PHILIPPINE PORTS AUTHORITY

RENOVATION OF PPA HEAD OFFICE CANTEEN

BID DOCUMENTS
BAC-PGCS-080-2021
(EARLY PROCUREMENT)

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Glossary of Acronyms, Terms, and Abbreviations

ABC – Approved Budget for the Contract.

BAC – Bids and Awards Committee.

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

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

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

BIR – Bureau of Internal Revenue.

BSP – Bangko Sentral ng Pilipinas.

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])

CDA - Cooperative Development Authority.

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.

CIF – Cost Insurance and Freight.

CIP – Carriage and Insurance Paid.

CPI – Consumer Price Index.

DDP – Refers to the quoted price of the Goods, which means "delivered duty paid."

DTI – Department of Trade and Industry.

EXW – Ex works.

FCA – "Free Carrier" shipping point.

FOB – "Free on Board" shipping point.

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]).

Framework Agreement – Refers to a written agreement between a procuring entity and a supplier or service provider that identifies the terms and conditions, under which specific purchases, otherwise known as "Call-Offs," are made for the duration of the agreement. It is in the nature of an option contract between the procuring entity and the bidder(s) granting the procuring entity the option to either place an order for any of the goods or services identified in the Framework Agreement List or not buy at all, within a minimum period of one (1) year to a maximum period of three (3) years. (GPPB Resolution No. 27-2019)

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.

GPPB – Government Procurement Policy Board.

INCOTERMS – International Commercial Terms.

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.

PhilGEPS - Philippine Government Electronic Procurement System.

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

PSA – Philippine Statistics Authority.

SEC – Securities and Exchange Commission.

SLCC – Single Largest Completed Contract.

Supplier – refers to a citizen, or any corporate body or commercial company duly organized and registered under the laws where it is established, habitually established in business and engaged in the manufacture or sale of the merchandise or performance of the general services covered by his bid. (Item 3.8 of GPPB Resolution No. 13-2019, dated 23 May 2019). Supplier as used in these Bidding Documents may likewise refer to a distributor, manufacturer, contractor, or consultant.

UN – United Nations.

PHILIPPINE PORTS AUTHORITY

INVITATION TO BID

FOR THE RENOVATION OF PPA HEAD OFFICE CANTEEN

The Philippine Ports Authority, through the Corporate Budget of the Authority for CY 2021, intends to apply the sum of **₱ 5,621,628.57** being the Approved Budget for the Contract (ABC) to payments under the contract for the **Renovation of PPA Head Office Canteen (BAC-PGCS-080-2021) (Early Procurement).** 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 Work is required within **Ninety (90) calendar days** from the receipt by the successful bidder of the Notice to Proceed. Bidders should have completed, within five (5) years from the date of submission and receipt of bids, 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. Bidding is restricted to Filipino citizens/sole proprietorships, partnerships, or organizations with at least sixty percent (60%) interest or outstanding capital stock belonging to citizens of the Philippines, and to citizens or organizations of a country the laws or regulations of which grant similar rights or privileges to Filipino citizens, pursuant to RA 5183.

Prospective 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 during 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 **11 February 2021** 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 **Ten Thousand Pesos (P10,000.00).** 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 **19 February 2021 at 10:00 a.m.** at the PPA Function Room, 7th Floor, PPA Bldg., Bonifacio Drive, South Harbor, Port Area, Manila, and/or through video conferencing or webcasting via zoom, 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 **04 March 2021 at 9:00 a.m.** Late bids shall not be accepted.

A. Bonifacio Drive, South Harbor, Port Area, Manila 1018 Philippines
P.O. Box 436 Manila, Philippines
Tel. No. (+632) 527-8356 to 83 Fax No. (+632) 527-4855
website: www.ppa.com.ph

All Bids must be accompanied by a bid security in any of the acceptable forms and in the amount stated in ITB Clause 14.

Bid opening shall be on **04 March 2021 at 10:00 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 Section 35.6 and 41 of the 2016 revised IRR of RA No. 9184, without thereby incurring any liability to the affected bidder or bidders.

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. 8 527-47-35
8 527-83-56 to 83 loc. 539
PPA Website: www.ppa.com.ph
GPPB Website: www.gpbb.com.ph

MARK JON S. PALOMAR
Chairperson, PPA Head Office Bids and Awards
Committee for the Procurement of Goods and
Consultancy Services (HO-BAC-PGCS)

Section II. Instructions to Bidders

1. Scope of Bid

The Procuring Entity, PHILIPPINE PORTS AUTHORITY wishes to receive Bids for the Renovation of PPA Head Office Canteen, with identification number BAC-PGCS-080-2021.

The Procurement Project (referred to herein as "Project") is composed of a single lot, the details of which are described in Section VII (Technical Specifications).

2. Funding Information

2.1. The Philippine Ports Authority through its corporate budget for the Calendar Year (CY) 2021 in the amount of FIVE MILLION SIX HUNDRED TWENTY ONE THOUSAND SIX HUNDRED TWENTY EIGHT PESOS AND 57/100 (P5,621,628.57).

2.2. The source of funding is the Corporate Budget of the PHILIPPINE PORTS AUTHORITY.

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 Manuals 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 **IB** 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 verified and accepted the general requirements of this Project, including 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, and Coercive Practices

The Procuring Entity, as well as the Bidders and Suppliers, 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 Foreign ownership limited to those allowed under the rules may participate in this Project.

5.3. Pursuant to Section 23.4.1.3 of the 2016 revised IRR of RA No.9184, the Bidder shall have an SLCC that is at least one (1) contract similar to the Project the value of which, adjusted to current prices using the PSA's CPI, must be at least equivalent to at least fifty percent (50%) of the ABC.

5.4. The Bidders shall comply with the eligibility criteria under Section 23.4.1 of the 2016 IRR of RA No. 9184.

6. Origin of 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, subject to Domestic Preference requirements under **ITB** Clause 18.

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 twenty percent (20%) of the Project.

The Procuring Entity has prescribed that:

Subcontracting is not allowed.

8. Pre-Bid Conference

The Procuring Entity will hold a pre-bid conference for this Project on the specified date and time and either at its physical address at the PPA Function Room, 7th Floor, PPA Building, Bonifacio Drive, South Harbor, Port Area, Manila and/or through videoconferencing/webcasting} as indicated in paragraph 6 of the **IB.**

9. Clarification and Amendment of Bidding Documents

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

10. Documents comprising the Bid: Eligibility and Technical Components

10.1. The first envelope shall contain the eligibility and technical documents of the Bid as specified in **Section VIII (Checklist of Technical and Financial Documents)**.

10.2. The Bidder's SLCC as indicated in **ITB** Clause 5.3 should have been completed within five (5) years prior to the deadline for the submission and receipt of bids.

10.3. 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. Similar to the required authentication above, 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.

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 VIII (Checklist of Technical and Financial Documents)**.

11.2. If the Bidder claims preference as a Domestic Bidder or Domestic Entity, a certification issued by DTI shall be provided by the Bidder in accordance with Section 43.1.3 of the 2016 revised IRR of RA No. 9184.

11.3. Any bid exceeding the ABC indicated in paragraph 1 of the **IB** shall not be accepted.

11.4. 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. Bid Prices

12.1. Prices indicated on the Price Schedule shall be entered separately in the following manner:

a. For Goods offered from within the Procuring Entity's country:

i. The price of the Goods quoted EXW (ex-works, ex-factory, ex-warehouse, ex-showroom, or off-the-shelf, as applicable);

ii. The cost of all customs duties and sales and other taxes already paid or payable;

iii. The cost of transportation, insurance, and other costs incidental to delivery of the Goods to their final destination; and

iv. The price of other (incidental) services, if any, listed in e.

b. For Goods offered from abroad:

i. Unless otherwise stated in the **BDS**, the price of the Goods shall be quoted delivered duty paid (DDP) with the place of destination in the Philippines as specified in the **BDS**. In quoting the price, the Bidder shall be free to use transportation through carriers registered in any eligible country. Similarly, the Bidder may obtain insurance services from any eligible source country.

ii. The price of other (incidental) services, if any, as listed in **Section VII (Technical Specifications).**

13. Bid and Payment Currencies

13.1. For Goods that the Bidder will supply from outside the Philippines, the bid prices may be quoted in the local currency or tradeable currency accepted by the BSP at the discretion of the Bidder. However, for purposes of bid evaluation, Bids denominated in foreign currencies, shall be converted to Philippine currency based on the exchange rate as published in the BSP reference rate bulletin on the day of the bid opening.

13.2. Payment of the contract price shall be made in Philippine Pesos.

14. Bid Security

14.1. The Bidder shall submit a Bid Securing Declaration[1] 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**.

14.2. The Bid and bid security shall be valid for One Hundred Twenty (120) calendar days from the date of the opening of bids. Any Bid not accompanied by an acceptable bid security shall be rejected by the Procuring Entity as non-responsive.

15. Sealing and Marking of Bids

Each bidder shall submit one copy of the first and second components of the 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 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.

[1] In the case of Framework Agreement, the undertaking shall refer to entering into contract with the Procuring Entity and furnishing of the performance security or the performance securing declaration within ten (10) calendar days from receipt of Notice to Execute Framework Agreement.

16. Deadline for Submission of Bids

16.1. 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.**

17. Opening and Preliminary Examination of Bids

17.1. 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.

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

18. Domestic Preference

18.1. The Procuring Entity will grant a margin of preference for the purpose of comparison of Bids in accordance with Section 43.1.2 of the 2016 revised IRR of RA No. 9184.

19. Detailed Evaluation and Comparison of Bids

19.1. The Procuring 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 the 2016 revised IRR of RA No. 9184.

19.2. If the Project allows partial bids, bidders may submit a proposal on any of the lots or items, and evaluation will be undertaken on a per lot or item basis, as the case maybe. In this case, the Bid Security as required by **ITB** Clause 15 shall be submitted for each lot or item separately.

19.3. The descriptions of the lots or items shall be indicated in **Section VII (Technical Specifications)**, although the ABCs of these lots or items are indicated in the **BDS** for purposes of the NFCC computation pursuant to Section 23.4.2.6 of the 2016 revised IRR of RA No. 9184. The NFCC must be sufficient for the total of the ABCs for all the lots or items participated in by the prospective Bidder.

19.4. The Project shall be awarded as one Project having several items that shall be awarded as one contract.

19.5. Except for bidders submitting a committed Line of Credit from a Universal or Commercial Bank in lieu of its NFCC computation, all Bids must include the NFCC computation pursuant to Section 23.4.1.4 of the 2016 revised IRR of RA No. 9184, which must be sufficient for the total of the ABCs for all the lots or items participated in by the prospective Bidder. For bidders submitting the committed Line of Credit, it must be at least equal to ten percent (10%) of the ABCs for all the lots or items participated in by the prospective Bidder.

20. Post-Qualification

20.1. 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

21.1. 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**.

Bid Data Sheet

ITB Clause	
5.3	For this purpose, contracts similar to the Project shall be: a. Contract for the Interior Renovation/Fit-out or Supply and Delivery of Furniture and Fixtures. b. completed within five (5) years prior to the deadline for the submission and receipt of bids.
7.1	Subcontracting is not allowed.
12	The price of the Goods shall be quoted DDP *[Manila]* or the applicable International Commercial Terms (INCOTERMS) for this Project.
14.1	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 One Hundred Twelve Thousand Four Hundred Thirty Two Pesos and 57/100 (Php112,432.57), if bid security is in cash, cashier's/manager's check, bank draft/guarantee or irrevocable letter of credit; or b. The amount of not less than Two Hundred Eighty One Thousand Eighty One Pesos and 43/100 (Php281,081.43) if bid security is in Surety Bond.
15	Each Bidder shall submit **ONE (1) original and SIX (6) copies** of its Technical and Financial Components of its Bid in two (2) separate sealed bid envelopes, which should be submitted simultaneously. Each of the bid documents should be individually sealed. All bid documents shall be book-bound, hard-bound and properly labelled with index tabs.
19.3	Partial bid is not allowed. The goods are grouped in a single lot and the lot shall not be divided into sub-lots for the purpose of bidding, evaluation, and contract award.
20.2	No additional requirements.
21.1	No additional requirements.

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.

Additional requirements for the completion of this Contract shall be provided in the **Special Conditions of Contract (SCC).**

2. Advance Payment and Terms of Payment

2.1. Advance payment of the contract amount is provided under Annex "D" of the revised 2016 IRR of RA No. 9184.

2.2. The Procuring Entity is allowed to determine the terms of payment on the partial or staggered delivery of the Goods procured, provided such partial payment shall correspond to the value of the goods delivered and accepted in accordance with prevailing accounting and auditing rules and regulations. The terms of payment are indicated in the SCC.

3. Performance Security

Within ten (10) calendar days from receipt of the Notice of Award by the Bidder from the Procuring Entity but in no case later than prior to 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 of RA No. 9184.

4. Inspection and Tests

The Procuring Entity or its representative shall have the right to inspect and/or to test the Goods to confirm their conformity to the Project specifications at no extra cost to the Procuring Entity in accordance with the Generic Procurement Manual. In addition to tests in the SCC, **Section IV (Technical Specifications)** shall specify what inspections and/or tests the Procuring Entity requires, and where they are to be conducted. The Procuring Entity shall notify the Supplier in writing, in a timely manner, of the identity of any representatives retained for these purposes.

All reasonable facilities and assistance for the inspection and testing of Goods, including access to drawings and production data, shall be provided by the Supplier to the authorized inspectors at no charge to the Procuring Entity.

5. Warranty

6.1. In order to assure that manufacturing defects shall be corrected by the Supplier, a warranty shall be required from the Supplier as provided under Section 62.1 of the 2016 revised IRR of RA No. 9184.

