

**PHILIPPINE BIDDING DOCUMENTS**

**Procurement of  
INFRASTRUCTURE  
PROJECTS**

**CITY GOVERNMENT OF BATAAC**

**CONSTRUCTION OF SHOW ROOM BUILDING  
#10-S BARANI, CITY OF BATAAC**

**Sixth Edition  
July 2020**

# Preface

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

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

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

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

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

- a. All the documents listed in the Table of Contents are normally required for the procurement of Infrastructure Projects. However, they should be adapted as necessary to the circumstances of the particular Project.
- b. Specific details, such as the “*name of the Procuring Entity*” and “*address for bid submission*,” should be furnished in the Instructions to Bidders, Bid Data Sheet, and Special Conditions of Contract. The final documents should contain neither blank spaces nor options.
- c. This Preface and the footnotes or notes in italics included in the Invitation to Bid, BDS, General Conditions of Contract, Special Conditions of Contract, Specifications, Drawings, and Bill of Quantities are not part of the text of the final document, although they contain instructions that the Procuring Entity should strictly follow.
- d. The cover should be modified as required to identify the Bidding Documents as to the names of the Project, Contract, and Procuring Entity, in addition to date of issue.
- e. Modifications for specific Procurement Project details should be provided in the Special Conditions of Contract as amendments to the Conditions of Contract. For easy completion, whenever reference has to be made to specific clauses in the Bid Data Sheet or Special Conditions of Contract, these terms shall be printed in bold typeface on Sections I (Instructions to Bidders) and III (General Conditions of Contract), respectively.

- f. For guidelines on the use of Bidding Forms and the procurement of Foreign-Assisted Projects, these will be covered by a separate issuance of the Government Procurement Policy Board.



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## ***Glossary of Terms, Abbreviations, and Acronyms***

**ABC** – Approved Budget for the Contract.

**ARCC** – Allowable Range of Contract Cost.

**BAC** – Bids and Awards Committee.

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

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

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

**BIR** – Bureau of Internal Revenue.

**BSP** – Bangko Sentral ng Pilipinas.

**CDA** – Cooperative Development Authority.

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

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

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

**CPI** – Consumer Price Index.

**DOLE** – Department of Labor and Employment.

**DTI** – Department of Trade and Industry.

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



**GFI** – Government Financial Institution.

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

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

**GOP** – Government of the Philippines.

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

**LGUs** – Local Government Units.

**NFCC** – Net Financial Contracting Capacity.

**NGA** – National Government Agency.

**PCAB** – Philippine Contractors Accreditation Board.

**PhilGEPS** - Philippine Government Electronic Procurement System.

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

**PSA** – Philippine Statistics Authority.

**SEC** – Securities and Exchange Commission.

**SLCC** – Single Largest Completed Contract.

**UN** – United Nations.

## ***Section I. Invitation to Bid***

### **Notes on the Invitation to Bid**

The Invitation to Bid (IB) provides information that enables potential Bidders to decide whether to participate in the procurement at hand. The IB shall be posted in accordance with Section 21.2 of the 2016 revised IRR of RA No. 9184.

Apart from the essential items listed in the Bidding Documents, the IB should also indicate the following:

- a. The date of availability of the Bidding Documents, which shall be from the time the IB is first advertised/posted until the deadline for the submission and receipt of bids;
- b. The place where the Bidding Documents may be acquired or the website where it may be downloaded;
- c. The deadline for the submission and receipt of bids; and
- d. Any important bid evaluation criteria.

The IB should be incorporated into the Bidding Documents. The information contained in the IB must conform to the Bidding Documents and in particular to the relevant information in the Bid Data Sheet.





*Republic of the Philippines*  
*Province of Ilocos Norte*  
**CITY GOVERNMENT OF BATAC**

**Invitation to Bid for Construction of Showroom Building, #10-S  
Barani, City of Batac, Ilocos Norte**

1. The *City Government of Batac*, through the **OTHER SERVICES-Supplemental Budget No. 03-CY2019** intends to apply the sum of **One Million Forty-Six Thousand One Hundred Forty-Three and Twenty-Eight Centavos (1,046,143.28)** being the Approved Budget for the Contract (ABC) to payments under the contract for **Construction of Showroom Building, #10-S Barani, City of Batac, Ilocos Norte with Project Identification Number: CGB-2023 –PB-03-003**. Bids received in excess of the ABC shall be automatically rejected at bid opening.
2. The *City Government of Batac* now invites bids for the above Procurement Project. Completion of the Works is required **Ninety (90) calendar days**. Bidders should have completed a contract similar to the Project. The description of an eligible bidder is contained in the Bidding Documents, particularly, in Section II (Instructions to Bidders).
3. Bidding will be conducted through open competitive bidding procedures using non-discretionary “*pass/fail*” criterion as specified in the 2016 revised Implementing Rules and Regulations (IRR) of Republic Act (RA) No. 9184.
4. Interested bidders may obtain further information from *City Government of Batac* and inspect the Bidding Documents at the address given below from **8:00am to 5:00pm**.
5. A complete set of Bidding Documents may be acquired by interested bidders on **March 16, 2023 (8:00AM to 5:00 PM) to April 05, 2023 (8:00 AM to 12:00 NN)** from given address and website/s below *and upon payment of the applicable fee for the Bidding Documents, pursuant to the latest Guidelines issued by the GPPB, in the amount of Php 5,000.00*. The Procuring Entity shall allow the bidder to present its proof of payment for the fees in person, by facsimile, or through electronic means.
6. The *City Government of Batac* will hold a Pre-Bid Conference<sup>1</sup> on **March 24, 2023 at 3:30** in the afternoon at the BAC Office, 3<sup>rd</sup> Floor City Hall Building, which shall be open to prospective bidders.
7. Bids must be duly received by the BAC Secretariat through manual submission at the office address as indicated below on or before **April 05, 2023 at 12:00 NN**. Late bids shall not be accepted.
8. All bids must be accompanied by a bid security in any of the acceptable forms and in the amount stated in **ITB Clause 16**.

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<sup>1</sup> May be deleted in case the ABC is less than One Million Pesos (PhP1,000,000) where the Procuring Entity may not hold a pre-bid conference.

9. Bid opening shall be on *April 05, 2023* at BAC Office 3<sup>rd</sup> Floor City Hall Building. Bids will be opened in the presence of the or its authorized representatives (with his/her authorization) who choose to attend the activity.
10. The *City Government of Batac* reserves the right to reject any and all bids, declare a failure of bidding, or not award the contract at any time prior to contract award in accordance with Sections 35.6 and 41 of the 2016 revised Implementing Rules and Regulations (IRR) of RA No. 9184, without thereby incurring any liability to the affected bidder or bidders.
11. For further information, please refer to:

**ENGR. MICHELLE G. MANUEL**  
*BAC Secretariat Head - Infrastructure*  
*BAC Office 3<sup>rd</sup> Floor, City Hall Building*  
*City Government of Batac*  
*Washington Street, Brgy. #1-S Valdez*  
*City of Batac, Ilocos Norte 2906*  
*Email: [bachataccity@gmail.com](mailto:bachataccity@gmail.com)*  
*Tel.No.: (077) 792-2060*

12. You may visit the following websites:

For downloading of Bidding Documents: *you may visit [www.batac.gov.ph](http://www.batac.gov.ph)*

**MR. MARLON F. SORIA**  
*HRMO / BAC Chairman*



## ***Section II. Instructions to Bidders***

### **Notes on the Instructions to Bidders**

This Section on the Instruction to Bidders (ITB) provides the information necessary for bidders to prepare responsive bids, in accordance with the requirements of the Procuring Entity. It also provides information on bid submission, eligibility check, opening and evaluation of bids, post-qualification, and on the award of contract.

## 1. Scope of Bid

The Procuring Entity, *City Government of Batac* invites Bids for the **Construction of Showroom Building, #10-S Barani, City of Batac, Ilocos Norte**, with **Identification Number: CGB-2023 –PB-03-003**.

The Procurement Project ("**Construction of Showroom Building**") is for the construction of Works, as described in Section VI (Specifications).

## 2. Funding Information

2.1. The GOP through the source of funding as indicated below in the amount of **Php 1,046,143.28**.

2.2. The source of funding is:

a. *OTHER SERVICES-Supplemental Budget No. 03-CY2019*

## 3. Bidding Requirements

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

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

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

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

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

## 5. Eligible Bidders

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

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

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

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

## **6. Origin of Associated Goods**

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

## **7. Subcontracts**

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

The Procuring Entity has prescribed that:

- a. Subcontracting is not allowed**

## **8. Pre-Bid Conference**

The Procuring Entity will hold a pre-bid conference for this Project on the March 24, 2023 at 3:00 in the afternoon at BAC Office 3rd Floor, City Hall Building, City Government of Batac and/or through videoconferencing/webcasting as indicated in paragraph 6 of the IB.

## **9. Clarification and Amendment of Bidding Documents**

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

## **10. Documents Comprising the Bid: Eligibility and Technical Components**

- 10.1. The first envelope shall contain the eligibility and technical documents of the Bid as specified in **Section IX. Checklist of Technical and Financial Documents**.
- 10.2. If the eligibility requirements or statements, the bids, and all other documents for submission to the BAC are in foreign language other than English, it must be accompanied by a translation in English, which shall be authenticated by the appropriate Philippine foreign service establishment, post, or the equivalent office having jurisdiction over the foreign bidder's affairs in the Philippines. For Contracting Parties to the Apostille Convention, only the translated documents shall be authenticated through an apostille pursuant to GPPB



Resolution No. 13-2019 dated 23 May 2019. The English translation shall govern, for purposes of interpretation of the bid.

- 10.3. A valid PCAB License is required, and in case of joint ventures, a valid special PCAB License, and registration for the type and cost of the contract for this Project. Any additional type of Contractor license or permit shall be indicated in the **BDS**.
- 10.4. A List of Contractor's key personnel (e.g., Project Manager, Project Engineers, Materials Engineers, and Foremen) assigned to the contract to be bid, with their complete qualification and experience data shall be provided. These key personnel must meet the required minimum years of experience set in the **BDS**.
- 10.5. A List of Contractor's major equipment units, which are owned, leased, and/or under purchase agreements, supported by proof of ownership, certification of availability of equipment from the equipment lessor/vendor for the duration of the project, as the case may be, must meet the minimum requirements for the contract set in the **BDS**.

## **11. Documents Comprising the Bid: Financial Component**

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

## **12. Alternative Bids**

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

## **13. Bid Prices**

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

## **14. Bid and Payment Currencies**

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

- a. Philippine Pesos.

## 15. Bid Security

- 15.1. The Bidder shall submit a Bid Securing Declaration or any form of Bid Security in the amount indicated in the **BDS**, which shall be not less than the percentage of the ABC in accordance with the schedule in the **BDS**.
- 15.2. The Bid and bid security shall be valid until *120 days*. Any bid not accompanied by an acceptable bid security shall be rejected by the Procuring Entity as non-responsive.

## 16. Sealing and Marking of Bids

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

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

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

## 17. Deadline for Submission of Bids

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

## 18. Opening and Preliminary Examination of Bids

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

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

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

## 19. Detailed Evaluation and Comparison of Bids

- 19.1. The Procuring Entity's BAC shall immediately conduct a detailed evaluation of all Bids rated "*passed*" using non-discretionary pass/fail criteria. The BAC shall consider the conditions in the evaluation of Bids under Section 32.2 of 2016 revised IRR of RA No. 9184.
- 19.2. If the Project allows partial bids, all Bids and combinations of Bids as indicated in the **BDS** shall be received by the same deadline and opened and evaluated simultaneously so as to determine the Bid or combination of Bids offering the



lowest calculated cost to the Procuring Entity. Bid Security as required by **ITB** Clause 15 shall be submitted for each contract (lot) separately.

- 19.3. In all cases, the NFCC computation pursuant to Section 23.4.2.6 of the 2016 revised IRR of RA No. 9184 must be sufficient for the total of the ABCs for all the lots participated in by the prospective Bidder.

## **20. Post Qualification**

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

## **21. Signing of the Contract**

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



### ***Section III. Bid Data Sheet***

#### **Notes on the Bid Data Sheet (BDS)**

The Bid Data Sheet (BDS) consists of provisions that supplement, amend, or specify in detail, information, or requirements included in the ITB found in Section II, which are specific to each procurement.

This Section is intended to assist the Procuring Entity in providing the specific information in relation to corresponding clauses in the ITB and has to be prepared for each specific procurement.

The Procuring Entity should specify in the BDS information and requirements specific to the circumstances of the Procuring Entity, the processing of the procurement, and the bid evaluation criteria that will apply to the Bids. In preparing the BDS, the following aspects should be checked:

- a. Information that specifies and complements provisions of the ITB must be incorporated.
- b. Amendments and/or supplements, if any, to provisions of the ITB as necessitated by the circumstances of the specific procurement, must also be incorporated.

## Bid Data Sheet

ITB Clause																																					
5.2	For this purpose, contracts similar to the Project refer to contracts which have the same major categories of work, which shall be: <i>Construction of Multipurpose Building.</i>																																				
7.1	<i>Sub-contracting is not allowed.</i>																																				
10.3	<i>None</i>																																				
10.4	<p>The key personnel must meet the required minimum years of experience set below:</p> <table><tr><th><u>Key Personnel</u></th><th><u>General Experience</u></th><th><u>Relevant Experience</u></th></tr><tr><td>Project Engineer</td><td>General Construction</td><td>5 years</td></tr><tr><td>Materials Engineer</td><td>General Construction</td><td>1 year</td></tr><tr><td>Construction Foreman</td><td>General Construction</td><td>5 years</td></tr><tr><td>Skilled Worker</td><td>General Construction</td><td>5 years</td></tr><tr><td>Unskilled Laborer</td><td>General Construction</td><td>3 years</td></tr><tr><td>Safety Officer II</td><td>General Construction</td><td>3 years</td></tr></table>	<u>Key Personnel</u>	<u>General Experience</u>	<u>Relevant Experience</u>	Project Engineer	General Construction	5 years	Materials Engineer	General Construction	1 year	Construction Foreman	General Construction	5 years	Skilled Worker	General Construction	5 years	Unskilled Laborer	General Construction	3 years	Safety Officer II	General Construction	3 years															
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Unskilled Laborer	General Construction	3 years																																			
Safety Officer II	General Construction	3 years																																			
10.5	<p>The minimum major equipment requirements are the following:</p> <table><tr><th><u>Equipment</u></th><th><u>Capacity</u></th><th><u>Number of Units</u></th></tr><tr><td>Dump truck (12 cu.yd.)</td><td>12 cu.yd.</td><td>2.00</td></tr><tr><td>Plate Compactor</td><td>400-500 gasoline engine</td><td>1.00</td></tr><tr><td>Welding Machine</td><td>Electric driven</td><td>4.00</td></tr><tr><td>Concrete Vibrator</td><td></td><td>2.00</td></tr><tr><td>Oxygen/Acetylene Cutter</td><td>30 cu.m.</td><td>1.00</td></tr><tr><td>Cutting outfit</td><td></td><td>1.00</td></tr><tr><td>Concrete Chipper/ Jack Hammer</td><td></td><td>1.00</td></tr><tr><td>Bar Cutter, Single Phase</td><td>25mm dia max rebar</td><td>1.00</td></tr><tr><td>Bar bender</td><td>25mm dia max rebar</td><td></td></tr><tr><td>Joint Sealer Equipment</td><td></td><td>1.00</td></tr><tr><td>One-Bagger Concrete Mixer</td><td></td><td>1.00</td></tr></table>	<u>Equipment</u>	<u>Capacity</u>	<u>Number of Units</u>	Dump truck (12 cu.yd.)	12 cu.yd.	2.00	Plate Compactor	400-500 gasoline engine	1.00	Welding Machine	Electric driven	4.00	Concrete Vibrator		2.00	Oxygen/Acetylene Cutter	30 cu.m.	1.00	Cutting outfit		1.00	Concrete Chipper/ Jack Hammer		1.00	Bar Cutter, Single Phase	25mm dia max rebar	1.00	Bar bender	25mm dia max rebar		Joint Sealer Equipment		1.00	One-Bagger Concrete Mixer		1.00
<u>Equipment</u>	<u>Capacity</u>	<u>Number of Units</u>																																			
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One-Bagger Concrete Mixer		1.00																																			
12	<i>Value Engineering not allowed.</i>																																				
15.1	<p>The bid security shall be in the form of a Bid Securing Declaration or any of the following forms and amounts:</p> <p>a. The amount of not less than 20,923.00, if bid security is in cash, cashier's/manager's check, bank draft/guarantee or irrevocable letter of credit;</p> <p>b. The amount of not less than 52,307.00 if bid security is in Surety Bond.</p>																																				
19.2	Partial bids are allowed not allowed.																																				
20	<i>None</i>																																				
21	Additional contract documents relevant to the Project that may be required by existing laws and/or the Procuring Entity, such as construction schedule and S-curve, manpower schedule, construction methods, equipment utilization schedule, construction safety and health program approved by the DOLE, and other acceptable tools of project scheduling.																																				

## ***Section IV. General Conditions of Contract***

### **Notes on the General Conditions of Contract**

The General Conditions of Contract (GCC) in this Section, read in conjunction with the Special Conditions of Contract in Section V and other documents listed therein, should be a complete document expressing all the rights and obligations of the parties.

Matters governing performance of the Contractor, payments under the contract, or matters affecting the risks, rights, and obligations of the parties under the contract are included in the GCC and Special Conditions of Contract.

Any complementary information, which may be needed, shall be introduced only through the Special Conditions of Contract.



## 1. Scope of Contract

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

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

## 2. Sectional Completion of Works

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

## 3. Possession of Site

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

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

## 4. The Contractor's Obligations

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

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

## 5. Performance Security

5.1. Within ten (10) calendar days from receipt of the Notice of Award from the Procuring Entity but in no case later than the signing of the contract by both parties, the successful Bidder shall furnish the performance security in any of the forms prescribed in Section 39 of the 2016 revised IRR.

- 5.2. The Contractor, by entering into the Contract with the Procuring Entity, acknowledges the right of the Procuring Entity to institute action pursuant to RA No. 3688 against any subcontractor be they an individual, firm, partnership, corporation, or association supplying the Contractor with labor, materials and/or equipment for the performance of this Contract.

