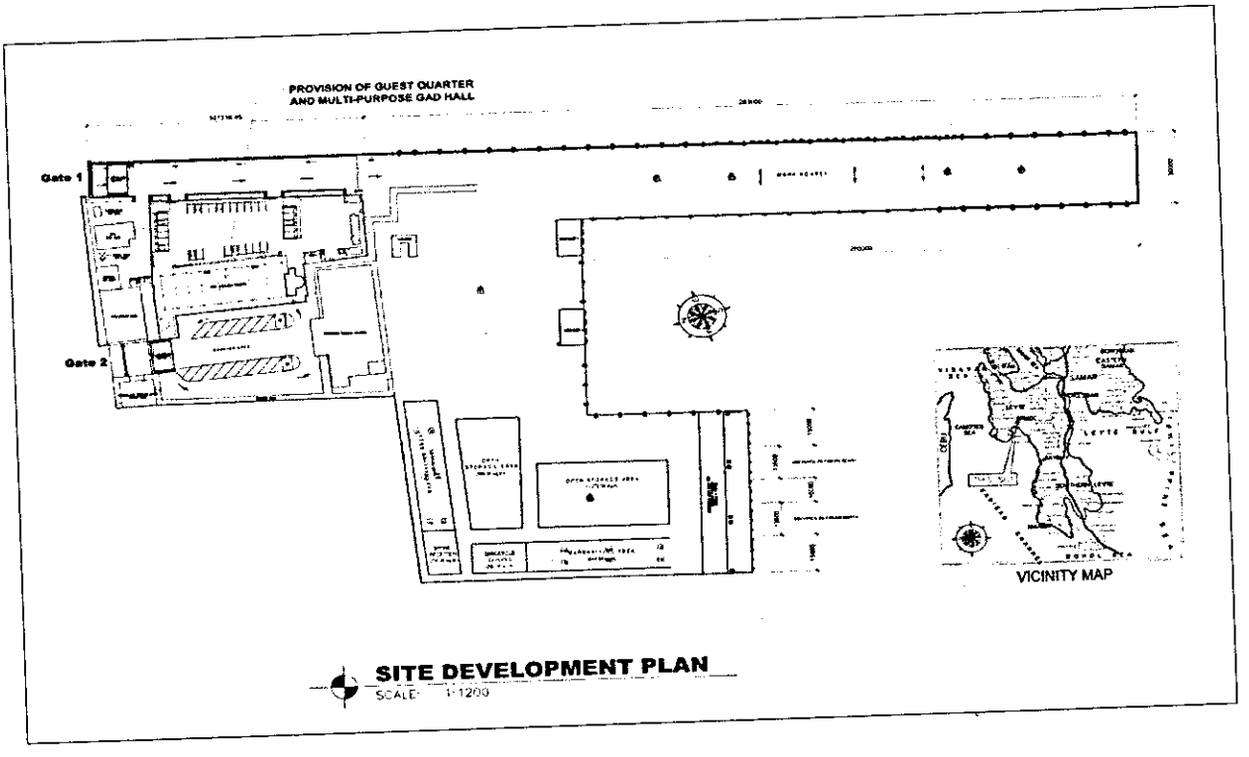
BAGONG PILIPINAS

PHILIPPINE PORTS AUTHORITY

PROVISION OF GUEST QUARTER AND MULTI-PURPOSE GAD HALL AT POB ROOF DECK

PORT OF ORMOC, ORMOC CITY, LEYTE
(HO-RM INFRA-AGME 25-038)



BID DOCUMENTS

AUGUST 2025

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GLOSSARY OF TERMS, ABBREVIATIONS, AND ACRONYMS

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 a *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 basis 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 projects, 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

BAGONG PILIPINAS

PHILIPPINE PORTS AUTHORITY

INVITATION TO BID

FOR THE

PROVISION OF GUEST QUARTER AND MULTI-PURPOSE GAD HALL AT POB ROOF DECK, PORT OF ORMOC, ORMOC CITY, LEYTE

The Philippine Ports Authority, through the Corporate Budget of the Authority for CY 2025, intends to apply the sum of **P25,955,365.57** being the Approved Budget for the Contract (ABC) to payments under the contract for the **PROVISION OF GUEST QUARTER AND MULTI-PURPOSE GAD HALL AT POB ROOF DECK, PORT OF ORMOC, ORMOC CITY, LEYTE (HO-RM INFRA-AGME-25-038)**. Bids received in excess of the ABC shall be automatically rejected at bid opening.

The Philippine Ports Authority now invites bids for the above Procurement Project. Completion of the Works is required in **Three Hundred Sixty (360) calendar days** from the receipt by the successful bidder of the Notice to Proceed. 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).

Bidding will be conducted through open competitive bidding procedures using a non-discretionary "pass/fail" criterion as specified in the 2016 Revised Implementing Rules and Regulations (IRR) of Republic Act (RA) 9184.

Interested bidders may obtain further information from the Philippine Ports Authority Bids and Awards Committee (BAC) and inspect the Bidding Documents at the address given below from 8:00 a.m. to 5:00 p.m., Monday to Friday.

A complete set of Bidding Documents may be acquired by interested Bidders on **22 August 2025** from the given address and website(s) below and upon payment of the applicable fee for the Bidding Documents, pursuant to the latest Guidelines issued by the GPPB, in the amount of **TWENTY FIVE THOUSAND PESOS (P25,000.00).** The Procuring Entity shall allow the bidder to present its proof of payment for the fees in person.

The Philippine Ports Authority's Bids and Awards Committee will hold a Pre-Bid Conference on **02 September 2025 at 10:30 a.m.** at the PPA Function Room, 7th Floor, PPA Bldg., Bonifacio Drive, South Harbor, Port Area, Manila, which shall be open to all prospective bidders.

Bids must be duly received by the BAC Secretariat through manual submission at the office address indicated below on or before **16 September 2025 at 8:00 a.m.** Late bids shall not be accepted.

All bids must be accompanied by a bid security in any of the acceptable forms and in amount stated in ITB Clause 16.

Bid opening shall be on **16 September 2025 at 9:00 a.m.** at the 7th Floor, PPA Building, A. Bonifacio Drive, South Harbor, Port Area, Manila. Bids will be opened in the presence of the bidders' representatives who choose to attend the activity.

The Philippine Ports Authority reserves the right to reject any and all bids, declare a failure of bidding, or not award the contract at any time prior to contract award in accordance with Sections 35.6 and 41 of the 2016 revised Implementing Rules and Regulations of RA No. 9184, without thereby incurring any liability to the affected bidder or bidders.

- **Required PCAB Registration: SMALL B – Building or Industrial Plant**

For further information, please refer to:

BAC Secretariat, Philippine Ports Authority
5th Floor, PPA Bldg., A. Bonifacio Drive,
South Harbor, Port Area, Manila
Telephone Nos. 527-47-35
527-83-56 to 83 loc. 539
PPA Website: www.ppa.com.ph
PhilGEPS Website: www.philgeps.gov.ph

MARK JON S. PALOMAR
Chairperson, PPA Head Office Bids and Awards
Committee for Engineering Projects (HO-BAC-EP)

SECTION II

INSTRUCTIONS TO BIDDERS

1. Scope of Bid

The Procuring Entity, ***Philippine Ports Authority,*** invites Bids for the ***Provision of Guest Quarters and Multipurpose GAD Hall at POB Roof Deck, Port of Ormoc, Ormoc City, Leyte,*** with Project Identification Number ***HO-RM INFRA-AGME-25-038.***

The ***Provision of Guest Quarter and Multipurpose GAD Hall at POB Roof Deck, Port of Ormoc, Ormoc City, Leyte*** is for the construction of Works, as described in Section VI (Specifications).

2. Funding Information

2.1. The ***Philippine Ports Authority,*** through the source of funding as indicated below, for ***CY2025*** in the amount of **₱25,955,365.57.**

2.2. The source of funding is:

PPA Corporate Fund

3. Bidding Requirements

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

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

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

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

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

5. Eligible Bidders

5.1 Only Bids of Bidders found to be legally, technically, and financially capable will be evaluated.

5.2 The Bidder must have an experience of having completed a Single Largest Completed Contract (SLCC) that is similar to this Project, equivalent to at least fifty percent (50%) of the ABC adjusted, if necessary, by the Bidder to current prices using the PSA's CPI, except under conditions provided for in Section 23.4.2.4 of the 2016 revised IRR of RA No. 9184.

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

5.3. For Foreign-funded Procurement, the Procuring Entity and the foreign government/foreign or international financing institution may agree on another track record requirement, as specified in the Bidding Document prepared for this purpose.

5.4. The Bidders shall comply with the eligibility criteria under Section 23.4.2 of the 2016 IRR of RA No. 9184.

6. Origin of Associated Goods

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

7. Subcontracts

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

The Procuring Entity has prescribed that:

Subcontracting is not allowed.

7.2. Subcontracting of any portion of the Project does not relieve the Contractor of any liability or obligation under the Contract. The Supplier will be responsible for the acts, defaults, and negligence of any subcontractor, its agents, servants, or workmen as fully as if these were the Contractor's own acts, defaults, or negligence, or those of its agents, servants, or workmen.

8. Pre-Bid Conference

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

9. Clarification and Amendment of Bidding Documents

Prospective bidders may request 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 fixed prices and therefore not subject to price escalation during contract implementation, except under extraordinary circumstances as determined by NEDA and approved by the GPPB, pursuant to the revised Guidelines for Contract Price Escalation.

14. Bid and Payment Currencies

14.1. Bid prices may be quoted in the local currency or a 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 **One Hundred Twenty (120) days from the date set for Bid Opening**. Any bid not accompanied by an acceptable bid security shall be rejected by the Procuring Entity as non-responsive.

16. Sealing and Marking of Bids

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

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

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

17. Deadline for Submission of Bids

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

18. Opening and Preliminary Examination of Bids

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

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

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

19. Detailed Evaluation and Comparison of Bids

19.1. The Procuring Entity's BAC shall immediately conduct a detailed evaluation of all Bids rated "passed" using non-discretionary pass/fail criteria. 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

Bid Data Sheet

<table>
<tr><td>ITB Clause</td><td colspan="3"></td></tr>
<tr><td>5.2</td><td colspan="3">For this purpose, contracts similar to the Project refer to contracts which have the same Major Categories of Works, which shall be:</td></tr>
<tr><td></td><td>Description/Clarification</td><td>Unit of Measure</td><td>Quantity (at least)</td></tr>
<tr><td></td><td>1. Construction of Building</td><td>Sq.m</td><td>387.00</td></tr>
<tr><td>7.1</td><td>Portion of Works allowed to be subcontracted:

Subcontracting is not allowed</td><td colspan="2">Maximum Percentage allowed to be subcontracted:

Subcontracting is not allowed</td></tr>
<tr><td>10.3</td><td colspan="3">For Joint Venture:

Special PCAB License</td></tr>
<tr><td>10.4</td><td colspan="3">The key personnel must meet the required minimum years of experience set below:</td></tr>
<tr><td></td><td>Key Personnel</td><td>General Experience</td><td>Relevant Experience (Minimum)</td></tr>
<tr><td></td><td>a. Project Manager

b. Project Engineer

c. Project Architect

c. Materials Engineer I

d. Construction Safety and Health Officer

e. Foreman</td><td></td><td>Five (5) years

Three (3) years

Three (3) years

One (1) year

One (1) year

Five (5) years</td></tr>
<tr><td>10.5</td><td colspan="3">The minimum major equipment requirements are the following:</td></tr>
<tr><td></td><td colspan="3">Please refer to Section 8, Annex 3, Minimum Major Equipment Requirements</td></tr>
</table>

12	*Value Engineering Clause:* **Not Allowed**
15.1	The bid security shall be in the form of a Bid Securing Declaration or any of the following forms and amounts: a. The amount of not less than **₱ 519,107.31,** if bid security is in cash, cashier's/manager's check, bank draft/guarantee, or irrevocable letter of credit; b. The amount of not less than **₱ 1,297,768.28**, if bid security is in a Surety Bond.
16	Each bidder shall submit one (1) original and six (6) copies of the Technical and Financial Proposals, properly labelled, book-bound, with hard cover and corresponding index tabs. Failure to comply with the requirements is a ground for the automatic disqualification of the bidder.
19.2	Partial bids: **Not Allowed**
20	*Other appropriate licenses and permits required:* **None**
21	*Other contract documents are as follows:* *Construction Schedule and S-Curve, Manpower Schedule, Construction Methods, Equipment Utilization Schedule, Construction Safety and Health Program approved by the Department of Labor and Employment, and PERT/CPM or other acceptable tools of project scheduling.*

SECTION IV

GENERAL CONDITIONS OF CONTRACT

1. Scope of Contract

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

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

2. Sectional Completion of Works

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

3. Possession of Site

4.1. 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 the Procuring Entity.