6.2. The Procuring Entity shall promptly notify the Supplier in writing of any claims arising under this warranty. Upon receipt of such notice, the Supplier shall, repair or replace the defective Goods or parts thereof without cost to the Procuring Entity, pursuant to the Generic Procurement Manual.

6. Liability of the Supplier

The Supplier's liability under this Contract shall be as provided by the laws of the Republic of the Philippines.

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

Section V. Special Conditions of Contract

Special Conditions of Contract

GCC Clause	
1	**Delivery and Documents –** For purposes of the Contract, "EXW," "FOB," "FCA," "CIF," "CIP," "DDP" and other trade terms used to describe the obligations of the parties shall have the meanings assigned to them by the current edition of INCOTERMS published by the International Chamber of Commerce, Paris. The Delivery terms of this Contract shall be as follows: *[For Goods supplied from abroad, state:]* "The delivery terms applicable to the Contract are DDP delivered [*indicate place of destination*]. In accordance with INCOTERMS." *For Goods supplied from within the Philippines, state:*] "The delivery terms applicable to this Contract are delivered *[indicate place of destination].* Risk and title will pass from the Supplier to the Procuring Entity upon receipt and final acceptance of the Goods at their final destination." Delivery of the Goods shall be made by the Supplier in accordance with the terms specified in Section VI (Schedule of Requirements). For purposes of this Clause the Procuring Entity's Representative at the Project Site is Philippine Ports Authority-Head Office, Manila **Incidental Services –** The Supplier is required to provide all of the following services, including additional services, if any, specified in Section VI. Schedule of Requirements: a. performance or supervision of on-site assembly and/or start-up of the supplied Goods; b. furnishing of tools required for assembly and/or maintenance of the supplied Goods; c. furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied Goods; and d. performance or supervision or maintenance and/or repair of the supplied Goods, for a period of time agreed by the parties, provided that this service shall not relieve the Supplier of any warranty obligations under this Contract. The Contract price for the Goods shall include the prices charged by the Supplier for incidental services and shall not exceed the prevailing rates charged to other parties by the Supplier for similar services. **Spare Parts –**

The Supplier is required to provide all of the following materials, notifications, and information pertaining to spare parts manufactured or distributed by the Supplier:

a. such spare parts as the Procuring Entity may elect to purchase from the Supplier, provided that this election shall not relieve the Supplier of any warranty obligations under this Contract; and

b. in the event of termination of production of the spare parts:

   i. advance notification to the Procuring Entity of the pending termination, in sufficient time to permit the Procuring Entity to procure needed requirements; and
   ii. following such termination, furnishing at no cost to the Procuring Entity, the blueprints, drawings, and specifications of the spare parts, if requested.

The spare parts and other components required are listed in **Section VI (Schedule of Requirements)** and the cost thereof are included in the contract price.

The Supplier shall carry sufficient inventories to assure ex-stock supply of consumable spare parts or components for the Goods for a period of ten (10) years after the last day of manufacturing of the specific model.

Spare parts or components shall be supplied as promptly as possible, but in any case, within two (2) months of placing the order.

Packaging –

The Supplier shall provide such packaging of the Goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in this Contract. The packaging shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit, and open storage. Packaging case size and weights shall take into consideration, where appropriate, the remoteness of the Goods' final destination and the absence of heavy handling facilities at all points in transit.

The packaging, marking, and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the Contract, including additional requirements, if any, specified below, and in any subsequent instructions ordered by the Procuring Entity.

The outer packaging must be clearly marked on at least four (4) sides as follows:

Name of the Procuring Entity
Name of the Supplier
Contract Description
Final Destination
Gross weight
Any special lifting instructions
Any special handling instructions

	Any relevant HAZCHEM classifications A packaging list identifying the contents and quantities of the package is to be placed on an accessible point of the outer packaging if practical. If not practical the packaging list is to be placed inside the outer packaging but outside the secondary packaging. **Transportation –** Where the Supplier is required under Contract to deliver the Goods CIF, CIP, or DDP, transport of the Goods to the port of destination or such other named place of destination in the Philippines, as shall be specified in this Contract, shall be arranged and paid for by the Supplier, and the cost thereof shall be included in the Contract Price. Where the Supplier is required under this Contract to transport the Goods to a specified place of destination within the Philippines, defined as the Project Site, transport to such place of destination in the Philippines, including insurance and storage, as shall be specified in this Contract, shall be arranged by the Supplier, and related costs shall be included in the contract price. Where the Supplier is required under Contract to deliver the Goods CIF, CIP or DDP, Goods are to be transported on carriers of Philippine registry. In the event that no carrier of Philippine registry is available, Goods may be shipped by a carrier which is not of Philippine registry provided that the Supplier obtains and presents to the Procuring Entity certification to this effect from the nearest Philippine consulate to the port of dispatch. In the event that carriers of Philippine registry are available but their schedule delays the Supplier in its performance of this Contract the period from when the Goods were first ready for shipment and the actual date of shipment the period of delay will be considered force majeure. The Procuring Entity accepts no liability for the damage of Goods during transit other than those prescribed by INCOTERMS for DDP deliveries. In the case of Goods supplied from within the Philippines or supplied by domestic Suppliers risk and title will not be deemed to have passed to the Procuring Entity until their receipt and final acceptance at the final destination. **Intellectual Property Rights –** The Supplier shall indemnify the Procuring Entity against all third-party claims of infringement of patent, trademark, or industrial design rights arising from use of the Goods or any part thereof.
2.2	The terms of payment shall be as follows: • 35% upon completion of the corresponding percentage of renovation works. • 35% upon completion of another 35% of renovation works. • 30% upon full completion of renovation works and delivery of furniture and fixtures.

	Certificate of Completion & Acceptance shall be provided by the procuring entity/end-user for purposes of payment.
4	The inspections and tests that will be conducted are: ➢ **On Plumbing and Sanitary Works:** The following tests shall be conducted by the Contractor at his expense under the supervision of the Engineer. a. Tests for Drainage and Venting System The entire drainage and venting system shall have necessary openings plugged to permit the entire system to be filled with water to the level of the highest vent stack above the roof. The system shall hold the water for 30 minutes with a drop not greater than 100mm. b. Sterilization The entire water supply piping system shall be sterilized with a solution containing not less than fifty (50) parts per million of available chlorine, either liquid chlorine or a solution of sodium hypochlorite. The sterilizing solution shall remain in the system for a period of not less than 8 hours during which time all valves and faucets shall be opened and closed several times. After sterilization, the solution shall be flushed from the system with clean water until the residual chloride content is not more than 0.2 parts per million. c. Pressure Test for Water Lines 1. After the pipe have been installed, the joints completed and with joints exposed for examination, all newly installed pipe or any valve section, thereof, shall be subjected to hydrostatic pressure one and one half (1½) the designed working pressure of the system or as specified by the Engineer. 2. The duration of each pressure test shall be at least 20 minutes unless otherwise specified by the Engineer. 3. Each section of pipeline shall be slowly filled with water and the specified test pressure, measured at the point of lowest elevation, shall be applied by means of a pump connected to the pipe in a manner satisfactory to the Engineer. During the filling of the pipe and before applying the test pressure, all air shall be expelled from the pipeline. To accomplish this, tap shall be made if necessary, at the highest point of the pipe under test and after completion of the test, the taps shall be tightly plugged unless otherwise

specified. During the test, all exposed pipes, fittings, valves, joint and couplings will be carefully examined. If found to be cracked or defective, they shall be removed and replaced by the Contractor with sound materials at his expense. The test shall then be repeated until satisfactory results are obtained.

d. Leakage Test for Water Lines

1. Leakage test shall be conducted after satisfactory completion of the pressure test and shall consist of an examination of all exposed joints for leakage as well as an overall leakage test of the completed pipeline.

2. The pressure to be maintained during the test shall be the designed working pressure of the system.

3. Leakage test shall be made only after a minimum of 24 hours after the pipe to be tested has been filled with water.

4. The duration of each leakage test shall be two hours unless otherwise specified by the Engineer.

5. Each section of pipeline shall be slowly filled with water and the specified test pressure, measured at the point of lowest elevation shall be applied by means of a positive displacement type pump and reservoir connected to the pipe in a manner satisfactory to the Engineer.

6. Before starting the leakage test, all air shall be expelled from the pipe. All exposed pipes, fittings, valves and joints shall be examined for leakage during the test.

7. Allowable leakage rate per 100 joints per inch of Pipe Diameter at Pressure Stipulated.

PRESSURE		LEAKAGE RATE	
psi	kg/cm^2	liters/hr.	liters/2 hrs.
50	3.50	1.45	2.90
75	5.30	1.75	3.50
100	7.00	2.05	4.10
125	8.80	2.30	4.60
150	10.50	2.50	5.00
200	14.00	2.90	5.80

e. Defective Work

1. If the inspection or test shows any defect, such defective work or material shall be replaced and the test shall be repeated until

satisfactory to the Engineer.

2. All repairs to piping shall be made with new materials at the expense of the Contractor.

3. No caulking of screwed joints or holes will be accepted.

- **On Electro-Mechanical Works:**

Testing Operations

When the electro/mechanical installation is completed, the Contractor shall test the installed electrical materials and equipment in the presence of Registered Electrical Engineer or Master Electrician. The system shall be free from any defects, shorts or grounds. The Contractor at no extra cost shall furnish all necessary instruments and personnel required for the testing to the Authority.

- On Painting

Inspection

1. All works and materials supplied under this Specification shall be subject to inspection by the Engineer.

2. The Contractor shall correct such works or replace such materials found defective under these Specifications at his own expense.

- On Supply, Relocation and Installation of Sprinkler Head

Acceptance Test

All tests required in the commissioning and testing works shall be passed under the supervision of qualified Engineer or Architect. All necessary documents required in the approved quality control program shall be submitted to PPA with issued warranty.

- On Exhaust and Fresh Air Ducting System

Testing

Test and balance is the final step in assuring that a project meets the design and engineering criteria. The contractor which furnished the exhaust fans and the makeup air unit to do the test and balance.

Section VI. Schedule of Requirements

The delivery schedule expressed as weeks/months stipulates hereafter a delivery date which is the date of delivery to the project site.

Item Number	Description[2]	Quantity	Total	Delivered, Weeks/Months
	Renovation of PPA Head Office Canteen			Within ninety (90) calendar days from receipt by the winning bidder of the Notice to Proceed.

[2] Subject to the Technical Specifications under Item No. 4 of the Terms of Reference

Section VII. Technical Specifications

Technical Specifications

Item	Specification	Statement of Compliance
		[Bidders must state here either "Comply" or "Not Comply" against each of the individual parameters of each Specification stating the corresponding performance parameter of the equipment offered. Statements of "Comply" or "Not Comply" must be supported by evidence in a Bidders Bid and cross-referenced to that evidence. Evidence shall be in the form of manufacturer's un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate. A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidder's statement of compliance or the supporting evidence that is found to be false either during Bid

		evaluation, post-qualification or the execution of the Contract may be regarded as fraudulent and render the Bidder or supplier liable for prosecution subject to the applicable laws and issuances.]
	SCOPE OF WORK Renovation of PPA Head Office Canteen	
	One (1) lot comprises the following components: A. Demolition and Removal Works B. Carpentry and Joinery Works C. Architectural Finishes D. Plumbing and Sanitary Works E. Electro-Mechanical Works F. Masonry G. Painting H. Supply, Relocation and Installation of Sprinkler Head I. Exhaust and Fresh Air Ducting System J. Kitchen Equipment K. Supply and Installation of Furniture	
	TECHNICAL SPECIFICATIONS	
	A. Demolition and Removal Works	
	Description The work includes the furnishing of all labor, materials and equipment required to carry out the demolition and removal works 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.	
	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. 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 Turn-Over Report shall be provided.

Execution

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

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

Safety

During the course of survey and clearing, any obstacles which are recognized and seemed 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 safe condition and clean so that no part is in danger of falling or creating hazard to personnel or equipment.

B. Carpentry and Joinery Works

Scope of Work

The work shall consist of furnishing all tools, labor, equipment and materials, unless otherwise specified to complete all carpentry and joinery works shown on the Drawings and specified herein.

General Requirements

a. Lumber Grades

Lumber shall be of the best grade available, of the respective kinds required for the various parts of work; well seasoned, thoroughly dry and free from loose or unsound knots, sap, shakes or other imperfections impairing its strengths, durability and appearance. All exposed woodwork shall be smooth by dressed and sandpapered unless otherwise indicated or specified. Framing lumber shall be of the rough dimensions unless otherwise shown on the drawings.

b. Substitution of Lumber

Any lumber equally good for the purpose intended maybe substituted for the kind specified, subject to prior written approval of the Engineer. Provided, however, that in the substitution of the cheaper kind of lumber than that specified, a reduction in the contract price equal to the difference in the costs of the two kinds of lumber shall be made.

c. Delivery and Storage

The Contractor shall deliver lumber to the site in undamaged condition. Lumber shall be stacked in such a manner as to insure proper ventilation and drainage, and shall be supported at least 150 mm above-ground. Lumber shall be protected against dampness before and after delivery, and enough protection under cover in well ventilated enclosure, not exposed to extreme changes of temperature and humidity; and in a manner as to provide air-circulation around all surfaces of each pile to insure thorough air-seasoning. Lumber or millwork in buildings shall not be finished until concrete, masonry work and plaster are dry. Lumber shall be delivered at least thirty (30) days before use.

d. Grading of Plywood

Each sheet of plywood shall bear the mark identifying the plywood as to wood species, glue type and grade.