## **6. Site Investigation Reports**

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

## **7. Warranty**

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

## **8. Liability of the Contractor**

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

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

## **9. Termination for Other Causes**

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

## **10. Dayworks**

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

## **11. Program of Work**

- 11.1. The Contractor shall submit to the Procuring Entity's Representative for approval the said Program of Work showing the general methods, arrangements,



order, and timing for all the activities in the Works. The submissions of the Program of Work are indicated in the SCC.

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

## **12. Instructions, Inspections and Audits**

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

## **13. Advance Payment**

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

## **14. Progress Payments**

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

## **15. Operating and Maintenance Manuals**

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



## ***Section V. Special Conditions of Contract***

### **Notes on the Special Conditions of Contract**

Similar to the BDS, the clauses in this Section are intended to assist the Procuring Entity in providing contract-specific information in relation to corresponding clauses in the GCC found in Section IV.

The Special Conditions of Contract (SCC) complement the GCC, specifying contractual requirements linked to the special circumstances of the Procuring Entity, the Procuring Entity's country, the sector, and the Works procured. In preparing this Section, the following aspects should be checked:

- a. Information that complements provisions of the GCC must be incorporated.
- b. Amendments and/or supplements to provisions of the GCC as necessitated by the circumstances of the specific purchase, must also be incorporated.

However, no special condition which defeats or negates the general intent and purpose of the provisions of the GCC should be incorporated herein.

## Special Conditions of Contract

GCC Clause	
2	<i>The intended completion date is <b>Ninety (90)</b> calendar days from the Effective Date of the Contract.</i>
4.1	N/A
6	N/A
7.2	Five (5) years.
10	Dayworks are applicable at the rate shown in the Contractor's original Bid.
11.1	The Contractor shall submit the Program of Work to the Procuring Entity's Representative within <b>Seven(7)</b> days of delivery of the Notice of Award.
11.2	N/A
13	The amount of the advance payment <i><b>shall not exceed 15% of the total contract price and schedule of payment.</b></i>
14	<i>Not Allowed</i>
15.1	N/A
15.2	N/A

*Section VI. Specifications*



**SECTION VI**  
**GENERAL SPECIFICATIONS**  
**CONSTRUCTION OF SHOWROOM BUILDING**  
**Brgy. Barani City of Batac, Ilocos Norte**

**OTHER GENERAL REQUIREMENTS**

**Offices, Shops, Stores & Workmen Accommodation for Contractor**

The contractor shall provide and maintain such offices, stores, workshops latrines, housing and messing accommodations as are necessary. These should be located in the Contractor's compound, distinct and separate from the Engineer's compound. The location, dimensions and layout of such buildings and places shall be subject to the approval of the Engineer. The Contractor shall not be permitted to erect temporary buildings or structures on the site without the specific permission in writing of the Engineer including approval of the dimensions of such buildings or structures. Before the commencement of the period of Warranty, the Contractor shall fence off the Contractor's store area from the rest of the Site. By the end of the Period of Warranty, the Contractor shall remove this fence and all buildings shall be cleared and the area shall be graded as required by the Engineer.

**MEDICAL ROOM AND FIRST AID FACILITIES**

1. The Contractor shall provide and maintain throughout the duration of the Contract, a medical room together with all necessary supplies to be sited in the Contractor's main area. The medical room shall be waterproof; it could be a building or room designated and used exclusively for the purpose and have a floor area of at least 15 square meters and a glazed window area of at least 2 square meters.

2. The Contractor shall employ permanently on the site a fully trained Medical Aide who shall be engaged solely from medical duties.

3. The location of the medical room and any other arrangements shall be made known to all employees by posting on prominent locations suitable notices in the Site.

4. The Contractor's arrangement to comply with this Section shall be subject to the approval of the Engineer and also to the approval of any qualified Medical Officer designated by the Government to supervise medical arrangements on the Site.

**MEASUREMENT AND PAYMENT**

Work prescribed for Medical Room & First aid Facility shall not be measured and paid separately, same shall be deemed to be included in pay items for other items for work.

**EARTHWORK ITEM 100 - CLEARING AND GRUBBING**

**100.1 Description**

This item shall consist of clearing, grubbing, removing and disposing all vegetation and debris as designated in the Contract, except those objects that are designated to remain in place or are to be removed in consonance with other provisions of this Specification. The work shall also include the preservation from injury or defacement of all objects designated to remain.

**100.2 Construction Requirements**

**100.2.1 General**

The Engineer will establish the limits of work and designate all trees, shrubs, plants and other things to remain. The Contractor shall preserve all objects designated to remain. Paint required for cut or scarred surface of trees or shrubs selected for retention shall be an approved asphaltum base paint prepared especially for tree surgery. Clearing shall extend one (1) meter beyond the toe of the fill slopes or beyond rounding of cut slopes as the case maybe for the entire length of the project unless otherwise shown on the plans or as directed by the Engineer and provided it is within the right of way limits of the project, with the exception of trees under the jurisdiction of the Forest Management Bureau (FMB).

**100.2.2 Clearing and Grubbing**

All surface objects and all trees, stumps, roots and other protruding obstructions, not designated to remain, shall be cleared and/or grubbed, including mowing as required, except as provided below:

(1) Removal of undisturbed stumps and roots and nonperishable solid objects with a Minimum depth of one (1) meter below subgrade or slope of embankment will not be required.

(2) In areas outside of the grading limits of cut and embankment areas, stumps and Nonperishable solid objects shall be cut off not more than 150 mm (6 inches) above the ground line or low water level.

(3) In areas to be rounded at the top of cut slopes, stumps shall be cut off flush with or below the surface of the final slope line.

(4) Grubbing of pits, channel changes and ditches will be required only to the depth necessitated by the proposed excavation within such areas.

(5) In areas covered by cogon/talahib, wild grass and other vegetations, top soil shall be cut to a maximum depth of 150 mm below the original ground surface or as designated by the Engineer, and disposed outside the clearing and grubbing limits as

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indicated in the typical roadway section. Except in areas to be excavated, stump holes and other holes from which obstructions are removed shall be backfilled with suitable material and compacted to the required density. If perishable material is burned, it shall be burned under the constant care of competent watchmen at such times and in such a manner that the surrounding vegetation, other adjacent property, or anything designated to remain on the right of way will not be jeopardized. If permitted, burning shall be done in accordance with applicable laws, ordinances, and regulation. The Contractor shall use high intensity burning procedures, (i.e., incinerators, high stacking or pit and ditch burning with forced air supplements) that produce intense burning with little or no visible smoke emission during the burning process. At the conclusion of each burning session, the fire shall be completely extinguished so that no smoldering debris remains. In the event that the Contractor is directed by the Engineer not to start burning operations or to suspend such operations because of hazardous weather conditions, material to be burned which interferes with subsequent construction operations shall be moved by the Contractor to temporary locations clear of construction operations and later, if directed by the Engineer, shall be placed on a designated spot and burned. Materials and debris which cannot be burned and perishable materials may be disposed off by methods and at locations approved by the Engineer, on or off the project. If disposal is by burying, the debris shall be placed in layers with the material so disturbed to avoid nesting.

Each layer shall be covered or mixed with earth material by the land-fill method to fill all voids. The top layer of material buried shall be covered with at least 300 mm (12 inches) of earth or other approved material and shall be graded, shaped and compacted to present a pleasing appearance. If the disposal location is off the project, the Contractor shall make all necessary arrangements with property owners in writing for obtaining suitable disposal locations which are outside the limits of view from the project. The cost involved shall be included in the unit bid price. A copy of such agreement shall be furnished to the Engineer. The disposal areas shall be seeded, fertilized and mulched at the Contractor's expense. Woody material may be disposed off by chipping. The wood chips may be used for mulch, slope erosion control or may be uniformly spread over selected areas as directed by the Engineer. Wood chips used as mulch for slope erosion control shall have a maximum thickness of 12 mm (1/2 inch) and faces not exceeding 3900 mm<sup>2</sup> (6 square inches) on any individual surface area. Wood chips not designated for use under other sections shall be spread over the designated areas in layers not to exceed 75 mm (3 inches) loose thickness. Diseased trees shall be buried or disposed off as directed by the Engineer. All merchantable timber in the clearing area which has not been removed from the right of way prior to the beginning of construction, shall become the property of the Contractor, unless otherwise provided. Low hanging branches and unsound or unsightly branches on trees or shrubs designated to remain shall be trimmed as directed. Branches of trees extending over the roadbed shall be trimmed to give a clear height of 6 m (20 feet) above the roadbed surface. All trimming shall be done by skilled workmen and in accordance with good tree surgery practices. Timber cut inside the area staked for clearing shall be felled within the area to be cleared.

#### ITEM 103 – STRUCTURE EXCAVATION

##### 103.1 Description

This Item shall consist of the necessary excavation for foundation of bridges, culvert, underdrains, and other structures not otherwise provided for in the Specifications. Except as otherwise provided for pipe culverts, the backfilling of completed structures and the disposal of all excavated surplus materials, shall be in accordance with these Specifications and in reasonably close conformity with the Plans or as established by the Engineer. This Item shall include necessary diverting of live streams, bailing, pumping, draining, sheeting, bracing, and the necessary construction of cribs and cofferdams, and furnishing the materials therefore, and the subsequent removal of cribs and cofferdams and the placing of all necessary backfill. It shall also include the furnishing and placing of approved foundation fill material to replace unsuitable material encountered below the foundation elevation of structures. No allowance will be made for classification of different types of material encountered.

##### 103.2 Construction Requirements

###### .2.1 Clearing and Grubbing

Prior to starting excavation operations in any area, all necessary clearing and grubbing in that area shall have been performed in accordance with Item 100, Clearing and Grubbing.

###### 103.2.2 Excavation

(1) General, all structures. The Contractor shall notify the Engineer sufficiently in advance of the beginning of any excavation so that cross-sectional elevations and measurements may be taken on the undisturbed ground. The natural ground adjacent to the structure shall not be disturbed without permission of the Engineer.

Trenches or foundation pits for structures or structure footings shall be excavated to the lines and grades or elevations shown on the Plans or as staked by the Engineer. They shall be of sufficient size to permit the placing of structures or structure footings of the full width and length shown. The elevations of the bottoms of footings, as shown on the Plans, shall be considered as approximate only and the Engineer may order, in writing, such changes in dimensions or elevations of footings as may be deemed necessary, to secure a satisfactory foundation.

Boulders, logs, and other objectionable materials encountered in excavation shall be removed. After each excavation is completed, the Contractor shall notify the Engineer to that effect and no footing, bedding material or pipe culvert shall be placed until the Engineer has approved the depth of excavation and the character of the foundation material.

(2) Structures other than pipe culverts. All rock or other hard foundation materials shall be cleaned all loose materials, and cut to a firm surface, either level, stepped, or serrated as directed by the Engineer. All seams or crevices shall be cleaned and grouted. All loose and disintegrated rocks and thin strata shall be removed.

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When the footing is to rest on material other than rock, excavation to final grade shall not be made until just before the footing is to be placed. When the foundation material is soft or mucky or otherwise unsuitable, as determined by the Engineer, the Contractor shall remove the unsuitable material and backfill with approved granular material. This foundation fill shall be placed and compacted in 150 mm (6 inches) layers up to the foundation elevation.

When foundation piles are used, the excavation of each pit shall be completed before the piles are driven and any placing of foundation fill shall be done after the piles are driven. After the driving is completed, all loose and displaced materials shall be removed, leaving a smooth, solid bed to receive the footing.

(3) Pipe Culverts. The width of the pipe trench shall be sufficient to permit satisfactory jointing of the pipe and thorough tamping of the bedding material under and around the pipe.

Where rock, hardpan, or other unyielding material is encountered, it shall be removed below the foundation grade for a depth of at least 300 mm or 4 mm for each 100 mm of fill over the top of pipe, whichever is greater, but not to exceed three-quarters of the vertical inside diameter of the pipe. The width of the excavation shall be at least 300 mm (12 inches) greater than the horizontal outside diameter of the pipe. The excavation below grade shall be backfilled with selected fine compressible material, such as silty clay or loam, and lightly compacted in layers not over 150 mm (6 inches) in uncompacted depth to form a uniform but yielding foundation.

Where a firm foundation is not encountered at the grade established, due to soft, spongy, or other unstable soil, such unstable soil under the pipe and for a width of at least one diameter on each side of the pipe shall be removed to the depth directed by the Engineer and replaced with approved granular foundation fill material properly compacted to provide adequate support for the pipe, unless other special construction methods are called for on the Plans.

The foundation surface shall provide a firm foundation of uniform density throughout the length of the culvert and, if directed by the Engineer, shall be cambered in the direction parallel to the pipe centerline. Where pipe culverts are to be placed in trenches excavated in embankments, the excavation of each trench shall be performed after the embankment has been constructed to a plane parallel to the proposed profile grade and to such height above the bottom of the pipe as shown on the Plans or directed by the Engineer.

#### 103.2.3 Utilization of Excavated Materials

All excavated materials, so far as suitable, shall be utilized as backfill or embankment. The surplus materials shall be disposed off in such manner as not to obstruct the stream or otherwise impair the efficiency or appearance of the structure. No excavated materials shall be deposited at any time so as to endanger the partly finished structure.

### ITEM 900 – REINFORCED CONCRETE

#### 900.1 Description

This item shall consist of furnishing, placing and finishing concrete in buildings and related structures, flood control and drainage, ports, and water supply structures in accordance with this specification and conforming to the lines, grades, and dimension shown on the plans.

#### 900.2 Materials Requirements

##### Portland Cement

This shall conform to the requirement of ITEM 700, Volume II (Blue Book), Hydraulic cement.

##### Concrete Aggregates

Concrete aggregate shall conform to the requirements of subsection 311.2.2 and 311.2.3 under item 311 of Volume II, (Blue Book) and ASTM C 33 for lightweight aggregates, except that aggregates failing to meet these specifications but which have been shown by special test or actual service to produce concrete of adequate strength and durability may be used under method (2) of determining the proportion of concrete, where authorized by the Engineer.

Except as permitted elsewhere in this section, the maximum size of the aggregate shall not be larger than one-fifth (1/5) of the narrowest dimensions between sides of forms of the member which the concrete is to be used nor larger than three-fourths of the minimum clear spacing between individual reinforcing bars or bundles of bars or pretensioning strands.

##### Aggregate Tests

Sample of the fine and coarse aggregates to be used shall be selected by the Engineer for tests at least 30 days before the actual concreting operations are to begin. It shall be the responsibility of the contractor to designate the source or sources of aggregate to give the Engineer sufficient time to obtain the necessary samples and submit them for testing.

No aggregate shall be used until official advice has been received that it has satisfactorily passed all test, at which written authority shall be given for its use.

##### Water

Water used in mixing concrete shall conform to the requirement of subsection 311.2.4 under item 311, Part E, OF Volume II, (Blue Book)

##### Metal Reinforcement

Reinforcing steel bars shall conform to the requirements of the following Specifications:

Deformed & Plain Billet Steel	(ASTM A 615)
Bars for Concrete Reinforcement	AASHTO M 31)
Deformed Rail – Steel and Plain	
Bars for Concrete Reinforcement	(ASTM A 616)
Deformed A x b – Steel and Plain	

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Bars for Concrete Reinforcement ASTM A 617  
If reinforcing bars are to be welded, these ASTM specifications shall be supplemented by requirements assuring satisfactory weldability.

Bars and rod mats for concrete  
Reinforcement ASTM A 187  
Cold-Drawn Steel wire fabric for (ASTM A 82)  
Concrete reinforcement AASHTO M 32  
Welded steel wire fabric (ASTM A 185)  
For concrete reinforcement AASHTO M55

Except that the weld shear strength requirement of those specification shall be extended to include a wire size differential up to and including six pages.

Admixtures  
Air-entraining admixtures, if used, shall conform to ASTM C 260.  
Water-reducing admixtures, retarding ad-mixtures, water-reducing and retarding admixtures and water reducing and accelerating admixtures, if used, shall conform to the requirements of ASTM C 494.

Storage of Materials  
Cement and aggregates shall be stored in such a manner as to prevent their deterioration or the intrusion of foreign matter. Cement shall be stored, immediately upon arrival on the site of the work, in substantial, waterproof bodegas, with a floor raised from the ground sufficiently high to be free from dampness. Aggregates shall be restored in such a manner as to avoid the inclusion of foreign materials.

### 900.3 Construction Requirements

Notations: The notation used in these regulations are defined as follows:

$f_c$  = compressive strength of concrete  
 $F_{sp}$  = ratio of splitting tensile strength to square root of compressive strength.  
Concrete Quality

All plans submitted for approval or used for any project shall clearly show the specified strength,  $f_c$ , of concrete of the specified age for which each part of the structure was designed.

Concrete that will be exposed to sulfate containing or other chemically aggressive solutions shall be proportioned in accordance with "Recommended Practice for Selecting Proportions for concrete (ACI 613)" and Recommended Practice for Selecting Proportions for Structural Lightweight Concrete (ACI 613A)."

Methods of Determining the Proportions of Concrete

The determination of the proportions of cement, aggregate, and water to attain the required strengths shall be made by one of the following methods, but lower water-cement ratios may be required for conformance with the quality of concrete.

Method 1. Without preliminary test

Where preliminary test data on the materials to be used in the concrete have not been obtained the water-cement ratio for a given strength of concrete shall not exceed the values in Table 900.1. When strengths in excess of 281 kilograms per square centimeter (4000psi) are required or when light weight aggregates or admixtures (other than those exclusively for the purpose of entraining air) are used, the required water-cement ratio shall be determined in accordance with Method 2.

Method 2. For combination of materials previously evaluated or to be established by trial mixtures.

Water-cement ratios for strengths greater than that shown in Table 900.1 may be used provided that the relationship between strength and water-cement ratio for the materials to be used has been previously established by reliable test data and the resulting concrete satisfies the requirements of concrete quality. Where previous data are not available. Concrete trial mixtures having proportions and consistency suitable for the work shall be made using at least three different water-cement ratios (or cement content in the case of lightweight aggregates) which will produce a range of strengths encompassing those required for the work. For each water-cement ratio (or cement content) at least three specimens for each age to be tested shall be made, cured and tested for strength in accordance with ASTM C 39 and C 192.

