

PHILIPPINE BIDDING DOCUMENTS

(As Harmonized with Development Partners)

ELECTRIFICATION OF UN-ENERGIZED SCHOOLS AND MODERNIZATION OF ELECTRICAL SYSTEMS ON-GRID SCHOOLS BATCH 1 FOR MANTICAO NATIONAL HIGH SCHOOL Project 2018-BEFF-09

Government of the Republic of the Philippines

**Fifth Edition
August 2016**

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 (GoP) for use by all branches, agencies, departments, bureaus, offices, or instrumentalities of the Government, including government-owned and/or -controlled corporations (GOCCs), government financial institutions (GFIs), state universities and colleges (SUCs), local government units (LGUs), and autonomous regional government. The procedures and practices presented in this document have been developed through broad experience, and are for mandatory¹ use in projects that are financed in whole or in part by the GoP 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 No. 9184 (R. A. 9184).

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

The Bidding Documents shall clearly and adequately define, among others: (a) the objectives, scope, and expected outputs and/or results of the proposed contract; (b) the eligibility requirements of Bidders; (c) the expected contract duration; and (d) the obligations, duties, and/or functions of the winning bidder.

In order to simplify the preparation of the Bidding Documents for each procurement, the PBDs groups the provisions that are intended to be used unchanged in Section II. Instructions to Bidders (ITB) and in Section IV. General Conditions of Contract (GCC). Data and provisions specific to each procurement and contract should be included in Section III. Bid Data Sheet (BDS); Section V. Special Conditions of Contract (SCC); Section VI. Specifications; Section VII. Drawings; Section VIII Bill of Quantities and Section X. Foreign-Assisted Projects. The forms to be used are provided.

Care should be taken to check the relevance of the provisions of the Bidding Documents against the requirements of the specific Works to be procured. In addition, 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, except for the notes introducing, where the information is useful for the Bidder. 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 Project. 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 proposal submission,” should be furnished in the BDS and SCC. The final documents should contain neither blank spaces nor options.

¹ Unless the Treaty or International or Executive Agreement expressly provides use of foreign government/foreign or international financing institution procurement guidelines.

- (c) This Preface and the footnotes or notes in italics included in the Invitation to Bid, BDS, SCC, 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. The Bidding Documents should contain no footnotes except Section IX Bidding Forms since these provide important guidance to Bidders.
- (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) If modifications must be made to bidding procedures, they can be presented in the BDS. Modifications for specific Project or Contract details should be provided in the SCC as amendments to the Conditions of Contract. For easy completion, whenever reference has to be made to specific clauses in the BDS or SCC these terms shall be printed in bold type face on Section II. Instructions to Bidders, and Section IV. General Conditions of Contract, respectively.

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Section I. Invitation to Bid

Notes on the Invitation to Bid

The Invitation to Bid provides information that enables potential Bidders to decide whether to participate in the procurement at hand. The Invitation to Bid shall be:

- (a) Posted continuously in the Philippine Government Electronic Procurement System (PhilGEPS) website and the website of the Procuring Entity concerned, if available, and the website prescribed by the foreign government/foreign or international financing institution, if applicable, for seven (7) calendar days starting on the date of advertisement; and
- (b) Posted at any conspicuous place reserved for this purpose in the premises of the Procuring Entity concerned for seven (7) calendar days, as certified by the head of the Bids and Awards Committee (BAC) Secretariat of the Procuring Entity concerned.
- (c) Advertised at least once in a newspaper of general nationwide circulation which has been regularly published for at least two (2) years before the date of issue of the advertisement, subject to Sections 21.2.1(c) of the 2016 Revised IRR of R.A. 9184²;

Apart from the essential items listed in the Bidding Documents, the Invitation to Bid should also indicate the following:

- (a) The date of availability of the Bidding Documents, which shall be from the time the Invitation to Bid 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 from the last day of posting of the Invitation to Bid; and
- (d) Any important bid evaluation criteria.

The Invitation to Bid should be incorporated into the Bidding Documents. The information contained in the Invitation to Bid must conform to the Bidding Documents and in particular to the relevant information in the BDS.

For foreign-assisted projects, the Invitation to Bid to be used is provided in Section X- Foreign-Assisted Projects.

² Two years after the effectivity of the 2016 Revised IRR of RA 9184 on 28 October 2016, advertisement in a newspaper of general nationwide circulation shall no longer be required. However, a Procuring Entity that cannot post its opportunities in the PhilGEPS for justifiable reasons shall continue to publish its advertisements in a newspaper of general nationwide circulation.



Department of Education
Region X
DIVISION OF MISAMIS ORIENTAL
Cagayan de Oro City



Invitation to Bid

ELECTRIFICATION OF UN-ENERGIZED SCHOOLS AND MODERNIZATION OF ELECTRICAL SYSTEMS ON-GRID SCHOOLS BATCH 1 FOR MANTICAO NATIONAL HIGH SCHOOL

Project 2018-BEFF-09

1. The *Department of Education, Division of Misamis Oriental*, through the *General Appropriation Act CY 2018*³ intends to apply the sum of *Two Million Two Hundred Fifty Eight Thousand Three Hundred Ninety Four and 99/100 (Php 2,258,394.99)* being the Approved Budget for the Contract (ABC) to payments under the contract for *Electrification of Un-energized Schools and Modernization of Electrical Systems On-Grid Schools Batch 1 for Manticao National High School* . Bids received in excess of the ABC shall be automatically rejected at bid opening.

Lot No.	Project Description/Intended Completion Date	Location	ABC (PhP)	Contract Duration
1	<i>Electrification of Un-energized Schools and Modernization of Electrical Systems On-Grid Schools Batch 1 for Manticao National High School</i> / date of NTP plus Contract Duration	Manticao, Mis. Or.	Php 2,258,394.99	120 calendar days

2. The *Department of Education, Division of Misamis Oriental* now invites bids for *Electrification of Un-energized Schools and Modernization of Electrical Systems On-Grid Schools Batch 1 for Manticao National High School*.⁴ Completion of the Works is required *120 calendar days*. Based on GPPB Circular 03-2016, bidders are required to submit their PhilGEPS certificate of Registration (Platinum Membership) during bid submission.

³ In the case of National Government Agencies, the General Appropriations Act and/or continuing appropriations; in the case of GOCCs, GFIs, and SUCs, the Corporate Budget for the contract approved by the governing Boards; in the case of LGUs, the Budget for the contract approved by the respective *Sanggunian*. (Section 5(a), R.A. 9184)

⁴ A brief description of the scope of Works should be provided, including quantities, location of project, and other information necessary to enable potential bidders to decide whether or not to respond to the invitation.

3. 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 Philippine Statistics Authority (PSA) consumer price index. However, contractors under Small A and Small B categories without similar experience on the contract to be bid may be allowed to bid if the cost of such contract is not more than the Allowable Range of Contract Cost (ARCC) of their registration based on the guidelines as prescribed by the PCAB.
4. 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 9184 (RA 9184), otherwise known as the “Government Procurement Reform Act.”

Bidding is restricted to Filipino citizens/sole proprietorships, cooperatives, and partnerships or organizations with at least seventy-five percent (75%) interest or outstanding capital stock belonging to citizens of the Philippines.

5. Interested bidders may obtain further information from ***Department of Education, Division of Misamis Oriental*** and inspect the Bidding Documents at the address given below from ***June 26, 2018 to July 16, 2018, 9:00a.m.***
6. A complete set of Bidding Documents may be acquired by interested bidders on ***June 26, 2018 to July 16, 2018, 9:00a.m.*** from the address below (Eleonor P. Cruz, BAC Secretariat Chairman) *and upon payment of the applicable fee for the Bidding Documents, pursuant to the latest Guidelines issued by the GPPB, in the amount of Five thousand pesos [Php 5,000.00].*
7. The ***Department of Education, Division of Misamis Oriental*** will hold a Pre-Bid Conference⁵ on ***July 3, 2018, 11 o'clock in the morning, Philippine Standard Time*** at ***Department of Education, Division of Misamis Oriental, Division Office Conference Room, A. Velez St., Cagayan de Oro City.*** The said Pre-Bid Conference shall be open to prospective bidders and Invited Observers
8. Bids must be duly received by the BAC Secretariat at the address below on or before ***July 16, 2018, 1:00 o'clock in the afternoon.*** All bids must be accompanied by a bid security in any of the acceptable forms and in the amount stated in **ITB** Clause 18.

Bidders shall submit their bids or through their duly authorized representative using the appropriate forms on or before the deadline specified in the **ITB** Clause 21 in two (2) separate sealed bid envelopes, and which shall be submitted simultaneously. A duly authorized representative shall submit special power of attorney/ a notarized certification authorizing him/her to represent the proprietor/ manager/ owner.

⁵ 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.

10. Each and every page of the Bid Form, including the Bill of Quantities, under Section IX hereof, shall be signed by the Bidder. Failure to do so shall be a ground for the rejection of the bid.
11. Bid Submission shall be on or before *July 16, 2018 at 1:00 o'clock in the afternoon* at *Department of Education, Division of Misamis Oriental, Division Office Conference Room, A. Velez St., Cagayan de Oro City*. Bid opening shall start on *the same date and time of the deadline of the bid submission and maybe extended to a day or more until all the bids have been opened*. Bids will be opened in the presence of the bidder or bidders' representatives who choose to attend at the address below. **Late bids maybe received by the Secretariat but shall be declared late by the BAC and shall not be accepted as an eligible bid during the Opening of bids. It shall be recorded in the Minutes of Submission and Opening of Bids per ITB 22.**
12. *Bidding Documents maybe downloaded from website of Philippine Government Electronic Procurement System (PhilGEPS) and the website of Procuring Entity www.depedmisor.net, provided that bidders shall pay the fee of the bidding documents not later in the submission of bids. Only bidder who purchase bidding documents will be allowed to submit bids.*
13. The *Department of Education, Division of Misamis Oriental* reserves the right to reject any and all bids, declare a failure of bidding, or not award the contract at any time prior to contract award in accordance with Section 41 of RA 9184 and its IRR, without thereby incurring any liability to the affected bidder or bidders.
14. For further information, please refer to:

*ELEONOR P. CRUZ
Supply Officer II
Chairman, BAC Secretariat
DepED Division of Misamis Oriental
A.Velez Street, Cagayan de Oro City
Tel. No. 08822-724615
www.depedmisor.net*

ROWENA H. PARA-ON
Assistant Schools Division Superintendent
Chairman, Bids and Awards Committee

Section II. Instructions to Bidders

Notes on the Instructions to Bidders

This Section of the Bidding Documents provides the information necessary for Bidders to prepare responsive bids, in accordance with the requirements of the Procuring Entity. It also provides information on the bid submission, eligibility check, opening and evaluation of bids, and on the award of contract.

This Section also contains provisions that are to be used unchanged. Section III. Bid Data Sheet consists of provisions that supplement, amend, or specify in detail information or requirements included in this Section and which are specific to each procurement.

Matters governing the performance of the Contractor, payments under the contract, or matters affecting the risks, rights, and obligations of the parties under the contract are not normally included in this Section, but rather under Section IV. General Conditions of Contract (GCC), and/or Section V. Special Conditions of Contract (SCC). If duplication of a subject is inevitable in the other sections of the document prepared by the Procuring Entity, care must be exercised to avoid contradictions between clauses dealing with the same matter.

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A. General

1. Scope of Bid

- 1.1. The Procuring Entity named in the **BDS**, invites bids for the construction of Works, as described in Section VI. Specifications.
- 1.2. The name, identification, and number of lots specific to this bidding are provided in the **BDS**. The contracting strategy and basis of evaluation of lots is described in **ITB** Clause 27.
- 1.3. The successful Bidder will be expected to complete the Works by the intended completion date specified in **SCC** Clause 1.17.

2. Source of Funds

The Procuring Entity has a budget or received funds from the Funding Source named in the **BDS**, and in the amount indicated in the **BDS**. It intends to apply part of the funds received for the Project, as defined in the **BDS**, to cover eligible payments under the Contract for the Works.

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

- 3.1. Unless otherwise specified in the **BDS**, the Procuring Entity, as well as bidders and contractors, shall observe the highest standard of ethics during the procurement and execution of the contract. In pursuance of this policy, the Funding Source:
 - (a) defines, for purposes of this provision, the terms set forth below as follows:
 - (i) "corrupt practice" means behavior on the part of officials in the public or private sectors by which they improperly and unlawfully enrich themselves, others, or induce others to do so, by misusing the position in which they are placed, and includes the offering, giving, receiving, or soliciting of anything of value to influence the action of any such official in the procurement process or in contract execution; entering, on behalf of the Procuring Entity, into any contract or transaction manifestly and grossly disadvantageous to the same, whether or not the public officer profited or will profit thereby, and similar acts as provided in Republic Act 3019;
 - (ii) "fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Procuring Entity, and includes collusive practices among Bidders (prior to or after Bid submission) designed to establish bid prices at artificial, non-competitive levels and to deprive the Procuring Entity of the benefits of free and open competition;

- (iii) “collusive practices” means a scheme or arrangement between two or more Bidders, with or without the knowledge of the Procuring Entity, designed to establish bid prices at artificial, non-competitive levels; and
 - (iv) “coercive practices” means harming or threatening to harm, directly or indirectly, persons, or their property to influence their participation in a procurement process, or affect the execution of a contract;
 - (v) “obstructive practice” is
 - (aa) deliberately destroying, falsifying, altering or concealing of evidence material to an administrative proceedings or investigation or making false statements to investigators in order to materially impede an administrative proceedings or investigation of the Procuring Entity or any foreign government/foreign or international financing institution into allegations of a corrupt, fraudulent, coercive or collusive practice; and/or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the administrative proceedings or investigation or from pursuing such proceedings or investigation; or
 - (bb) acts intended to materially impede the exercise of the inspection and audit rights of the Procuring Entity or any foreign government/foreign or international financing institution herein.
 - (b) will reject a proposal for award if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the Contract; and
 - (c) will declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded Contract funded by the Funding Source if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing or, or in executing, a Contract funded by the Funding Source.
- 3.2. Further, the Procuring Entity will seek to impose the maximum civil, administrative, and/or criminal penalties available under the applicable laws on individuals and organizations deemed to be involved in any of the practices mentioned in **ITB** Clause 3.1(a).
- 3.3. Furthermore, the Funding Source and the Procuring Entity reserve the right to inspect and audit records and accounts of a contractor in the bidding for and performance of a contract themselves or through independent auditors as reflected in the **GCC** Clause 34.

4. Conflict of Interest

4.1. All Bidders found to have conflicting interests shall be disqualified to participate in the procurement at hand, without prejudice to the imposition of appropriate administrative, civil, and criminal sanctions. A Bidder may be considered to have conflicting interests with another Bidder in any of the events described in paragraphs (a) through (c) and a general conflict of interest in any of the circumstances set out in paragraphs (d) through (g) below:

- (a) A Bidder has controlling shareholders in common with another Bidder;
- (b) A Bidder receives or has received any direct or indirect subsidy from any other Bidder;
- (c) A Bidder has the same legal representative as that of another Bidder for purposes of this Bid;
- (d) A Bidder has a relationship, directly or through third parties, that puts them in a position to have access to information about or influence on the bid of another Bidder or influence the decisions of the Procuring Entity regarding this bidding process;
- (e) A Bidder submits more than one bid in this bidding process. However, this does not limit the participation of subcontractors in more than one bid;
- (f) A Bidder who participated as a consultant in the preparation of the design or technical specifications of the goods and related services that are the subject of the bid; or
- (g) A Bidder who lends, or temporarily seconds, its personnel to firms or organizations which are engaged in consulting services for the preparation related to procurement for or implementation of the project, if the personnel would be involved in any capacity on the same project.

4.2. In accordance with Section 47 of the IRR of RA 9184, all Bidding Documents shall be accompanied by a sworn affidavit of the Bidder that it is not related to the Head of the Procuring Entity (HoPE), members of the Bids and Awards Committee (BAC), members of the Technical Working Group (TWG), members of the BAC Secretariat, the head of the Project Management Office (PMO) or the end-user unit, and the project consultants, by consanguinity or affinity up to the third civil degree. On the part of the Bidder, this Clause shall apply to the following persons:

- (a) If the Bidder is an individual or a sole proprietorship, to the Bidder himself;
- (b) If the Bidder is a partnership, to all its officers and members;

- (c) If the Bidder is a corporation, to all its officers, directors, and controlling stockholders;
- (d) If the Bidder is a cooperative, to all its officers, directors, and controlling shareholders or members; and
- (e) If the Bidder is a joint venture (JV), the provisions of items (a), (b), (c) or (d) of this Clause shall correspondingly apply to each of the members of the said JV, as may be appropriate.

Relationship of the nature described above or failure to comply with this Clause will result in the automatic disqualification of a Bidder.

5. Eligible Bidders

5.1. Unless otherwise indicated in the **BDS**, the following persons shall be eligible to participate in this Bidding:

- (a) Duly licensed Filipino citizens/sole proprietorships;
- (b) Partnerships duly organized under the laws of the Philippines and of which at least seventy five percent (75%) of the interest belongs to citizens of the Philippines;
- (c) Corporations duly organized under the laws of the Philippines, and of which at least seventy five percent (75%) of the outstanding capital stock belongs to citizens of the Philippines;
- (d) Cooperatives duly organized under the laws of the Philippines.
- (e) Persons/entities forming themselves into a JV, i.e., a group of two (2) or more persons/entities that intend to be jointly and severally responsible or liable for a particular contract: Provided, however, that, in accordance with Letter of Instructions No. 630, Filipino ownership or interest of the joint venture concerned shall be at least seventy five percent (75%): Provided, further, that joint ventures in which Filipino ownership or interest is less than seventy five percent (75%) may be eligible where the structures to be built require the application of techniques and/or technologies which are not adequately possessed by a person/entity meeting the seventy five percent (75%) Filipino ownership requirement: Provided, finally, that in the latter case, Filipino ownership or interest shall not be less than twenty five percent (25%). For this purpose, Filipino ownership or interest shall be based on the contributions of each of the members of the joint venture as specified in their JVA.

5.2. The Procuring Entity may also invite foreign bidders when provided for under any Treaty or International or Executive Agreement as specified in the **BDS**.

5.3. Government owned or controlled corporations (GOCCs) may be eligible to participate only if they can establish that they (a) are legally and financially

autonomous, (b) operate under commercial law, and (c) are not attached agencies of the Procuring Entity.

- 5.4. (a) 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 Philippine Statistics Authority (PSA) consumer price index. However, contractors under Small A and Small B categories without similar experience on the contract to be bid may be allowed to bid if the cost of such contract is not more than the Allowable Range of Contract Cost (ARCC) of their registration based on the guidelines as prescribed by the PCAB.

(b) 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 **BDS**.

For this purpose, contracts similar to the Project shall be those described in the **BDS**.

- 5.5. The Bidder must submit a computation of its Net Financial Contracting Capacity (NFCC), which must be at least equal to the ABC to be bid, calculated as follows:

NFCC = [(Current assets minus current liabilities) (15)] minus the value of all outstanding or uncompleted portions of the projects under ongoing contracts, including awarded contracts yet to be started coinciding with the contract for this Project.

The values of the domestic bidder's current assets and current liabilities shall be based on the latest Audited Financial Statements (AFS) submitted to the BIR.

For purposes of computing the foreign bidders' NFCC, the value of the current assets and current liabilities shall be based on their audited financial statements prepared in accordance with international financial reporting standards.

6. Bidder's Responsibilities

- 6.1. The Bidder or its duly authorized representative shall submit a sworn statement in the form prescribed in Section IX Bidding Forms **Error! Reference source not found.** as required in **ITB** Clause 12.1(b)(iii).

- 6.2. The Bidder is responsible for the following:

- (a) Having taken steps to carefully examine all of the Bidding Documents;
- (b) Having acknowledged all conditions, local or otherwise, affecting the implementation of the contract;

- (c) Having made an estimate of the facilities available and needed for the contract to be bid, if any;
- (d) Having complied with its responsibility to inquire or secure Supplemental/Bid Bulletin/s as provided under **ITB** Clause 10.4.
- (e) Ensuring that it is not “blacklisted” or barred from bidding by the GoP or any of its agencies, offices, corporations, or LGUs, including foreign government/foreign or international financing institution whose blacklisting rules have been recognized by the GPPB;
- (f) Ensuring that each of the documents submitted in satisfaction of the bidding requirements is an authentic copy of the original, complete, and all statements and information provided therein are true and correct;
- (g) Authorizing the HoPE or its duly authorized representative/s to verify all the documents submitted;
- (h) Ensuring that the signatory is the duly authorized representative of the Bidder, and granted full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract, accompanied by the duly notarized Special Power of Attorney, Board/Partnership Resolution, or Secretary’s Certificate, whichever is applicable;
- (i) Complying with the disclosure provision under Section 47 of RA 9184 and its IRR in relation to other provisions of RA 3019;
- (j) Complying with existing labor laws and standards, in the case of procurement of services. Moreover, bidder undertakes to:
 - (i) Ensure the entitlement of workers to wages, hours of work, safety and health and other prevailing conditions of work as established by national laws, rules and regulations; or collective bargaining agreement; or arbitration award, if and when applicable.

In case there is a finding by the Procuring Entity or the DOLE of underpayment or non-payment of workers’ wage and wage-related benefits, bidder agrees that the performance security or portion of the contract amount shall be withheld in favor of the complaining workers pursuant to appropriate provisions of Republic Act No. 9184 without prejudice to the institution of appropriate actions under the Labor Code, as amended, and other social legislations.

- (ii) Comply with occupational safety and health standards and to correct deficiencies, if any.

In case of imminent danger, injury or death of the worker, bidder undertakes to suspend contract implementation pending clearance to proceed from the DOLE Regional Office and to comply with Work Stoppage Order; and

- (iii) Inform the workers of their conditions of work, labor clauses under the contract specifying wages, hours of work and other benefits under prevailing national laws, rules and regulations; or collective bargaining agreement; or arbitration award, if and when applicable, through posting in two (2) conspicuous places in the establishment's premises; and
- (k) Ensuring that it did not give or pay, directly or indirectly, any commission, amount, fee, or any form of consideration, pecuniary or otherwise, to any person or official, personnel or representative of the;

Failure to observe any of the above responsibilities shall be at the risk of the Bidder concerned.

- 6.3. The Bidder, by the act of submitting its bid, shall be deemed to have inspected the site, determined the general characteristics of the contract works and the conditions for this Project and examine all instructions, forms, terms, and project requirements in the Bidding Documents.
- 6.4. It shall be the sole responsibility of the prospective bidder to determine and to satisfy itself by such means as it considers necessary or desirable as to all matters pertaining to this Project, including: (a) the location and the nature of the contract, project, or 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.
- 6.5. The Procuring Entity shall not assume any responsibility regarding erroneous interpretations or conclusions by the prospective or eligible bidder out of the data furnished by the procuring entity. However, the Procuring Entity shall ensure that all information in the Bidding Documents, including supplemental/bid bulletins issued are correct and consistent.
- 6.6. Before submitting their bids, the Bidders are deemed to have become familiar with all existing laws, decrees, ordinances, acts and regulations of the Philippines which may affect the contract in any way.
- 6.7. The Bidder shall bear all costs associated with the preparation and submission of his bid, and the Procuring Entity will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.
- 6.8. The Bidder should note that the Procuring Entity will accept bids only from those that have paid the applicable fee for the Bidding Documents at the office indicated in the Invitation to Bid.

7. Origin of Goods and Services

There is no restriction on the origin of Goods, or Contracting of Works or Services other than those prohibited by a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations.

8. Subcontracts

- 8.1. Unless otherwise specified in the **BDS**, the Bidder may subcontract portions of the Works to an extent as may be approved by the Procuring Entity and stated in the **BDS**. However, subcontracting of any portion shall not relieve the Bidder from any liability or obligation that may arise from the contract for this Project.
- 8.2. Subcontractors must submit the documentary requirements under **ITB** Clause 12 and comply with the eligibility criteria specified in the **BDS**. In the event that any subcontractor is found by the Procuring Entity to be ineligible, the subcontracting of such portion of the Works shall be disallowed.
- 8.3. The Bidder may identify the subcontractor to whom a portion of the Works will be subcontracted at any stage of the bidding process or during contract implementation. If the Bidder opts to disclose the name of the subcontractor during bid submission, the Bidder shall include the required documents as part of the technical component of its bid.

B. Contents of Bidding Documents

9. Pre-Bid Conference

- 9.1. (a) If so specified in the **BDS**, a pre-bid conference shall be held at the venue and on the date indicated therein, to clarify and address the Bidders' questions on the technical and financial components of this Project.

(b) The pre-bid conference shall be held at least twelve (12) calendar days before the deadline for the submission of and receipt of bids, but not earlier than seven (7) calendar days from the posting of the Invitation to Bid/Bidding Documents in the PhilGEPS website. If the Procuring Entity determines that, by reason of the method, nature, or complexity of the contract to be bid, or when international participation will be more advantageous to the GoP, a longer period for the preparation of bids is necessary, the pre-bid conference shall be held at least thirty (30) calendar days before the deadline for the submission and receipt of bids, as specified in the **BDS**.
- 9.2. Bidders are encouraged to attend the pre-bid conference to ensure that they fully understand the Procuring Entity's requirements. Non-attendance of the Bidder will in no way prejudice its bid; however, the Bidder is expected to know the changes and/or amendments to the Bidding Documents as recorded in the minutes of the pre-bid conference and the Supplemental/Bid Bulletin. The minutes of the pre-bid conference shall be recorded and prepared not later than five (5) calendar days after the pre-bid conference. The minutes shall be

made available to prospective bidders not later than five (5) days upon written request.

