



Republic of the Philippine
TARLAC STATE UNIVERSITY
Romulo Blvd., San Vicente, Tarlac City
Tel. No.: (045) 982 4630
Website: www.tsu.edu.ph

Bidding Documents

(This Bidding Documents is in conformance with the Sixth Edition of the Philippine Bidding Documents for the Procurement of Infrastructure Projects)

For the Project

Construction of the College of Public Administration and Governance Building (Phase III)

**With an Approved Budget for the Contract (ABC) of
Sixty-Five Million One Hundred Thirty Nine Thousand Six
Hundred Eighty Four and 61/100 Pesos (₱ 65,139,684.61)**

**Invitation to Bid No. Infra 10-018-2023
PhilGeps Reference No.: 10331724**

**July 2020
6th Edition**

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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.

Section I. Invitation to Bid



Republic of the Philippine
TARLAC STATE UNIVERSITY
Romulo Blvd., San Vicente, Tarlac City
Tel. No.: (045) 982 4630
Website: www.tsu.edu.ph

INVITATION TO BID

For the Project

Construction of the College of Public Administration and Governance Building (Phase III)

Invitation to Bid No. Infra 10-018-2023

1. The Tarlac State University, through **Special Budget (SB) 2023** intends to apply the sum of **Sixty-Five Million One Hundred Thirty Nine Thousand Six Hundred Eight Four and 61/100 Pesos (₱ 65,139,684.61)** to payments under the contract for the project: **Construction of the College of Public Administration and Governance Building (Phase III)**.

Bids received in excess of the ABC shall be automatically rejected at bid opening.

2. The Tarlac State University now invites bids for the aforementioned Project. Completion of the Works is required within **two hundred seventy (270)** 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 regarding the bidding and inspect the Bidding Documents from 8:00 A.M. to 5:00 P.M., Tuesday to Friday starting on **November 15, 2023** at this address:

Motorpool and Administration Building
Tarlac State University
Romulo Blvd., San Vicente, Tarlac City
Tel. No. (045) 606-8142 / 0998 846 0206
Email: bacsec@tsu.edu.ph

5. A complete set of Bidding Documents may be acquired by interested Bidders from **November 18, 2023 to December 5, 2023** from the aforementioned address upon payment of the applicable fee for the Bidding Documents, pursuant to the latest Guidelines issued by the GPPB, in the amount of ₱ 25,000.00.

It may also be downloaded free of charge from the website of the Philippine Government Electronic Procurement System (PhilGEPS) and the website of the Procuring Entity, provided that Bidders shall pay the applicable fee for the Bidding Documents not later than the submission of their bids.

6. The Tarlac State University will hold a Pre-Bid Conference on **November 24, 2023 (10:00 A.M.)** at the Business Center Audio-Visual Room, 2nd Floor, Business Center Bldg., Tarlac State University, Romulo Blvd., San Vicente, Tarlac City which shall be open to prospective bidders.
7. Bids must be duly received by the BAC Secretariat at the address below on or before **December 5, 2023 (10:00 A.M.)**. Late bids shall not be accepted.

Motorpool and Administration Building
Tarlac State University
Romulo Blvd., San Vicente, Tarlac City
Tel. No. (045) 606-8142 / 0998 846 0206
Email: bacsec@tsu.edu.ph

8. All Bids must be accompanied by a bid security in any of the acceptable forms and in the amount stated in ITB Clause 14.
9. Bid opening shall be on **December 5, at 10:00 A.M.**, at the Business Center Audio-Visual Room, 2nd Floor, Business Center Bldg., Tarlac State University, Romulo Blvd., San Vicente, Tarlac City. Bids will be opened in the presence of the bidders' representatives who choose to attend.
10. The Tarlac State 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 IRR of RA 9184, without thereby incurring any liability to the affected bidder or bidders.
11. For further information, please refer to:

Ms. Jhenna Micah A. Manankil / Mr. Joshua Jonathan S. Jacinto
BAC Secretariat
Motorpool and Administration Building
Tarlac State University
Romulo Blvd., San Vicente, Tarlac City
Tel. No. (045) 606-8142 / 0998 846 0206
Email: bacsec@tsu.edu.ph

DR. MURPHY P. MOHAMMED
BAC Chairperson

Section II. Instructions to Bidders

1. Scope of Bid

1. The Procuring Entity, **Tarlac State University** invites Bids for the project: **Construction of the College of Public Administration and Governance Building (Phase III)**, with Project Identification Number: Invitation to Bid No. **Infra 10-018-2023**.

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 **2023** in the amount of **₱ 65,139,684.61**
- 2.2. The source of funding is the **Special Budget**.

3. Bidding Requirements

- 3.1. 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.
- 3.2. 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.
- 3.3. 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 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. The Bidders shall comply with the eligibility criteria under Section 23.4.2 of the 2016 IRR of RA No. 9184.

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 Procuring Entity has prescribed that subcontracting is not allowed.

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 the address 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 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 **April 3, 2024**. 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

- 16.1. Each Bidder shall submit one copy of the first and second components of its Bid.
- 16.2. 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.
- 16.3. 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. 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 16 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

| ITB Clause | | | |
|------------|--|--|---------------|
| 5.2 | For this purpose, contracts similar to the Project refer to contracts for the construction of a building, at least three-story high, with similar scope of works as the Project. | | |
| 7.1 | No further instructions. | | |
| 10.3 | No additional requirements. | | |
| 10.4 | The minimum work experience requirements for key personnel are the following: | | |
| | Key Personnel | Qualification and Experience | |
| | Project Manager | <ul style="list-style-type: none"> • Must be a licensed Architect or Civil Engineer • Must have at least 5 years of experience in construction project management. | |
| | Project Architect/Engineer | <ul style="list-style-type: none"> • Must be a licensed Architect or Civil Engineer • Must have at least 3 years of experience in construction project supervision | |
| | Materials Engineer | <ul style="list-style-type: none"> • Must be a duly accredited Materials Engineer • Must have at least 3 years of experience as a Materials Engineer in construction projects | |
| | Electrical Engineer | <ul style="list-style-type: none"> • Must be a Registered Electrical Engineer • Must have at least 3 years of experience in building construction projects | |
| | Safety Officer | <ul style="list-style-type: none"> • DOLE accredited Construction Occupation Safety Officer • With at least 2 years of experience as a safety officer in construction projects | |
| | Foreman | <ul style="list-style-type: none"> • With at least 5 years of experience as foreman in building construction projects | |
| 10.5 | The minimum major equipment requirements are the following: | | |
| | Equipment | Min. Capacity | Min. Quantity |
| | Wheel Loader | 2-3 cu.m. | 1 |
| | Dump Truck | 10-16 cu.m. | 1 |
| | Tamping Rammer | 3 HP | 2 |
| | Drop Side Truck | 2 tons | 1 |
| | Concrete Mixer | 1-2 Bagger | 2 |
| | Welding Machine | 300A & 600A | 2 |
| | Bar Cutter | 10-32mm Ø rebar | 1 |
| | Bar Bender | 10-32mm Ø rebar | 1 |
| | Concrete Vibrator | 2800 rpm | 2 |
| | Bidder must state and show proof that the equipment to be pledged for the project are owned or leased. | | |
| 12 | No further instructions. | | |

| | |
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| 15.1 | <p>The bid security shall be in the form of a Bid Securing Declaration or any of the following forms and amounts:</p> <ol style="list-style-type: none"> 1. The amount of not less than ₱ 1,302,793.69 (2 % of ABC), if bid security is in cash, cashier's/manager's check, bank draft/guarantee or irrevocable letter of credit. 2. The amount of not less than ₱ 3,256,984.23 (5 % of ABC) if bid security is in Surety Bond. |
| 19.2 | <p>Partial bid is not allowed. The project is packaged in a single lot and the lot shall not be divided into sub-lots for the purpose of bidding, evaluation, and contract award.</p> |
| 21 | <p>The winning bidder shall submit the following documents, which shall form part of the Contract documents:</p> <ol style="list-style-type: none"> 1. Construction Schedule and S-Curve, 2. Manpower Schedule, 3. Construction Methods 4. Equipment Utilization Schedule 5. Construction Safety and Health Program approved by the Department of Labor and Employment, and PERT/CPM. |

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

- 3.1. 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.
- 3.2. 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

| GCC Clause | |
|------------|---|
| 2 | Not applicable. |
| 4.1 | Upon acknowledgement of receipt of the Notice to Proceed. |
| 6 | The site investigation reports are: as indicated in the Technical Specifications. |
| 7.2 | As prescribed in Section 62.2.3.2 of the 2016 revised IRR of R.A. 9184. |
| 10 | No dayworks are applicable to the contract. |
| 11.1 | The Contractor shall submit the Program of Work to the Procuring Entity’s Representative within five (5) 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 ten percent (10 %) of the amount of progress billing for the period. |
| 13 | The amount of the advance payment shall not exceed fifteen percent (15 %) of the contract price. |
| 14 | Materials and equipment delivered on the site but not completely put in place shall be included for payment. |
| 15.1 | The date by which operation and maintenance manuals are required is within ten (10) days after the final inspection. The date by which “as built” drawings are required is ten (10) days after the final inspection. |
| 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 ten percent (10 %) of the final billing. |

Section VI - Specifications

SECTION 1 – GENERAL CONDITIONS AND REQUIREMENTS

1.1 SCOPE OF WORK

1.1.1 The project shall comprise the **CONSTRUCTION OF THE COLLEGE OF PUBLIC ADMINISTRATION AND GOVERNANCE BUILDING (PHASE III)** which shall include the supervision and furnishing of labor, supplies, materials, equipment, and other incidental services that are essential to properly implement and produce the desired work output.

1.1.2 The inclusion of the gender perspective in the planning stage was taken into consideration. Observation and analysis in the planning process turned understanding into patterns of behavior; involvement and participation in the activities of men and women; and how the language of space can promote equality between them to ensure effectivity and efficiency of the building design. The identified differences between the roles of men and women demand various design approaches. It, therefore, provides an answer to how gender issues should be addressed in the project.

1.2 CONTRACT DRAWINGS

1.2.1 Details and extent of work are shown in the Drawings accompanying these specifications.

1.2.2 Sketches and other details not shown in the Drawings shall be furnished by the Architect/Engineer during the pace of construction.

1.3 PARTS OF THE SPECIFICATIONS

1.3.1 These Specifications include the following parts whose applicable provisions are binding on this contract:

| SECTION | DESCRIPTION |
|---------|------------------------------------|
| 1 | GENERAL CONDITION AND REQUIREMENTS |
| 2 | EARTHWORKS |
| 3 | STRUCTURAL WORKS |
| 4 | ARCHITECTURAL WORKS |
| 5 | PLUMBING WORKS |
| 6 | ELECTRICAL WORKS |
| 7 | MECHANICAL WORKS |

1.3.2 These Specifications are intended to supplement the provisions of the General Building Code to provide the proper construction. In the case of a difference between plans and specifications, these specifications shall govern. The Contractor must examine both carefully, compare and verify dimensions and data furnished by the TSU in case of discrepancy between figures and drawings, the matter should be immediately brought to the Engineer/Architect before any adjustment shall be made by the Contractor.

1.4 WORKMANSHIP

1.4.1 All operations required under all parts of the specifications shall be undertaken in a neat, workmanlike manner. Only skilled personnel with sufficient experience in similar operations shall be allowed to undertake the same.

1.5 INSPECTION OF SITE

1.5.1 The Bid may be deemed to have been based on data regarding physical conditions at the sites. The Contractor acknowledges and warrants that they inspected and examined the site and its surroundings and has satisfied by submitting their Tender as to the nature of work and materials necessary for the completion of the works, and the means of access to the sites, the accommodation they may require and that has obtained all necessary information as to risks, contingencies and other circumstances which may have influenced or affected their Tender. No increase in cost or extension of time will be considered for failure to inspect and examine the site condition.

1.6 ESTABLISHED FINISH FLOOR LINE

1.9.1 The Contractor shall inspect and examine the individual site conditions. No increase in cost or extension of time will be considered for failure to examine site condition. Control points and elevations will be furnished by the TSU and the Contractor shall be responsible for all other surveys and measurements required to accurately complete the work. Unless otherwise indicated by the TSU.

1.7 CONFLICT BETWEEN PLANS AND SPECIFICATIONS

1.7.1 Should there be any conflict between indications on drawings and provisions in specifications same shall be referred to the Engineer/Architect of TSU for resolution.

1.7.2 Any omission in the specifications of work or works to be undertaken but necessary for the completion of work, shall be undertaken by the Contractor as if indicated on drawings, without extra compensation. Such works shall be done in the usual manner required for the quality of materials and workmanship.

1.8 APPROVAL

1.8.1 The Contractor shall submit for the Engineer/Architect's approval, the complete list of manufacturer's names of all equipment and materials they propose to use.

1.8.2 After the approval of the above list, and before the purchase of any equipment or material, the Contractor shall submit to the Engineer/Architect's approval the detailed information consisting of manufacturer's bulletins and shop drawings.

1.9 REJECTIONS

1.9.1 Materials or workmanship not in reasonable conformance with the provision of these specifications shall be rejected at any time during the progress of the work. The Contractor shall receive copies of reports of rejection of materials and workmanship made by the authorized technical representative of TSU. Any part of the work that has been done and is not of the quality required by reasonable interpretation of the plans and specifications shall be torn down or removed immediately and rebuilt or otherwise remedy such work in accordance with the requirements of the plans and specifications.

1.10 VARIATIONS

1.10.1 The Engineer/Architect reserves the right to make slight changes in details of work or materials as he may deem advisable. These changes may include revision or modifications of shapes and dimension of elements that may involve additional expenses to the Contractor shall be covered by appropriate adjustment of the contract price.

1.10 AS-BUILT DRAWING AND PICTURES

- 1.11.1 The Contractor with the approval of the Engineer/Architect shall mark down all the revisions, omissions and/or additions to the various works on two sets of drawing plans as the construction progress. One set of the plans as marked shall be submitted to the Engineer/Architect after the completion of work.
- 1.11.2 The Contractor shall submit to the TSU As-Built Drawings incorporating all changes made and noted in the marked Drawings retained by him/her. The As-Built Drawings shall be prepared on reproducible form and submitted together with at least three (3) copies of A3 (11.7 in. X 16.6 in.)
- 1.11.3 The Contractor shall submit to the TSU pictures of the site before and after construction in reproducible and printed forms.

1.11 PERMITS

- 1.12.1 It shall be the responsibility of the Contractor to secure all permits of every description required to initiate and complete the work under this Contract, except permits obtained by the TSU. The Contractor shall be responsible for complying with all the requirements for the processing, and approval of all relevant and necessary permits including those to be obtained by TSU (i.e., Building Permit, Occupancy Permit, BFP Permit, Material Delivery Permit, Pull-out Permit, etc.).

1.12 MOBILIZATION AND DEMOBILIZATION

- 1.13.1 Upon receipt and acceptance of the Notice to Proceed, the Contractor shall immediately mobilize the workforce, equipment, and materials, and take possession and secure the project site.
- 1.13.2 Upon final completion of the work, the Contractor shall commence the demobilization of the workforce, equipment, and materials and turn over the project site to TSU.

1.13 BILLBOARD

- 1.14.1 Upon possession of the project site, the Contractor shall immediately erect the Billboard, showing the relevant details of the project, at the location and position designated by the TSU and of the dimensions and materials approved by the TSU.

1.14 TEMPORARY FACILITIES

- 1.15.1 Upon possession of the project site, the Contractor shall immediately erect temporary facilities such as field office, storage for equipment and materials, portable toilet, electric and water supply connections, etc., at the location designated by, and using only materials and the manner of construction approved by TSU.

1.15 CONSTRUCTION OCCUPATIONAL SAFETY AND HEALTH

- 1.16.1 The Contractor shall be responsible in ensuring the safety and health of the personnel assigned at the project site and other parties who may be affected in the implementation of the project.