4.2. 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** the Contractor does not submit an updated Program of Work within this period, the Procuring Entity's Representative may withhold the amount stated in the **SCC** from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue Program of Work has been submitted.

12. Instructions, Inspections, and Audits

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

13. Advance Payment

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

14. Progress Payments

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

15. Operating and Maintenance Manuals

15.1. If required, the Contractor will provide "as-built" Drawings and/or operating and maintenance manuals as specified in the **SCC.**

15.2. If the Contractor does not provide the Drawings and/ or manuals by the dates stated above, or they do not receive the Procuring Entity's Representative's approval, the Procuring Entity's Representative may withhold the amount stated in the **SCC** from payments due to the Contractor.

SECTION V

SPECIAL CONDITIONS OF CONTRACT

Special Conditions of Contract

GCC Clause	
2	*Sectional Completion:* **None**
4.1	The Procuring Entity shall give possession of all parts of the Site to the Contractor upon commencement of the project.
6	*Site Investigation Report:* **None**
7.2	*Permanent structures: Fifteen (15) years* Buildings of types 4 and 5 as classified under the National Building Code of the Philippines and other structures made of steel, iron, or concrete which comply with relevant structural codes (e.g., DPWH Standard Specifications), such as, but not limited to, steel/concrete bridges, flyovers, aircraft movement areas, ports, dams, tunnels, filtration and treatment plants, sewerage systems, power plants, transmission and communication towers, railway system, and other similar permanent structures
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 15 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 withheld 1st progress billing payment.
13	The provision on advance payments or mobilization fees in the terms and conditions of all contracts/ purchase orders/ job orders for goods, services, and infrastructure projects that will be signed or executed shall henceforth be excluded.
14	No further instructions.
15.1	The date by which operating and maintenance manuals are required is on the final inspection. The date by which "as-built" drawings are required is 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 to withheld Final Payment.

SECTION VI

TECHNICAL SPECIFICATIONS

ITEM 01 : DEMOLITION AND REMOVAL WORKS

DESCRIPTION

The work includes the furnishing of all labor, materials, and equipment required to carry out the demolition and removal of old structures, port accessories, and obstructions, including demolition of miscellaneous concrete curbs, etc., as required for the execution of the Contract.

The Contractor shall submit the proposed methodology or procedure of demolition work with detailed drawings and calculations, if necessary, to the Engineer for approval before the execution of the Works.

The Contractor shall keep all pavements and landing areas to and from the site of the disposal area clean and free of mud, dirt, and debris during and after the execution of disposal. Disposal of debris and materials shall be as directed by the Engineer.

GENERAL PROVISIONS

1. The Contractor shall be deemed to have satisfied himself of the site conditions and to have included in his unit prices provision for all risks that may arise during or in connection with the work.

2. The demolition shall be carried out by approved methods and equipment such as concrete breakers, gas-cutters, hydraulic jacks, compressed air disintegrators, etc. However, no blasting shall be used unless approved in writing by the Engineer and after obtaining the written permission of the concerned authorities.

3. The Contractor shall provide suitable equipment, skilled labor, and appropriate temporary works such as scaffoldings to ensure safety in his demolition works as well as in the adjacent area.

4. Contractor shall demolish all the structural members above the level on which the subsequent and permanent works under this Contract will begin. To this end, the temporary construction works, such as excavation, shall be conducted by the Contractor.

5. Materials coming from the demolition works, except general earth, shall remain the property of the Procuring Entity, the designated part of which shall be stored by the Contractor at places specified by the Engineer/ Accepting authority. Receiving copy of the Turnover Report shall be provided.

6. In case of demolition of wharf deck and platform, the contractor shall ensure that no debris will remain deposited at the seabed.

INTERFERENCE WITH PORT OPERATIONS

During the execution of the work, the Contractor shall not interfere with the shipping, navigation, and other traffic in the port.

The Contractor shall make arrangements with the operations people on the schedule of demolition and related works to keep port operation activities undisturbed at all times.

Prior to the commencement of the demolition works, the Contractor shall inform/announce to port users the schedule of disconnection of utilities.

STORAGE AND DUMPING

Prior to the commencement of the demolition work, the Engineer shall submit to the Contractor a list of all the materials to be salvaged and overhauled, as property of PPA, and the description of the location of their storage. Materials embedded in concrete units shall not be salvaged.

The Contractor shall separate materials to be salvaged from debris. Salvaged materials shall be loaded, transported, and unloaded by the Contractor at the specified locations.

The Contractor may dump debris or extracted rocks on land areas but outside the site, which areas shall be procured and prepared at his own expense. In this case, safety measures shall be undertaken in the transporting, unloading, covering, and other activities as requested by the Engineer.

The approximate distance of the disposal site from the project site is about five (5) kms, as designated by the PMO through the implementing office.

EXECUTION

1. Prior to the commencement of demolition works, the alignment of the new construction works to the existing structure shall be checked.

2. The width and alignment of the portion of the existing structure to be demolished shall be marked by paint.

3. With these lines as guides, concrete shall be broken and reinforcing bars cut, such that panels or portions of the structure can be lifted out for disposal elsewhere outside of the operational work area.

4. Rocks removed from existing slope protection shall be stored for re-use in new construction.

5. Demolish pavements, curbs, fences, utilities, services, navigation aids, and the likes as determined in the field for each project and as shown on the drawings or as directed by the Engineer.

6. Materials coming from the demolition works shall be properly disposed of by the Contractor.

SAFETY

During the course of survey and clearing, any obstacles that are recognized and seem to be explosive or hazardous to workers shall be removed from the site by the proper Authority.

At the end of each day's work, the Contractor shall keep the workplace in a safe condition and clean so that no part is in danger of falling or creating a hazard to personnel or equipment.

ITEM 02 : STEEL AND METAL WORKS

GENERAL

General Requirements contain provisions and requirements essential to these specifications; and apply to this Section, whether or not referred to herein.

SCOPE OF WORK

The work includes the furnishing of all labor, materials, equipment and other incidentals necessary for the fabrication and installation of structural steel and miscellaneous metal works as specified in relevant items of these specifications and as indicated on the drawings.

SUBMITTAL

1. Before placing orders for materials for the steel and metal works, the Contractor shall submit to the Engineer for approval shop drawings for all steelwork. All project shop drawings shall show the dimension of all parts, method of construction, bolts, welding sectional areas and other details.

2. The detail of connections shown on the shop drawings shall be such as to minimize formation of pockets to hold condensation, water or dirt. A minimum gap between abutting angles and the like shall be provided wherever possible to eliminate any traps and facilitate maintenance painting.

3. No materials shall be ordered nor fabrication commenced until the shop drawings are approved by the Engineer.

STORAGE OF MATERIALS

Structural materials, either plain or fabricated, shall be stored above the ground upon platforms, skids, or other supports. Materials shall be kept free from dirt, grease, and other foreign matter and shall be protected from corrosion.

MATERIAL REQUIREMENTS

1. Unless specified herein all steel structures and metals shall conform with the requirements of "Steel and Metal Works." Connections where details are not specified or indicated herein, shall be designed in accordance with the American Institute of Steel Construction (AISC), Manual of Steel Construction, latest edition.

2. Structural steel works consisting of channels, gusset plates and other structural steel shape shall be as indicated on the drawings and shall be structural carbon steel conforming to ASTM A 36. Shapes shall be as given in AISC, Manual of Steel Construction.

3. High strength structural bolts, shall conform to ASTM A 325, Types 1 or 2. Nuts shall conform to ASTM A 560, Grade A, heavy hex style, except nuts 38 mm (1-1/2 inch) may be provided in hex style. Washers shall conform to ANSI B 18.22.1, Type B.

4. Electrodes for arc welding shall be E70 series conforming to American Welding Society Specifications A5.1.

5. Tests are required under the ASTM Standards for steel to be used in the Works and shall be carried out in the presence of the Engineer and at least four (4) days notice must be given to him of the dates proposed for such tests. Four (4) calendar days notice on which fabricated steelwork will be ready for inspection in the Contractor's yard.

6. Standard bolt shall conform to ASTM A 307 Carbon Steel Externally Threaded Standard Fasteners.

EXECUTION

QUALIFICATION

Qualification of steel fabricators, erectors and welders shall comply with the requirements.

FABRICATION REQUIREMENTS

1. Workmanship

   Fabrication shall be performed within the permissible tolerance by the approved fabricator. All workmanship shall be of the best quality with respect to internationally recognized standards of practice.

2. Cutting

   Low-carbon structural steel may be cut by machine-guided torch instead of by shears or saw. Harmful notches, burrs, irregularities, etc., shall not be developed at the cut surface.

3. Contact Faces

   Contact surfaces between bases or other elements bearing directly upon bearing plates shall be ground or milled as necessary for full effective bearing. Edges for welding shall likewise be properly prepared.

4. Bolt Holes

   Bolt holes shall be according to engineering practice and as specified in these specifications. Gas burning of holes will not be permitted.

5. High Strength Bolt Assembly Preparation

   Surfaces of high strength bolted parts in contact with bolt heads and nuts shall not have a slope of more than 1:20 with respect to a plane normal to the bolt axis.

   Where the surface of a high strength bolted part has a slope of more than 1:20, a beveled washer shall be used to compensate for lack of parallelism.

   High strength bolted parts shall fit solidly together when assembled and shall not be separated by gaskets or any other interposed compressible materials.

   When assembled, all joint surfaces including those adjacent to washers shall be free of scale except tight mill scale, and shall be free from dirt, loose scale, burrs, and other defects that would prevent solid seating of parts.

   Contact surfaces of friction-type joints shall be free from oil, paint, lacquer or galvanizing.

6. Welding

All welding shall be done only by welders certified as to their ability to perform in accordance with accepted testing requirement.

Welding of parts shall be in accordance with structural standards and the Standard Code for Arc and Gas Welding in Building Construction of AWS, and shall only be done where shown, specified, or permitted by the Engineer.

Damage to galvanized areas by welding shall be thoroughly cleaned with wire brushing and all traces of welding flux and loose or cracked zinc coating shall be removed prior to painting. The cleaned area shall be painted with two coats of zinc oxide-zinc dust paint. The paint shall be properly compounded with a suitable vehicle in the ratio of one part zinc oxide to four parts zinc dust by weight. As an alternative to the above, the Contractor may submit for approval the use of a galvanizing rod or galvanizing solder to repair damaged areas.

The welding machine shall be a stable welder, and have suitable functions for the dimension of materials to be welded. The auxiliary tools used for welding shall perform sufficiently and adequately.

The welding machine used for field welding shall be of readily adjustable for electric current.

7. Shop Assembly

Structural units furnished shall be assembled in the shop. An inspection shall be made to determine that the fabrication and the matching of the component parts are correct.

Jigs shall be used for the assembly of units as much as possible to maintain appropriate position of mutual materials.

Approval of the Engineer shall be required when drilling temporary bolt holes or welding temporary support to the assembled structure.

The tolerances shall not exceed those allowed by codes and each unit assembled shall be closely checked to insure that all necessary clearances have been provided and that binding does not occur in any moving part.

In order to maintain accurate finished dimensions and shape, appropriate reverse strain or restraint shall be provided as required. Assembly and disassembly work shall be performed in the presence of the Engineer, unless waived in writing by the Engineer any errors or defects disclosed shall be immediately remedied by the Contractor.

Before disassembly for shipment, component parts of the structures shall be match marked to facilitate erection in the field.

FABRICATION TOLERANCES

1. Dimensional Tolerances for Structural Work

Dimensions shall be measured by means of an approved calibrated steel tape at the time of inspection. Unevenness of plate work shall not exceed the limitation of the standard mill practice as specified in the American Institute of Steel Construction, "Manual of Steel Construction".

2. Camber

Reverse camber in any structural steel members in excess of 1/1,000 of the span length shall cause rejection. The minimum dead load camber for any structural steel member shall be as allowed by Code, or otherwise specified.