- 9.3. Decisions of the BAC amending any provision of the bidding documents shall be issued in writing through a Supplemental/Bid Bulletin at least seven (7) calendar days before the deadline for the submission and receipt of bids.

10. Clarification and Amendment of Bidding Documents

- 10.1. Prospective bidders may request for clarification(s) on and/or interpretation of any part of the Bidding Documents. Such a request must be in writing and submitted to the Procuring Entity at the address indicated in the **BDS** at least ten (10) calendar days before the deadline set for the submission and receipt of Bids.
- 10.2. The BAC shall respond to the said request by issuing a Supplemental/Bid Bulletin, to be made available to all those who have properly secured the Bidding Documents, at least seven (7) calendar days before the deadline for the submission and receipt of Bids.
- 10.3. Supplemental/Bid Bulletins may also be issued upon the Procuring Entity's initiative for purposes of clarifying or modifying any provision of the Bidding Documents not later than seven (7) calendar days before the deadline for the submission and receipt of Bids. Any modification to the Bidding Documents shall be identified as an amendment.
- 10.4. Any Supplemental/Bid Bulletin issued by the BAC shall also be posted in the PhilGEPS and the website of the Procuring Entity concerned, if available, and at any conspicuous place in the premises of the Procuring Entity concerned. It shall be the responsibility of all Bidders who have properly secured the Bidding Documents to inquire and secure Supplemental/Bid Bulletins that may be issued by the BAC. However, Bidders who have submitted bids before the issuance of the Supplemental/Bid Bulletin must be informed and allowed to modify or withdraw their bids in accordance with **ITB** Clause 23.

C. Preparation of Bids

11. Language of Bids

The eligibility requirements or statements, the bids, and all other documents to be submitted to the BAC must be in English. If the eligibility requirements or statements, the bids, and all other documents submitted to the BAC are in foreign language other than English, it must be accompanied by a translation of the documents in English. The documents shall be translated by the relevant foreign government agency, the foreign government agency authorized to translate documents, or a registered translator in the foreign bidder's country; and 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. The English translation shall govern, for purposes of interpretation of the bid.

12. Documents Comprising the Bid: Eligibility and Technical Components

12.1. Unless otherwise indicated in the **BDS**, the first envelope shall contain the following eligibility and technical documents:

(a) Eligibility Documents –

Class “A” Documents

- (i) PhilGEPS Certificate of Registration and Membership in accordance with Section 8.5.2 of the IRR, except for foreign bidders participating in the procurement by a Philippine Foreign Service Office or Post, which shall submit their eligibility documents under Section 23.1 of the IRR, provided, that the winning bidder shall register with the PhilGEPS in accordance with Section 37.1.4 of the IRR;
- (ii) Statement 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

Statement of the Bidder’s SLCC similar to the contract to be bid, in accordance with ITB Clause 5.4.

The two statements required shall indicate for each contract the following:

- (ii.1) name of the contract;
- (ii.2) date of the contract;
- (ii.3) contract duration;
- (ii.4) owner’s name and address;
- (ii.5) nature of work;
- (ii.6) contractor’s role (whether sole contractor, subcontractor, or partner in a JV) and percentage of participation;
- (ii.7) total contract value at award;
- (ii.8) date of completion or estimated completion time;
- (ii.9) total contract value at completion, if applicable;
- (ii.10) percentages of planned and actual accomplishments, if applicable; and

(ii.11) value of outstanding works, if applicable.

The statement of the Bidder's SLCC shall be supported by the Notice of Award and/or Notice to Proceed, Project Owner's Certificate of Final Acceptance issued by the Owner other than the Contractor or the Constructors Performance Evaluation System (CPES) Final Rating, which must be at least satisfactory. In case of contracts with the private sector, an equivalent document shall be submitted;

- (iii) Unless otherwise provided in the **BDS**, a valid special PCAB License in case of joint ventures, and registration for the type and cost of the contract for this Project; and
- (iv) NFCC computation in accordance with ITB Clause 5.5.

Class "B" Documents

(v) If applicable, Joint Venture Agreement (JVA) in accordance with RA 4566.

(b) Technical Documents –

- (i) Bid security in accordance with **ITB** Clause 18. If the Bidder opts to submit the bid security in the form of:
 - (i.1) a bank draft/guarantee or an irrevocable letter of credit issued by a foreign bank, it shall be accompanied by a confirmation from a Universal or Commercial Bank; or
 - (i.2) a surety bond accompanied by a certification coming from the Insurance Commission that the surety or insurance company is authorized to issue such instruments.
- (ii) Project Requirements, which shall include the following:
 - (ii.1) Organizational chart for the contract to be bid;
 - (ii.2) List of contractor's 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. These personnel must meet the required minimum years of experience set in the **BDS**; and
 - (ii.3) 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, which must meet the minimum requirements for the contract set in the **BDS**; and

- (iii) Sworn statement in accordance with Section 25.3 of the IRR of RA 9184 and using the form prescribed in **Error! Reference source not found..**

13. Documents Comprising the Bid: Financial Component

13.1. Unless otherwise stated in the **BDS**, the financial component of the bid shall contain the following:

- (a) Financial Bid Form, which includes bid prices and the bill of quantities, in accordance with **ITB** Clauses 15.1 and 15.3; and
- (b) Any other document related to the financial component of the bid as stated in the **BDS**.

13.2. (a) Unless otherwise stated in the **BDS**, all Bids that exceed the ABC shall not be accepted.

- (b) Unless otherwise indicated in the **BDS**, for foreign-funded procurement, a ceiling may be applied to bid prices provided the following conditions are met:

- (i) Bidding Documents are obtainable free of charge on a freely accessible website. If payment of Bidding Documents is required by the procuring entity, payment could be made upon the submission of bids.
- (ii) The procuring entity has procedures in place to ensure that the ABC is based on recent estimates made by the engineer or the responsible unit of the procuring entity and that the estimates are based on adequate detailed engineering (in the case of infrastructure projects) and reflect the quality, supervision and risk and inflationary factors, as well as prevailing market prices, associated with the types of works or goods to be procured.
- (iii) The procuring entity has trained cost estimators on estimating prices and analyzing bid variances. In the case of infrastructure projects, the procuring entity must also have trained quantity surveyors.
- (iv) The procuring entity has established a system to monitor and report bid prices relative to ABC and engineer's/procuring entity's estimate.
- (v) The procuring entity has established a monitoring and evaluation system for contract implementation to provide a feedback on actual total costs of goods and works.

14. Alternative Bids

- 14.1. Alternative Bids shall be rejected. For this purpose, alternative bid is an offer made by a Bidder in addition or as a substitute to its original bid which may be included as part of its original bid or submitted separately therewith for purposes of bidding. A bid with options is considered an alternative bid regardless of whether said bid proposal is contained in a single envelope or submitted in two (2) or more separate bid envelopes.
- 14.2. 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.
- 14.3. Each Bidder shall submit only one Bid, either individually or as a partner in a JV. A Bidder who submits or participates in more than one bid (other than as a subcontractor if a subcontractor is permitted to participate in more than one bid) will cause all the proposals with the Bidder's participation to be disqualified. This shall be without prejudice to any applicable criminal, civil and administrative penalties that may be imposed upon the persons and entities concerned.

15. Bid Prices

- 15.1. The contract shall be for the whole Works, as described in **ITB** Clause 1.1, based on the priced Bill of Quantities submitted by the Bidder.
- 15.2. The Bidder shall fill in rates and prices for all items of the Works described in the Bill of Quantities. Bids not addressing or providing all of the required items in the Bidding Documents including, where applicable, Bill of Quantities, shall be considered non-responsive and, thus, automatically disqualified. In this regard, where a required item is provided, but no price is indicated, the same shall be considered as non-responsive, but specifying a zero (0) or a dash (-) for the said item would mean that it is being offered for free to the Government, except those required by law or regulations to be provided for.
- 15.3. All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, prior to the deadline for submission of bids, shall be included in the rates, prices, and total bid price submitted by the Bidder.
- 15.4. All bid prices for the given scope of work in the contract as awarded shall be considered as fixed prices, and therefore not subject to price escalation during contract implementation, except under extraordinary circumstances as specified in GCC Clause 48. Upon the recommendation of the Procuring Entity, price escalation may be allowed in extraordinary circumstances as may be determined by the National Economic and Development Authority in accordance with the Civil Code of the Philippines, and upon approval by the GPPB. Furthermore, in cases where the cost of the awarded contract is affected by any applicable new laws, ordinances, regulations, or other acts of

the GoP, promulgated after the date of bid opening, a contract price adjustment shall be made or appropriate relief shall be applied on a no loss-no gain basis.

16. Bid Currencies

- 16.1. All bid prices shall be quoted in Philippine Pesos unless otherwise provided in the **BDS**. However, for purposes of bid evaluation, bids denominated in foreign currencies shall be converted to Philippine currency based on the exchange rate prevailing on the day of the Bid Opening.
- 16.2. If so allowed in accordance with **ITB** Clause 16.1, the Procuring Entity for purposes of bid evaluation and comparing the bid prices will convert the amounts in various currencies in which the bid price is expressed to Philippine Pesos at the exchange rate as published in the *Bangko Sentral ng Pilipinas* (BSP) reference rate bulletin on the day of the bid opening.
- 16.3. Unless otherwise specified in the **BDS**, payment of the contract price shall be made in Philippine Pesos.

17. Bid Validity

- 17.1. Bids shall remain valid for the period specified in the **BDS** which shall not exceed one hundred twenty (120) calendar days from the date of the opening of bids.
- 17.2. In exceptional circumstances, prior to the expiration of the bid validity period, the Procuring Entity may request Bidders to extend the period of validity of their bids. The request and the responses shall be made in writing. The bid security described in **ITB** Clause 18 should also be extended corresponding to the extension of the bid validity period at the least. A Bidder may refuse the request without forfeiting its bid security, but his bid shall no longer be considered for further evaluation and award. A Bidder granting the request shall not be required or permitted to modify its bid.

18. Bid Security

- 18.1. The Bidder shall submit a Bid Securing Declaration or any form of Bid Security in an amount stated in the **BDS**, which shall be not less than the percentage of the ABC in accordance with the following schedule:

Form of Bid Security	Amount of Bid Security (Not less than the Percentage of the ABC)
(a) Cash or cashier's/manager's check issued by a Universal or Commercial Bank. <i>For biddings conducted by LGUs, the cashier's/manager's check may be issued by other</i>	Two percent (2%)

<i>banks certified by the BSP as authorized to issue such financial instrument.</i>	
<p>(b) Bank draft/guarantee or irrevocable letter of credit issued by a Universal or Commercial Bank: Provided, however, that it shall be confirmed or authenticated by a Universal or Commercial Bank, if issued by a foreign bank.</p> <p><i>For biddings conducted by LGUs, the Bank Draft/Guarantee, or irrevocable letter of credit may be issued by other banks certified by the BSP as authorized to issue such financial instrument.</i></p>	
<p>(c) Surety bond callable upon demand issued by a surety or insurance company duly certified by the Insurance Commission as authorized to issue such security; and/or</p>	Five percent (5%)

The Bid Securing Declaration mentioned above is an undertaking which states, among others, that the Bidder shall enter into contract with the procuring entity and furnish the performance security required under ITB Clause 32.2, within ten (10) calendar days from receipt of the Notice of Award, and commits to pay the corresponding amount as fine, and be suspended for a period of time from being qualified to participate in any government procurement activity in the event it violates any of the conditions stated therein as provided in the guidelines issued by the GPPB.

- 18.2. The bid security should be valid for the period specified in the **BDS**. Any bid not accompanied by an acceptable bid security shall be rejected by the Procuring Entity as non-responsive.
- 18.3. No bid securities shall be returned to Bidders after the opening of bids and before contract signing, except to those that failed or declared as post-disqualified, upon submission of a written waiver of their right to file a request for reconsideration and/or protest, or lapse of the reglementary period without having filed a request for reconsideration or protest. Without prejudice on its forfeiture, Bid Securities shall be returned only after the Bidder with the Lowest Calculated Responsive Bid (LCRB) has signed the contract and furnished the Performance Security, but in no case later than the expiration of the Bid Security validity period indicated in **ITB** Clause 18.2.

18.4. Upon signing and execution of the contract, pursuant to **ITB** Clause 31, and the posting of the performance security, pursuant to **ITB** Clause 32, the successful Bidder's Bid Security will be discharged, but in no case later than the Bid Security validity period as indicated in **ITB** Clause 18.2.

18.5. The bid security may be forfeited:

(a) if a Bidder:

- (i) withdraws its bid during the period of bid validity specified in **ITB** Clause 17;
- (ii) does not accept the correction of errors pursuant to **ITB** Clause 27.3(b);
- (iii) has a finding against the veracity of the required documents submitted in accordance with **ITB** Clause 28.2;
- (iv) submission of eligibility requirements containing false information or falsified documents;
- (v) submission of bids that contain false information or falsified documents, or the concealment of such information in the bids in order to influence the outcome of eligibility screening or any other stage of the public bidding;
- (vi) allowing the use of one's name, or using the name of another for purposes of public bidding;
- (vii) withdrawal of a bid, or refusal to accept an award, or enter into contract with the Government without justifiable cause, after the Bidder had been adjudged as having submitted the LCRB;
- (viii) refusal or failure to post the required performance security within the prescribed time;
- (ix) refusal to clarify or validate in writing its bid during post-qualification within a period of seven (7) calendar days from receipt of the request for clarification;
- (x) any documented attempt by a Bidder to unduly influence the outcome of the bidding in his favor;
- (xi) failure of the potential joint venture partners to enter into the joint venture after the bid is declared successful; or
- (xii) all other acts that tend to defeat the purpose of the competitive bidding, such as habitually withdrawing from bidding, submitting late Bids or patently insufficient bid, for at least three (3) times within a year, except for valid reasons.

(b) if the successful Bidder:

- (i) fails to sign the contract in accordance with **ITB** Clause 31;
- (ii) fails to furnish performance security in accordance with **ITB** Clause 32.

19. Format and Signing of Bids

- 19.1 Bidders shall submit their bids through their duly authorized representative using the appropriate forms provided in **Error! Reference source not found.** on or before the deadline specified in the **ITB** Clause 21 in two (2) separate sealed bid envelopes, and which shall be submitted simultaneously. The first shall contain the technical component of the bid, including the eligibility requirements under **ITB** Clause 12.1, and the second shall contain the financial component of the bid. This shall also be observed for each lot in the case of lot procurement.
- 19.2 Forms as mentioned in **ITB** Clause 19.1 must be completed without any alterations to their format, and no substitute form shall be accepted. All blank spaces shall be filled in with the information requested.
- 19.3 The Bidder shall prepare and submit an original of the first and second envelopes as described in **ITB** Clauses 12 and 13. In addition, the Bidder shall submit copies of the first and second envelopes. In the event of any discrepancy between the original and the copies, the original shall prevail.
- 19.4 Each and every page of the Bid Form, including the Bill of Quantities, under Section IX hereof, shall be signed by the duly authorized representative/s of the Bidder. Failure to do so shall be a ground for the rejection of the bid.
- 19.5 Any interlineations, erasures, or overwriting shall be valid only if they are signed or initialed by the duly authorized representative/s of the Bidder.

20. Sealing and Marking of Bids

- 20.1. Bidders shall enclose their original eligibility and technical documents described in **ITB** Clause 12, in one sealed envelope marked “ORIGINAL - TECHNICAL COMPONENT,” and the original of their financial component in another sealed envelope marked “ORIGINAL - FINANCIAL COMPONENT,” sealing them all in an outer envelope marked “ORIGINAL BID.”
- 20.2. Each copy of the first and second envelopes shall be similarly sealed duly marking the inner envelopes as “COPY NO. ____ - TECHNICAL COMPONENT” and “COPY NO. ____ – FINANCIAL COMPONENT” and the outer envelope as “COPY NO. ____,” respectively. These envelopes containing the original and the copies shall then be enclosed in one single envelope.
- 20.3. The original and the number of copies of the bid as indicated in the **BDS** shall be typed or written in ink and shall be signed by the Bidder or its duly authorized representative/s.

20.4. All envelopes shall:

- (a) contain the name of the contract to be bid in capital letters;
- (b) bear the name and address of the Bidder in capital letters;
- (c) be addressed to the Procuring Entity's BAC in accordance with **ITB** Clause 20.1;
- (d) bear the specific identification of this bidding process indicated in the **ITB** Clause 1.2; and
- (e) bear a warning "DO NOT OPEN BEFORE..." the date and time for the opening of bids, in accordance with **ITB** Clause 21.

20.5. Bid envelopes that are not properly sealed and marked, as required in the bidding documents, shall not be rejected, but the Bidder or its duly authorized representative shall acknowledge such condition of the bid as submitted. The BAC or the Procuring Entity shall assume no responsibility for the misplacement of the contents of the improperly sealed or marked bid, or for its premature opening.

D. Submission and Opening of Bids

21. Deadline for Submission of Bids

Bids must be received by the Procuring Entity's BAC at the address and on or before the date and time indicated in the **BDS**.

22. Late Bids

Any bid submitted after the deadline for submission and receipt of bids prescribed by the Procuring Entity, pursuant to **ITB** Clause 21, shall be declared "Late" and shall not be accepted by the Procuring Entity. The BAC shall record in the minutes of Bid Submission and Opening, the Bidder's name, its representative and the time the late bid was submitted.

23. Modification and Withdrawal of Bids

23.1. The Bidder may modify its bid after it has been submitted; provided that the modification is received by the Procuring Entity prior to the deadline prescribed for submission and receipt of bids. The Bidder shall not be allowed to retrieve its original bid, but shall be allowed to submit another bid equally sealed and properly identified in accordance with Clause 20, linked to its original bid marked as "TECHNICAL MODIFICATION" or "FINANCIAL MODIFICATION" and stamped "received" by the BAC. Bid modifications received after the applicable deadline shall not be considered and shall be returned to the Bidder unopened.

23.2. A Bidder may, through a Letter of Withdrawal, withdraw its bid after it has been submitted, for valid and justifiable reason; provided that the Letter of

Withdrawal is received by the Procuring Entity prior to the deadline prescribed for submission and receipt of bids. The Letter of Withdrawal must be executed by the authorized representative of the Bidder identified in the Omnibus Sworn Statement, a copy of which should be attached to the letter.

- 23.3. Bids requested to be withdrawn in accordance with **ITB** Clause 23.1 shall be returned unopened to the Bidders. A Bidder, who has acquired the bidding documents may also express its intention not to participate in the bidding through a letter which should reach and be stamped by the BAC before the deadline for submission and receipt of bids. A Bidder that withdraws its bid shall not be permitted to submit another bid, directly or indirectly, for the same contract.
- 23.4. No bid may be modified after the deadline for submission of bids. No bid may be withdrawn in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder on the Financial Bid Form. Withdrawal of a bid during this interval shall result in the forfeiture of the Bidder's bid security, pursuant to **ITB** Clause 18.5, and the imposition of administrative, civil, and criminal sanctions as prescribed by RA 9184 and its IRR.

24. Opening and Preliminary Examination of Bids

- 24.1. The BAC shall open the Bids in public, immediately after the deadline for the submission and receipt of bids in public, as specified in the **BDS**. In case the Bids cannot be opened as scheduled due to justifiable reasons, the BAC shall take custody of the Bids submitted and reschedule the opening of Bids on the next working day or at the soonest possible time through the issuance of a Notice of Postponement to be posted in the PhilGEPS website and the website of the Procuring Entity concerned.
- 24.2. Unless otherwise specified in the BDS, the BAC shall open the first bid envelopes and determine each Bidder's compliance with the documents prescribed in ITB Clause 12, using a non-discretionary "pass/fail" criterion. If a Bidder submits the required document, it shall be rated "passed" for that particular requirement. In this regard, bids that fail to include any requirement or are incomplete or patently insufficient shall be considered as "failed". Otherwise, the BAC shall rate the said first bid envelope as "passed".
- 24.3. Unless otherwise specified in the **BDS**, immediately after determining compliance with the requirements in the first envelope, the BAC shall forthwith open the second bid envelope of each remaining eligible Bidder whose first bid envelope was rated "passed." The second envelope of each complying Bidder shall be opened within the same day. In case one or more of the requirements in the second envelope of a particular bid is missing, incomplete or patently insufficient, and/or if the submitted total bid price exceeds the ABC unless otherwise provided in **ITB** Clause 13.2, the BAC shall rate the bid concerned as "failed." Only bids that are determined to contain all the bid requirements for both components shall be rated "passed" and shall immediately be considered for evaluation and comparison.

- 24.4. Letters of Withdrawal shall be read out and recorded during bid opening, and the envelope containing the corresponding withdrawn bid shall be returned to the Bidder unopened.
- 24.5. All members of the BAC who are present during bid opening shall initial every page of the original copies of all bids received and opened.
- 24.6. In the case of an eligible foreign bidder as described in **ITB** Clause 5, the following Class “A” Documents may be substituted with the appropriate equivalent documents, if any, issued by the country of the foreign bidder concerned, which shall likewise be uploaded and maintained in the PhilGEPS in accordance with Section 8.5.2 of the IRR.:
- a) Registration certificate from the Securities and Exchange Commission (SEC), Department of Trade and Industry (DTI) for sole proprietorship, or CDA for cooperatives;
 - b) Mayor’s/Business permit issued by the local government where the principal place of business of the Bidder is located; and
 - c) Audited Financial Statements showing, among others, the prospective Bidder’s total and current assets and liabilities stamped “received” by the Bureau of Internal Revenue or its duly accredited and authorized institutions, for the preceding calendar year which should not be earlier than two years from the date of bid submission.
- 24.7. Each partner of a joint venture agreement shall likewise submit the document required in **ITB** Clause 12.1(a)(i). Submission of documents required under **ITB** Clauses 12.1(a)(ii) to 12.1(a)(iv) by any of the joint venture partners constitutes compliance.
- 24.8. The Procuring Entity shall prepare the minutes of the proceedings of the bid opening that shall include, as a minimum: (a) names of Bidders, their bid price (per lot, if applicable, and/or including discount, if any), bid security, findings of preliminary examination, and whether there is a withdrawal or modification; and (b) attendance sheet. The BAC members shall sign the abstract of bids as read.
- 24.8. The Bidders or their duly authorized representatives may attend the opening of bids. The BAC shall ensure the integrity, security, and confidentiality of all submitted bids. The Abstract of Bids as read and the minutes of the Bid Opening shall be made available to the public upon written request and payment of a specified fee to recover cost of materials.
- 24.9 To ensure transparency and accurate representation of the bid submission, the BAC Secretariat shall notify in writing all Bidders whose bids it has received through its PhilGEPS-registered physical address or official e-mail address. The notice shall be issued within seven (7) calendar days from the date of the bid opening.

E. Evaluation and Comparison of Bids

25. Process to be Confidential

- 25.1. Members of the BAC, including its staff and personnel, as well as its Secretariat and TWG, are prohibited from making or accepting any kind of communication with any Bidder regarding the evaluation of their bids until the issuance of the Notice of Award, unless otherwise allowed in the case of **ITB** Clause 26.
- 25.2. Any effort by a Bidder to influence the Procuring Entity in the Procuring Entity's decision in respect of bid evaluation, bid comparison or contract award will result in the rejection of the Bidder's bid.

26. Clarification of Bids

To assist in the evaluation, comparison and post-qualification of the bids, the Procuring Entity may ask in writing any Bidder for a clarification of its bid. All responses to requests for clarification shall be in writing. Any clarification submitted by a Bidder in respect to its bid and that is not in response to a request by the Procuring Entity shall not be considered

27. Detailed Evaluation and Comparison of Bids

- 27.1. The Procuring Entity will undertake the detailed evaluation and comparison of Bids which have passed the opening and preliminary examination of Bids, pursuant to **ITB** Clause 24, in order to determine the Lowest Calculated Bid.
- 27.2. The Lowest Calculated Bid shall be determined in two steps:
- (a) The detailed evaluation of the financial component of the bids, to establish the correct calculated prices of the bids; and
 - (b) The ranking of the total bid prices as so calculated from the lowest to highest. The bid with the lowest price shall be identified as the Lowest Calculated Bid.
- 27.3. The Procuring Entity's BAC shall immediately conduct a detailed evaluation of all bids rated "passed," using non-discretionary "pass/fail" criterion. The BAC shall consider the following in the evaluation of bids:
- (a) Completeness of the bid. Unless the **BDS** allows partial bids, bids not addressing or providing all of the required items in the Schedule of Requirements including, where applicable, bill of quantities, shall be considered non-responsive and, thus, automatically disqualified. In this regard, where a required item is provided, but no price is indicated, the same shall be considered as non-responsive, but specifying a zero (0) or a dash (-) for the said item would mean that it is being offered for free to the Procuring Entity, except those required by law or regulations to be provided for; and

- (b) Arithmetical corrections. Consider computational errors and omissions to enable proper comparison of all eligible bids. It may also consider bid modifications. Any adjustment shall be calculated in monetary terms to determine the calculated prices.
- 27.4. Based on the detailed evaluation of bids, those that comply with the above-mentioned requirements shall be ranked in the ascending order of their total calculated bid prices, as evaluated and corrected for computational errors, discounts and other modifications, to identify the Lowest Calculated Bid. Total calculated bid prices, as evaluated and corrected for computational errors, discounts and other modifications, which exceed the ABC shall not be considered, unless otherwise indicated in the **BDS**.
- 27.5. The Procuring Entity's evaluation of bids shall be based on the bid price quoted in the Bid Form, which includes the Bill of Quantities.
- 27.6. Bids shall be evaluated on an equal footing to ensure fair competition. For this purpose, all Bidders shall be required to include in their bids the cost of all taxes, such as, but not limited to, value added tax (VAT), income tax, local taxes, and other fiscal levies and duties which shall be itemized in the bid form and reflected in the detailed estimates. Such bids, including said taxes, shall be the basis for bid evaluation and comparison.
- 27.7. If so indicated pursuant to **ITB** Clause 1.2. Bids are being invited for individual lots or for any combination thereof, provided that all Bids and combinations of Bids 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 prices quoted shall correspond to all of the requirements specified for each lot. Bid Security as required by **ITB** Clause 18 shall be submitted for each contract (lot) separately. The basis for evaluation of lots is specified in **BDS** Clause 27.3.

