR
- Philippine Green Building Code (DPWH, 2015)
- RA 9514 New Fire Code of the Philippines
- Mechanical Engineering Code of the Philippines (ME Code)
- Existing Local Government Codes and Ordinances
- And other Laws that applies to the projects

ii. Standards

- Bureau of Products Standards (BPS)
- Philippine National Standards (PNS)
- Underwriters Laboratory (UL) and Factory Manual (FM)
- International Electro-Technical Commission (IEC) 1988
- National Fire Protection Association (NFPA)
- National Fire Protection Association (NFPA) 99 Standards for Health Care Facilities
- American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE)
- Center for Disease Control and Prevention (CDC) Manual

B. Proposal should include the following:

- General Notes

- Fire Extinguisher
- Ventilation and Ceiling Plan Layout
- Air Conditioning Unit Layout
- Elevator Details
- Isometric Diagram of Water Pumping System
- Details of Pumps and Pump Connection

## **VI. ELECTRONICS AND AUXILIARY DESIGN PARAMETERS**

### **A. Codes and Standards**

- i. Laws and Codes
  - National Building Code of the Philippines and its Latest and Amended IRR
  - Philippine Green Building Code (DPWH, 2015)
  - RA 9514 New Fire Code of the Philippines
  - Philippine Electronics Code
  - Philippine Electrical Code
  - Existing Local Government Codes and Ordinances
  - And other Laws that applies to the projects
- ii. Standards
  - Bureau of Products Standards (BPS)
  - Philippine National Standards (PNS)
  - Underwriters Laboratory (UL) and Factory Manual (FM)
  - International Electro-Technical Commission (IEC) 1988
  - National Fire Protection Association (NFPA)
  - National Fire Protection Association (NFPA) 99 Standards for Health Care Facilities
  - American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE)
  - Center for Disease Control and Prevention (CDC) Manual

### **B. Proposal should include the following:**

- Automatic Fire Detection Alarm System Details
- Close Circuit Television Details
- LAN/WAN Details
- Security System

## **VII. DESIGN CALCULATIONS, PROGRAM OF WORKS, TECHNICAL SPECIFICATIONS AND OTHER RELEVANT DOCUMENTS**

### **A. Proposal should include the following:**

- Structural Design and Analysis
- Electrical Load Analysis (short circuit calculation and voltage drop analysis)
- Program of Works (POW) including Detailed Cost Estimate (DCE), Bill of Quantities (BOQ) and Detailed Unit Price Analysis (DUPA)

- Construction schedule / Gantt chart and S-curve
- Manpower schedule
- Construction Methodology
- Architectural Specifications
- Structural Specifications
- Electrical Specifications
- Sanitary and Plumbing Specifications
- Mechanical Specifications
- Electronics Specifications
- Construction Safety Health and Program approval by the DOLE

**APPENDIX – E**

**MINIMUM REQUIRED EQUIPMENT**

Minimum required contractor's equipment unit	
Description	Quantity
Dump Truck (12 cu.yd)	1
Backhoe (0.8 cu.m)	1
Transit Mixer	1
Pumpcrete	1
Lifter	1
Modular Formwork System	1 lot
Bagger Mixer	1
Concrete Vibrator	1
Bar Cutter	1
Bar Bender	1