- 1.16.2 The Contractor shall submit to TSU a copy of the Construction Occupation Safety and Health Program for the project that is duly approved by the Department of Labor and Employment before commencing with the work.
- 1.16.3 The Contractor shall designate a competent and qualified Safety Officer for the whole duration of the project.
- 1.16.4 The Contractor shall comply the Construction Safety Guidelines for the Infrastructure Projects During the COVID-19 Public Health Crisis based on the Revised Omnibus Guidelines on the Implementation of Community Quarantine in the Philippines by the Inter-Agency Task Force for the management of Emerging Infectious Diseases (IATF) granted authority to the Department of Public Works and Highways (DPWH) to issue Construction Safety Guidelines for allowed government and private construction projects.
- 1.16.5 All personnel assigned to the project are expected to report for work in their proper uniforms, basic safety gears (helmets, boots or shoes), and identification cards (IDs). The uniforms, basic safety gears, and IDs shall be provided by the Contractor at his/her own expense.
- 1.16.6 The Contractor shall establish and implement safety procedures for all relevant jobs, tasks, operations, and proper waste disposal for all assigned personnel.
- 1.16.7 The Contractor shall erect temporary barricades, install early warning and precautionary signs, and provide other safety devices that may be required to keep the job site safe and secured. Use roof sheet or plywood for temporary barricade with standard height and stable framing within the construction site as indicated in the plan: do not use "Blue Sack".
- 1.16.8 The Contractor shall maintain, at the project site, ample supplies of expendable materials for the safety and health of its personnel and other affected parties such as safety tape, first-aid kits, safety gloves, dust masks, etc., the cost of which shall be included in the contract price.
- 1.16.9 The Contractor shall keep a record of all incidents (near-miss or accident) and report the same to the TSU Architect/Engineer.

1.17 CLEARING, HAULING AND DISPOSAL WORKS

- 1.17.1. Clearing, hauling and disposal works shall include the removal and repair of all affected areas needed to complete the project.
- 1.17.2. The Contractor shall exercise all care to protect and maintain adjacent properties, trees, materials and such other facilities such as conduits, drains, sewers, pipes and other wires that are to remain in the property and shall restore without cost to TSU all property that may be damaged for whatever reason in the execution of the work.
- 1.17.3. All unusable materials, and debris resulting from the performance of work shall be removed from the premises and disposed of in the location and manner that shall be approved by TSU. All materials that can be reused shall be hauled and arranged properly by the Contractor before turning them over to TSU.

SECTION 2 - EARTHWORKS

2.1. SCOPE OF WORK

2.1.1. The work shall include the excavation, disposal of waste excavation, compaction of base, backfilling, compaction of soil and embankment construction within the limits of the Contract and in accordance with the contract documents. The work shall be completed to the lines, grades, and dimensions and cross-sections shown on the Drawings or as designated by the TSU Architect/Engineer.

2.2. TOPSOIL STRIPPING AND STOCKPILING OF EXCAVATED MATERIALS

2.2.1. Prior to the excavation and embankment work, topsoil shall be stripped from the affected areas and care shall be taken to avoid contamination of the topsoil and underlying soil.

2.2.2. The stripped topsoil shall be stockpiled on site for the subsequent use as topsoil for the embankment.

2.2.3. Stockpile excavated material that is suitable for use as backfill until material is needed.

2.2.4. Stockpile all materials without intermixing. Place, grade, and shape stockpiles to drain surface water.

2.2.5. Stockpile soil materials away from edge of excavations. Do not stockpile materials near or over existing facilities, adjacent property, or completed work, if weight of stockpiled material could induce excessive settlement.

2.2.6. Confine material storage to within the Limits of Work and approved work areas. Do not obstruct roads or streets.

2.2.7. Do not stockpile excavated material adjacent to trenches and other excavations unless excavation side slopes and excavation support systems are designed, constructed, and maintained for stockpile loads.

2.3. EXCAVATION

2.3.1. The Contractor shall excavate to the lines, grades and dimensions shown on the Drawings and as necessary to accomplish the work. Excavate to within tolerance of plus or minus 300 mm, except where dimensions or grades are shown or specified as maximum or minimum. Allow for working space.

2.3.2. The Contractor shall remove all earth materials containing objectionable materials such as concrete rubble, rubbish, roots, etc., from the areas where the foundations shall be placed and replace with suitable material and compacted.

2.3.3. The Contractor shall furnish, place, and maintain such sheeting, shoring, bracing, and underpinning as necessary at locations necessary to support the sides of excavations and to prevent danger to persons or damage to pavements, facilities, utilities, or structures, and to prevent injurious caving or erosion or the loss of ground and to maintain pedestrian and vehicular traffic as directed and required.

2.3.4. The Contractor shall implement measures to prevent surface and ground water from entering excavations causing ponding on prepared subgrades, and from flooding the project site and surrounding areas.

2.4. EMBANKMENT

2.4.1. Embankment shall be constructed of suitable materials placed on successive layers not greater than 150 mm in depth, distributed uniformly over the full width of the cross section. Each layer shall be spread and bladed by means of a blade grader or other approved equipment at least twice so that the compaction rollers shall bear uniformly on each new layer.

2.4.2. Rock and broken concrete from the demolition of old structures may be used on the lower layer of the embankment, only upon the approval of the TSU Architect/Engineer. The size of the rock or concrete shall not exceed the layer thickness requirements. The exposed reinforcing steel from concrete shall be cut and removed.

2.4.3. When rock and concrete fragments are used for the embankment, these should be spread uniformly, and the interstices shall be filled with fine material to produce a dense compact layer.

2.4.4. The compaction should begin at the outer embankment edges and gradually progress toward the center, rolling in a longitudinal direction so that the full width is uniformly compacted. In order to ensure proper compaction of the embankment slope, overfill by 150 to 300 mm and then trim the embankment to the specified shape.

2.4.5. Each layer shall be compacted to a minimum of 98% Standard Proctor density, ASTM D698 method except the last 300 mm up to the finished grade which shall be compacted to 100% Standard Proctor density, ASTM D698 method D.

2.4.6. The density of each completed layer shall be checked for each 500 square meters, or a fraction thereof. If test results show that the required density is not achieved, further compaction is necessary.

2.4.7. The water content of each layer, before being compacted, must be assessed. The material may require water to be added or be allowed to dry to bring the moisture content close to the optimum in order to make it possible to achieve the required dry density and hence degree of compaction.

SECTION 3 – STRUCTURAL WORKS

3.1. SCOPE OF WORK

3.1.1. Structural works shall include, where applicable, setting of gravel base, steel reinforcements, formworks, bracing, shuttering, shoring, scaffolding, concreting, vibrating, curing of concrete mixture, testing of steel reinforcement and concrete to complete all work herein specified and shown on drawings.

3.1.2. All structural steel work shall be in accordance with AISC Specification for the Fabrication and Erection of Structural Steel, material, and parts necessary to complete each item, through such work not shown or specified shall be included, such as miscellaneous bolts and anchor supports, braces and connections etc.

3.2. CONCRETE WORKS

3.2.1 Materials

- 3.2.1. Concrete Aggregates – shall conform to “Specification for Aggregates” (ASTM G33 latest revision). The maximum size of the aggregates shall not be larger than one-fifth (1/5) of the narrowest dimension between sides of the forms of the member for which the concrete is to be used not larger than three-fourth (3/4) of the minimum clear spacing between individual reinforcing bars and in no case larger than two (2) inches in diameter.
- 3.2.2. Reinforcing steel bars shall conform to ASTM Designation A-615-68 specifications for the structural grade. Grade of reinforcing steel bars shall be as follows:

| Diameter | Grade |
|-------------------|---------------|
| 10 mm Ø | G40 (276 MPa) |
| 12 mm Ø and above | G40 (276 MPa) |

- 3.2.3. Sand and gravel shall be well graded and free from any deleterious materials. The fine aggregate shall be washed sand (vibro) and size of course aggregates must be ¾” crushed gravel. Do not use river sand.
- 3.2.4. Cement and aggregates shall be stored in a manner as to prevent their deterioration or the intrusion of foreign matter. Materials of deteriorated quality or which has been damaged shall not be used for concrete. Cement whose quality is questionable shall be tested by standard mortar test to determine its suitability for use.
- 3.2.5. Forms shall conform to the shape, lines, and dimension of the member as called for on the plans and shall be substantial and sufficiently tight to prevent leakage of mortar. Use ¾” phenolic board, they shall be properly braced or tied to maintain position and shape.
- 3.2.6. Plywood, metal, plastic materials or surfaced lumber forms shall be used where it will best give the most advantage in the specific concrete work involved.
- 3.2.7. Unless otherwise ordered, forms and shoring shall not be disturbed and shall remain in place for a minimum period of time in accordance with the following schedule.

| Element | Length of Time |
|--|----------------|
| Foundation | 1 day |
| Walls and Columns | 2 days |
| Beams | 14 days |
| Suspended Slabs except when additional loads are imposed | 14 days |

3.2.2 Execution

- 3.2.2.1 Before placing reinforcement and before pouring concrete, remove all loose rusts, mill, scale, oil or other adhering materials which tend to reduce or destroy bond between concrete and reinforcement
- 3.2.2.2 Reinforcing steel bars shall be cut, bent, lapped or spliced as recommended by CRSI Handbook and ACI Codes. All lap splices of rebars shall conform to Class B Tension Lap Splice, unless noted otherwise. All hooks end shall be standard hooks. All stirrups/ties shall have 135° seismic hooks, unless noted otherwise. Cross ties shall have standard 90° hook on one end and 135° seismic hook on the other end. Consecutive cross ties with 90° and 135° hook ends shall be alternated.

3.2.2.3 Reinforcing steel bars shall be placed accurately and secured in place by use of concrete or metal supports, spacer or ties to firmly hold them in their proper positions during pouring and setting of concrete.

3.2.2.4 All reinforcing bars shall be cleaned thoroughly of all loose rust, soil or other material prior to concrete pouring. No bars partially embedded in concrete shall be field bent, except permitted by the Engineer/Architect. Bars shall not be welded unless authorized by the Engineer/Architect.

3.2.2.5 Maintain minimum concrete cover to traverse bars as follows:

| Element | Concrete Cover |
|---|----------------|
| Below Grade - Foundation & Walls | 75 mm |
| Below Grade – Columns, Beams, Girders & Pedestals | 75 mm |
| Above Grade – Columns, Beams, Girders & Pedestals | 50 mm |
| Above Grade - Suspended Slabs & Walls | 20 mm |
| Slab on Grade | 40 mm |

3.2.2.6 Testing of reinforcing steel bars shall conform to ASTM designation of specified materials. Samples of materials for testing shall be provided by the Contractor without extra additional cost to TSU. Likewise, the Contractor shall pay for the cost of testing the samples.

3.2.2.7 All horizontal reinforcements shall be tied to the vertical reinforcement at every intersection with #16 GI tie wire.

3.2.2.8 Pouring of concrete for floor framing must be poured monolithically.

3.2.3 Concrete Proportion and Consistency

3.2.3.1 Classes Of Concrete

3.2.3.1.1 Otherwise indicated in the plans, the minimum 28th days compressive cylinder strength of concrete with corresponding maximum aggregate size and slump shall be as follows:

| <u>Element</u> | <u>28th Day Strength</u> | <u>Max. Aggregate Size</u> | <u>Slump</u> |
|-------------------------|-------------------------------------|----------------------------|--------------|
| Foundation and Walls | 3,000 psi | ¾ in. | 4 in. |
| Columns and Pedestals | 3,000 psi | ¾ in. | 4 in. |
| Beams and Girders | 3,000 psi | ¾ in. | 4 in. |
| Suspended Slabs | 3,000 psi | ¾ in. | 4 in. |
| Slab on Grade | 3,000 psi | ¾ in. | 4 in. |
| Non-Structural Elements | 3,000 psi | ¾ in. | 4 in. |

3.2.4 Measurement

3.2.4.1 The unit of measure shall be the cubic foot. One bag of cement (40 kg) shall be considered as 0.028 cubic meter. Water shall be so measured as to insure the desired quantity of successive batches. Measurement of materials for ready mixed concrete shall conform to standard specifications for ready mixed concrete, ASTM Designation C-94, where applicable.

3.2.5 Mixing of Concrete

3.2.5.1 All concrete shall be machine mixed except in emergencies such as mixer breakdown during pouring operations where it shall be done by hand and shall stop at the first allowed construction joint. The time of mixing after all cement and aggregates are in the mixer drum shall not less than one minute for a mixer of having a capacity of one cubic yard or less; for a mixer of larger capacities, the minimum time shall be increased 15 seconds for each additional cubic yard or fraction thereof or additional capacity. All mixing water shall be introduced in the drum shall rotate at the peripheral speed of about 60.96 meter per minute throughout the mixing period. The entire contents of the mixer drum shall be discharged before recharging. The time elapsing between the introduction of the mixing water to the cement and aggregates and placing of the concrete in final position in forms shall not exceed 45 minutes. The re-tempering of concrete, i.e., mixing with additional cement, aggregate or water shall not be permitted.

3.2.5.2 Use Ready Mix Concrete 3000 psi for Footing, 2nd, 3rd Floor & Roof Deck Floor Suspended Slab, 2nd, 3rd Floor & Roof Deck Beam and at least Job Mix 3000 psi for others.

3.2.6 Conveying and Placing of Concrete

3.2.6.1 Water shall be removed from the excavation before concrete is deposited. Any continuous flow of water in the excavation shall be directed through side-drains to a slump or be removed by other approved methods to avoid washing the freshly deposited concrete. Debris shall be removed from the space to be occupied by the concrete and forms shall be thoroughly wetted.

3.2.6.2 Concrete shall be conveyed from the mixer to forms as rapidly as practicable, by a method which shall prevent segregation or loss of ingredients. There shall be no free vertical drop or loss of ingredients. There shall be no free vertical drop greater than 1.5 meters. Approval of TSU Engineer/Architect shall be obtained before starting any concrete pouring. Concrete shall be worked readily into the corners and angles of the forms and around all reinforcement and embedded items by depositing the concrete as close as possible to its final position in the forms and consolidating it with the aid of mechanical vibrating and consolidating it with the aid of mechanical vibrating equipment, supplemented by hand spading and tamping. In no case shall vibrators be used to transport concrete inside the forms. Vibrating equipment shall be in the internal type and not be overdone to cause segregation of particles and disturbance of setting concrete but just enough to produce an even heterogeneous distribution of ingredients.

3.2.6.3 Dumping concrete into cars or buggies with a free fall or more than three (3) feet will not be permitted. Hardened or partially hardened splashes or accumulations of concrete on forms or reinforcement shall be removed before the work proceeds. In case the rate of pouring is such as to allow splashes or accumulations to harden, concrete shall be placed with a flexible spout attached to a suitable hopper. Spouts and hoppers are provided to maintain the surface of the concrete as nearly level as possible at all times.

3.2.6.4 Construction Joints – If possible, concreting shall be done continuously until the section is complete. When a stoppage of concrete operations occurs construction joints shall be placed either horizontally or vertically as indicated by the TSU Engineer/Architect and provided with shear keys or dowels to develop a bond. Construction joints shall be as per plan or shall be approved as directed by the TSU Engineer.

3.2.6.5 Pouring of concrete for foundations shall be done after the TSU Engineer/Architect has verified the actual soil conditions at the site and approved the start of concreting. No footing shall rest on fill.

3.2.7 Curing

3.2.7.1 All concrete shall be moist cured for a period of not less than seven (7) days by an approved method of combination applicable to local conditions. The surface of the concrete shall be kept continuously wet by covering with water, by continuously spraying, or by covering with burlap or other approved materials thoroughly saturated with water and keeping the covering web by spraying or intermittent housing. Water for curing shall be free from any elements which might cause objectionable staining or discoloration of concrete.