28. Post Qualification

- 28.1. The BAC shall determine to its satisfaction whether the Bidder that is evaluated as having submitted the Lowest Calculated Bid complies with and is responsive to all the requirements and conditions specified in **ITB** Clauses 5, 12, and 13.
- 28.2. 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**.

Failure to submit any of the post-qualification requirements on time, or a finding against the veracity thereof, shall disqualify the Bidder for award. Provided in the event that a finding against the veracity of any of the documents submitted is made, it shall cause the forfeiture of the bid security in accordance with Section 69 of the IRR of RA 9184.

- 28.3. The determination shall be based upon an examination of the documentary evidence of the Bidder's qualifications submitted pursuant to **ITB** Clauses 12 and 13, as well as other information as the Procuring Entity deems necessary and appropriate, using a non-discretionary "pass/fail" criterion, which shall be completed within a period of twelve (12) calendar days.
- 28.4. If the BAC determines that the Bidder with the Lowest Calculated Bid passes all the criteria for post-qualification, it shall declare the said bid as the LCRB, and recommend to the HoPE the award of contract to the said Bidder at its submitted price or its calculated bid price, whichever is lower, subject to **ITB** Clause 30.3.
- 28.5. A negative determination shall result in rejection of the Bidder's bid, in which event the Procuring Entity shall proceed to the next Lowest Calculated Bid, with a fresh period to make a similar determination of that Bidder's capabilities to perform satisfactorily. If the second Bidder, however, fails the post qualification, the procedure for post qualification shall be repeated for the Bidder with the next Lowest Calculated Bid, and so on until the LCRB is determined for recommendation of contract award.
- 28.6. Within a period not exceeding fifteen (15) calendar days from the determination by the BAC of the LCRB and the recommendation to award the contract, the HoPE or his duly authorized representative shall approve or disapprove the said recommendation.
- 28.7. In the event of disapproval, which shall be based on valid, reasonable, and justifiable grounds as provided for under Section 41 of the IRR of RA 9184, the HoPE shall notify the BAC and the Bidder in writing of such decision and the grounds for it. When applicable, the BAC shall conduct a post-qualification of the Bidder with the next Lowest Calculated Bid. A request for reconsideration may be filed by the Bidder with the HoPE in accordance with Section 37.1.3 of the IRR of RA 9184.

29. Reservation Clause

- 29.1. Notwithstanding the eligibility or post-qualification of a Bidder, the Procuring Entity concerned reserves the right to review its qualifications at any stage of the procurement process if it has reasonable grounds to believe that a misrepresentation has been made by the said Bidder, or that there has been a change in the Bidder's capability to undertake the project from the time it submitted its eligibility requirements. Should such review uncover any misrepresentation made in the eligibility and bidding requirements, statements or documents, or any changes in the situation of the Bidder which will affect its capability to undertake the project so that it fails the preset eligibility or bid evaluation criteria, the Procuring Entity shall consider the said Bidder as ineligible and shall disqualify it from submitting a bid or from obtaining an award or contract.
- 29.2. Based on the following grounds, the Procuring Entity reserves the right to reject any and all Bids, declare a Failure of Bidding at any time prior to the contract award, or not to award the contract, without thereby incurring any

liability, and make no assurance that a contract shall be entered into as a result of the bidding:

- (a) If there is *prima facie* evidence of collusion between appropriate public officers or employees of the Procuring Entity, or between the BAC and any of the Bidders, or if the collusion is between or among the Bidders themselves, or between a Bidder and a third party, including any act which restricts, suppresses or nullifies or tends to restrict, suppress or nullify competition;
- (b) If the Procuring Entity's BAC is found to have failed in following the prescribed bidding procedures; or
- (c) For any justifiable and reasonable ground where the award of the contract will not redound to the benefit of the GOP as follows:
 - (i) If the physical and economic conditions have significantly changed so as to render the project no longer economically, financially or technically feasible as determined by the HoPE;
 - (ii) If the project is no longer necessary as determined by the HoPE; and
 - (iii) If the source of funds for the project has been withheld or reduced through no fault of the Procuring Entity.

29.3. In addition, the Procuring Entity may likewise declare a failure of bidding when:

- (a) No bids are received;
- (b) All prospective Bidders are declared ineligible;
- (c) All bids fail to comply with all the bid requirements, fail post-qualification; or
- (d) The Bidder with the LCRB refuses, without justifiable cause, to accept the award of contract, and no award is made in accordance with Section 40 of the IRR of RA 9184.

F. Award of Contract

30. Contract Award

- 30.1. Subject to **ITB** Clause 28, the HoPE or its duly authorized representative shall award the contract to the Bidder whose bid has been determined to be the LCRB.
- 30.2. Prior to the expiration of the period of bid validity, the Procuring Entity shall notify the successful Bidder in writing that its bid has been accepted, through a Notice of Award duly received by the Bidder or its representative personally or by registered mail or electronically, receipt of which must be confirmed in

writing within two (2) days by the Bidder with the LCRB and submitted personally or sent by registered mail or electronically to the Procuring Entity.

30.3. Notwithstanding the issuance of the Notice of Award, award of contract shall be subject to the following conditions:

- (a) Submission of the following documents within ten (10) calendar days from receipt of the Notice of Award:
 - (i) In the case of procurement by a Philippine Foreign Service Office or Post, the PhilGEPS Registration Number of the winning foreign Bidder; or
 - (ii) Valid PCAB license and registration for the type and cost of the contract to be bid for foreign bidders when the Treaty or International or Executive Agreement expressly allows submission of the PCAB license and registration for the type and cost of the contract to be bid as a pre-condition to the Award;
- (b) Posting of the performance security in accordance with **ITB** Clause 32;
- (c) Signing of the contract as provided in **ITB** Clause 31; and
- (d) Approval by higher authority, if required, as provided in Section 37.3 of the IRR of RA 9184.

31. Signing of the Contract

31.1. At the same time as the Procuring Entity notifies the successful Bidder that its bid has been accepted, the Procuring Entity shall send the Contract Form to the Bidder, which Contract has been provided in the Bidding Documents, incorporating therein all agreements between the parties.

31.2. Within ten (10) calendar days from receipt of the Notice of Award, the successful Bidder shall post the required performance security, sign and date the contract and return it to the Procuring Entity.

31.3. The Procuring Entity shall enter into contract with the successful Bidder within the same ten (10) calendar day period provided that all the documentary requirements are complied with.

31.4. The following documents shall form part of the contract:

- (a) Contract Agreement;
- (b) Bidding Documents;
- (c) Winning Bidder's bid, including the Technical and Financial Proposals, and all other documents/statements submitted (*e.g.*, Bidder's response to request for clarifications on the bid), including

corrections to the bid, if any, resulting from the Procuring Entity's bid evaluation;

- (d) Performance Security;
- (e) Notice of Award of Contract; and
- (f) Other contract documents that may be required by existing laws and/or specified in the **BDS**.

32. Performance Security

- 32.1. To guarantee the faithful performance by the winning Bidder of its obligations under the contract, it shall post a performance security within a maximum period of ten (10) calendar days from the receipt of the Notice of Award from the Procuring Entity and in no case later than the signing of the contract.
- 32.2. The Performance Security shall be denominated in Philippine Pesos and posted in favor of the Procuring Entity in an amount not less than the percentage of the total contract price in accordance with the following schedule:

Form of Performance Security	Amount of Performance Security (Not less than the Percentage of the Total Contract Price)
<p>(a) Cash or cashier's/manager's check issued by a Universal or Commercial Bank.</p> <p><i>For biddings conducted by the LGUs, the Cashier's/Manager's Check may be issued by other banks certified by the BSP as authorized to issue such financial instrument.</i></p>	Ten percent (10%)
<p>(b) Bank draft/guarantee or irrevocable letter of credit issued by a Universal or Commercial Bank: Provided, however, that it shall be confirmed or authenticated by a Universal or Commercial Bank, if issued by a foreign bank.</p> <p><i>For biddings conducted by the LGUs, Bank Draft/Guarantee, or Irrevocable Letter of Credit may be issued by other banks certified by the BSP as authorized to issue such</i></p>	

<i>financial instrument.</i>	
(c) Surety bond callable upon demand issued by a surety or insurance company duly certified by the Insurance Commission as authorized to issue such security.	Thirty percent (30%)

32.3. Failure of the successful Bidder to comply with the above-mentioned requirement shall constitute sufficient ground for the annulment of the award and forfeiture of the bid security, in which event the Procuring Entity shall have a fresh period to initiate and complete the post qualification of the second Lowest Calculated Bid. The procedure shall be repeated until LCRB is identified and selected for recommendation of contract award. However if no Bidder passed post-qualification, the BAC shall declare the bidding a failure and conduct a re-bidding with re-advertisement, if necessary.

33. Notice to Proceed

Within seven (7) calendar days from the date of approval of the Contract by the appropriate government approving authority, the Procuring Entity shall issue the Notice to Proceed (NTP) together with a copy or copies of the approved contract to the successful Bidder. All notices called for by the terms of the contract shall be effective only at the time of receipt thereof by the successful Bidder.

34. Protest Mechanism

Decision of the procuring entity at any stage of the procurement process may be questioned in accordance with Sections 55 of the IRR of RA 9184.

Section III. Bid Data Sheet

Notes on the Bid Data Sheet

This Section is intended to assist the Procuring Entity in providing the specific information in relation to corresponding clauses in the ITB included in Section II, 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, the applicable rules regarding bid price and currency, and the bid evaluation criteria that will apply to the Bids. In preparing this Section, the following aspects should be checked:

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

For foreign-assisted projects, the Bid Data Sheet to be used is provided in Section X- Foreign-Assisted Projects.

Bid Data Sheet

ITB Clause	
1.1	<p>The Procuring Entity is <i>Department of Education, Division of Misamis Oriental</i></p> <p>The name of the Contract is <i>Electrification of Un-energized Schools and Modernization of Electrical Systems On-Grid Schools Batch 1 for Manticao National High School</i>. The identification number of the Contract is <i>Project 2018-BEFF-09</i>.</p>
2	<p>The Funding Source is:</p> <p>The Government of the Philippines (GoP) through <i>General Appropriations Act CY 2018</i> in the amount of <i>Two Million Two Hundred Fifty Eight Thousand Three Hundred Ninety Four and 99/100 (Php 2,258,394.99)</i></p> <p><i>NOTE: In the case of National Government Agencies, the General Appropriations Act and/or continuing appropriations; in the case of Government-Owned and/or –Controlled Corporations, Government Financial Institutions, and State Universities and Colleges, the Corporate Budget for the contract approved by the governing Boards; in the case of Local Government Units, the Budget for the contract approved by the respective Sanggunian.</i></p> <p>The name of the Project is <i>Electrification of Un-energized Schools and Modernization of Electrical Systems On-Grid Schools Batch 1 for Manticao National High School</i></p>
3.1	No further instructions.
5.1	No further instructions.
5.2	Bidding is restricted to eligible bidders as defined in ITB Clause 5.1.
5.4(a)	No further instructions.
5.4(b)	For this purpose, similar contracts shall refer to contracts which have the same major categories of work. <i>Electrification Program/Electrical Works</i>
8.1	“Subcontracting is not allowed.”

8.2	“Not applicable.”																								
9.1	The Procuring Entity will hold a pre-bid conference for this Project on <i>July 3, 2018 , 11 o'clock in the morning , Philippine Standard Time</i> at <i>DepED Division of Misamis Oriental, Division Office Conference Room, A. Velez St. Cagayan de Oro City</i>																								
10.1	<p>The Procuring Entity’s address is:</p> <p><i>DepED Division of Misamis Oriental, Division Office Conference Room, A. Velez St. Cagayan de Oro City.</i></p> <p><u>Rowena H. Para-on</u> Chairperson Bids and Awards Committee DepEd Division of Misamis Oriental <u>A. Velez St., Cagayan de Oro City</u> Tel. No. : 08822724615</p>																								
10.4	No further instructions.																								
12.1	No further instructions.																								
12.1 (a) (i)	Platinum Membership of Philgeps Certificate of Registration based on GPPB Circular 03-2016																								
12.1(a)(iii)	Valid PCAB License with Electrical Works																								
12.1(b)(ii.2)	<p>The minimum work experience requirements for key personnel for each lot are the following:</p> <table><tr><td><u>Key Personnel</u></td><td><u>General Experience</u></td><td><u>Relevant Experience</u></td></tr><tr><td>Project Engineer</td><td>Vertical Construction</td><td>3 years</td></tr><tr><td>Professional Electrical Engineer</td><td>Vertical Construction</td><td>3 years</td></tr><tr><td>General Foreman</td><td>Vertical Construction</td><td>3 years</td></tr><tr><td>Carpenter</td><td>Vertical Construction</td><td>3 years</td></tr><tr><td>Electrician</td><td>Vertical Construction</td><td>3 years</td></tr><tr><td>Welder</td><td>Vertical Construction</td><td>3 years</td></tr><tr><td>Painter</td><td>Vertical Construction</td><td>3 years</td></tr></table>	<u>Key Personnel</u>	<u>General Experience</u>	<u>Relevant Experience</u>	Project Engineer	Vertical Construction	3 years	Professional Electrical Engineer	Vertical Construction	3 years	General Foreman	Vertical Construction	3 years	Carpenter	Vertical Construction	3 years	Electrician	Vertical Construction	3 years	Welder	Vertical Construction	3 years	Painter	Vertical Construction	3 years
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Welder	Vertical Construction	3 years																							
Painter	Vertical Construction	3 years																							

	Steelman	Vertical Construction	3 years																								
	Mason	Vertical Construction	3 years																								
	Helper	Vertical Construction	3 years																								
12.1(b)(iii.3)	The minimum major equipment requirements for each lot are the following: <table><tr><td><u>Equipment</u></td><td><u>Capacity</u></td><td><u>Number of Units</u></td></tr><tr><td>Mixer</td><td>1 bagger</td><td>1 unit</td></tr><tr><td>Concrete Vibrator</td><td></td><td>1 unit</td></tr><tr><td>Planer</td><td></td><td>1 unit</td></tr><tr><td>Welding Machine</td><td></td><td>1 unit</td></tr><tr><td>Bar Cutter</td><td></td><td>1 unit</td></tr><tr><td>Hand Tools</td><td></td><td>1 set</td></tr><tr><td>Power Tools</td><td></td><td>1 set</td></tr></table>			<u>Equipment</u>	<u>Capacity</u>	<u>Number of Units</u>	Mixer	1 bagger	1 unit	Concrete Vibrator		1 unit	Planer		1 unit	Welding Machine		1 unit	Bar Cutter		1 unit	Hand Tools		1 set	Power Tools		1 set
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13.1	<i>Mandatory:</i> <i>Original duly signed and priced Financial Bid Form with Bid Price Offer</i> <i>Original duly signed and priced Program of Works (The total amount of the POWs shall tally with the Bid Price offer)</i> <i>Original duly signed and priced Bill of Quantities (The total amount of BOQs shall tally with the Bid Price offer)</i> <i>Optional:</i> <i>Soft Copy CD or flash drive of the duly priced Bill of Quantities and Program of Works using Microsoft Excel</i> <i>Original and Signed Certificate Site Inspection with attached picture of the School Head at the Proposed Project Site.</i>																										
13.1(b)	This shall include all of the following documents: 1) Bid prices in the Bill of Quantities; 2) Detailed estimates, including a summary sheet indicating the unit prices of construction materials, labor rates, and equipment rentals used in coming up with the Bid; and																										

13.2	<div>The ABC:</div> <table><tr><th>Lot No.</th><th>Project Description/Intended Completion Date</th><th>ABC (PhP)</th></tr><tr><td>1</td><td>Electrification of Un-energized Schools and Modernization of Electrical Systems On-Grid Schools Batch 1 for Manticao National High School /date of NTP plus Contract Duration</td><td>Php 2,258,394.99</td></tr></table> <div>Any bid with a financial component exceeding this amount shall not be accepted.</div>	Lot No.	Project Description/Intended Completion Date	ABC (PhP)	1	Electrification of Un-energized Schools and Modernization of Electrical Systems On-Grid Schools Batch 1 for Manticao National High School /date of NTP plus Contract Duration	Php 2,258,394.99		
Lot No.	Project Description/Intended Completion Date	ABC (PhP)							
1	Electrification of Un-energized Schools and Modernization of Electrical Systems On-Grid Schools Batch 1 for Manticao National High School /date of NTP plus Contract Duration	Php 2,258,394.99							
14.2	No further instruction.								
15.4	No further instruction.								
16.1	<div>The bid prices shall be quoted in Philippine Pesos.</div>								
16.3	No further instructions.								
17.1	Bids will be valid 120 calendar days								
18.1	<div>The bid security shall be in the form of a Bid Securing Declaration or any of the following forms and amounts:</div> <table><tr><th>Lot No.</th><th>ABC (PhP)</th><th>2% of ABC, if bid security is in cash, cashier's/manager's check, bank draft/guarantee or irrevocable letter of credit;</th><th>5% of ABC, if bid security is in Surety Bond.</th></tr><tr><td>1</td><td>Php 2,258,394.99</td><td>Php 45,167.90</td><td>Php 112,919.75</td></tr></table>	Lot No.	ABC (PhP)	2% of ABC, if bid security is in cash, cashier's/manager's check, bank draft/guarantee or irrevocable letter of credit;	5% of ABC, if bid security is in Surety Bond.	1	Php 2,258,394.99	Php 45,167.90	Php 112,919.75
Lot No.	ABC (PhP)	2% of ABC, if bid security is in cash, cashier's/manager's check, bank draft/guarantee or irrevocable letter of credit;	5% of ABC, if bid security is in Surety Bond.						
1	Php 2,258,394.99	Php 45,167.90	Php 112,919.75						
18.2	The bid security shall be valid 120 calendar days.								
20.3	Each Bidder shall submit ONE original and TWO copies of the first and second components of its bid.								
21	<div>The address for submission of bids is DepED Division of Misamis Oriental, A. Velez Street, Cagayan de Oro City</div> <div>The deadline for submission of bids is July 16, 2018, 1:00 o'clock in the afternoon</div>								

24.1	<p>The place of bid opening is <i>DepED Division of Misamis Oriental, Division Office Conference Room, A. Velez Street, Cagayan de Oro City</i></p> <p>The date and time of bid opening is <i>July 16, 2018, 1:00 o'clock in the afternoon</i></p>						
24.2	No further instructions.						
24.3	No further instructions.						
27.3	<p>In all cases, the NFCC computation, if applicable, must be sufficient to be awarded to the Bidder.</p> <p>The ABC:</p> <table><tr><th>Lot No.</th><th>Project Description/Intended Completion Date</th><th>ABC (PhP)</th></tr><tr><td>1</td><td><i>Electrification of Un-energized Schools and Modernization of Electrical Systems On-Grid Schools Batch 1 for Manticao National High School/</i> date of NTP plus Contract Duration</td><td>Php 2,258,394.99</td></tr></table>	Lot No.	Project Description/Intended Completion Date	ABC (PhP)	1	<i>Electrification of Un-energized Schools and Modernization of Electrical Systems On-Grid Schools Batch 1 for Manticao National High School/</i> date of NTP plus Contract Duration	Php 2,258,394.99
Lot No.	Project Description/Intended Completion Date	ABC (PhP)					
1	<i>Electrification of Un-energized Schools and Modernization of Electrical Systems On-Grid Schools Batch 1 for Manticao National High School/</i> date of NTP plus Contract Duration	Php 2,258,394.99					
27.4	No further instructions.						
28.2	“None.”						
31.4(f)	<p><i>Construction schedule and S-curve, manpower utilization schedule, construction methods, equipment utilization schedule, construction safety and health program approved by the Department of Labor and Employment, Materials Delivery/Utilization Schedule and PERT/CPM or other acceptable tools of project scheduling.</i></p> <p><i>Additional requirement for the Contractor to comply:</i></p> <p><i>a) STE-Professional Electrical Engineer</i></p> <p><i>b) PCAB License with Electrical Works</i></p> <p><i>c) Materials supplied must have a testing specially the TRANSFORMER</i></p> <p><i>d) No reconditioned materials must be installed, all must be brand new</i></p> <p><i>e) Testing and Commissioning by the Contractor</i></p> <p><i>f) Road Right of Way Processing by the Contractor</i></p> <p><i>g) All Permits and Licensing by the Contractor</i></p>						

Section IV. General Conditions of Contract

Notes on the General Conditions of Contract

The GCC in Section IV, read in conjunction with the SCC in Section V and other documents listed therein, should be a complete document expressing all the rights and obligations of the parties.

The GCC herein shall not be altered. Any changes and complementary information, which may be needed, shall be introduced only through the SCC in Section V.

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1. Definitions

For purposes of this Clause, boldface type is used to identify defined terms.

- 1.1. The **Arbiter** is the person appointed jointly by the Procuring Entity and the Contractor to resolve disputes in the first instance, as provided for in **GCC** Clause 21.
- 1.2. **Bill of Quantities** refers to a list of the specific items of the Work and their corresponding unit prices, lump sums, and/or provisional sums.
- 1.3. The **Completion Date** is the date of completion of the Works as certified by the Procuring Entity's Representative, in accordance with **GCC** Clause 49.
- 1.4. The **Contract** is the contract between the Procuring Entity and the Contractor to execute, complete, and maintain the Works.
- 1.5. The **Contract Effectivity Date** is the date of signing of the Contract. However, the contractor shall commence execution of the Works on the Start Date as defined in **GCC** Clause 1.28.
- 1.6. The **Contract Price** is the price stated in the Notice of Award and thereafter to be paid by the Procuring Entity to the Contractor for the execution of the Works in accordance with this Contract
- 1.7. **Contract Time Extension** is the allowable period for the Contractor to complete the Works in addition to the original Completion Date stated in this Contract.
- 1.8. The **Contractor** is the juridical entity whose proposal has been accepted by the Procuring Entity and to whom the Contract to execute the Work was awarded.
- 1.9. The **Contractor's Bid** is the signed offer or proposal submitted by the Contractor to the Procuring Entity in response to the Bidding Documents.
- 1.10. **Days** are calendar days; months are calendar months.
- 1.11. **Dayworks** are varied work inputs subject to payment on a time basis for the Contractor's employees and Equipment, in addition to payments for associated Materials and Plant.
- 1.12. A **Defect** is any part of the Works not completed in accordance with the Contract.
- 1.13. The **Defects Liability Certificate** is the certificate issued by Procuring Entity's Representative upon correction of defects by the Contractor.
- 1.14. The **Defects Liability Period** is the one year period between contract completion and final acceptance within which the Contractor assumes the responsibility to undertake the repair of any damage to the Works at his own expense.

- 1.15 **Drawings** are graphical presentations of the Works. They include all supplementary details, shop drawings, calculations, and other information provided or approved for the execution of this Contract.
- 1.16 **Equipment** refers to all facilities, supplies, appliances, materials or things required for the execution and completion of the Work provided by the Contractor and which shall not form or are not intended to form part of the Permanent Works.
- 1.17 The **Intended Completion Date** refers to the date specified in the SCC when the Contractor is expected to have completed the Works. The Intended Completion Date may be revised only by the Procuring Entity's Representative by issuing an extension of time or an acceleration order.
- 1.18 **Materials** are all supplies, including consumables, used by the Contractor for incorporation in the Works.
- 1.19 The **Notice to Proceed** is a written notice issued by the Procuring Entity or the Procuring Entity's Representative to the Contractor requiring the latter to begin the commencement of the work not later than a specified or determinable date.
- 1.20 **Permanent Works** are all permanent structures and all other project features and facilities required to be constructed and completed in accordance with this Contract which shall be delivered to the Procuring Entity and which shall remain at the Site after the removal of all Temporary Works.
- 1.21 **Plant** refers to the machinery, apparatus, and the like intended to form an integral part of the Permanent Works.
- 1.22 The **Procuring Entity** is the party who employs the Contractor to carry out the Works stated in the SCC.
- 1.23 The **Procuring Entity's Representative** refers to the Head of the Procuring Entity or his duly authorized representative, identified in the SCC, who shall be responsible for supervising the execution of the Works and administering this Contract.
- 1.24 The **Site** is the place provided by the Procuring Entity where the Works shall be executed and any other place or places which may be designated in the SCC, or notified to the Contractor by the Procuring Entity's Representative as forming part of the Site.
- 1.25 **Site Investigation Reports** are those that were included in the Bidding Documents and are factual and interpretative reports about the surface and subsurface conditions at the Site.
- 1.26 **Slippage** is a delay in work execution occurring when actual accomplishment falls below the target as measured by the difference between the scheduled and actual accomplishment of the Work by the Contractor as established from the work schedule. This is actually described as a percentage of the whole Works.