INSPECTION AND TEST OF WELDING

1. Inspection of Welding

Inspection of welding shall be executed for the following work phases.

a. Before Welding

Scum, angle of bevel, root clearance, cleaning of surface to be welded, quality of end tab, drying of welding rod.

b. During Welding

Welding procedure, diameter of coil and wire, type of flux, welding current and voltage, welding speed, welding rod position, length of arc, melting, cleaning of slag of each level under surface chapping, supervision of welding rod.

c. After Execution of Welding

Assurance of bead surface, existence of harmful defects, treatment of crater, quality of slag removal, size of fillet, dimension of extra fill of butt welding, treatment of end tab.

2. Testing of Welding

Twenty percent (20%) of welds contributing in the overall strength of the structure and which will be inaccessible for the inspection in service shall be tested.

Welding shall be tested by ultrasonic test to the extent specified herein or as directed by the Engineer.

Where partial inspection is required, the ultrasonic test shall be located at random on the welds so as to indicate typical welding quality.

If ten percent (10%) of the random ultrasonic tested indicate unacceptable defect, the remaining eighty percent (80%) of the welding shall be tested. Repair welding required shall be ultrasonic tested after the repairs are made.

CORRECTIONS

In lieu of the rejection of an entire piece or member containing welding which is unsatisfactory or which indicates inferior workmanship, corrective measures may be permitted by the Engineer whose specific approval shall be obtained for making each correction. Defective or unsound welds or base steel shall be corrected either by removing and replacing the entire weld, or as follows.

1. Excessive convexity or overlap shall be reduced by grinding.

2. Undercuts, lack of weld shall be repaired with necessary reinforcement of weld after removal of any foreign materials such as slag, dust, oil, etc.

3. Any defects such as slag inclusions, incomplete fusion, or inadequate joint penetration, shall be completely removed, cleaned and re-welded.

4. Cracks in welds or base steel, shall be removed to sound steel throughout their length and 5cm beyond each end of the crack, followed by welding. The extent of the crack, depth and length, shall be ascertained by the use of acid etching, magnetic particle inspection or other equally positive means.

   The removal of welded steel shall be done by chipping, grinding, oxygen cutting, oxygen gouging, or air carbon arc gouging and in such a manner that the remaining welded steel or base steel is not nicked or undercut. Defective portions of the welding shall be removed without substantial removal of the base steel.

INSTALLATION

1. Installation Program

   a. Prerequisite Condition

      Prior to executing steel fabrication and field installation, the Contractor shall prepare a comprehensive installation program including engineering supervision organization, fabrication procedures, field installation procedures, material application, machinery applications, inspection procedure, scope and standard of quality judgment, and submit to the Engineer for approval.

   b. Special Technical Engineering

      Special technical engineering different from contract specifications can be applied upon receiving approval of the Engineer.

2. Installation Requirement

   a. Setting of Anchor Bolt and Others

      a. 1. Anchor bolts shall be set in accurate position by using templates.

      a. 2. The setting method shall be proposed to the Engineer for his approval before setting starts.

      a. 3. The threads of bolt shall be cured with an appropriate method against rust and/or any damage before tightening.

      a. 4. Non-shrink mortar shall be placed under base plates, well cured to obtain

the sufficient strength before bearing loads are applied to base plates.

b. Temporary Bracing

b. 1. Temporary bracing shall be installed as necessary to stay assemblies and assume loads against forces due to transport, erection operations or other work.

b. 2. Temporary bracing shall be maintained in place until permanent work is properly connected and other construction installed as necessary for support, bracing or staying of permanent work.

b. 3. Extent and quality of temporary bracing shall be as necessary against wind and other loads, including seismic loads not less than those for which the permanent structure is designed to resist.

c. Adequacy of Temporary Connections

During erection, temporary connection work shall be securely made by bolting and/or welding for all dead load, wind and erection stresses.

d. Alignment

No permanent bolting or welding shall be done until the alignment of all parts with respect to each other shall be true within the respective tolerances required.

e. Field Welding

e. 1. Any shop paint or surfaces adjacent to joints where field welding is to be executed shall be wire brushed to remove paint/primer.

e. 2. Field welding shall conform to the requirements specified herein, except as approved by the Engineer.

f. High Strength Bolts

Final tightening of high strength bolts shall be done by using manufacturer's power operated equipment without any overstress to the threads.

g. Correction of Errors

g. 1. Corrections of minor misfits by use of drift pins, and reaming, chipping or cutting will be permitted and shall be provided as part of erection work.

g. 2. Any errors to be corrected or adjusted, preventing proper assembly, shall be immediately reported to the Engineer, and such corrections or adjustments shall be made as necessary and approved by the Engineer.

g. 3. Cutting or alterations other than as approved will not be permitted.

h. Erection

h. 1. Erection and installation shall be as per approved shop drawings.

h. 2. Each structural unit shall be accurately aligned by the use of steel shims, or other approved methods so that no binding in any moving parts or distortion of any members occurs before it is finally fastened in place.

h. 3. Operations, procedures of erection and bracing shall not cause any damage to works previously placed nor make overstress to any of the building parts or components. Damage caused by such operations shall be repaired as directed by the Engineer at no extra cost to the Employer.

GALVANIZING

PREPARATION

All mild steel parts exposed to weather shall be hot-dipped galvanized after fabrication in accordance with the requirements of ASTM A 123 or ASTM A 153. Prior to galvanizing, the surfaces shall be cleaned of dirt, weld splatter, grease, slag, oil, paint or other deleterious matters. The steel surfaces shall be chemically de-scaled and cleaned with the same abrasive blast or other suitable method as approved by the Engineer.

COATING

The zinc coating shall consist of uniform layers of commercially pure zinc free from abrasions, cracks blisters, chemical spots or other imperfections, and shall adhere firmly to the surface of the steel. The weight of zinc coating per square meter of actual surface shall not be less than 550 grams. Any surface damaged subsequent to galvanizing shall be given two coats of approved zinc rich paints.

PAINTING

This work shall consist of the preparation of the metal surfaces, the application, protection and drying of the painted surfaces, and supplying of all tools, tackle, scaffolding, labor and materials necessary for the entire work. Painting shall be applied in the field or shop as approved by the Engineer.

Unless otherwise specified or approved, all painting work for structural steel shall comply with the requirements of this Section.

SHOP PAINTING

All structural steel shall be given a shop primer after fabrication and cleaning before delivery to the site.

All steel work shall be thoroughly dried and cleaned of all loose mill scale, rust and foreign matters by means of sand blasting or other suitable methods approved by the Engineer before shop painting shall be applied. Each individual piece shall be painted prior to assembly. Portions where field welding or field contact with concrete is required shall not be painted.

Except for galvanized surfaces and items to be encased in concrete, clean ferrous metal surfaces shall be given one coat of Amerlock 400 Epoxy Primer at 100 Microns or approved equal. Additional coat shall be applied to surfaces that will be concealed or inaccessible for finish painting by Amerlock 400, Top Coat at 150 Microns with color or equivalent.

FIELD PAINTING

After erection, the Contractor shall thoroughly prepare and clean the entire surface of all structural steel from all dirt, grease, rust or other foreign matters. The entire surface of all members shall then be field painted.

MATERIALS

1. Structural Steel Work

   a. After surface preparation, steelwork shall be given one coat of approved prefabricating primer.

   b. Before final assembly of steelwork at the fabricator's shop, two shop coats of special red lead primer shall be applied to the surface of sections to be in permanent contact, meeting faces and all other concealed surfaces. After final assembly, but before delivery to the project site, the steelwork shall likewise be given two shop coats of special red lead primer.

2. Galvanized Steelwork

   All galvanized steelwork shall be treated with zinc chromate two-pack etch primer followed by one coat of non-etch zinc chromate primer.

3. Miscellaneous Metal Work

   Unless otherwise specified in other Sections of the Specifications or shown on the drawing, miscellaneous metal works such as ladders, structural steel ladder rungs, etc. shall be given two shop coats of epoxy primer and two coats of epoxy enamel.

CONSTRUCTION METHODS

1. Cleaning of Surfaces

   Surfaces of metal to be painted shall be thoroughly cleaned; removing rust, loose mill scale, dirt, oil or grease, and other foreign substances. Unless cleaning is to be done by sand blasting, all weld areas, before cleaning is started, shall be neutralized with a proper chemical, after which they shall be thoroughly rinsed with water.

   Three methods of cleaning are provided herein. The particular method to be used shall be as directed by the Engineer.

2. Hand Cleaning

   The removal of rust, scale, and dirt shall be done by the use of metal brushes, scrapers, chisels, hammers or other effective means. Oil and grease shall be removed by the use of gasoline or benzene.

   Bristle or wood fiber brushes shall be used for removing loose dirt.

3. Sandblasting

All steel shall be cleaned by sandblasting. The sandblasting shall remove all loose mill scale and other substances. Special attention shall be given to cleaning of corners and re-entrant angles. Before painting, sand adhering to the steel in corners and elsewhere shall be removed. The cleaning shall be approved by the Engineer prior to any painting which shall be done as soon as possible before rust forms.

4. Flame Cleaning

All metal, except surface inside boxed members and other surfaces which shall be inaccessible to the flame cleaning operation after the member is assembled, shall be flame cleaned in accordance with the following operations.

a. Oil, grease, and similar adherent matter shall be removed by washing with a suitable solvent. Excess solvent shall be wiped from the work before processing with subsequent operations.

b. The surface to be painted shall be cleaned and dehydrated (free from occluded moisture) by the passage of oxyacetylene flames which have an oxygen to acetylene ratio of at least 1.0. The oxyacetylene flames shall be applied to the surfaces of the steel in such a manner and at such speed that the surfaces are dehydrated; dirt, rust loose scale in the form of blisters or scabs, and similar foreign matters are freed by the rapid, intense heating by the flames. The number arrangement and manipulation of the flames shall be such that all parts of the surfaces to be painted are adequately cleaned and dehydrated.

c. Promptly after the application of the flames, the surfaces of the steel shall be wire brushed, hand scraped wherever necessary, and then swept and dusted to remove all free materials and foreign particles.

d. Paint shall be applied promptly after the steel has been cleaned and while the temperature of the steel is still above that of the surrounding atmosphere.

5. Weather Conditions

a. Exterior Coatings

Coatings to surface shall not be applied during foggy or rainy weather, or under the following surface temperature conditions: below 4°C, or over 35°C, unless approved by the Engineer.

b. Interior Coatings

Coatings shall be applied when surfaces to be painted are dry and the following surface temperatures can be maintained: between 18 to 35°C during the application.

6. Application

a. Paint shall be factory tinted and mixed. All paint shall be field mixed before applying in order to keep the pigments in uniform suspension.

b. Field Painting

When the erection work is complete, including all bolting and straightening of bent metal, all adhering rust, scale, dirt, grease or other foreign materials shall be removed as specified above.

As soon as the Engineer has examined and approved each steel and metal works structures, all field bolts, all welds, and any surfaces from which the top or first coat of paint has become worn off, or has otherwise come defective shall be cleaned and thoroughly covered with one coat of paint.

Surfaces to be bolted and surfaces which shall be in contact with concrete, shall not be painted. Surfaces which shall be inaccessible after erection shall be painted with such field coats as are required. When the paint applied for retouching the shop coat has thoroughly dried, and the field cleaning has been satisfactorily completed, such field coats as are required shall be applied. In no case shall a succeeding coat be applied until the previous coat is dry throughout the full thickness of the paint film. All small cracks and cavities which were not sealed in a watertight manner by the first field coat shall be filled with a pasty mixture of red lead and linseed oil before the second coat is applied.

The following provision shall apply to the application of both coats. To secure a maximum coating on edges of plates or shapes, bolt heads and other parts subjected to special wear and attack, the edges shall first be striped with a longitudinal motion and the bolt heads with a rotary motion of the brush, followed immediately by the general painting of the whole surface, including the edges and bolt heads.

The application of the second field coat shall be deferred until adjoining concrete work has been placed and finished. If concreting operations have damaged the paint, the surface shall be re-cleaned and repainted.

c. General Manners

Painting shall be done in a neat and workmanlike manner. Paint may be applied with hand brushes or be spraying, except aluminum paint which preferably shall be applied by spraying. By either method the coating of paint applied shall be smoothly and uniformly spread so that no excess paint shall collect at any point. If the work done by spraying is not satisfactory to the Engineer hand brushing shall be required.

d. Brushing

When brushes are used, the paint shall be so manipulated under the brush as to produce a smooth, uniform, even coating in close contact with the metal or with previously applied paint, and shall be worked into all corners and crevices.

e. Spraying

Power spraying equipment shall be used to apply the paint in a fine spray. Without the addition of any paint, the sprayed area shall be immediately followed by brushing, when necessary, to secure uniform coverage and to eliminate wrinkling, blistering and air holes.

f. Removal of Paint

If the painting is unsatisfactory to the Engineer the paint shall be removed and the metal thoroughly cleaned and repainted.