Materials

a. Lumber

Lumber for various uses shall be one of the species listed for the purpose indicated unless otherwise specified in the drawing. For any use not specified, the lumber shall be the best commercial grade normally used for the purpose, subject to the approval of the Engineer.

All framings shall be done as far as possible with carefully fitted mortise and tenon joints.

All doors, or other opening where so indicated on plans, shall have frames and sills of the dimensions shown or as hereafter detailed, and all frames

coming in contact with concrete shall be anchored by means of 20-d nails, spaced not more than 0.20m, apart, all around the contract surfaces. All frames shall be rabetted, molded and cut with saw and cut under for water drips.

SPECIE	USE
Yakal	All door jambs, headers and transom bars, wood plates and all other woodwork in contact with concrete or masonry and where indicated.
Apitong (pressure treated)	All truss members and rafters and where indicated; all wood framings and carpentry, except when in contact with concrete.
Tanguile (Kiln dried)	All exterior and interior mill work, siding, finish and trim, frame work and all other wood works not specifically mentioned; except when in contact with concrete.

b. Plywood

Plywood shall conform to Commercial Standard PSI and shall be of local manufacture.

Plywood to be varnished shall be tanguile or kalantas veneers (as indicated), ribbon grained, water resistant, Class B and of the thickness indicated.

Plywood to be painted shall be tanguile veneer ordinary rotary-cut, water resistant, Class C and of thickness indicated.

Plywood exposed to the outside elements or where indicated shall be waterproof or marine plywood and of the thickness indicated.

c. Fastenings

Fastenings shall be common nails, glue or specified, flat-head wood screws (F.H.W.S.), rough-head wood screws (R.H.W.S.), bolts or lag screws where specified or called for shall be used. Conceal fastenings as much as possible; where not possible, locate them in inconspicuous places, where nailing

is permitted through woodwork smooth-finished face, conceal nail heads.

1. Nails

   Shall be of the smooth shank, zinc coated, common wire nails of local manufacture, and of types and sizes best suited for the purpose.

2. Wood Screws

   Shall be brass or cadmium plated of the best available commercial quality, and of types and sizes suited for the purpose.

PRESSURE TREATED LUMBER

a. Preservative Treatment

All lumber indicated to be pressure treated, shall contain any of the following net retention of solid preservative.

a. Boliden Salts - 45.5 kg. dry chemical per cubic foot of wood
b. Wolman Salts - 0.31 kg. dry chemical per cubic foot of wood
c. Tenalith Salts - 0.34 kg. dry chemical per cubic foot of wood

The Contractor shall submit an affidavit signed by an official of the preservative treatment company to the Engineer. This affidavit shall indicate the net retention of solid preservatives obtained and shall certify that pressure treated lumbers have a moisture content that does not exceed 17 percent upon shipment from the treatment plant.

Where it is necessary to cut or bore pressure-treated lumber on the job, two coats of prepared concentrated preservatives solution shall be applied to the end-cut or bored surfaces.

ROUGH CARPENTRY

All work shall be well fitted, accurately set, and rigidly secured in place. Anchors and bolts (with nuts and washers) straps and tie rods shall be provided as required.

a. Cutting and Fitting

Cutting and fitting to accommodate other work shall be done in the required manner, and cut or damaged work shall be patched and made good.

b. Framing and Structural

Framing and structural lumber shall be well-seasoned, straight, square-edge stacks, and free from loose or unsound knots, bark edges or other defects that will impair its strength.

c. Plates for Walls and Partitions

Plates for walls and partitions shall be of the same width as the studs and shall form continuous horizontal ties.

Structural members shall not be cut, bored or notched for the passage of pipes or conduits without prior approval of the Engineer. All members damaged by such cutting or boring shall be reinforced by means of specially formed and approved sheet metal or steel shapes or remove or replaced with new member as directed.

Anchors, connectors and fastenings not indicated or specified otherwise shall be of the size and types necessary to suit the conditions encountered. Size, type and spacing of nails, screws or bolts for installation of manufactured building materials shall be as recommended by the product manufacturer unless indicated or specified otherwise.

Rough hardware, exposed to weather or in contact with exterior walls or masonry or slabs shall be zinc-coated except as specified otherwise.

All lumber surfaces in contact with concrete or masonry shall be given a brush coat of bituminous paint before installation.

JOINERY WORK

All lumber used for the joinery work shall be of the kinds and grades specified and shall be of the contours, patterns and profiles indicated.

All joints shall be made, installed tight and securely fastened in a manner approved by the Engineer. Exterior joints shall be mitered and interior angles coped. Panels shall be fitted to allow for shrinkage, avoid swelling, and insure that the work remain in place without warping, splitting and opening of joints.

Interior trims shall be approved standard stock moldings, except where special patterns or profiles are indicated.

Joints for cabinet work shall be glued in addition to nails or other fastening device required. Nailing shall be concealed where practicable. Where face nailing is used, nails shall be set for putty stopping.

All exposed surfaces shall be machined or hand sanded finished to an even smooth surface. No hammer marks or other unsightly marks shall be allowed on any wood panel or veneer.

C. 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 and painting for the buildings 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:

Wall

1. P1 - 6mm Fiber cement board on metal studs framing.
   Locations and details are shown in the plan.

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 6mm fiber cement

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 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.

All materials will be delivered and installed on site.

SURFACE PREPARATION FOR FIBER CEMENT SURFACES

Shall be dry and clean prior to application of the specified first-coat material. Oil, grease, or rust stains shall be carefully removed by the use of suitable solvent. Wire brushing will not be permitted. After the first coat has become dry and prior to application of finish coats, touch-up coats shall be applied to suction spots.

Finishes

1. **WF1** – Latex paint Light Gray Egg shell finish

2. **WF2** - (Faux Column) Wood Grain design plastic laminated finish on Medium Dense Fiber Board

3. **WF3** – GMM THK. Mirror on plywood backing / Latex paint Light Gray Color Egg shell finish

4. **WF4** - 300mm X 300mm Light Gray

Unglazed wall tiles

5. Photo mural on Sintra board (Column) Locations and details are shown in the plan.

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.

First Coat	Masonry Neutralizer
Three Coats	Latex Paint in Egg Shell Finish

Wall Tiles

a. Mortar Preparation

All mortar setting beds shall be mixed by volume in the proportion of 1 part Portland cement and 3 parts dry sand and not more than 1/10 part hydrated lime.

Mortar materials shall be measured in approved containers, which will insure that the specified proportions of materials will be controlled and accurately maintained during the progress of the work. Measuring materials with shovels, "shovel count", will not be permitted. Unless specified otherwise, mortar shall be mixed in proportions by volume, in an approved mortar box.

The quantity of water shall be controlled accurately and uniformly. The aggregates shall be introduced and mixed in such manner that the materials will be distributed uniformly throughout the mass. A sufficient amount of water shall be added gradually and the mass further mixed until a mortar of the elasticity necessary for purpose intended is obtained. Mortar boxes, pans and wall surfaces shall be kept clean and free from debris or dried mortar. The mortar shall be used before the initial set of the cement has occurred. Re-tempering of mortar in which cement has started to set will not be allowed.

b. Application of Wall Tile

Interior masonry shall be clean, thoroughly dry, sound and sufficiently rough to provide strong mechanical bond. Surfaces shall be evenly damped immediately prior to the application of the scratch coat.

Scratch coat shall be applied to masonry, as backing for wall tile, not less than 24 hours or more than 48 hours before starting the tile setting. The scratch coat shall not be less than 6 mm from the face of the masonry. The scratch coat shall be applied with sufficient pressure to ensure a proper bond with the base for the setting bed. While the mortar is still plastic, the scratch coat shall be cut with a trowel at all internal vertical angles for the depth of the coat with the full height of the tile bed and shall be cross-scratched, in 25 mm centers for the extent of the tile bed.

Immediately before the application of mortar setting bed, the scratch coat shall be moistened thoroughly but not saturated. Temporary screeds shall be applied to the scratch coat with mortar to provide a true and plumb surface, the proper distance back from the finished wall line. The setting bed shall be applied, rodded and floated flush with the screeds over an area not greater than the area to be covered with the tile while the bed remains plastic. The thickness of the setting bed shall not exceed 15mm and the mortar shall not be re-tempered. The setting bed shall be cut with a trowel at all internal corners as specified for the scratch coat.

Mounted tiles shall be soaked in clean water a minimum of one hour before they are set. Absorptive mounted tiles shall be damped by placing sheets on a wetted cloth in a shallow pan before setting. A skim coat of neat Portland cement mortar, mixed with water to the consistency of a pasty, thick cream, shall be applied 0.8mm to 1.6mm thick to the mortar setting bed, or to the back of each tile as laid. The tiles shall then be pressed firmly on the setting bed and tamped until flush and in the plane of the other tiles. The tiles shall be applied before the mortar bed has taken its initial set.

Intersections and returns shall be formed accurately. Where cutting of tiles is necessary it shall be done at the internal angles of the walls or wainscots. Cutting and drilling tiles shall be done neatly without marring the surfaces. The cut edges of tiles against trim, built-in

fixtures, and similar surfaces shall be ground and jointed carefully. The tiles shall fit closely with plumbing fixtures and around electric outlets, pipes and fittings, so that the plates or escutcheons will properly overlap the tiles. Wainscots shall be within one half of the heights indicated without cutting of the tiles.

Bases, caps, bull-nose corners, and all other trimmers moulded or shaped features, and accessories shall be backed thoroughly with mortar and set firmly into place. All lines shall be kept straight and true, and all finished surfaces brought to true and even planes, straight and plumb, and internal corners squared and external corners rounded.

Horizontal joints shall be maintained level and vertical joints plumb and in alignment. The completed work shall be free of broken, cracked, damaged or otherwise faulty 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 line 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 3mm 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 for walls and other vertical surfaces shall contain non-staining white Portland cement. Grout and pointing mortar shall be forced into joints by using trowel, brush or finger application.

Before the grout or mortar sets, the joints of cushion edge tiles shall be struck or tooled to the depth of cushion, filling all skips or gaps, and the joints of square edge tiles shall be filled completely flush with their surface. Dark cement shall not show through grouted white joints. Care shall be taken to avoid scratching glazed finishes. All mortar or grout shall be removed before it has set or hardened.

c. Cleaning and Curing

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 tile. All metal shall be covered with an 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. Acid cleaners shall not be used on glazed tile.

d. Protection

Tiled walls outside corners (external angles) shall be protected with board corner strips in areas used as passage ways by workmen. Extreme care should be taken not to disturb walled tiled until mortar has fully set.

Photomural on Sintra Board

An enlarged photograph usually several yards long used on walls especially as decoration.

Sintra is a lightweight yet rigid board of moderately expanded closed-cell polyvinyl chloride (PVC) extruded in a homogenous sheet with a low gloss matte finish.

EXECUTION

1. Prepare Your Wall
2. Be sure to start with a smooth, clean surface.
3. Remove hooks, light fixtures, and plates; fill cracks and holes with spackling compound and sand until smooth.
4. Mural Installation
   We recommend that two people install the mural together.
   Lay out your mural panels before installing to ensure panel order.
5. Make a guideline on your wall.
6. Stick your mural panels.
7. Trim overage

6mm Thick Mirror on Plywood backing

EXECUTION

1. Cut mirror, and the plywood the same size. Your

local hardware store can cut the wood to your desired size. Be sure to take measurements so you get an exact fit.

2. Cover the floor in a well-ventilated area with a large blanket. The blanket will catch falling glue or splinters from the plywood so that the surface underneath stays clean.

3. Place the plywood flat on the blanket, and cover the surface with wood glue. Run the adhesive tube in lines up and down the wood surface, making sure to apply a line close the edge so that the mirror sticks to the entire piece of wood.

4. Place the mirror on top of the plywood, and gently press down over the entire surface so that the mirror grips the glue and sticks to the wood underneath. Place small clamps around the edge of your plywood-backed mirror so that the two stick together while drying.

5. Wipe any excess glue away from the edges with water and a washcloth before it dries.

6. Let the glue on your plywood mirror dry for a full 24 hours.

Baseboard

Use 100mm Vinyl baseboard.

Baseboards are also referred to as base or skirting. The main purpose of wood baseboard is to cover the joint between the wall surface and the floor, as well as for decorations.

Detail and locations are shown in the plan.

Floors

Supply and installation of the following floor finishes. Details and locations are shown in the plan.

1. **FF1** - 600mm X 600mm Terrazo Floor Tiles

   Location is shown in the plan.

2. **FF2** - 300mm X 300mm Unglazed Floor Tiles

Location is shown in the plan.

3. FF3 - 200mm X1200mm Wood Tile Flooring

Location is shown in the plan.

4. SS1 - 4.5mm Stainless Steel strip Termination

Location is shown in the plan.

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. **CF1** – Exposed ceiling and utility lines to be painted in flat latex paint in Dark Gray color

   Location is shown in the plan.

2. **CF2** – Plastic Laminate on MDF backing

   Location is shown in the plan.

PHOTOMURAL WALL

- Use Solid Wood in Dado Varnish. Details are shown in the plan.
- Use 4.5MM THK. Sinta Board to be attached on existing masonry wall.

DOORS

D-1 - Retain existing 12mm thick Clear Tempered Glass Door with 35mm diameter Stainless steel handle mirror finish (1800mm x 2400mm)

D-2 - Wooden flush door with 3mm thick clear glass vision panel and stainless push plate & kick plate.

D-3 - Existing Solid wood door (1000mm X 2100mm) to be repainted.

Details and locations are shown in the plan.