- 1.27 **Specifications** means the description of Works to be done and the qualities of materials to be used, the equipment to be installed and the mode of construction.
- 1.28 The **Start Date**, as specified in the **SCC**, is the date when the Contractor is obliged to commence execution of the Works. It does not necessarily coincide with any of the Site Possession Dates.
- 1.29 A **Subcontractor** is any person or organization to whom a part of the Works has been subcontracted by the Contractor, as allowed by the Procuring Entity, but not any assignee of such person.
- 1.30 **Temporary Works** are works designed, constructed, installed, and removed by the Contractor that are needed for construction or installation of the Permanent Works.
- 1.31 **Work(s)** refer to the Permanent Works and Temporary Works to be executed by the Contractor in accordance with this Contract, including (i) the furnishing of all labor, materials, equipment and others incidental, necessary or convenient to the complete execution of the Works; (ii) the passing of any tests before acceptance by the Procuring Entity's Representative; (iii) and the carrying out of all duties and obligations of the Contractor imposed by this Contract as described in the **SCC**.

2. Interpretation

- 2.1. In interpreting the Conditions of Contract, singular also means plural, male also means female or neuter, and the other way around. Headings have no significance. Words have their normal meaning under the language of this Contract unless specifically defined. The Procuring Entity's Representative will provide instructions clarifying queries about the Conditions of Contract.
- 2.2. If sectional completion is specified in the **SCC**, references in the Conditions of Contract to the Works, the Completion Date, and the Intended Completion Date apply to any Section of the Works (other than references to the Completion Date and Intended Completion Date for the whole of the Works).
- 2.3. The documents forming this Contract shall be interpreted in the following order of priority:
- a) Contract Agreement;
 - b) Bid Data Sheet;
 - c) Instructions to Bidders;
 - d) Addenda to the Bidding Documents;
 - e) Special Conditions of Contract;
 - f) General Conditions of Contract;

- g) Specifications;
- h) Bill of Quantities; and
- i) Drawings.

3. Governing Language and Law

- 3.1. This Contract has been executed in the English language, which shall be the binding and controlling language for all matters relating to the meaning or interpretation of this Contract. All correspondence and other documents pertaining to this Contract which are exchanged by the parties shall be written in English.
- 3.2. This Contract shall be interpreted in accordance with the laws of the Republic of the Philippines.

4. Communications

Communications between parties that are referred to in the Conditions shall be effective only when in writing. A notice shall be effective only when it is received by the concerned party.

5. Possession of Site

- 5.1. On the date specified in the **SCC**, the Procuring Entity shall grant the Contractor possession of so much of the Site as may be required to enable it to proceed with 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.
- 5.2. If possession of a portion is not given by the date stated in the SCC Clause 5.1, 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 shall be in accordance with **GCC** Clause 47.
- 5.3. The Contractor shall bear all costs and charges for special or temporary right-of-way required by it in connection with access to the Site. The Contractor shall also provide at his own cost any additional facilities outside the Site required by it for purposes of the Works.
- 5.4. The Contractor shall allow the Procuring Entity's Representative and any person authorized by the Procuring Entity's Representative access to the Site and to any place where work in connection with this Contract is being carried out or is intended to be carried out.

6. The Contractor's Obligations

- 6.1. The Contractor shall carry out the Works properly and in accordance with this Contract. The Contractor shall provide all supervision, labor, Materials, Plant and Contractor's Equipment, which may be required. All Materials and Plant on Site shall be deemed to be the property of the Procuring Entity.
- 6.2. The Contractor shall commence execution of the Works on the Start Date and shall carry out the Works in accordance with the Program of Work submitted by the Contractor, as updated with the approval of the Procuring Entity's Representative, and complete them by the Intended Completion Date.
- 6.3. The Contractor shall be responsible for the safety of all activities on the Site.
- 6.4. The Contractor shall carry out all instructions of the Procuring Entity's Representative that comply with the applicable laws where the Site is located.
- 6.5. The Contractor shall employ the key personnel named in the Schedule of Key Personnel, as referred to in the SCC, 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.
- 6.6. If the Procuring Entity's Representative asks the Contractor to remove a member of the Contractor's staff or work force, for justifiable cause, the Contractor shall ensure that the person leaves the Site within seven (7) days and has no further connection with the Work in this Contract.
- 6.7. During Contract implementation, the Contractor and his subcontractors shall abide at all times by all labor laws, including child labor related enactments, and other relevant rules.
- 6.8. The Contractor shall submit to the Procuring Entity for consent the name and particulars of the person authorized to receive instructions on behalf of the Contractor.
- 6.9. The Contractor shall cooperate and share the Site with other contractors, public authorities, utilities, and the Procuring Entity between the dates given in the schedule of other contractors particularly when they shall require access to the Site. The Contractor shall also provide facilities and services for them during this period. The Procuring Entity may modify the schedule of other contractors, and shall notify the Contractor of any such modification thereto.
- 6.10. Should anything of historical or other interest or of significant value be unexpectedly discovered on the Site, it shall be the property of the Procuring Entity. The Contractor shall notify the Procuring Entity's Representative of such discoveries and carry out the Procuring Entity's Representative's instructions in dealing with them.

7. Performance Security

- 7.1. 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 Contractor shall furnish the performance security in any of the forms prescribed in **ITB** Clause 32.2.

- 7.2. The performance security posted in favor of the Procuring Entity shall be forfeited in the event it is established that the Contractor is in default in any of its obligations under the Contract.
- 7.3. The performance security shall remain valid until issuance by the Procuring Entity of the Certificate of Final Acceptance.
- 7.4. The performance security may be released by the Procuring Entity and returned to the Contractor after the issuance of the Certificate of Final Acceptance subject to the following conditions:
 - (a) There are no pending claims against the Contractor or the surety company filed by the Procuring Entity;
 - (b) The Contractor has no pending claims for labor and materials filed against it; and
 - (c) Other terms specified in the **SCC**.
- 7.5. The Contractor shall post an additional performance security following the amount and form specified in **ITB** Clause 32.2 to cover any cumulative increase of more than ten percent (10%) over the original value of the contract as a result of amendments to order or change orders, extra work orders and supplemental agreements, as the case may be. The Contractor shall cause the extension of the validity of the performance security to cover approved contract time extensions.
- 7.6. In case of a reduction in the contract value or for partially completed Works under the contract which are usable and accepted by the Procuring Entity the use of which, in the judgment of the implementing agency or the Procuring Entity, will not affect the structural integrity of the entire project, the Procuring Entity shall allow a proportional reduction in the original performance security, provided that any such reduction is more than ten percent (10%) and that the aggregate of such reductions is not more than fifty percent (50%) of the original performance security.
- 7.7. Unless otherwise indicated in the **SCC**, the Contractor, by entering into the Contract with the Procuring Entity, acknowledges the right of the Procuring Entity to institute action pursuant to Act 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.

8. Subcontracting

- 8.1. Unless otherwise indicated in the **SCC**, the Contractor cannot subcontract Works more than the percentage specified in **BDS** Clause 8.1.

- 8.2. Subcontracting of any portion of the Works does not relieve the Contractor of any liability or obligation under this Contract. The Contractor will be responsible for the acts, defaults, and negligence of any subcontractor, its agents, servants or workmen as fully as if these were the Contractor's own acts, defaults, or negligence, or those of its agents, servants or workmen.
- 8.3. If subcontracting is allowed. The contractor may identify its subcontractor during contract implementation stage. Subcontractors disclosed and identified during the bidding may be changed during the implementation of this Contract. In either case, subcontractors must submit the documentary requirements under ITB Clause 12 and comply with the eligibility criteria specified in the **BDS**. In the event that any subcontractor is found by any Procuring Entity to be eligible, the subcontracting of such portion of the Works shall be disallowed.

9. Liquidated Damages

- 9.1. The Contractor shall pay liquidated damages to the Procuring Entity for each day that the Completion Date is later than the Intended Completion Date. The applicable liquidated damages is at least one-tenth (1/10) of a percent of the cost of the unperformed portion for every day of delay. The total amount of liquidated damages shall not exceed ten percent (10%) of the amount of the contract. The Procuring Entity may deduct liquidated damages from payments due to the Contractor. Payment of liquidated damages shall not affect the Contractor's liabilities. Once the cumulative amount of liquidated damages reaches ten percent (10%) of the amount of this Contract, the Procuring Entity may rescind or terminate this Contract, without prejudice to other courses of action and remedies available under the circumstances.
- 9.2. If the Intended Completion Date is extended after liquidated damages have been paid, the Engineer of the Procuring Entity shall correct any overpayment of liquidated damages by the Contractor by adjusting the next payment certificate.

10. 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.

11. The Procuring Entity, Licenses and Permits

The Procuring Entity shall, if requested by the Contractor, assist him in applying for permits, licenses or approvals, which are required for the Works.

12. Contractor's Risk and Warranty Security

- 12.1. The Contractor shall assume full responsibility for the Works from the time project construction commenced up to final acceptance by the Procuring Entity and shall be held responsible for any damage or destruction of the Works except those occasioned by *force majeure*. The Contractor shall be fully responsible for the safety, protection, security, and convenience of his

personnel, third parties, and the public at large, as well as the Works, Equipment, installation, and the like to be affected by his construction work.

- 12.2. The defects liability period for infrastructure projects shall be one year from contract completion up to final acceptance by the Procuring Entity. During this period, the Contractor shall undertake the repair works, at his own expense, of any damage to the Works on account of the use of materials of inferior quality within ninety (90) days from the time the HoPE has issued an order to undertake repair. In case of failure or refusal to comply with this mandate, the Procuring Entity shall undertake such repair works and shall be entitled to full reimbursement of expenses incurred therein upon demand.
- 12.3. Unless otherwise indicated in the **SCC**, in case the Contractor fails to comply with the preceding paragraph, 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.
- 12.4. After final acceptance of the Works by the Procuring Entity, the Contractor shall be held responsible for “Structural Defects,” *i.e.*, major faults/flaws/deficiencies in one or more key structural elements of the project which may lead to structural failure of the completed elements or structure, or “Structural Failures,” *i.e.*, where one or more key structural elements in an infrastructure facility fails or collapses, thereby rendering the facility or part thereof incapable of withstanding the design loads, and/or endangering the safety of the users or the general public:
 - (a) Contractor – Where Structural Defects/Failures arise due to faults attributable to improper construction, use of inferior quality/substandard materials, and any violation of the contract plans and specifications, the contractor shall be held liable;
 - (b) Consultants – Where Structural Defects/Failures arise due to faulty and/or inadequate design and specifications as well as construction supervision, then the consultant who prepared the design or undertook construction supervision for the project shall be held liable;
 - (c) Procuring Entity’s Representatives/Project Manager/Construction Managers and Supervisors – The project owner’s representative(s), project manager, construction manager, and supervisor(s) shall be held liable in cases where the Structural Defects/Failures are due to his/their willful intervention in altering the designs and other specifications; negligence or omission in not approving or acting on proposed changes to noted defects or deficiencies in the design and/or specifications; and the use of substandard construction materials in the project;
 - (d) Third Parties - Third Parties shall be held liable in cases where Structural Defects/Failures are caused by work undertaken by them such as leaking pipes, diggings or excavations, underground cables and electrical wires, underground tunnel, mining shaft and the like, in

which case the applicable warranty to such structure should be levied to third parties for their construction or restoration works.

- (e) Users - In cases where Structural Defects/Failures are due to abuse/misuse by the end user of the constructed facility and/or non-compliance by a user with the technical design limits and/or intended purpose of the same, then the user concerned shall be held liable.

12.5. The warranty against Structural Defects/Failures, except those occasioned on force majeure, shall cover the period specified in the **SCC** reckoned from the date of issuance of the Certificate of Final Acceptance by the Procuring Entity.

12.6. The Contractor shall be required to put up a warranty security in the form of cash, bank guarantee, letter of credit, GSIS or surety bond callable on demand, in accordance with the following schedule:

Form of Warranty	Amount of Warranty Security Not less than the Percentage (%) of Total Contract Price
(a) Cash or letter of credit issued by Universal or Commercial bank: provided, however, that the letter of credit shall be confirmed or authenticated by a Universal or Commercial bank, if issued by a foreign bank	Five Percent (5%)
(b) Bank guarantee confirmed by Universal or Commercial bank: provided, however, that the letter of credit shall be confirmed or authenticated by a Universal or Commercial bank, if issued by a foreign bank	Ten Percent (10%)
(c) Surety bond callable upon demand issued by GSIS or any surety or insurance company duly certified by the Insurance Commission	Thirty Percent (30%)

12.7. The warranty security shall be stated in Philippine Pesos and shall remain effective for one year from the date of issuance of the Certificate of Final Acceptance by the Procuring Entity, and returned only after the lapse of said one year period.

12.8. In case of structural defects/failure occurring during the applicable warranty period provided in **GCC** Clause 12.5, the Procuring Entity shall undertake the necessary restoration or reconstruction works and shall be entitled to full reimbursement by the parties found to be liable for expenses incurred therein upon demand, without prejudice to the filing of appropriate administrative, civil, and/or criminal charges against the responsible persons as well as the forfeiture of the warranty security posted in favor of the Procuring Entity.

13. 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.

14. Procuring Entity's Risk

14.1. From the Start Date until the Certificate of Final Acceptance has been issued, the following are risks of the Procuring Entity:

- (a) The risk of personal injury, death, or loss of or damage to property (excluding the Works, Plant, Materials, and Equipment), which are due to:
 - (i) any type of use or occupation of the Site authorized by the Procuring Entity after the official acceptance of the works; or
 - (ii) negligence, breach of statutory duty, or interference with any legal right by the Procuring Entity or by any person employed by or contracted to him except the Contractor.
- (b) The risk of damage to the Works, Plant, Materials, and Equipment to the extent that it is due to a fault of the Procuring Entity or in the Procuring Entity's design, or due to war or radioactive contamination directly affecting the country where the Works are to be executed.

15. Insurance

15.1. The Contractor shall, under his name and at his own expense, obtain and maintain, for the duration of this Contract, the following insurance coverage:

- (a) Contractor's All Risk Insurance;
- (b) Transportation to the project Site of Equipment, Machinery, and Supplies owned by the Contractor;
- (c) Personal injury or death of Contractor's employees; and
- (d) Comprehensive insurance for third party liability to Contractor's direct or indirect act or omission causing damage to third persons.

15.2. The Contractor shall provide evidence to the Procuring Entity's Representative that the insurances required under this Contract have been effected and shall, within a reasonable time, provide copies of the insurance policies to the Procuring Entity's Representative. Such evidence and such policies shall be provided to the Procuring Entity's through the Procuring Entity's Representative.

15.3. The Contractor shall notify the insurers of changes in the nature, extent, or program for the execution of the Works and ensure the adequacy of the insurances at all times in accordance with the terms of this Contract and shall

produce to the Procuring Entity's Representative the insurance policies in force including the receipts for payment of the current premiums.

The above insurance policies shall be obtained from any reputable insurance company approved by the Procuring Entity's Representative.

- 15.4. If the Contractor fails to obtain and keep in force the insurances referred to herein or any other insurance which he may be required to obtain under the terms of this Contract, the Procuring Entity may obtain and keep in force any such insurances and pay such premiums as may be necessary for the purpose. From time to time, the Procuring Entity may deduct the amount it shall pay for said premiums including twenty five percent (25%) therein from any monies due, or which may become due, to the Contractor, without prejudice to the Procuring Entity exercising its right to impose other sanctions against the Contractor pursuant to the provisions of this Contract.
- 15.5. In the event the Contractor fails to observe the above safeguards, the Procuring Entity may, at the Contractor's expense, take whatever measure is deemed necessary for its protection and that of the Contractor's personnel and third parties, and/or order the interruption of dangerous Works. In addition, the Procuring Entity may refuse to make the payments under GCC Clause 40 until the Contractor complies with this Clause.
- 15.6. The Contractor shall immediately replace the insurance policy obtained as required in this Contract, without need of the Procuring Entity's demand, with a new policy issued by a new insurance company acceptable to the Procuring Entity for any of the following grounds:
 - (a) The issuer of the insurance policy to be replaced has:
 - (i) become bankrupt;
 - (ii) been placed under receivership or under a management committee;
 - (iii) been sued for suspension of payment; or
 - (iv) been suspended by the Insurance Commission and its license to engage in business or its authority to issue insurance policies cancelled; or
 - (v) Where reasonable grounds exist that the insurer may not be able, fully and promptly, to fulfill its obligation under the insurance policy.

16. Termination for Default of Contractor

- 16.1. The Procuring Entity shall terminate this Contract for default when any of the following conditions attend its implementation:
 - (i) Due to the Contractor's fault and while the project is on-going, it has incurred negative slippage of fifteen percent (15%) or more in

accordance with Presidential Decree 1870, regardless of whether or not previous warnings and notices have been issued for the Contractor to improve his performance;

- (ii) Due to its own fault and after this Contract time has expired, the Contractor incurs delay in the completion of the Work after this Contract has expired; or
- (iii) The Contractor:
 - (i) abandons the contract Works, refuses or fails to comply with a valid instruction of the Procuring Entity or fails to proceed expeditiously and without delay despite a written notice by the Procuring Entity;
 - (ii) does not actually have on the project Site the minimum essential equipment listed on the bid necessary to prosecute the Works in accordance with the approved Program of Work and equipment deployment schedule as required for the project;
 - (iii) does not execute the Works in accordance with this Contract or persistently or flagrantly neglects to carry out its obligations under this Contract;
 - (iv) neglects or refuses to remove materials or to perform a new Work that has been rejected as defective or unsuitable; or
 - (v) sub-lets any part of this Contract without approval by the Procuring Entity.

16.2. All materials on the Site, Plant, Works, including Equipment purchased and funded under the Contract shall be deemed to be the property of the Procuring Entity if this Contract is rescinded because of the Contractor's default.

17. Termination for Default of Procuring Entity

The Contractor may terminate this Contract with the Procuring Entity if the works are completely stopped for a continuous period of at least sixty (60) calendar days through no fault of its own, due to any of the following reasons:

- (a) Failure of the Procuring Entity to deliver, within a reasonable time, supplies, materials, right-of-way, or other items it is obligated to furnish under the terms of this Contract; or
- (b) The prosecution of the Work is disrupted by the adverse peace and order situation, as certified by the Armed Forces of the Philippines Provincial Commander and approved by the Secretary of National Defense.

18. Termination for Other Causes

18.1. The Procuring Entity may terminate this Contract, in whole or in part, at any time for its convenience. The HoPE may terminate this Contract for the

convenience of the Procuring Entity if he has determined the existence of conditions that make Project Implementation economically, financially or technically impractical and/or unnecessary, such as, but not limited to, fortuitous event(s) or changes in law and National Government policies.

18.2. The Procuring Entity or the Contractor may terminate this Contract if the other party causes a fundamental breach of this Contract.

18.3. Fundamental breaches of Contract shall include, but shall not be limited to, the following:

- (a) The Contractor stops work for twenty eight (28) days when no stoppage of work is shown on the current Program of Work and the stoppage has not been authorized by the Procuring Entity's Representative;
- (b) The Procuring Entity's Representative instructs the Contractor to delay the progress of the Works, and the instruction is not withdrawn within twenty eight (28) days;
- (c) The Procuring Entity shall terminate this Contract if the Contractor is declared bankrupt or insolvent as determined with finality by a court of competent jurisdiction. In this event, termination will be without compensation to the Contractor, provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the Procuring Entity and/or the Contractor. In the case of the Contractor's insolvency, any Contractor's Equipment which the Procuring Entity instructs in the notice is to be used until the completion of the Works;
- (d) A payment certified by the Procuring Entity's Representative is not paid by the Procuring Entity to the Contractor within eighty four (84) days from the date of the Procuring Entity's Representative's certificate;
- (e) The Procuring Entity's Representative gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Procuring Entity's Representative;
- (f) The Contractor does not maintain a Security, which is required;
- (g) The Contractor has delayed the completion of the Works by the number of days for which the maximum amount of liquidated damages can be paid, as defined in the **GCC** Clause 9; and
- (h) 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, the following:

- (i) corrupt, fraudulent, collusive, coercive, and obstructive practices as defined in **ITB** Clause 3.1(a), unless otherwise specified in the SCC;
 - (ii) drawing up or using forged documents;
 - (iii) using adulterated materials, means or methods, or engaging in production contrary to rules of science or the trade; and
 - (iv) any other act analogous to the foregoing.
- 18.4. The Funding Source or the Procuring Entity, as appropriate, will seek to impose the maximum civil, administrative and/or criminal penalties available under the applicable law on individuals and organizations deemed to be involved with corrupt, fraudulent, or coercive practices.
- 18.5. When persons from either party to this Contract gives notice of a fundamental breach to the Procuring Entity's Representative in order to terminate the existing contract for a cause other than those listed under **GCC** Clause 18.3, the Procuring Entity's Representative shall decide whether the breach is fundamental or not.
- 18.6. If this Contract is terminated, the Contractor shall stop work immediately, make the Site safe and secure, and leave the Site as soon as reasonably possible.

19. Procedures for Termination of Contracts

- 19.1. The following provisions shall govern the procedures for the termination of this Contract:
- (a) Upon receipt of a written report of acts or causes which may constitute ground(s) for termination as aforementioned, or upon its own initiative, the Procuring Entity shall, within a period of seven (7) calendar days, verify the existence of such ground(s) and cause the execution of a Verified Report, with all relevant evidence attached;
 - (b) Upon recommendation by the Procuring Entity, the HoPE shall terminate this Contract only by a written notice to the Contractor conveying the termination of this Contract. The notice shall state:
 - (i) that this Contract is being terminated for any of the ground(s) afore-mentioned, and a statement of the acts that constitute the ground(s) constituting the same;
 - (ii) the extent of termination, whether in whole or in part;
 - (iii) an instruction to the Contractor to show cause as to why this Contract should not be terminated; and
 - (iv) special instructions of the Procuring Entity, if any.

The Notice to Terminate shall be accompanied by a copy of the Verified Report;

- (c) Within a period of seven (7) calendar days from receipt of the Notice of Termination, the Contractor shall submit to the HoPE a verified position paper stating why the contract should not be terminated. If the Contractor fails to show cause after the lapse of the seven (7) day period, either by inaction or by default, the HoPE shall issue an order terminating the contract;
- (d) The Procuring Entity may, at anytime before receipt of the Contractor's verified position paper described in item (c) above withdraw the Notice to Terminate if it is determined that certain items or works subject of the notice had been completed, delivered, or performed before the Contractor's receipt of the notice;
- (e) Within a non-extendible period of ten (10) calendar days from receipt of the verified position paper, the HoPE shall decide whether or not to terminate this Contract. It shall serve a written notice to the Contractor of its decision and, unless otherwise provided in the said notice, this Contract is deemed terminated from receipt of the Contractor of the notice of decision. The termination shall only be based on the ground(s) stated in the Notice to Terminate; and
- (f) The HoPE may create a Contract Termination Review Committee (CTRC) to assist him in the discharge of this function. All decisions recommended by the CTRC shall be subject to the approval of the HoPE.

19.2. Pursuant to Section 69(f) of RA 9184 and without prejudice to the imposition of additional administrative sanctions as the internal rules of the agency may provide and/or further criminal prosecution as provided by applicable laws, the procuring entity shall impose on contractors after the termination of the contract the penalty of suspension for one (1) year for the first offense, suspension for two (2) years for the second offense from participating in the public bidding process, for violations committed during the contract implementation stage, which include but not limited to the following:

- (a) Failure of the contractor, due solely to his fault or negligence, to mobilize and start work or performance within the specified period in the Notice to Proceed ("NTP");
- (b) Failure by the contractor to fully and faithfully comply with its contractual obligations without valid cause, or failure by the contractor to comply with any written lawful instruction of the procuring entity or its representative(s) pursuant to the implementation of the contract. For the procurement of infrastructure projects or consultancy contracts, lawful instructions include but are not limited to the following:
 - (i) Employment of competent technical personnel, competent engineers and/or work supervisors;

- (ii) Provision of warning signs and barricades in accordance with approved plans and specifications and contract provisions;
 - (iii) Stockpiling in proper places of all materials and removal from the project site of waste and excess materials, including broken pavement and excavated debris in accordance with approved plans and specifications and contract provisions;
 - (iv) Deployment of committed equipment, facilities, support staff and manpower; and
 - (v) Renewal of the effectivity dates of the performance security after its expiration during the course of contract implementation.
- (c) Assignment and subcontracting of the contract or any part thereof or substitution of key personnel named in the proposal without prior written approval by the procuring entity.
- (d) Poor performance by the contractor or unsatisfactory quality and/or progress of work arising from his fault or negligence as reflected in the Constructor's Performance Evaluation System ("CPES") rating sheet. In the absence of the CPES rating sheet, the existing performance monitoring system of the procuring entity shall be applied. Any of the following acts by the Contractor shall be construed as poor performance:
- (i) Negative slippage of 15% and above within the critical path of the project due entirely to the fault or negligence of the contractor; and
 - (ii) Quality of materials and workmanship not complying with the approved specifications arising from the contractor's fault or negligence.
- (e) Willful or deliberate abandonment or non-performance of the project or contract by the contractor resulting to substantial breach thereof without lawful and/or just cause.

In addition to the penalty of suspension, the performance security posted by the contractor shall also be forfeited.

20. Force Majeure, Release From Performance

- 20.1. For purposes of this Contract the terms "*force majeure*" and "fortuitous event" may be used interchangeably. In this regard, a fortuitous event or *force majeure* shall be interpreted to mean an event which the Contractor could not have foreseen, or which though foreseen, was inevitable. It shall not include ordinary unfavorable weather conditions; and any other cause the effects of which could have been avoided with the exercise of reasonable diligence by the Contractor.