The strength test shall be made at 7, 14 & 28 days at which the concrete is to receive load, as indicated on the plans. A curve shall be established showing the relationship between water-cement ratio (or cement content) and compressive strength. The maximum permissible water-cement ratio for the concrete to be used in the structure shall be that shown by the curve to produce an average strength to satisfy the requirements of the strength test of concrete provided that water-cement ratio shall be no greater than that required by concrete quality when concrete that is to be subjected to the freezing temperatures which weight shall have a water-cement ratio not exceeding 6 gal per bag and it shall contain entrained air.

Where different materials are to be used for different portions of the work, each combination shall be evaluated separately.

TABLE 900.1 MAXIMUM PERMISSIBLE WATER-CEMENT RATIOS FOR CONCRETE (METHOD NO.1)

Specified compressive strength @ 28 days, psi $f_c$	Maximum Permissible water-cement ratio					
	Non air-entrained concrete			Air-entrained concrete		
	U.S. gal. per 42.6 kg. bag of cement	Absolute weight	ratio by	U.S. gal. per 42.6 kg. bag of cement	Absolute weight	ratio by
2500	7 1/4	0.642		6 1/4	0.554	
3000	6 1/2	0.576		5 1/4	0.465	
3500	5 3/4	0.510		4 1/2	0.399	
4000	5	0.443		4	0.354	

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#### Concrete Proportion & Consistency

The proportions of aggregate to cement to any concrete shall be such as to produce a mixture which will work readily into the corners and angles of the form and around reinforcement with the method of placing employed on the work, but without permitting the materials to segregate or excess free water to collect on the surface. The methods of measuring concrete materials shall be such that the proportions can be accurately controlled and easily checked at any time during the work.

#### Sampling and Testing of Structural Concrete

As work progress, at least one (1) set of sample consisting of three (3) concrete cylinder test specimens, 150 x 150mm shall be taken from each class of concrete placed each day, and each set to represent not more 75 cu m of concrete.

#### Consistency

Concrete shall have a consistency such that it will be workable in the required position. It shall be such a consistency that it will flow around reinforcing steel but individual particles of the coarse aggregate when isolated shall show a coating or mortar containing its proportionate amount of sand. The consistency of concrete shall be gauged by the ability of equipment to properly placed it and not by the difficulty of mixing water shall be determined by the Engineer and shall not be varied without his consent. Concrete as dry as it is practical to place with the equipment specified shall be used.

#### Strength Test of Concrete

When strength is a basis of acceptance, each class of concrete shall be represented by @ least five test (10 specimens). Two specimens shall be made for each test at a given age, and not less than one test shall be made for each 150 cu yd of structural concrete, but there shall be at least one test for each days concreting. The Building Official may required a reasonable number of additional tests during the progress of the work. Samples from which compression test specimens are molded shall be secured in accordance with ASTM C 172. Specimens made to check adequacy of the proportions for strength of concrete or as a basis for acceptance of concrete shall be made and laboratory-cured in accordance with ASTM C 31. Additional test specimens cured entirely under field conditions may be required by the Building Official to check the adequacy of curing and protection of the concrete. Strength tests shall be made in accordance with ASTM C 39.

The age for strength tests shall be 28 days or, where specified, the earlier age at which the concrete is to receive its full load or maximum stress. Additional test may be made at earlier ages to obtain advance information on the adequacy of strength development where age-strength relationships have been established for the materials and proportions used.

To conform to the requirements of this item;

1. For structures designed in accordance with the working stress design method of this chapter, the average of any five consecutive strength tests of the laboratory-cured specimens representing each class of concrete shall be equal to or greater than the specified strength,  $f_c$ , and not more than 20 percent of the strength test shall have values less than that specified.
2. For structure designed in accordance with the ultimate strength design method of this chapter, and for pre-stressed structures the average of any three consecutive strength test of the laboratory cured specimens representing each class of concrete shall be equal to or greater than the specified strength,  $f_c$  and not more than 10 percent of the strength tests shall have values less than the specified strength. When it appears that the laboratory-cured specimens will fail to conform to the requirements for strength, the Engineer shall have the right to order changes in the concrete sufficient to increase the strength to meet these requirements. The strengths of the specimens cured on the job are intended to indicate the adequacy of protection and curing of the concrete and may be used to determine when the forms may be stripped, shoring removed, or the structure placed in service. When, in the opinion of the Building Official, the strengths of the job-cured specimens, the contractor may be required to improve the procedures for protecting and curing the concrete, or when test of field-cured cylinders indicate deficiencies in protection and curing, the Engineer may require test in accordance with ASTM Specification C 42 or order load tests as outlined in the load tests of structures for that portion of the structure where the questionable concrete has been placed. 900.3.7 Splitting Tensile Test of Concrete

To determine the splitting ratio,  $F_{sp}$ , for a particular aggregate, test of concrete shall be made as follows:

1. Twenty four (24) 15 cm dia. x 30 cm long (6 in. dia. x 12 in. long) cylinder shall be made in accordance with ASTM C 192, twelve at a compressive strength level of approximately 210 kg/cm<sup>2</sup> (3000 psi) and twelve at approximately 280 kg/cm<sup>2</sup> (4000 psi) or 350 kg/cm<sup>2</sup> (5000 psi). After 7 days moist curing followed by 21 days drying at 23 oC (73 o F) and 50% relative humidity, eight of the test cylinders at each of the two strength levels shall be tested for splitting strength and four for compressive strength.

2. The splitting tensile strength shall be determined in accordance with ASTM C 496, and compressive strength in accordance with ASTM C 39. The ratio,  $F_{sp}$ , of splitting tensile strength to the square root of compressive strength shall be obtained by using the average of all 16 splitting tensile test and all 8 compressive tests.

Minimum Strength, Concrete other than fill, shall have a minimum compressive strength 28 days of 140 kg/cm<sup>2</sup> (2000 psi).

#### 900.3.8 Batching

Batching shall conform to the requirements of Item 405, Structural Concrete.

#### 900.3.9 Mixing and Delivery

Mixing and delivery shall conform to the requirements of item 405, Structural Concrete.

#### 900.4 Concrete Surface Finishing: General

This shall be in accordance with Item 405, Structural Concrete.

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900.5 Curing Concrete (See Subsection 407)

900.6 Acceptance of Concrete

The strength of concrete shall be deemed acceptable if the average of 2 consecutive strength test results is equal to or exceed the specified strength and no individual test result falls below the specified strength by more than 15%.

Concrete deemed to be not acceptable using the above criteria may be rejected unless contractor can provide evidence, by means of core tests, that the quality of concrete represented by the failed test result is acceptable in place. Three (3) cores shall be obtain from the affected area and cured and tested in accordance with AASHTO T24. Concrete in the area represented by the core will be deemed acceptable if the average of cores is equal to or at least 85% and no sample core is less than 75% of the specified strength otherwise it shall be rejected.

900.7 Method of Measurement

The quantity of concrete to be paid shall be the quantity shown in the Bid Schedule will be adjusted by the amount of the change for the purpose of payment. No deduction will be made for the volume occupied by the pipe less than 101 mm (4") in diameter or for reinforcing steel, anchors, weep holes or expansion materials.

900.8 Basis of Payment

The accepted quantities of structural concrete complete in place will be paid for the contract unit price for cubic meter as indicated on the Bid Schedule.

Pay Item and Description	Unit of measurement
Structural Concrete	m <sup>3</sup>

Such prices and payment shall be full compensation for furnishing all materials, including metal water stops, joints, joint fillers, weep holes, and rock backing and timber bumpers; for all form and false work; for mixing, placing, furnishing, and curing the concrete; and for all labor, materials, equipment, tools and incidentals necessary to complete the item, except that reinforcing steel shall be paid for at the contract unit price per kilogram for reinforcing steel metal pipes and drains, metal conduits and ducts, and metal expansion angles shall be paid for as structural steel that when proposal does not include an item for structural steel these miscellaneous metal parts shall be paid for as reinforcing steel.

ITEM 1000 - TERMITE CONTROL WORK

1000.1 Description

This item shall consist of furnishing and applying termite control chemicals, including the use of equipment and tools in performing such operations in accordance with the Specification.

1000.2 Materials Requirements

Termite control chemicals or toxicants shall be able to immediately exterminate termites or create barriers to discourage entry of subterranean termites into the building areas. The toxicants may be classified into the following types and according to use.

Type I Liquid Termicide Concentrate

This type of toxicant shall be specified for drenching soil beneath foundations of proposed buildings. The concentrate materials shall be diluted with water in the proportion of 1 liter of concentrate material to 65 liters of water or as specified by the Manufacturer.

Type II Liquid Termicide Ready Mixed Solution

This type of toxicant which comes in ready mixed solution shall be used as wood preservative by chenching wood surfaces to the point of run-off

Type III Power Termicide

This type of toxicant shall be applied visible or suspected subterranean termite mounds and tunnels where termites are exterminated through trophallaxes method (exchange or nourishment between termites while greeting each other upon meeting)

1000.3 Construction Requirements

Before any termite control work is stated, through examination of the site shall be undertaken so that the appropriate method of soil poisoning can be applied.

The Contractor shall coordinate with other related trades through the Engineer to avoid delay that may arise during the different phases of application of the termite chemicals.

1000.3.1 Soil Poisoning

There are two methods usually adopted in soil poisoning which are as follows.

1. Cordoning. This method is usually adopted when there is no visible evidence of termite infestation. Trenches in concentric circles, squares or rectangles are dug 150mm to 220mm wide and at least one meter apart and applied with Type I working solution at the rate of 8 liters per linear meter.

2. Drenching. When soil show termite infestation, this method shall be applied. The building area shall be thoroughly drenched with Type I working solution at the rate of 24 liters per square meter. When Powder Termicide is to be applied to eradicate subterranean termites, careful application and precaution shall be given considering that this toxicant is fatal to animal and human lives.

1000.3.2 Application

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At the time soil poisoning is to be applied, the soil to be treated shall be friable condition with low moisture content so as to allow uniform distribution of the toxicant agents. Toxicant shall be applied at least twelve (12) hours prior to placement of concrete which shall be in contact with treated materials.

Treatment of the soil on the exterior sides of the foundation walls, grade beams and similar structures shall be done prior to final grading and planting or landscaping work to avoid disturbance of the toxicant barriers by such operations. Areas to be covered by concrete slab shall be treated before placement of granular fill used as capillary water barrier at a rate of 12 liters per square meter with Type I working solution after it has been compacted and set to required elevation. Additional treatment shall be applied as follows.

1. In critical areas such as utility openings for pipes, conduits and ducts, apply additional treatment at the rate of 6 liters per linear meter in a strip 150mm to 200mm wide.

2. Along the exterior perimeter of the slab and under expansion joint, at the rate of 2.5 liters per linear meter in a strip 150mm to 200mm wide in shallow trench.

1000.3.3 Wood Protection Where the application of wood preservative is necessary, the Contractor shall use Type II working solution as recommended by the manufacturer.

All wood materials not pressure treated as specified in Item 1003 - Carpentry and Joinery shall be treated with Type II ready mixed solution as herein call for or as directed by the Engineer.

#### 1000.4 Method of Measurement

Liquid termite control chemicals or toxicants shall be measured by actual number of liters used in the cordoning and drenching of lot areas and soil poisoning of granular fill or actual number of liters used in drenching wood surfaces, while powder chemical/toxicant shall be measured by kilograms applied to suspected subterranean termite mounds and tunnels. The quantity to be paid for shall be determined and accepted by the Engineer.

#### 1000.5 Basis of Payment

The accepted quantities, measured as prescribed in Section 10 shall be paid for at the Contract Unit Price for Termite Control Work which price and payment shall be full compensation for furnishing and applying termite control chemicals including the use of equipment and tools, labor and incidentals necessary to complete to complete the work prescribed in this item.

Payment shall be made under:

Pay Item Number	Description	Unit of Measurement
1000 (a)	Soil Poisoning	Liter
1000 (b)	Wood Preservative	Liter
1000 (c)	Powder Termicide	Kilogram

### ITEM 1001 - STORM DRAINAGE AND SEWERAGE SYSTEM

#### 1001.1 Description

This Item shall consist of furnishing all materials, equipment and labor for the complete installation of the storm drainage system to include all piping, gutters, canals, catch basins, junction boxes, hand holes, manholes and other appurtenant structures and sewerage system to include all sanitary sewer piping and septic vault where no public sewer exist from building to the point of discharge.

#### 1001.2 Materials Requirements

1001.2.1 Materials for storm drainage system shall meet the requirements specified in the following standard specification.

Portland Cement	ASTM C-150
Fine and Coarse Aggregate	ASTM C-33
Reinforcing Steel	ASTM A-615
Non-reinforced Concrete Pipes	ASTM C-14
Reinforced Concrete Pipes	ASTM C-76 (AASHTO M-86)
Cast Iron Pipes (for conductors and Downspouts)	ASTM A-74
Galvanized Iron Scheduled 40 (for conductors and downspouts)	ASTM A-120
Polyvinyl Chloride (PVC) (for conductors and Downspouts)	ASTM 2729

Where the covers for such basins, junction boxes, manholes and canals for grating are required same shall be made of wrought iron and of three dimensions as shown on the Plans.

1001.2.2 Materials for sewerage system shall meet the requirements specified in the following standard specifications:

Cast Iron Pipes and Fittings	ASTM A-74
Pig Lead (for securing and sealing joints)	ASTM B 22-77
PVC Pipes and Fittings (where called in Plans)	ASTM D 1784
Solvent Cement (for securing PVC joints)	ASTM D 2564

Where PVC pipes and fittings are used joints shall be secured with rubber "O" ring or solvent cement as the case maybe.

Oakum for joints in bell and spigot pipes shall be made from hemp fiber, braided or twisted and oil impregnated free from lumps, dirt and extraneous matter.

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1001.3 Construction Requirements

1001.3.1 Installation of Pipes

Under no circumstances shall pipes be laid under water and when the trench condition or the weather is unsuitable for such work.

a. Bedding. Materials such as sand, sandy soil or any approved materials shall be used to provide a firm foundation of uniform density. The bedding shall have a minimum thickness equivalent to one-fourth (1/4) of the pipe's diameter.

b. Laying of Pipes. Proper facilities shall be provided for lowering and placing pipes into trenches in order to preclude damage. Laying of pipes has start upgrade with the spigot and end of bell-and-spigot pipe, or the tongue-and-groove pipe positioned towards the direction of the flow. The pipes shall be in accordance with the grades and alignment shown in the Plans.

The spigots or tongues shall be adjusted in bells or grooves to provide uniform space around joints to receive mortar. Blocking or wedging between spigot and bell or between tongue and groove to attain proper spacing shall be allowed provided such blocking/wedging shall not interfere with the caulking and shall not affect the water tightness of these joints.

c. Bell and Spigot Joint for Drain Pipe. The first pipe shall be properly bedded at the required grade. Just below the spigot of the first unit, a sufficient space shall be provided for engaging the bell end of the second pipe of the joints with sufficient amount of additional mortar. The mortar bead on the outside shall immediately be protected with a cover of wet burlap or wet earth for at least three (3) days for curing.

d. Tongue and Groove Joint for Concrete Pipe. The first pipe shall be properly bedded. A shallow excavation shall be made underneath the joint and filled with mortar to provide a bed second pipe. The tongue end of the first pipe shall be carefully cleaned with a wet brush and soft mortar applied around the upper half of the tongue. After cleaning and positioning the second pipe close the first, mortar shall be applied around the lower half of the groove. With just sufficient thrust, the second pipe shall be brought in close contact with the first until mortar is squeezed out of the joint. Sufficient mortar shall be used to fill the joint and to form a bead on the outside.

e. Mortar for Joint. Mortar shall be a mixture of Portland Cement, sand and water mixed in the proportion by volume of one part cement to two parts of clean sand with just sufficient amount of water for plasticity.

f. Leaded Joints of Cast Iron Pipes. Joints of cast iron pipes shall be packed with braided or twisted oilimpregnated hemp or oakum, properly caulked around the joint. The packing shall be at least 20 mm below the rim of the hub or bell and this space shall be filled with molten pig lead in one continuous pouring. The "ring" of pig lead formed around the joint shall be properly caulking tools to render the joints watertight.

1001.3.2 Concrete structures. Concrete structures such as catch basins, canal gutters, junction boxes and manholes for the drainage system, and septic vault for sewerage system shall be constructed in accordance with the Plans and Specifications on Concrete Work.

1001.3.3 Sewer Connections and Clean-Outs

a. The outlet of the septic vault shall be connected to the street drain or to other discharge point where no sanitary sewer shall not be made without the permission of the proper authorities, but shall be made in such a manner that any and the service water, as well as house and other liquid wastes will flow to the sanitary sewer. Provided, that isolated faucets used exclusively for garden purposes may in the discretion of the proper authorities be allowed not to flow into the sanitary sewer.

b. Clean-Outs of rodding holes consisting of cast iron extensions with long sweep elbow fittings shall be provided at the ends of runs and at every change of directions. Clean-Outs shall be capped with cast brass ferrules with threads and screwed-on removable brass plugs. Clean-Outs extended outside the building and raised to the level of finished grade shall be terminated with the same cast brass ferrule with brass plug set into a concrete slab shall be 150 mm thick and 300 mm2, finish flush with grade.

1001.3.4 Incidental Earthwork

Incidental Earthwork for the storm drainage and sewerage system such as excavation and backfilling shall be undertaken in accordance with applicable part of Excavation, Filling and Grading.

1001.4 Method of Measurement

Pipes, culverts, gutters, canals and grating installed in place and accepted by the Engineer shall be measured by the meter along their axes. Catch basins, junction boxes, manholes and septic vault shall be measured by the number of units constructed and accepted.

1001.5 Basis of Payment

The quantities as determined in sub-section 1001.4 shall be paid at the contract unit price for each of the items which shall constitute full compensation for all materials, labor, tools, and equipment and all other incidentals necessary to complete the item. Payment shall be made under:

Pay Item	Description	Unit of Number measurement
1001.2 (a)	Pipe (kind and size)	meter
1001.2 (b)	Fitting (kind and size)	each
1001.2 (c)	Concrete Gutter	meter
1001.2 (d)	Concrete Canal	meter
1001.2 (e)	W.I Grating	meter
1001.2 (f)	Catch Basin	each
1001.2 (g)	Junction Box	each

ITEM 1002 – PLUMBING

1002.1 Description

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This Item shall consist of furnishing all materials, tools, equipment and fixtures required as shown on the Plans for the satisfactory performance of the entire plumbing system including installation in accordance with the latest edition of the National Plumbing Code, and this Specification.