INSTALLATION OF DOORS

Surface Preparation

Ensure surfaces to receive panels are structurally sound, even, smooth, clean, dry, and free from defects detrimental to work.		
Architectural Finishes – Outline Specifications		
FF-1 TERRA ARTE GTE 04 TINO MATTE	Description:	600 x 600 terrazo tile
FF-2 YURA SNOW MATTE	Description:	300 x 300 ceramic tile
FF-3 MARRONE LEGNO	Description:	200 x 1200 ceramic tile (wood design)
WF-1 PAINTED WALL	Description:	Latex Paint in egg shell finish

WF-2 LAMINATED WALL	Description:	Rushil Laminate NT 8189 on MDF substrate
WF-3 MIRROR	Description:	6mm thick mirror on plywood backing
WF-4 YURA SNOW MATTE	Description:	300 x 300 ceramic tile
CF-1 	Description:	12mm thk regular gypsum board, paint finish

CF-2	Description:	Rushil Laminate NT 8189 on MDF substrate
LAMINATED CEILING		

c

Item Code: D3188-CM
Item Description: 5watt LED UFO round slim recess mounted downlight
Technical Specifications:

Electrical specifications:
input 240V
power 5W
current 60mA

Mechanical Specifications:
Thermal conductive plastic coated aluminium housing
V-0 flame rating
Ø x H 115mm x 31mm

Lamp
lumen 350 / 380 / 390
CCT 3000K / 4000K / 6000K

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DL-1 - PINLIGHT	Description:	100mm. dia. pinlight

Item Code D0150-BM2-NW
Item Description Imagy LED wave downlight 6" Ø
Technical Specifications:

Electrical specifications:
input 240V
power 14W
current 100mA

Mechanial Specifications:
Thermal conductive plastic coated aluminum housing
V-0 flame rating
Ø 174mm
H 68.5mm

Lamp
lumen 1330
CCT 4000K

Battery pack option:
2-hours duration
12V, 2000mAH Ni-Cd battery

DL-2 - PINLIGHT	Description:	150mm. dia. pinlight

tracklight

Item	
Item Code.	
Item Description	track light fixture for MR16 LED
Technical Specifications.	
Source of light	LED
Lamp Brands	
Output	4.5W, 36° beam
Electrical Specifications	
Supply Voltage	220V
Control gear options	integrated driver
Mechanical Specifications	
Housing	aluminum
reflector	n.a
accessories	trackbar

TRACKLIGHT	Description:	Tracklight

pendant - ipen-95321

Item Code: LSWA 95001
Item Description LED pendant light
Technical Specifications

Electrical specifications:
input 220-240V
power 10W

Mechanical Specifications
painted housing reflector, black color
Ø 285mm
H 380mm

Lamp
lumen 1050
CCT 3000K

PENDANT LIGHT	Description:	Pendant Light

KITCHEN LIGHT	Description:	LED lamp with cover

D. Plumbing and Sanitary Works

SCOPE OF WORK

The work covered for this section shall consist of furnishing all labor, tools, equipment, materials and incidentals necessary for the complete installation, testing and operation of the plumbing and sanitary system within the buildings and premises in accordance with these Specifications and as shown on the drawings or as directed by the Engineer. The septic tank and their effluent and discharge pipelines shall be part of other section of these specifications.

MATERIAL REQUIREMENTS

SUBMITTAL

1. The Contractor shall submit his work method

statement with necessary shop drawings to the Engineer for approval twenty-eight (28) days before the start of the works.

Shop drawings shall be dated and shall contain the name of the project and location of the subject item in the shop drawing which is to be installed.

The Engineer will review and approve or return for correction all shop drawings with reasonable promptness. The Contractor shall make any corrections required and file with the Engineer three (3) corrected copies of the shop drawings.

2. The drawings shall indicate the general arrangement of all pipings, however, where actual conditions necessitate re-arrangement in opinion of the Contractor and/or the Engineer, the Contractor shall prepare and submit to the Engineer for approval, twenty-eight (28) days before placing the order for materials, shop drawings of the proposed re-arrangement. Because of the small scale of the drawings, shop drawings to indicate all offsets, fittings and accessories shall be prepared. The Contractor shall carefully examine the drawings and shall carefully investigate actual structural and finish conditions affecting all his work.

3. The Contractor shall be responsible for the proper fitting of materials, equipment and accessories without substantial alteration and at no cost to the Employer.

4. The Contractor shall be responsible for the proper coordination of the work and shall provide all necessary clearance where necessary.

STANDARDS

Use of materials shall further be governed by other requirement imposed on other sections of these Specifications. Materials shall be subject to tests necessary to ascertain their fitness if the Engineer so requires. All works shall comply with the pertinent provisions of the Plumbing Code of the concerned city or town, the Code on Sanitation of the Philippines, and/or the National Plumbing Code of the Philippines.

MATERIALS

1. Identification of Materials

Each length of pipe, fittings, traps, fixtures and devices used in the plumbing work shall have cast, stamped or indelibly marked on it, the approved manufacturer's trademark or name, the weight, type and class of product when so required by the standards mentioned above.

2. Alternative Materials

Use of any material not specified in this Specification may be allowed provided such alternate has been approved by the Engineer and provided further that a test, if required, shall be done by an approved agency in accordance with generally accepted standards.

3. Soil, Waste, Drain, Vent Pipes and Fittings

Soil, waste and vent pipes shall be unplasticized Polyvinyl Chloride (uPVC) pipes. Diameter shall be as indicated on the Drawings. It shall conform to ASTM D 1784 or ASTM D 2729.

Drainage pipes shall be reinforced concrete pipes (RCP), diameter shall be as indicated on the Drawings.

4. Jointing Material

The joint material for uPVC pipes shall be PVC solvent cement as recommended by the approved pipe manufacturer.

5. Water Supply Pipes

Water supply pipes shall be polypropylene random-80 (PPR-80) pipes PN 20 conforming to DIN Standards DIN 1988/DIN 8078, German made. Jointing shall be fusion welded.

6. Cleanouts, Plugs and Tee

Cleanouts shall be of the same material as the pipe to be fitted. Cleanouts installed in connection with uPVC hubs and spigot pipes shall consist of a long sweep quarter bend of ¼ as shown on the drawings.

7. Pipe Sleeves

Pipe sleeves shall be installed and properly secured in place at all points where pipes passes through masonry or concrete. Pipe sleeves shall be uPVC pipe, Schedule 40.

8. Floor Drain

Floor drains shall be made of brass or cast iron non-tilting grate, perforated or slotted.

9. Pipe hangers, Inserts and Support

a. Pipe hangers shall be wrought iron, malleable iron pipe hangers spaced not over 1.5meters apart for uPVC pipes and 3.0meters apart for iron pipes. Chain straps, perforated bars or wire hangers will not be permitted.

Hangers shall have short turnbuckles or other approved means of adjustment. Turnbuckles may be omitted on hangers where space does not permit their use. Trapeze hangers may be used in lieu of separate hangers for pipes running parallel to each other and close together.

b. Inserts shall be of cast iron or cast steel and shall be of a type to receive a machine bolt head or nut after installation.

c. Wrought iron clamps or collars shall be used to support vertical runs of pipes.

10. Unions

Union pipe 50mmØ and smaller shall be malleable iron. Union on water piping 63mmØ and larger shall be flanged pattern and shall be of galvanized (zinc coated) cast iron. Gaskets for flange unions shall be of best quality fiber plastic or leather.

11. Valves

Valves shall be cast bronze of brass body. Chrome plated finish for all fixture taps and faucets and natural finish for all others, like hose bibbs, gate valves and which are not tapped directly to a plumbing fixture. Concrete valve boxes shall be

installed where required and will be of sufficient size for operating the valve.

12. Concrete, Reinforcing Steel, Pipe and Steel Plate

Materials for wash pits, catch basins and manholes shall conform to the requirements as follows:

a. Concrete materials shall conform with the requirements in "Concrete Works" and shall be Class C concrete with a 28-day minimum compressive strength of 21 MPa (3,000 psi).

b. Reinforcing steel shall be as shown on the drawings and shall conform with the requirements of reinforcing steel bars in "Concrete Works."

c. Pipes shall be as shown on the drawings and shall comply with the relevant item of the particular pipe.

d. Steel plates shall be as shown on the Drawings and shall comply with Section "Steel and Metal Works".

13. Non-reinforced Concrete Pipe

Non-reinforced concrete pipe shall be as shown on the Drawings and shall conform with the requirements of non-reinforced concrete pipes AIC latest edition. Concrete shall be with a 28-day minimum compressive strength of 20.7 MPa.

14. Valve for Drinking Fountain

Valve where drinking fountain will be connected shall be polished brass pipe and shall have red enameled handle.

EXECUTION

All installation works shall be in conformity with the National Plumbing Code of the Philippines (NPCP).

EXCAVATION, TRENCHES AND BACKFILLING

1. Trenches for all underground pipelines shall be excavated to the required depth. The bottom of trenches shall be tamped hard and graded to

secure the required fill. Bell holes shall be excavated so that pipes will rest on solid ground for their entire length.

Rocks where encountered, shall be excavated to a depth of 150mm below the bottom of the pipe and before the pipe is laid, the space between the bottom of the pipe and the rock shall be filled with sand. Sewer and water pipes shall be laid in separate trenches.

2. After pipelines have been tested, inspected and approved by the Engineer and prior to backfilling, all forms shall be removed and the excavation shall be cleaned of all trash and debris.

Materials for backfilling shall consist of acceptable excavated soil, borrow of sand, gravel or other materials approved by the Engineer and shall be free from trash, lumber or other debris. Backfilling shall be placed in horizontal layers not exceeding 150 mm in thickness and properly moistened to approximate optimum requirements. Each layer shall be compacted by hand or machine tamper or by other suitable equipment to a density that will prevent excessive settlement or shrinkage.

Backfilling shall be brought to a suitable elevation above grade to provide for anticipated settlement and shrinkage thereof.

Water pipes shall have a sand cushion 150mm below and above the pipes

INSTALLATION OF SOIL, WASTE DRAINS OR VENT PIPES

1. Horizontal Drainage Pipe and Vent Piping

Horizontal waste pipes 75mmØ and smaller shall have a minimum grade of 6.5mm per 0.30m and for 100mmØ and larger, 3.2mm per 0.30m. All main vertical soil and waste stacks shall be extended full size above the roof line as vents, except where otherwise specifically shown.

Where practicable, two (2) or more vent pipes shall be connected together and extended as one pipe through the roof. Vent pipes in roof spaces shall be run as close as possible to the underside

of roof with horizontal piping pitched to stacks using fittings as required without forming traps in pipes.

Vertical pipe vents may be connected to a vent line carrying other fixtures. The connection shall be at least 1.20m above the floor on which the fixtures are located to prevent the use of vent lines as waste. Horizontal waste lines receiving the discharge from two (2) or more fixtures shall be provided with vents, unless separate venting of fixtures
is noted.

2. Fittings

All changes in pipe sizes on soil waste lines shall be made with reducing fittings or recessed reducers. All changes in direction shall be made by the appropriate use of forty five (45) degree wyes. Long sweep quarter bends or elbows may be used in soil and waste lines where the change in direction of flow is from the horizontal to the vertical and on the discharge from water closets.

Where it becomes necessary to use short radius fittings in any location, the approval of the Engineer shall be obtained before they are installed.

3. Joints

a. PVC Soil Pipe

All joints in uPVC soils, waste and vent pipe shall be accomplished by the use of PVC solvent cement.

b. All joints for uPVC shall be accomplished by applying the manufacturer's recommended solvent before connection to the pipe.

4. Cleanouts

Cleanouts at the bottom of each soil stack, waste stack and where else indicated shall be the same size at the pipe.

Cleanouts on floors shall be by uPVC plug adapter

fit into the hub and fitted with uPVC screw plugged flush with the floor.

Cleanout shall be provided at every change in direction greater than 45 degrees.

5. Flashings

All pipes passing through the roof shall be provided with lead flashings. All flashings shall be built to 40 lbs. bituminous felts and shall extend up to the pipe and down-over to top of pipe at least 150mm and along the roof not less than 300mm and shall lap over flashing to make a weatherproof joint.

6. Traps

Each fixture and piece of equipment requiring connections to the drainage system, except fixtures with continuous waste shall be equipped with a trap. Traps shall be specified to be supplied with the fixtures. Each trap shall be placed as near to the fixtures as possible. Traps installed on threaded pipes shall be recessed drainage pattern.

7. Pipe Sleeves, Hangers and Supports

Pipe sleeves shall be installed and properly secured in place at all points where pipes pass through masonry or concrete except unframed floors on earth.

Pipes shall not be permitted to pass through footings or beams unless noted on the drawings.

Pipe sleeves in floors shall extend not less than 25mm and not more than 50mm above the finished floor. After installation of the pipe, the space around the pipe shall be packed with plastic material and made watertight. Flashing shields for sleeves passing through waterproofing membrane shall be thoroughly mopped into the membrane. The space between the pipe and sleeves shall be made watertight by inserting approved sealing and caulking materials.

INSTALLATION OF WATER PIPES, FITTINGS AND CONNECTIONS

1. Gate Valves and Outlets

Gate valves shall be installed close to the point of connection to the existing service line outside the building. The piping shall be extended to all fixture outlets and equipment from the gate valves. Outlets where indicated shall be capped or plugged and left ready for future connections.

2. Mains, Branches and Runouts

All runs of piping shall be installed as shown on the drawings. The piping shall be cut accurately to measurements, and installed at the building site by the Contractor and shall be worked into place without springing or forcing. Care shall be taken not to weaken the structural portions of the buildings.

All pipes above ground shall be run parallel with the lines of the building unless otherwise shown on the drawings. Branch pipes from service lines may be taken off on top of mains, bottom of mains or side of mains, using such cross over fittings as may be required by structural or installation conditions.