- 20.2. If this Contract is discontinued by an outbreak of war or by any other event entirely outside the control of either the Procuring Entity or the Contractor, the Procuring Entity's Representative shall certify that this Contract has been discontinued. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all works carried out before receiving it and for any Work carried out afterwards to which a commitment was made.
- 20.3. If the event continues for a period of eighty four (84) days, either party may then give notice of termination, which shall take effect twenty eight (28) days after the giving of the notice.
- 20.4. After termination, the Contractor shall be entitled to payment of the unpaid balance of the value of the Works executed and of the materials and Plant reasonably delivered to the Site, adjusted by the following:
- (a) any sum to which the Contractor is entitled under **GCC** Clause 28;
 - (b) the cost of his suspension and demobilization;
 - (c) any sum to which the Procuring Entity is entitled.
- 20.5. The net balance due shall be paid or repaid within a reasonable time period from the time of the notice of termination.

21. Resolution of Disputes

- 21.1. If any dispute or difference of any kind whatsoever shall arise between the parties in connection with the implementation of the contract covered by the Act and this IRR, the parties shall make every effort to resolve amicably such dispute or difference by mutual consultation.
- 21.2. If the Contractor believes that a decision taken by the Procuring Entity's Representative was either outside the authority given to the Procuring Entity's Representative by this Contract or that the decision was wrongly taken, the decision shall be referred to the Arbiter indicated in the **SCC** within fourteen (14) days of the notification of the Procuring Entity's Representative's decision.
- 21.3. Any and all disputes arising from the implementation of this Contract covered by the R.A. 9184 and its IRR shall be submitted to arbitration in the Philippines according to the provisions of Republic Act No. 876, otherwise known as the "Arbitration Law" and Republic Act 9285, otherwise known as the "Alternative Dispute Resolution Act of 2004": *Provided, however, That*, disputes that are within the competence of the Construction Industry Arbitration Commission to resolve shall be referred thereto. The process of arbitration shall be incorporated as a provision in this Contract that will be executed pursuant to the provisions of the Act and its IRR: *Provided, further, That*, by mutual agreement, the parties may agree in writing to resort to other alternative modes of dispute resolution.

22. Suspension of Loan, Credit, Grant, or Appropriation

In the event that the Funding Source suspends the Loan, Credit, Grant, or Appropriation to the Procuring Entity, from which part of the payments to the Contractor are being made:

- (a) The Procuring Entity is obligated to notify the Contractor of such suspension within seven (7) days of having received the suspension notice.
- (b) If the Contractor has not received sums due it for work already done within forty five (45) days from the time the Contractor's claim for payment has been certified by the Procuring Entity's Representative, the Contractor may immediately issue a suspension of work notice in accordance with GCC Clause 45.2.

23. Procuring Entity's Representative's Decisions

- 23.1. Except where otherwise specifically stated, the Procuring Entity's Representative will decide contractual matters between the Procuring Entity and the Contractor in the role representing the Procuring Entity.
- 23.2. The Procuring Entity's Representative may delegate any of his duties and responsibilities to other people, except to the Arbiter, after notifying the Contractor, and may cancel any delegation after notifying the Contractor.

24. Approval of Drawings and Temporary Works by the Procuring Entity's Representative

- 24.1. All Drawings prepared by the Contractor for the execution of the Temporary Works, are subject to prior approval by the Procuring Entity's Representative before its use.
- 24.2. The Contractor shall be responsible for design of Temporary Works.
- 24.3. The Procuring Entity's Representative's approval shall not alter the Contractor's responsibility for design of the Temporary Works.
- 24.4. The Contractor shall obtain approval of third parties to the design of the Temporary Works, when required by the Procuring Entity.

25. Acceleration and Delays Ordered by the Procuring Entity's Representative

- 25.1. When the Procuring Entity wants the Contractor to finish before the Intended Completion Date, the Procuring Entity's Representative will obtain priced proposals for achieving the necessary acceleration from the Contractor. If the Procuring Entity accepts these proposals, the Intended Completion Date will be adjusted accordingly and confirmed by both the Procuring Entity and the Contractor.

- 25.2. If the Contractor's Financial Proposals for an acceleration are accepted by the Procuring Entity, they are incorporated in the Contract Price and treated as a Variation.

26. Extension of the Intended Completion Date

- 26.1. The Procuring Entity's Representative shall extend the Intended Completion Date if a Variation is issued which makes it impossible for the Intended Completion Date to be achieved by the Contractor without taking steps to accelerate the remaining work, which would cause the Contractor to incur additional costs. No payment shall be made for any event which may warrant the extension of the Intended Completion Date.
- 26.2. The Procuring Entity's Representative shall decide whether and by how much to extend the Intended Completion Date within twenty one (21) days of the Contractor asking the Procuring Entity's Representative for a decision thereto after fully submitting all supporting information. If the Contractor has failed to give early warning of a delay or has failed to cooperate in dealing with a delay, the delay by this failure shall not be considered in assessing the new Intended Completion Date.

27. Right to Vary

- 27.1. The Procuring Entity's Representative with the prior approval of the Procuring Entity may instruct Variations, up to a maximum cumulative amount of ten percent (10%) of the original contract cost.
- 27.2. Variations shall be valued as follows:
- (a) At a lump sum price agreed between the parties;
 - (b) where appropriate, at rates in this Contract;
 - (c) in the absence of appropriate rates, the rates in this Contract shall be used as the basis for valuation; or failing which
 - (d) at appropriate new rates, equal to or lower than current industry rates and to be agreed upon by both parties and approved by the HoPE.

28. Contractor's Right to Claim

If the Contractor incurs cost as a result of any of the events under **GCC** Clause 13, the Contractor shall be entitled to the amount of such cost. If as a result of any of the said events, it is necessary to change the Works, this shall be dealt with as a Variation.

29. Dayworks

- 29.1. Subject to **GCC** Clause 43 on Variation Order, 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.

- 29.2. All work to be paid for as Dayworks shall be recorded by the Contractor on forms approved by the Procuring Entity's Representative. Each completed form shall be verified and signed by the Procuring Entity's Representative within two days of the work being done.
- 29.3. The Contractor shall be paid for Dayworks subject to obtaining signed Dayworks forms.

30. Early Warning

- 30.1. The Contractor shall warn the Procuring Entity's Representative at the earliest opportunity of specific likely future events or circumstances that may adversely affect the quality of the work, increase the Contract Price, or delay the execution of the Works. The Procuring Entity's Representative may require the Contractor to provide an estimate of the expected effect of the future event or circumstance on the Contract Price and Completion Date. The estimate shall be provided by the Contractor as soon as reasonably possible.
- 30.2. The Contractor shall cooperate with the Procuring Entity's Representative in making and considering proposals for how the effect of such an event or circumstance can be avoided or reduced by anyone involved in the work and in carrying out any resulting instruction of the Procuring Entity's Representative.

31. Program of Work

- 31.1. Within the time stated in the **SCC**, the Contractor shall submit to the Procuring Entity's Representative for approval a Program of Work showing the general methods, arrangements, order, and timing for all the activities in the Works.
- 31.2. An update of the Program of Work shall show the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining work, including any changes to the sequence of the activities.
- 31.3. 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.
- 31.4. The Procuring Entity's Representative's approval of the Program of Work shall not alter the Contractor's obligations. The Contractor may revise the Program of Work and submit it to the Procuring Entity's Representative again at any time. A revised Program of Work shall show the effect of any approved Variations.

- 31.5. When the Program of Work is updated, the Contractor shall provide the Procuring Entity's Representative with an updated cash flow forecast. The cash flow forecast shall include different currencies, as defined in the Contract, converted as necessary using the Contract exchange rates.
- 31.6. All Variations shall be included in updated Program of Work produced by the Contractor.

32. Management Conferences

- 32.1. Either the Procuring Entity's Representative or the Contractor may require the other to attend a Management Conference. The Management Conference shall review the plans for remaining work and deal with matters raised in accordance with the early warning procedure.
- 32.2. The Procuring Entity's Representative shall record the business of Management Conferences and provide copies of the record to those attending the Conference and to the Procuring Entity. The responsibility of the parties for actions to be taken shall be decided by the Procuring Entity's Representative either at the Management Conference or after the Management Conference and stated in writing to all who attended the Conference.

33. Bill of Quantities

- 33.1. The Bill of Quantities shall contain items of work for the construction, installation, testing, and commissioning of work to be done by the Contractor.
- 33.2. The Bill of Quantities is used to calculate the Contract Price. The Contractor is paid for the quantity of the work done at the rate in the Bill of Quantities for each item.
- 33.3. If the final quantity of any work done differs from the quantity in the Bill of Quantities for the particular item and is not more than twenty five percent (25%) of the original quantity, provided the aggregate changes for all items do not exceed ten percent (10%) of the Contract price, the Procuring Entity's Representative shall make the necessary adjustments to allow for the changes subject to applicable laws, rules, and regulations.
- 33.4. If requested by the Procuring Entity's Representative, the Contractor shall provide the Procuring Entity's Representative with a detailed cost breakdown of any rate in the Bill of Quantities.

34. Instructions, Inspections and Audits

- 34.1. The Procuring Entity's personnel shall at all reasonable times during construction of the Work be entitled to examine, inspect, measure and test the materials and workmanship, and to check the progress of the construction.
- 34.2. If the Procuring Entity's Representative instructs the Contractor to carry out a test not specified in the Specification to check whether any work has a defect

and the test shows that it does, the Contractor shall pay for the test and any samples. If there is no defect, the test shall be a Compensation Event.

- 34.3. The Contractor shall permit the Funding Source named in the **SCC** to inspect the Contractor's accounts and records relating to the performance of the Contractor and to have them audited by auditors appointed by the Funding Source, if so required by the Funding Source.

35. Identifying Defects

The Procuring Entity's Representative shall check the Contractor's work and notify the Contractor of any defects that are found. Such checking shall not affect the Contractor's responsibilities. The Procuring Entity's Representative may instruct the Contractor to search uncover defects and test any work that the Procuring Entity's Representative considers below standards and defective.

36. Cost of Repairs

Loss or damage to the Works or Materials to be incorporated in the Works between the Start Date and the end of the Defects Liability Periods shall be remedied by the Contractor at the Contractor's cost if the loss or damage arises from the Contractor's acts or omissions.

37. Correction of Defects

- 37.1. The Procuring Entity's Representative shall give notice to the Contractor of any defects before the end of the Defects Liability Period, which is One (1) year from project completion up to final acceptance by the Procuring Entity's Representative.
- 37.2. Every time notice of a defect is given, the Contractor shall correct the notified defect within the length of time specified in the Procuring Entity's Representative's notice.
- 37.3. The Contractor shall correct the defects which he notices himself before the end of the Defects Liability Period.
- 37.4. The Procuring Entity shall certify that all defects have been corrected. If the Procuring Entity considers that correction of a defect is not essential, he can request the Contractor to submit a quotation for the corresponding reduction in the Contract Price. If the Procuring Entity accepts the quotation, the corresponding change in the SCC is a Variation.

38. Uncorrected Defects

- 38.1. The Procuring Entity shall give the Contractor at least fourteen (14) days notice of his intention to use a third party to correct a Defect. If the Contractor does not correct the Defect himself within the period, the Procuring Entity may have the Defect corrected by the third party. The cost of the correction will be deducted from the Contract Price.

- 38.2. The use of a third party to correct defects that are uncorrected by the Contractor will in no way relieve the Contractor of its liabilities and warranties under the Contract.

39. Advance Payment

- 39.1. 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.
- 39.2. The advance payment shall be made only upon the submission to and acceptance by the Procuring Entity of an irrevocable standby letter of credit of equivalent value from a commercial bank, a bank guarantee or a surety bond callable upon demand, issued by a surety or insurance company duly licensed by the Insurance Commission and confirmed by the Procuring Entity.
- 39.3. The advance payment shall be repaid by the Contractor by an amount equal to the percentage of the total contract price used for the advance payment.
- 39.4. The contractor may reduce his standby letter of credit or guarantee instrument by the amounts refunded by the Monthly Certificates in the advance payment.
- 39.5. The Procuring Entity will provide an Advance Payment on the Contract Price as stipulated in the Conditions of Contract, subject to the maximum amount stated in **SCC** Clause 39.1.

40. Progress Payments

- 40.1. The Contractor may submit a request for payment for Work accomplished. Such request 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.
- 40.2. The Procuring Entity shall deduct the following from the certified gross amounts to be paid to the contractor as progress payment:
- (a) Cumulative value of the work previously certified and paid for.
 - (b) Portion of the advance payment to be recouped for the month.
 - (c) Retention money in accordance with the condition of contract.
 - (d) Amount to cover third party liabilities.
 - (e) Amount to cover uncorrected discovered defects in the works.
- 40.3. Payments shall be adjusted by deducting therefrom the amounts for advance payments and retention. The Procuring Entity shall pay the Contractor the amounts certified by the Procuring Entity's Representative within twenty eight

(28) days from the date each certificate was issued. No payment of interest for delayed payments and adjustments shall be made by the Procuring Entity.

- 40.4. The first progress payment may be paid by the Procuring Entity to the Contractor provided that at least twenty percent (20%) of the work has been accomplished as certified by the Procuring Entity's Representative.
- 40.5. Items of the Works for which a price of "0" (zero) has been entered will not be paid for by the Procuring Entity and shall be deemed covered by other rates and prices in the Contract.

41. Payment Certificates

- 41.1. The Contractor shall submit to the Procuring Entity's Representative monthly statements of the estimated value of the work executed less the cumulative amount certified previously.
- 41.2. The Procuring Entity's Representative shall check the Contractor's monthly statement and certify the amount to be paid to the Contractor.
- 41.3. The value of Work executed shall:
 - (a) be determined by the Procuring Entity's Representative;
 - (b) comprise the value of the quantities of the items in the Bill of Quantities completed; and
 - (c) include the valuations of approved variations.
- 41.4. The Procuring Entity's Representative may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information.

42. Retention

- 42.1. The Procuring Entity shall retain from each payment due to the Contractor an amount equal to a percentage thereof using the rate as specified in GCC Sub-Clause 42.2.
- 42.2. Progress payments are subject to retention of ten percent (10%), referred to as the "retention money." Such retention shall be based on the total amount due to the Contractor prior to any deduction and shall be retained from every progress payment until fifty percent (50%) of the value of Works, as determined by the Procuring Entity, are completed. If, after fifty percent (50%) completion, the Work is satisfactorily done and on schedule, no additional retention shall be made; otherwise, the ten percent (10%) retention shall again be imposed using the rate specified therefor.
- 42.3. The total "retention money" shall be due for release upon final acceptance of the Works. The Contractor may, however, request the substitution of the retention money for each progress billing with irrevocable standby letters of credit from a commercial bank, bank guarantees or surety bonds callable on

demand, of amounts equivalent to the retention money substituted for and acceptable to the Procuring Entity, provided that the project is on schedule and is satisfactorily undertaken. Otherwise, the ten (10%) percent retention shall be made. Said irrevocable standby letters of credit, bank guarantees and/or surety bonds, to be posted in favor of the Government shall be valid for a duration to be determined by the concerned implementing office/agency or Procuring Entity and will answer for the purpose for which the ten (10%) percent retention is intended, *i.e.*, to cover uncorrected discovered defects and third party liabilities.

- 42.4. On completion of the whole Works, the Contractor may substitute retention money with an “on demand” Bank guarantee in a form acceptable to the Procuring Entity.

43. Variation Orders

- 43.1. Variation Orders may be issued by the Procuring Entity to cover any increase/decrease in quantities, including the introduction of new work items that are not included in the original contract or reclassification of work items that are either due to change of plans, design or alignment to suit actual field conditions resulting in disparity between the preconstruction plans used for purposes of bidding and the “as staked plans” or construction drawings prepared after a joint survey by the Contractor and the Procuring Entity after award of the contract, provided that the cumulative amount of the Variation Order does not exceed ten percent (10%) of the original project cost. The addition/deletion of Works should be within the general scope of the project as bid and awarded. The scope of works shall not be reduced so as to accommodate a positive Variation Order. A Variation Order may either be in the form of a Change Order or Extra Work Order.
- 43.2. A Change Order may be issued by the Procuring Entity to cover any increase/decrease in quantities of original Work items in the contract.
- 43.3. An Extra Work Order may be issued by the Procuring Entity to cover the introduction of new work necessary for the completion, improvement or protection of the project which were not included as items of Work in the original contract, such as, where there are subsurface or latent physical conditions at the site differing materially from those indicated in the contract, or where there are duly unknown physical conditions at the site of an unusual nature differing materially from those ordinarily encountered and generally recognized as inherent in the Work or character provided for in the contract.
- 43.4. Any cumulative Variation Order beyond ten percent (10%) shall be subject of another contract to be bid out if the works are separable from the original contract. In exceptional cases where it is urgently necessary to complete the original scope of work, the HoPE may authorize a positive Variation Order go beyond ten percent (10%) but not more than twenty percent (20%) of the original contract price, subject to the guidelines to be determined by the GPPB: *Provided, however*, That appropriate sanctions shall be imposed on the designer, consultant or official responsible for the original detailed

engineering design which failed to consider the Variation Order beyond ten percent (10%).

43.5. In claiming for any Variation Order, the Contractor shall, within seven (7) calendar days after such work has been commenced or after the circumstances leading to such condition(s) leading to the extra cost, and within twenty-eight (28) calendar days deliver a written communication giving full and detailed particulars of any extra cost in order that it may be investigated at that time. Failure to provide either of such notices in the time stipulated shall constitute a waiver by the contractor for any claim. The preparation and submission of Variation Orders are as follows:

- (a) If the Procuring Entity's representative/Project Engineer believes that a Change Order or Extra Work Order should be issued, he shall prepare the proposed Order accompanied with the notices submitted by the Contractor, the plans therefore, his computations as to the quantities of the additional works involved per item indicating the specific stations where such works are needed, the date of his inspections and investigations thereon, and the log book thereof, and a detailed estimate of the unit cost of such items of work, together with his justifications for the need of such Change Order or Extra Work Order, and shall submit the same to the HoPE for approval.
- (b) The HoPE or his duly authorized representative, upon receipt of the proposed Change Order or Extra Work Order shall immediately instruct the appropriate technical staff or office of the Procuring Entity to conduct an on-the-spot investigation to verify the need for the Work to be prosecuted and to review the proposed plan, and prices of the work involved.
- (c) The technical staff or appropriate office of the Procuring Entity shall submit a report of their findings and recommendations, together with the supporting documents, to the Head of Procuring Entity or his duly authorized representative for consideration.
- (d) The HoPE or his duly authorized representative, acting upon the recommendation of the technical staff or appropriate office, shall approve the Change Order or Extra Work Order after being satisfied that the same is justified, necessary, and in order.
- (e) The timeframe for the processing of Variation Orders from the preparation up to the approval by the Procuring Entity concerned shall not exceed thirty (30) calendar days.

44. Contract Completion

Once the project reaches an accomplishment of ninety five (95%) of the total contract amount, the Procuring Entity may create an inspectorate team to make preliminary inspection and submit a punch-list to the Contractor in preparation for the final turnover of the project. Said punch-list will contain, among others, the remaining Works, Work deficiencies for necessary corrections, and the specific duration/time to

fully complete the project considering the approved remaining contract time. This, however, shall not preclude the claim of the Procuring Entity for liquidated damages.

45. Suspension of Work

- 45.1. The Procuring Entity shall have the authority to suspend the work wholly or partly by written order for such period as may be deemed necessary, due to *force majeure* or any fortuitous events or for failure on the part of the Contractor to correct bad conditions which are unsafe for workers or for the general public, to carry out valid orders given by the Procuring Entity or to perform any provisions of the contract, or due to adjustment of plans to suit field conditions as found necessary during construction. The Contractor shall immediately comply with such order to suspend the work wholly or partly.
- 45.2. The Contractor or its duly authorized representative shall have the right to suspend work operation on any or all projects/activities along the critical path of activities after fifteen (15) calendar days from date of receipt of written notice from the Contractor to the district engineer/regional director/consultant or equivalent official, as the case may be, due to the following:
- (a) There exist right-of-way problems which prohibit the Contractor from performing work in accordance with the approved construction schedule.
 - (b) Requisite construction plans which must be owner-furnished are not issued to the contractor precluding any work called for by such plans.
 - (c) Peace and order conditions make it extremely dangerous, if not possible, to work. However, this condition must be certified in writing by the Philippine National Police (PNP) station which has responsibility over the affected area and confirmed by the Department of Interior and Local Government (DILG) Regional Director.
 - (d) There is failure on the part of the Procuring Entity to deliver government-furnished materials and equipment as stipulated in the contract.
 - (e) Delay in the payment of Contractor's claim for progress billing beyond forty-five (45) calendar days from the time the Contractor's claim has been certified to by the procuring entity's authorized representative that the documents are complete unless there are justifiable reasons thereof which shall be communicated in writing to the Contractor.
- 45.3. In case of total suspension, or suspension of activities along the critical path, which is not due to any fault of the Contractor, the elapsed time between the effectivity of the order suspending operation and the order to resume work shall be allowed the Contractor by adjusting the contract time accordingly.

46. Payment on Termination

- 46.1. If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Procuring Entity's Representative shall issue a certificate for the value of the work done and Materials ordered less advance payments received up to the date of the issue of the certificate and less the percentage to apply to the value of the work not completed, as indicated in the SCC. Additional Liquidated Damages shall not apply. If the total amount due to the Procuring Entity exceeds any payment due to the Contractor, the difference shall be a debt payable to the Procuring Entity.
- 46.2. If the Contract is terminated for the Procuring Entity's convenience or because of a fundamental breach of Contract by the Procuring Entity, the Procuring Entity's Representative shall issue a certificate for the value of the work done, Materials ordered, the reasonable cost of removal of Equipment, repatriation of the Contractor's personnel employed solely on the Works, and the Contractor's costs of protecting and securing the Works, and less advance payments received up to the date of the certificate.
- 46.3. The net balance due shall be paid or repaid within twenty eight (28) days from the notice of termination.
- 46.4. If the Contractor has terminated the Contract under **GCC** Clauses 17 or 18, the Procuring Entity shall promptly return the Performance Security to the Contractor.

47. Extension of Contract Time

- 47.1. Should the amount of additional work of any kind or other special circumstances of any kind whatsoever occur such as to fairly entitle the contractor to an extension of contract time, the Procuring Entity shall determine the amount of such extension; provided that the Procuring Entity is not bound to take into account any claim for an extension of time unless the Contractor has, prior to the expiration of the contract time and within thirty (30) calendar days after such work has been commenced or after the circumstances leading to such claim have arisen, delivered to the Procuring Entity notices in order that it could have investigated them at that time. Failure to provide such notice shall constitute a waiver by the Contractor of any claim. Upon receipt of full and detailed particulars, the Procuring Entity shall examine the facts and extent of the delay and shall extend the contract time completing the contract work when, in the Procuring Entity's opinion, the findings of facts justify an extension.
- 47.2. No extension of contract time shall be granted the Contractor due to (a) ordinary unfavorable weather conditions and (b) inexcusable failure or negligence of Contractor to provide the required equipment, supplies or materials.
- 47.3. Extension of contract time may be granted only when the affected activities fall within the critical path of the PERT/CPM network.
- 47.4. No extension of contract time shall be granted when the reason given to support the request for extension was already considered in the determination

of the original contract time during the conduct of detailed engineering and in the preparation of the contract documents as agreed upon by the parties before contract perfection.

- 47.5. Extension of contract time shall be granted for rainy/unworkable days considered unfavorable for the prosecution of the works at the site, based on the actual conditions obtained at the site, in excess of the number of rainy/unworkable days pre-determined by the Procuring Entity in relation to the original contract time during the conduct of detailed engineering and in the preparation of the contract documents as agreed upon by the parties before contract perfection, and/or for equivalent period of delay due to major calamities such as exceptionally destructive typhoons, floods and earthquakes, and epidemics, and for causes such as non-delivery on time of materials, working drawings, or written information to be furnished by the Procuring Entity, non-acquisition of permit to enter private properties or non-execution of deed of sale or donation within the right-of-way resulting in complete paralyzation of construction activities, and other meritorious causes as determined by the Procuring Entity's Representative and approved by the HoPE. Shortage of construction materials, general labor strikes, and peace and order problems that disrupt construction operations through no fault of the Contractor may be considered as additional grounds for extension of contract time provided they are publicly felt and certified by appropriate government agencies such as DTI, DOLE, DILG, and DND, among others. The written consent of bondsmen must be attached to any request of the Contractor for extension of contract time and submitted to the Procuring Entity for consideration and the validity of the Performance Security shall be correspondingly extended.

48. Price Adjustment

Except for extraordinary circumstances as determined by NEDA and approved by the GPPB, no price escalation shall be allowed. Nevertheless, in cases where the cost of the awarded contract is affected by any applicable new laws, ordinances, regulations, or other acts of the GoP, promulgated after the date of bid opening, a contract price adjustment shall be made or appropriate relief shall be applied on a no loss-no gain basis.

49. Completion

The Contractor shall request the Procuring Entity's Representative to issue a certificate of Completion of the Works, and the Procuring Entity's Representative will do so upon deciding that the work is completed.

50. Taking Over

The Procuring Entity shall take over the Site and the Works within seven (7) days from the date the Procuring Entity's Representative issues a certificate of Completion.