ITEM 03 : CONCRETE WORKS

GENERAL

General Requirements contain provisions and requirements essential to these specifications and apply to this Section, whether or not referred to herein.

SCOPE OF WORK

The work shall include reinforced concrete structures such as reinforced concrete footings with or without tie-beams, reinforced concrete columns, girders, slabs, other cast-in-place and precast concrete, including excavation and backfilling work.

The work shall consist of furnishing all labor, materials, equipment, and other incidentals necessary for the supply of concrete materials and the complete construction of the concrete structures for the building shown on the drawings in accordance with these specifications and as directed by the Engineer.

GENERAL REQUIREMENTS

Concrete works shall conform to the requirements of "Reinforced Concrete" except noted otherwise in this Section.

SHOP DRAWINGS

Together with requirements, the Contractor shall show the following in the shop drawings:

1. Surface finish

2. Fitting to be embedded

MATERIAL REQUIREMENTS

1. Concrete shall consist of Portland cement, fine and coarse aggregates, and water and shall conform to the requirements of "Reinforced Concrete".

2. Deformed bars to be used shall conform to the reinforcement requirements in Section "Reinforced Concrete". The size shall be as shown on the drawings.

3. In lieu of the temperature bars on concrete ground slab, monofilament polypropylene synthetic fibrin fibers shall be used as an admixture to prevent the formation of temperature/shrinkage cracks and increase the impact resistance of ground slabs. The dosage rate shall be 0.91 kg. per cubic meter of concrete.

   The supplier is required to submit a "Mill Certificate" that the materials delivered to the site shall be proven to meet or exceed the following properties:

TECHNICAL PROPERTIES	Unit	Minimum
A. Physical Characteristics:		
Length	Mm	12
Shape	Microns	18
Density	gm nominal	0.91

FORMWORKS

GENERAL REQUIREMENTS

Materials and construction of formwork shall be in accordance with the formwork requirements in Reinforced Concrete.

REMOVAL OF FORMWORK

The minimum stripping and striking time for formwork shall be as follows, unless otherwise approved by the Engineer.

Conditions	Minimum Period
Vertical sides of beams, walls, piles, pile caps, and columns lift not exceeding 1.2m	24 hours
Vertical sides of beams and walls, lift exceeding 1.2m	48 hours
Soffits of main slabs and beams (props left under)	5 hours
Removal of props from beams and main slabs, and other works	10 days

CONCRETE

CLASSES OF CONCRETE AND USAGE

1. Strength Requirement

   Concrete strength shall conform to the requirements in Section "Reinforced Concrete".

SLUMP TEST

Tests shall be made in conformity with ASTM C 143, and unless otherwise specified by the Engineer, slump shall be within the following limits:

Structural Element	Slump for Vibrated Concrete	
	Minimum (mm)	Maximum (mm)
Precast concrete	80	180
Wall, column, and beam, 25cm max. thickness	80	180
Concrete slab	80	150
Lean concrete	70	150

CONCRETE COVER FOR REINFORCEMENT

Minimum concrete cover for reinforcement shall be as follows:

Net Concrete Cover	Minimum Cover (mm)
Concrete cast against and permanently exposed to earth	75
Concrete exposed to earth or weather:	
Primary reinforcement	50
Stirrups, ties, and spirals	40
Concrete deck slabs:	
Top reinforcement	50
Bottom reinforcement	35
Concrete not exposed to weather nor in contact with ground:	
Primary reinforcement	40
Stirrups, ties, and spirals	25

CONSTRUCTION JOINTS AND WATERSTOPS

Construction joints shall be provided where shown on the drawings or when approved with written permission of the Engineer. Special care shall be used in preparing concrete surfaces at joints where bonding between two sections of concrete is required. Unless otherwise indicated on the drawings, such bonding will be required at all horizontal joints in walls.

Water stop material shall be an elastomeric plastic compound, the basic resin of which shall be polyvinyl chloride, and containing any additional resins, plasticizers or other materials needed for the material to comply with the requirements specified.

The water stop shall be fabricated by an extrusion process such that it will be dense, homogeneous, free from holes and other imperfections. The cross-section of the water stop shall be uniform and symmetrical along its entire length.

Surfaces shall be prepared as follows:

The surface of concrete upon or against which the placement of contiguous concrete or masonry is later required shall be struck off true to the elevations indicated on the drawings after the concrete has been placed. Thereafter as soon as the condition of the concrete permits it, and before the concrete has hardened appreciably, i.e. normally within 2 hours after being deposited, all water, scum, laitance and loose aggregate shall be removed from the surface by means of wire or bristle brooms in such a manner that the coarse aggregate is left lightly exposed, and the surface cleaned. No raking will be permitted.

The Contractor shall then take all necessary precautions to ensure that all surfaces thus prepared shall be kept free from storage piles, drippings, staining, or foreign matter, which could adversely affect the concrete or the bond between the concrete layers.

Water stops for all joints shall be continuous around the corners and at intersections, either in horizontal or vertical direction, as indicated on the drawings. Field splices and joints shall be made in accordance with the water stop manufacturer's instructions, using a thermostatically controlled heating iron.

ITEM 04: MASONRY WORKS

GENERAL

Division 1, "General Requirements," contains provisions and requirements essential to these Specifications and applies to this Section, whether or not referred to herein.

SCOPE OF WORK

This Section includes the furnishing of all labor and materials to complete the work as shown on the drawings and specified herein. The works shall include, but not necessarily be limited to the following: 1. Supply and installation of concrete hollow block (CHB) walls with reinforcement. 2. Plastering 3. Installing temporary works like scaffolding, platforms, steps, etc.

GENERAL PROVISIONS

The following publications of the issues below but referred to thereafter by basic designation only, form a part of these specifications to the extent indicated by the reference thereto: 217 American Society for Testing and Materials (ASTM) Publications: A 615 Deformed and Plain Billet-Steel Bars for Concrete Reinforcement A 33 Concrete Aggregates C 129 Specification for Non-Load Bearing Concrete Masonry Units C 144 Specification for Aggregate for Masonry Mortar C 270 Mortar for Unit Masonry-

MATERIAL REQUIREMENTS

Materials shall conform to the respective specifications and other requirements specified below:

CONCRETE HOLLOW BLOCKS (CHB):

CHB shall be of standard manufacture, machine vibrated with fine and even texture and well-defined edges, and conforming to the requirements of ASTM C 129. Unless otherwise specified on the Drawings, it shall have a minimum compressive strength of [2.45 MPa (350 psi)/4.5MPa (650 psi)]. CHB shall be uniform and essentially smooth as normally achieved by standard molding methods and shall be free from any cracks, flaws, or other defects.

BEDDING MORTAR:

Mortar shall be composed of 1 part of Portland cement, 3 parts of sand, and ½ part of lime. It shall have a compressive strength of [14 MPa (2,000 psi)] at 28 days and shall comply with property specifications for type N mortar outlined in ASTM Specification C 270 and as modified herein, proportioned and tested in an approved laboratory at the expense of the Contractor. When tested for water retention, the mortar shall have a flow after suction of 75 percent or more when mixed to an initial flow of 125 to 140 percent. When tested for compressive strength, mortar shall be mixed to a flow of 100 to 115 percent. Aggregate for mortar shall conform to ASTM C 144

PLASTER:

Plaster shall comply with the same specification as those for bedding mortar and will include the use of synthetic fibrous reinforcement of the type and dosage recommended by the manufacturer. 218 4.5.2.4

REINFORCING STEEL BARS AND RODS:

ASTM Specification A 615 with minimum yield strength of [230 MPa (33,400 psi] for 10 mm diameter and [276 MPa (40,000 psi)] for 12 mm diameter.

SAMPLES AND TESTING 1.

The following shall be submitted for approval, and in addition, representative samples shall be taken periodically from on-site stockpiles as required for testing or checking during the progress of the work. Anchors and ties: Two of each type proposed for use. Concrete Hollow Blocks: Shapes, sizes, and kinds in sufficient numbers to show the full range of quality and texture. 2. Sampling and testing, unless otherwise specified, shall be performed by an approved independent commercial testing laboratory at the expense of the Contractor. Certified copies of laboratory test reports, including all test data, shall be submitted at least 10 days before delivery of the units or mortar materials represented by the tests to the project site. 3. Mortar shall be laboratory-proportioned and tested. Certified copies of approved laboratory-established proportions shall be submitted with the required test reports and test data. Approved laboratory-established proportions shall not be changed, and materials with different physical or chemical characteristics shall not be used in mortar for the work unless additional evidence is furnished that the mortar meets the specified requirements.

ERECTION 1.

GENERAL

No unit having a film of water on its surface shall be laid. Masonry shall be laid plumb, true to line, with level courses accurately spaced. The bond pattern shall be kept plumb throughout. Corners and reveals shall be plumb and true. Vertical joints shall be shoved tight. Each unit shall be adjusted to its final position while the mortar is still soft and plastic. Any unit that is disturbed after mortar has stiffened shall be removed and relaid with fresh mortar. Courses shall be so spaced that backing masonry will level off, flush with the face work at all joints where ties occur. Chases and rake-out joints shall be kept free from mortar or other debris. 219 2. Anchorage to concrete. Anchorage to abutting columns shall be provided only where indicated. Details shall be as indicated, including anchorage to the underside of beams and slabs. 3. Cutting and fitting, including that required to accommodate the work of others, shall be done by masonry mechanics. Wherever possible, full units of the proper size shall be used in lieu of cut units. Cut edges shall be clean, true, and sharp. Openings shall be carefully cut, formed, or otherwise neatly made for recessed items and for electrical, plumbing, or other mechanical installations so that wall plates, cover plates, or escutcheons required by the installation will completely conceal the openings and will have bottoms in alignment with the lower edge of masonry joints. Webs of hollow masonry units shall be cut to the minimum required for the installation. Reinforced masonry lintels shall be provided as indicated above openings over 300mm wide, for pipes, ducts, and cable trays, unless steel

sleeves are used. 4. Embedded Items: Spaces around built-in items shall be filled with mortar. Openings around flush-mounted electrical outlet boxes in wet locations shall be pointed flush with mortar, including flush joints above the boxes. Anchors, ties, accessories, flashing, pipe sleeves, and other items required to be built-in shall be built in as the masonry work progresses. Anchors, ties, and joint reinforcement shall be fully embedded in mortar. 5. Unfinished work shall be stepped back for jointing with new work. Toothing may be resorted to only when specifically approved. Before laying new work, loose mortar shall be removed, and the exposed joint shall be thoroughly cleaned. 6. Protection: Surfaces of masonry not being worked on shall be properly protected at all times. At the end of each workday period and when rain is imminent, the top of exposed masonry shall be covered with a strong non-staining waterproof membrane well secured in place and in a manner that will prevent moisture. Adequate provisions shall be made during construction to prevent damages by wind. 7. Mortar: Materials shall be accurately measured in laboratory-established proportions and mixed with as much water as may be necessary to produce the wettest workable consistency possible. Mortar shall be placed in the final position within one hour after mixing. Mortar not used or that has started to set within this time interval shall be discarded. 8. Jointing: Joints in exposed-to-view except control joints, joints to be pointed or caulked or sealed, and openings around flush-mounted electrical outlet boxes in wet locations shall be tooled slightly concave with the mortar thoroughly compacted and pressed against the edges 220 of the units. Tooling shall be done when the mortar has been thumbprint hard. The tooled joint shall be finished to uniformly straight and true lines and surfaces, smooth and free of tool marks. 9. Placing Reinforcing Steel Prior to placing grout, all reinforcement shall be cleaned of loose, flaky rust, scale, grease, mortar, grout or other coating which might destroy or reduce its bond with grout. Details of reinforcement shall be as indicated in the drawings. Reinforcing shall not be bent or straightened in a manner injurious to the steel. Bars with kinks or bends not shown on the drawings shall not be used. Placement of reinforcement shall be inspected and approved prior to placing grout. One-piece vertical bars extending from floor to floor or roof above shall be provided. Vertical bars shall be spliced only where indicated. a. Positioning Bars Vertical bars shall be positioned accurately at the centerline of the wall. A minimum clearance between the bars and masonry units of 12mm and between parallel bars of one diameter of the reinforcement shall be maintained. Vertical reinforcing shall be held in place using metal supports, centering clips, spacers, ties, or caging devices located near the ends of each bar and at intermediate intervals of not more than 192 diameters of the reinforcement. b. Splices shall be located only as indicated. Splices shall be staggered in adjacent bars at least 600 mm. Bars shall be lapped a minimum of 40 diameters of the reinforcement.