#### 1002.2 Material Requirements

All piping materials, fixtures and appliances fitting accessories whether specifically mentioned or not but necessary to complete this Item shall be furnished and installed.

##### 1002.2.1 Cast Iron Soil Pipes and Fittings

a. Pipes and fittings materials shall comply with the specification requirements defined in PNS/SAO 4-1:1974. The material description and standards of manufacture are herein described:

1. Cast Iron – the casting shall be made of gray iron which shall be sound, free from cracks, sand holes and blow holes. They shall be uniformly low hardness that permits drilling and cutting by ordinary methods. Pipes and fittings shall be true to pattern and of compact closed grained structure.

2. Quality of Iron – the iron shall be made by the cupola, air furnace, electric furnace or other processes which shall be checked by regular chemical and physical control test. The resultant shall be gray iron of good quality.

3. Manufacture – the pipes shall be made with hub and spigot ends or hub ends only. All hubs for pipes and fittings shall be provided with held grooves and all spigots ends shall be made with beads or plain if machine cast centrifugally. Plugs shall be wrought or cast, machined to the dimensions required and shall be free from defects.

4. Freedom from defects – pipes and fittings shall be true, smooth and cylindrical, their inner and outer surfaces being as nearly concentric as practicable. They shall be in all aspects, sound and good casting free from laps, pin holes or other imperfections and shall be neatly dressed and carefully fettled. The ends shall be finished reasonably square to their axes.

b. Clean-outs shall be made of heavy cast brass ferrule with counter sunk screw cover same diameter as the pipe except that they shall not be larger than 100mm diameter.

c. Caulking lead shall be of molten type peg lead conforming to specification requirements defined in ASTM B-29.

d. Oakum shall be twisted or braided hemp or abaca fibers slightly impregnated with oil.

##### 1002.2.2 Water supply Pipes and Fittings

a. Pipes shall be galvanized iron pipe schedule 40 conforming to specification requirements defined in ASTM A – 120 with threaded connection. Under roads where necessary shall be suitably protected as shown on the Plans.

Fittings shall be malleable iron Type II, galvanized iron conforming to specification requirements defined in ASTM A338.

##### b. Valves

Valves for water supply shall be bronzed body with threaded ends rated 21.0 kgf/cm<sup>2</sup>. All valves shall be gate unless otherwise specified. Gate valves shall have solid wedge body and discs conforming to specification requirements defined in ASTM B-62. Globe valves shall have plug discs with ferrule threaded ends and bronze body.

##### c. Unions

Unions on ferrous pipe 50mm in diameter and smaller shall be malleable iron.

##### d. Water Meter

Water meter where required to be furnished by the Contractor shall be of the type tested and approved by MWSS.

##### 1002.2.3 Approved Alternate Pipes and Fittings

Pipes and fittings for sanitary and potable water lines as approved alternate shall be Unplasticized Polyvinyl Chloride Pipes and Fittings (UPVC).

Pipes and fittings shall be made of virgin materials conforming to specification requirements defined in ASTM D-2241 and PNS 65: 1986. Fittings shall be molded type and designed for solvent cement joint connection for water lines and rubber O-ring seal joint for sanitary lines.

##### 1002.2.4 Septic Tank

The septic tank shall be provided as shown on the Plans including all pipe vents and fittings. The various construction materials such as masonry works shall conform to the corresponding Item of these specifications. Inlet and outlet pipes shall conform to the latest edition of the National Plumbing Code.

##### 1002.2.5 Plumbing Fixtures and Fittings

All fittings and trimmings for fixtures shall be chromium-plated and polished brass unless otherwise approved. Exposed traps and supply pipes for fixtures shall be connected to the rough in, piping system at the wall unless otherwise indicated on the Plans. Built-in fixtures shall be watertight with provision of water supply and drainage outlet, fittings and trap seal. Unless otherwise specified, all plumbing fixtures shall be made of vitreous china complete with fittings.

a. Water closet shall be vitreous china, free standing toilet combination, round front bottom outlet siphonic washdown bowl with extended rear self and closed coupled tank with cover complete with fittings and mounting accessories. Model make and color shall be submitted for approval prior to delivery at jobsite by the Engineer.

b. Lavatory shall be vitreous china, wall-hung with rear overflow and cast-in soap dishes, pocket hanger with integral china brackets, complete with twin faucets, supply pipes, P-trap and mounting accessories. Where indicated on the Plans to be counter top model make and color shall be approved by the Engineer.

c. Urinal shall be vitreous china, wall-hung washout urinal with extended shields and integral flush spreader, concealed wall-hanger pockets, 19mm top spud complete with fitting and mounting accessories. Model make and color shall be approved by the Engineer.

##### 1002.2.6 Bathroom and Toilet Accessories

a. Shower head and fittings shall be movable, cone type with excutcheon arm complete with stainless steel shower valve and control lever, all exposed surface to be chromium finish.

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- b. Grab bars shall be made of tubular stainless steel pipe provided with safety grip and mounting flange.
- c. Floor drains shall be made of stainless steel beehive type, measuring 100mm x 100mm, and provided with detachable stainless strainer, expanded metal lath type. 15 Multipurpose Covered Court, Rehabilitation & Training Center
- d. Toilet paper holder shall be vitreous china wall mounted. Color shall be reconciled with the adjacent fixture and facing tiles.

- e. Soap holder shall be vitreous china wall mounted. Color shall be reconciled with the adjacent fixture and facing tiles.
- f. Faucet(s) shall be made of stainless steel for interior use. g. Hose-bib(s) shall be made of bronze cast finish.

#### 1002.2.7 Special Plumbing Fixtures

- a. Kitchen sink shall be made of stainless steel self-rimming, single compartment complete with supply fittings, strainer traps, dual control lever and other accessories.
- b. Lavatory sink shall be made of cast iron metal with white porcelain finish with single compartment, flat rim ledge, 762mm x 533mm complete with supply fittings, strainer, trap and other accessories.
- c. Scrub-up sink shall be made of cast iron metal with white porcelain finish measuring 610 mm x 610mm complete with supply fittings, strainer, trap and wall mounting accessories.
- d. X-ray developing tank shall be made of cast iron white porcelain finish with three (3) compartment x-ray processing tank, drain plug, open standing drain, 10mm IPS inlet spud complete with stand and mounting accessories.
- e. Squat bowl(s) shall be vitreous china, wash down squat bowl with integral foot treads, pail flush type. Color, make and type to be approved by the Engineer.
- f. Grease traps shall be made of cast bronze with detachable cover and mounting accessories.

#### 1002.2.8 Roof drains, Downspout, Overflow Pipes and Steel Grating

The Contractor shall provide, fit and/or install necessary drains with strainers, where shown on the Plans. Each drain with strainer shall fit the size of the corresponding downspout (or root leader) over which it is to be installed and in conformity with the following schedule:

- a. Scupper drains (for balconies, parapet) shall be made of bronze base with flashing. Flange threaded outlet and convex with integral flashing clamp bolted to flange.
- b. "Josam" type drains shall be made of bronze base semi-dome with large free area, flashing clamp and integral gravel stopper. To be used at roof decks, canopies, gutters, and elsewhere indicated on the Plans.
- c. Downspouts when encased in concrete, unless otherwise shown on the Plans shall be polyvinyl chloride (PVC). Whether indicated or specified to be cast iron or galvanized iron the same shall meet the specification requirement as herein described.
- d. Overflow pipes shall be made of galvanized iron pipe measuring at least 13mm diameter and spaced 200mm on center.
- e. Steel grating shall be made of wrought iron metals of design on shop drawings approved and surfaces to be coated with shop finish.

#### 1002.2.9 Fire Protection System

- a. Fire hose cabinets shall be locally available consisting of 38mm diameter valve hose rack with nipple 30mm rubber lines hose cable with standing 4268kg/cm<sup>2</sup>, nozzle 38mm diameter brass, chromium plated.
- b. Fire stand pipe system shall consist of risers and hose valves. Pipe shall be extra strong black iron. Valve to be high grade cast bronze mounted withstanding 79.40 kg. working pressure as indicated on the Plans.
- c. Fire extinguisher shall be portable, suitable for class A, B, C fires, mounted inside cabinet. Cabinet shall be full flush mounting door with aluminum trim for glass plate, frame and box shall be made of gauge 14 galvanized iron sheet with white interior and red exterior baked enamel finish over primer. Cabinet to be wall mounted and size to be able to accommodate the defined components.
- d. Yard hydrant where shown on the Plans shall match the Integrated Fire Department requirements. Outlet shall be single 63mm diameter gate valve with chain connected caps.

1002.2.10 Built-in appliances such as urinal trough, lavatory and slope sink shall be made as indicated on the Plans, exposed surfaces to be tile wainscoting complete with fitting accessories required as practiced in this specialty trade.

#### 1002.3 Construction Requirements

The Contractor before any installation work is started shall carefully examine the Plans and shall investigate actual structural and finishing work condition affecting all his work. Where actual condition necessitates a rearrangement of the approved pipe layout, the Contractor shall prepare Plan(s) of the proposed pipe layout for approval by the Engineer.

##### 1002.3.1 Installation of Soil, Waste, Drain and Vent Pipes

- a. All cast iron soil and drainage pipes shall be pitch 6mm per 300mm but in no case flatter than 3mm per 300mm.
- b. Horizontal lines shall be supported by well secured length heavy strap hangers. Vertical lines shall be secured strongly by hooks to the building frame and a suitable bracket or chairs shall be provided at the floor from which they start.
- c. All main vertical soil and waste stacks shall be extended full size to and above the roof line to act as vents, except otherwise indicated on the Plans.
- d. Vent pipes in roof spaces shall be run as close as possible to underside of roof with horizontal piping pitched down to stacks without forming traps. Vertical vent pipes may be connected into one main vent riser above the highest vented fixtures.
- e. Where an end or circuit vent pipe from any fixtures is connected to a vent line serving other fixtures, the connections shall be at least 1.20 m above the floor on which the fixtures are located.
- f. Horizontal waste line receiving the discharge from two or more fixtures shall be provided with end vents unless separate venting of fixtures is noted on the Plans.

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g. All changes in pipes sizes on soil and waste lines shall be made with reducing fittings or recessed reducers. All changes in directions shall be made by appropriate use of 45o wyes, half wye, long sweep quarter bends or elbows maybe 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 waste closets. Where it becomes necessary to use short radius fittings in other locations the approval of the Engineer shall be obtained prior to installation of the same.

h. All joints of cast iron pipes in bell and spigot shall be firmly packed with oakum or hemp and caulked with pig lead at least 25mm deep.

i. Cleanouts at the bottom of each soilstack, wastestack, interior downspout and where else indicated shall be the same size as the pipe up to and including 102mm . 152mm, for larger pipes.

j. Vent pipe shall be flashed and made watertight at the roof with ferrule lead sheet. Flashing shall be turned down into pieces.

k. Each fixtures and place of equipment requiring connection to the drainage system except fixtures with continuous waste shall be equipped with a trap. Each trap shall be placed as near to the fixture as possible. Traps installed on threaded pipe shall be recessed drainage pattern.

l. Overhead horizontal runs of pipes shall be hung with adjustable wrought iron pipe hanger not over 3.04 m apart except hub and spigot soil pipe which shall have hanger spaced not over 1.50 m apart and located near a hub.

#### 1002.3.2 Water Pipes, Fittings and Connections

All water piping inside the building and underground, 100 mm diameter and smaller shall be galvanized iron threaded pipe with malleable iron fittings.

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

b. The cold water system shall be installed with a fall towards a main shutoff valve and drain. Ends of pipes and outlets shall be capped or plugged and left ready for future connections.

##### c. Mains and Branches

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

2. All piping above the ground shall be run parallel with the lines of the building unless otherwise indicated on the Plans.

3. All service pipes, valves and fittings shall be kept at sufficient distance from other work to permit finished covering not less than 12.5mm from such work or from finished covering on the different services.

4. No water piping shall be buried in floors, unless specifically indicated on the Plans and approved by the Engineer.

5. Changes in pipes shall be made with reducing fittings.

##### d. Drain

1. Pipe drain indicated on the drawings shall consist of 12 mm globe valve with renewable disc and installed at low points on the cold water piping so that all piping shall slope 100 mm in 30.5 m.

##### e. Threaded Pipe Joints

1. All pipes shall be reamed before threading. All screw joints shall be made with graphite compound applied to make threads only. Threads shall be full cut and not more than three threads on the pipe shall remain exposed.

f. Expansion and Contraction of Pipes Accessible contraction-expansion joints shall be made whenever necessary. Horizontal runs of pipe over 15m in length shall be anchored to the wall to the supporting structure about midway on the run to force expansion and contraction equally toward the ends or as shown on the Plans.

g. Fire Standpipe System Fire standpipe system shall consist of risers and hose valve. Pipe shall be extra strong black iron. Valves to be underwriter's approval high grade cast bronze mounted.

##### h. Valves and Hose Bibs

1. Valves shall be provided on all supplied fixtures as herein specified.

2. The cold water connections to the domestic hot water heater shall be provided with gate valves and the return circulation connection shall have gate and a check valve.

3. All connection to the domestic hot water heater shall be equipped with unions between valves and tanks.

4. Valve shall not be installed with its stem below the horizontal. All valves shall be gate valves unless otherwise indicated on the Plans.

5. Valves up to and including 50 mm diameter shall be threaded ends, rough bodies and finished trimmings, except those on chromium plated brass pipe.

6. Valves 63 mm in diameters and larger shall have iron bodies, brass mounted and shall have either screws or flange ends.

7. Hose bibs shall be made of brass with 12.5mm inlet threads, hexagonal shoulders and 19mm male.

#### 1002.3.3 Fixtures, Equipment and Fastenings

a. All fixtures and equipments shall be supported and fastened in a safe and satisfactory workmanship as practiced.

b. All fixtures, where required to be wall mounted on concrete or concrete hollow block wall, fasten with brass expansion bolts. Expansion bolts shall be 6mm diameter with 20mm threads to 25mm into solid concrete, fitted with loose tubing or sleeves of proper length to acquire extreme rigidity.

c. Inserts shall be securely anchored and properly flushed into the walls. Inserts shall be concealed and rigid.

d. Bolts and nuts shall be horizontal and exposed. It shall be provided with washers and chromium plate finish.

#### 1002.3.4 Pipe Hangers, Inserts and Supports

a. Pipe hangers shall be wrought iron or malleable iron pipe spaced not more than 3m apart for horizontal runs or pipe, except hub and spigot soil pipe which shall have hanger spaced not over 1.5 m apart located near the hub.

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- b. Chains, straps perforated turn-buckles or other approved means of adjustment except the turnbuckles may be omitted for hangers on soil or waste lines or individual toilet rooms to maintain stacks when spaced does not permit.
- c. Trapeze hangers may be used in lieu of separate hangers on pipe running parallel to and close to each other.
- d. Insert shall be cast steel and shall be of type to receive a machine bolt or nut after installation. Insert may be permitted adjustment of the bolts in one horizontal direction and shall be installed before pouring of concrete.
- e. Wrought iron clamps or collars to support vertical runs of pipe shall be placed not more than 6m apart for as indicated on the Plans.

#### 1002.3.5 Plates and Flashing

- a. Plates to cover exposed pipes passing through floor finished walls or ceiling shall be fitted with chromium plated cast brass plates or chromium plated cast iron or steel plates on ferrous pipes.
- b. Plates shall be large enough to cover and lose the hole around the area where pipes pass. It shall be properly installed to insure permanence.
- c. Roof areas penetrated by vent pipes shall be rendered watertight by lead sheet flashing. It shall extend at least 150mm above the pipe and 300mm along the roof.

#### 1002.3.6 Protection and Cleaning

- a. During installation of fixtures and accessories and until final acceptance, protect items with strippable plastic or other approved means to maintain fixtures in perfect conditions.
- b. All exposed metal surfaces shall be polished clean and rigid of grease, dirt or other foreign materials upon completion.
- c. Upon completion, through clean all fixtures and accessories to leave the work in polished condition.

#### 1002.3.7 Inspection, Warranty Test and Disinfection

All pipes, fittings, traps, fixtures, appurtenance and equipment of the plumbing and drainage system shall be inspected and approved by the Engineer to insure compliance with all requirements of all Codes and Regulations referred to this Specification.

##### 1002.3.7.1 Drainage System Test

- a. The entire drainage and venting system shall have all necessary openings which can be plugged to permit the entire system to be filled with water to the level of the highest stack vent above the roof.
- b. The system shall hold this water for a full 30 minutes during which time there shall be no drop greater than 102mm.
- c. Where only a portion of the system is to be tested, the test shall be conducted in the same manner as described for the entire system except that a vertical stack 3.00 m highest horizontal line to be tested may be installed and filled with water to maintain sufficient pressure or water pump may be used to supply the required pressure.
- d. If and when the Engineer decides that an additional test is needed, such as an air to smoke test on the drainage system, the Contractor shall perform such test without any additional cost.

##### 1002.3.7.2 Water Test on System

- a. Upon completion of the rough-in and before connecting fixtures the entire cold water piping system shall be tested at a hydrostatic pressure  $1 \frac{1}{2}$  times the expected working pressure in the system during operation and remained tight and leak-proof.
- b. Where piping system is to be concealed the piping system shall be separately in manner similar to that described for the entire system and in the presence of the Engineer or his duly designated representative.

##### 1002.3.7.3 Defective Works

- a. All defective materials replaced and tested will be repeated until satisfactory performance is attained.
- b. Any material replaced for the satisfactory performance of the system made shall be at the expense of the Contractor.
- c. Caulking of screwed joints or holes will not be permitted.

##### 1002.3.7.4 Disinfection

- a. The entire water distribution system shall be thoroughly flushed and treated with chlorine before it is operated for public use.
- b. Disinfection materials shall be liquid chlorine or hypochlorite and shall be introduced in a manner approved as prescribed or approved by the Engineer into the water distribution system.
- c. After a contact period of not less than sixteen hours, the heavily chlorinated water shall be flushed from the system with portable water.
- d. Valves for the water distribution system shall be opened and closed several times during the 16 hours chlorination treatment is done.