All service pipes, valves and fittings shall be kept at sufficient distance from the other work to permit finished covering not less than 6.5mm from such other work and not less than 13mm between finished covering on different services. No water piping shall be buried in floors unless specifically indicated on the drawings or approved. Changes in pipe sizes shall be made with reducing fittings.

The use of long screws and bushings is prohibited.

3. Joints

Joints and connections in the plumbing system shall be gas-tight and watertight for the pressures required by test.

After cutting and before threading all pipes shall be reamed and shall have burrs removed. All screwed joints shall be applied with an approved graphite compound or TEFLON tape to facilitate connections. Threads shall be full cut and not more than three threads on the pipe shall remain exposed.

Caulking of threaded joints or top to prevent leaks shall not be permitted.

Unions shall be provided where required for disconnection. Threaded swing bolts shall be used for branch connections to risers and mains.

4. Unions

Where required unions shall not be concealed in walls, ceilings or partitions.

5. Tests

The following tests shall be conducted by the Contractor at his expense under the supervision of the Engineer.

a. Tests for Drainage and Venting System

The entire drainage and venting system shall have necessary openings plugged to permit the entire system to be filled with water to the level of the highest vent stack above the roof. The system shall hold the water for 30 minutes with a drop not greater than 100mm.

b. Sterilization

The entire water supply piping system shall be sterilized with a solution containing not less than fifty (50) parts per million of available chlorine, either liquid chlorine or a solution of sodium hypochlorite. The sterilizing solution shall remain in the system for a period of not less than 8 hours during which time all valves and faucets shall be opened and closed several times. After sterilization, the solution shall be flushed from the system with clean water until the residual chloride content is not more than 0.2 parts per million.

c. Pressure Test for Water Lines

1. After the pipe have been installed, the joints completed and with joints exposed for examination, all newly installed pipe or any valve section,

thereof, shall be subjected to hydrostatic pressure one and one half (1½) the designed working pressure of the system or as specified by the Engineer.

2. The duration of each pressure test shall be at least 20 minutes unless otherwise specified by the Engineer.

3. Each section of pipeline shall be slowly filled with water and the specified test pressure, measured at the point of lowest elevation, shall be applied by means of a pump connected to the pipe in a manner satisfactory to the Engineer. During the filling of the pipe and before applying the test pressure, all air shall be expelled from the pipeline. To accomplish this, tap shall be made if necessary, at the highest point of the pipe under test and after completion of the test, the taps shall be tightly plugged unless otherwise specified. During the test, all exposed pipes, fittings, valves, joint and couplings will be carefully examined. If found to be cracked or defective, they shall be removed and replaced by the Contractor with sound materials at his expense. The test shall then be repeated until satisfactory results are obtained.

d. Leakage Test for Water Lines

1. Leakage test shall be conducted after satisfactory completion of the pressure test and shall consist of an examination of all exposed joints for leakage as well as an overall leakage test of the completed pipeline.

2. The pressure to be maintained during the test shall be the designed working pressure of the system.

3. Leakage test shall be made only after a minimum of 24 hours after the pipe to be tested has been filled with water.

4. The duration of each leakage test shall be two hours unless otherwise specified by the Engineer.

5. Each section of pipeline shall be slowly filled with water and the specified test pressure, measured at the point of lowest elevation shall be applied by means of a positive displacement type pump and reservoir connected to the pipe in a manner satisfactory to the Engineer.

6. Before starting the leakage test, all air shall be expelled from the pipe. All exposed pipes, fittings, valves and joints shall be examined for leakage during the test.

7. Allowable leakage rate per 100 joints per inch of Pipe Diameter at Pressure Stipulated.

PRESSURE		LEAKAGE RATE	
psi	kg/cm^2	liters/hr.	liters/2 hrs.
50	3.50	1.45	2.90
75	5.30	1.75	3.50
100	7.00	2.05	4.10
125	8.80	2.30	4.60
150	10.50	2.50	5.00
200	14.00	2.90	5.80

e. Defective Work

1. If the inspection or test shows any defect, such defective work or material shall be replaced and the test shall be repeated until satisfactory to the Engineer.

2. All repairs to piping shall be made with new materials at the expense of the Contractor.

3. No caulking of screwed joints or holes will be accepted.

ASSEMBLY, INSTALLATION AND CONNECTION OF FIXTURES

Fixtures shall be supported and fastened in a satisfactory manner. Where secured to concrete or masonry work walls, fixtures and equipment shall be fastened with brass bolts or machine screws in lead-sleeve type anchorage units or with brass expansion bolts. Expansion bolts shall enter 7.5 cm into solid concrete or masonry works and shall be fitted with loose tubing or sleeves of proper length to bring expansion sleeves into the solid concrete masonry walls.

Where wood screws are used, screws shall go into solid pieces set between studs. Where through-bolts are used, bolts shall be provided with plates or washers at back set, so that they will be concealed by plaster. Bolts and nuts shall be hexagonal and exposed nuts, cap nuts, and screw heads shall be provided with chromium plated brass washers.

PROTECTION OF FIXTURES

Pipe openings shall be closed with caps or plugs during installation. Fixtures shall be tightly covered and protected against dirt, water and chemical injury. At the completion of all works, all fixtures shall be thoroughly cleaned and delivered in a condition satisfactory to the Engineer.

FIXTURES AND FASTENING

All fixtures shall be supported and fastened in a satisfactory manner as follows:

1. Where secured to concrete or concrete hollow block walls, they shall be fastened with one quarter inch brass bolts with twenty threads to the inch and of sufficient length to extend at least 7.5 cm into solid concrete or hollow block work, fitted with loose tubing or sleeve insert and shall be securely anchored and installed flush with the finished wall and shall be completely concealed when the fixtures are installed.

2. Where through-bolts are used, they shall be provided with plates or washers back set so that heads, nuts and washers will be concealed by plaster. Bolts and nuts shall be hexagonal. Exposed bolts, nuts, capnuts and screw heads shall be provided with chromium plated brass washers.

GUARANTEE

Upon completion and before final acceptance of the equipment installation, the Contractor shall furnish the Engineer a written guarantee stating that all equipment installed under this Section free from defects. The guarantee shall be for a period of one (1) year from the date of final acceptance of the work. Any part of the equipment that becomes defective during the term of the guarantee shall be replaced, renewed and/or made good by the Contractor, at his own expense and in a manner satisfactory to the Engineer.

Guarantees made by the approved manufacturers or suppliers beyond one year, shall be transferred to PPA without any expense on his part.

CLEANING UP

Upon completion of the work, all parts of the installation shall be thoroughly cleaned of grease, metal cuttings and sludge which may have accumulated during the testing operation.

PLUMBING, FIXTURES AND TOILET ACCESSORIES INSTALLATION

All installation works shall be as shown on the drawings and shall conform to the applicable standards set forth by the Philippine National Plumbing Code. All fixtures shall be fastened and/or supported in accordance with the given requirements.

E. Electro/Mechanical Works

Scope of Work

a) The work to be done shall consist of supply, deliver and install electro / mechanical materials completed in accordance with all the details of the electrical and mechanical plans as shown on the drawing. It includes materials, labor, tools and equipment and all incidental works as found necessary.

b) Refer to electro / mechanical plans for location and extent of work involved.

General Requirement

a) All works shall be done in accordance with the requirements of the publications and agencies having jurisdiction, as well as the requirements of the approved standards.

1. National Fire Protection Association - (NFPA)

2. National Electrical Manufacturer Association - (NEMA)
3. Underwriter Laboratories, Inc. - (UL)
4. Philippine Electrical Code Part 1 (2017)-(PEC) Philippine National Standard - (PNS)
5. Federation Specification: Circuit Breaker, Molded Case, Branch Circuit and Service
6. American National Standard Institute - (ANSI)
7. American Society for Testing and Materials - (ASTM)
8. Illuminating Engineering Society - (IES)
9. Light Emitting Diode - (LED)

b) The electrical power shall be connected to the nearest existing supply of PPA electrical room. The Contractor shall coordinate the exact route of wires and cables to the assigned Engineer. The required supply of 230 volt, three (3Ø) phase, 3 wire + grounding, 60 hertz, A.C.

c) The Contractor shall employ a licensed Registered Electrical Engineer or Master electrician to perform or supervise the conduct of continuous inspection of all electrical work.

d) The Contractor shall first obtain approval from the Authority before procurement, or delivery of electrical materials to the site.

e) The materials and equipment to be furnished shall be standard products of reputable manufacturer engaged in the reproduction of such materials and equipment.

f) All permits and electrical fees required for this work shall be obtained at the expense of the Contractor. The Contractor shall furnish the Engineer-in-Charge, the final Certificates of Inspections and approval from the authorities after the completion of work. The Contractor shall prepare all as- built plans and all other paper works as required by the enforcing authorities.

Material Requirement

a) All electro /mechanical works, and equipment under by this Contract shall be furnished and installed by the Contractor.
b) All materials and equipment to be supplied shall be as shown in the drawings and shall be in accordance with the requirements of these specifications which shall apply to manufacturing, testing and supply of same materials and equipment.
c) All electro / mechanical materials whether specifically described or not shall be of the best grade and all workmanship shall be of first class in every aspect.
d) All electro /mechanical equipment and materials supplied shall be suitable in every aspect for operation in a hot tropical climate near the sea and suitable for operation at ambient temperature up to 40° C.
e) Any materials and equipment found not meeting the requirements of relevant standards, or of these specifications shall be rejected by the Engineer.
f) All electro / mechanical materials used in this Contract shall meet the requirements described in the electrical plans, or otherwise approved by the Engineer and shall comply with the approved standard.

WIRING METHOD

a) Wiring in IMC conduits, shall be employed. Detailed installation requirements recommended by the latest edition of the Philippine Electrical Code (PEC).
b) Conduits shall be continuous from outlet to outlet to panel junction or full boxes and shall enter and be secured to all boxes from point of service to all outlet terminals.
c) Branch circuits shall be installed as shown in the plans.
d) Outlet shall be located approximately as shown in the plans and shall be properly positioned where located in the panel work or other special interior finish.
e) The duplex convenience outlet and other several outlets, special purpose outlet, etc., shall be installed as shown in the plans.
f) The switches shall be of the flush /tumbler type. It shall be installed as shown in the plans. Switches denotes the no. of gang.
g) Wires and cables, the material to be furnished and installed shall be of copper wire Heat Resistant

Thermoplastic Type "THHN". All conductors shall be rated 600 volts insulation and shall be standard for all sizes.

h) Lighting fixtures and accessories shall be installed as illustrated in the plans.

i) Panel board, shall be of the ratings and configurations as shown in the drawings.

j) Air conditioning system, Ceiling Cassette type acu with inverter has a 4-way air distribution with auto sweep, it can cool an adjacent room using of the 4 way air flow outlets. The fresh air intake device and additional outlet grill can condition the air in an adjoining room using one of its 4 ways airflow side. Ceiling cassette air condition shall furnish and installed including accessories as shown in the drawings.

k) Kitchen exhaust fan / auxiliary fan shall be installed as shown in the plans

l) The auxiliary system like, telephone, smoke detector etc., shall be installed as shown in the plans.

Execution

a) The Contractor shall furnish and install electro /mechanical works as shown in the drawings. A licensed Registered Electrical Engineer or Master Electrician is required to implement the installation of the electrical system.

b) Electrical installation shall conform to the requirements of Philippine Electrical Code (PEC) and the other approved standards.

c) The contractor shall install all electrical works with the supervision of the qualified Registered Electrical Engineer (REE) or Master Electrician. All electro/mechanical works installation/ applications regardless of capacity and voltage whether new, addition or revision shall be accompanied by electrical plans signed and sealed by a duly licensed Professional Electrical Engineer (PEE).

WORKMANSHIP

The work throughout shall be executed in the best and most thorough manner under the direction of and at the satisfaction of the Registered Electrical Engineer or Master Electrician, who will interpret the intent meaning of the drawings and specification and shall have the power to reject any work and materials which in his judgement, are not in full accordance therewith.

TESTING OPERATIONS

When the electro / mechanical installation is completed, the Contractor shall test the installed electrical materials and equipment in the presence of Registered Electrical Engineer or Master Electrician. The system shall be free from any defects, shorts or grounds. The Contractor at no extra cost shall furnish all necessary instruments and personnel required for the testing to the Authority.

GUARANTEE

Upon completion and before final acceptance of the work, the Contractor shall furnish the Engineer a written guarantee stating that all works executed are free from defects on materials and workmanship. The guarantee shall be for a period of one year from the date of the final acceptance. Any work that becomes defective during the said period shall be corrected / replaced by the Contractor at his own expense in a manner satisfactory to the Authority.

AS-BUILT DRAWINGS

Upon completion and before final acceptance of work, the Contractor shall prepare, at his own expense, submit to the Engineer as-built drawings incorporating all approved changes, omissions and/or addition to the contract drawings, six (6) printed copies of as-built drawings together with their reproducible originals at no extra cost to the Authority.

F. Masonry 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

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:

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 with the requirements of ASTM C 129. Unless otherwise specified on the Drawings, It shall have a minimum compressive strength of 4.14 MPa (600 psi). CHB shall be non-load bearing uniform and essentially smooth as normally achieves 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 set forth 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 type and dosage recommended by the manufacturer.

REINFORCING STEEL BARS AND RODS

Minimum yield strength of reinforcement shall conform with the specifications in Section of Reinforced Concrete.

SAMPLES AND TESTING

1. The following shall be submitted for approval and in addition, representative samples shall be taken periodically from on-the-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 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.

Execution

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. 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 final position while 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.