ITEM 05: ROOFING AND TINSMITHERY WORKS

SCOPE OF WORK

The work shall include, but not limited to all labor, materials, tools, equipment and incidentals necessary to furnish and install the roofing sheets including fittings, flashing caps, ridge rolls, gutters and construction of concrete eaves and canopy excluding waterproofing, to provide completely sound watertight roof for the buildings as shown on the Drawings and specified herein.

MATERIAL REQUIREMENTS

ROOFING SHEETS

Galvanized Iron Roofing Long span, pre-painted with high-grade polyester paint over epoxy primer. Galvanized iron roofing [rib/corrugated] type, highly resistant to corrosion, and shall comply with the following:

1. Minimum metal base thickness of 0.60mm
2. Minimum paint thickness 10 microns for bottom coat, 25 microns for topcoat
3. Minimum metal base yield stress of 550 MPa

FASTENERS AND ACCESSORIES

Roofing sheet fastener shall be 0.025 GI straps and units with washers and cutting screws with neoprene washers or as recommended by the approved manufacturer.

TRANSLUCENT FIBERGLASS SKYLIGHTS

Skylight panels shall be fibrous glass translucent panels consisting of a reinforcing mat of 25% glass by weight bonded between surface mats made by borosilicate glass with less than 7% alkali. The binding material shall be of 100% acrylic bonding resins. Panels shall not be less than 3.00mm thick, rib-type to suit the rib of roofing sheets to be used. Fasteners shall be cadmium-plated stove bolts with a 1.8mm cadmium washer and a rubber washer. 242

HANDLING AND STORAGE

The sheet shall be lifted directly and shall not be dragged over the other sheets or rough surfaces. When working on a roof, the workers shall wear flat rubber-soled shoes. The tool shall be handled carefully to prevent it from sliding over the coated surface. When installation work is completed, all metal off-cuts, used nails, and other metallic scrap shall be removed from the roof area. When using drills, hacksaws, or files in the roof area, care shall be taken that metal particles and filings are swept off the roof immediately. If not required for immediate use, sheets or bundles shall be staked and clear off the ground. If left in the open,

sheets shall be protected by loose tarpaulin or similar covers. Bundles shall not be left exposed to the weather.

CONCRETE EAVES AND CANOPY MATERIALS

Concrete materials shall comply with the requirements in Section 3.2, Concrete Works. Reinforcing Steel bars shall likewise conform to the requirements in Section 3.2, Concrete Works

FIXED METAL LOUVER VENTILATOR

Louver blades shall be gauge # 18 pressed steel.

SAMPLES

Samples shall be submitted for the Engineer's approval before any order for roofing materials is made by the Contractor.

INSTALLATIONS

ROOFING SHEETS

1. GI Sheets at least 28 days before laying roofing sheet start, the Contractor shall submit for approval of the Engineer, shop drawings indicating materials and method of installation. No roofing sheets laying work 243 shall commence without the Engineer's approval of the shop drawings and work method. Laying shall start from the end opposite the side from where the prevailing monsoon is coming from. The first sheet shall be laid and installed with the turned-down edge towards the outside of the area to be covered. The next sheet shall be overlapped to the previous sheet in such a manner that the exposed edge is turned down and the covered edge is turned up. The overlapped edge on the side shall be with the rib having the anti-capillary groove. End and side laps, including flashing, shall be as approved by the Engineer. The straps shall be fixed and fastened with the fastener and washer as shown on the Drawings.

2. Translucent Fiberglass Skylights Installation of skylights shall be coordinated with and shall follow the sequence of the laying of the roofing sheets. Overlap of skylight panels shall not be less than 300mm at the ends and 2-1/2 corrugations at the sides. No nails shall be used for fastening the skylight panels. All the sheets shall be secured to the purlins with stove bolts and clips, complete with one cadmium washer and one rubber washer on top and below the sheet. All sheets shall be secured to the purlins. Side laps shall be bolted at the center of purlin spaces. Mastic solvents and sealers listed as unsatisfactory to acrylic panels shall not be used.

CONCRETE EAVES AND CANOPY

Construction of concrete eaves and canopy shall be in accordance with Section 3.2, "Concrete Works" as shown on the Drawings and as directed by the Engineer. Waterproofing shall be in accordance with Section 4.9, "Concrete Waterproofing".

ITEM 06: CEILING AND WALL INSULATIONS

GENERAL

Division I, "General Requirements," contains provisions and requirements essential to these Specifications, and applies to this section, whether or not referred to herein.

SCOPE OF WORK

The work covered in this section shall include all labor, materials, tools, equipment, and incidentals necessary to furnish and install prefabricated insulated panels and door including aluminum cobing angle, joiner mould, capping and ceiling suspension system, door hardware and other accessories to provide a completely sound watertight ice storage as shown on the Drawings and specified herein.

GENERAL PROVISIONS

1. Prefabricated insulated panels and doors shall be a product of a single manufacturer.

2. Trade names of the materials or components indicated in the specifications are intended only to show the standard of the materials or components on which the design of the particular work is based, and also to avoid ambiguous descriptions of the materials or components on the drawings. The indication of trade names, therefore, shall in no way be considered to limit the acceptability of other products of equal or better functions, performances, reliability, and durability.

SUBMITTALS

Samples, specifications, and construction procedures proposed for use shall be submitted to the Engineer for approval.

DELIVERY AND STORAGE

Prefabricated insulated panels and doors shall be supplied and delivered in their finished form. They shall be stored in a place properly protected from rain and sunlight. Extended, outdoor exposure shall not be allowed. Insulation materials shall not become wet or soiled. Contractor shall comply with the manufacturer's recommendations for handling, storage, and protection during installation.

MATERIAL REQUIREMENTS

1. 100 mm thick prefabricated insulated panels for wall, ceiling, and door with a core of polystyrene foam, machine laminated onto pre-painted continuous steel sheets. Technical Description Specifications Dimension 1200 mm width by any length Thickness 100 mm Weight 13.2 kg/m2 Surface Plain Skins 0.60 mm thick steel, 350 g/m2 (nominal) zinc coating with oven-baked epoxy primer and polyester finish. Color – off white Core Self-extinguishing polystyrene foam, density 16 kg/m3 Structural Properties Compressive Strength 110 kN/m2 at 10% compression Shear Strength 670 kN/m2 Insulation Properties Vapor Permeability NIL Temperature Range +80°C to –150°C

Thermal Conductivity 3.5 x 10-2 with m/°C @ 25°C Fire Properties (Composite Panel) Surface Flame Spread Class O (BS476, Pt7 1971) Early Fire Hazard Properties Range 0-20 (ASK 1530 Pt3) Surface Properties Surface Scratch Resistance 2000 g (DEF 1053) Corrosion Resistance Salt Spray test No blistering, undercutting or loss of paint adhesion after 1200 hours (ASTM B 117-64) Humidity resistance Paint unaffected after 3000 hours (ASK 41 Method 452.1) Water Immersion Paint unaffected after 3000 hours Weather Resistance Surface unaffected after 5 years exposure to industrial, marine and sub-tropical conditions. 2. Accessories: Manufacturer's standard for the item required or the type best suited for the intended use.

EXECUTION

Install prefabricated insulated panels and doors according to the direction of the manufacturer.

CEILING FINISH

1. Rubbed Concrete Finish

After the removal of forms, the rubbing of concrete shall be started as soon as its condition permits. Immediately before starting this work, the concrete shall be kept thoroughly saturated with water for a minimum period of three hours. Sufficient time shall have elapsed before the wetting down to allow the mortar used in the pointing of holes, honeycomb spots, broken corners or edges, and other defects to thoroughly set. Surfaces to be finished shall be rubbed with a minimum coarse carborundum stone using a small amount of mortar on each face. The mortar shall be composed of cement and fine sand mixed in the proportions used in the concrete being finished. Rubbing shall be continued until all form marks, projections, and irregularities have been removed, all voids have been filled, and a uniform surface has been obtained. The face produced by this rubbing shall be left in place at this time. After all concrete above the surface being created has been cast, the final finish shall be obtained by rubbing with a fine carborundum stone and water. This rubbing shall be continued until the entire surface is of smooth texture and uniform color. After the final rubbing is completed and the surface has dried, it should be rubbed with burlap to remove loose powder and shall be left free from all unsound patches, paste, powder, and objectionable marks.

2. Gypsum Ceiling Board

The board shall be installed in accordance with ASTM C 840 and the requirements specified on the Specifications and Drawings. Neatly fit abutting end and edge joints. Use gypsum board of maximum practical length. Cut out gypsum board as required to make neat, close joints around openings. Apply gypsum board in accordance with ASTM C840. 277

3. Fiber Cement Board

a. Install fiber cement board in accordance with approved layouts on metal grid supports not more than 50 cm apart. When structural supporting members are set at

such spacing that the above requirements cannot be complied with, adequate intermediate supports shall also be provided. b. Each board shall be tightly and rigidly secured in place and free from unnecessary movement. c. Each board shall be set square, straight, plumb, and/or level, accurately positioned at locations and to layouts required, with adjacent like units or members accurately aligned. d. Board joints shall be tightly abutting and flush across adjacent units. e. The installation shall be free from exposed fastenings, unnecessary cuts or holes, other than as particularly shown, specified, or approved. f. Exposed surfaces shall be completely clean and free from dust, dirt, smudges, fingerprints, scratches, dents, warping, waviness, buckling, broken parts or units, chips, cracks, misaligned or improperly fitted joints, stains, discoloration, or other defects or damage.

4. Fiberglass Ceiling

Board Edges of the ceiling board shall be in close contact with the metal supports and in true alignment. Arrange units so that units less than 1/2 width are minimized.

ITEM 07: DOORS AND WINDOWS

GENERAL

Division I,

"General Requirements" contain provisions and requirements essential to these Specifications and apply to this section, whether or not referred to herein.

SCOPE OF WORK

The work shall cover the fabrication, delivery, and complete installation of doors and windows, including glazing for the buildings. The works shall consist of furnishing all labor, materials, tools, equipment, and other incidentals necessary for the complete installation of the above-mentioned doors and windows, including glazing, as shown on the drawings and in accordance with these specifications or as directed by the Engineer.

SUBMITTAL

The Contractor shall submit the shop drawings for the fabrication of the doors and windows to the Engineer for approval, twenty-eight days before the start of works. The shop drawings shall indicate the following:

1. Elevations for each type;

2. Details for each type: 251

3. Location in the building for each item;

4. Typical and special details of construction, and

5. Location and installation requirements for hardware.

HANDLING AND STORAGE

All doors and windows, and door frames shall be delivered, stored, and handled so as not to be damaged or deformed. All doors and windows, and door frames stored at the site before installation shall be stocked vertically on non-absorptive strips or wood platforms and covered with suitable covering to provide weathertight protection and proper air circulation.

MATERIAL REQUIREMENTS

WOOD DOORS

1. Wood doors shall be of the following types, where indicated on the drawings, with complete locksets, hinges, and accessories.

a. Flush-type marine hollow core plywood doors.

b. Flush-type marine plywood with fixed wood louver door

c. Panel type wood tanguile doors d. Louver-type wood door

2. Frame wood block insets shall be kiln-dried tanguile, as shown on the drawings.

3. Facings shall be raised wood panels, ordinary plywood, or marine plywood, where shown on the drawings. Plywood shall be first quality, grain and color suitable for natural finish, and of the thickness indicated on the drawings.

4. Door jambs and headers shall be well-seasoned yakal.

5. Nails shall be of the smooth shank, zinc-coated, common wire nails of the types and sizes suited for the purpose and as directed by the Engineer.

6. Wood screws shall be brass or cadmium plated of the best available commercial quality of the types and size suited for the purpose.