51. Operating and Maintenance Manuals

- 51.1. If “as built” Drawings and/or operating and maintenance manuals are required, the Contractor shall supply them by the dates stated in the **SCC**.
- 51.2. If the Contractor does not supply the Drawings and/or manuals by the dates stated in the **SCC**, or they do not receive the Procuring Entity’s Representative’s approval, the Procuring Entity’s Representative shall 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 Section III. Bid Data Sheet, 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.

The provisions of this Section 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 Section IV. General Conditions of Contract must be incorporated.
- (b) Amendments and/or supplements to provisions of Section IV. General Conditions of Contract, as necessitated by the circumstances of the specific project, must also be incorporated.

However, no special condition which defeats or negates the general intent and purpose of the provisions of Section IV. General Conditions of Contract should be incorporated herein.

For foreign-assisted projects, the Special Conditions of Contract to be used is provided in Section X-Foreign-Assisted Projects.

Special Conditions of Contract

GCC Clause			
1.17	The Intended Completion Date for the following: 120 calendar days <i>NOTE: The contract duration shall be reckoned from the start date and not from contract effectivity date.</i>		
1.22	The Procuring Entity is <i>DepED Division of Misamis Oriental, A. Velez Street, Cagayan de Oro City</i>		
1.23	The Procuring Entity’s Representative is <i>Rowena H. Para-on, BAC Chairman, DepED Division of Misamis Oriental</i>		
1.24	The Site is located at the address below and is defined in drawings		
	Lot No.	Project Description/Intended Completion Date	Location
	1	<i>Electrification of Un-energized Schools and Modernization of Electrical Systems On-Grid Schools Batch 1 for Manticao National High School/ date of NTP plus Contract Duration</i>	Manticao, Mis. Or.
1.28	<i>NOTE: The start date shall be the date of receipt of the Notice to Proceed.</i>		
1.31	The Works consist of <i>Electrical Works</i>		
2.2	120 calendar days		
5.1	The Procuring Entity shall give possession of all parts of the Site to the Contractor <i>after the pre-construction meeting with the End-User.</i>		
6.5	The Contractor shall employ the following Key Personnel : <i>[List key personnel by name and designation]</i> <i>NOTE: The names of the Key Personnel and their designation shall be filled out by winning contractor prior to contract signing.</i>		
7.4(c)	<i>Certificate of Completion and Acceptance</i>		
7.7	No further instructions.		
8.1	No further instructions.		
10	The site investigation reports are: <i>none</i>		

12.3	No further instructions.
12.5	<p><i>Select one, delete the other.</i></p> <p><i>In case of permanent structures, such as buildings of types 4 and 5 as classified under the National Building Code of the Philippines and other structures made of steel, iron, or concrete which comply with relevant structural codes (e.g., DPWH Standard Specifications), such as, but not limited to, steel/concrete bridges, flyovers, aircraft movement areas, ports, dams, tunnels, filtration and treatment plants, sewerage systems, power plants, transmission and communication towers, railway system, and other similar permanent structures: Fifteen (15) years.</i></p>
13	<p>“No additional provision.”</p> <p><i>or, if the Contractor is a joint venture, “All partners to the joint venture shall be jointly and severally liable to the Procuring Entity.”</i></p>
18.3(h)(i)	No further instructions.
21.2	<p>The Arbiter is:</p> <p>Rowena H. Para-on</p> <p>BAC Chairman</p> <p>DepED Division of Misamis Oriental</p> <p>A.Velez St., Cagayan de Oro City</p>
29.1	No dayworks are applicable to the contract.
31.1	The Contractor shall submit the Program of Work to the Procuring Entity’s Representative within 10 calendar days of delivery of the Notice of Award.
31.3	<p><i>The period between Program of Work updates is 10 calendar days.</i></p> <p><i>The amount to be withheld for late submission of an updated Program of Work is 25% of the amount of the progress payment being bid.</i></p>
34.3	The Funding Source is the <i>Government of the Philippines</i> .
39.1	<p><i>The amount of the advance payment is 15% of the contract per lot (Lot 1-15)</i></p> <p><i>Schedule of Payment</i></p> <p><i>First Billing - at least 25% Work Accomplishment</i></p> <p><i>Succeeding Billing must be at least 25% Work Accomplishment plus the previous Work Accomplishment</i></p>
40.1	No further instructions.

51.1	<p>The date by which operating and maintenance manuals are required is <i>before the issuance of Notice to Proceed.</i></p> <p>The date by which “as built” drawings are required is <i>upon request of final billing</i></p>
51.2	The amount to be withheld for failing to produce “as built” drawings and/or operating and maintenance manuals by the date required is <i>35% of the amount of Final Billing.</i>

Section VI. Specifications

Notes on Specifications

A set of precise and clear specifications is a prerequisite for Bidders to respond realistically and competitively to the requirements of the Procuring Entity without qualifying or conditioning their Bids. In the context of international competitive bidding, the specifications must be drafted to permit the widest possible competition and, at the same time, present a clear statement of the required standards of workmanship, materials, and performance of the goods and services to be procured. Only if this is done will the objectives of economy, efficiency, and fairness in procurement be realized, responsiveness of Bids be ensured, and the subsequent task of bid evaluation facilitated. The specifications should require that all goods and materials to be incorporated in the Works be new, unused, of the most recent or current models, and incorporate all recent improvements in design and materials unless provided otherwise in the Contract.

Samples of specifications from previous similar projects are useful in this respect. The use of metric units is mandatory. Most specifications are normally written specially by the Procuring Entity or its representative to suit the Works at hand. There is no standard set of Specifications for universal application in all sectors in all regions, but there are established principles and practices, which are reflected in these PBDs.

There are considerable advantages in standardizing General Specifications for repetitive Works in recognized public sectors, such as highways, ports, railways, urban housing, irrigation, and water supply, in the same country or region where similar conditions prevail. The General Specifications should cover all classes of workmanship, materials, and equipment commonly involved in construction, although not necessarily to be used in a particular Works Contract. Deletions or addenda should then adapt the General Specifications to the particular Works.

Care must be taken in drafting specifications to ensure that they are not restrictive. In the specification of standards for goods, materials, and workmanship, recognized international standards should be used as much as possible. Where other particular standards are used, whether national standards or other standards, the specifications should state that goods, materials, and workmanship that meet other authoritative standards, and which ensure substantially equal or higher quality than the standards mentioned, will also be acceptable. The following clause may be inserted in the SCC.

Sample Clause: Equivalency of Standards and Codes

Wherever reference is made in the Contract to specific standards and codes to be met by the goods and materials to be furnished, and work performed or tested, the provisions of the latest current edition or revision of the relevant standards and codes in effect shall apply, unless otherwise expressly stated in the Contract. Where such standards and codes are national, or relate to a particular country or region, other authoritative standards that ensure a substantially equal or higher quality than the standards and codes specified will be accepted subject to the Procuring Entity's Representative's prior review and written

consent. Differences between the standards specified and the proposed alternative standards shall be fully described in writing by the Contractor and submitted to the Procuring Entity's Representative at least twenty eight (28) days prior to the date when the Contractor desires the Procuring Entity's Representative's consent. In the event the Procuring Entity's Representative determines that such proposed deviations do not ensure substantially equal or higher quality, the Contractor shall comply with the standards specified in the documents.

These notes are intended only as information for the PRO Procuring Entity or the person drafting the Bidding Documents. They should not be included in the final Bidding Documents.

SEE ATTACHED DETAILED ESTIMATES AND APPROVED PLANS.

GENERAL SPECIFICATIONS

A. LICENSE AND PERMITS

The Contractor shall secure from the government agencies all necessary licenses and permits needed to proceed with the construction of the Project.

B. TEMPORARY SIGN

The Contractor shall provide suitable sign acceptable to the Owner advertising the work and indicating thereon the names of the Project, the Contractor and the Architect. The sign layout and the text and location of such sign will be approved by the Owner. No other sign or advertising will be permitted.

C. TEMPORARY STRUCTURES AND SERVICES

Temporary Building and Facilities

- Temporary Buildings shall be of a design and materials acceptable to the Owner.

Contractor's Office

- The Contractor shall provide on or near the premises, temporary building for his own use, equipped among other items with at least one telephone.

Field Office

- The Contractor shall provide temporary office building at least 12' 0" wide by 30' 0" long for the use of the field representatives, Architects, at an approved location on or adjacent site. The field office shall be complete with electrical light, power outlets, drinking water, two (2) desks, two chairs, a plan table, a plan rack, filing cabinet, private local telephone line and daily janitorial service, including periodic washing of windows. The Contractor shall pay for all of the above services and facilities except long distance telephone calls.

Toilets

- The Contractor shall provide suitable toilet facilities at approved location (2) with proper enclosures for the use of workmen, and shall maintain some in sanitary operable conditions, all in conformity with the local regulations.

Other Temporary Buildings

- The Contractor shall provide such other temporary building as maybe required for use of his workmen and safe storage of tools and materials. Such structures shall be located only where previously approved.

Temporary Electric Power

- The Contractor shall provide and pay for all light and Owner required for the construction work including all wiring, connections and accessories an all power consumed.

Temporary Water Supply

- The Contractor shall make all necessary arrangements for and provision of water including temporary piping and house extensions required for the construction purposes. He shall obtain and pay for necessary permits and for all water used.

Temporary Parking Facilities

- The Contractor shall provide and maintain in a safe and satisfactory condition temporary facilities for use by workmen employed on the job and for the Owner, the Project Manager and the Architect's use.

Temporary Scaffolding, Hoist, etc.

- The Contractor shall install and operate an adequate number of temporary hoists and shall also furnish and maintain temporary scaffolds, runways, ladders, and the like as required for the proper execution of the work. As soon as the progress of the work will permit, the Contractor shall erect the permanent stair platforms, ramps, catwalks, etc., safeguard and shall provide these and all other permanent parts from damage or defacement during the work.

Removal of Temporary Services and Facilities

- All temporary services and facilities installed by the Contractor shall be removed by the Contractor on completion of this Contract or as directed by the Project Manager. The Contractor shall make any repairs or alterations necessitated by such removal.

D. PROTECTION OF WORK, PROPERTY, AND PERSONS

- The Contractor shall protect the work of employees, equipment at the Owner's property and adjacent property from damage for any cause whatsoever, and shall be responsible for any damage or injury (including death) due to his act or neglect. These provisions are solely for the benefit of third persons.

- The Contractor as, part of the contract shall provide watchmen and erect all planking bridges, bracings, shorings, sheet piling, lights and warning signs necessary for the public. The Contractor shall provide scaffolds, tarpaulins, and similar items as directed by the Project Manager to protect Owners, equipment and employees and shall if necessary seal off his work so as not to interfere with Owner's business operation.

Watchmen Service

- The Contractor shall provide reputable watchmen service or in lieu thereof, any approved protective service to guard the construction area against vandalism, theft, and mischief. Such service should be in operation at all hours that the Contractor's supervisory staff is not in attendance at the site, 24 hours per day and 7 days per week from the date of Contractor starts work until the date of final acceptance of the work under this Contract.
- Watchmen or approved protective service shall continue uninterrupted during delays in the work such as inclement weather, delays in delivery, and the like. In the event of any official work stoppage of the Project, make immediate arrangements with the Owner regarding watchmen service continuation and cost thereof during the time the work will be stopped. If such official stoppage is found to be due to fault, neglect or improper work performance of the Contractor, or his sub-contractors, the extra cost for watchmen service shall be borne by the Contractor.

The Contractor shall be responsible for any injury loss or damage to any presently existing improvements on the premises caused by him or his employees, agents or any sub-contractors, and in the event of such injury, loss or damage shall promptly make such repairs or replacement as required by the Owner without additional cost to the Owner.

During the progress of the work, the Contractor shall protect all finished work as soon as it is erected and shall maintain such protection until such time they are no longer required.

E. INSPECTION AND TEST

- The Contractor shall permit and facilitate inspection of the work by the Owner, its representatives, the Project Manager, or his authorized representative, and the public authorities having jurisdiction at all times during the progress of the work.
- The Contractor will be responsible for all test and engineering services required by the Specifications. The cost for inspection or tests not required by the specification but which the Owner requires, will be borne by the Owner.
- All tests shall be performed by the testing agency approved by the Owner and shall be in accordance with the current standards of the American Society for Testing and Materials unless otherwise specified by the Owner. The Contractor shall furnish the Owner with 2 copies of the test procedures used.

- Failures of the Owner, the Project Manager or the Architect during the progress work or work not in accordance with the Drawings and Specifications shall not be deemed an acceptance thereof nor waiver of the Owner's right to a proper execution of the Contract work or any part of it. No partial payment of entire occupancy of the premises by the Owner shall be construed to be an acceptance of work or materials which are not strictly in accordance with the Contract Documents, nor a waiver of the Owner's right.

F. CONTRACTOR'S ROAD AND TRAFFIC LIMITATIONS

- Contractor shall make himself fully aware of any restrictive traffic limitations and/or shall comply with request of local authorities in this construction plan and equipment, to and from the site, as routes, entry and exit on site, times of delays, etc.
- Prior to moving equipment or materials to the site, the Contractor shall secure the Project Manager's approval of the specific roadway route on or adjacent to the site to be used. He shall thereafter be limited to the use of said roadways or route unless the Project Manager first approves the use of alternate roadway or routes.

G. SECURITY OF EQUIPMENT AND OPERABLE MACHINERY

- Site-parked mobile equipment and operable machinery, and hazardous parts of the new construction subject to mischief shall be kept locked or otherwise made inoperable whenever left unattended.

H. PESTILENCE CONTROL

- Contractor shall guard against and if necessary exterminate rodents, termites, vermin and other pests. All job personnel shall be required to dispose of garbage and refuse in covered metal containers, which Contractor shall furnish and empty regularly. Should services of extermination firm be necessary, the Contractor shall provide such services.

I. AIR POLLUTION

- Contractor shall comply with the requirements of "The Clean Air Act of 1999" and of local authorities regarding air pollution control: As a general rule, shall be no burning of trash at the site.

J. CLEANING

- The Contractor shall at all times keep the premises from accumulation of waste materials or rubbish caused by his employees, sub-contractors, or the work. At completion of the work he shall remove from the building and site all rubbish, scaffolding and surplus materials and shall leave the work broom clean, unless otherwise specified. If the Contractor fails to keep the premises clean, the Project Manager may remove the waste materials and rubbish; charge the expense of such removal to the Contractor.
- The Contractor shall thoroughly wash and clean all glass, clean hardware, remove stains, spots, smears, marks and dirt from all surfaces; clean fixtures, wash terrazzo, tile floors and all exposed concrete so as to present clean work to the Owner for acceptance.

K. FINAL COMPLETION

- The term final completion, means the completion of all work called for under the Contract to include but not limited to satisfactory operation of all equipment, by means of acceptance tests, correction of all punch list items to the satisfaction of the Owner, the Project manager and/or the Architect, settlement of all claims, if any payment and release of all record of all mechanics materials, men and like lines, delivery of all guarantees, Equipment Operation and Maintenance Manuals; as built drawings, Building certificates prior to occupancy; Electrical permits; all other required approvals and acceptance by the City/Municipality or other authority having jurisdiction and removal of all rubbish, tolls scaffoldings and surplus materials and equipment from the job site.

L. PUNCH LIST

- The list prepared by the Project manager and the Architect of the Contractor's uncompleted defective or uncorrected work.

M. AS BUILT DRAWINGS

- The drawings to be submitted by the Contractor to the Owner, illustrating how the various elements of the work were actually installed during the progress of the construction. As built Drawings shall be approved by the Architect and the Project Manager.
- The Contractor shall keep "as-built" drawings up to date concurrently as the work progresses and not wait until the end of the job to do so.

N. CONNECTING THE WORK

- The Contractor shall do all the cutting, fitting and pitching that may be required to make several parts of the work come together properly and to fit his work to receive or be received by the work of other contractor shown upon, or reasonable implied by the Drawings and Specification. After the other contractor has finished he shall properly complete and finish his work, as the Project Manager shall direct.

O. SAFETY AND ACCIDENT REPORTS

- The Contractor shall take necessary precautions for the safety of all employees; Owner's Representatives, Project Manager and the Architect. The Contractor shall comply with all instructions and Government Safety laws and Building Codes to prevent accident or injury to persons on about or adjacent to the premises as well as for the protection of adjacent property where work is performed. The Contractor shall not excessively loaded.

SOIL POISONING

A. SCOPE OF WORK

- Furnish all labor materials, equipment, plant and other facilities and perform all operations necessary to complete the Soil Poisoning requirement hereinafter specified.

- All work under this Division shall be subject to the General Conditions accompanying these Specifications. The Contractor and the Sub-Contractor for this portion of the work is required to refer especially thereto.

B. APPLICATION

- Thoroughly drench and saturate every lineal meter of excavation for footings and other foundation work with soil poison working solution (F-3, or F-35 by MAPECON or approved equivalent) before pouring of concrete. Soil poisons shall not be applied when soil is excessively wet.
- After grading and leveling the soil and laying of the gravel base for floor slab, flood or soak every square meter of floor area with soil poison working solution before pouring of concrete.
- Prior to landscaping of the lawn, saturate every linear meter of perimeter of the building about three (3) meters wide with soil poison working solutions.
- The application of the chemical solution shall be performed by a competent Pest Controller following the Thropallaxis Method or approved equivalent.

C. WOOD PROTECTION

- Paris Green Solution. Apply one (1) coat solution of 100 grams green powder mixed with 4.40 liters diesel all wood members with minor "Banakal".
- Spar Varnish. All exposed surfaces of doors, windows, and exterior roof fascia boards shall be painted with a base coat or linseed oil before application of spar vanishes.

PREPARATION OF SITE

A. SCOPE OF WORK

- Furnish all labor materials, equipment, plant and other facilities and perform all operations necessary to complete the preparation of site shown and hereinafter specified.
- All work under this division shall be subject to the General Condition, accompanying these Specifications. The Contractor and sub-contractor for this portion of work are required to refer especially thereto.

B. SURVEY

- The Contractor shall stake out the building accurately and shall establish grades and after the approval by the Project Manager and Architects shall be secured before further work is commenced.
- Basic batter boards and basic reference marks as directed by the Project Managers shall be erected at such places where they will not be disturbed during construction.
- Materials shall be stored and work shall be conducted in such manner as to preserve all references approved the Project Manager and the Architect. Reestablishment of lines and grades where necessitated due to negligence of part the contractor shall be done at the expense of the Contractor.
- The Contractor shall construct two (2) permanent benchmarks near the site of construction for the purpose of determining any settlement that may occur during the progress of construction.
- The Contractor shall provide all necessary instruments.

UTILITIES EXCAVATION

A. SCOPE OF WORK

- Furnish all materials, equipment, labor, plant and other facilities to complete all utilities excavating work shown on the drawings and hereinafter specified.
- All Work included under this division shall be subject to the General Conditions accompanying these specifications. The Contractor and sub-contractor are required to refer especially thereto.

B. MATERIALS

- Provide all materials, equipment, labor, plant and other fine granular materials as approved. Soil removed in the excavation process maybe used for back fill if meeting the above qualifications approved by the Project Manager.
- Make widths of trenches at bottom and above sufficient for working conditions, including bracing, sheeting and shoring if any should be necessary to adequately protect men at work.
- For pipe, make trench with at bottom between 30 and 40 cm greater than outside diameter of pipe measured at widest point of pipe.
- Make centerline of trench and centerline of pipe and structures coincide.

- Accurately grade bottom of trench to provide uniform bearings; support pipe on undisturbed soil for each length of pipe.
- After grading trench bottom, dig bell holes for bell point pipe. Make bell holes of sufficient size as a minimum to permit accurate caulking work.
- Sheet and shore as necessary. Refer to and conform to specifications for such work required in operations for which this section serves as a reference.
- Take precautions to prevent over-excavation of earth in trench. For rock abode and like solid materials excavate to a minimum over depth of 10cm below required for outside of pipe.
- Correct over depth excavation due to negligence or faulty work of Contractor or for removal of undesired materials as noticed in paragraph H above by back filling with compacted fine granular materials. Stack excavated materials in orderly manner adjacent to work except in street. Stack in manner to divert surface water from running into trench. Remove accumulations of water from trenches by pumping or other approved method.

C. SHEETING AND SHORING

- Provide sheeting and shoring as required to protect trench excavations and provide safe working conditions. This requirement shall be at the sole decision and responsibility of the Contractor including the remedy and satisfactory of all damages and liabilities occasioned by the entire operation.
- Where damage is likely to result from withdrawing sheeting, the sheeting will be ordered to be left in place by the Project Engineer.

D. BACKFILLING

- Do not backfill until underground piping and conduit have been tested and approved by proper authorities or until Project manager authorize back filling.
- Remove bracing, sheeting and shoring before back filling, except such sheeting as Project Manager may require in order to be left in place. Cut off sheeting ordered to be left in place at level of top of pipe.
- Backfill entire depth of trench with damp, compacted sand at following locations.
 - Trenches within limits of building and 91 cm outside foundations.
 - Trenches under footing, pavements, concrete slabs, sidewalks, utility pipes and other load bearing items and 91 cm beyond.
- Spread sand by hand shoveling in layers not more than 15 cm thick and compact to degree or compaction satisfactory to the Project Manager or his representative but not greater than for fills specified under division SEB, except in streets compact per City Regulations. Carry out spreading and tamping simultaneously in layers.
- Backfill all other trenches with ample sand to top of pipe. Earth, sand, clay and gravel, all constitute approved excavated material. Deposit by hand shoveling in 15 cm thick layers

until pipe or conduit has a cover of not less than 30 cm., with earth moving equipment. Make ample allowances for settlement.

- Use water, but not excessive quantities for setting earth or sand backfill.
- Fill settled areas before final inspection and acceptance.

STRUCTURAL EXCAVATION AND BACKFILL

A. SCOPE OF WORK

- Furnish all materials, equipment, labor, plant and other facilities to complete the structural excavation and backfill as shown and hereinafter specified.
- All work included under this division shall be subject to the General Conditions accompanying these Specifications. The Contractor and Sub-Contractor are required to refer especially thereto.
- Examine the list of record of existing utilities and construction, record of the test borings and sub-surface exploration reports and soil samples to determine the conditions under which work will be performed. The record of test borings is not guaranteed to represent all conditions that will be encountered.

B. APPLICABLE CODES AND STANDARDS

- The Standards and Codes applicable to only a portion of the work specified in this section are referenced in the relevant parts and clauses. Standards and codes, which are generally applicable to the work of this section, are listed hereinafter.
- 2.2 AASHTO - American Association of States Highways and Transportation Officials.
- T88 - Mechanical Analysis of Soils
- T90 - Determining the Plastic Limit and Plasticity Index of Soils
- 2.3 ASTM - American Society for Testing and Material
- C33 - Concrete Aggregates
- D1556 - Density of Soil – in – Place by the Sand – Cone Method
- D1557 - Moisture Dust Density relations of soils, using ten-pound rammer and eighteen-dust inch crop.

C. SUBMITTALS

- Samples of any materials or product to be used in the works. They shall be properly marked and accompanied by a letter of transmittal clearly listing the samples, their intended use and locations in the works.
- Test Reports Shop test shall show the results of required shop tests of materials, equipment or system certified in writing by the manufacturer or its authorized representative.

D. TRANSPORTATION, HANDLING, STORAGE AND PROTECTION

- Pumping and Drainage

Excavate areas so as to afford adequate drainage. Control grading to prevent water running into the excavated areas until the work is complete. Remove water that may interfere with the proper performance of the work or cause ponding.

E. QUALITY CONTROL

- The testing laboratory shall perform all tests and submit reports specified in this section. The testing laboratory shall be responsible for conducting and interpreting the tests; shall state in each report whether or not the test specimens comply with all the requirements of the Contract Documents and specify note the deviation therefrom.
- Testing Materials

The testing laboratory shall perform all tests herein specified and additional tests as may be required.

Optimum moisture-maximum density curve for each type of soil encountered in subgrades and fills under pave areas and bulking slabs. Determine maximum densities in accordance with ASTM D1157. Each type of borrow materials shall receive the following:

- | | |
|---|--------------|
| a. Material Analysis | : AASHT T88 |
| b. Plasticity index determination | : AASHTO T90 |
| c. Moisture-density curve determination | : ASTM D1557 |

- Testing and Subgrade and Fill Layers

Subgrade and fill layers shall be approved before construction of any further works thereon. Test of sub-grades and fill layers shall be taken as follows:

1. Footing subgrades: The design bearing capacities shall be verified by testing each strata of soil on which footings will be placed. The following tests shall be performed as required by the Construction Manager.

Cohesionless soil, plates bearing test and filled density test.

For cohesive soil, unconfirmed compression test.

- Paved area and Building Slab Subgrades : The top 12-inch of subgrade resulting from excavation shall have the maximum density of optimum moisture as specified. In fill area, each layer of fill shall meet the required density test of the subgrade for every 3000 ft. square of paved area or building slab but in no case less than three tests shall be made. In each compacted fill layer. Make one field density test for every overlaying 3000-ft. square of building slab or paved area, but in no case less than three tests. Field density tests shall be performed in accordance with ASTM D1556 at ASTM D2167.
- Foundation Wall Backfill at least three field density tests ASTM D1556 or ASTM D2167 shall be taken at locations and elevations as directed.

F. PREPARATION

- Clear and grub shrubs, roots, brush, vegetation, rubbish and debris within the construction limit lines, except as otherwise designated to remain or to be relocated.

G. EXCAVATION

- General

Excavation to the lines and elevations are required. Excavation shall comprise and includes the satisfactory removal and disposal of all materials encountered regardless of the nature of the materials. Make excavations sufficiently large to permit placing and removal of forms, installation of weatherproofing, damp proofing and utilities and to permit inspection.