3.2.8 Repair of Concrete

3.2.8.1 Imperfections

3.2.8.1.1 Repairs shall be completed within 24 hours after removal of forms.

3.2.8.1.2 Voids which appear upon the removal of forms shall be drenched with water and immediately filled with materials of the same composition as that used on the surface and smooth with a wood spatula or float.

3.2.8.2 Where present, large bulges and abrupt irregularities that protrude, shall be removed by brushing, hammering and grinding.

3.2.8.3 All materials, procedures, and operations used in the repair of concrete shall be approved by the TSU Engineer/Architect.

3.2.8.4 The cost of all material, labor, and equipment used in the repair shall be borne by the Contractor.

3.2.9 Concrete Slab on Fill

3.2.9.1 Concrete slabs on fill shall be laid on a prepared foundation consisting of-a subgrade and granular fill with thickness equal to the thickness of overlaying slab except as indicated otherwise. Sub-grade shall be rolled, rammed, or tamped layer by layer to a thoroughly compacted foundation. Granular fill shall consist of sound gravel, well grade and of a size that will pass a 1-1/2 inch diameter ring and will be retained on a No.4 screen. Gravel fill shall be without any organic material and debris and shall be compacted to provide an unyielding base. Concrete slab on fill on general storage area and platform shall not be less than 6" thick and all other areas will not be less than 4" thick.

3.2.10 Cement Finish for Concrete Surfaces

3.2.10.1 All concrete surfaces shall be given a finish done and applied in accordance with the following provisions.

3.2.10.1.1 Immediately after the removal of forms, all projecting wires and bolts, or other devices used for trying forms, shall be cut off at least one-half (1/2) centimeter beneath the finished surface. All holes, voids, depressions and other defects shall be thoroughly wetted and then pointed up the soil with cement mortar putty of the same proportion as the mortar used in the body of the work. All exposed surfaces shall be treated in such a manner as to effectivity elaborate, all lines, projections and marks impressed by the lumber for wood forms, to the general plan of the concrete surface.

3.2.10.1.2 Rubbed Finished: Unless otherwise specified, a rubbed finished shall be applied to all exposed concrete surfaces. Concrete surfaces shall be wetted immediately after the forms are removed and then rubbed even and smooth with carborundum brick or other abrasive to a uniform appearance without the application of any cement or another coating before the surface has hardened.

3.2.11 Concrete Floors and Slabs

3.2.11.1 All concrete shall be of such consistency as to required tamping to bring the water to the surface. Tamping shall be done with the least ten (10) centimeters square-faced tampers.

3.2.12 Inspection

3.2.12.1 Concrete shall be proportioned, mixed, and placed in the presence of TSU Engineer/Architect, ample notice shall be given before mixing is commenced.

3.2.13 Test of Concrete

3.2.13.1 Reasonable number of tests on the concrete may be required by the TSU Engineer/Architect during the progress of the work. Not less than four (4) cylindrical specimens shall be made or each test of which at least two (2) shall be reserved for the 28 days test. Samples shall be secured and molded in accordance with “Method of Sampling Concrete” (ASTM Designation C-172) and Method of Making and Curing Concrete Compression and Designation C-21). The Contractor shall provide the samples to be taken at the place of deposit and as specified by the TSU Engineer/Architect, without cost to TSU. The Contractor shall take care of transporting the samples to the approved testing laboratory without cost to TSU.

| Specimen | Day of Testing |
|------------|----------------------|
| At least 1 | 7 th Day |
| At least 1 | 14 th Day |
| At least 2 | 28 th Day |

3.2.13.2 To conform to the requirements of this Specifications the average strength of test samples representing each class of concrete shall be equal to or greater than the specified strength and not more than the one strength test in 10 shall have an average value less than 90 percent of the specified strength.

3.2.14 Failure of Test Samples

3.2.14.1 In the case of failure of Test Cylinders to meet the specified strength, the Contractor may at his expense, obtain concrete core samples from the poured, concrete and the compressive strength of the same to be taken by a competent testing authority to determine the conclusive strength and integrity for the concrete poured. Coring shall be done in a manner which shall make possible satisfactory replacement of cored samples. To determine the adequacy of the affected parts, the TSU Engineer shall have the option to order load test on parts of the structure where concrete strength test are below 80% of the strength specified.

3.2.14.2 These tests shall be in accordance with ACI recommendations and the cost and shall be borne by the Contractor. Poured concrete with strength less than that required by the specification shall be demolished and provided with an acceptable replacement at the Contractor’s expense.

3.2.14.3 Should the tests fail to give the required strength, the Engineer TSU shall have the right to order a change in the proportions or in the procedure or curing of the concrete for the rest of the structure.

3.3 PORTLAN CEMENT CONCRETE PAVEMENT

3.3.1 Scope of Work

3.3.1.1 This Item shall consist of pavement of Portland Cement Concrete, with or without reinforcement, constructed on the prepared base in accordance with this Specification and in conformity with lines, grades, thickness and typical cross-section shown on the Plans.

3.3.2 Workmanship

3.3.2.1 The introduction of minimum values for International Roughness Index (IRI) as part of the basis for acceptance of newly constructed concrete and asphalt road projects requires more accurate process control on the Contractor's part. The Contractor's Quality Control Plan shall include for the Engineer's review and acceptance, a process control flow chart, and a Method Statement covering all activities in the process, describing how the activities will be managed and undertaken to deliver the specified IRI values. International best practice indicates that factors critical to success include:

- a well-chosen concrete mixture
- reasonable grades and alignment to suit the paver
- tight level control or stringline management
- continuous supply of concrete to the paver
- consistent concrete workability
- well-maintained paving equipment
- proper operation of paving equipment
- controlled density of concrete -just the right vibration and finishing
- a skilled and dedicated team.

3.3.3 Preparation of Grade

3.3.3.1 After the subgrade of base has been placed and compacted to the required density, the areas which will support the paving machine and the grade on which the pavement is to be constructed shall be trimmed to the proper elevation by means of a properly designed machine extending the prepared work areas compacted at least 60 cm beyond each edge of the proposed concrete pavement. If loss of density results from the trimming operations, it shall be restored by additional compaction before concrete is placed. If any traffic is allowed to use the prepared subgrade or base, the surface shall be checked and corrected immediately ahead of the placing concrete.

The subgrade or base shall be uniformly moist when the concrete is placed.

3.3.4 Curing

3.3.4.1 Immediately after the finishing operations have been completed and concrete has sufficiently set, the entire surface of the newly placed concrete shall be cured. Failure to provide curing compounds or lack of water to adequately take care both of curing and other requirements, shall be cause for immediate suspension of concreting operations. The concrete shall not be left exposed for more the ½ hour between stages of curing or during the curing period. Curing time shall be within 24 hours or when the concrete has achieved sufficient strength.

3.4 STEEL AND TINSMITHRY WORKS

3.4.1 Materials : All materials shall conform to that listed below unless noted otherwise on the drawings.

3.4.1.1 All structural steel shapes and plates shall be at least commercial type.

3.4.1.2 All stainless-steel pipe shall be S304.

3.4.1.3 All steel tubing shall be G.I. Tubular and at least commercial type.

3.4.1.4 Welding electrodes shall be E70XX.

3.4.1.5 Roof sheets shall be approved 0.50 mm thick Pre-painted Long Span Rib-type. Approved type and quality.

3.4.1.6 Gutter and flashing shall be approved 0.50 mm thick Pre-painted Plain Sheet. Approved type and quality.

3.4.1.7 Use approved PE Foam Double Sided Insulation with 10 mm thick with 12.5 mm welded wire #21. Approved type and quality.

3.4.1.8 All metallic fasteners and fixing accessories shall be corrosion proof and non-metallic fasteners shall be of neoprene.

3.4.2 Workmanship

3.4.2.1 Length of roof sheets shall be in accordance with the actual dimension of the roof framing. These shall be verified prior to purchasing or ordering.

3.4.2.2 Flashings and gutters shall be lap at least 20 cm over the roofing sheets.

3.4.2.3 The intersection of all roofs with vertical walls shall be flashed not less than 20 cm high and all connections shall be made watertight.

3.4.2.4 PE Foam Insulation must be placed between the roof sheets and purlins with welded wire mesh #21 support underneath.

3.4.3 Fabrication and Erection

3.4.3.1 Field fabrication shall be kept to a minimum and shop fabrication shall be employed as to the greatest extent possible with members shop fabricated as long as practicable with a minimum requirement for field connections. Welding, shearing, gas cutting, chipping, and all other works involved in the fabrication of structural steel shall be done with accuracy and of the highest quality of the workmanship within the allowable tolerance prescribed in the AISC Specifications.

3.4.3.2 The steel members shall be shop fabricated and shall be done only by a qualified welder.

- 3.4.3.3 If for any reason, the TSU Engineer/Architect believes that a defect exists in any weld, it shall be the Contractor's responsibility to repair the questioned weld to the satisfaction of the Engineer/Architect.
- 3.4.3.4 The steel roof truss shall be erected plumb and true to line and grade. Bracings and supports shall be introduced whenever necessary to take care of all the loads to which the structure may be subjected. Such bracings shall be left in the places as long as may be relieved for safety.
- 3.4.3.5 Steel works to be encased in concrete shall not be painted. All other steel works shall be given one coat of shop paint of Epoxy Primer, applied thoroughly and evenly to dry surfaces, which have been cleaned, by brush, spray roller coating, flow coating or dipping at the selection of the fabricator. Steel work prior to painting and after inspection and approval shall be clean of loose mill scale, loose rust, weld slag or flux deposit, dirt and other foreign materials. Oil and grease shall be removed by a solvent. Parts of the steel work which shall be field welded or connected shall not be painted.
- 3.4.3.6 All steel works after complete erection shall be field painted with the type specified in the section of the painting of this specification. Painting shall not be done on any steel surface that is not thoroughly clean and dry.
- 3.4.3.7 The steel structures shall be erected plum and true line and grade. Bracing and supports shall be introduced whenever necessary to take care of all the loads to which the structure may be subjected. Such bracings shall be left in the places as long as may be received for safety.
- 3.4.3.8 Connections shall be as shown in the drawings and shall develop the full capacity of the member.
- 3.4.3.9 Surfaces or joints prepared for welded or anchor bolt connection shall with the cleanliness requirements of all joints surfaces and contact surfaces within friction types joints as specified in Section 3, "Bolted Parts of the AISC Specifications".
- 3.4.3.10 Holes shall be punched or drilled at right angles to the surface of the metals and shall be enlarged by burning. Holes shall be clean-out without rugged edges. Outside burst resulting from drilling or roaming operations shall be removed with a tool which reaches 1/16" (1.588mm) level around the bolt holes.
- 3.4.3.11 Length of rib type sheets shall be in accordance with the actual dimensions of the roof framing. These shall be verified prior to purchasing or ordering.
- 3.4.3.12 Gutter and flashing shall be lapped at least 20 cm over the roofing sheets. The ridge rolls shall be riveted.
- 3.4.3.13 The intersection of all roofs with vertical walls shall be flashed not less than 20 cm high and all connections shall be made watertight.
- 3.4.4 Inspection
- 3.4.4.1 Materials, equipment, and tools intended to be used for the work shall be inspected and approved by the TSU Architect/Engineer.

- 3.4.4.2 Each completed stage of the work shall be inspected and approved by the TSU Architect/Engineer before the next stage of the work can commence.
- 3.4.4.3 Before any Structural Steel Frame Fabrication is done by the Contractor, all materials intended to be used by the Contractor for the project shall be inspected for proper checking and approval of material thickness, quality, and sizes.
- 3.4.4.4 Final inspection by the Engineer/Architect of the TSU must be done before any delivery of the fabricated structural steel frames, member and accessories are made upon the advice of the Contractor.
- 3.4.4.5 Failure on the part of the Contractor to notify the TSU Engineer/Architect to the inspection of the materials intended to be used for the project before the start of any fabrication and final inspection of the fabricated structural steel frames, members and accessories before any delivery is made will be at the risk of the Contractor for any subsequent rejection.

3.4.5 Marking

- 3.4.5.1 Shop fabricated member shall be marked prior to delivery to facilitate the erection of the members. Markings shall be listed and given description and copies of which shall be furnished to the field and the TSU. Markings shall be neatly painted on the members with a distinctive color of quick dry enamel paint.

3.4.6 Shop Painting

- 3.4.6.1 Steel works to be encased in concrete shall not be painted. All other steel works shall be given one coat of shop paint of Epoxy Primer, applied thoroughly and evenly to dry surfaces, which have been cleaned, by brush, spray roller coating, flow coating or dipping at the selection of the fabricator. Steel work prior to painting and after inspection and approval shall be clean of loose mill scale, loose rust, weld slag or flux deposit, dirt and other foreign materials. Oil and grease shall be removed by a solvent. Parts of the steel work which shall be field welded or connected shall not be painted.

3.4.7 Field Painting

- 3.4.7.1 All steel works after complete erection shall be field painted with the type specified in the section of the painting of this specification. Painting shall not be done on any steel surface that is not thoroughly clean and dry.

SECTION 4 – ARCHITECTURAL WORKS

4.1 MASONRY AND PLASTERING

4.1.1 Scope of Work

- 4.1.1.1 The work includes the furnishing of all materials, labor, equipment, and the performing of all necessary operations in connection with masonry and plastering works.

4.1.2 Materials

- 4.1.2.1 All masonry units shall be approved quality, sound, free from cracks and other imperfections.

- 4.1.2.2 Non-load Bearing Concrete Hollow blocks shall be used with a minimum compressive strength of 500 psi. Method of sampling for quality test shall be one (1) quality test for every 10,000 units or fraction thereof, with three (3) specimens for compression test.
- 4.1.2.3 Reinforcing steel bars shall conform to ASTM Designation A-615-68 specifications for the structural grade.
- 4.1.2.4 Concrete Aggregates – Shall conform to “Specifications for Aggregates” (ASTM G33 latest revision). Sand and gravel shall be well graded and free from any deleterious materials. Sand and gravel shall be washed and crushed, respectively.
- 4.1.2.5 Cement and aggregates shall be stored in a manner as to prevent their deterioration or the intrusion of foreign matter. Materials of deteriorated quality or which has been damaged shall not be used for concrete. Cement whose quality is questionable shall be tested by standard mortar test to determine its suitability for use.
- 4.1.2.6 Mortar of cells of CHB’s shall consist of one (1) part to cement to three (3) parts sand by volume with sufficient water. It shall be workable cement-sand mixture attaining a 28th day compressive strength of 1500 psi.
- 4.1.2.7 Vertical and horizontal reinforcements shall be provided in masonry. CHB walls shall be reinforced as follows:

| Thickness | Horizontal Reinforcement | Vertical Reinforcement |
|-----------|--------------------------|------------------------|
| 100mm | 10mmØ @ 600mm O.C. | 10mmØ @ 600mm O.C. |
| 150mm | 10mmØ @ 400mm O.C. | 10mmØ @ 400mm O.C. |

- 4.1.2.8 Mortar for plastering shall be proportioned one (1) part cement to two (2) parts sand with sufficient water. Use 50 mm thick cement plastering for exterior walls and 25 mm thick cement plastering for interior walls.

4.1.3 Workmanship

- 4.1.3.1 CHB’s shall be laid plumbed and leveled accurately. Laid units of blocks shall be wetted before laying another unit or layer. Damaged units shall not be used. Units shall be cut accurately to fit all plumbing ducts, opening for electrical works; all holes shall be neatly patched.
- 4.1.3.2 Units shall be placed while the mortar is soft and plastic, and shall be used within two and a half (2.5) hours of initial mixing. Mortar that has stiffened should not be used. Any unit disturbed to the extent that the initial bond is broken after initial positioning shall be removed and re-laid in fresh mortar. All cells of CHB units shall be fully grouted.
- 4.1.3.3 Where CHB walls adjoin columns, beams and walls, dowels with the same size as the vertical or horizontal reinforcement shall be provided.
- 4.1.3.4 No construction support shall be attached to the CHB wall except where specifically permitted by the Engineer.