#### 1002.3.8 As-Built Drawings

Upon completion of the work, the Contractor shall submit two sets of prints with all as-built changes shown on the drawings in a neat workmanship manner. Such prints shall show changes or actual installation and conditions of the plumbing system in comparison with the original drawings. 1002.4 Method of Measurement

The work done under this Item shall be quantified per length and/or number of units as provided in the Bill of Quantities, tested and accepted to the satisfaction of the Engineer.

#### 1002.5 Basis of Payment

The quantified items, installed in place shall be the basis for payment, based from the unit bid price for which prices and payments shall constitute full compensation including labor, materials and incidentals necessary to complete this item.

Payment shall be made:

Pay Item Number	Description	Unit of measurement
1002 (a)	Cast Iron Soil Pipes and Fittings	pieces/length
1002 (b)	Galvanized Iron Pipes And Fittings	pieces/length
1002 (c)	Plumbing Fixtures	set

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**ITEM 1014 – PREPAINTED METAL SHEETS****1014.1 Description**

This item shall consist of furnishing all pre-painted metal sheet materials, tools and equipment, plant including labor required in undertaking the proper installation complete as shown on the Plans and in accordance with this Specification.

**1014.2 Material Requirements**

All pre-painted metal sheet and roofing accessories shall be oven baked painted true to profiles indicated on the Plans.

**1014.2.1 Pre-Painted Roofing Sheets**

Pre-painted roofing sheets shall be fabricated from cooled rolled galvanized iron sheets specially tempered steel for extra strength and durability. It shall conform to the material requirements defined in PNS 67:1985. Profile section in identifying the architectural moulded rib to be used is as follows: Regular corrugated, Quad-rib, tri-wave, Rib-wide, Twin-rib, etc. desired color shall be subject to the approval of the Architect/Engineer.

1014.2.2 Gutters, Valleys, Flashing Hip and Ridge roll shall be fabricated from gauge 24 (0.600 mm thick) cold-rolled plain galvanized iron sheets specially tempered steel. Profile section shall be as indicated on the Plans.

1014.2.3 Fastening hardware shall be of galvanized iron straps and rivets. G.I straps are of 0.500 mm thick x 16 mm wide x 267 mm long (gauge 26 x 5/8" x 10-1/2") and standard rivets.

1014.2.4 Base metal thickness shall correspond to the following gauge designation available locally as follows:

a)	Base Metal Thickness	Designation Gauge
	0.400 mm thick	Gauge 28
	0.500 mm thick	Gauge 26
	0.600 mm thick	Gauge 24
	0.800 mm thick	Gauge 22
b)	Protective Coating	Thickness
	1. Zinc	34.4 microns (244 gm/m <sup>2</sup> )
	2. Paint coatings	
	Top coat	15.20 microns
	Bottom coat	6.8 microns
c)	Overall thickness with protective coats	
	0.400 mm	0.428-451 mm
	0.500 mm	0.532-551 mm
	0.600 mm	0.638-651 mm
d)	Length of roofing sheets – available in cut to length long span length up to 11.4 meters.	
e)	Special length and thickness are available by arrangements.	

**1014.3 Construction Requirements**

Before any installation work is commenced, the Contractor shall ascertain that the top faces of the purlins are in proper alignment. Correct the alignment as necessary in order to have the top faces of the purlins on an even plane.

**1014.3.1 Handling/Lifting/Positioning of Sheets**

Sheets shall be handled carefully to prevent damage to the paint coating. Lift all sheets or sheet packs on to the roof frame with the overlapping down-turned edge facing towards the side of the roof where installation will commence, otherwise sheets will have to be turned end-to-end during installation.

**1014.3.2 Installation Procedure**

1014.3.2.1 Start roofing installation by placing the first sheet in position with the downturned edge in line with other building elements and fastened to supports as recommended.

1014.3.2.2 Place the downturned edge of the next sheet over the edge of the first sheet, to provide side lap and hold the side lap firmly in place. Continue the same procedure for subsequent sheets until the whole roofing area is covered and/or (Adopt installation procedure provided in the instruction manual for each type of architectural molded rib profile section).

1014.3.2.3 For walling applications follow the procedure for roofing. Allow a minimum end lap of 100 mm (14") for vertical walling.

1014.3.3 Gutters, Valleys, Flashing ridge and Hip rolls Gutters, valleys, flashing ridge and hip rolls shall be fastened where indicated on the Plans by self-tapping screw or galvanized iron straps and rivets.

1014.3.4 End Laps In case handling or transport consideration requires using two or more end lapped sheets to provide full length coverage for the roof run, install each line of sheets from bottom to top or from eave line to apex of roof framing. Provide 150 mm minimum end lap.

**1014.3.5 Anchorage/Fastening**

1014.3.5.1 Pre-painted steel roofing sheets shall be fastened to the wood purlins with standard length G.I straps and rivets.

1014.3.5.2 For steel frame up to 4.5 mm thick use self-drilling screw No. 12 x 35 mm long hexagonal head with neoprene washer.

1014.3.5.3 For steel support up to 5 mm thick or more use thread cutting screw No. 12 x 40 mm long hexagonal head with neoprene washer.

1014.3.5.4 Side lap fastener use self-drilling screw No. 10 x 16 mm long hexagonal head with neoprene washer.

1014.3.5.5 Valley fastener to lumber and for walling use self-drilling wood screw No. 12 x 25 mm long hexagonal head with neoprene washer.



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1014.3.5.6 Valley fastened to steel supports use self-drilling screw, head with neoprene washer. Drill size is 5 mm diameter.

#### 1014.3.6 Cutting of Sheets

1014.3.6.1 In cutting prepainted steel roofing sheets and accessories to place the exposed color side down. Cutting shall be carried out on the ground and not over the top of other painted roofing products.

1014.3.6.2 Power cutting or drilling to be done or carried out on prepainted products already installed or laid in position, the area around holes or cuts shall be masked to shield the paint from hot fillings

1014.3.7 Storage and Protection Prepainted steel roofing, walling products and accessories should be delivered to the jobsite in strapped bundles. Sheets and/or bundles shall be neatly stacked in the ground and if left in the open it shall be protected by covering the stacks materials with loose tarpaulin.

#### 1014.4 Method of Measurement

The work done under this item shall be measured by actual area covered or installed with prepainted steel roofing and/or walling in square meters and accepted to the satisfaction of the engineer/Architect.

#### 1014.5 Basis of Payment

The area of prepainted steel roofing and/or walling in square meters as provided in section 1014 shall be paid for at the unit bid or contract unit price which payment shall constitute full compensation including labor, materials, tools and incidents necessary to complete this item.

Payment shall be made under:

Pay Item Number	Description	Unit of Number Measurement
1014 (a)	Prepainted metal sheets	m <sup>2</sup>

### 1027 – CEMENT PLASTER FINISH

#### 1027.1 Description

This Item shall consist of furnishing all cement plaster materials, labor, tools, and equipment required in undertaking cement plaster finish as shown on the Plans and in accordance with this Specification.

#### 1027.2 Material Requirements

Manufactured materials shall be delivered in the manufacturer's original unbroken packages or containers which are labeled plainly with the manufacturer's name and trademark.

##### 1027.2.1 Cement

Portland cement shall conform with the requirements as defined in Item 700, hydraulic cement.

##### 1027.2.2 Hydrated Lime

Hydrated lime shall conform to the requirements as defined in item 701, Hydrated Lime.

##### 1027.2.3 Fine Aggregates

Fine aggregates shall be clean, washed Sharp River sand and free from dirt, clay, organic matter or other deleterious substances. Sand derived from crushed gravel or stone may be used with the Engineer's approval but in no case shall such sand be derived from stone unsuitable for use as coarse aggregates.

#### 1027.3 Construction Requirements

##### 1027.3.1 Mixture

a) Mortar mixture for brown coat shall be freshly prepared and uniformly mixed in the proportion by volume of one part Portland Cement, three (3) parts sand and one fourth (1/4) part hydrated lime.

b) Finish coat shall be pure Portland cement properly graded conforming to the requirements of item 700, Hydraulic cement and mixed with water to approved consistency and plasticity.

##### 1027.3.2 Surface Preparation

a) After removal of formworks reinforce concrete surfaces shall be roughened to improved adhesion of cement plaster.

b) Surfaces to receive cement plaster shall be cleaned of all projections, dust, loose particles, grease and bond breakers. Before any application of brown coat is commenced all surfaces that are to be plastered shall be wetted thoroughly with clean water to produce a uniformly condition.

##### 1027.3.3 Application

a) Brown coat mortar mix shall be applied with sufficient pressure starting from the lower portion of the surface to fill the grooved and to prevent air pockets in the reinforced concrete/masonry work and avoid mortar mix dropping. The brown coat shall be lightly broomed/or scratched before surface had properly set and allowed to cure.

b) Finish coat shall not be applied until after the brown coat has seasoned for seven days and corrective measures had been done by the Contractor on surfaces that are defective. Just before the application of the finish coat, the brown coat surface shall be evenly moistened with portable water. Finish coat shall be floated first to a true and even surface, then troweled in a manner that will force the mixture to penetrate into the brown coat. Surfaces applied with coat shall then be smooth with paper in a circular motion to remove trowel marks, checks and blemishes. All cement plaster finish shall be 10 mm thick minimum on vertical concrete and/or masonry walls.

Whenever indicated on the Plans to be "Simulated Red Brick Finish", the Contractor shall render brick design on plaster surface before brown coat had properly set and then allowed to dry. Cement plaster shall not be applied directly to:

a) Concrete or masonry surface that had been coated with bituminous compound and,

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b) Surfaces that had been painted or previously plastered. 1027.3.4 Workmanship Cement plaster finish shall be true to details and plumbed. Finish surface shall have no visible junction marks where one (1) day's work adjoins the other. Where directed by the Engineer or as shown on the Plans vertical and horizontal groove joints shall be 25 mm wide and 10 mm deep.

#### 1027.4 Method of Measurement

All cement plaster finish shall be measured in square meters or part thereof for work actually completed in the building.

#### 1027.5 Basis of Payment

The work quantified and determined as provided in the Bills of Quantities shall be paid for at the Contract Unit Price which price constitutes full compensation including labor, materials, tolls, and equipment and incidentals necessary to complete this item.

Payment will be made under:

Pay Item Number	Description	Unit of Number measurement
1027(a)	Cement plaster Finish	m <sup>2</sup>
1027(b)	Simulated red Bricks pn 142	m <sup>2</sup>

### ELECTRICAL

#### ITEM 1100 - CONDUITS, BOXES & FITTINGS

##### 1100.1 Description

This item shall consist of the furnishing and installation of the complete conduit work consisting of electrical conduits, conduit boxes such as junction boxes, pull boxes, utility boxes and square boxes, conduit fittings such as coupling, locknuts and bushings and other electrical materials needed to complete the conduit roughing-in work of this project.

##### 1100.2 Material Requirements

All material shall be brand new and shall be of the approved type meeting all the requirements of the Philippine Electrical Code and bearing the Philippine Standard Agency (PSA) mark.

###### Conduits

Conduits shall be standard rigid steel, zinc coated or galvanized. Intermediate metal conduit may used if shown or specified on the approved Plans. PVC conduits if required shall be schedule 40. Enamel coated steel conduits and conduits with rough inner surfaces are not acceptable.

###### Conduit Boxes

All conduit boxes shall be Code gauge steel and galvanized. Outlet boxes shall be galvanized pressed steel of standard make. In general, outlet boxes shall be at least 100mm square or octagonal, 53 mm deep and 16 mm minimum gauge.

###### Conduit Fittings

All conduit fittings such as locknuts and bushing shall be galvanized of standard make.

##### 1100.3 Construction Requirements

All works throughout shall, be executed in the best practice in a workmanlike manner by qualified and experienced electricians under the immediate supervision of a duly licensed Electrical Engineer.

###### Conduits

Conduits shall be cut square with a hacksaw and reamed. Bends shall be made with the require radius. In making bends only conduit bending apparatus will be used. The use of pipe tee or vise for bending conduits shall not be permitted. Conduits which have been crushed, deformed or flattened shall not be installed. No running thread shall be allowed. Conduits runs crossing construction joints of the building shall be provided with standard expansion fittings of the approved type.

No conduits shall be used in any system smaller than 12 mm diameter electric thread size nor shall have more than four (4) 90° bends in any one run and were necessary, pull boxes shall be provided.

All ends of conduits which are left empty in cabinets and conduit boxes shall be plugged with lead or approved pipe caps so as to prevent the entrance of white ants and dirt within the conduit system. Pull wires shall be inserted in the empty ducts before they are closed with lead or pipe caps and shall be left therein for future use. On exposed work, all pipes and outlet boxes shall be secured by means of galvanized metal clamps which shall be held in place by means of machine screws. When running over concrete surfaces, the screws shall be held in place by means of expansion sleeves for big pipes and rolled lead sheet for small pipes. All pipes shall be run at right angles to and parallel with the surrounding walls. No diagonal run shall be allowed and all bends and offsets shall be avoided as much as possible. Conduits shall be supported at 1,500 mm intervals maximum.

###### Conduit Boxes & Fittings

Provide conduit boxes for pulling and splicing wires and outlet boxes for installation of wiring devices.

As a rule, provide junction boxes or pull boxes in all runs greater than 30 metres in length, for horizontal runs. For other lengths, provide boxes as required for splices or pulling. Pull boxes shall be installed in inconspicuous but accessible locations.

Support boxes independently of conduits entering by means of bolts, red hangers or other suitable means.

Conduit boxes shall be installed plump and securely fastened. They shall be set flush with the surface of the structure in which they are installed where conduits are run concealed.

All convenience and wall switch outlet boxes for concealed conduit work shall be deep, rectangular flush type boxes. Four-inch octagonal flush type boxes shall be used for ceiling light outlets and shall be of the deep type where three or more conduits connect to a single box.

Floor mounted outlet boxes required shall be waterproof type with flush brass floor plate and brass bell nozzle.

All boxes shall be painted with antirust red lead paint after installation.

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All conduits shall be fitted with approved standard galvanized bushing and lock nuts where they enter cabinets and conduit boxes.

Junction and pull boxes of code gauge steel shall be provided as indicated or as required to facilitate the pulling of wires and cables.

#### 1100.4 Method of Measurement

The work under this item shall be measured either by lengths, pieces, pairs, lot and set actually placed and installed as shown on the approved Plans.

#### 1100.5 Basis of Payment

All works performed and measured and as provided for in the Bill of Quantities shall be paid for at the Unit Bid of Contract Unit Price which payment shall constitute full compensation including labor, materials, tools and incidentals necessary to complete this item.

Payment shall be made under:

Pay Item Number	Description	Unit of Number Measurement
(1)	RSC Conduit Pipe – mm dia., with couplings	length
(2)	Locknut and Bushings	pairs
(3)	Conduit type	pieces
(4)	Conduit pipe elbow	pieces
(5)	Connector	pieces
(6)	Conduit clamp	pieces
(7)	PVC adapter	pieces
(8)	G.I Wire G.A.#14	kilos
(9)	Hacksaw Blade	pieces
(10)	PVC Tape 19 mm dia x 18 mm	rolls
(11)	Rubber Tape 19 mm dia x 227 g	rolls
(12)	PVC Solvent cement @ 400 cc	cans
(13)	PVC End Ball	pieces
(14)	Octagonal junction boxes	pieces
(15)	Utility Boxes	
(16)	Metal Pull Box	pieces
(17)	Square Box	pieces
(18)	Telephone Cabinet	set
(19)	Reinforced Concrete Pedestal Pole	lot
(20)	Red Lead Point	lot
(21)	Weatherhead with type "F" Conduit	pieces
(22)	Grounding Rod copperweld 20 mm dia x 3 m	length
(23)	Apitong or Approved equal Creosoted wood pole	pieces
(24)	Anchor Rod – mm dia	pieces
(25)	Anchor Log – mm dia	pieces
(26)	Powerload Studs with nuts	pieces

#### 1100.6 General Specifications

The work to be done under this division of specifications consists of the fabrication, furnishing, delivery and installation, complete in all details of the electrical work, at the subject premises and all work materials incidental to the proper completion of the installation, except those portions of the work which are expressly stated to be done by other fields. All works shall be done in accordance with the rules and regulations and with the specifications.

#### 1100.7 Specifications on:

1. Lighting fixtures and lamp  
All lighting fixtures and lamps are as specified and listed on lighting fixture schedule. For fluorescent lamp, it shall be 40-watt rapid start cool-white. All fluorescent ballast shall be 230 volt, high power factor, of good quality materials and approved by the Bureau of Product Standards (BPS).

##### 2. Material Requirements

All materials to be used shall conform to the BPS specification.

##### 3. Construction Requirements

All grounding system installation shall be executed in accordance with the approved plans. Grounding system shall include building perimeter ground wires, grounding rods, clamps, connectors, ground wells and ground wire taps as shown in the approved design.

#### 1100.8 Auxiliary systems

All auxiliary systems such as telephone and intercom system, time clock system, fire alarm system and public address/nurse's call/paging system installations shall be done in accordance with the approved design.

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All materials to be used shall conform to the Bureau of Products Standards (BPS) specifications.

1100.9 Important requirement regarding Supervision of the work and submission of certificate of completion.

All wiring installation herein shall be done under the direct supervision of a licensed Electrical Engineer at the expense of the contractor. The contractor shall submit certificate of completion duly approved by the owner's representative.

1100.10 Test and guarantee

Upon completion of the electrical construction work, the contractor shall provide all test equipment and personnel and to submit written copies of all test results.

The contractor shall guarantee the electrical installation are done and in accordance with the approved plans and specifications. The contractor shall guarantee that the electrical systems are free from all grounds and from all defective workmanship and materials and will remain so for a period of one year from date and acceptance of works. Any defect shall be remedied by the Contractor at his own expense.

ITEM 1101 – WIRES AND WIRING DEVICES

1101.1 This Item shall consist of the furnishing and installation of all wires and wiring devices consisting of electric wires and cables, wall switches, convenience receptacles, heavy duty receptacles and other devices shown on the approved Plans but not mentioned in these specifications.