2. Anchorage to concrete. Anchorage to abutting columns shall be provided only where indicated. Details shall be as indicated including anchorage to 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 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. 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 final position within one hour after mixing. Mortar not used or that has started to set within this time interval shall be discarded.

7. 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 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.

8. 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

Splices shall be located only as indicated. Splices shall be staggered in adjacent bars at least 600mm. Bars shall be lapped a minimum of 40 diameters of the reinforcement.

PAINTING AND CLEANING

Mortar daubs or splashing, before setting or hardening, shall be completely removed from masonry unit surfaces that will be exposed or painted. Before completion of the work, all defects in joints or masonry to be exposed or painted shall be raked out as necessary, filled with mortar, and tooled to match existing joints. Masonry surfaces shall not be cleaned, other than removing excess surface mortar until mortar in joints has hardened. Masonry hardened surfaces shall be left clean, free of mortar daubs, dirt, stain and discoloration, including scum from cleaning operations and with tight mortar joints throughout. Metal tools and metal brushes shall not be used for cleaning.

G. Painting

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

This Section covers the surface preparation, coating materials and application of coatings systems required for the Works.

The work shall consist of furnishing of all labor, materials, equipment and other incidentals necessary

for the supply of painting materials and the complete painting of surfaces as shown on the drawings in accordance with this Specification and as directed by the Engineer.

The term paint as hereinafter used includes emulsion paints, varnishes, oils, pigments, thinner and dryers.

All exposed metal surfaces, except metal surfaces embedded in concrete, shall be painted unless otherwise specified.

STANDARD

The following publications listed below, but referred to thereafter by basic designation only, forms a part of these Specifications to the extent indicated by the reference thereto:

Steel Structures Painting Council (SSPC) U.S. Specification JIS K 5628 Red-lead Zinc Chromate Anti-Corrosive Paint.

SUBMITTAL

1. The Contractor shall submit work method statements with lists of materials to the Engineer for approval twenty-eight days before the starting of works. This statement shall include following items:

   a. Type of paint and manufacturer
   b. Manufacturer's specifications
   c. Storage and delivery of materials
   d. Surface preparation
   e. Finish painting and drying
   f. Touch-up painting, if any
   g. Equipment

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

STORAGE AND DELIVERY

1. The Contractor shall deliver all material to the site in the original labeled sealed cans and containers, with labels intact and seal unbroken.

a. Seals shall remain unbroken until after inspection and acceptance of material by the Engineer.

b. The Contractor shall deliver materials in ample quantities sufficiently in advance of the need to avoid any delay or interruptions in the works.

2. Paint in thinner shall be stored in accordance with the approved manufacturer's instructions.

a. All regulations required for storage of paint shall be observed and all necessary safety signs required by governing codes shall be posted.

b. Any damage caused by failure to exercise proper precautions in paint storage shall be repaired.

MATERIAL REQUIREMENTS

PAINT

Paints for the protective coating system shall be the product of a manufacturer approved by the Engineer.

Paints for exterior finish must be with tile like durability and elegance, fast drying, solvent based acrylic, highly suitable for coastal or polluted areas with excellent anti-fungus properties and alkali resistance.

100% Acrylic, water based, quick-drying, easy to clean-up and environmentally friendly, resist dirt, stains, alkali, water, humidity, algae, mold and mildew growth and highly durable paint for interior finish.

An all-purpose synthetic quick dry paint for all types of wood and metal surfaces. It has high gloss, good color retention and outstanding durability.

For pipes, valves and equipment, galvanized and ungalvanized ferrous metal, use a 100% acrylic gloss paint, has excellent resistance to ultraviolet rays and resists chalking, cracking and color fading, dries fast and environmentally friendly.

SCHEDULE OF PAINTING

Architectural Items	
a. Exterior Finishes	
1. On Concrete Walls	
Three Coats, Concrete Masonry Paint	Elastomeric Paint or approved equal
2. Unprimed Ferrous Metal	
First Coat	Red Oxide Primer, or approved equal
Second & Third Coat	Quick Dry Enamel
3. On Concrete Block Wall	
Masonry Neutralizer	Masonry Neutralizer
Three Coats Concrete Masonry Paint	Elastomeric Paint
4. On Wood	
First Coat Exterior Wood Primer	Flatwall Enamel
Second & Third Coat Exterior enamel	Quick Drying Enamel
b. Interior Finishes Location of the various finishes are listed in the Finish Schedule on the drawings or else will be confirmed by PPA	
1. On primer and coated metal two coats of interior semi-gloss enamel or as indicated in the Schedule finish	Red Oxide Primer Quick Dry Enamel
2. On Plaster	
First Coat	Masonry Neutralizer
Three Coats	Latex Paint in eggshell finish

3. On Wood	
First Coat Enamel undercoater	Flatwall Enamel
Second & Third Coat Exterior enamel	Quick Drying Enamel
4. Wood Stain Finish	
First Coat Second & Third Coats Fourth & Fifth Coats	Oil Wood Stain , Lacquer Sanding Sealer Clear Gloss Lacquer
c. Non – Architectural Items (Piping, valves, equipment, etc.)	
1. Piping, valves, equipment etc. in rooms are to be painted	
2. Galvanized pipes and ducts	
Primer – one coat Finish – one coat	Red Oxide Primer, Quick Dry Enamel
3. Black steel pipes	
Primer – one coat Finish – one coat	Red Oxide Primer, Quick Dry Enamel
4. Mechanical Items	
a. Ungalvanized ferrous metal Primer – one coat Finish – one coat	Red Oxide Primer, Quick Dry Enamel
b. Galvanized ferrous metal Primer – one coat Finish – one coat	Red Oxide Primer, Quick Dry Enamel
c. Submerged galvanized ferrous metal Primer – one coat	Red Oxide Primer,
d. Buried miscellaneous ferrous surface valves, & flanged joints (excl. pipe)	

Primer – one coat	Red Oxide Primer,

EXECUTION

SURFACE PREPARATION OF STEEL

1. Steel surfaces shall be cleaned as follows:

   a. All round welds, burrs and sharp surface projections shall be ground smooth and all weld splatter shall be removed prior to blast cleaning.

   b. Sand abrasives, if used, shall be clean, and free from salt and extraneous matter. The sand shall pass through a 2.0mm test sieve, and be substantially retained on a 0.18mm test sieve, with at least 25 percent retained on a 0.355mm test sieve.

   c. Metallic abrasive, if used, shall be sharp, hard and free from dust, and shall pass through a 1.8 mm test sieve.

   d. Blast cleaning operations shall not be conducted on surfaces that will be wet after blasting and before coating, or when the surfaces are less than 10°C above degree points, or when the relative humidity of the air is greater than 95 percent.

   e. Any oil, grease, soil, dust or other foreign matter deposited on the cleaned surfaces shall be removed prior to painting. In the event that rusting occurs after completion of the surface preparation, the surfaces shall be cleaned again in accordance with the specified method.

   f. Particular care shall be taken to prevent the contamination of other corrosive chemicals before the application of the paint. Such contamination shall be removed from the cleaned surface by flash blasting and the paint applied immediately.

g. Care shall be taken to prevent contamination of cleaned and painted surfaces by cleaning operations in an adjacent area.

h. Surfaces not to be painted shall be suitably protected from the effects of cleaning and painting operations.

SURFACE PREPARATION OF WOOD

1. Wood surfaces shall be sanded to a fresh surface. Surface mould where present, shall be removed by washing, rubbing down and burning off as necessary. Resinous exudation and large knots shall be removed and replaced with filler or other materials approved by the Engineer.

2. Parts of timber to be enclosed in walls shall always be primed unless already impregnated. Priming shall be brushed on and a minimum of two coats applied to end grain. When the priming paint is hard, all cracks, holds, open joints, etc. shall be made good with hard stopping and rubbed down with fine abrasive paper. Priming of joinery shall be applied only on site after the Engineer has approved such joinery and before it is fixed. For internal surfaces primer coats shall be carefully flatted.

SURFACE PREPARATION OF CONCRETE AND PLASTER

Concrete and cement plaster surfaces to be painted shall be prepared by removing efflorescence, dust, dirt, grease, oil, asphalt, tar, excessive mortar and mortar dropping and by roughening to remove glaze. A zinc sulfate solution shall be applied before prime cost.

SURFACE PREPARATION FOR FIBER CEMENT SURFACES

Shall be dry and clean prior to application of the specified first-coat material. Oil, grease, or rust stains shall be carefully removed by the use of suitable solvent. Wire brushing will not be permitted. After the first coat has become dry and prior to application of finish coats, touch-up coats shall be applied to suction spots.

ALUMINUM FRAMES FOR DOORS AND WINDOWS

All metal surfaces shall undergo pre-treatment process which includes: desmutting, water-rinsing, degreasing/etching, water rinsing, zinc phosphating, water rinsing and acid rinsing.

Powder coating application, shall be factory applied and shall be done in one operation using an electro-static powder gun. The materials to be coated should be well connected to earth. Coating thickness should be kept to a minimum of 60 microns for exposed areas. On details which are to be treated mechanically after coating (drilling, sawing, etc.), the coating film must not exceed 100 microns.

The powder coating shall be oven cured in the range of 20 minutes at 220° C (metal temperature measured on the area with greatest metal thickness). The temperature variation in the oven should not exceed +/- 10° C.

Handling

Coated items should be cooled to no less than 40° Centigrade before handling. Precautions should be taken to avoid damages on the finished coating during stacking, storing and transportation.

Storage and Delivery

Inspect materials delivered to the site for damage. Unload and store with minimum handling. Provide storage space in dry location with adequate ventilation, free from dust or water and easily accessible for inspection and handling. Store materials neatly on the floor, properly stacked on non-absorptive strips or wood platforms. Protect finished surfaces during shipping and handling using manufacturer's standard method.

WOOD REPAIR

Badly decayed areas shall be removed and repaired. Areas and pieces decayed beyond repair shall be replaced with new pieces that match originals in all respects. Moderately decayed areas, weathered, or gouged wood shall be patched with approved patching compounds, and shall be sanded smooth. The source or cause of wood decay shall be identified and corrected prior to application of patching materials. Wet wood shall be completely dried to a moisture content not

exceeding 12 percent, as measured by a moisture meter, to its full depth before patching, unless otherwise authorized. Wood that is to be patched shall be clean of dust, grease, and loose paint.

1. Epoxy Wood Repair

   Epoxy wood repair materials shall be applied in accordance with manufacturer's written instructions. Health and safety instructions shall be followed in accordance with the manufacturer's instructions. Clean mixing equipment shall be used to avoid contamination. Mix and proportions shall be as directed by the manufacturer. Batches shall be only large enough to complete the specific job intended. Patching materials shall be completely cured before painting or reinstallation of patched pieces.

2. Epoxy Consolidant and Epoxy Paste

   Epoxy liquid wood consolidant shall be used:

   1. To penetrate and impregnate deteriorated wood sections in order to reinforce wood fibers that have become softened or absorbent.

   2. As a primer for areas that are to receive epoxy paste filler. Epoxy paste shall be used to fill areas where portions of wood are missing such as holes, cracks, gaps, gouges, and other voids.

MIXING AND THINNING

Mixing and thinning of paint shall be done in accordance with the approved manufacturer's printed instructions. The pot life of each paint as stated by the manufacturer shall not be exceeded.

WEATHER CONDITION

The paint shall not be applied when the relative humidity is above 85 percent. The paint shall not be applied in rain, wind, fog, dust or mist.

APPLICATION

Workmanship shall be first class in every respect. All work shall be done in a workmanship manner so that the finished surfaces shall be free from runs, chop, ridges, waves, laps and unnecessary brush marks. All coats shall be applied in such manner as to produce an even film of uniform thickness. Edges, corners, crevices, welds and rivets shall receive special attention to ensure that they receive an adequate thickness of paint.

All painting shall be done by thoroughly experienced workmen.

Safety regulations shall be adhered to at all times, including the wearing of respirators by persons engaged on assisting in spray painting. Adjacent areas and installation shall be protected by the use of cloths or other approved precautionary measures.

Plain enamel and varnish shall be applied carefully with good clean brushes or approved spraying equipment, except that the initial coat on any surface shall be applied with brush. Sufficient time shall be allowed between coats to assure thorough drying and each coat shall be in proper condition before receiving the next coat.

Sanding and dusting as required shall be performed between coats in varnishing work. Finish coat shall be smooth and free from runs, sags, and other defects. Exterior paint shall not be applied during rainy days.

All paint when applied shall provide a satisfactory film and smooth, even surface. Paint shall be thoroughly stirred and kept at a uniform consistency during application. Powdered metallic pigments added at the time of use shall be mixed by adding the powder in small increments to about one-third of the base paint or vehicle, with thorough mixing to obtain a smooth paste. The remainder of the base paint shall then be thoroughly stirred in.

Different brands of emulsion paints shall not be mixed prior to application of the materials.

Where necessary to suit conditions of surface temperature, weather and method of application, the package paint may be thinned immediately prior to application in accordance with the approved manufacturer's directions, but not in excess of 125 cc of

suitable thinner per liter (one pint per gallon). Before using, the paint shall be mixed to a uniform consistency and shall be stirred frequently during application.

Paints other than water-thinned paints shall be applied only to surfaces which are completely free of moisture as determined by sight or touch and only such combinations of humidity to be painted as will cause evaporation rather than condensation.

Surfaces which have been cleaned, pretreated and/or otherwise been prepared for painting shall be primed or painted with one coat of finish paint as soon as practicable after such preparation has been completed, but in any event prior to any deterioration of the prepared surfaces.