4.2 FLOOR, WALL, AND FINISHING WORKS

4.2.1 General

- 4.2.1.1 Prepare the floors and walls to install directly to their corresponding surfaces. Deliver materials to the job in the manufacturer's unopened containers with the manufacturer's brand and name clearly marked thereon.
- 4.2.1.2 All cement surfaces to receive floor finish shall be structurally sound, plumb, level, and true, free from dust, dirt, grease, calcimine water, or other foreign matter. Repair any cracks before installation, use a joint repair sealant injected into the cracks.

4.2.2 Materials and Preparation

- 4.2.2.1 Smooth Cement Finish for the Hallways, Student Lounges, Lobby, Vestibules and Pump Room.
- 4.2.2.2 Concrete Broom Finish for the exit ramp.
- 4.2.2.3 Wash Pebble #10 for stairs - Seal the surface of the floor with a two-part component varnish to stabilize the pebbles in place and smooth the surface. Pebble washed finished including 1 coat stone pave sealer, all in accordance with manufacturers instruction.
- 4.2.2.4 Aluminum Stair Edging shall be 2" x 4.50 mm thick with groove.
- 4.2.2.5 Elevated Platform Flooring shall be made of ¾" thick Marine Plywood with Brown Rubber Nosing, framing system made of 1-1/2" x 1-1/2"x 4.00 mm thick Angle Bar and 2" x 4" x 1.5 mm thick. G.I. C-Purlins.
- 4.2.2.6 Diamond Cut Polyester Acoustic Panel Beveled Edge; Size: 315 mm x 561 mm x 9 mm made of 100% Polyethylene Terephthalate including adhesive. Approved brand and quality.

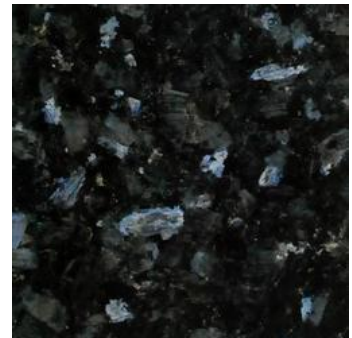
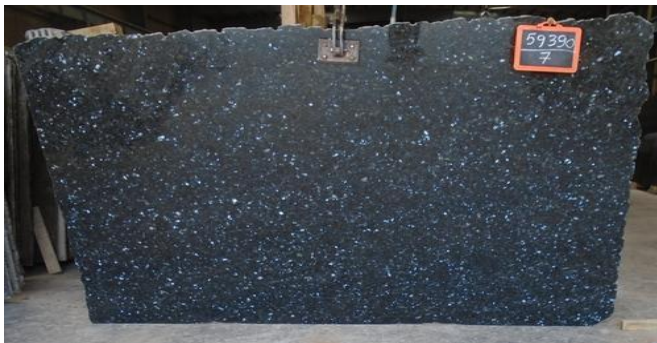


- 4.2.2.7 3.0 mm thick Polyester Fiber Felt including adhesive for Acoustic Panels. Approved brand and quality.



- 4.2.2.8 Adhesive installation material shall be using any liquid nails or rugby. Approved brand and quality.

- 4.2.2.10 Fabrication and installation of 3/4" thick Board and Wainscot Framing made of Marine Plywood with S4S Wood Edging and complete accessories.
- 4.2.2.11 200mm x 1000mm Glazed Ceramic Floor Tiles: Approved brand and quality.
- 4.2.2.12 3mm x 150mm x 900mm Vinyl Floor Tiles (Wood Texture): Approved brand and quality.
- 4.2.2.13 600mm x 600mm Non-Skid Porcelain Floor Tiles (Gray), 300mm x 600mm Porcelain Wall Tiles (White), 300mm x 600mm Porcelain Wall Accent Tiles (Gray), etc. - All cement surfaces to receive tiles or similar finish shall be structurally sound, plumb, level and true, free from dust, dirt, grease, calcimine water or other foreign matter.
- 4.2.2.14 Araal slate decorative stone shall at least ½" thick. and 30cm diameter (color dirty white).
- 4.2.2.15 Twin Wall Polycarbonate UV Coated Sheet (Brown). Approved brand and quality.
- 4.2.2.16 ¾" thk. Black Blue Emerald Granite Countertop - All cement surfaces to receive a similar finish shall be structurally sound, plumb, level, and true, free from dust, dirt, grease, calcimine water, or other foreign matter. Repair any cracks in the counter slab before installation, use a joint repair sealant injected into the cracks.



4.2.3 Tile Installation

- 4.2.3.1 Apply at least five (5) coats of cementitious waterproofing for all toilet flooring and a height of 0.30m perimeter interior wall before laying tiles.
- 4.2.3.2 Leakage test of flooring before laying tiles.
- 4.2.3.3 Lay tiles in straight square patterns and cover from wall to wall. Where the manufacturer's instruction requires priming of concrete floors, work the primer well into the surface of the concrete with stiff brushes or a straight-edge steel trowel, using the minimum quantity, which will assure complete coverage. Allow the primer to dry thoroughly. Install tile in such, a manner that each tile is in contact with each adjacent tile and that the entire under- surface of each tile will be securely bonded.
- 4.2.3.4 Layout the field from the midpoint of the axis of the room so that the opposite end tile will be equal in width. The width of the tile shall be subject to the variation required by the dimensions of the room and the size of the tile used. Scribe the end tile to the wall and cut in a manner that will insure clean sharp edges.

4.2.3.5 Apply adhesive by manufacturer's recommendation. Secure cove base to walls with adhesive as specified for floor tiles.

4.2.4 Cleaning

4.2.4.1 Clean flooring of adhesive and other soiling. Remove adhesive with a putty knife and steel wool or with a cloth moistened with a neutral soap of a type approved by the manufacturer. The use of solvents and wet mopping is prohibited.

4.2.5 Protection

4.2.5.1 After cleaning, protect the floor until acceptance of the building.

4.2.6 Guarantee

4.2.6.1 Floors shall be guaranteed by the manufacturer against defects in its floor tiles and by the Contractor against defects in workmanship for a period of one year from the date of completion.

4.3 CEILING WORKS

4.3.1 Scope of Work

4.3.1.1 This section shall include all materials, labor, materials, tools, equipment, and services necessary to complete the ceiling work in strict accordance with the drawings.

4.3.2 Submittal

4.3.2.1 Submit product information from manufacturers for each type of product specified to include brochures, catalogs, samples and certificates of test reports, quality compliance, and accreditation from the foreign manufacturer for the authenticity of local distributed materials.

4.3.3 Delivery, Storage, and Handling

4.3.3.1 Deliver materials in manufacturer's original unopened packages marked with identifying information. Protect materials as recommended by the manufacturer.

4.3.3.2 Store materials, keep dry, and protect against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes. Stack gypsum panels on a level surface to prevent sagging.

4.3.4 Material

4.3.4.1 Smooth Finish Slab Soffit Ceiling.

4.3.4.2 9 mm thick Gypsum Board Ceiling. Approved brand and quality.

4.3.4.3 Fiber Cement Board shall be 4.5mm thick. Approved brand, type, and quality.

4.3.4.4 300mm x 1200mm x 15mm thk. Fine Fissured Acoustic Board on T-runner and Metal Furring System. Approved brand, type, and quality.

4.3.4.5 Metal Furring shall be 0.50mm thick x 19mm x 50mm.

4.3.4.6 Carrying Channel 0.80 mm thick x 12 mm x 38 mm.

4.3.4.7 Complete with concrete nails, screws, double U-clip and complete accessories.

4.3.4.8 Adhesives for joint, fillers, and fastener concealment shall be of the types recommended in writing by the board manufacturer and as approved for the following uses.

4.3.4.8.1 Embedding compounds for first and second coats.

4.3.4.8.2 Finishing compound for final coat.

4.3.5 Installation

4.3.5.1 Ceiling framing systems: Framing for furred ceilings shall be installed at the locations indicated and shall conform to the standards.

4.3.5.2 Attached ceilings: Framing is not required for ceilings attached to structural members, except for framing openings as specified. Furring as hereinafter specified shall be attached directly to structural members.

4.3.5.3 Furring: Steel channels or steel studs shall be provided where steel furring is indicated for screw attachment of boards.

4.3.5.4 Ceiling runners: Shall be accurately aligned and securely attached to floors and to structural ceilings or roof deck except where partition ceiling runners are applied directly to finish material of continuous ceilings. Attachment shall be by expansion shields, machine bolts, or other approved method, at not more than 0.60m centers and to furred ceilings by board screws at each furring member. Furring will be provided at ceiling runners oriented parallel to the direction of furring members. Runners shall extend beyond open-end partitions for 0.40m. Upon installation of end studs, runner extensions shall be bent and nested with the stud and attached thereto with two board screws. Runner shall be in the longest possible lengths with butt joints between lengths.

4.3.5.5 Ceiling openings: Support members shall be provided at ceiling openings such as required for access panels, recessed light fixtures, and for air supply or exhaust. Support members of not less than 38mm main runner channels and suspension wires or straps shall be located to provide at least the minimum support specified herein for furring and board attachment. Intermediate structural members, although not a part of the structural system, shall be provided for attachment or suspension of support members.

4.3.5.6 Application: Board shall be applied with the separate boards in moderate contact but not forced into place at internal and external corners the cut edges of the boards shall be concealed by the overlapping covered edges of the abutting boards. The boards shall be so staggered that the corners of any boards will not meet a common point except in vertical corners.

4.3.5.6.1 Ceilings: Board shall be applied to the ceilings with the long dimension of the board, at right angles to the furring members. Board may be applied with

the long dimension parallel to furring members that are spaced 0.60m on centers when attachment members are provided at end joints

4.3.6 Cleaning And Protection

4.3.6.1 Promptly remove any residual joint compound from adjacent surfaces not indicated to receive texture.

4.3.6.2 Provide final protection and maintain conditions, in a manner acceptable to Installer, that ensure gypsum board assemblies are without damage or deterioration at the time of construction complete.

4.4 PAINTING WORKS

4.4.1 Scope of Work

4.4.1.1 The Contractor shall furnish all materials, labor, equipment, and services required to complete the entire painting work as specified in the plan. Painting work shall include the painting of all walls and other proposed structures outside the building as specified hereinafter and required thereto.

4.4.1.2 The Contractor shall furnish all tools, brushes, spraying equipment, tackles, scaffolding, ladder, pails, and other equipment required to complete the entire painting work.

4.4.2 Material

4.4.2.1 Brand of painting materials to be used shall be approved by the Engineer/Architect.

4.4.2.2 All paint materials shall be delivered to the jobsite in their original containers with labels and seals unbroken.

4.4.2.3 With the exception of ready-mixed materials in original containers all mixing shall be done at the jobsite. No materials are to be reduced or changed excepts as specified by the manufacturer of the said materials. The use of white zinc (lithopone) will not be allowed.

4.4.3 Colors

4.4.3.1 All colors of paints and varnishes shall be in accordance with the color scheme approved by the TSU.

4.4.3.2 Samples of the color to be used shall be submitted and those approved shall be strictly followed. No painting shall be started before these color schemes are approved by the Engineer/Architect.

4.4.3.3 Finishes for the different portions of the work shall be specifically indicated in the Schedule of Specifications.

4.4.4 Construction Requirements

4.4.4.1 The Contractor prior to the commencement of the work shall examine the surfaces to be applied with paints not to jeopardize the quality and appearance of a painting of finishing work.

4.4.5 Surface Examination

4.4.5.1 No painting shall be done under conditions that may jeopardize the quality or appearance of the painting or finishing.

4.4.5.2 All surfaces to receive paint should be cleaned and in proper condition.

4.4.6 Surface Preparation

4.4.6.1 Remove dirt, rust, scale, splinters, loose particles, grease, oil, and other deleterious substance from all surfaces which are to be painted.

4.4.6.2 Application of skimcoat prior to painting. Remove dirt, fungus, grease, and oil before the application of coatings. Remove glaze, and all loose particles and scale by brushing.

4.4.6.3 Surfaces shall be allowed to dry before any painting primer is applied.

4.4.6.4 When surfaces are dried, apply the first coating. After all defects are corrected, apply the finish coats as specified in the Plan in accordance with the approved color scheme.

4.4.6.5 Metals shall be clean, dry, and free from mill scale and rust. Remove all grease and oil from surfaces. Wash unprimed galvanized metal with the etching solution and allow it to dry.

4.4.6.6 Metal surfaces shall be primed with epoxy primer as specified before the final/top coat is applied.

4.4.6.7 For epoxy-primed surfaces, the topcoat/finishing coat should be applied not more than seven (7) days after priming to ensure good inter-coat adhesion. Otherwise, re-priming is needed.

4.4.7 In Addition, The Contractor shall Undertake the following:

4.4.7.1 Voids, cracks, and all other kinds of defects shall be repaired with proper patching materials and finished flush surrounding surfaces.

4.4.7.2 Marred or damaged shop coats on metal shall be spot primed with appropriate metal primer.

4.4.7.3 No painting works shall be done during rainy or damp weather.

4.4.8 Application

4.4.8.1 Paints, when applied by brush, shall be non-fluid; thick enough to lay down an adequate film of wet paint. Brush marks shall be flawed out after the application of paint.

4.4.8.2 Paints prepared for application by roller must be similar to brushing paint. It must be non-sticky when thinned with spraying viscosity to break up easily into droplets.

4.4.8.3 Paint is atomized by high-pressure pumping rather than broken up by the large volume of air mixed with it. This procedure changes the required properties of the paint.

4.4.9 Mixing and Thinning

4.4.9.1 At the time of application, paint shall show no sign of deterioration. Paint shall be thoroughly stirred, strained, and kept at a uniform consistency during application.

4.4.9.2 When thinning is necessary, this may be done immediately prior to application in accordance with the manufacturer's directions, but not more than 1 pint of suitable thinner per gallon of paint.

4.4.9.3 Kerosene shall not be used as paint thinner. Paints of the different manufacturers shall not be mixed.

4.4.10 Storage

4.4.10.1 All materials to be used for this Item shall be stored in a single place to be designated by the Architect and such place shall be always kept neat and clean.

4.4.10.2 Necessary precautions to avoid fire must be observed by removing oily rags, waste, etc. at the end of daily work.

4.4.11 Cleaning

4.4.11.1 All clothes and cotton waste which is a fire hazard shall be placed in a metal container or destroyed at the end of daily works.

4.4.11.2 Upon completion of the work, all staging, scaffolding, and paint containers shall be removed and disposed of.

4.4.11.3 Paint drips, oil, or stains on adjacent surfaces shall be removed and the entire job left clean and acceptable to the supervising Architect/Engineer.

4.5 FURNISHING AND RAILINGS

4.5.1 Signage

3.5.1.1 Proportioned lettering on 3mm the. Clear Acrylic Glass with 2 pcs. 8mm x 17mm Stainless steel bolt screws. Font style, font size, text content shall be for approval.

4.5.2 Toilet Furnishing

- 4.5.2.1 Mirrors: 6 mm thk. Beveled Edge Lead Free Mirror with 16mm Ø Stainless Mirror Holder: Approved type, quality and brand.



- 4.5.2.2 Stainless Steel PWD L-Shaped Grab Bar shall be 32mm Ø S304 including escutcheon plate with complete accessories. Approved type, quality and brand.



- 4.5.2.3 Fabrication and installation of 18mm thk. White melamine laminated high gloss mdf board with white powder coated aluminum perimeter frame and holder (White Board).