STEEL DOORS

1. Swing-type metal door shall be a gauge 20 metal door with mineral core, as indicated in the drawings. 252 2. Gauge 20 metal door with baked enamel finish and stainless steel trim and fitting shall be used for toilets. It shall be connected to cubicle-type partitions as indicated in the drawings.

ROLL-UP DOOR

1. Roll-up door shutters shall be made of cold rolled pre-painted, galvanized steel or black Iron and must be of structural section to withstand all conditions of stresses to which it may be subjected during opening and closing operations and wind pressure of 196 kg/m2. Roll-up doors shall be ball-bearing mounted to suspend the heavy rotating members. Full door weight shall be carried by side guides.

2. Guides shall consist of steel structural shapes or formed steel not less than 50mm deep and 1.2mm to 1.4mm thick (Pre-painted galvanized steel/black iron). Guides shall be securely attached to the wall or column by 10mm diameter by 83mm hexagonal bolts with an expansion shield spaced at 600mm on center. Pre-painted and galvanized side guides shall be installed with PVC reinforcement as a sound reducer.

3. Curts shall be formed by interlocking steel slots, roll formed from 0.80mm to 1.20mm, depending on the requirements, pre-painted, galvanized steel, or B Iron sheets. Windlocks shall be provided as required by door size and shall withstand wind pressure of 196 kg/m2. Windlocks shall be galvanized malleable cast iron and fastened to curtain slats with three or more zinc-plated steel rivets per lock..

4. Bottom bar of the curtain will be reinforced with two (2) pieces of angular bars of not less than 44mm x 44mm x 1.60mm thick, prepainted, galvanized steel or black iron. Compressible and replaceable rubber vinyl weather strip shall be attached to the bottom rail.

5. Brackets shall be fabricated of heavy cast iron or steel, designed to close the end of the roller shaft housing and to form a supporting ring or hood. Bracket hubs or shaft plugs shall be equipped with prelubricated ball bearings, shielded or sealed. End locks made of malleable cast iron, galvanized, and fastened to alternating slats shall be installed to prevent slats from wearing at the surface coming in contact with the side guides. Roller shafts shall be constructed of steel pipe or commercial steel tubing of proper diameter and thickness for the size of the curtain. Deflection shall not exceed 0.030 inch per foot of span. End of roller shall be closed with cast iron plugs, machine to fit the pipe. 253

6. Rubber bumpers shall be installed to protect the base of the roll-up doors even when ample pressure is applied to push the door up. The bumpers shall also minimize the load, clashing sound when the doors are lifted.

ALUMINUM DOOR

1. All frames for aluminum doors shall consist of aluminum shapes and materials extruded from alloy 6063-T5 to ASTM B 221. Frames shall be coated with polyester powder and with shade as shown on the Drawing or as directed by the Engineer. Powder coating shall satisfy the following requirements: Pre-treatment: zinc chromating and acid rinsing, Powder application: one operation using electrostatic gun, Oven curing temp: 200°C for 20 min, Coating thickness: min. 60 microns Impact resistance: min. 20 in/lb (ASTM D 2794)

2. Door panels shall either be clear or tinted glass with panel thickness as shown on the Drawings.

PVC DOORS Vinyl

Integral color PVC compound containing impact-resistant solid plasticizer. Comply with ASTM D 4216.

MELAMINE FACED PARTICLE BOARD FOR TOILET ENCLOSURE

Toilet enclosures shall be 33 mm thick H.M.R. (High Moisture Resistant) Melamine Faced Practice Board. Colors shall be as designated by the Engineer. Submit samples for each type of toilet enclosure for approval prior to installation.

JALOUSIE GLASS TYPE WINDOW WITH SECURITY GRILLS

Glass slats shall be 5.5 mm thick obscured glass, 100 mm wide, smooth-edged glass. The vertical operating mechanism shall be of extruded aluminum conforming to ASTM B 211 with paired zigzag cut members, one fixed to the concrete jambs. 254 Lower handles shall also be made of aluminum that lock the unit in closed position. Wrought iron grilles shall be

manufactured from 12 mm square bars conforming to the shop drawing submitted and approved by the Engineer.

ALUMINUM WINDOWS All frames for windows shall consist of aluminum shapes and materials extruded from alloy 6063-T5 conforming to ASTM B 221. Frames shall be coated with polyester powder conforming to the requirements of Section 4.11.2.5. (exterior use) or epoxy/polyester powder-coated (interior) aluminum window frame. It shall be of a fixed window, half-fixed and half-open sliding window, or half-fixed and half-open sliding window below a fixed window, as indicated in the drawings. Glass for windows shall either be clear, obscured, or tinted with pane thickness as shown on the Drawings.

FIXED GLASS COUNTER WINDOWS Window frames shall either be wood or aluminum, conforming to Section 4.11.2.1. or 4.11.2.5 or as shown on the Drawings. Glass shall be clear glass, not less than 5.5 mm thick. Nails shall be as provided in Section 4.11.2.1.5. 4.11.2.10

FIXED LOUVER WINDOWS Fixed louver windows shall be of the thickness and dimensions indicated. The fixed louvers shall be fabricated from gauge 16 G.I. sheet. Unless otherwise indicated, metal louver windows shall be constructed to withstand a minimum of 240 kg/m2 wind load.

GLASS

Glass for window sashes shall be of the best quality of its respective kind and shall be free from internal or surface defects. It shall not be clouded, cracked, or imperfect. Glass shall be provided in locations as indicated and the corresponding type specified on architectural drawings. Each glass has the manufacturer's label showing the type, thickness, and quality of glass. Labels shall not be removed until the glazing has been approved. 255

1. Clear glass shall be 6.35 mm thick for doors and 5.50 mm thick for windows. It shall be heat-strengthened for fixed window panes with a clear rubber sealant nearly and properly installed.

2. Reflective type glass shall be 6.35 mm thick for doors and windows and shall be heat-strengthened tempered glass.

3. Wired glass or fire-rated glass shall be 6.30 mm thick.

4. Glazing materials and accessories such as weather-stripping, glazing sealant, gasket, channel, beads, clips, primer, masking tape, edge spacer, and others shall comply with all pertinent codes and regulations and shall be as recommended by the glass manufacturer as approved by the Engineer.

5. Hardware - All items of finish hardware shall be furnished, packaged, and labeled in sets. All items of finish hardware of like kind and purpose shall be the same manufacturer and shall be made of 630 Stainless steel.

WEATHERSTRIPING

Weather strips shall be continuous wool pile, silicon-treated weather stripping, or any type of weather stripping recommended by the approved door manufacturer to be fitted on stile rails and bottoms of doors. Extruded aluminum snap-in glazing beads with vinyl inert glazing gaskets shall be provided on the exterior side of doors and windows.

MIRRORS

Mirrors shall be plate glass, not less than 6.35mm thickness, mirror glazing quality or better, free from imperfection with silvering, electro-copper plated back coating, and shall be of the best commercial quality. Edges shall be ground smooth and polished. 6mm marine plywood backing shall be provided. Size shall be as shown on the drawings.

EXECUTION

WOOD DOORS

1. Wood panel doors shall be of the designs, sizes, and thickness as shown on the drawings. Frames shall be set plumbed and true and braced to prevent distortion. Frames in concrete and masonry walls shall be secured by anchor bolts or as shown on the drawings or as directed by the Engineer. 256

2. Wood panel doors shall be of the types, sizes, and thicknesses as shown on the drawings. Top and bottom edges of all interior and exterior doors shall be given a coat of lead and oil priming paint or a coat of water-resistant spar varnish after cutting, fitting, and prior to installation in the work. Doors shall be glazed as indicated. Doors shall be primed before glazing.

3. Flush wood doors shall be fabricated such that the entire core and frame assembly shall be bonded to the face veneers with approved type of water-resistant adhesives, and cured under controlled heat and pressure. Facing shall be waterproofed plywood or ordinary plywood as shown on the drawings. Items of finishing hardware specified in other sections of the specifications shall be fitted carefully and attached securely. Care shall be exercised so as not to mar or injure the work.

4. Hinged doors shall be plumbed and fitted accurately, allowing 1.5 mm clearance at the jambs and heads and 3.0 mm over thresholds. Clearance at the bottom of the door, having no thresholds shall be 9.5 mm. Lock stiles of door 44.5 mm thick and thicker shall be beveled 3 mm. Knob locks and latches shall be installed 1.75 mm from the finished floor to the center of the locks.

STEEL DOOR

The installation of steel doors and frames shall be performed by the Contractor under the supervision of the manufacturer. Frames shall be prepared to receive standard hardware,

provided with anchors for building into masonry, and shall extend 63 mm (2-1/2") below finished floor lines. All steel doors shall be checked for warps, and when installed, shall be hung plumb and true, and when closed, shall contact the joint over its entire length.

GLASS JALOUSIE TYPE WINDOWS

Jalousie frames shall be temporarily fixed at the bottom and top ends using wood screws or concrete nails. Glass slats shall be placed into the slat chips starting below until the whole unit is entirely glazed. Units shall be operated and adjustments made when required, taking into consideration that all units shall be properly aligned and satisfactorily operational. The slats chips shall be closed so that the glass slats are securely fixed, then the units shall be permanently fixed with wood screws or any approved fastening device.

ALUMINUM DOORS AND WINDOWS

1. Fabrication All frames shall be factory prefabricated in accordance with the designs and dimensions indicated in the Drawings. Minimum metal wall thickness shall be 3mm except glazing beads, moldings, and trim, which shall not be less than 1.5mm. Frames that are to receive fixed glass shall have removable glass stops and glazing beads. Cut, join, and fit rails and stiles to hairline joints securely reinforced and joined by means of concealed fastening wherever possible. Protective Coating: Clean all surfaces and apply a protective coating of clear, water-white methacrylate-type lacquer, resistant to alkaline mortar and plaster, immediately after fabrication. Covering shall not chip, peel, or flake due to temperature or weather, and shall protect against discoloration and surface damage from transportation, storage, and construction activities. Covering shall be readily removable without affecting the finish. Covering shall either be adhesive paper, waterproof tape, or strippable plastic and may not be removed even after completion of installation.

2. Installation Set and anchor frames as shown in detail and in approved shop drawings. Set frames plumb and square, and brace where necessary to prevent distortion. Set frames without springing, forcing, or distorting the product. Secure frames in accordance with the manufacturer's instructions. Wedge clear of masonry all frames set in prepared openings 4.76 mm (3/16") to 6.35 mm (1/4") to allow for caulking. Aluminum louvers can be installed flush-mounted to fit masonry or as free-standing barriers or screens. Protection of aluminum from dissimilar materials: Aluminum to dissimilar metals: where aluminum surfaces come in contact with metals other than stainless steel, zinc, or white bronze of small area, keep aluminum surfaces from direct contact with incompatible metals by the following methods: • Painting the dissimilar metal with one coat of heavy-bodied bituminous paint. 258 • Applying good quality caulking materials between the aluminum and the dissimilar metal. Drainage from dissimilar metals: Paint dissimilar metals used in locations where drainage from them passes over aluminum, as specified above, to prevent staining of aluminum. Aluminum to masonry and concrete: Give aluminum surfaces in contact with mortar, concrete, or other masonry materials one coat of heavy-bodied bituminous paint. Adjust all frames and attach hardware before glazing. Secure all windows and doors to be watertight, and all hardware operates freely and

easily. Upon completion and installation, thoroughly clean the surfaces of doors and frames in accordance with the recommended procedure of the manufacturer. Do not use abrasive, caustic, or acid cleaning agents.

SPECIAL INSTALLATION PROCEDURE FOR GLASS JALOUSIE WINDOWS

Jalousie metal frames shall be temporarily fixed at the bottom and top ends using wood screw. Place glass slats into the slat clips starting below until the whole unit is entirely glazed. Operate units and make adjustments where required taking into consideration that all units are properly aligned and satisfactorily operational. Close the slat clips in a manner that the glass slats are securely fixed with wood screws.

PVC DOORS

1. Fabrication: Fabricate frames and panels with mitered and fusion-welded corners and joints. Trim and finish corners and welds to match adjacent surfaces. Provide concealed metal reinforcement in the sash frame for attaching the lock mechanism. 259

2. Examination a. Examine openings in which doors will be installed. b. Verify that fasteners in framed walls are fully driven and will not interfere with door installation. c. Verify that the sill is flat and level.