- Excavation for Footings

Footing subgrades shall be approved before proceeding with construction of piers and footings shall be found on rock or firm understructure at elevations indicated or as shown. Refer to construction notes for required preparations. Subgrades of footings shall be level and free of loose rock, dirt, debris, and standing water prior to acceptance for placing concrete.

- Excavation for Paved Areas, Building Slabs and Structural Members in Cut Areas

1. Structural Members: Structural members shall include frame slabs, grade beams utility tunnels.

2. Subgrades: Subgrades shall be approved before proceeding with construction of structural members.

The top 12 inch of subgrade resulting from excavation shall be free from unsuitable material and have a minimum moisture when cohesive soil are tested in accordance with ASTM D2049.

If the subgrade thus meet the above requirements, compact the subgrade by rolling with suitable compaction equipment to obtain the density specified.

- Excavation for General Grading

Excavations made below the elevations shown or specified shall be filled and compacted as hereinafter specified for filling and compacting.

- Excavation for Paved Areas, Building Slabs and Structural Members in fill Areas

Subsection c applies except that no subgrade recompaction will be required.

H. FILLING AND COMPACTION

- Fill Materials

Materials for fill and backfill shall be in general fill as herein before specified, obtained from the required excavation on site, if acceptable, or from burrow sources.

- Utilization of Excavated Materials

Suitable excavated materials for fill and backfill as defined in clause 1 and 2 MATERIALS shall be approved. Materials which is suitable for use as fill under exterior slabs and paving and backfill shall be separated from material which is only suitable for general grading.

- Burrow

Provide additional materials, if required, at no additional cost. Acceptable burrow shall consist of suitable materials.

- Placing

Place fill materials in horizontal loose layers in such manner as to produce a uniform thickness of materials. Placement shall start in the deepest area and progress approximately parallel to the finished grade. Thickness of layers before compaction shall not exceed 8 inches for cohesive soils. No fill material shall be placed on areas where free water is standing, or on surfaces which have not been approved.

- Compaction

Compact each layer of fill with equipment to achieve 95 percent of maximum density at optimum moisture when cohesive soils are tested in accordance with ASTM D1557 or 75 percent of relative density when cohesionless soils are tested in accordance with ASTM D2040.

In case of cohesive soil, do not compact materials when the moisture content varies more than 3 percent from the optimum moisture content. Maintain moisture content by wetting and drying manipulation. Suspend compaction operation because of rain and other unsatisfactory conditions.

- Gravel fill for Building Slabs

Provide completion of foundation walls and removal of forms. Clean the excavation of all trash and debris before application of damp proofing or waterproofing and placement of backfill as hereinafter specified for fill operations. Maintain symmetrical backfill loading and compact each layer by hand tampers or other unsatisfactory conditions.

- Do not backfill against foundation or basement walls until compaction or supporting floor construction to top of backfill or to first level above top of backfill. In placing backfill, take special care to prevent wedge action, eccentric or overloading of structure by equipment used in compacting backfill material, and to prevent damage to waterproofing or damp proofing on walls.
- Where subsoil drainage system are installed, place backfill so as to prevent any drainage to the system.
- Place drainage fill top of felt above footing subsoil drains to within 18 inches of finished grade, except as otherwise shown. Place and compaction as necessary to obtain the required densities under paved areas of general as specified herein.

CAST-IN-PLACE CONCRETE

A. SCOPE OF WORK

- Furnish all labor, materials, equipment, plant and other facilities the cast-in-place concrete as shown and hereinafter specified.
- All work under this division shall be subject to the General Conditions accompanying these specifications. The Contractor and Sub-Contractor for this portion of the work required are especially referred thereto.

B. APPLICABLE CODES AND STANDARDS

- The Standards and codes applicable to only a portion of the work specified in the section are referenced in the relevant parts of the clauses. Standards and codes, which are generally applicable to the work of this section, are listed hereinafter.
- American Concrete Institute

Recommended Practice for Selecting Proportions for Normal Weight Concrete
Recommended Practice for Evaluation of Compression Test Results of Field

Specifications for Structural Concrete for Building

Recommended Practice for Measuring and Placing Concrete

Recommended Practice for Curing Concrete

Recommended Practice for Consolidation of Concrete

Building Code Requirements for Reinforcing Concrete.

- American Society for Testing and Materials

Making and Curing Concrete Test Specimen in the Field

Compressive Strength of Cylindrical Concrete Specimens

Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.

Ready Mixed Concrete

Slump of Portland Cement Concrete

Sheet Materials for Curing Concrete

Fresh Concrete Sampling

Liquid Membrane – Forming Compounds for Curing Concrete

Chemical Admixtures for Concrete

Concrete Made by Volumetric Batching and Continuous Mixing

Sampling Aggregates

Reporting Results of Analysis of Water

Performed Expansion Joint Fillers for Concrete Paving and Structural Construction

Wire – Cloth Sleeves for Testing Purposes

- Federal Specifications

Concrete Patching and Leveling Compound

- C – E Corps of Engineers

Requirements for water for use in Mixing or Curing Concrete

Rubber Waterstops

Polyvinylchloride Waterstops

Expansive Grout

C. SUBMITTALS

- Layout of Proposed Placement
- Placement Schedule Proposed Construction Joint Layout and Sequence of Placement
- Proposed Curing Concrete
- Quality Assurance

Proof of quality of manufacturer and reliability in field operations. Such proof shall normally constitute evidence that the product/equipment has been manufactured by them over a period of time and has established field service record. It shall include installation locations, dates and years of operating services. If there is no experience for an identical unit it may release to a similar unit by the same manufacturer.

- Samples

Samples of any materials or product to be used in the works. They shall be properly marked and accompanied by a letter of transmittal clearly listing the samples, their intended use and locations in the work.

- Certificate of Compliance

Certificate of Compliance shall include materials or Product manufacturer's Statement that the supplied items or systems to the specifications.

- Test Reports

Shop test shall show the results of required shop test of materials, equipment or system certified in writing by the manufacturer or its representative.

Field test reports shall show the results of required field test and compliance with approved procedures, certified by the Contractor.

D. TRANSPORTATION, HANDLING, STORAGE AND PROTECTION

- Cement and Admixtures

Upon the delivery at site of work, cement and admixtures shall be stored separately in dry, weather tight, properly ventilated structure with adequate provision for prevention of absorption of moisture.

- Temperature Control

The Contractor shall provide facilities and procedures to control or reduce the temperature of all materials used for concrete during hot weather; to such degree of temperature shall not exceed 90 degrees Fahrenheit.

Concrete Removed from the Structure

When the results of the strength test of the specimen indicate deficiency in specification requirements or where there is other evidence that the quality of the concrete is below specification requirements, core-boring tests shall be made in conformance with ASTM C42. If deficiency is discovered, the Contractor may be allowed to make load test at his expense, and results shall be evaluated in conformance with ACI 318, Chapter 2.

- Slump

Slump test shall be performed in the field under the supervision of the Construction Manager. Slump test shall conform to ASTM C143.

- Sample Concrete Panel

Sample concrete panel for exposed or painted concrete shall be constructed and submitted for approval by the Construction Manager. The panel shall be not less than 6 ft. by 4 ft. in size. Sample panel shall be protected until acceptance of the complete concrete work. The approved sample shall be representative of the smooth texture concrete finish required in the work.

E. MATERIALS

- Portland Cement

Only one brand of any type of cement shall be used for exposed concrete surfaces of any individual structure.

- Concrete Patching Compound

PS SS – 1302, type 11, that can be painted without evidence of bleeding and that after final set will be unaffected by high humidity and moisture.

- Aggregates

Grading requirements shall conform to ASTM C33. Coarse aggregates shall be well graded from fine to coarse within the prescribed limits of the Contract Documents.

- Fine Aggregates

Fine aggregates shall consist of natural sand, manufactured sand or combination of the two and shall compose of clean, hard and durable spherical or curvical particles.

F. QUALITY CONTROL

- Samples and Testing

Samples from stock on the site shall be taken by the Contractor in the presence of the construction Manager

Cement

The testing laboratory shall test sampled cement. Certify copies of laboratory of cement and shall include all test dates, and testing procedures are in conformance with stored more than four months after being tested shall be tested before use. Cement found unsatisfactory under test shall be immediately removed from the construction site.

Aggregates

Aggregates sampling shall conform to ASTM D75. Aggregates shall be sampled and submitted to the Construction manager for testing. No aggregate shall be used until test results are satisfactory to the construction Manager.

Water

Water analysis shall be performed in accordance with ASTM D596.

Admixtures

Sampling and testing of all admixtures used in concrete mix shall be in accordance with the standard procedure recommended by the testing laboratory. No admixtures shall be used if the test results are unsatisfactory.

- Concrete

During Place Concrete

The Contractor shall provide for test purposes three sets of the test specimens taken under the supervision of the Construction Manager from each 50 cu. m or fraction thereof for each class of concrete placed. At least one set of the test specimens for each classes of the concrete shall be provided in each eight-hour shift. Samples shall be secured in accordance with ASTM 172. Test specimens shall be made and cured in accordance with ASTM C39 or ACI 214. Test specimen shall be evaluated for each class of concrete specified in conformance with ACI 318, Chapter 4 Concrete Quality. Specimen may be tested 7 days to 28 days strength of the concrete is established.

Coarse Aggregates

Coarse Aggregates shall consist of crushed or uncrushed gravel, crushed stone, or a combination thereof and shall be clean, hard, and compacted particles of maximum nominal size $\frac{3}{4}$ inch. However, coarse aggregate of greater maximum size may be used provide the requirements of ACI 318, Sec. 3.3.3 are met.

- Water

Water for washing aggregated and for mixing and curing concrete shall be fresh and free from injurious amounts of oil, acid, slate, alkali, organic matter, or other deleterious substances as determined by CDCRD – C400. Chlorides and hardeners shall not exceed specified limits of ASTM D512.

- Admixtures

Admixtures containing chloride ions or other ions producing deleterious effect shall not be used.

- Vapor Barrier

Polyethylene sheeting conforming to ASTM E154 and mils thick minimum. Other similar materials having a vapor permanence rating not exceeding 0.5 per as determined by ASTM E96, procedure will be considered.

- Grout

Damp pack bedding grout mix of one part of Portland cement type 1 and $\frac{1}{2}$ parts of the fine aggregates proportioned by weight and more than 4 – $\frac{1}{2}$ gal. Of water per bag, 94 lb. Of cement.

Premixed, Non – Shrink Metallic Grout

“Masterflow” 713 manufactured by Master Builders, Euco – N.S. manufactured by Euclid Chemical Company or an approved equal.

Premixed Non – Shrink Metallic Grout

“Embecco 36” manufactured by Master Builders. Premixed manufactured by the Euclid Chemical Company or an approved equal.

Expansive Grout

CE CRD – C588, Type A or M, as required.

- Curing Materials

Impervious Sheeting

ASTM C171 type optional except that polyethylene sheeting shall be 4 minimum mils. The impervious sheeting shall not be used.

Burlap

Cloth made of jute or kenaf shall conform to AASHTO M182 and shall weigh a minimum 0.06 Lb. Square foot.

Membrane Forming Compound

ASTM C309, Type 1. When non-pigmented compound is used, each shall contain a fugitive dye.

- Hardener

Floor hardener shall be a colorless aqueous solution containing not less than 20 lb. /gal. of zinc and or magnesium fluosilicate or sodium silicate solution having a specific gravity of 16.7 degrees Baume, "hornoligh" manufactured by A.C. Horn W.R. Grace " Saniseal 50" manufactured by Master Builders, Lapidolite manufactured by Sonneborne Contech, or an approved equal.

- Joint Fillers

ASTM D1751 performed resilient bituminous type or ASTM D1752, performed sponge rubber.

- Joint Sealant

ASTM D1190, hot – pour type

- Water Stops

Metallic

Copper conforming to ASTM B370, 20-ounce weight or stainless steel conforming to ASTM 167, 0.037-inch nominal thickness and 6 inch wide.

Non-Metallic

CEO CRD –513 and CRD – 572, ¼ inches minimum thickness and 6 inches wide.
Installation Joints – Shown and detailed on the plans

- Expansion Joints – As Shown and Detailed on the Plans

G. CLASSES, USAGE AND PROPORTIONING

- Concrete of the various classes indicated and as required under other section for different usage shall be proportioned and mixed by volumetric batching and continuous mixing in accordance with ASTM C685.
- Retarder Agents

Water reducing admixtures (plastic and retarder) maybe used subject to the approval of the Construction Manager.

- Trial Designed batches

Trial designed batches for various classes required shall be the responsibility of the Contractor. Trial mixture having a proportion, consistencies and air contents suitable for the work shall be made based on ACI 211.1, using at least 3 different water cement ratios which will produce a range of strength encompassing those required for the work. Trial mixtures shall be designed for maximum permitted slump and air content. The temperature of concrete in each content. The temperature of concrete in each trial batch shall be reported. For each water-cemented ratio at least three strength shall be determined by ACI 301, Chapter 3, and Paragraph 3.8 method 1 or 2.

- Slump

Slump for vibrated concrete shall be minimum of 2 inch to a maximum of 4 inch as determined by ASTM C143.

H. BATCHING, MIXING, and TRANSPORTING CONCRETE

- Batch Plant

The plant shall be semi-automatic type and of sufficient capacity not to impair the construction time schedule. The semi-automatic plant is a system where batching weights are set manually and materials are batched automatically.

Site – Mixed Concrete

Measuring tolerances, mixing capacity, and time shall be in accordance with ACI 301, Chapter 7, and paragraph 7.2.

- Truck Mixers

When a truck is used to complete mixing of central plant batch of materials, all water shall be added at mixing speed before completing of mixing. Retempering of concrete will not be permitted. Each truck shall carry a ticket stamped by item clock to show date and time of the loading of each truck was completed.

I. PLACING CONCRETE

- Sequence of Concrete Placement

To control shrinkage defects placement of concrete for floors shall follow a checker board pattern. Joints line shall cross within middle third of beams, girders, and short spans of slabs, unless otherwise allowed by Construction Manager. Contractor shall submit a construction joint layout and sequence of concrete placement for approval of Construction Manager.

- Preparation of Placing

Excavation of forms shall be clean, free of debris of foreign materials. Reinforcement and embedded items shall be secured in position and shall be inspected and approved before placing concrete. Runways shall be provided for wheeled concrete handling equipment. Such equipment shall not be wheeled over reinforcement nor shall runways be supported on reinforcement.

- Placing Procedures

Concrete shall be delivered from central plant of final deposit in a continuous manner in the time interval specified and without segregation or loss of ingredients. Placing shall be suspended when the sun, heat, wind, or limitation of facilities furnished by Contractor prevents proper finishing and curing of concrete. Concrete shall be placed in forms or excavations as close as possible in final position, in uniform approximately horizontal layers not over 12 inch deep unless otherwise directed. Concrete shall not be allowed to drop freely more than 5 feet in unexposed work nor 3 feet in exposed work. For greater drop trunks or other approved means shall be employed. Conduits and pipes shall not be embedded in concrete unless specifically indicated or specified.

- Transformation Time Interval

Concrete mixed in central plant and transported by non-agitating equipment shall be placed and transported in the forms in 60 minutes.

- Placing in Hot Weather

Hot weather placing shall be in accordance with recommended practice of ACI 305, except that air temperature, reinforcement and form temperature exceeding 35 degrees C concreting shall be controlled as follows:

1. Concrete temperature during mix, transporting and placing shall not exceed 32 degrees C otherwise approved by the Construction Manager.
 2. Reinforcing Steel and Forms shall be protected from direct sunrays and shall be cooled with water immediately before concrete placing so that concrete temperature specified can be maintained.
 3. When cold joints tends to form or where surface set and dry too rapidly or plastic shrinkage cracks tend to appear, concrete shall be kept moist by sprays applied shortly after placement and before finishing.
- Conveying Concrete

Concrete may be conveyed by chute, conveyor, or pump if so approved by the Construction Manager. Aluminum chutes or pipelines shall not be used in conveying concrete. Approval will not be given for chutes or conveyors requiring changes in the concrete design mixed for desired operation.

Chutes and Conveyors

Chutes shall be steel or steel lined wood, rounded in cross section, rigid in construction protected from overflow and slopes not exceeding one vertical to three horizontals. Conveyors shall be designed to operate assuring uniform flow of concrete without segregation of ingredients, loss of mortar or change in slump.

Pumps

Placing concrete by pumping method shall confirm with ACI 304. Pumps shall be operated and maintained so that a continuous stream of concrete is delivered in the forms without air pockets, segregation or change in slump exceeding two inches.

- Placing Through Reinforcement

Where congestion of steel or other condition make placing of concrete difficult, a trim pipe shall be used. Recommended placing and consolidation practices shall conform to that outline ACI 304 and ACI 309.

J. COMPACTION

- Immediately after placing each layer of concrete shall be compacted by internal concrete vibration supplemented by hand spanding, rodding and tamping or other external vibration of forms will not be permitted. Internal vibrators submerged in concrete shall maintain a minimum frequency of not less than 8000 vibration per minute. The vibrating equipment shall be adequate in quantity and capacity required and shall conform to the requirement of ACI 309.

K. BONDING

- Before depositing new concrete on or against concrete that has set, the surface of the set concrete shall be thoroughly cleaned so as to expose the coarse aggregate. Form shall retighten and all surface moisture.

L. SLABS ON GRADE

- Subgrade under slabs within the building shall be covered with vapor barrier. Edge shall be lapped by not less than 6 inches and seal a pressure sensitive tape not less than 2 inches wide, compatible with the membrane. Concrete shall be placed continuously so that each unit of operation will be monolithic in construction. Concrete shall be placed in alternate checkerboard pattern terminating at crack control joints or maybe limited by expansion and construction joints. Cracks control joints shall be expansion control, or construction joints.

- Control Joints

Control Joints shall be performed by an insertion of hard pressed fiber guard strips inserted in plastic concrete. The joints shall be 1/8 inch wide and depth equal approximately 1/4" of the slab thickness, unless otherwise indicated on the drawings.

- Sealing

Concrete joints shall be filled with joint sealant except where floor covering is required.

M. SETTING OF BASE PLATE

- After being plumbed and properly positioned, base plates shall be provided with full bearing weight non-shrink grout except where expansive grout is indicated. The grout shall be packed by tamping or ramming with a bar or rod until voids are completely filled. For clearances of two inches or more than expansive grout shall be provided. Mixing and placing shall be in accordance with manufacturer's instructions. Grout shall not be retempered or subject to vibration. Temperature of the grout and the surface receiving the grout shall not exceed 32 degrees C.

N. CONCRETE FINISHES

- Floor and Roof Slabs

Finish floors and roof slabs surfaces shall be through plane surface without deviation in excess of 8 inches when tested with a 10-foot straight edge. Surface shall be pitched as shown.

- Other Than Floor And Roof Slabs

Within 12 hours after forms are removed, surface defects shall be prepared as specified hereinafter or as directed by the Construction Manager. Temperature of the concrete ambient air and mortar during repair work including curing shall not exceed 32 degrees C. Fine and loose materials shall be removed. Honeycombed, aggregate pockets, voids over ½ inch diameter and holes left by the reamed wetted, brush coated with neat cement grout and filled with mortar. Holes shall be packed full and all patchwork shall be damped cured for 7-day minimum.

For surface, which is not to receive architectural finish; the following additional measures shall be taken.

The concrete shall receive smooth finish by brush coating surface with cement grout composed by volume of one part Portland cement and not more than two parts fine aggregates passing number 30 mesh sieves and mixed with water to consistency of thick paint. Excess grout shall be scraped off with a trowel any visible grout film. The grout shall be kept damp by means of fog spray during setting period.

- **Non-Slip Finish**

The concrete shall be screened and flatted to the required finish level with coarse aggregate visible. Abrasive aggregate shall be uniformly sprinkled over flattened surface at a rate recommended by the manufacturer. The surface then shall be steel trowelled to a smooth, even finish that is uniform in texture and appearance. Immediately after curing, cement coating or laitance covering the abrasive aggregate shall be removed by steel be removed by steel brushing, rubbing or light sand blasting to expose abrasive particles.

- **Hardener**

Hardener shall be applied to expose interior concrete floor where indicated on the drawing and in accordance with the manufacturer's written installation.

- **Curing**

Concrete shall be protected against moisture loss, rapid temperature changes, mechanical injury and injury from wind or flowing water for a period of time corresponding to cementing material used as follows:

Portland Cement Type I 7days

1. **Monolithic finish**

Slabs shall be screened and flattened with straight edge to bring the surface to the required finish level with coarse aggregates visible. The concrete while still green but sufficiently harder to bear a man's weight without deep imprint shall be wood trowelled to a smooth even dense finish free from blemishes including trowel marks. Rough surface shall be provided for resilient flooring thin – set ceramic tile carpeting where no other finish is specified.

2. **Power machine Finish (option)**

In lieu of hand finishing, an approved power-finishing machine may be used. The preparation of surface by machine shall be in general herein before specified for hand finish. Finish surface shall be free of machine marks, ridges or other blemishes.

3. Rough Slab Finish

Tamp the concrete to force the aggregate away from the surface, then screen with a straight edge to produce a uniform surface. Rough slab finish surface shall be provided for ceramic tile, floor toppings, and insulation built-up roofing of terrazzo.

4. Broom Finish

The concrete shall be screened and flatted to required finish level with coarse aggregate visible. While concrete is still green, steel or wood trowel to uneven smooth finish and then broom with fiber bristle brush in a direction transverse to that of the maintained traffic broom finish surface shall provide for drive – ways and ramps.

5. Wood Float

The preparation of surface shall be in general herein force specified for monolithic finish. While surface is still green, wood float to an even textured surface. Curing procedure shall conform to ACI 308 and ACI 305. During the specified curing period, the concrete shall be maintained in the moist condition and temperature not over 90 degrees F.

CONCRETE REINFORCEMENT

A. SCOPE OF WORK

- Furnish all equipment, labor, plant and other facilities to complete the concrete reinforcement as shown on the drawings and herein specified.
- All work included under this division shall be subject to the General Conditions accompanying these specifications. The Contractor and Sub-Contractor are required to refer especially thereto.

B. APPLICABLE CODES AND STANDARDS

- The Standards and codes applicable to only a portion of the work specified in this section are reference in the relevant parts of clauses. Standards and codes, which are generally applicable to the work of this section, are listed hereinafter.
- ACI American Concrete Institute

Manual of Standard Practice for Detailing Reinforced Concrete Structures
Building Code Requirements for Reinforced Concrete

- ASTM – American Society for Testing and Materials

A185 Welded Steel Wire

Fabric for Concrete Reinforcement

A615 Deformed and Plain Billet – Steel Bars for Concrete Reinforcement

- CRSI – Concrete Reinforcing Steel Institute Manual of Standard Practice Placing Reinforcing Bars.
- AWS – American Welding Society Reinforcing Steel Welding Code

C. SUBMITTALS

- Details, Drawings and/or Shop Drawings

Fabrication installation and assembly drawings for all parts of the work in sufficient detail to enable to check conformity with Contract requirements. Drawings shall show details and dimensions of all component parts including plan and elevation views, cross sections and details.

- Test Reports

Shop test shall show the results of required test of materials, equipment or systems certified in writing by the manufacturer or its authorized representative.

Field Test Reports shall show the results of required field test and compliance with the approved procedures, certified by the Contractor.

D. MATERIALS

- Bars: ASTM A615 Grade 60 and Grade 40, 40.
- Bar Mats: ASTM A184, of mesh and bar size indicated on the drawings
- Welded Fabric Wire: ASTM A4976, or mesh and bar size indicated on the drawings.
- Drawn Wire: ASTM A82
- Bar Supports: Comply with CRS – WCRSI “Manual of Standard Practice”

Interior concealed areas: Class A “Bright Basic”

Interior exposed Areas: Class C “Plastic Protected.

Exposed painted or concealed: Class D “Stainless Steel Protected”

Exterior unpainted or exposed: Class E "Special Stainless Protected"

E. DETAILING AND FABRICATION

- Reinforcement

Provide concrete reinforcement, which is made from new billet steel and free from rust, dirt, oil and grease and any other foreign substances detrimental to bonding with concrete. Accurately bend or from fabricated bars to the shapes and dimensions shown using methods that will not damage materials. Do not weld unless specially shown or approved by the Construction Manager.

- Identification

Bundle and tag reinforcement with suitable identification to facilitate sorting transportation to, or storage and placing at the job site.

F. PLACING REINFORCEMENT

- Reinforcement shall be installed as shown.
- Tolerances

Maintain surfaces clearances dimensions shown, plus or minus ¼ inch. Secure reinforcement with accessories and tie wire to prevent displacement before and during concreting. Do not place concrete if bars are not properly placed with adequate support.

- Dowels

Secure in position prior to placing concrete

G. SPLICES

- Lap-splices all bars up to 36 mm in accordance with ACI 318, unless otherwise shown. Follow AWS D12.1 recommendations for welded splices where shown.

H. REPAIR

- Remove and replace damaged bars as directed.

CONCRETE FRAMEWORK

A. SCOPE OF WORK

- Furnish all labor, materials, equipment, plant and other facilities to complete the concrete form work as shown and hereinafter specified.
- All work under this division shall be subject to general construction accompanying this specification. The Contractor and Sub-contractor for this portion of the work as required referring specifically thereto.