- 4.5.2.4 Fabrication and installation of Wainscot made of 3/4" thick Marine Plywood (Smooth Surface Finish) with 3/4" thick Marine Plywood and 2" x 2" thick Wood S4S Kiln Dried Framing. This includes the surface preparation, application of primer paint and at least two top-coat paint finish.

4.6 DOORS, WINDOWS, AND TOILET PARTITION

4.6.1 Scope of Work

4.6.1.1 The Contractor shall furnish all materials, labor, equipment, tools, and services necessary to complete all work herein specified and shown on drawings.

4.6.1.2 All existing doors and windows shall be removed and replaced with appropriate items as shown on plans. See architect's approved shop drawings and details showing fabrications. Protect glass from breakage before and after installation.

4.6.1.3 Provide all hardware/s not herein specifically mentioned but are necessary to complete the work. The architect shall approve all such hardware/s.

4.6.1.4 Where so shown on drawings, doors, and windows shall be of the following type unless otherwise specifically noted in the Schedule of Specifications with complete necessary hardware.

4.6.1.4.1 Stainless Steel Dome Type doorknob shall be heavy duty: Approved brand and quality.

4.6.1.4.2 Steel Door and Jambs: Single and Double Panel, Single Swing, branded galvanized steel door and jambs shall be 0.50 mm thick with 6mm thick Clear Tempered Glass Peep Window. See schedule of doors in the plan. Approved brand and quality. See the schedule of windows in the plan.

4.6.1.4.3 Tanguile Solid Panel Door and Jambs: Single Swing Panel, S4S Kiln Dried Wood. Approved brand and quality.

4.6.1.4.4 Stainless Steel Lever Type doorknob shall be heavy duty: Approved brand and quality.

4.6.1.4.5 White Powder Coated Aluminum Frame Fixed Windows shall be 6mm thick Tempered Glass, bronze coated one-way reflective glass. See the schedule of windows in the plan.

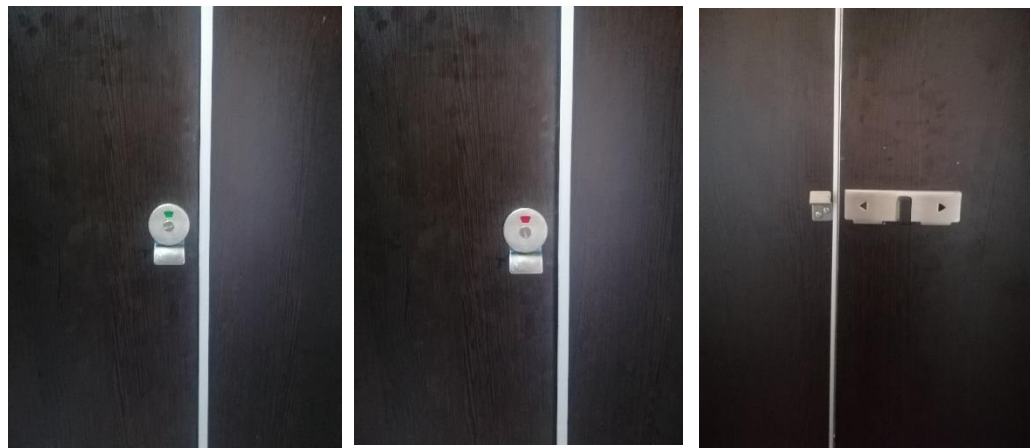
4.6.1.4.6 White Powder Coated Aluminum Frame Awning Windows shall be 6mm thick bronze coated one-way reflective glass. See the schedule of windows in the plan.



4.6.1.4.7 12mm thk waterproof compact laminated board cubicle door including 0.5mm metal jamb with stainless steel flush mounted hinges and toilet door stainless security bolt lock plug hardware with complete accessories. Approved type and quality.



4.6.1.4.8 Heavy-Duty Stainless-Steel Security Bolt Lock Plug and Single Cylinder Stainless Steel Deadbolt: Approved brand and quality.



4.6.1.4.9 12mm thk waterproof compact laminated board urinal partition including 0.5mm stainless steel angle bracket with complete accessories. Approved type and quality.



4.6.1.5 Hardware and Operation: All hardware and other attachments necessary to ensure proper operation of ventilators shall be as per the manufacturer's specifications. These must affect the tight close of vents when locked. Locking handles, catch keepers, etc.

4.6.2 Shop Finish

4.6.2.1 Unless otherwise specified in the Schedules of Specifications all steel doors, windows, and frames will be bonderized.

4.6.3 Dimension to be Verified

4.6.3.1 All dimensions of the opening as shown on drawings must be verified by the Contractor at the job site before the fabrication of the door and windows.

4.6.4 Glass and Glazing

4.6.4.1 Materials

4.6.4.1.1 Glasses to be assigned to the different portions of the work shall be of types and thickness as noted in the Schedule of Specifications and as indicated on drawings.

4.6.4.2 Execution

4.6.4.2.1 All glasses shall be accurately cut to fit and with equal bearing on the entire width of pane. Thin layer of putty shall be applied to rebate and set glass; pressing until an even bed is secured. Remove excess putty from each sides flush with edge of rebate.

4.6.4.2.2 Glass breakage caused in executing the work or faulty installation shall be replaced by Contractor without extra cost.

4.6.5 Hardware

4.6.5.1 Scope of Work

4.6.5.1.1 The Contractor shall furnish and install all necessary hardware for doors and windows to leave the work complete, although not specifically mentioned herein.

4.6.5.2 Materials

4.6.5.2.1 All hardware shall conform in quality and finish to the rest of the hardware specified. Sample shall be approved by the Engineer/Architect prior to installation.

4.6.5.3 Heavy Duty Hinges

4.6.5.3.1 Heavy-Duty Stainless-Steel Flush Mounted Hinges and all door with width not more than 0.9 m shall have three hinges, and four hinges for more than 0.9 m width: Approved brand and quality.

4.7 LANDSCAPING WORKS

4.7.1 Scope of Work

4.7.1.1 The work covered under this section shall include the complete labor, and the supply materials, equipment and necessary to properly conduct and produce the-desired site

development work indicated on the drawings and, in general, includes all planting and other groundcover installation throughout the work.

4.7.2 Workmanship

4.7.2.1 Provide at least one person/foreman who shall be present at all times during execution of this portion of the Work and who shall be thoroughly familiar with the type of materials, design methods, details, etc. being installed and the best methods for their installation and who shall direct all work performed under this Section.

4.7.2.2 This designated person/foreman shall be present at all landscape pertinent preconstruction meetings, other meetings, and on-site throughout the duration of the landscape portion of the project. This designated individual is the main point of contact between all parties involved as it relates to his/her construction procedure.

4.7.2.3 This designated person/foreman shall also be the main point of contact for all submittals, samples and project notifications as outlined herein.

4.7.2.4 This designated person/foreman shall be familiar with all Drawings and Specifications included in the Contract Documents to ensure continuity for the project and provide clear direction for all consultants involved.

4.7.3 Submittals

4.7.3.1 Before any planting materials are delivered to the job sites, submit to the Project-In-Charge a complete list of nurseries where plants are to be obtained and any substitutions proposed to be installed.

4.7.3.2 The TSU Representative reserve the right to reject any plant material delivered to the site that is not in conformance with the requirements of this section. Remove rejected trees or shrubs immediately from the Project site.

4.7.4 Product Handling

4.7.4.1 Deliver all materials in sealed containers. Materials which become damaged and unsuitable for use shall be replaced.

4.7.4.2 Temporary Storage and Protection

4.7.4.2.1 Protect plants at all times from sun and drying winds.

4.7.4.2.2 Plants that cannot be planted immediately on delivery shall be kept in the shade, well protected with soil, shredded hardwood mulch, straw, or other acceptable material, and shall be kept well-watered.

4.7.4.3 In the event of damage, immediately make all repairs and replacements necessary for the approval of the Project-In-Charge and at no additional expense to the TSU.

4.7.5 Product Samples

4.7.5.1 Items to be submitted prior to installation for approval by the Project-In-Charge include, but are not limited to the following items:

4.7.5.1.1 10 ft. Tall Foxtail Palm

4.7.5.1.2 Ivy Plant

4.7.5.1.3 Bermuda grass

4.7.5.1.4 16" Ø Ball Eugenia Myrtifolia

4.7.5.1.5 Podocarpus plant

4.7.5.1.6 Golden Miagos Bush

4.7.5.1.7 Dendrolobium Umbellatum



3 ft.Tall Foxtail Palm



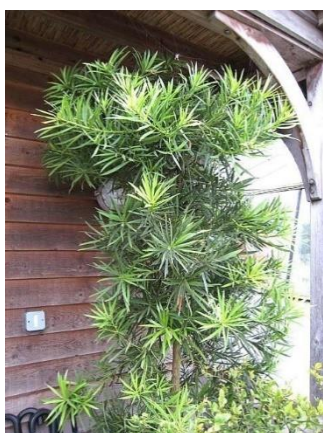
Ivy Plant



Bermuda Grass



16" Ø Ball Eugenia Myrtifolia



Podocarpus Plant



Golden Miagos Bush



Dendrolobium Umbellatum

4.7.6 Materials

4.7.6.1 Plants

4.7.6.2.1 All trees, plants and shrubs shall be sound, healthy, and vigorous.

4.7.6.2.2 All plant material should be free of insects, their eggs, and larvae.

4.7.6.2.3 Plants shall be free of mechanical or cultural injury by rodents, and free of noticeable aftereffects, borers, and other pests.

4.7.6.2 Concrete Pavers Block shall include compacted sand. Approved type and quality.

4.7.7 Execution

4.7.7.1 Inspection

4.7.7.1.1 Prior to all work in this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.

4.7.7.2 Verify that all topsoil installation methods and approvals have been completed in accordance with this section.

4.7.7.3 Verify that all proposed work areas are free of weeds and rocks 3/4 inch in diameter or larger.

4.7.7.4 Verify percentage of compaction of existing subsoil and topsoil installation is acceptable for healthy, plant growth and root establishment with appropriate percentages of soil particles, water, and air per cubic foot.

4.7.7.5 Verify with the Project-In-Charge that topsoil installation has been approved.

4.7.8 Discrepancies

4.7.8.1 In the event of any discrepancies, immediately notify the project-in-charge.

4.7.8.1.1 Do not proceed with the installation in the areas of discrepancies until after such discrepancies have been fully resolved.

4.7.8.1.2 If quantities listed in plant material list do not correlate with plantings indicated on plan, the quantities on the plan shall govern.

4.7.9 Planting

4.7.9.1 Topsoil for planting operations shall be furnished by the Contractor as specified within.

4.7.9.2 Provide positive drainage away from all buildings and around or away from all planting beds to prevent ponding of water. Do not raise bed grades or finished grades above finished floor elevations, keep at least 50 mm below Ground Floor Level.

4.7.9.3 Give notification to Project-In-Charge of completion of Earthwork prior to proceeding with installation of topsoil. Project-In-Charge to approve sub-grade soil conditions prior to the installation of any topsoil.

4.7.9.4 Give notification to the Project-In-Charge of completion of Topsoil work prior to proceeding with planting operations. Project-In-Charge to approve topsoil installation prior to the installation of any plant material.

4.7.10 Shrubs

4.7.10.1 Planting areas shall have a backfill soil mixture minimum depth of 6" for all plants.

4.7.10.2 Remove all twine, wires, and burlap from the top one-third of root ball.

4.7.10.3 On the bottom of all plant areas, add and lightly tamp a layer of planting backfill soil mixture at least six inches (6") thick or as much as necessary so that the ball or roots will rest thereon when the plant is set to the required grade.

- 4.7.10.4 Set all plants so that when they are settled, they will bear the same relation to the required grade as they bore to the natural grade before being transplanted. Make adjustment of position where necessary or as directed.
- 4.7.10.5 Plant in topsoil backfill mix in the center of the pit unless otherwise specified on the Drawings. Remove all non-treated or non-rot-proofed burlap, ropes, stave, etc., off-sides and tops of balls and remove from the pit before it is filled in.
- 4.7.10.6 Width of the pits at least 2 times greater in diameter than their ball of earth or spread of roots.
- 4.7.10.7 Set shrubs so as to allow sufficient depth. Properly set the crown of plant at the finished surface of the bed.
- 4.7.10.8 Backfill topsoil and fertilizer mix about the roots and thoroughly settles by watering.

4.7.11 Protection

- 4.7.11.1 Protect all planting areas and plants from damage. If any plants are injured, treat, and replace as required. Execute no work in or over prepared planting areas, or adjacent to planting without proper safeguards and protection.

4.7.12 Maintenance During Installation

- 4.7.12.1 Maintain immediately following the accomplishment of planting operations of any plant unit. Owner to supply water for planting, Contractor to supply all labor and equipment for the watering operation until final acceptance. Contractor to supply landscape watering for maintenance whether a permanent irrigation system is installed or not.
- 4.7.12.2 Soak root balls and spray foliage on all trees and shrubs with water, where required, during the evening after sundown or otherwise as directed. Keep all plantings in a healthy, growing condition by watering, weeding, cultivating, pruning, spraying, trimming and by performing any other necessary operations of maintenance.
- 4.7.12.3 The Contractor shall be responsible for continued proper care of the lawn areas during the period when the grass is becoming established. The period of maintenance for all lawns areas shall extend for sixty (60) days with three mowing required or as long as necessary to establish over the entire lawn area a uniform stand of grasses as specified, free of weeds and undesirable grasses. After the required maintenance period and upon acceptance of lawn areas by the Project-In-Charge, the Owner will assume maintenance responsibility. Fertilizing and Mowing shall be included in the maintenance of the lawn until final acceptance. These operations may extend past outlined thresholds if final acceptance does not occur within the first sixty (60) days.
- 4.7.12.4 Maintain shrubs and other plants until final acceptance, but in no case less than 60 days after substantial completion of planting.

SECTION 5 – PLUMBING WORKS

5.1 SCOPE OF WORK

- 5.1.1 Furnish all materials, labor, tools, equipment and other facilities and the satisfactory performance of all work necessary for the complete installation, testing and operation of the plumbing system in accordance with the applicable drawings and this section of the specifications consisting of, but not necessarily limited to the following.

- 5.1.1.1 Building sanitary sewers and collection systems up to the proposed septic tank.
 - 5.1.1.2 Soil, waste, and vent pipe systems, within the building.
 - 5.1.1.3 Disinfection, pressure, leakage testing of building water distribution system.
 - 5.1.1.4 Installation of plumbing fixtures fittings, trims and accessories.
 - 5.1.1.5 Waterproofing of Toilets and 0.10m height on edge of interior wall and slab ledges (surface preparation, application of 3 coats of cementitious waterproofing). Approved brand and quality of admixture for waterproofing shall be used.
 - 5.1.1.6 Waterproofing of Inside Perimeter Wall and Slab Surfaces of Digestive and Leaching Chambers (surface preparation, application of 5 coats of cementitious waterproofing). Approved brand and quality of admixture for waterproofing shall be used.
 - 5.1.1.7 Waterproofing of Inside Perimeter Wall and Slab Surfaces of Cistern Tank (surface preparation, application of 5 coats of cementitious waterproofing). Approved brand and quality of admixture for waterproofing shall be used.
- 5.1.2 All plumbing work to be done and sizes of pipes to be used shall be in accordance with the National Plumbing Code of the Philippines and the requirements and ordinances of the locality.
- 5.1.3 The Plumbing Contractor is required to refer to all architectural, structural and electrical plans, including this specification. The Contractor shall investigate all possible interference and existing site conditions affecting his work for the complete installation and operation of the proposed plumbing system.
- 5.1.4 The drawings show the pipes, valves, and appliances to be used and installed in the project. All other items, whether specifically mentioned or not indicated on the drawings, shall be furnished, and installed if necessary to complete the system in accordance with the best practice of the plumbing trade and to the satisfaction of the Engineer/Architect.
- 5.1.5 The Plumbing Contractor shall assume the cost of the entire responsibility for any change in the work shown on the Contract Drawings which may be occasioned by the approval of materials other than those specified.