3. Installation: Install doors in framed walls in accordance with the manufacturer's installation instructions.

4. Adjusting operating panels and hardware for smooth operation and a tight fit with weatherstripping.

5. Cleaning: Clean soiled surfaces using a mild detergent and warm water solution with soft, clean cloths.

TOILET DOORS AND PARTITIONS

1. Install toilet partitions on the locations and heights indicated on the drawings and according to the manufacturer's recommended instructions. 2. Hardware shall be checked and adjusted for smooth operation after installation.

ADJUSTMENTS

1. Adjust all frames and attach hardware before glazing. 2. Secure all windows and doors to be watertight, and all hardware to operate freely and easily.

CLEANING

Upon completion and installation, thoroughly clean surfaces of doors and frames in accordance with the recommended procedure of the manufacturer. Do not use abrasive, caustic, or acid cleaning agents.

ITEM 08 : FINISHES

GENERAL

General Requirements contain provisions and requirements essential to these Specifications; and apply to this section, whether or not referred to herein.

SCOPE OF WORK

The work covered by this section consist of furnishing all labor, materials, equipment, tools and incidentals necessary to undertake, complete all finishing works as indicated on the drawings and as specified herein.

Wall, floor, ceiling and other finishing works shall include but are not limited to the following:

WALLS

Exterior

a. Plain cement finished painted with elastomeric paint.

Location as shown in the plans and elevations.

Interior

a. Plain cement finished painted with elastomeric paint.

b. 300mm x 600mm Glazed Ceramic Tiles

c. 12mm thick Fiber cement board on at least Ga. 25 thick uncoated metal galvanized C- shaped studs framing.

Locations are shown in the plans and elevations.

Stud: 76 mm (3 inches)
3.00 meter length

Track: 76 mm (3 inches)
3.00 meter length

Board: 1.20 x 2.40 x 12mm fiber cement

Fiber Cement Surfaces

SUBMITTALS

a. Manufacturer's product data for each type of product specified.

b. Samples

(1) 300 mm x 300 mm 2 sets of required mock up.

(2) Miscellaneous product samples such as joint tapes and compounds.

Application and Finishing

1. Apply and finish fiber cement panels as per specifications by manufacturer for flush-jointed.

b. Install fiber cement panels in manner which minimizes the number of end-butt joints or to avoid where possible.

c. Install exposed fiber cement panel with face side out. Do not install imperfect, damages or damp boards. Bat boards together for slight contact at edges and ends with not more than 1.5 mm open space between boards. Do not force into place.

d. Locate either edge or end joints over supports, except in horizontal applications where intermediate support is provided behind end joints. Position boards so that like edges abut, tapered edges against tapered ends. Do no place tapered edges against cut edges or ends. Stagger vertical joints over different studs on opposite sides of partitions.

e. Attach fiber cement panel for supplementary framing and blocking provided for additional support at openings and cutouts.

f. Space fasteners in fiber cement boards in accordance with referenced application and finishing standard and manufacturer specifications

Methods Panel Application

a. Follow specifications by manufacturer.

b. Install fiber cement panel as follows, and as indicated on the drawings.

c. Apply fiber cement panels to supports as follows:

Fasten to steel framing with adhesive and supplementary screws as per recommendation by manufacturer.

Finishing of Fiber Cement Boards

a. Apply to joint treatment at fiber cement panels joints (both directions);penetrations; fasteners head, surface defects and elsewhere as required to prepare works for decoration.

b. Finish fiber cement panels as per recommendation by manufacturer.

Protection

a. Provide final protection and maintain conditions, in a manner suitable to installer that ensures, fiber cement panel construction being without damage or deterioration at time of substantial completion.

Plain Cement Finish

a. Surface Preparation

All surfaces shall be cleaned and projections, dust, loose particles and other materials, which would prevent good bond, shall be removed.

Plaster shall not be applied directly to concrete and masonry surfaces coated with bituminous compounds and surfaces previously painted or plastered.

All surfaces shall be thoroughly wetted before plastering.

b. Trial Mix

A trial mix of at least three (3) different water-cement ratios for a proposed mix shall be prepared under full scale conditions and adequate workability. The proportions by weight of cement to the weight of sand shall not be less than one part of Portland cement to two parts of sand.

The proportion of cement-sand and water necessary to produce the cement plaster of the required consistency shall be subject to the approval of the Engineer. Such approval may be withdrawn at any time and a change in proportions may be required. Based on the approved mix proportions, the Contractor shall prepare a list showing the number of kilograms of the various materials to be used in the cement plaster finish mix.

No cement plaster finish shall be started without an approved trial mix by the Engineer.

c. Cement Finish Application

A brown coat with sufficient pressure shall be applied to fill the gaps, and to secure a good bond. Moistened for 48 hours, each coat of cement plaster shall be kept after application and allow to dry.

A finish coat shall be applied after the brown coat has set. The brown coat shall be moistened before application of the finish coat. Finish coat shall be floated to plumb, even planes and surfaces.

Final plaster finishes shall be rubber sponged.

d. Tolerance

The Contractor shall finish plaster work plumb, level, square and true within tolerance of 3mm in 3 meters, without cracks and other imperfections.

e. Patching and Cleaning

Upon completion of the building, and when directed, all loose, cracked, damaged or defective plastering shall be cut out and re-plastered in a satisfactory and approved manner.

Painting Works

a. Surface Preparation

Allow new masonry to dry for 14 days (for exterior surfaces) to 28 days (for interior surfaces) under normal conditions before painting. Surface to be painted should be clean and dry, free from oil, grease, dirt, dust, contaminants, and all loose grit and mortar.

Without mesh:

1st Coat: Elastomeric Wall Covering Sealer

2nd and 3rd Coat: Elastomeric Wall Covering Basecoat

4th Coat: Elastomeric Wall Covering Topcoat

With mesh:

1st Coat: Elastomeric Wall Covering Sealer

2nd Coat: Elastomeric Wall Covering Basecoat
Reinforcing Membrane: Fiberglass Matting

3rd and 4th Coat: Elastomeric Wall Covering Basecoat

5th Coat: Elastomeric Wall Covering Topcoat

Wall Ceramic Tiles

a. Wall tiles shall be glazed ceramic tiles color as per Architect's approval.

b. Trimmers and moulding shall be lustrous, glazed with size and color corresponding to wall tiles.

c. Portland cement, sand, bonding compound, lime and water shall conform with the requirements.

FLOORS

F1 600mm x 600mm Floor Tiles (Rustic finish)

a. Lobby / Lounge
b. Bulletin Area
c. Visitor's Lounge
d. Male/ Female Staff Quarters
e. Gym
f. Multi-Purpose Hall

Locations are shown in the plan.

F2 600mm x 600mm Floor Tiles, White Finish

a. Hallway
b. Cafeteria
c. Kitchen
d. Male/ Female Staff Quarters
e. Lounge Area

Locations are shown in the plan.

F3 600mm x 600mm Floor Tiles, Rustic White Matte Finish

a. Finance Division
b. Ecumenical Room
c. Marine Section
d. Port Services Division
e. Terminal Section
f. Port Police Division
g. Infirmary / Clinic
h. Electrical Room / Control Room
i. Administrative Division

j. COA
k. Engineering Division
l. Office of the Port Manager
m. Conference Room
n. VTMS Room
o. Pantalan
p. BAC Office
q. Storage/ AVR

Locations are shown in the plan.

F4 600mm X 600mm Floor Tiles, Beige Finish

a. Stairs 1,2 &3
b. Service Entrance / Fire Exit

Locations are shown in the plan.

F5 600mm X 600mm Floor Tiles, Rustic Light Grey Finish

a. Male Public Toilets
b. Female Public Toilets
c. Male PWD Toilets
d. Female PWD Toilets
e. All Gender Toilets
f. Toilets
g. Toilet & Bath
h. Changing Room

Locations are shown in the plan.

F6 300mm X 300mm Floor Tiles, Rustic Brown with Bricks Pattern Matte Finish

a. Entrance
b. Stair 1

Locations are shown in the plan.

F7 200mm x 12mm, Biowood Flooring

a. Stage

Locations are shown in the plan.

F8 Water Proofed Floor Finish, Textured Linish Finish

Locations are shown in the plan.

F9 300mm x 300mm Button Type Tiles

a. Ramps

Locations are shown in the plan.

F10 Non-Skid / Rough Cement Floor Finish

a. Ramps

Locations are shown in the plan.

Waterproof finish for all toilets.

a. Floor tiles shall be color varies and as shown on the drawings or to be designated by the Architect.

b. Portland Cement, sand, water and adhesive shall conform with the requirements.

c. Floor tiles shall be delivered in the manufacturer's original unbroken packages or containers that are labeled plainly with the manufacturer's name and brand. Containers shall be grade scaled. Materials shall be stored in dry weathertight enclosures, and shall be handled in a manner that will prevent the inclusion of foreign materials and damage by water or dampness.

EXECUTION

Floor Tiles

a. Mortar Preparation

Mortar mix proportion and preparation shall be in accordance with the requirements.

b. Surface Preparation

Surfaces to receive the tiles shall be clean, free of dust, dirt, oil, grease, and other deleterious substances. Floor tile operations in spaces receiving wall tile shall not be started until wall tile installation has been completed. Before tile is applied with a dryset mortar bed, the structural floor shall be tested for levelness or uniformity of slope by flooding it with water. Areas where the water ponds shall be filled and leveled with mortar and shall be retested before the setting bed is applied.

c. Placing of Setting Beds and Floor Tile

Mortar setting beds shall have a minimum thickness of 20mm for floors. The structural concrete slab shall be soaked thoroughly with clean fresh water on the day before the setting bed is to be applied. Immediately preceding the application of the setting bed, the structural slab shall again be wetted thoroughly, but no free water shall be permitted to remain on the surface.

A skim coat of neat Portland cement mortar shall then be applied not more than 4mm thick. The mortar shall be spread until its surface is true and even and thoroughly compacted, either level or sloped uniformly for drainage, as the case requires. A setting bed, as large as can be covered with tile before the mortar has reached its initial set, shall be placed on one operation; but in the event that more setting mortar has been placed than can be covered, the unfinished portion shall be removed and cut back to a clean beveled edge.

All mounted tiles shall be soaked in clean water a minimum of one hour before they are set. Absorptive mounted tile shall be dampened by placing sheets on a wetted cloth in a shallow pan before setting. No free water shall remain on the tiles at the time of setting. Before the initial set has taken place in the setting bed, a skim coat of neat Portland cement mortar, 0.7mm to 1.6mm thick, shall be trowelled or brushed over the setting bed and/or the back of the tile, or a thin layer of Portland cement, 0.79mm to 2mm thick, may be hand-dusted uniformly over the setting bed and worked lightly with a trowel or brush until thoroughly damp.

The tiles shall then be pressed firmly upon the setting bed, and beaten into the mortar until true and even with the plane of the finished floor line. Beating and leveling shall be completed within one hour after placing tiles or sheets. Borders and defined lines shall be laid before the field or body of the floor. Where floor drains are provided, the floors shall be sloped to drain properly to the drains. Intersections and returns shall be formed accurately.

Cutting of tile, where necessary, shall be done along the outer edges of the floor. As far as practicable, no tiles of less than half size shall be used. Cutting and drilling of tiles shall be done neatly without marring the tile surfaces. The cut edges of tile against trim, bases, thresholds, pipes, built-in fixtures, and similar surfaces shall be ground and jointed carefully. Tile shall fit closely and neatly at all plumbing fixtures and around electrical outlets, pipes and fittings so that cover plates or escutcheons will overlap the tiles properly. Tiles shall be secured firmly in place and loose tiles or tiles sounding hollow shall be removed and replaced. All lines shall be kept straight, parallel, and true, and all finished surfaces brought to true and even planes. The inner edges of borders shall be kept straight and, where practicable, shall form right angles at all returns. The paper and glue shall be removed from mounted tile, without using excess water, within one hour after installing the tiles.

Joints shall be parallel and uniform in width, plumb, level and in alignment. End joints in broken-joint work shall be made as far as practicable, on the center lines of adjoining tiles. Except in special arrangement and design, as indicated or specified, square tiles shall be set with straight joints, and oblong tiles shall be set with broken joints.