The first coat of paint on all exterior surfaces shall be applied by brush. Interior prime coats and all other subsequent coats on either exterior or interior surfaces may be applied by brush or spray. Whenever spraying is permitted all areas inaccessible to spray painting shall be coated by brushing or other suitable means. Brushes to be used for application of water-emulsions shall be soaked in water for a period of 2 hours prior to use.

All cloths and cotton waste which might constitute a fire hazard shall be placed in closed metal containers or destroyed at the end of each day.

Upon completion of the work, all staging, scaffolding, and containers shall be removed from the site or destroyed in a manner approved by the Engineer. Paint spots, or stains upon adjacent surfaces shall be removed and the entire job left clean and acceptable to the Engineer.

No smoking shall be permitted in the vicinity where painting is going on.

TOUCH-UP PAINTING

Touch-up painting shall be done with the same paint as used for the original coat. The resulting minimum dry film shall be the same as for the original coat.

Touch-up painting shall include cleaning and painting of field connections, welds and all damaged or defective paint and rusted areas.

During touch-up painting, only loose, cracked, brittle or non-adherent paint shall be removed during cleaning. All exposed edges shall be feathered. Touch-up painting shall be performed in a manner which will minimize damage to sound paint. Rust spots shall be thoroughly cleaned and edges of the existing paint shall be scraped back to sound material.

DRYING

1. No primer or paint shall be forced to be dried under conditions which will cause cracking, wrinkling, blistering, formation of pores which would detrimentally affect the condition of the paint.

2. No drier shall be added to the paint unless specified in the approved manufacturer's instructions.

3. Painted surfaces shall be protected from dust, dirt, and the elements of the weather until dry to the fullest extent practicable.

4. After drying, any areas of paint damaged from any cause shall be removed, the surface again prepared and then touched-up with the same paint and to the same thickness as the undamaged areas as specified in sub-section 4.14.3.7 above.

HANDLING

1. Precautions shall be taken to minimize damage to paint films resulting from stacking for drying.

2. Paint which is damaged in handling shall be scraped off and touched-up with the same paint and in the same thickness as was previously applied to the damaged area at Contractor's expense.

INSPECTION

1. All works and materials supplied under this Specification shall be subject to inspection by the Engineer.

2. The Contractor shall correct such works or replace such materials found defective under

these Specifications at his own expense.

H. Supply, Relocation and Instalation of Sprinkler Head

GENERAL

This Item shall consist of furnishing, relocation and installation of sprinkler head including testing, commissioning, provisions for new accessories and replacement of broken parts.

The works shall be conducted in accordance to the specifications, codes and requirements of the following:

1. Revised Fire Code of the Philippines
2. National Fire Protection Association (NFPA) 10, 13, 14 and 20
3. Ordinances of concerned city or municipality

MATERIAL REQUIREMENTS

All new materials shall be standard and good quality product of reputable manufacturer.

All existing materials and accessories to be incorporated in the project shall passed with the testing and commissioning under the supervision of the Engineer.

Defective materials shall be replaced/corrected in accordance to the requirements of this specifications and the approved quality control program.

GUARANTEE

The Contractor shall guarantee that the Fire Protection system is free from all defective workmanship and materials and will remain so for a period of one (1) year from date of acceptance of the work by the Owner or the Architect. Any defect, appearing within the aforesaid period shall be remedied or replaced by the Contractor at his own expense.

EXECUTION

Workmanship

The work throughout shall be executed in the best and most thorough manner to the satisfaction of the Architect and the Engineer, who will jointly interpret the meaning of the drawings and specifications and shall have the

power to reject any work and materials, which in their judgement, are not in full accordance therewith.

The Contractor shall assume unit responsibility and shall provide the services of a qualified Engineer to supervise the complete installation of equipment and systems and who shall be available for conducting the final acceptance tests.

Preparation

Examine all surfaces which are to support or receive parts place and subsequent construction. Notify General Contractor if any condition exists which will prevent the completion of the Work in this Section in a satisfactory manner. Application or installation of materials constitutes acceptance of the supporting and adjoining construction.

Cleaning

Swab-out lines and/or flush out system with fresh water until they are clean and water runs clear at all outlets.

Acceptance Test

All tests required in the commissioning and testing works shall be passed under the supervision of qualified Engineer or Architect. All necessary documents required in the approved quality control program shall be submitted to PPA with issued warranty.

I. Exhaust and Fresh Air Ducting System (Ventilation System)

Scope of Work

The work to be done shall consist of fabrication, delivery and installing of Exhaust and Fresh Air Ducting System (Ventilation System). It includes materials, labor, tools, equipment, quality assurance and all incidental works as found necessary.

General Requirement

1. The general ventilation through the kitchen has to introduce sufficient clean, cool air and remove excess hot air for the occupants to breathe adequately and remain comfortable.

2. The general ventilation has to provide sufficient air for complete combustion at burning appliances.
3. The general and local ventilation has to dilute and remove products of combustion from gas and oil fired appliances.
4. The general and local ventilation has to dilute and remove odors, vapors and steam from the cooking processes.
5. Local ventilation has to protect against particular hazards to health arising from some cooking fumes, such as those involving direct application of heat to the food.
6. The local ventilation has to be capable of being kept clean from fat residues to avoid loss of efficiency and fire risks.
7. The system has to be quiet and vibration free.
8. Canopies and ductwork need to be constructed from non-combustible material and fabricated so as not to encourage accumulations of dirt or grease, nor allow condensation to drip from the canopy. The ductwork needs suitable access for cleaning and grease filters need to be readily removable for cleaning/replacement.

Air Flow and Makeup Air

Air that is removed from the kitchen through an exhaust hood must be replaced with an equal volume of makeup air to dilute gas temperatures and to manage building air pressures.

The makeup air replenishment can be either through the transfer air from the adjacent spaces or by use of integral supply with hood.

The supply air must be filtered so as to remove airborne contaminants. Makeup air must be tempered when necessary to:

1) Prevent condensation from being a sanitation or cross-contamination problem;

2) Promote comfortable conditions; and

3) Comply with the applicable building code

Exhaust Fan

Exhaust fans shall be in accordance with NFPA Considerations. The National Fire Protection Association (NFPA) specifies minimum distance criteria for kitchen exhaust and supply fans.

Exhaust Ducting

The routing of exhaust duct is controlled by codes which require that the duct leading to the exterior of the building be the most direct possible route. Horizontal exhaust duct should be pitched either toward the hood or toward a clean out sump located at the lowest point.

1) Ducting shall be installed in compliance with local building and fire codes.
2) Exhaust ducts from hoods shall be totally separated from all other ventilation systems.
3) If the hood length exceeds 12 feet, it is necessary to provide two discharge ducts from the top of the hood to the main exhaust duct. For listed hoods, refer to the manufacturer's installation and operating conditions to determine if a distance of greater than 12 feet between ducts is permitted.
4) A fully welded 16 gauge black iron or 18 gauge stainless steel is required by NFPA. Square or rectangular ducts are most common to meet the "fully welded construction" requirement. A circular duct requires a smaller space. If rectangular ducts are used, they should be as nearly square as possible.
5) All seams and joints shall have a liquid-tight, continuous external weld.
6) The duct take-off at the top of the hood should be transitioned. This will reduce the entrance loss and resistance offered to airflow at the ducting entrance point.
7) The bends and elbows of the ductwork should be kept at a minimum. When elbows are used, a radius of 2 to 2 1/2 times the duct diameter is recommended. This will minimize the resistance against which the blower must move the air.
8) Exhaust ducts should not be installed closer than 18" to combustible surfaces. The clearance requirements may be reduced by shielding the combustible materials with fire rated material. NFPA 96 allows joints in ductwork to be made

with companion flanges and high temperature seals. However, some counties require all joints to be fully welded.

9) Properly designed clean out ports must be provided at specified distances and at each change of direction in the duct run. Cleanout access panels should be located on the sides of the duct with the bottom edge of the opening not less than 1" from the bottom of the duct.

Testing

Test and balance is the final step in assuring that a project meets the design and engineering criteria. The contractor which furnished the exhaust fans and the makeup air unit to do the test and balance.

As-Built Plans

Detailed as-built plans showing all the necessary drawings shall be provided by the contractor before the issuance of Certificate of Project Completion.

J. Kitchen Equipment

Scope of Work :

Supply, Installation, Testing, Commissioning of Canteen equipments.

1. Soiled Dish Landing table with Partial Plain Bottom Shelf

Dimension - 1400mm W x 600mm D x 850mm H x 150mm BS

- Use 16 ga. 1.5mm thick T-304 Stainless Steel 25mm high depressed top plate, standard 90° bend nosing 50mm thick and back splash 38mm thick x 150mm Ht.
- 18 ga. 1.2mm thick T-430 Stainless Steel stiffener
- 20 ga. 0.8mm thick T-304 Stainless Steel partial plain bottom shelf
- 1.2mm thick x 1" dia. T-202 Stainless Steel partial tubular support bracing
- 1.2mm thick x 1-1/2" dia. T-202 Stainless Steel tubular leg support on adjustable bullet type feet
- 2" dia. Adjustable Stainless Steel Leg Socket Model PS-307
- With 1-pc. Rubber scrap block

2. 2- Compartment Sink Table with Tubular Bracing
Dimension : 1820mm W x 600mm D x 850mm H x 150mm BS

- Use 16 ga. 1.5mm thick T-304 Stainless Steel 19mm high depressed top plate, standard 90° bend nosing 50mm thick and back splash 38mm thick x 150mm Ht.
- 18 ga. 1.2mm thick T-304 Stainless Steel sink bowl 450mmL x 500mmW x 250mm deep
- 18 ga. 1.2mm thick T-202 Stainless Steel stiffener
- 1.2mm thick x 1" dia. T-202 Stainless Steel tubular support bracing
- 1.2mm thick x 1-1/2" dia. T-202 Stainless Steel tubular leg support on adjustable bullet type feet
- 2" dia. Adjustable Stainless Steel Leg Socket Model PS-307

- With 1-set 4" dia. Basket strainer with tail piece
- 1-set 1-1/2" dia. Metal Chrome P-trap

-Wall Mount Double Pantry Faucet
-Wall mounted pantry faucet
- 8" (203mm) centers
- Swivel goose neck with P3
- 1/2" NPT eccentrice flanged female inlets
- P3 = 5-11/16" (145mm) x 10-3/8" (264mm) x 6-3/8" (162mm)

3. Stainless Steel Grease Trap
Dimension : 500mm W x 400mm D x 300mm H

- Use 20 ga. 1.0mm thick T-304 Stainless Steel grease trap body with partition panel and top cover
  with rubber gasket, lock set and pre-fabricated rod handle
- 20 ga. 0.8mm thick T-202 Stainless Steel pre-fabricated perforated grease filter
- 2" dia. x 1.2mm thick T-202 Stainless Steel tubular inlet and outlet connections

4. Slotted Double Over Head Wall Mounted shelf
Dimension : 1820mm W x 350+25mm D x 150+38mm H

-Use 18 ga. 1.2mm thick T-304 Stainless Steel horizontal framing for slotted wall shelf
- 20 ga. 0.8mm thick T-304 Stainless Steel slotted wall shelf

	- 16 ga. 1.5mm thick T-202 Stainless Steel pre-fabricated bracket at required spacing	
	5. Work Table With Plain Mid And Bottom Shelves Dimension : 1220mm W x 600mm D x 860mm H x 150mm BS - Use 16 ga. 1.5mm thick T-304 Stainless Steel top plate, standard 90° bend nosing 50mm thick - 18 ga. 1.2mm thick T-202 Stainless Steel stiffener - 20 ga. 0.8mm thick T-304 Stainless Steel plain mid and bottom shelves - 1.2mm thick x 1-1/2" dia. T-202 Stainless Steel tubular leg support on adjustable bullet type feet - 2" dia. Adjustable Stainless Steel Leg Socket Model PS-307	
	6. Plain Double Over Head Wall Mounted Shelf Dimension : 1220mm W x x 350+25mm D x 150+38mm H -Use 18 ga. 1.2mm thick T-304 Stainless Steel plain double over head wall mounted shelves with standard 90° bend nosing 38mm thick and back splash 25mm thick x 50mm Ht. - 16 ga. 1.5mm thick T-202 Stainless Steel pre-fabricated bracket at required spacing	
	7. 4- Open Top Low Pressure Gas Range with Plain Bottom Shelf Dimension : 610mm W x 760mm D x 860mm H x 150mm BS - Use 18 ga. 1.2mm thick T-304 Stainless Steel standard 90° bend nosing 50mm thick, control panel removable drip tray handle and back splash 50mm thick x 150mm Ht. - 18 ga. 1.2mm thick T-202 Stainless Steel stiffener - 20 ga. 0.8mm thick T-202 Stainless Steel 220mm high apron side panel, U-bend back panel and removable drip tray - 20 ga. 0.8mm thick T-304 Stainless Steel plain bottom shelf 3/16" thick x 1-1/2" x 1-1/2" M.S. angular burner support - 1.2mm thick x 1-1/2" dia. T-202 Stainless Steel tubular leg support on adjustable bullet type feet With: - 4-pcs. Cast-Iron Square top grates 305mm x 305mm	

- 4-sets Low Pressure LTC-B002A Burner with air Shutter
- 4-sets Low Pressure 1/4" N.P.T. Gas valve with knob
- 4-pcs. Pilot Shut-Off Vave with Pilot Tip
- Embedded on a 3/4" dia. B.I. Gas manifold pipeline with brass fittings