5.2 PLUMBING FIXTURES AND ACCESSORIES

- 5.2.1 All plumbing fixtures and accessories shall be Philippine standard with the following specifications:
- 5.2.1.1 Water Closet Dual Flush, push button type w/ heavy duty stainless bidet faucet and complete accessories— 4/6 liters standard or equal water closet pan and cistern complete with heavy duty soft closing seat and cover. Approved type, quality, and brand.



5.2.1.2 Wall Hung Urinal- (L 480 mm x W 335 mm x H 745 mm) top inlet urinal water saving w/ button type flush valve 0.8Gpf manual shutoff and complete accessories (valve, etc.). Approved type, quality, and brand.



5.2.1.3 Wall Hung Lavatory with manual shutoff single handle type faucet S304 stainless finish and complete accessories (valve, p-trap, etc.). Approved type, quality, and brand.



5.2.1.4 Double Bowl Stainless Under-Mount Kitchen- (780mm x 445mm x 180mm) with manual shutoff single gooseneck handle type faucet S304 stainless finish and complete accessories (valve, p-trap, etc.). Approved type, quality, and brand.



- 5.2.1.5 25mmØ Hose Bibb should be a heavy-duty stainless S304 body with thread. Approved type, quality, and brand.



- 5.2.1.6 4" x 4" S304 Floor Drain: Approved type, quality, and brand.



5.3 SOIL, WASTE, DRAIN AND VENT PIPES

5.3.1 Installation

- 5.3.1.1 All sewer lines shall be pitched 6 mm per 300 mm (1/4" per foot) for soil pipes and no case flatter than 3 mm per 300 mm (1/8" per foot) for waste pipes.
- 5.3.1.2 All changes in pipe sizes on soil, waste and drain lines shall be made with reducing fittings or reducers. All changes in direction shall be made by the appropriate use of forty-five-degree (45°) wyes, or long sweep bends, except that sanitary tees may be used on vertical stacks. Short quarter bends or elbows may be used in soil and waste lines where the change in direction is from the horizontal to the vertical and on the discharge from the water closet.

5.3.2 Traps

- 5.3.2.1 Every plumbing fixture shall be separately trapped by a vented water-sealed trap as close to the fixture outlets as the conditions allow, but in no case at a distance greater than 600 millimeters. In case of the upper or the only fixture on a soil pipe extended full size through the roof, a vent shall not be required when said fixture has its center stack. Traps shall be of the same diameter as the waste pipes from the fixtures which they shall serve, all traps shall have a water seal of at least 32 millimeters with a brass thumbscrew clean out at the bottom of the seal.

5.3.3 Vent

- 5.3.3.1 Vents shall be taken from the crown of the fixtures, except for water closet traps, in which case, the branch line shall be vented below the trap and above all small waste line inlets, so connected as to prevent obstructions. Each vent pipe shall be

run separately above the fixtures into the adjacent soil pipes, a distance of not more than 1.50 meters. If more than this distance, the vent shall run independently through the roof.

5.3.3.2 A vent line shall be wherever practicable, a direct extension of a soil or waste line.

5.3.3.3 Main vent risers at 4.5 meters long or more shall be connected at the foot with the main water or soil pipes below the lowest vent outlet with a forty-five-degree connection.

5.3.4 Pipes and fittings

5.3.4.1 Soil Waste Pipe – shall be Polyvinyl Chloride (PVC) pipes, Series 1000.

5.3.4.2 Vent Pipes – shall be Polyvinyl Chloride (PVC) pipes, Series 1000.

5.3.5 Joints and Connections

5.3.5.1 All joints shall be air and watertight.

5.3.5.2 PVC Pipes and Fittings – socket type with PVC solvent cement, elastomeric rubber O-ring gasket, or as per the Manufacturer's recommendations.

5.3.5.3 Dissimilar Pipes – Adaptor fittings shall be used.

5.4 WATER DISTRIBUTION AND PUMP SYSTEM

5.4.1 Pipes and Fittings

5.4.1.1 Waterline pipes and fittings shall be Polypropylene Random Copolymer (PPR) PN20 pipes.

5.4.1.2 Water Supply Line – shall be HDPE Blue Pipe SDR 09 PE100

5.4.2 Installation

5.3.1 The piping shall be extended to all fixtures, outlets and equipment from the gate valves installed in the branch near the riser.

5.3.2 The water supply piping at each fixture shall be provided with a shutoff valve and union, whether indicated on the drawings or not, which will permit isolation and disconnection of each item without disturbing the remainder of the system.

5.3.3 All pipes shall be cut accurately to measurement and shall be worked into place without springing or facing. Care shall be taken so as not to weaken the structural portions of the building.

5.3.4 Changes in sizes shall be made with reducing fittings.

5.4.3 Valves

5.4.3.1 Water Flow Meter shall be 75 mm Ø, Heavy Duty 10bars Brass/Cast Iron Body, Dry dial Flange type with Flanges bolts nuts



5.4.3.2 Check Valve and Gate Valve shall be heavy-duty brass valves. Approved type, quality and brand.



5.4.3.3 Angle Valve shall be heavy-duty stainless chrome plated valves (1-way and 2-way valve): Approved type, quality, and brand.



5.4.4 Pump Unit and Storage Tank

5.4.4.1 3.0 HP Inverter Constant Pressure Pump System (CPS) with Variable Frequency Drive Motor (VFD), 1 (one) Stainless Steel Multi-Stage Centrifugal Pump, Pressure Transmitter, 8-L Diaphragm Pressure Tank, 1 (one) Inverter in a Control Panel and Float Switch for Pump Dry-Running Prevention. 48 GPM against 35.0 m TDH (49.71 psi), 3500 RPM, 2200V, 1 Phase, 60 Hz, Stainless Steel S304 Casing, Impeller and Shaft Material.



5.4.4.2 1,828 Gallons S304 Stainless Steel Vertical Cylindrical Water Storage Tank (diameter = 1.90m and height = 2.83m) with a stainless-steel float valve, durable steel stand and stainless-steel ladder.



5.5 MISCELLANEOUS

5.5.1 Cleanout shall be PVC or Brass type, gas and watertight, and shall be provided with quick and easy plug removal to allow ample space for cleansing tools.

- 5.5.2 Cleanout shall be of the same size as the pipe.
- 5.5.3 Cleanout located inside the building on the ground floor shall be placed on the flooring level and provided with a brass cover. Additionally, use PVC cover for cleanout located inside the ceiling on the upper floors.



Cleanout with Brass Cover



Cleanout with PVC Cover

5.6 DEFECTIVE WORK

- 5.4.1 If the inspection or test shows any defect, such defective work or material shall be replaced, and the test shall be repeated until satisfactory to the Project-In-Charge.
- 5.4.2 All repairs to piping shall be made with new materials at the expense of the Contractor.
- 5.4.3 No caulking of screwed joints or holes will be accepted.

5.7 PERFORMANCE TEST

- 5.7.1 It is the responsibility of the Contractor to test all systems of the entire plumbing installation for proper operational condition. The test shall be conducted in the presence of the TSU.

SECTION 6 – ELECTRICAL WORKS

6.1 SCOPE OF WORK

- 6.1.1 The Contractor shall provide all materials and equipment and perform all the work necessary for the complete execution of the electrical work specified herein; except as otherwise excluded, and which without excluding the generality of the foregoing, shall include but not be limited to the following principal items of work. All work shall be in accordance with the governing codes and regulations and with the specifications, except when the same shall conflict with such codes, etc. in which case the latter shall then govern.
 - 6.1.1.1 Provide a completely new electrical system for the building.
 - 6.1.1.2 Provide a completely new fire detection and alarm system for the building.
 - 6.1.1.3 Provide a closed-circuit television system roughing-ins for the building.
 - 6.1.1.4 Provide structured cabling system roughing-ins for the building.
 - 6.1.1.5 Complete testing of all electrical systems.
 - 6.1.1.6 Optional items of work.

6.1.1.7 All tapping shall be executed inside the ceiling unless indicated in the plan and on the mounting type of equipment.

6.1.1.8 If anything has been omitted in any items of work on materials usually furnished, which are necessary for the completion of the Electrical Works as outlined herein before, then such must be and are hereby included in this section of the work.

6.2 GENERAL

6.2.1 Codes, Regulations, and Ordinances

6.2.1 The electrical item under this contract is to be installed according to the requirements of the latest Philippines Electrical Code, the rules and regulations of the Authority concerned and the requirements of the Power Company. Nothing contained in these specifications or shown on the drawings shall be construed as to conflict with the National and Local Ordinances or Laws governing the installation of electrical work, and all laws and ordinances are hereby made part of these specifications. The Contractor is required to meet the requirements thereof.

6.2.2 Plans and Drawings

6.2.2.1 The Contract Drawings, which constitute an integral part of this contract, shall serve as workings drawings. They indicate the general layout of the complete electrical system and show arrangements of feeders, circuits, outlets, switches, control panel boards, service equipment, fixtures, and other works.

6.2.2.2 The Contractor shall check architectural, structural, and plumbing plans to avoid possible installation conflicts. Should drastically changes from original plans be necessary to resolve such conflicts, the Contractor shall notify the Engineer/Architect and shall secure from him written approval and agreement concerning necessary changes and adjustments before altered installation work is started.

6.2.1 Minor Modifications

6.2.3.1 The plans as drawn are based upon architectural plans and details show conditions as accurately as is possible to indicate them in scale. The plans are diagrammatical and do not necessarily show all fittings, etc., necessary to fit the conditions. The locations of lighting fixtures and switches shown on the plans are approximate. The Contractor shall be responsible for the proper location to make them fit with architectural details.

6.2.2 Guarantees

6.2.2.1 The Contractor shall guarantee that the electrical system is free from all grounds and all defective workmanship and materials and will remain so for a period of one (1) year from the date of acceptance of the work. Any defects, appearing within the aforesaid period, shall be remedied by the Contractor at his own expense.

6.2.2.2 The Contractor shall indemnify and save harmless the TSU and his duly authorized representative from and against all liability for damages arising from injuries or disabilities to persons or damage to property occasioned by any act or omission of the Contractor, including all expenses, legal or other, which may be incurred by the TSU in the defense of any claim, action, or suit.

6.3 INSTALLATION REQUIREMENTS

6.3.1 All materials shall be new and shall conform to the standards specified in the Philippine Electrical Codes and others such as AIA, IEEEA and NEMA, for every case where such standard has been established for the particular type of materials in question.

6.3.2 All materials on all systems shall comply with the following specifications unless specifically accepted, and all materials that were not specified shall be of the best of their respective kind.

6.3.3 Cutting and Fitting

6.3.3.1 Contractor shall do all cutting and fitting required for the installation of the electrical items and coordinate with the work of other trades, in accordance with the drawings and in a manner satisfactory to the Engineer/Architect.

6.3.4 Inserts, Anchor, Etc.

6.3.4.1 Furnish to the proper trades all inserts, anchors or other required items, which are to be built in by them for securing all hangers or other supports of conduit and for anchorages for electrical equipment.

6.3.5 Ground Tests

6.3.5.1 The entire installation shall be free from improper grounds and from short circuits.

6.3.5.2 Ground testing shall be performed and shall meet the standard resistance required by the NFPA, IEEE and PEC.

6.3.6 Performance Test

5.7.2.1 It shall be the responsibility of the Contractor to test all systems of the entire electrical installation for proper operational conditions. These conditions shall apply to the power and lighting installations as well as the fire alarm system and motors.

6.4 MATERIALS

6.4.1 Wires and Cables

6.4.1.1 The installation shall be free from improper grounds and short circuits. All wires shall be copper, soft-drawn, and annealed, shall be of 98% conductivity, shall be smooth and fine and of a cylindrical form, and shall be within 1% of the actual size called for.

6.4.1.2 Wires shall be color coded as follows:

Line 1 --- Red Line 2 --- Yellow Line 3 --- Blue Ground --- Green

6.4.1.3 All wires shall be copper, soft-drawn, and annealed, shall be of 98% conductivity, shall be smooth and fine and of a cylindrical form and shall be within 1% of the actual sized called for.

6.4.1.4 All wires and cables for lighting and power system shall be moisture and heat resistant rubber or thermoplastic insulate. It must be in conformity with the Philippine Electrical Code when used in damp or unit location. Wires shall be stranded for sizes #12 AWG.

6.4.1.5 All wires and cables shall comply with the requirements as to the particular usage and approved brand.

6.4.2 Pipes

6.4.2.1 Wiring shall be done in PVC Pipe for embedded and in RSC or EMT for run exposed; it shall be Schedule 40.

6.4.2.2 No tubing shall be used in any system smaller than ½” electric trade size, nor shall have more than four 90-degree bends in any one run and where necessary pull, boxes shall be provided as directed.

6.4.2.3 No wire shall be pulled into any conduit until the conduit system is complete in all details and in the case of concealed work until all rough plastering or masonry has been completed in every detail.

6.4.2.4 The ends of all conduits shall be tightly plugged to exclude plaster, dust, and moisture while the building is in the process of construction. All conduit ends shall be reamed to remove all burrs.

6.4.3 Junction And Pull Boxes

6.4.3.1 PVC Junction and pull boxes shall be provided as indicated or as required for facilitating and pulling of wire and cables. Pull boxes in finished places shall be located and installed with the permission and to the satisfaction of the contracting officer.

6.4.4 Panelboard

6.4.4.1 All panelboards shall be dead front construction, furnished with trims for flush or surface mounting as required. Cabinets shall be of code gauge steel with gutters at least 4 inches wide and wider if necessary. The trim for all panels shall be finished in gray enamel over a rust inhibitor. Manufacturer's show drawings shall be submitted to the Engineer/Architect for approval.

6.4.5 Overcurrent Protection

6.4.5.1 Provide individual circuit breakers, safety switches, and disconnect switches as where indicated. Voltage ratings shall be suitable in each case of service application.

6.4.5.2 Enclosure shall be General Purpose, NEMA type, and shall almost all the requirements and specifications of the Philippine Electrical Code.

6.4.5.3 Circuit breakers shall be used for current protection purposes and shall be enclosed in suitable metal housing of type required by location.

6.4.5.4 Disconnecting means shall be provided as indicated on the drawings at each motor location.

6.5 MAIN DISTRIBUTION LINE

6.9.1 For service equipment, install 400AT, 230V, 3-pole molded case circuit breaker in NEMA 4X enclosure mounted on concrete pedestal.

6.9.2 For the main feeder line, lay out 3 sets of 3” diameter PVC pipe enclosed in concrete encasement with 3 sets of 3- 150 mm² THHN/THWN with 1- 50 mm² THHN/THWN

grounding wire. Install 10' x 5/8" diameter grounding rod near service equipment and in concrete pullbox near electrical room for grounding.

6.9.3 Install 18" x 5/8" diameter lightning rod in the top of elevator slab roof with 8.0 mm² Bare copper wire and 10' x 5/8" diameter grounding rod. Bond the grounding wire to the grounding rod.

6.6 LIGHTING SYSTEM

6.6.1 Install all lighting fixtures as specified or at locations shown in plans or as directed by the Engineer/Architect.



1 x 18W T8 Tube light Troffer type with Louver and Aluminum



38W LED Panel Light (Daylight)



12W Square LED Panel Light Surface Mounted (Daylight)



12W Square LED Panel Light Recessed Mounted (Daylight)



12W Round LED Panel Light Recessed Mounted (Daylight)



10W LED Flood Light IP65 (Warm white)



Wall mounted Emergency Light with One Gang Outlet



UFO Emergency Light Recessed mounted



8ft double light Lamp post antique design including 12W LED bulbs



Neon LED strip IP65 Flexible light (10 meter) with Power Adapter [Daylight]

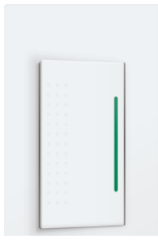
- 6.6.2 Ceiling Fan shall be 16" diameter, 4-Speed Remote Switch, and with thermal fuse protection.