Joint widths shall be uniform and spaced to accommodate the tile in the given spaces with a minimum of cutting. Tiles shall be wetted, if they have become dry, before applying grout. Joints 3.2 mm or less in width shall be grouted with a neat Portland cement grout of the consistency of thick cream. Other joints shall be pointed with mortar consisting of one part Portland cement and two parts pointing sand.
The grout or mortar for joints on floors shall be white Portland cement or as specified by the Engineer. Grout painting mortar shall be forced into joints by using trowel, brush or finger application. Before the grout or mortar sets, the joints of cushion edge tile shall be struck or tooled to the depth of the cushion, filling all skips or gaps, and the joints of square edged tiles shall be filled completely flush with their surface. Dark cement shall not be seen through grouted white joints.

All surplus mortar or grout shall be removed before it has set or hardened.

d. Cleaning and Curing

Floors shall be covered with waterproofed paper with all joints lapped at least 96 mm and allowed to damp cure for at least 72 hours before foot traffic is permitted thereon.

All completed tile work shall be thoroughly sponged and washed diagonally across joints, and finally polished with clean, dry cloth. Acid cleaning of unglazed tile, when necessary, shall not be done within ten days after setting the tile. All metal shall be covered with approved grease and the tile shall be wetted with clean water, before tile is cleaned with 10% muriatic acid solution. After acid cleaning, the tile shall be flushed with clean water, and the grease coating on metal shall be removed.

Finished tile floors shall be covered with clean building paper before foot traffic is permitted on them. Board walkways shall be placed on floors that are to be continuously used as passage ways by workmen. Thresholds shall be covered with boards. Tiles vertical outside corners (external angles) shall be protected with board corners strips in areas used as passage by workmen.

Ceiling

1. Interior

    1. C1 - Mineral Fiber acoustical lay-in panel on galvanized steel exposed grid and framing finished with low sheen white enamel, 1200mm x 600mm x 19mm thick mineral

        a. Port Services Division
        b. Port Police Division
        c. Cafeteria
        d. Infirmary
        e. Finance Division
        f. Marine Section
        g. Administrative Division
        h. Engineering Services Division

        Locations are shown in the plan.

    2. C2 – Mineral fiber acoustical lay-in panel on galvanized steel exposed grid and framing finished with low sheen white enamel, 600mm x 600mm x 19mm thick mineral

a. Port Services Division
b. Port Police Division
c. Finance Division
d. Ecumenical Room
e. Marine Section
f. Administrative Division
g. Engineering Services Division
h. Port Manager's Office
i. Audio Visual Room
j. Pantalan / BAC

3. C3 - 0.40mm thick pre-formed / pre-painted ribbed type spandrel metal ceiling

    a. Ground Floor

    Locations are shown in the plan.

4. C4 - 12mm thick gypsum board painted on 0.40mm thick. galvanized steel ceiling suspension system @ 0.40m O.C. (furring), 600mm O.C. (carrying channel) and 0.60m O.C. both ways (suspension rod)

    a. Toilets
    b. Armory & CCTV Room
    c. Kitchen/ Stalls
    d. Hallway
    e. Safety Vault Room
    f. Lobby / Lounge Area
    g. Electrical /Control Room
    h. All Gender / PWDToilets
    i. Public Toilets
    j. Office of the Port Manager
    k. Conference Room
    l. Staff Quarters
    m. Gym
    n. Viewing Area
    o. Multi-Purpose Hall

    Locations are shown in the plan.

SUBMITTAL

1. Shop drawings for all finishing and painting works for the building shall be submitted in advance to allow twenty-eight days for review and approval. Shop drawings shall indicate materials and details of finishing works. The Contractor shall be responsible for all errors of detailing and fabrication, and for the correct finishing work items shown on the shop drawings.

2. The Contractor, before placing an order for the finishing materials shall submit to the Engineer for approval representative samples of finishing materials. No placing of orders for material for finishing works shall be made without his approval.

3. Samples of all walls finishes, measuring not less than 1000mm x 1000mm shall be submitted to the Engineer for approval as to its finish texture and workmanship.

GRANITE TILES

a. Selected granite slabs for toilet countertops, fascia and splashboard. Dimensions as shown on the drawings.

b. Shall be sound material with uniform and favorable working qualities and with very limited natural faults.

c. Color, veining and quality shall be approved by Engineer.

d. Veining shall run vertically on all vertical surfaces and direction of veining shall continue in same directions over horizontal surfaces except as directed by the Engineer.

e. Sealer

e. 1. Shall be a commercial penetrating type free from harmful alkali or acid content
specially prepared for marble work
e. 2. Shall have a Ph factor between 7 and 9
e. 3. Shall not discolor
e. 4. Shall produce a slip resistant surface
e. 5. Shall have a flash point not less than 35 °C

f. Cleaning fluid

f. 1. Shall be commercial neutral liquid type especially prepared for marble work
f. 2. Shall have a Ph factor between 7 and 9
f. 3. Shall be free from crystallizing salts or water soluble alkaline salts
f. 4. Shall be biodegradable and phosphate free

INSTALLATION OF DOORS / GLASS PANELS

1. Surface Preparation

Ensure surfaces to receive panels are structurally sound, even, smooth, clean, dry, and free from defects detrimental to work.

DOORS

D-1 - 1.5mm thick Aluminum Framed Powder Coated Finish with 10 mm thick Reflective Tempered Glass Double Swing Door w/ Fixed Transom Window (1.70m x 2.50m)

D-2 - 1.5mm thick Aluminum Framed Powder Coated Finish with 8mm thick Reflective Tempered Glass 2-Panel Sliding Door w/ Fixed Type Full Window and Transom Window (3.60mX2.50m)

D-3 - 1.5mm thick Aluminum Framed Powder Coated Finish with 8mm thick Reflective Tempered Glass Double Swing Door (1.70mX2.15m)

D-4 - Marine Plywood Finish Flush Door (0.90m x 2.15m)

D-5 - Marine Plywood Finish Flush Door with lever type lock set 3'3" hinges (0.90m x 2.15m)

D-6 - Marine Plywood Wooden Finish Flush Door with 8mm thick. Clear Glass Vision Panel, Lever Type Lockset (0.90m x 2.15m)

D-7 - PVC Door with Vent Louver; Lever Type Lockset, 3'3" Hinges (0.70m x 2.15m)

D-8 - Marine plywood wooden finish flush door; lever type lockset 3'3" hinges (0.70m x 2.15m)

D-9 - Wooden Panel Double Swing Door (1.70m x 2.15m)

D-10- PVC Door with Vent Louver; Lever Type Lockset, 3'3" Hinges (0.90m x 2.15m)

D-11 - PVC Door with Vent Louver; Lever Type Lockset, 3'3" Hinges (1.00m x 2.15m)

D-12- PVC Louver Double Swing Door (0.70m x 2.15m)

D-13 - Cold Rolled Steel Fire Rated Emergency Exit Door with Panic Push Bar Lock (1.00m x 2.15m)

D-14 - Cold Rolled Louver Steel Door with Lever Type Lockset (1.00m x 2.15m)

GLASS PANEL
(Including Door Schedules In Dimension)

GP – 1 - 12mm thick Frameless Tempered Clear Glass Partition, with Frosted Window Film, in Powder Coated Aluminum Channel (2.90m x 2.70m)

GP- 2 - 12mm thick Frameless Tempered Clear Glass Partition, with Frosted Window Film, in Powder Coated Aluminum Channel (2.95m x 2.70m)

GP – 3 - 12mm thick Frameless Tempered Clear Glass Partition, with Frosted Window Film, in Powder Coated Aluminum Channel (2.05m x 2.70m)

GP – 4 - 12mm thick Frameless Tempered Clear Glass Partition, with Frosted Window Film, in Powder Coated Aluminum Channel (1.95m x 2.70m)

GP- 5 - 12mm thick Frameless Tempered Clear Glass Partition, with Frosted Window Film, in Powder Coated Aluminum Channel (3.50m x 2.70m)

GP- 6 - 12mm thick Frameless Tempered Clear Glass Partition, with Frosted Window Film, in Powder Coated Aluminum Channel (2.50m x 2.70m)

GP -7 - 12mm thick Frameless Tempered Clear Glass Partition, with Frosted Window Film, in Powder Coated Aluminum Channel (2.00m x 2.70m)

GP- 8 - 12mm thick Frameless Tempered Clear Glass Partition, with Frosted Window Film, in Powder Coated Aluminum Channel (2.70m x 2.70m)

GP -9 - 12mm thick Frameless Tempered Clear Glass Partition, with Frosted Window Film, in Powder Coated Aluminum Channel (2.25m x 2.70m)

GP -10 - 12mm thick Frameless Tempered Clear Glass Partition, with Frosted Window Film, in Powder Coated Aluminum Channel (1.57m x 2.70m)

GP -11 - 12mm thick Frameless Tempered Clear Glass Partition, with Frosted Window Film, in Powder Coated Aluminum Channel (2.15m x 2.70m)

GP – 12 - 12mm thick Frameless Tempered Clear Glass Partition, with Frosted Window Film, in Powder Coated Aluminum Channel (2-set 4.5m x 2.70m)

GP -13 - 12mm thick Frameless Tempered Clear Glass Partition, with Frosted Window Film, in Powder Coated Aluminum Channel (1.50m x 2.70m)

GP -14 - 12mm thick Frameless Tempered Clear Glass Partition, with Frosted Window Film, in Powder Coated Aluminum Channel (2.50m x 2.70m)

GP -15 - 12mm thick Frameless Tempered Clear Glass Partition, with Frosted Window Film, in Powder Coated Aluminum Channel (1.60m x 2.70m)

GP -16 - 12mm thick Frameless Tempered Clear Glass Partition, with Frosted Window Film, in Powder Coated Aluminum Channel (2.40m x 2.70m)

GP- 17 - 12mm thick Frameless Tempered Clear Glass Partition, with Frosted Window Film, in Powder Coated Aluminum Channel (5.50m x 2.70m)

GP- 18 - 12mm thick Frameless Tempered Clear Glass Partition, with Frosted Window Film, in Powder Coated Aluminum Channel (2.925m x 2.70m)

GP- 19 - 12mm thick Frameless Tempered Clear Glass Partition, with Frosted Window Film, in Powder Coated Aluminum Channel (4- set 4.50m x 2.70m)

GP- 20 - 12mm thick Frameless Tempered Clear Glass Partition, with Frosted Window Film, in Powder Coated Aluminum Channel (2.10m x 2.70m)

GP- 21 - 12mm thick Frameless Tempered Clear Glass Partition, with Frosted Window Film, in Powder Coated Aluminum Channel (2.15m x 2.70m)

GP- 22 - 12mm thick Frameless Tempered Clear Glass Partition, with Frosted Window Film, in Powder Coated Aluminum Channel (5.10m x 2.70m)

GP- 23 - 12mm thick Frameless Tempered Clear Glass Partition, with Frosted Window Film, in Powder Coated Aluminum Channel (4.30m x 2.70m)

GP- 24 - 12mm thick Frameless Tempered Clear Glass Partition, with Frosted Window Film, in Powder Coated Aluminum Channel (2-set 4.50m x 2.70m)

GP- 25 - 12mm thick Frameless Tempered Clear Glass Partition, with Frosted Window Film, in Powder Coated Aluminum Channel (2.40m x 2.70m)

GP- 26 - 12mm thick Frameless Tempered Clear Glass Partition, with Frosted Window Film, in Powder Coated Aluminum Channel (3.10m x 2.70m)

GP- 27 - 12mm thick Frameless Tempered Clear Glass Partition, with Frosted Window Film, in Powder Coated Aluminum Channel (4.50m x 2.70m)

GP- 28 - 12mm thick Frameless Tempered Clear Glass Partition, with Frosted Window Film, in Powder Coated Aluminum Channel (2.50m x 2.70m)

GP- 29 - 12mm thick Frameless Tempered Clear Glass Partition, with Frosted Window Film, in Powder Coated Aluminum Channel (1- set 4.50m; 1-set 6.50m x 2.70m)

GP- 30 - 12mm thick Frameless Tempered Clear Glass Partition, with Frosted Window Film, in Powder Coated Aluminum Channel (2.23m x 2.70m)

GP- 31 - 12mm thick Frameless Tempered Clear Glass Partition, with Frosted Window Film, in Powder Coated Aluminum Channel (3.037m x 2.70m)

GP- 32 - 12mm thick Frameless Tempered Clear Glass Partition, with Frosted Window Film, in Powder Coated Aluminum Channel (3.50m x 2.70m)

GP- 33 - 12mm thick Frameless Tempered Clear Glass Partition, with Frosted Window Film, in Powder Coated Aluminum Channel (2-set 4.50m x 2.70m)