1101.2 Materials Requirement

Wires and cables shall be of the approved type meeting all the requirements of the Philippine Electrical Code and bearing the PSA mark unless specified or indicated otherwise, all power and lighting conductors shall be insulated for 600 volts.

All wires shall be copper, soft drawn and annealed, smooth and of cylindrical form and shall be centrally located inside the insulation.

All wiring devices shall be standard products of reputable electrical manufacturers. Wall switches shall be rated at least 10A, 250 volts and shall be spring operated, flush, tumbler type. Duplex convenience receptacles shall be rated at least 15A, 250 volts 3-wire, flush, polarized type.

1101.3 Construction Requirements

Conductors or wires shall not be drawn in conduits until after the cement plaster is dry and the conduits are thoroughly cleaned and free from dirt and moisture. In drawing wires into conduits, sufficient slack shall be allowed to permit easy connections for fixtures, switches, receptacles and other wiring devices without the use of additional splices.

All conductors of convenience outlets and lighting branch circuit homeruns shall be wired with a minimum of 3.5 mm2 in size. Circuit homeruns to panelboard shall not be smaller than 3.5 mm2 but all homeruns to panelboard more than 30 meters shall not be smaller than 5.5 mm2 . No conductor shall be less than 2.0 mm2 in size.

All wires of 14 mm2 and larger in size shall be connected to panels and apparatus by means of approved type lugs or connectors of the solderless type, sufficiently large enough to enclose all strands of the conductors and securely fastened. They shall not loosen under vibration or normal strain.

All joints, taps and splices on wires larger than 14 mm2 shall be made of suitable solderless connectors of the approved type and size. They shall be taped with rubber and PVC tapes providing insulation not less than that of the conductors.

No splices or joints shall be permitted in either feeder or branch conductors except within outlet boxes or accessible junction boxes or pull boxes.

All joints in branch circuit wiring shall be made mechanically and electrically secured by approved splicing devices and taped with rubber and PVC tapes in a manner which will make their insulation as that of the conductor.

All wall switches and receptacles shall be fitted with standard bakelite face plate covers. Device plates for flush mounting shall be installed with all four edges in continuous contact with finished wall surfaces without the use of coiled wire or similar devices. Plaster filings will not be permitted. Plates installed in wet locations shall be gasketed.

1101.4 Method of Measurement

The work under this Item shall be measured either by meters, rolls, pieces, set, actually placed and installed as shown on the Plans.

1101.5 Basis of Payment

All work performed and measured and as provided for in this Bid of Quantities shall be paid for at the Unit Bid or Contract Unit Price which payment shall constitute full compensation including labor, materials, tools and incidentals necessary to complete this Item.

Payment shall be made under:

Payment Item Number	Description	Unit of Number Measurement
(1)	Electric wire	meter or rolls
(2)	Single Pole tumbler switch	pieces
(3)	Two-gang tumbler switch	pieces
(4)	Three-gang tumbler switch	pieces
(5)	Three way tumbler switch	pieces
(6)	Duplex convenience receptacles	set

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(7)	Heavy duty convenience	set receptacles
(8)	Standard Telephone outlet bakelite cover with 9.52 center hole	pieces
(9)	Window type air conditioning outlet 3-prong polarized type	pieces
(10)	Bare Copper wire	meters
(11)	Grounding clamps for electric wires	pieces
(12)	Messenger wire	meters
(13)	Guy wire	meters
(14)	Vibrating Bell	set
(15)	Traffic Light Control Panel	set
(16)	Traffic Light metal enclosures complete with red and green light provided with reflectors and 152 mm diameter vibrating bell	set

#### ITEM 1032 - PAINTING, VARNISHING AND OTHER RELATED WORKS

##### 1032.1 Description

This item shall consist of furnishing all paint materials, varnish and other related products, labor, tools equipment and plant required in undertaking the proper application of painting, varnishing and related works indicated on the Plans and in accordance with this Specification.

##### 1032.2 Material Requirements Paint Materials

All types of paint material, varnish and other related product shall be subject to random test as to material composition by the Bureau of Research and Standard, DPWH or the National Institute of Science and Technology. (Use the following approved and tested brand name: Boysen, Davies, Ducth Boy, Fuller O Brien, or any approved equal).

###### Tinting Colors

Tinting colors shall be first grade quality, pigment ground in alkyd resin that disperses and mixes easily with paint to produced the color desired. Use the same brand of paint and tinting color to effect good paint body.

###### Concrete Neutralizer

Concrete neutralizer shall be first grade quality concentrated diluted with clean water and applied as surface conditioner of new interior and exterior walls thus improving paint adhesion and durability.

###### Silicon Water Repellant

Silicon water repellant shall be transparent water shield especially formulated to repel rain and moisture on exterior masonry surfaces.

###### Patching Compound

Patching compound shall be fine powder type material like calciumine that can be mixed into putty consistency, with oil base primers and paints to fill minor surface dents and imperfections.

###### Varnish

Varnish shall be a homogeneous solution of resin, drying oil, drier and solvent. It shall be extremely durable clear coating, highly resistant to wear and tear without cracking, peeling, whitening, spotting, etc. with minimum loss of gloss for a maximum period of time.

###### Lacquer

Lacquer shall be any type of organic coating that dries rapidly and solely by evaporation of the solvent. Typical solvent are acetates, alcohols and ketones. Although lacquers were generally based on intrecellulose, manufacturers currently use, vinyl resins, plasticizers and reacted drying oils to improve adhesion and elasticity.

###### Shellac

Shellac shall be a solution of refined lac resin in denatured alcohol. It dries by evaporation of the alcohol. The resin is general furnished in orange and bleached grades.

###### Sanding Sealer

Sanding sealer shall be quick drying lacquer, formulated to provide quick dry, good holdout of succeeding coats, containing sanding agents such as zinc stearate to allow dry sanding of sealer.

###### Glazing Putty

Glazing Putty shall be alkyd-type product for filling minor surface unevenness.

###### Natural Wood Paste Filler

Wood Paste Filler shall be quality filler for filling and sealing open grain of interior wood. It shall produced a level finish for following coats of paint varnish/lacquer and other related products.

###### Schedule

###### Exterior

- |    |  |   |                                    |
|----|--|---|------------------------------------|
| a) | Plain cement plastered finish<br>to be painted paint | - | 3 coats Acrylic base masonry paint |
| b) | Concrete exposed aggregate                           | - | 1 coat water repellant             |

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	And/or tool finish		
c)	Ferrous Metal	-	1 coat primer and 2 coats enamel paint
d)	Galvanized metal	-	1 coat zinc chromate primer and 2 coats Portland cem. Paint
e)	Wood Painted Finish	-	3 coats oil base paint
f)	Wood varnish finish	-	varnish water repellent
<b>Interior</b>			
a)	Plain cement plastered finish to be painted paint	-	2 coats Acrylic base masonry
b)	Concrete exposed aggregate	-	clean surface
	And/or tool finish		
c)	Ferrous Metal	-	1 coat primer and 2 coats enamel paint
d)	Woodwork sea-mist	-	3 coats of 3 paint thinner 1 part lacquer
e)	Woodwork varnish	-	1 st coat, of one part sanding sealer to one part solvent 2nd coat of 2/3 sanding sealer to 1/3 solvent
f)	Wood Painted Finish	-	3 coats oil base paint
g)	Ceiling Boards textured finish	-	1 coat oil based paint allow to dry then patch surfaces unevenness and apply textured paint coat.

### 1032.3 Construction Requirements

The contractor prior to commencement of the painting, varnishing and related work shall examine the surfaces to be applied in order not to jeopardize the quality and appearances of the painting varnishing and related works.

#### Surface Preparation

All surfaces shall be in proper condition to receive the finish. Woodworks shall be hand-sanded smooth and dusted clean. All knot holes pitch pockets or sappy portions shall be sealed with natural wood filler. Nail holes, cracks or defects shall be carefully puttied after the first coat, matching the color of paint.

Interior woodworks shall be sandpapered between coats. Cracks, holes of imperfections in plaster shall be filled with patching compound and smooth off to match adjoining surfaces.

Concrete and masonry surfaces shall be coated with concrete neutralizer and allowed to dry before any painting primer coat is applied. When surface is dried apply first coating. Hairline cracks and unevenness shall be patched and sealed with approved putty or patching compound. After defects are corrected apply the finish coats as specified on the Plans (color scheme approved). Metal shall be clean, dry and free from millscale and rust. Remove all grease and oil from surfaces. Wash, unprimed galvanized metal with etching solution and allow it to dry. Where required to prime coat surface with Red Lead Primer same shall be approved by the Engineer.

In addition the Contractor shall undertake the following:

1. Voids, cracks, nick etc. will be repaired with proper patching material and finished flush with surrounding surfaces.
2. Marred or damaged shop coats on metal shall be spot primed with appropriate metal primer.
3. Painting and varnishing works shall not be commenced when it is too hot or cold.
4. Allow appropriate ventilation during application and drying period.
5. All hardware will be fitted and removed or protected prior to painting and varnishing works.

#### Application

Paints when applied by brush shall become non-fluid, thick enough to lay down as adequate film of wet paint. Brush marks shall be worked out after application of paint.

Paints made for application by roller must be similar to brushing paint. It must be nonsticky when thinned to spraying viscosity so that it will break up easily into droplets.

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

#### Mixing and Thinning

At the time of application paint shall show no sign of deterioration. Paint shall be thoroughly stirred, strained and kept at a uniform consistency during application. Paints of different manufacture shall not be mixed together. When thinning is necessary, this may be done immediately prior to application in accordance with the manufacturer's directions, but not in excess of 1 pint of suitable thinner per gallon of the paint.

#### Storage

All material to be used under this item shall be stored in a single place to be designated by the Engineer and such place shall be kept neat and clean at all time. Necessary precaution to avoid fire must be observed by removing oil rags, waste, etc. at the end of daily work.

#### Cleaning

All cloths and cotton waste which constitute fire hazard shall be place in metal containers or destroyed at the end of daily works. Upon completion of the work, all staging, scaffolding and paint containers shall be removed and the entire job left clean and acceptable to the Engineer.

#### Workmanship in General

a) All paints shall be evenly applied. Coats shall be of proper consistency and well brushed out so as to show a minimum of brush marks.

b) All coats shall be thoroughly dry before the succeeding coat is applied.

c) Where surfaces are not fully covered or cannot be satisfactorily finished in the number of coats specified such preparatory coats and subsequent coats as may be required shall be applied to attain the desired evenness of surface without extra cost to the owner.

d) Where surface is not in proper condition to receive the coat the Engineer shall be notified immediately. Work on the questioned portion(s) shall not start until clearance be proceed in ordered by the Engineer.

e) Hardware, lighting fixture and other similar items shall be removed or protected during the painting varnishing and related work operations and re-installed after completion of the work.

#### Procedure of Sea-Mist Finish

a) Depress wood grain by steel brush and sand surface lightly.

b) Apply sanding sealer

c) Apply two coats of individual lacquer paint.

d) Spray last coat of industrial lacquer paint mixed with sanding sealer.

e) Apply wood paste filler thinned with turpentine or paint thinner into the wood surface.

f) Wipe off wood paste filler immediately.

g) Spray flat or gloss lacquer whichever is specified.

#### Procedure for Varnish Finish

a) Sand surface thoroughly

b) Apply primer surface white or gray by brush or spray.

c) Apply lacquer spot putty in thin coat. Allow each coat to become thoroughly dry before applying next coat.

d) Apply primer surfaces and then allow to dry in two (2) hours before applying the next coat.

e) Apply a coat of flat tone semi-gloss enamel as per color scheme submitted and approved by the Engineer.

### 1032.4 Method of Measurement

The areas of concrete, wood and metal surfaces applied with varnish, paint and other related coating materials shall be measured in square meters as desired and accepted to the satisfaction of the Engineer.

### 1032.5 Basis of Payment

The accepted work shall be paid at the unit bid price, which price and payment constitute full compensation for furnishing all materials, labor, equipment, tools and other incidental necessary to complete this item.

Payment will made under:

Pay Item Number	Description	Unit of Measurement
	Painting Works	m <sup>2</sup>
	Varnishing	m <sup>2</sup>
	Sea-mist Finish	m <sup>2</sup>
	Ducco Finish	m <sup>2</sup>
	Texture Finish	m <sup>2</sup>

## ITEM 1200 – AIR CONDITIONING AND REFRIGERATION SYSTEM

### 1200.1 Description

This item consist of furnishing and installation of air conditioning, refrigeration and ventilation systems, inclusive of necessary electrical connections, accessories, ready for service in accordance with the plans and specifications.

### 1200.2 Material Requirements

The types, sizes, capacities, quantities and power characteristics of the compressor, evaporator, condenser chilled water pump and condenser water pump shall be as shown on the plans.

#### 1200.2.1 Refrigerant Pipes

Refrigerant pipes shall be copper tubing, type L or K or black steel pipe, schedule 40 for size 100 mm diameter and smaller. Pipes over 100 mm diameter shall be black steel pipe schedule 40.

Black steel pipe shall be standard seamless, lap-welded, or electric resistant welded for size 50 mm diameter and larger, screw type for size 38 mm diameter and smaller, fittings for copper tubing shall be cast bronze fitting designed expressly for brazing.

#### 1200.2.2 Pipes for Cooling Water

Chilled and condenser cooling water pipes shall be black steel pipe, schedule 40. Pipes and fittings for size 50 mm diameter and smaller shall be screwed type. Pipes and fitting for size 62 mm diameter and larger shall be welded or flanged type.

#### 1200.2.3 Pipe Insulations

Insulation shall be pre-formed fiberglass or its equivalent. The insulating materials shall be covered with 100 mm x 13 mm thick polythelene film which shall be overlapped not less than 50 mm. Pipe insulations shall be adequately protected at point of support by means of suitable metal shield to avoid damage from compression. Insulated pipes, valves and fittings located outdoors shall be provided with metal jackets.

#### 1200.2.4 Ductworks

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Ducts shall be galvanized sheet steel of not less than the following gages:

1. No. 26 for 300 mm wide and smaller
2. No. 24 for 350 mm to 750 mm wide
3. No. 22 for 775 mm to 1500 mm wide
4. No. 20 for 1525 mm to 2250 mm wide
5. No. 18 for 2275 mm to 2500 mm or larger
6. For aluminum sheets use one gage higher

Joints and stiffeners of ducts using slip joints shall be as follows:

- a. 300 mm wide and smaller, without bracing
- b. 325 mm to 750 mm wide, brace with 25 mm x 25 mm x 3 mm steel angles
- c. 775 mm to 1500 mm, brace with 31 mm x 31 mm x 3 mm steel angles
- d. 1525 mm up, brace with 38 mm x 38 mm x 3 mm steel angles

Stiffeners shall be located not more than 1200 mm from each joint.

#### 1200.2.5 Ductwork Installation

The application materials shall be rigid board made of styropor or equivalent 25 mm thick for ground and top floor, 13 mm thick for intermediate floor.

Galvanized metal bands for ducts shall be secured and spaced 300 mm minimum center to center and corners shall be protected with galvanized metal angles.

#### 1200.2.6 Diffusers

The type, shape, capacity, size and location shall be shown in the plans.

Diffusers shall be complete with frame and gasket, equalizing deflector and volume control as indicated or specified and have factory applied prime coat of paint.

Samples of supply and return air diffusers shall be submitted for approval before mass fabrication and installation.

#### 1200.2.7 Dampers

Dampers shall be of same materials as duct, at least one gage heavier and shall have accessible location, complete with locking device for adjusting and locking damper in position.

Where necessary, splitters, butterflies and louvers damper deflecting vanes for control of air volume and direction and for balancing the system shall be provided whether or not they are indicated on the plans.

#### 1200.2.8 Fire Dampers

Main duct shall be provided with proper fire dampers of the fusible link actuated type.

Access door shall be provided in ductwork for renewal of fusible link and to reset damper.

#### 1200.2.9 Equivalent Foundation

Foundation shall be provided and shall conform to the recommendation of the manufacturer of the equipment. Equipment shall be leveled on foundation by means of jacks or steel wedges. All spaces between equipment bases and concrete foundation shall be filled with cement mortar.

#### 1200.2.10 Electrical Works

Power supply shall be provided by the Contractor at the pull box installed inside the machine room and shall furnish and install the main circuit breaker and starter with suitable ratings and capacities, conduits wirings, fittings, devices and all other equipment and electrical connections needed to complete the electrical installation of the system. All electrical works shall comply with the latest edition of the Philippine Electrical Code, with the applicable ordinance of the local government and all the rules and requirements of the local power company.

### 1200.3 Construction Requirements

The air conditioning system shall be entirely automatic in operation and shall not require the presence of an attendant except for periodic inspection for lubrication. All equipment and materials shall be inspected upon delivery and shall be tested after installation. Piping shall not be buried, concealed, or insulated until it has been inspected, tested and approved. Walls, floors and other parts of the building and equipment damaged by Contractor in the prosecution of the work shall be replaced as shown on the plans.

#### 1200.3.1 Operating Tests

Refrigerating equipment shall be tested for 8-hours per day for three consecutive days or longer when so directed, under the supervisions of manufacturers qualified and authorized representative, who will make necessary adjustments and instruct designated plant operating personnel for each operation and maintenance of refrigerating equipment and control.

Operating test of complete air conditioning system shall be 6-hours minimum for each system. Test of air flow, temperature and humidity shall be made to demonstrate that each complies with the requirements of the plans and specifications.

#### 1200.3.2 Guarantee and Service

All equipment, materials and workmanship shall be guaranteed for a period of one (1) year from the date of acceptance at any time within the period of guarantee and upon notification, the contractor shall repair and rectify the deficiencies including replacement of parts or entire units.

#### 1200.3.3

The owner be provided with three (3) bound copies "AS BUILT" diagram, shop drawings, part lists, serial number and inventory of equipment including manufacturer's operating and maintenance manuals.

All standard tools and equipment shall be furnished for proper and regular maintenance of installed equipment.

### 1200.4 Method of Measurement

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The work under this item shall be measured either by set, piece, length, square meter actually placed and installed as shown on the plans. Compressor, condenser and evaporator shall be measured by set, grilles, diffusers and valve by pieces, pipe by length, duct and insulation by square meter.

#### 1200.5 Basis of Payment

All work performed and measured and as provided for in the Bills of Quantities shall be paid for at the Unit Bid or Contract Unit Price which payment shall constitute full compensation including labor, materials, tools, and incidentals necessary to complete this item.