- 6.6.3 LED Emergency Exit Signage shall have a design label with exit, running man, and arrow sign with Aluminum housing and acrylic clear panel.



- 6.6.4 Wall switches shall be rated at 15 amperes, 250 volts, one way or as required. Switches shall be of quiet and automatic action type, silver contact, feather touch operation, and white.



One Gang Switch with Reflector



Two Gang Switch with Reflector



Three Gang Switch with Reflector



3-way Switch with Reflector



4-way Switch with Reflector

6.7 POWER LAYOUT

6.7.1 Power Outlet System.

6.7.1.1 Receptacles outlet shall be for flush mounted duplex universal outlet rated at 16 amperes, 250 volts

6.7.1.2 Install all outlets as specified or at locations shown in plans or as directed by the Engineer/Architect.



Wall mounted Duplex Universal Convenience Outlet



Floor Mounted Duplex Universal Convenience Outlet with outlet box and safety shutter

6.7.2 Water Pump Power Layout.

6.7.2.1 Install a new line for water pump. Run and conceal the layout through the ceiling Provide 30AT, 3-pole molded case circuit breaker in NEMA 3R enclosure at locations shown in plans. Verify mounting height during construction.

6.7.3 PV System Riser Layout.

6.7.3.1 Provide riser pipe for future PV installation. See plan for details.

6.8 AIR-CONDITIONING POWER LAYOUT

6.8.1 Provide 30AT, 2-pole bolt-on molded case circuit breaker in NEMA 3R enclosure at locations shown in plans. Verify mounting height during construction.

6.9 FIRE DETECTION AND ALARM SYSTEM

6.10.1 Fire alarm control panel shall have fault supervision, disablement zones, evacuation, silence mode, UL listed, and the following specifications:

- AC Input : 230 VAC
- DC Output : 10mm x 2mm
- Frequency : 50/60 Hertz

- Voltage for MCU : 2,700 K – 3,000 K (Warm White)
- Current at 24VDC from PSE : Flexible circuit board
- Maximum current from PSE : SMD 5050
- Batteries current : 1.85 A maximum
- Auxiliary output : 24 VDC +/- 10%, 100mA max
- Batteries : 2 pcs 12V/2.3Ah sealed lead acid gel
- Battery replace resistance : 2 ohms +/-10%
- Battery low voltage protection : 22.2 V
- Max detectors per zone : 20 (except manual call points)
- Zone alarm current : 6 mA min. / 27mA max.
- Sounder output : 2pc 0.75A max.
- Fire protection : 100 mA max.
- Fire routing : 100 mA max.
- Fault routing : 100 mA max.
- Communication protocol : 2 wires RS485 bus system
- Relay contacts rating : Dry contacts (NO/NC) 1A, 24 VDC
- EOL resistor for zone : 6.8 Kilo ohms, 1 watt
- EOL resistor for outputs : 6.8 Kilo ohms, 1 watt
- Fuse on power board : 3 A / 250 V glass tube fuse 20mm
- Fuse on EMI Board : 1 A / 250 V glass tube fuse 20mm
- Environment : Class A temp. range: -5 °C to 40 °C
- Terminal blocks rating : All terminals rated for 12 to18 AWG



6.10.2 Smoke detector shall have two LEDs which provide 360 degrees visible alarm indication, flashes every six seconds to indicate power, UL listed, and the following specifications:

- Operating voltage range : 9 to 28 VDC Non-polarized
- Standby current : 120uA at 24 VDC
- Max. alarm current (LED on) : 15 mA at 24 VDC
- Voltage for MCU : 2,700 K – 3,000 K (Warm White)
- Operating temp. range : -10 °C to 50 °C
- Smoke alarm sensitivity : 0.1 – 0.15 dB / m



6.10.3 Conventional manual call point shall be semi-flush or surface mounting, lever re-usable (non-glass break), with LED indicator, UL listed, and the following specifications:

- Main voltage : Zone 24 VDC or 12 VDC
- Operating current : Monitoring status 20uA

- Indicator : Alarm status 15mA
: Red alarm indicator flashes when it is under normal condition
- Protection class : IP30
- Environmental : Class A temp. range: -5 °C to 40 °C



6.10.4 Fire alarm bell shall be 8 inch in size, easy to install, low power consumption, large volume, crisp ring tones, UL listed, and the following specifications:

- Work voltage : 12 VDC, 24 VDC or 230 VAC
- Work current : 50 mA at 24 VDC
- Volume : 96 dB
- Environmental : -10 °C to 50 °C



6.10.5 A new fire alarm and detection system and shall be installed in reference to location showed in the plan.

6.10.6 Wires for fire alarm and detection system shall be 1.25mm² TF stranded twisted two conductor of approved brand.

6.10 CLOSED-CIRCUIT TELEVISION SYSTEM AND STRUCTURED CABLING SYSTEM

6.11.1 2-gang floor-mounted data outlet with outlet box shall be installed on the computer laboratories for future use.



2-gang Floor Mounted Data Outlet with Outlet Box

- 6.11.2 Provide CAT6 UTP cable for all future installation of CCTV camera devices and CAT6 Lan outlets. No splicing shall be done on all cables.
- 6.11.3 Square boxes shall be provided on each location of CCTV cameras, Lan outlets and pull boxes shown in the working drawings.
- 6.11.4 CCTV camera and Lan outlet symbols used in the working drawings only show the location of devices where it will be positioned and installed in the future.
- 6.11.5 Pull box shall be provided for the raceway of wires from the device going to the data cabinet and network video recorder.
- 6.11.6 Install antenna pole using G.I. pipe on parapet wall for future installation of point-to-point antenna.
- 6.11.7 Riser lines of both Closed-circuit television system and Structured cabling system shall pass through the pipe chase. See the working drawings as reference for the exact locations.

6.11 CONSUMABLE HARDWARE

- 6.12.1 Conduit hangers, PVC connectors, G.I. wires, cable tie, brackets, electrical tape, tox, screw and small value materials needed to execute layouts and termination of electrical works shall be considered as consumable hardware.
- 6.12.2 Other materials needed as an accessory to finish installing electrical fixtures shall be considered as consumable hardware.

SECTION 7 – MECHANICAL WORKS

7.1 FIRE PROTECTION SYSTEM

7.1.1 Scope of Work

- 7.1.1.1 This specification covers the equipment, materials, components, and labor including necessary services to complete the installation of the Fire Protection System.
- 7.1.1.2 All materials and work for the Fire Protection System shall be in accordance with applicable portions of the latest version of the following standards unless otherwise indicated.

7.1.1.2.1 NFPA – National Fire Protection Association

7.1.1.2.2 ASTM – American Society for Testing Material

7.1.1.2.3 AWS – American Welding Society

7.1.1.2.4 UL – Underwriters Laboratories Inc.

7.1.1.2.5 FM – Factory Mutual

7.1.1.2.6 National Building Code of the Philippines

7.1.1.2.7 Philippine Mechanical Code

7.1.1.2.8 RA 9514 – The Fire Code of the Philippines

7.1.2 Quality Assurance

7.1.2.1 The complete fire protection system installation shall be done by an approved installer, specializing in fire protection work, having not less than five (5) year experience in installing fire protection systems.

7.1.2.2 All equipment shall be UL-listed, and FM approved.

7.1.3 Delivery, Storage, and Handling

7.1.3.1 Equipment and materials shall be handled, stored, and protected to prevent damage before and during installation in accordance with the manufacturer's recommendations. Damaged or defective items shall be replaced.

7.1.3.2 Delivered materials in original package, containers, skid loads, or bundles bearing brand names and identification of source of manufacturer or supply.

7.1.3.3 Delivered materials and equipment shall be protected from weather, direct sunlight, surface damage, corrosion, and construction traffic activity.

7.1.3.4 Installer shall make necessary provisions to protect systems from damage, deterioration, and environmental conditions during installation and until the automatic fire sprinkler systems is fully operational.

7.1.4 Material

7.1.4.1 *Pipes and Fittings*

7.1.4.5.1 Fittings shall be welded, threaded, or grooved-end type.

7.1.4.5.2 Pipes shall be black iron sch. 40 seamless plain ends astm a53 gr. B.

7.1.4.5.3 Rubber gasketed grooved-end pipe and fittings with shall be permitted in pipe sizes 40 mm (1.5 inch) and larger. Fittings shall be UL listed or FM approved for use in dry & wet standpipe systems. Fittings, mechanical couplings, and rubber gaskets shall be supplied by the same manufacturer.

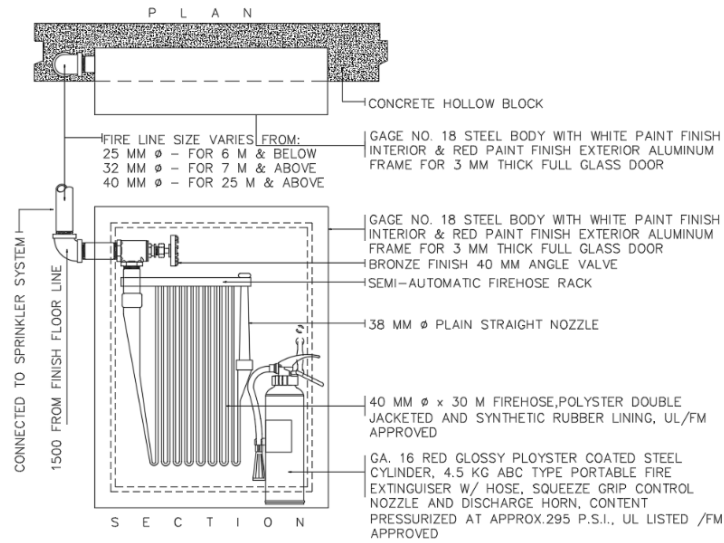
7.1.4.5.4 Painting finish (type, quality, and color) to all fire protection pipework shall comply with the requirements of local code. Piping shall be painted with two (2) coats of epoxy primer and two (2) coats of epoxy enamel

7.1.4.2 *Fire Hose Cabinet*

7.1.4.7.1 Fire Hose Cabinet and Fire Hose Valve shall be UL/FM approved.

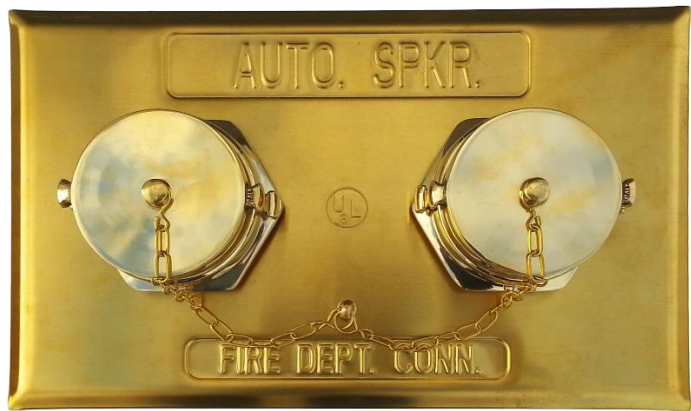
7.1.4.7.2 Fire Hose Cabinet connected to the Automatic Fire Sprinkler System the cabinet shall be 620mmx690 x 203mm (24" x 27" x 8"), 18 gauge cold rolled steel and 610 x610mm (24" x 24") glass. The hose shall be a lightweight polyester jacket and 30 meters (100ft) long.

7.1.4.7.3 Fire Hose Angle Valve shall be 40mm Ø and installed not less than 900 mm and not more than 1500mm above the finished floor level.



7.1.4.8 Fire Department Connection

- 7.1.4.8.1 Fire Department Connection shall be UL/FM approved.
- 7.1.4.8.2 Fire department connections (FDC) shall be 65 x 65 x 100mm (2 1/2" x 2 1/2" x 4") quick-connect fitting, with protective coupling cap and suite to couplings of the local fire brigade department.
- 7.1.4.8.3 Fire department connection shall be installed not less than 500mm and not more than 1200mm above finished floor level.
- 7.1.4.8.4 Fire department connection shall be Dual Snoot Flush Mounted, Brass Type.
- 7.1.4.8.5 Provide identification sign for each fire department connection.
- 7.1.4.8.6 Identification sign shall indicate "Dry Standpipe" and, shall indicate zone & level served.



7.1.4.10 *Miscellaneous*

7.1.4.10.1 Hangers And Supports

- a. All hangers and supports shall be made of steel or other durable and noncombustible materials. Wood, wire, or perforated strap iron shall not be used as permanent hangers or supports. Hangers that penetrate finished ceilings shall be provided with a chrome or nickel-plated escutcheon plate.
- b. Anchorage in concrete – expansion shield should preferably be used in a horizontal position in the sides of concrete beams.
- c. Expansion shield in vertical position. When pipes 100 mm and larger are supported entirely by expansion shield in the vertical position, the supports shall be spaced not more than 3.0 meters apart.
- d. Pipe hangers should be installed at every 1.5 meters and should be anchored to slab system or metal and so as not to interfere with the free expansion and contraction of piping, and all nuts and bolts shall be drawn up tight.
- e. Ceilings should be restored back to the original location and physical properties.
- f. Hangers shall be capable of withstanding the test loadings given in the NFPA rules. When installed and subjected to the test loadings, the hanger shall not rupture, pull out, distort or otherwise be damaged and hangers shall not show permanent distortion resulting in a change in level.

7.1.4.10.2 Pipe Sleeves

- a. Furnish, install and responsible for the location of proper sleeves for all pipes passing through floor, walls, partitions, or other building construction. Where sleeves occur in concrete construction, they shall be set before concrete is poured. Set sleeves and anchors in a suitable manner so that they will not become displaced. Sleeves for piping passing through walls and floors in concealed spaces shall be cut flush with walls or floor.
- b. Sleeves passing through foundation walls or exterior walls, or where seepage may occur, shall be thoroughly waterproofed.
- c. Sleeves passing through walls and floors between rooms shall be filled from both ends of sleeve with fireproof insulation material of a fire rating equal to that of the wall or floor.

Section VII. Drawings

Please refer to the PDF file named “Drawings” in the folder “**Construction of the College of Public Administration and Governance Building (Phase III)**” at the TSU website: www.tsu.edu.ph/
<https://www.tsu.edu.ph/opportunities/bid-opportunities/2023-bid-opportunities/>

Section VIII. Bill of Quantities

1. General

- 1.1. The Bill of Quantities (BOQ) shall be read and construed in conjunction with the Conditions of Contract, Specifications, and Drawings and the Bidder shall provide the prices for the full scope of the work covered by the Contract. No claim for variations shall be considered on account of the Bidder's failure to comply with this provision.
- 1.2. Although the BOQ was prepared with due diligence, all quantities given therein shall be deemed to be estimated quantities and are not guaranteed to be actual and correct. The Bidder shall be deemed to have checked and verified the quantities in the preparation of his/her Bid. Any claim whatsoever for any positive variation in the actual quantities furnished versus the BOQ shall not be accepted, unless stipulated elsewhere in the Contract. Upon award of the Contract, the priced BOQ shall be used solely for evaluating work accomplishment payments due to the Contactor.
- 1.3. The Bidder shall check that each copy of the BOQ is complete in the number of pages and in the reproduction of each page.
- 1.4. The descriptions in the Bill of Quantities may not be complete and the Bidder must refer to the Specifications and Drawings.
- 1.5. The Bidder shall not change any description or specification, and remove or omit any of the item, or part of any of the item of the BOQ without the proper notification of the authorized person of TSU.
- 1.6. Prices shall be given in Philippine Peso taken to two decimal places. A comma shall be used to separate triple digits and a point or dot to separate the decimal portion (e.g., 1,355,076.45)
- 1.7. Identical work items occurring in separate sections shall not be priced at different rates, unless it is the deliberate intention.