8. 2- Open Top Low pressure Burner with Plain Bottom Shelf – Range Type

Dimension : 1200mm W x 760mm D x 760mm H x 150mm BS

- Use 16 ga. 1.5mm thick T-304 Stainless Steel 38mm high depressed top plate, standard 90° bend nosing 50mm thick, 250mm x 64mm drain canal with 2" dia. Stainless Steel tubular outlet connection and back splash 50mm thick x 250mm Ht.
- 18 ga. 1.2mm thick T-202 Stainless Steel stiffener
- 18 ga. 1.2mm thick T-304 Stainless Steel control panel and removable drip tray handle
- 20 ga. 0.8mm thick T-202 Stainless Steel 250mm high apron side panel, U-bend back panel and removable drip tray
- 20 ga. 0.8mm thick T-304 Stainless Steel plain bottom shelf
- 20 ga. 0.8mm thick T-202 Stainless Steel perforated drain canal cover
- 3/16" thick x 1-1/2" x 1-1/2" M.S. angular top plate and burner support
- 1.2mm thick x 1-1/2" dia. T-202 Stainless Steel tubular leg support on adjustable bullet type feet

With :

- 2-pcs. Cast-Iron Square top grates 430mm x 430mm
- 2-sets Low Pressure 3-Ring burner LTC-B13 with Air Shutter
- 2-sets Low Pressure 1/4" N.P.T. Gas Valve with Knob
- 2-pcs. Pilot Shut-Off Vave with Pilot Tip
- Embedded on a 3/4" dia. B.I. Gas manifold pipeline with brass fittings

9. Wall Mounted – Exhaust Hood Canopy

Dimension : 2010mm W x 900mm D x 510mm H

- Use 20 ga. 1.0mm thick T-202 Stainless Steel frontal hood panel, drain gutter, side panel, hoodback panel, interior filter divider and pre-fabricated electrical junction box
- 18 ga. 1.2mm thick T-304 Stainless Steel pre-fabricated oil cup

With:
- 2-sets Vapor Proof Lamp with fixtures, glass and CFL light bulb
- 1-pc. On-Off Control Switch
- 4-pcs. Stainless Steel Baffle type filter 500mmL x 500mmW x 42mm thick Model PS-315A
- And other electrical connections

10. Work Table With Plain Mid And Bottom Shelves

Dimension : 1175mm W x 600mm D x 860mm H x 150mm BS

- Use 16 ga. 1.5mm thick T-304 Stainless Steel top plate, standard 90o bend nosing 50mm thick and back splash 38mm thick X 150mm Ht.
- 18 ga. 1.2mm thick T-202 Stainless Steel stiffener
- 20 ga. 0.8mm thick T-304 Stainless Steel plain mid and bottom shelves
- 1.2mm thick x 1-1/2" dia. T-202 Stainless Steel tubular leg support on adjustable bullet type feet
- 2" dia. Adjustable Stainless Steel Leg Socket Model PS-307

11. Plain Double Head Wall Mounted Shelf

Dimension : 1175mm W x 350+25mm D x 150+38mm H

- Use 18 ga. 1.2mm thick T-304 Stainless Steel plain double over head wall mounted shelves with standard 90° bend nosing 38mm thick and back splash 25mm thick x 50mm Ht.
- 16 ga. 1.5mm thick T-202 Stainless Steel pre-fabricated bracket at required spacing.

12. Dispatching Table with Plain Mid and Bottom Shelf

Dimension : 1100mm W x 400mm D x 850mm H x 150mm BS

-Use 16 ga. 1.5mm thick T-304 Stainless Steel top plate, standard 90° bend nosing 50mm thick
- 18 ga. 1.2mm thick T-202 Stainless Steel stiffener
- 20 ga. 0.8mm thick T-304 Stainless Steel plain mid and bottom shelves
- 1.2mm thick x 1-1/2" dia. T-202 Stainless Steel tubular leg support on adjustable bullet type feet
- 2" dia. Adjustable Stainless Steel Leg Socket Model PS-307

13. 4- Layered Tubular Clean Dish Rack (Slotted)
Dimension : 900mm W x 500mm D x 1520mm H

- Use 18 ga. 1.2mm thick T-304 Stainless Steel horizontal framing for 4-layered slotted shelves
- 20 ga. 1.0mm thick T-304 Stainless Steel slotted shelves
- 1.2mm thick x 3/4" x 3/4" T-202 Stainless Steel square tubular slotted shelf support backing
- 1.2mm thick x 1-1/2" dia. T-202 Stainless Steel tubular leg support on adjustable bullet type feet

14. Pass Thru window Jamb with Ledge
Dimension : 600mm W x 400mm D x 350mm H

- Use 16 ga. 1.5mm thick T-304 Stainless Steel pass thru window with cladding

15. Heated Silver Ware Caddy 4- Holes
Dimension : 300mm W x 350mm D x 250mm H

-Use 18 ga. 1.2mm thick T-304 Stainless Steel top plate, nosing and bottom framing
- 20 ga. 0.8mm thick T-304 Stainless Steel exterior body panel and control panel
- 20 ga. 0.8mm thick T-202 Stainless Steel interior insulation support plate with 1" thick fiberglass wool insulation
- 1" dia. Adjustable Round Leg

With :
- 4-pcs. Stainless Steel Canister Jar 100mm dia. x 127mm depth
- 1-set Calrod Heater 4" dia. x 220V 2-Terminals
- 1-pc. Therm-O-Disc Control
- 1-pc. Rocker switch control
- 1-pc. Electric Pilot Light
- 1-pc. Male Plug 101 H.D. 2-prong
- And other electrical connections

16. Tray and Silver Ware Stand
Dimension : 600mm W x 700mm D x 850mm H

- 16 ga. 1.5mm thick T-304 Stainless Steel upper and lower top plate with standard 90° bend nosing 50mm thick
- 18 ga. 1.2mm thick T-202 Stainless Steel stiffener
- 20 ga. 0.8mm thick T-304 Stainless Steel upper and lower body panel
- 1-1/2" dia. x 1.2mm thick Stainless Steel
- Adjustable Square Leg Model PS-012AR

17. Food Warmer 5- Full Size Food Pan Capacity with Plain Bottom Shelf – Side Panel

Dimension : 1800mm W x 700mm D x 850mm H

- Use 16 ga. 1.5mm thick T-304 Stainless Steel top plate and standard 90° bend nosing 50mm thick
- 18 ga. 1.2mm thick T-202 Stainless Steel stiffener
- 20 ga. 0.8mm thick T-304 Stainless Steel side panel, frontal panel, control panel and plain bottom shelf
- 20 ga. 1.0mm thick T-304 Stainless Steel water tank assembly with 1-set 1" dia. Stainless Steel prefabricated drain with shut-off valve
- 1-1/2" dia. x 1.2mm thick Stainless Steel Adjustable Square Leg Model PS-012AR

With
- 1-set Flanged Type Immersion Heater 2500W x 220V
- 1-set Electric Thermostat Control 30 ~ 120°C range
- 2-pcs. Electric Pilot Light
- 1-pc. On-Off Control Switch (ROYU Japan)
- 1-pc. Male Plug 101 H.D. 2-prong
- And other electrical connections

Liquid Level Float Switch Model Frs-11h
Magnetic Contactor 20 Amps. Capacity 220/1p/60hz
Stainless Steel Food Pan Gn 1/1 X 4" Deep With Cover
Stainless Steel Food Pan Gn 1/2 X 4" Deep With Cover

18. Sneeze Guard – Tempered Curved Glass

Dimension : 1500mm W x 350mm D x 350mm H

- Use 18 ga. 1.2mm thick T-304 Stainless Steel sneeze guard top plate and standard 90° bend nosing 25mm thick
- 20 ga. 0.8mm thick T-304 Stainless Steel pre-fabricated glass clip
- 1.2mm thick x 1" x 1" Stainless Steel square tubular sneeze guard horizontal and vertical support post
- 1/8" thick x 1" Stainless Steel flat bar for curved glass support

With:
- 1-pc. Curved Glass 1/4" thick x 14" Arc Length x 70"L
- 1-set Electronic Type Fluorescent Tube with fixtures
- 1-pc. On-Off Control Switch
- And other electrical connections

19. Cold Pan – Ice Cooled with Plain Bottom Shelf
Dimension : 800mm W x 700mm D x 860mm H

- Use 16 ga. 1.5mm thick T-304 Stainless Steel top plate and standard 90° bend nosing 50mm thick
- 18 ga. 1.2mm thick T-202 Stainless Steel stiffener
- 20 ga. 0.8mm thick T-304 Stainless Steel 250mm high apron side panel with 38mm x 38mm pre-fabricated angular support post, control panel, plain bottom shelf and ice
tank assembly with 1-set 1" dia. Stainless Steel pre-fabricated drain with shut-off valve and
- 20 ga. 0.8mm thick T-430 Stainless Steel interior insulation support plate with 1" thick poly-urethane foamed-in-place insulation
- 1-1/2" dia. x 1.2mm thick Stainless Steel Adjustable Square Leg Model PS-012AR

20. Display Case
Dimension : 800mm W x 355mm D x 533mm H

-Use 18 ga. 1.2mm thick T-304 Stainless Steel display case top plate, standard 90° bend nosing
-25mm thick and clear glass support plate and clip
- 1.2mm thick x 1" x 1" Stainless Steel square tubular display case horizontal and vertical support post

With:
- 5-pcs. 1/4" thick Clear Glass
- 1-set Electronic Type Fluorescent Tube with fixtures
- 1-pc. On-Off Control Switch - 1-pc. Male Plug 101 H.D. 2-prong
- And other electrical connections

21. Neutral Counter Table with Plain Bottom Shelf
Dimension : 1600mm W x 700mm D x 860mm H

- Use 16 ga. 1.5mm thick T-304 Stainless Steel top plate and standard 90° bend nosing 50mm thick
- 18 ga. 1.2mm thick T-202 Stainless Steel stiffener
- 20 ga. 0.8mm thick T-304 Stainless Steel 250mm high apron side panel with 38mm x 38mm
-pre-fabricated angular support post, 75mm high U-bend back panel and plain
bottom shelf
- 1-1/2" dia. x 1.2mm thick Stainless Steel Adjustable Square Leg Model
PS-012AR

	22. Cashier Counter Table with one (1) Drawer Dimension : 700mm W x 700mm D x 860mm H - Use16 ga. 1.5mm thick T-304 Stainless Steel top plate, standard 90° bend nosing 50mm thick and bottom framing - 20 ga. 0.8mm thick T-304 Stainless Steel side panel, frontal panel and drawer assembly - 1" dia. x 1.2mm thick Stainless Steel tubular foot rest - 1-1/2" dia. x 1.2mm thick Stainless Steel Adjustable Square Leg Model PS-012AR With : - 1-set Heavy Duty Drawer guide with full extension 20"L - 1-set Heavy duty Drawer lock - 1-pc. Long Handle	
	23. Tubular Tray Slide 4- Rows Dimension : 5000mm W x 330mm D x 150mm H - 1" dia. x 1.2mm thick T-202 Stainless Steel tubular tray slide 4-rows - 16 ga. 1.5mm thick T-430 Stainless Steel pre-fabricated bracket at required spacing	
	24. Refrigerated Drinking Water Station – 2 Spout Dimension : 5000mm W x 330mm D x 150mm H - Use 16 ga. 1.5mm thick T-304 Stainless Steel 25mm high depressed top plate, 12mm dia. Semi bull nose standard 90° bend nosing 50mm thick and water tank assembly with 3/8" dia. Pre-fabricated coil type cooling coil copper tubing system and 2" thick polyurethane foamed-in-place insulation - 18 ga. 1.2mm thick T-202 Stainless Steel bottom framing - 18 ga. 1.2mm thick T-304 Stainless Steel over head glass shelf, drain tank assembly with 1-set -1" dia. Stainless Steel pre-fabricated drain with shut-off valve - 20 ga. 1.0mm thick T-304 Stainless Steel side panel, back panel frontal panel, removable frontal control panel with pre-fabricated motor compressor louver - 1-1/2" dia. x 1.2mm thick Stainless Steel Adjustable Square Leg Model PS-012AR Refrigeration:	

- 1-set 0.75 HP Capacity Air Cooled Condenser with 1/3 HP Hermetic Type Motor Compressor R134a refrigerant Medium and High Back Pressure Application 220V/1P/60Hz
- 1-set Pre-fabricated Coil type cooling coil copper tubing system
- 1-set Thermostat control for Chiller
- 2-sets Glass Filler Faucet with fittings
- And other electrical connections

25. 2- Solid Stainless steel Door Upright Chiller and Freezer

External Dimension : 760mm W x 760mm D x 2030mm H

Internal Dimension : 640mm W x 610mm D x 1500mm H

Temperature Chiller :	+2 ~ +8oC
Temperature Freezer :	0 ~ -18oc
Gross Volume Freezer :	0.27 m3
Gross Volume Chiller :	0.29 m3
Compressor Power :	1/3 hp
Compressor Type :	hermetic
Compressor brand :	embrace or approved quivalent
Compressor model :	2134gk
Refrigerant :	r404a
Condenser :	air-cooled 1.33hp capacity
System :	Forced Convection
Defrost system :	forced air circulation
Temperature Control :	digital

SHELVES (P.V.C.) : 4+1-pcs.

VOLTAGE CHARACTERISTICS : 220V/1P/60Hz

SUBMITTAL

1. Shop drawings for Equipments 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 order for the supply 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. Final electrical safety test, system test and calibration should be done by authorized person with test instruments.

4. All electrical accessories like cable wire, electrical outlets, switches etc, should be fire proof of reputed make, certified for electrical safety.

5. The contractor should provide test certificate for all materials and equipments used.

EXECUTION

All materials will be delivered and installed (if needed to be installed) on site.

K. Supply and Installation of Furniture (Tables, Chairs, Kiosks of Various Type Including Accessories

GENERAL

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