Payment shall be made under:

Pay Item	Description	Unit of Measurement
(a)	Compressor, condenser And Evaporator	set
(b)	Diffuser, Grilles piece And Valves	piece
(c)	Pipes	length
(d)	Ducts and Insulation	m <sup>2</sup>
(e)	Pipe Insulation	meter

### ITEM 1006 - STEEL DOOR/GATES AND FRAMES

#### 1006.1 Description

This item shall consist of furnishing and installing all fabricated steel doors and frames equipped with fixing accessories and locking devices in accordance with the Plans and/or shop drawings and as herein specified.

#### 1006.2 Material Requirements

All door cladding plates or panels shall be formed from gauge 20 cold-rolled, prime quality steel. Frames shall be formed from gauge 16 cold-rolled steel. The materials used shall conform to the specification requirements of ASTM-A505.

##### 1006.2.1 Tubular Door (Casement/Sliding)

a. Hollow steel doors shall be custom-built of size and details as indicated on the Plans and/or shop drawings. Cladding of doors shall be flush or louver type. Doors shall be 44 mm thick, side hinged or overhead hung, as called for on the Plans.

b. Flush doors shall be constructed from two outer steel sheet not lighter than gauge 20, with edges welded and finished flush. The outer face sheet shall be reinforced with gauge 24 vertical channels or interlocking zee members. Sound insulation fillers of cork fiberboard, mineral wool-board or asbestos shall be placed full height in spaces between reinforcing channels. Doors shall have smooth, flush surfaces without any visible joints or seams on exposed faces or stile edges except around glazed or louvered pane inserts. Top and bottom frame of doors shall have continuous reinforcing channels welded to face sheets. The channel for exterior doors shall be inverted type, not lighter than gauge 16, constructed to form a weather seal. Glazed opening shall be provided where indicated and moulding around glazed openings shall not be lighter than gauge 20 metal.

1006.2.2 Grille doors shall be flat, square or round bars (wrought iron) as indicated on the Plans framed on galvanized black iron pipe or flat wrought bars, of the design shown on the Plans.

1006.2.3 Tubular steel frames shall be machine pressed true to details, to size and shape s shown on the Plans and shall have full welded unit or knockdown field assembled type construction at corners and other joints.

##### 1006.2.4 Steel Louvers

Louvers shall be machine pressed conforming to the size and design indicated on the Plans with removable louver pane formed to fit the metal sub-frames of openings. The steel sheets shall meet the requirements of ASTM 505, rivets of ASTM B 316, screw, bolts, nuts and washers of ASTM B 211.

##### 1006.2.5 Anchors and Fasteners

Anchors shall be steel, zinc coated or painted with rust inhibitive paint, of size, shapes and design per manufacturer's standards. Floor anchors shall not be lighter than gauge 18, with exception of jamb anchors for installing door frames in metal latch and plaster assemblies which shall be minimum of gauge 16 and shall not extend no more than 20 mm out of the back of the jamb.

#### 1006.3 Construction Requirements

##### 1006.3.1 Fabrication

Corner joints of frames shall be mitered and welded conforming to manufacturer's standard manual for metal doors. All contact edges be closed tight. Welds on exposed surface shall be ground smooth and shall be neat in appearance.

Joints for knock-down type frame corners shall be designed for simple field assembly of header to jamb members by concealed tenon, splice plates, or other type concealed in interlocking joint that will produce square and rigid corners. Joints shall be securely locked in place during erection and the alignment of adjoining members shall be maintained. All bolted connections shall be provided with lock units.

##### 1006.3.2 Shop Finish

###### a. Hot or Cold Phosphate Surface Treatment

All steel doors, frames and louvers shall be cleaned thoroughly, phosphate-treated to assure maximum paint adherence and prime finish, in accordance with the following operations:

1. After fabrication, grease and dirt shall be removed by a hot alkali solution and rinsed with hot water.

2. After cleaning, all parts shall be immersed in hot and cold phosphate solution and rinsed with a dilute solution or chromic acid.

3. After drying under controlled temperature, one coat of shop primer shall be applied by dipping type especially developed for materials treated with phosphates.

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The cleaning, phosphating, dipping or spraying of shop primer and even drying shall be done on a continuous operation in the factory. 1006.3.3 Installation Steel doors, frames and louvers shall be set plumb and true in openings. The joint between frame and masonry shall be carefully caulked. Contacts between door/frame and adjacent steel shall be sealed with mastic.

1006.3.4 Wall Anchors

A minimum of three anchors shall be provided for each jamb. Anchors shall be located opposite the top and bottom hinges and midway between top and bottom anchors.

Anchors for fastening frames to masonry shall be adjustable, corrugated and perforated and shall extend not less than 200 mm into masonry.

Anchors for fastening frames to metal or wood stud partitions shall be welded to metal or nailed to wood studs respectively.

Anchors for fastening frames to previously placed concrete or masonry shall be secured to existing construction with expansion bolts. Frames shall be fastened securely with anchors.

Anchors for fastening frames to partitions of plaster on metal lathe shall be secured firmly to back of frames that shall receive the latch. Adjustable strut anchors shall be provided on each side of frame for fastening to the structural members of partition and of the ceiling framing above. The size and type of strut anchors shall be as recommended by the metal door manufacturer.

1006.3.5 Floor anchors

Floor anchors shall be provided at the bottom of each jamb member, anchors shall be fixed/adjustable and drilled for 10 mm diameter anchor bolts

Where floor fill occurs, the bottom of frames shall terminate at the indicated finished floor levels and shall be supported by adjustable extension clips resting on and anchored to the structural slab.

1006.3.6 Hardware

Side bronze butts for side hung doors, overhead pocket hardware for track and roller types and locksets shall be suitable for the service required and subject to the approval of the Engineer and as provided in item 1004, Hardware.

1006.4 Method of measurement

Steel doors, frames, louvers, accessories and hardware shall be measured in square meters/set as shown on the Plans. A set shall consist of metal door, jambs, anchors and hardware except locksets.

1006.5 Basis of Payment

The area in m2 for every hollow steel door, flush door, grille door and steel louver installed ready for service shall be the basis of payment based on the unit bid or contract unit price.

Payment will be made under:

Pay Item Number	Description	Unit	Number measurement
1006 (a)	Hollow Steel Door	m <sup>2</sup> /set	
1006 (b)	Flush Door	m <sup>2</sup> /set	
1006 (c)	Grille Door	m <sup>2</sup> /set	
1006 (d)	Steel Louver Door	m <sup>2</sup> /set	

ITEM 1004 – HARDWARE

1004.1 Description

This Item shall consist of furnishing and installing all building hardware required to: (1) ensure rigidity of joints/connections of the different parts of the structure; (2) equip in a satisfactory operating condition parts of the structure such as doors, windows, cabinets, lockers, drawers, and other similar operating as indicated on the Plans and in accordance with this specifications.

1004.2 Material Requirements

1004.2.1 Rough Hardware

All rough hardware such as nails, screws, lag screws, bolts and other related fasteners required for carpentry work shall be first class quality and locally available.

1004.2.2 Finishing Hardware

All finishing hardware consisting of locksets, latches, bolts and other devices, door closers, knobs, handles, hinges and other similar hardware shall be first class quality available locally and conforming with the following specifications.

1004.2.2.1 Door Locksets

Door locks appropriate for particular functions shall be of durable construction, preferably the product of single reputable manufacturer for consistent quality and master keying.

1004.2.2.1.1 Cylindrical lockset for swing wood shall of sturdy construction and knob design. The cylindrical case shall be made of steel, zinc coated and dischromate dip. The knobs, latch, strike and pin tumbler assembly shall be cast brass or bronze. The spring and spindle shall be steel, zinc coated. The pins and the key shall be nickel silver. The latch with a minimum throw of 15 mm shall be retracted by knob from either side except when the outside knob is locked by key in the outside knob or by the turn/push button on the inside knob.

1004.2.2.1.2 Mortise lock for swing door shall have cast bronze latch bolt with steel compression spring, cast bronze dead bolt with hardened steel inserts, wrought bronze or brass knobs heavy gauge and cold formed steel operation levers. The pin tumbler

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cylindrical assembly shall be cast bronze or brass and fitted with 5 spring pressed nickel silver pins. Mortise lock used in conjunction with fire exit bolts shall have armored fronts.

1004.2.2.1.3 Unit of monolock for swing door shall be factory assembled in one piece, with knobs and escutcheons attached ready for installation. All parts of unit lock shall be non-ferrous metal. Frame shall be one piece cast bronze or extruded brass, front shall be flat for door 35 mm thick and beveled for door 45 mm thick, and latch bolt shall be pivoted swing type with minimum 26 mm throw. Cylinder shall be extruded brass with 5 spring-pressed pins and keys shall be nickel silver.

1004.2.2.1.4 Dead lock for sliding door shall be mortise or surface mounted type to suit particular application.

1004.2.2.1.4.1 Mortise type dead lock shall have cast bronze case, front, latch bolts, tike and cylinder. Operation of dead bolts shall be by drop handles from either side. When locked by key from outside, or by thumb knob from inside, drop handle will not operate three dead bolt.

1004.2.2.1.4.2 Surface type dead lock shall have cast bronze case, strike and cylinder. Interlocking vertical volt shall be hardened steel operated y key from outside and thumb turn from inside. Strike shall be angle type.

1004.2.2.1.5 Deadlock for swinging door shall be tabular design with mechanism made of heavy gauge cold rolled steel, zinc coated and dischromated. Dead bolt, strike and pin tumbler cylinder shall be bronze. Dead bolt with at least

1004.2.2.1.6 Lock for door of emergency/fire exit (panic hardware) shall be cast bronze or brass and heavy duty locking device coupled with a horizontal cross bar. Latch shall be operated by key from outside and by cross bar from inside. Locking device shall be surface or mortise type suitable for a particular application. Inactive leaf of double doors or emergency/fire exit shall be fitted with vertical rod actuated by crossbars, such vertical rod providing two point locking, bottom and overhead.

1004.2.2.1.7 Lock for drawers and cabinets shall be bronze or brass with latch operated by key through a pin-tumbler cylinder 22 mm in diameter. Back plate of the lock shall be provided with four screw holes for mounting.

1004.2.2.1.8 Hasplock, when required as indicated on the Plans shall be hinge hasp with integral padlock. The hinge hasp shall be zinc coated wrought steel, 47.5 mm in with end 100 mm in length when closed. The integral padlock shall be pin tumbler type with solid or laminated zinc-coated wrought steel case with hardened steel shackle securely attached to the draw bolt.

#### 1004.2.2.2 Door Closers

- a. All door closer shall be cast bronze provided with a key valve or cap valve for making necessary adjustment.
- b. The following table shall serve as guide in determining door closer sizes:

Door Maximum Width	Size of Closer
0.76 m	Size 2
0.90 m	Size 3
1.07 m	Size 4
1.20 m	Size 5
1.37 m	Size 6

Use larger size where unusual conditions exist.

#### 1004.2.2.3 Hinge

Hinge unless otherwise indicated on the Plans shall be brass coated wrought iron steel for interior doors and wrought bronze for exterior doors with non-rising loose steel pins with button tips and mounting screws of the same materials.

#### 1004.2.2.4 Sliding Door Hardware

Sliding door hardware shall be four-wheel ball bearing trolley on overhead track. Track is of rolled steel formed steel or extruded aluminum. Bearing is of plain steel balls or steel rollers. Wheels to be steel, brass, rubber or plastic as the case maybe.

#### 1004.2.2.5 Miscellaneous Hardware

##### 1004.2.2.5.1 Flush Bolt

Flush/extension flush type bolt shall be made of stainless steel with proper length suitable to the door specified.

1004.2.2.5.2 Barrel bolts shall be of wrought steel brass coated with an attachment of at least 4-screws.

##### 1004.2.2.5.3 Door Pull and Push Plate

Door Pull and Push Plate shall be made of stainless steel with concealed attachments. 1004.2.2.5.4 Hook, Bumper and Silencer Hook, Bumper and Silencer shall be made od extruded brass or bronze, dull chrome finish with at least 2 screws attachments.

##### 1004.2.2.5.5 Furniture and Cabinets Hardware

Furniture and Cabinets Hardware line piano hinge, invisible hinge, floor pivot hinge, cabinet door catches shall be made from extruded brass or bronze with dull chrome finish of size and type suited for use.

##### 1004.2.2.5.6 Push Plate

Push plate for metal door shall be made of stainless steel with concealed attachments.

### 1004.3 Construction Requirements

#### 1004.3.1 Submittals:

The Contract shall submit all necessary information to the Engineer prior to placing of order.

1004.3.1.1 Manufacturers data such a catalog for every hardware item to be furnished, showing all finishes, sizes, catalog numbers and pictures, with all abbreviations fully explained shall be submitted as general information and reference.

1004.3.1.2 Hardware templates for fabricated doors and windows shall be furnished to each fabricator to confirm that adequate provision will be done for proper installation of the hardware.

1004.3.1.3 Operation and maintenance data shall be provided and submitted to the Owner/DPWH showing all the hardware component part lists and maintenance instructions for each type supplied including the necessary wrenches of tools required.

#### 1004.3.2 Packaging and Marking

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1004.3.2.1 Each article shall be individually packaged in the manufacturer's commercial carton/container properly marked or labeled so as to be readily identified and delivered to the project site in the original manufacturer's container/package

1004.3.2.2 All hardware shall be provided with fasteners necessary for the installation packed in the same container with the hardware

1004.3.3 Storage and Protection

Hardware shall be properly stored in a dry and secured place. It shall be protected from damage at all times prior to and after installation.

1004.3.4 Installation of Hardware

a. All hardware shall be installed in a neat workmanship manner following the manufacturer's instruction manual to fit details as indicated on the Plans.

b. Except as indicated or specified otherwise, fasteners furnished with the hardware shall be used to fasten hardware in place.

c. After installation works are completed, the hardware shall be protected from paints, stains, blemishes and other damage until the work are properly turned over and accepted.

d. All hardware shall be properly checked and adjusted in the presence of the engineer and all hinges, locks, catches, bolts, pulls, closers and other miscellaneous items shall operate properly.

e. After hardware are properly checked and adjusted, keys shall be properly identified with key tags and turned over to the Engineer.

1004.3.5 Keying

Locks shall be keyed in sets and subsets. Where locks are required by the owner to be keyed alike in one system furnish a total of 4 keys for each set.

1004.4 Method of Measurement

All hardware actually installed shall be measured and determined by number of pieces or units ready for service as provided in the Bill of Quantities accepted to the satisfaction of the Engineer.


1004.5 Basis of Payment

The items measured and determined as provided in subsection 1004.4 shall be paid for at the unit bid price which payment constitute full compensation of materials, labor and incidentals necessary to complete this item.

Payment shall be made under:

Pay Item	Description	Unit of Number Measurement
1004.2.1	Rough Hardware	pcs/kilo
1004.2.2	Finishing Hardware	pcs/set

Prepared by:

  
ZHERLAND P. REDUCAL

Engineer II  
City Engineering Department

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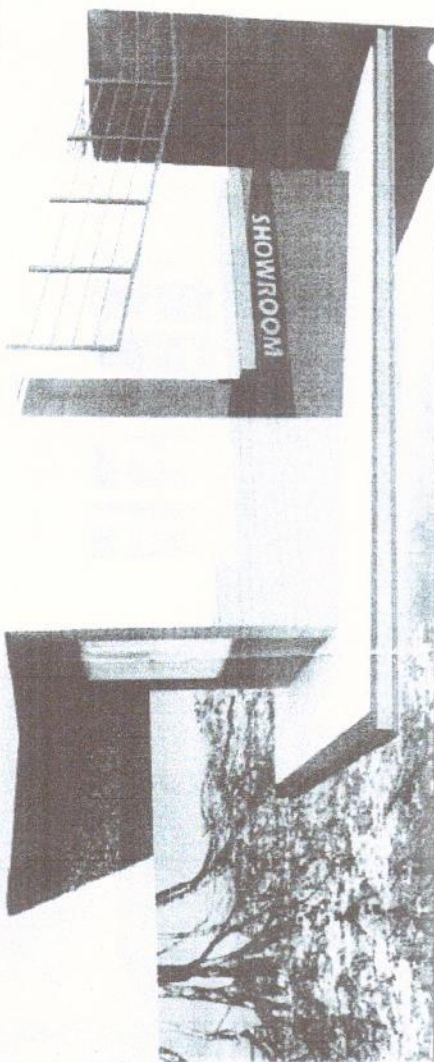


## *Section VII. Drawings*

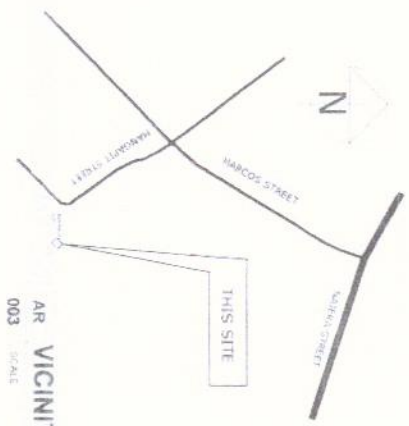
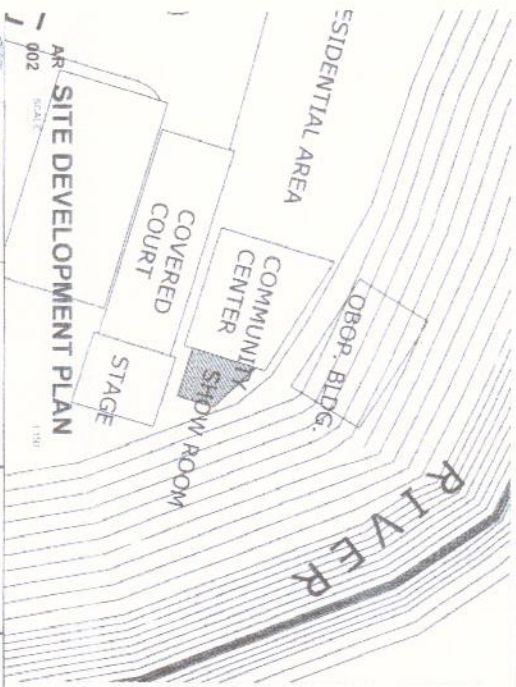
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AR PERSPECTIVE  
001



AR VICINITY MAP  
003

PREPARED BY: <b>CITY ENGINEERING OFFICE</b> DESIGNED BY: <b>CONSTRUCTION MANAGEMENT</b> DRAWN BY: <b>AS SHOWN</b>		CHECKED BY: <b>ROBERT BUSTAL</b> APPROVED BY: <b>HON. ALBERT D. CHUA</b> CITY ENGINEER	
DATE: 11/10/2010	SCALE: 1:100	DATE: 11/10/2010	SCALE: 1:10
PROJECT NO: 11-001	PROJECT NAME: OBOP BLDG.	PROJECT NO: 11-001	PROJECT NAME: OBOP BLDG.
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REPUBLIC OF THE PHILIPPINES DEPT. OF PUBLIC WORKS AND HIGHWAYS OFFICE OF THE BUILDING OFFICIAL	
CITY: MUNICIPALITY	
LAND USE AND ZONING	
LINE AND GRADE	
ARCHITECTURAL	
STRUCTURAL	
SANITARY/PLUMBING	
ELECTRICAL	

AR FLOOR PLAN

004

SCALE

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A B

1 2 3



AR FRONT ELEV.