2. Units

| Symbol | Unit | Description |
|----------------|--------------|---|
| lot | lot | Although not a standard unit of measure, in this BOQ it shall be construed as a collection of all the materials (accessory, fitting, fixture, consumable, etc.) required for a particular scope of work |
| m ² | square meter | Area; it shall be construed as the coverage area or surface area |
| m ³ | cubic meter | Volume |
| pc | piece | Used for discrete or countable materials |
| set | set | Although not a standard unit of measure, in this BOQ it shall be construed as the complete set of the major material component and its auxiliaries or accessories to be operational or functional |

3. Rates

Rates and Prices shall be all inclusive, comprehensive, and include the following:

- 3.1. All obligations imposed by the Contract,
- 3.2. Complying in every respect with the requirements and the considerations of the Specifications and Drawings,
- 3.3. Labor for all scope of works and all associated costs,
- 3.4. Materials and goods and all associated costs,
- 3.5. Use of equipment and tools,
- 3.6. Any additional labor usually associated with measured items.
- 3.7. All necessary protection of the Works and removal of all temporary coverings and supports,
- 3.8. All utilities such as electricity, water, etc.,
- 3.9. Repair works on all damaged portions affected by the Works,
- 3.10. Cleaning of site, cleaning, and hauling of debris,
- 3.11. All safety and health aspects of the Works,
- 3.12. All required materials tests and its associated costs,
- 3.13. All applicable taxes, duties, charges, and relevant permits,
- 3.14. Overhead & profit.

4. Bidder's Priced Bill of Quantities

2. The Bidder shall present the detailed breakdown of the **Bid Price** using the form **Bill of Quantities** in Microsoft Excel format which should be downloaded from the File Folder "**Construction of the College of Public Administration and Governance Building (Phase III)**" with the file name "**Bill of Quantities**", from the TSU website: <https://www.tsu.edu.ph/opportunities/bid-opportunities/2023-bid-opportunities/>
- 4.1. The Bidder shall provide the following information or data in the spaces provided
 - 4.1.1. [*Bidder's Letterhead*],
 - 4.1.2. [*Date*],
 - 4.1.3. [*Signature*],
 - 4.1.4. [*Name of Authorized Signatory*], and
 - 4.1.5. [*Title/Position of Authorized Signatory*].
- 4.2. The contents of the following columns shall not be altered or removed: Column Heading (column number)
 - 4.2.1. **Item No. (1)**
 - 4.2.2. **Work Description (2)**

- 4.2.3. **Materials, supplies, etc. Quantity (1),**
- 4.2.4. **Materials, supplies, etc. Unit (2)**
- 4.2.5. **Work Item Quantity (3), and**
- 4.2.6. **Work Item Unit (4).**
- 4.3. For the rows with entries in the columns **5** and **6**, the Bidder shall provide the following prices, in Philippine peso, in the appropriate columns: Column Heading (column number)
 - 4.3.1. **Direct Cost (5)** – the aggregate cost of materials, labor, and equipment utilization,
 - 4.3.2. **Indirect Cost (6)** – the sum of overhead cost, contingency, miscellaneous, and profit,
 - 4.3.3. **Total Direct & Indirect Cost (7)** – the sum of the values in columns **(5)** and **(6)**,
 - 4.3.4. **Value Added Tax (8)** – the tax to be charged for the work item,
 - 4.3.5. **Total Cost (9)** – the sum of the values in columns **(7)**, and **(8)**, and
- 4.4. The Sub-Total for every work cluster shall be the sum of all priced items included in that section.
- 4.5. The Total Bid Price shall be the sum of all the total cost for the priced work items and shall be stated in words and figures in the spaces provided at the bottom row of the table.
- 4.6. The Bid shall be deemed “**non-responsive**” if a price is required for a work item, but no price is indicated. Placing a zero (0) or a dash (-) in the cells that requires prices shall be interpreted to mean that the work item is being offered at no cost or for free by the Bidder.
- 4.7. The printed Priced BOQ shall be duly signed and all pages must bear the signature or initial of the authorized signatory of the Bidder.

5. Detailed Estimate

- 3. The specific costs (Material, Labor & Equipment, etc.) for the work items in the Priced BOQ shall be obtained from the detailed estimates using the form for **Detailed Unit Price Analysis**, in Microsoft Excel format which should be downloaded from the File Folder “**Construction of the College of Public Administration and Governance Building (Phase III)**” with the file name “**DUPA**”, from the TSU website: <https://www.tsu.edu.ph/opportunities/bid-opportunities/2023-bid-opportunities/>
- 5.1. The unit Man-Days used in the DUPA shall mean the number of days for one man to complete the task or for the number of men required to complete the task in one day (e.g., 8 Man-Days = 1 Man x 8 Days = 2 Men x 4 Days = 4 Men x 2 Days = 8 Men x 1 Day).

6. Bidder’s Responsibility

- 6.1. It shall be the responsibility of the Bidder to verify that the unit and quantity indicated in the DUPA for a particular work item are the same as those in the Bill of Quantities for the same work item.

Section IX. Checklist of Technical and Financial Documents

This Checklist of Technical and Financial Documents is provided to guide the Bidder in preparing his/her bid. The checklist may be used by the Bidder to verify if the Bid includes all the prescribed documents.

The Bidder, in submitting the required documents, must use the prescribed forms found in Section X. Bidding Forms. However, should a bidder choose to use a different formatting style for a required document, the bidder must ensure that the substance in the form given in Section X for that particular document is substantially captured in the equivalent document.

I. TECHNICAL COMPONENT ENVELOPE

Class "A" Documents

Legal Documents

- (a) Valid PhilGEPS Registration Certificate (Platinum Membership) (all pages) in accordance with Section 8.5.2 of the IRR;

Technical Documents

- (b) 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

- (c) 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

- (d) Special PCAB License in case of Joint Ventures and registration for the type and cost of the contract to be bid; and

- (e) 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

- (f) 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; and

- (g) 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.

Financial Documents

- (h) The bidder's computation of Net Financial Contracting Capacity (NFCC).

Class "B" Documents

- (i) 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

- (j) Original of duly signed and accomplished Financial Bid Form; and

Other documentary requirements under RA No. 9184

- (k) Original of duly signed Bid Prices in the Bill of Quantities; and
 (l) Duly accomplished Detailed Estimates Form, including a summary sheet indicating the unit prices of construction materials, labor rates, and equipment rentals used in coming up with the Bid; and

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| c. | Statement of the bidder's Single Largest Completed Contract (SLCC) similar to the contract to be bid, except under conditions provided under the rules | 74 |
| e. | Original copy of Bid Security. If in the form of a Surety Bond, submit also a certification issued by the Insurance Commission <u>or</u> original copy of Notarized Bid Securing Declaration | 75 |
| f. | Organizational chart for the contract to be bid Note: There is no TSU prescribed form. The Bidder may follow any appropriate format. However, the required Key Personnel must be reflected in the Chart, and it shall be duly signed. | |
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| | 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 | 80 |
| g. | Original duly signed Omnibus Sworn Statement (OSS) <u>and</u> 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. | 81 |
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| l. | 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. Note: Bidder should download and use the Detailed Unit Price Analysis in Microsoft Excel format provided in the File Folder " Construction of the College of Public Administration and Governance Building (Phase III) " with the file name " DUPA " from the TSU website: www.tsu.edu.ph . | |
| m. | Cash Flow by quarter or payment schedule Note: There is no TSU prescribed form. The Bidder may use any appropriate form which must be duly signed. | |

[Position or Title]

[Bidder's Letterhead]

[Date]

To: Tarlac State University
Re: Invitation to Bid No.

Statement of Single Largest Completed Contract Similar to the Contract to be Bid

| Row 1: Name of Contract Row 2: Location | Contract Price | Row 1: Procuring Entity/Owner Row 2: Address Row 3: Contact Person/Tel. No. | Nature of Work | Contract Duration | Date of Award | Date Started | Date Completed |
|--|----------------|---|----------------|-------------------|---------------|--------------|----------------|
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Attached herewith are the following documents: Contract Agreement, Notice of Award, Notice to Proceed, Certificate of Final Inspection, Certificate of Acceptance, and CPES (or equivalent performance evaluation rating), as evidence in support of the foregoing information.

I/We certify that the foregoing information and all the supporting documents are true and correct.

[Signature]

[Name of Bidder]

Bid-Securing Declaration

Republic of the Philippines
City/Municipality Of _____) S.S.

x ----- x

Invitation to Bid [*Insert reference number*]

To: **Tarlac State University**

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 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 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 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
 - ii) I/we filed a waiver to avail of said right;
 - c. I am/we are declared as 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*].

[*Signature*]
[*Name of Bidder's Authorized Representative*]
[*Signatory's legal capacity*]
Affiant

SUBSCRIBED AND SWORN to before me this_day of [month] [year] at [place of execution], Philippines. Affiant/s is/are personally known to me and was/were identified by me through competent evidence of identity as defined in the 2004 Rules on Notarial Practice (A.M. No. 02-8-13-SC). Affiant/s exhibited to me his/her [insert type of government identification card used], with his/her photograph and signature appearing thereon, with no._____.

Witness my hand and seal this ____ day of [month] [year].

[Name and Signature of Notary Public]

Serial No. of Commission _____

Notary Public for _____ **until** _____

Roll of Attorneys No. _____

PTR No._, [date issued], [place issued]

IBP No._, [date issued], [place issued]

Doc. No. ____

Page No. Book

No. Series of _.

[Bidder's Letterhead]

[Date]

To: Tarlac State University
Re: Invitation to Bid No.

We certify that, if the Contract covered by the aforementioned Invitation to Bid is awarded to [BIDDER], we shall employ the following persons to occupy the key positions of the workforce which shall be deployed to implement the project.

| LIST OF KEY PERSONNEL | | |
|------------------------------|----------------------------|------------------------------------|
| Name | Position | Duties and Responsibilities |
| | Project Manager | |
| | Project Engineer/Architect | |
| | Materials Engineer | |
| | Electrical Engineer | |
| | Safety Officer | |
| | Foreman | |

Attached herewith are the Curriculum Vitae of the above-named persons for your evaluation.

[Signature]
[Name of Bidder/Authorized Representative]

[Bidder's Letterhead]

[Date]

To: Tarlac State University
 Re: Invitation to Bid No.

CURRICULUM VITAE OF KEY PERSONNEL

| | | | | | |
|--|--------|-----------------|------------------------------|----------------------|-----------------|
| POSITION | | | NAME | | |
| DATE OF BIRTH | HEIGHT | WEIGHT | SEX | CIVIL STATUS | NATIONALITY |
| | | | | | |
| PROFESSION | | | PRC ID NO. | DATE OF REGISTRATION | VALID UNTIL |
| | | | | | |
| HOME ADDRESS | | | CURRENT STATUS OF EMPLOYMENT | | |
| | | | COMPANY/ ADDRESS | | POSITION |
| | | | | | |
| RELEVANT WORK EXPERIENCE | | | | | |
| COMPANY/ADDRESS | | POSITION | BRIEF JOB DESCRIPTION | | INCLUSIVE DATES |
| | | | | | |
| RELEVANT TRAININGS | | | | | |
| TITLE OF TRAINING | | INCLUSIVE DATES | PLACE | TRAINING PROVIDER | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| EDUCATIONAL QUALIFICATIONS | | | | | |
| DEGREE EARNED (Please enumerate all; if not a college graduate, indicate highest level of education earned) | | | YEAR GRADUATED | NAME OF INSTITUTION | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

I certify that the information furnished above are true and correct and that I have voluntarily furnished the foregoing information on my own free will.

I further certify that, if the Contract covered by the aforementioned Invitation to Bid is awarded to [BIDDER], I shall willingly assume the position of [POSITION] for the [BIDDER].

[Signature]
[Name of Prospective Key Personnel]

We certify that, if the Contract covered by the aforementioned Invitation to Bid is awarded to [BIDDER], we shall engage the services of [Name of Prospective Key Personnel] as the [POSITION] for the entire duration of the project covered by the Contract, in accordance with the law.

[Signature]
[Name of Bidder/Authorized Representative]
[Position or Title]

[Bidder's Letterhead]

[Date]

To: Tarlac State University

Re: Invitation to Bid No.

We certify that, if the Contract covered by the aforementioned Invitation to Bid is awarded to [BIDDER], we shall provide and use the equipment listed below in the implementation of the project.

| List of Major Equipment | | | | | | | | | |
|--------------------------------|--|------|----------------------------|---------------|------------------------------|---------------------------------------|------------------|-----------|--|
| | | Qty. | Model/Year Manufactured | Capacity/Size | Plate No. (if applicable) | Motor No./Body No. (if applicable) | Present Location | Condition | Mode of Acquisition (Owned or Leased) |
| 1. | | | | | | | | | |
| 2. | | | | | | | | | |
| 4. | | | | | | | | | |
| 6. | | | | | | | | | |
| 7. | | | | | | | | | |
| 8. | | | | | | | | | |
| 9. | | | | | | | | | |
| 10. | | | | | | | | | |

Attached herewith are the *Certificate(s) of Registration, Official Receipt(s), and Lease Agreement(s)* for the aforementioned equipment.

[Signature]

[Name of Bidder or Authorized Representative]

[Position or Title]

Omnibus Sworn Statement (Revised)

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

A F F I D A V I T

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]

[Bidder's Letterhead]

[Date]

To: Tarlac State University
Re: Invitation to Bid No.

NET FINANCIAL CONTRACTING CAPACITY

Based on our Income Tax Return and Audited Financial Statement for the Fiscal Year [YEAR], duly submitted to the Bureau of Internal Revenue, and which form part of our Bid, the summary of our firm's financial condition is as given below:

| | | Year [YEAR] |
|----|---------------------------|-------------|
| 1. | Total Assets | |
| 2. | Current Assets | |
| 3. | Total Liabilities | |
| 4. | Current Liabilities | |
| 5. | Net Worth (1-3) | |
| 6. | Net Working Capital (2-4) | |

Based on the aforementioned data and the Value of Outstanding Works from the Statement of All Ongoing Government and Private Contracts, which also form part of our Bid, our Net Financial Contracting Capacity (NFCC) is:

NFCC = [(current asset minus current liabilities) (**15**)] minus [value of all outstanding or uncompleted portions of the projects under ongoing contracts including awarded contracts yet to be started coinciding with the contract to be bid].

NFCC =

I/We certify that the foregoing information and all of the supporting documents are true and correct.

[Signature]
[Name of Bidder or Authorized Representative]
[Position or Title]

[Bidder's Letterhead]

[Date]

FINANCIAL BID FORM

To: Tarlac State University

Re: Invitation to Bid No:

We, the undersigned, declare that:

- (a) We have examined and have no reservation to the Bidding Documents, including Addenda, for the Contract [insert name of contract];
- (b) We offer to execute the Works for this Contract in accordance with the Bid and Bid Data Sheet, General and Special Conditions of Contract accompanying this Bid;

The total price of our Bid, excluding any discounts offered below is: [insert information];

The discounts offered and the methodology for their application are: [insert information];

- (c) Our Bid shall be valid for a period of [insert number] days from the date fixed for the Bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- (d) 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;
- (e) Our firm, including any subcontractors or suppliers for any part of the Contract, have nationalities from the following eligible countries: [insert information];
- (f) 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;
- (g) Our firm, its affiliates or subsidiaries, including any subcontractors or suppliers for any part of the Contract, has not been declared ineligible by the Funding Source;
- (h) 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
- (i) We understand that you are not bound to accept the Lowest Calculated Bid or any other Bid that you may receive.
- (j) **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].**
- (k) **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: _____

In the capacity of: _____

Signed: _____

Duly authorized to sign the Bid for and on behalf of: _____

Date: _____