006

SCALE

1:50

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AR ROOF PLAN

005

SCALE

1:50

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AR RIGHT SIDE ELEV.

007

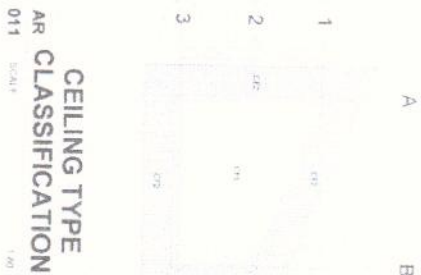
SCALE

1:50

TOP OF EXISTING  
FLOORING  
LANDING

		CITY OF SAN FRANCISCO OFFICE OF THE CITY ENGINEER		COMMUNITY OF SAN FRANCISCO OFFICE OF THE CITY ENGINEER		AS SHOWN		HON. ALBERT D. CHUA CITY ENGINEER		AR 2 2	
--	--	--	--	---	--	----------	--	--------------------------------------	--	-----------	--





TYPICAL DETAIL  
OF CF1 & CF2



DOOR & WINDOW  
SCHEDULE

W2

D1

FLOOR FINISH  
LEGEND:  
CEILING  
CLASSIFICATION  
LEGEND:  
WALL FINISH  
LEGEND:

		CLONING OF THE 100% OF THE PROJECT RELATIONS		AS SHOWN		IN THE FIELD		HON. ALBERT D. CHUA DTI MANILA		AR
1	2	3	4	5	6	7	8	9	10	11

**E LIGHTING LAYOUT**  
001 SCALE 1/8"=1'-0"

**E** **CONVENIENCE OUTLET**  
002 SCALE 1/60



**VICINITY MAP**

E  
004 SCALE NTS



**E ELECTRICAL SYMBOLS**

## SCHEDULE OF LOADS

## E SINGLE LINE DIAGRAM

## ELECTRICAL NOTES

1. ELECTRICAL WORKS INCLUDED HEREIN SHALL BE DONE IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE ELECTRICAL ENGINEERING BOARD AND THE LOCAL ELECTRICAL CODE/PERMITS.
2. ALL WORKINGS SHALL BE INSTALLED IN STANDARD AND PIPE SCHEDULE 40 EMBEDDED INSIDE WALLS ON BLOCKS STRUCTURES OR RUN BETWEEN CEILINGS OR FLOORING.
3. ALL SWITCHES SHALL BE MADE AT JUNCTION BOXES AND OTHER APPROVED MATERIALS FOR MATERIALS TO BE USED FOR ALL PURPOSES.
4. SERVICE LINE TO LIGHT SHALL BE 2500. 60/2.2.
5. VERIFY POINT OF POWER SERVICE ENTRANCE.
7. ALL ELECTRICAL WORKS SHALL BE DONE UNDER THE SUPERVISION OF A LAAY LICENSED ELECTRICAL ENGINEER OR MASTER ELECTRICIAN.

[illegible]





## 5 ROOF FRAMING PLAN



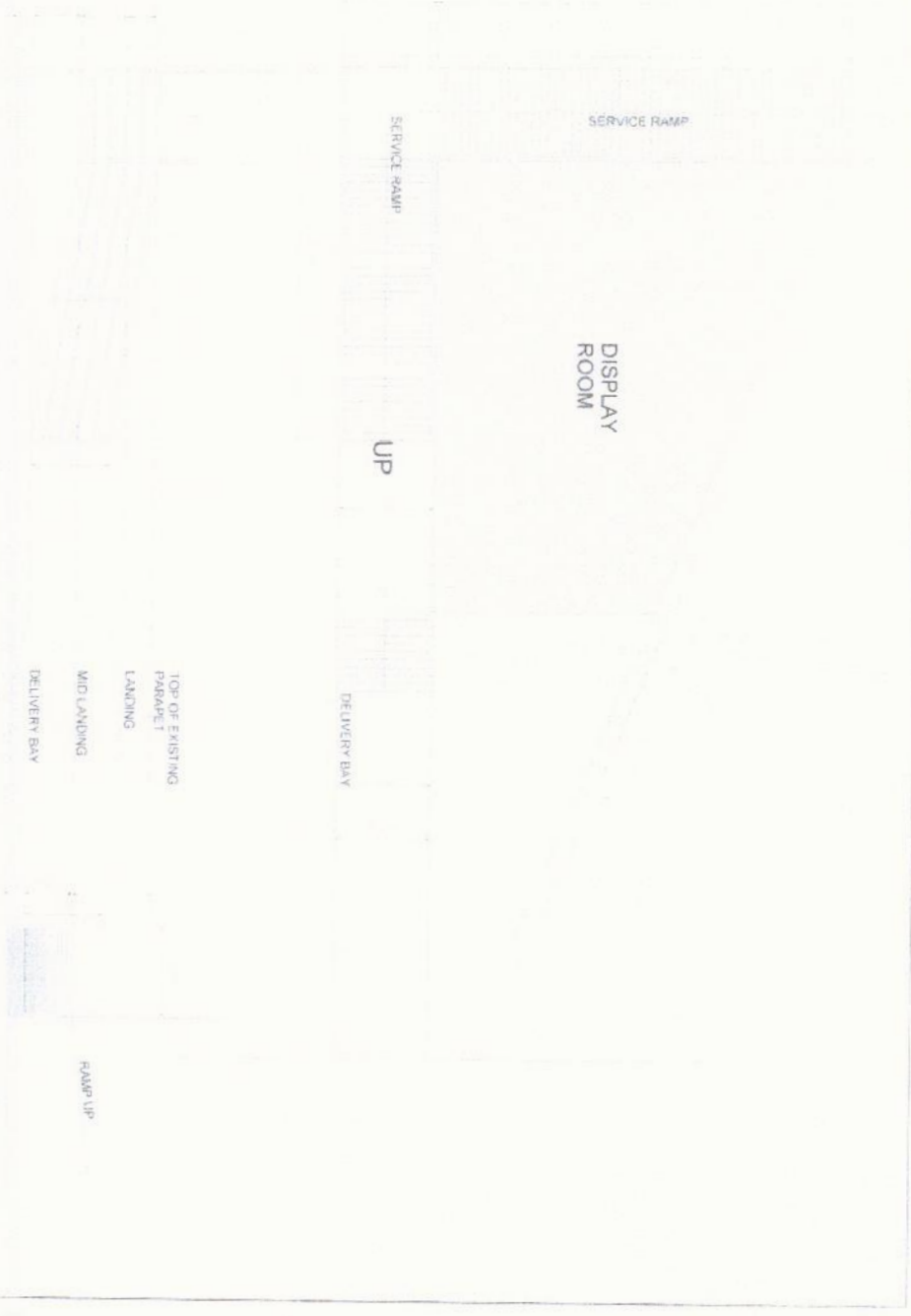
## BEAM SCHEDULE

	
TITLE: <b>CONTRACTOR'S DRAWING</b> PROJECT: <b>PORT OF CALIFORNIA</b> SHEET: <b>001</b>	DATE: <b>10/1/78</b> DRAWN BY: <b>W. J. CHAN</b> CHECKED BY: <b>W. J. CHAN</b> APPROVED BY: <b>W. J. CHAN</b>
SCALE: <b>1/8" = 1'-0"</b> AS SHOWN	SHEET NO.: <b>001</b> TOTAL SHEETS: <b>2</b>
PREPARED BY: <b>W. J. CHAN</b> DATE: <b>10/1/78</b>	CHECKED BY: <b>W. J. CHAN</b> DATE: <b>10/1/78</b>
APPROVED BY: <b>W. J. CHAN</b> DATE: <b>10/1/78</b>	HON. ALBERT D. CHUA DATE: <b>10/1/78</b>
AR	2

**S RAMP DETAILS**

001

1/8"





# Section VIII. Bill of Quantities

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE (Pesos)	AMOUNT PESOS
B.3	Permits and Clearances	L.S.	1.00	In words: <u>Pesos</u>  In Figures: <u>Php</u>	In Figures: <u>Php.</u>
B.5	Project Billboard/ Signboard	ea.	1.00	In words: <u>Pesos</u>  In Figures: <u>Php</u>	In Figures: <u>Php</u>
B.7(2)	Occupational Safety and Health Program	L.S.	1.00	In words: <u>Pesos</u>  In Figures: <u>Php</u>	In Figures: <u>Php.</u>
B.9	Mobilization and Demobilization	L.S.	1.00	In words: <u>Pesos</u>  In Figures: <u>Php</u>	In Figures: <u>Php.</u>
801(1)	Removal of Structures/Obstruction	L.S.	1.0	In words: <u>Pesos</u>  In Figures: <u>Php</u>	In Figures: <u>Php.</u>
803(1)a	Structure Excavation (Common Soil, Manual Excavation)	Cu.m.	20.00	In words: <u>Pesos</u>  In Figures: <u>Php</u>	In Figures: <u>Php.</u>
804(1)a	Embankment from Structure Excavation	Cu.m.	9.84	In words: <u>Pesos</u>  In Figures: <u>Php</u>	In Figures: <u>Php.</u>

804(1)b	Embankment from Borrow	Cu.m.	15.69	In words: <u>Pesos</u>  In Figures: <u>Php</u>	In Figures: <u>Php.</u>
804(4)	Gravel fill	Cu.m.	1.20	In words: <u>Pesos</u>  In Figures: <u>Php</u>	In Figures: <u>Php.</u>
900(1)c1	Structural Concrete (Class A), 28 days	cu.m.	3.72	In words: <u>Pesos</u>  In Figures: <u>Php</u>	In Figures: <u>Php.</u>
902(1)a	Reinforcing Steel (Deformed), Grade 40	Kg/s	129.09	In words: <u>Pesos</u>  In Figures: <u>Php</u>	In Figures: <u>Php.</u>
903(1)	Formworks and Falseworks	sq.m.	4.50	In words: <u>Pesos</u>  In Figures: <u>Php</u>	In Figures: <u>Php.</u>
1000(1)	Soil Poisoning	Lit.	4.5	In words: <u>Pesos</u>  In Figures: <u>Php</u>	In Figures: <u>Php.</u>
1046(2)a 2	150mm CHB Non-Load Bearing (Including Reinforcing Steel)	Sq.m.	56.81	In words: <u>Pesos</u>  In Figures: <u>Php</u>	In Figures: <u>Php.</u>
1007(1)b	Aluminum Framed Glass Door, Swing Type/Fived Type	Sq.m.	0.26	In words: <u>Pesos</u>  In Figures: <u>Php</u>	In Figures: <u>Php.</u>

1008(1)c	Aluminum Glass Windows, Awning Type	Sq.m.	0.36	In words: <u>Pesos</u>  In Figures: <u>Php</u>	In Figures: <u>Php.</u>
1003(1)b 1	Ceiling (metal frame)	sq.m.	1.24	In words: <u>Pesos</u>  In Figures: <u>Php</u>	In Figures: <u>Php.</u>
1027(1)	Cement Plaster Finish	Sq.m.	7.13	In words: <u>Pesos</u>  In Figures: <u>Php</u>	In Figures: <u>Php.</u>
1032(1)a	Painting Works (Masonry Concrete)	Sq.m.	2.10	In words: <u>Pesos</u>  In Figures: <u>Php</u>	In Figures: <u>Php.</u>
1032(1)c	Painting Works (Steel)	Sq.m.	3.00	In words: <u>Pesos</u>  In Figures: <u>Php</u>	In Figures: <u>Php.</u>
1013(2)b 1	Fabricated metal roofing accessory (Gutters, GA 24)	l.m.	11.80	In words: <u>Pesos</u>  In Figures: <u>Php</u>	In Figures: <u>Php.</u>
1014(1) b2	Pre-painted Metal Sheets, (Long span, Rib Type, above 0.427mm thk)	Sq.m.	2.08	In words: <u>Pesos</u>  In Figures: <u>Php</u>	In Figures: <u>Php.</u>



1047(2)	Structural Steel	Kg/s	588.97	In words: <u>Pesos</u>  <u>In Figures: Php</u>	In Figures: <u>Php.</u>
1100(10)	Conduits, Boxes & Fittings (Conduit Works/ Conduit Rough-in)	l.s.	1.00	In words: <u>Pesos</u>  <u>In Figures: Php</u>	In Figures: <u>Php.</u>
1101(33)	Wires and Wiring Devices	l.s.	1.00	In words: <u>Pesos</u>  <u>In Figures: Php</u>	In Figures: <u>Php.</u>
1102(1)	Panelboard with main & Branch Breakers	l.s.	1.00	In words: <u>Pesos</u>  <u>In Figures: Php</u>	In Figures: <u>Php.</u>
1103(1)	Lighting Fixtures and Lamps	l.s.	1.00	In words: <u>Pesos</u>  <u>In Figures: Php</u>	In Figures: <u>Php.</u>
1001(9)	Storm Drainage and Downspout	l.s.	1.00	In words: <u>Pesos</u>  <u>In Figures: Php</u>	In Figures: <u>Php.</u>
10013(a)	Airconditioning	l.s.	1.00	In words: <u>Pesos</u>  <u>In Figures: Php</u>	In Figures: <u>Php.</u>

## ***Section IX. Checklist of Technical and Financial Documents***

### **Notes on the Checklist of Technical and Financial Documents**

The prescribed documents in the checklist are mandatory to be submitted in the Bid, but shall be subject to the following:

- a. GPPB Resolution No. 09-2020 on the efficient procurement measures during a State of Calamity or other similar issuances that shall allow the use of alternate documents in lieu of the mandated requirements; or
- b. any subsequent GPPB issuances adjusting the documentary requirements after the effectivity of the adoption of the PBDs.

The BAC shall be checking the submitted documents of each Bidder against this checklist to ascertain if they are all present, using a non-discretionary "pass/fail" criterion pursuant to Section 30 of the 2016 revised IRR of RA No. 9184.

# Checklist of Technical and Financial Documents

## I. TECHNICAL COMPONENT ENVELOPE

### *Class "A" Documents*

#### Legal Documents

- ☐ (a) Valid PhilGEPS Registration Certificate (Platinum Membership) (all pages);  
or
- ☐ (b) Registration certificate from Securities and Exchange Commission (SEC), Department of Trade and Industry (DTI) for sole proprietorship, or Cooperative Development Authority (CDA) for cooperatives or its equivalent document;  
and
- ☐ (c) Mayor's or Business permit issued by the city or municipality where the principal place of business of the prospective bidder is located, or the equivalent document for Exclusive Economic Zones or Areas;  
and
- ☐ (c) Tax clearance per E.O. No. 398, s. 2005, as finally reviewed and approved by the Bureau of Internal Revenue (BIR).

#### Technical Documents

- ☐ (f) Statement of the prospective bidder of all its ongoing government and private contracts, including contracts awarded but not yet started, if any, whether similar or not similar in nature and complexity to the contract to be bid; and
- ☐ (g) Statement of the bidder's Single Largest Completed Contract (SLCC) similar to the contract to be bid, except under conditions provided under the rules;  
and
- ☐ (h) Philippine Contractors Accreditation Board (PCAB) License;  
or  
Special PCAB License in case of Joint Ventures;  
and registration for the type and cost of the contract to be bid; and
- ☐ (i) Original copy of Bid Security. If in the form of a Surety Bond, submit also a certification issued by the Insurance Commission;  
or  
Original copy of Notarized Bid Securing Declaration; and
- ☐ (j) Project Requirements, which shall include the following:
  - ☐ a. Organizational chart for the contract to be bid;
  - ☐ b. List of contractor's key personnel (e.g., Project Manager, Project Engineers, Materials Engineers, and Foremen), to be assigned to the contract to be bid, with their complete qualification and experience data;
  - ☐ c. List of contractor's major equipment units, which are owned, leased, and/or under purchase agreements, supported by proof of ownership or certification of availability of equipment from the equipment lessor/vendor for the duration of the project, as the case may be; and
- ☐ (k) Original duly signed Omnibus Sworn Statement (OSS);  
and if applicable, Original Notarized Secretary's Certificate in case of a corporation, partnership, or cooperative; or Original Special Power of Attorney of all members of the joint venture giving full power and authority to its officer to sign the OSS and do acts to represent the Bidder.

#### Financial Documents

- ☐ (l) The prospective bidder's audited financial statements, showing, among others, the prospective bidder's total and current assets and liabilities, stamped



“received” by the BIR or its duly accredited and authorized institutions, for the preceding calendar year which should not be earlier than two (2) years from the date of bid submission; **and**

- ☐ (m) The prospective bidder’s computation of Net Financial Contracting Capacity (NFCC).

***Class “B” Documents***

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

**II. FINANCIAL COMPONENT ENVELOPE**

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

**Other documentary requirements under RA No. 9184**

- ☐ (p) Original of duly signed Bid Prices in the Bill of Quantities; **and**
- ☐ (q) Duly accomplished Detailed Estimates Form, including a summary sheet indicating the unit prices of construction materials, labor rates, and equipment rentals used in coming up with the Bid; **and**
- ☐ (r) Cash Flow by Quarter.

Republic of the Philippines



Government Procurement Policy Board