B. APPLICABLE CODES AND STANDARDS

- The standards and codes applicable to only portion of the work specified in this section are referenced in the relevant parts of clauses. Standards and codes, which are generally applicable to the work of this section, are listed hereinafter.
- ACI – American Concrete Institute

301 Specifications for Structural Concrete for Buildings

318 Building Code Requirements for Reinforced Concrete

347 Recommend Practice for Concrete Formworks (ANSI A 145.1)

- ANSI – American National Standards Institute, Inc.

A199.1 Construction and Industrial Plywood

- Timber Design Standard – Philippine Association of Civil Engineers (PACE) CP 202, 1965.

C. SUBMITTALS

- Detail Drawings and Shop Drawings for all parts of the work in sufficient detail to enable the Construction Manager to Check conformity with the contract requirements. Drawings shall show the details.

D. QUALITY CONTROL

- Construction

Construction formworks so that concretes surface comply with ACI 347, Chapter 2 and 3.

- Hydraulic Pressure

The maximum allowable deflection of forming surface from concrete pressure is length/360 between supports.

E. MATERIALS

- Formworks Materials

Unless otherwise shown form materials shall be one of the following:

Plywood; ANSI A199.1 minimum—” in thickness

Form Lumber

Fiberglass reinforced plastic

Steel

- Blockouts and keyways

Wood or extended expanded polystyrene

- Ties

Bolt or standard snap ties for snap off 1 inch from surface with minimum working capacity of 3,000 lbs. Maximum size cones shall be —” in diameter.

- Chamfer Strips

Wood, polyvinyl chloride or neoprene

- Dovetail Anchor Slots

Standard size, 20 gauge galvanized steel with removable filler installed for abutting masonry and at 24 inch o. c. for facing masonry where shown.

- Flashing Reglets

26 gauged galvanized sheet, with removable filler and beveled edges.

- Anchoring Inserts

Approved propriety type inserts for the load capacity and use shown.

- Fabricated Embedments

Install only as shown and as specified.

- Form Release

Non-staining, non-reactive rust preventive guaranteed not to affect bond of surface application to concrete.

F. FABRICATION AND ERECTION

- Forms

Design, construct, erect, support, brace, maintain and remove forms in conformance with the requirements of ACI318 part 1, 2 and 3 exclusive and ACI347 for loads lateral pressure and allowable stresses; in addition to other design parameters such as wind loads.

- Shores

Shores shall be adjustable by screw jacks or wedges.

- Preparation of Forms

Clean forms before each use. All steel forms shall be free of rust and scale.

- Form Re-use: The Number of reuses is dependent on the resulting finish quality and is subject to approval.
- Form Joints; Forms shall be butted types.
- External Corner: Chamfered unless noted.
- Cleanouts: Where required provide temporary openings panels in the forms to facilitate cleaning, placing and inspection.
- Cambers: Where specified camber is noted position the forms to maintain hardened concrete lines with specified tolerances measured for camber lines. Camber is to maintain as noted plus or minus 3mm (1/8 inch) until shoring is removed.
- Form Release: Coat removable forms with forms release agent before reinforcing is placed and in accordance with manufacturer's instruction. Remove release agents from reinforcing steel embedments solvents recommended by the manufacturer.

G. STRIPPING AND RESHORING

- General: Do not remove forms or shoring until the concrete members have acquired sufficient strength to support their weight and subsequent construction loads without deflection. Forms shall be moved in a manner to assure safety of the structure.

- Time: Form and supports shall remain in place until the concrete has attained sufficient strength to support the loads to be applied but in no case shall they be stripped in less than the following minimum periods.

Columns	-	2 days
Walls	-	2 days
Sides of Beams and Girders	-	2 days
Floor Slabs	-	14 days
Shoring for Beams and Girders	-	14 days
Beam and Girders	-	14days

- Reshore: Reshore immediately after stripping slab, beams and girders that support subsequent formwork. Retain reshore for as many levels as required to combine the liveload capacities of cured floors to support the loads of the subsequent fresh construction loads. Reshore at minimum of two consecutive levels.

MASONRY WORK

A. SCOPE OF WORK

- Furnish all labor, materials, equipment, plant and other facilities and perform all operations on necessary to complete the Masonry Work requirements hereinafter specified.
- All work under this Division shall be subject to the General Conditions accompanying these specifications. The Contractor and Sub-Contractor for this portion of the work are required to refer specifically thereto.

B. MATERIALS

- Concrete Hollow Blocks: Shall be Machine Bilt, Non-Load Bearing (NLB) or approved equivalent. Minimum face shell thickness shall be 1" Nominal face 7" x 17" normal thickness shown. Hold all units in storage for a period of not less than 28 days (including curing period) and do not deliver prior to that time unless strength and other test indicate compliance with this specification.
- Mortar Aggregate: Natural river sand, clean free from soluble salts and organic matter, grades from fine to coarse, compatible with the thickness of joints in which used.
- Cement: Shall be Portland cement/Union Premium or approved equal.
- Mortar:

General: Mix mortar from 3 to 5 minutes in such quantities as are needed for immediate use. No retampering will be permitted on mortar stiffness because of premature setting. Discard such materials, as well as those that have not been used within one hour after mixing.

Proportioning: Cement mortar shall be one (1) part Portland Cement and two (2) parts sand by volume but not more than one (1) Portland cement and three (3) parts sand by volume.

C. HANDLING AND STRUCTURE

- Take care in handling masonry units to avoid chipping and breakage. Locate storage piles and stacks so as to avoid being disturbed. Barricade to protect from damage by construction operation. Stack masonry units, reinforcement and other materials on wood blocking above ground.

D. SCAFFOLDING

- Provide all scaffolding required for masonry work, including cleaning down on completion, remove.

E. SAMPLES AND TESTING

- Sample blocks shall be taken at random from every one thousand (1000) blocks delivered. Average strength of concrete hollow blocks shall not be less than 400 lbs. per square inch. Test shall be at the expense of the Contractor.

F. CUTTING AND PATCHING

- Consulting other trades in advance of masonry work and make provision for installation of their work to avoid unnecessary cutting and patching. Experienced masons shall do all cutting and patching.

G. HOLLOW METAL FRAMES

- Fill jamb of all pressed steel hollow frames occurring in masonry walls with mortar and carefully point all joints between metal frames and adjacent masonry and other construction.

H. WALL FLASHING

- Build in wall flashing at base of cavity wall formed to exclude water, bended in and covered with mortar. Keep joints to a minimum but where necessary, lap 6' and seal with plastic cement.

I. LAYING CONCRETE BLOCKS

- Lay units in common bond with uniform coursing and jointing. All concrete block joints shall be uniform thickness, approximately 3/8 tooled concave where exposed and flush

cut where concealed, making 16' x 8' course. Butter vertical and horizontal joints full with mortar.

Bond courses at corners and intersection and tie to abutting walls as per TRU-LOK Specifications.

Reinforce concrete block walls continuously in two 2) consecutive courses below openings; using TRU-LOK shall be provided at every 16" of vertical wall height for load bearing walls. Lay units full thickness of partition from floor slabs to height shown, and where necessary cut.

GLASS AND GLAZING

A. SCOPE OF WORK

- Furnish all labor equipment, plant and other facilities required to complete all glazing work as shown in the plans and schedule and hereinafter specified.
- All work included under this division shall be subject to the General Conditions accompanying these specifications. The Contractor and the Sub-Contractor for this portion of the work is required to refer especially thereto.

B. GENERAL

- The type and the location of the glass are indicated. Determine the actual size by measuring the opening to be glazed, each piece of glass shall bear the Manufacturer's label giving his name and the quality, type and thickness of the glass. Do not remove label until final cleaning.

C. MATERIALS

- All glass for the aluminum storefront and drops shall be..." thick tinted polish plate glass as indicated in the schedule of windows and shall be those manufactured by the Republic Glass or approved equal.
- Size shall be those shown on the drawings.

D. SHOP DRAWINGS

- The Contractor shall furnish copies of the drawings showing dimensions and details and indicating all necessary items to the Architect for approval.
- Any correction required by the Architect shall be done immediately by the Contractor and corrected copies of drawings affected shall be returned to the Architect. The examination and approval of shop drawings by the Architect shall not relieve the Contractor from any obligation to perform the work strictly in accordance with plans and specifications. The responsibility for errors in shop drawings shall remain with the Contractor.

E. INSTALLATION OF GLASS

- General: Employ only skilled labor. Set glass without springing, accurately fitted and carefully set using setting and spacer blocks in accordance with the recommendation of the glass manufacturer. Set all glass before final painting. Take every precaution to insure first-glass free from edge chips cracks or other defects and all glazing materials properly installed to meet approval.
- Examination of Surfaces: Before commencing the setting examines surfaces and report to the Architect in writing any defect in it. Commencement of work shall indicate the acceptance of the surface as satisfactory.
- Breakage: The Contractor shall be responsible for all glass broken because of faulty setting and shall be replaced at his expense.
- Expansion: Allow for expansion of glass as per manufacturer's recommendation.

F. GUARANTEE

- Furnish guarantee to Owner as per requirements of the General Conditions for the period of one year after date of final acceptance of building.

WATERPROOFING

1. SCOPE OF WORK

- Furnish all materials, equipment, labor, plant and other facilities to complete all waterproofing works as shown on the plans and hereinafter specified.
- All work included under this division shall be subject to the General Conditions accompanying these specifications. The Contractor and Sub-Contractor are required to refer especially thereto.

2. WATERPROOFING OF PARAPET AND ROOFDECK

- Materials
- Materials shall be Cold Applied Waterproofing or approved equivalent.
- Applications

The concrete surface shall be wood troweled smooth, firm, dry, clean and free of loose or foreign materials and without any projects, indentation and other imperfections. Cabinets shall be installed in the angle formed by the floor and adjoining vertical wall. All drainage connection shall be set to permit free flow of water.

On this concrete surface, apply 2 coats of Cold Applied Waterproofing to a roofdeck and vertical wall to a height of 10" (250mm) unless otherwise shown on the drawings surrounding the area to be waterproofed.

Sprinkler fine sand topping

Apply 2 base coats of Cold Applied Waterproofing and apply 2 topcoats of 2mm thick of Polyethylene sheet.

The installation of the waterproofing shall be done by an approved roofing contractor by the manufacturer.

No substitution of materials shall be made unless authorized in writing by the Architect prior to starting the work of waterproofing.

All materials composing the waterproofing underlayment shall be delivered into the job in unopened bags, pails and packages clearly labeled by the manufacturer's name.

- All the request of the Architect, the Contractor shall deliver to the Architect the following:

Samples of the materials proposed for use as waterproof underlayment, clearly labeled as to brand name manufacturer's name.

The manufacturer's complete printed specifications for the application of the materials.

C. FLOOR HARDENER

(For Transformer vaults room. Emergency Genset, Electrical Room, Pump Room and elevator machine room.)

- The concrete floor shall be monolithically finished with "Koradur" non-ferrous colored floor hardener in accordance with manufacturer's specifications for heavy-duty floor of 1.00 lbs. of "Korudur" per square foot of floor area. Colors to be approved by the Architect.

D. WATERPROOFING OF ALL EXTERIOR WALLS

- Materials

Class B concrete
Thoro-Seal White

- Application

Pour all holes of exterior concrete hollow blocks with class B concrete (coarse, aggregates shall be of such size so that no voids are formed) with Thoro-Seal White of the type recommend by the manufacturer.

E. GUARANTEE

- The Contractor shall guarantee that work specified in this division shall be free from defects of materials and workmanship for period of five (5) years from the date of acceptance.
- The Contractor shall make good all damages or failures resulting from the use of defective materials and poor workmanship.
- The following failures will be considered as defective work.

Leakage

Peeling of waterproofing materials

Delaminating of plies

Air bubbles

- Approved Equal Brand

Other approved equal brands shall be those that are representative by well-established firms to insure the period of guarantee.

HARDWARE

A. SCOPE OF WORK

- Furnish all labor equipment, and other facilities required to complete the installation of hardware as shown on the drawings and hereinafter specified.
- All work included under this division shall be subject to the General Conditions Accompanying these specifications. The Contractor and Sub-Contractor for this portion of the work are required to refer specifically thereto.
- The intent of the specifications is to cover the complete hardware requirements for this building, and any hardware called for in the specifications not shown on the drawings or vice versa shall be furnished the same as if it were shown on the drawings and called for in the specifications. Also any hardware which has been omitted from both drawings and specifications but is evidently necessary for complete building shall be finished the same as if it were shown on the drawings and called for in the specification.

B. GENERAL

- Determine the quality of hardware to be furnished from the drawings and schedules. Provide all complete finish hardware for doors and other movable parts of the building with exception of items specified elsewhere or not included.
- The hardware herein specified are given as a means of describing the type, materials, strength, design, quality, weight, mechanical constructions, operation and requirements to which such hardware shall conform.
- It is the responsibility of the contractor to thoroughly check the drawings and specifications and to furnish all required materials whether specifically mentioned or not.

C. FINISHING

- Hardware finishes specified are in accordance with U.S. Standard finishes flush bolts, push plates, pulls, and knobs and other finishing hardware shall be polished chromium plated over nickel or brass (US 26/625).

D. PROTECTION

- After hardware has been properly fitted exposed items such as door knobs, escutcheons, plates, locks, etc. shall be removed after final coat has been applied. All hardware unless to be painted over, that are not removed after painting shall be properly masked.

E. HARDWARE LOCATION

- Unless otherwise specified locate hardware as follows;
Doorknobs shall be 39" from finished floor level to center knob.
Push plates shall be 50" from finish floor level to center of push plate.
Door pulls shall be 40" from finish floor level to grip center.
Cylinder dead lock shall be 55" from finish floor level to center of lock.
- Butt Hinges : the number of butt hinges to be furnished for each door shall be determined as follows :

For door 5'-0" high less, provide two (2) butts.

For door 5'-0" high less than 7'-0" high provide three (3) butts.

For doors over 7'-0" high unless otherwise required, provide additional one (1) butt for every 2'-0" or fraction thereof.

For metal doors, provide four (4) heavy duty hinges per cash. Butt hinges shall be 8" from top and bottom of door to center of hinges and the rest equally spaced.

F. HARDWARE SCHEDULE

- Refer to schedule on drawings

G. GUARANTEE

- Furnish guarantee to the owner as per requirements of the General Conditions for one year after date of final acceptance of building.

ROOFING WORKS

A. SCOPE OF WORK

- The work under this division shall include all labor equipment; plant and other facilities and the satisfactory performance of all work necessary to complete all the roofing works as shown on the drawings and hereinafter specified.
- All work included under this division shall include all labor equipment, plant and other facilities and the satisfactory performance of all work necessary to complete all the roofing works as shown on the drawings and hereinafter specified.
- All work included under this division shall be subject to the General Conditions accompanying this specifications. The Contractor and Sub-Contractor for this portion of the work are required to refer especially thereto.

B. ROOFING MATERIALS

- All roofing materials including accessories will be supplied by the Contractor.

C. INSTALLATION

- Lay roofing sheets as per manufacturer's recommendations with overlaps oriented following storm wind direction. Manufacturer's installation details.
- All roofing works shall be done by experienced tinsmiths known to the Contractor.
- Rat proofing works shall be in accordance with ordinances of the National Building Code and its Implementing Rules.
- All welded and soldered connection in the roofing shall be painted by red lead paint then painted to match color of roofing sheets.

D. GUARANTEE

- Furnish guarantee to the owner as per requirements of the general conditions for period of one year after date of final acceptance.

PAINTING

A. SCOPE OF WORK

- Furnish all labor materials, equipment, plans and facilities to complete all painting and varnishing as shown and hereinafter specified.
- The Contractor shall examine the specification for the various other trades and shall thoroughly familiarize himself with the items and surfaces of work to be included.
- All work included under this division shall be subject to the General Conditions accompanying this specifications. The Contractor and Sub-Contractor for this portion of work are required to refer especially thereto.

B. GENERAL

- This work includes interior and exterior painting and finishing of all items as required to produce a finished painting job throughout all of the areas affected by work under this contract, except items which are specifically excluded.
- Complete color scheme for the painting of the building (exterior and interior) shall be furnished by the Architect to the Contractor. Color schemes samples required by these specifications and/or by the Architect shall be submitted by the Contractor for approval at his expense.
- All exposed work shall be protected while the building is being painted. The floor steps and all other surfaces not to be painted shall be well protected during painting by sufficient covers. Any stains, dirt, smear, etc. shall be removed by the Contractor to the satisfaction of the Architect.

C. SURFACES NOT TO BE PAINTED NOR VARNISHED

- Neither paint nor varnish shall be applied on finish like glazed tiles, glass, plastic, brass, bronze, aluminum and other corrosive metal finishes.

D. MATERIALS

- Make and Certificate of Origin and Quality
- All paint materials shall meet the requirements of the Standard Specifications of the Standardization Committee on Suppliers and shall be delivered on the site in the original containers, with label intact and seal unbroken.
- The manufacturer's certificate of origin and quality shall be submitted to the Architect for inspection and approval before using any of the paint materials herein specified.
- Use materials only as specified by manufacturer's direction on label of container unless otherwise specified herein.

- Paint materials only as specified by manufacturer's direction on label of container unless specified herein.
- Paint materials such as linseed oil, shellac, turpentine etc., shall be pure, higher quality and should bear identifying label on container.
- The use of white zinc (lithopone) shall not be allowed.
- Pigment for Tinting
- Tinting color for oil paint shall be color -in-oil, ground in pure linseed oil, and of the highest grade obtainable.
- Colors shall be non-fading.
- Color pigments shall be used to produce the exact shades of paint, which shall conform to the approved color scheme of the finish coat. The first coat shall be white.

E. INSPECTION OF SURFACES

- The Contractor shall inspect all surfaces to be painted and all defects shall be remedied before starting work. Commencing of work by the Contractor indicates his acceptance of the surface.
- No work shall be started unless the Contractor shall have made certain as to the dryness of surfaces. Tests shall be made, in the presence of the Architect or his representative, to verify dryness of surfaces to be painted.

F. PREPARATION OF SURFACE

- All concrete shall be allowed to weather for two months before painting.
- Clean all surfaces to be painted and varnished off loose dirt and dust before painting is started. Do the customary amount of sanding in the Architect's opinion to produce a surface suitable to receive paint or varnish.
- Inspect all surfaces with regards to their suitability to receive a finishing. In the event that imperfection due to materials or workmanship appear on any surfaces after the application of the paint the cost of any correction shall be borne by the Contractor. Damages to any painted or varnished finish due to carelessness or negligence of others shall be corrected.
- Touch all knots, pitch streaks and sappy spots with shellac or other approved sealer. Putty nail holes cracks, etc. after the first coat with non-shrinking putty of a color to match that of the finish.
- Wash all metal surfaces with benzene, mineral spirits, or detergent to remove any dirt or grease before applying materials. Where rust or scale is present, wire brush or sandpaper cleans before painting. Where shop coats of paint have become marred clean, and touch

up with a compound designed for this purpose, or approved acid solution before applying the first coat of paint.

- Prepare masonry surfaces to be painted by removing all dirt, dust, oil and grease stain and efflorescence. The method of surface preparation shall be left to the discretion of the Contractor provided that the result is satisfactory to the Architect. Masonry surfaces to be painted shall be free from alkali and thoroughly dry before paint is applied.
- Before applying succeeding coats, primers, and undercoats shall be completely integral and performing the function for which they are specified. Properly prepare and touch up all scratches, abrasions, or any other disfigurement and remove any foreign matter before proceeding with the following coat.
- Do not apply final coat on interior work until after others are finished with their work in any given area in normal sequence and all materials and debris removed, and the premises left in satisfactory broom clean condition as approved.
- Remove or protect hardware, hardware accessory plates, lighting, fixtures and similar items placed prior to paintings or remove protection upon completion of each space. Disconnect equipment adjacent to walls where necessary move to permit painting of all wall surfaces, and following completion of painting, replace and reconnect.
- Paint the backsides of access panels, removable or hinged covers and the like.
- All wood shall be sanded lightly with #00 Sandpaper between coats. Paint coats shall be thoroughly dry before sanding.

G. WORKMANSHIP

- All painting and varnish work shall be done in workmanlike manner by skilled house painter and varnisher only.
- All materials shall be evenly applied, so as to form a film of uniform thickness, free from sags, runs, crawls, or other defects. The use of heavy brush (nylon brushes for oil paints) is required. Light brushes shall not be permitted. Paint shall be thoroughly stirred so as to have the pigment evenly in suspension while paint is being applied.
- In general or unless otherwise specified, and/ or instructed by the Architect due to actual conditions on the job, no less than 48 hours time shall elapse between application of succeeding coats. Each of paint shall be allowed to dry thoroughly and inspected for approval before the succeeding coat is applied.
- No oil painting shall be done in damp weather.
- Except where otherwise noted or specified all paints shall be applied in three coats (priming body and finish coats). Each coat shall be roller applied (except as otherwise noted) spread evenly and in full covering body.
- No work shall be done in conditions unsuitable for the production of good results. No painting or varnishing on woodwork shall be done while plastering is in processor is drying.

- Surfaces which cannot be satisfactorily finished on the number of coats specified shall have additional coats or such preparation coats and subsequent coated as many as may required to produced satisfactory finished work without additional cost to the Owner.
- Spray gun application shall be used where indicated in the color schedule.
- All parts of molding and ornaments shall be left clean and true to details.
- All finishes shall be uniform as to sheen color and texture, except when glazing is required.
- The Painting Contractor since he is the last tradesman on the project shall include in his work all final clean up and washing of glass, spots on floors, hardware fixtures, etc.

H. PAINTING SCHEDULE

- The type of paint specified are intended to illustrate the quality and are taken from paint catalogue equivalent materials from manufacturers listed herein, which the Contractor desires to use other than those specified should accompany proposal with such request in writing for approval by the Architect. Give manufacturers name, specific name of each product offered as a substitute. After the award, no substitution of materials for those mentioned in the accepted proposal will be permitted. Other brands of paint and primer are the following: Dutch Boy; Sinclair; Sherwin Williams; Boysen; General Paint and Finch.

Exterior Concrete Walls

Cement Plaster over Concrete give:

- 1 Coat Concrete Primer
- 1 Coat Concrete Sealer
- 1 Coat Latex Flat Paint (Primer)
- 1 Coat Latex Flat Paint (Finishing)

Exterior and Interior Work

Metal steel doors, frames, railings, balusters, and grating give:

Coat Primer Paint

Coats Quick Drying Enamel

Apply one generous coat of "Raincheck "water repellant by spraying on all exposed non-painted concrete finish.

Interior work

- Plywood walls (painted) give: (Roller Painted)

- 1 Coat flat wall enamel washable paint after which putty all over and sand smooth
- 1 Coat interior Primer Sealer
- 1 Coat paint (Flat Enamel Paint)
- Plywood ceiling give: (Roller Painted)

- 1 Coat Flat Enamel Paint
- 1 Coat Sealer
- 1 Semigloss Enamel Paint

- Cement plaster and sunblasted finish over concrete and hollow concrete blocks, give:

- 1 coat interior primer sealer
- coats Flat Wall enamel washable paints:

I. GUARANTEE

- The Contractor shall guarantee his work for a period of one (1) year from date of the acceptance. Under such guarantee, the Contractor shall make good any defect due to faulty materials or workmanship caused by him by without any additional cost to the Owner for the period specified.

WOOD AND PLASTICS

A. SCOPE OF WORK

- Furnish all materials and equipment and perform labor required to complete wooden framing and related rough carpentry work as indicated in the drawings and/or specified herein.
- Include in the works, nailing strips, scaffoldings, plates, straps, joists, hangers, rods, dowels, rough hardware, fasteners, and other miscellaneous iron and steel items pertinent to rough carpentry work.

B. STORAGE AND PROTECTION

- Stack framing lumber to insure against deformation and maintain proper ventilation.
- Protect Lumber from elements.
- Lumber in contact with concrete masonry shall be coated with two (2) coats of asphalt, applied hot.
- Temporary Protection

Provide and maintain temporary protection of the work as required to safeguard completed or partially completed work during the progress.

Provide all the necessary rough stairs, ladders, runways, for convenient access to all parts of the building until other permanent facilities are in place.

C. SCOPE OF WORK

- Lumber

Moisture content – not to exceed 18 percent

Grade and Trade Mark – required on each piece of lumber. All lumber including scaffoldings, conforming to 63 % stress grade lumber in accordance to the requirements of the National Structural Code of the Philippines, Volume 1, latest edition.

Refer to summary of Materials and Finishes

Substitution of Lumber

Any lumber equally good for the purpose intended may be substituted for kinds specified, provided however, that the substitution be authorized in writing by the Architect.

D. ROUGH HARDWARE AND METAL FASTENERS

- Plates, straps, nails, spikes, bolts, joists, hangers, rods, dowels, fasteners, and miscellaneous iron steel items shall be of sizes and types to rigidly secure member in place.
- Execution

Fit carefully mortise and tenon joists of all framing including tongues and grooves of sheathing. Anchor all frames coming in contact with concrete, unless otherwise specified, by means of 20 D nails, spaced not more than 0.20 m (8") apart all around the contact surfaces. Plane and dress side of frames that will receive the wallboards or sidings.

Wood nailers shall be in accordance with detail drawings or mentioned herein, nailing strips shall be 1" x 2" at 16 inches on centers both ways. Fasten securely by expansion bolts or other approved device at every (2) feet on center.

Make all exposed nails countersunk. Do scrubbing, metering and joining accurately and neatly to conform to data

MILLWORK

A. SCOPE OF WORK

- Furnish materials and equipment and perform labor required to complete wooden jambs and doors and ceiling panels and related rough carpentry work indicated in the drawings and/or specified herein. Coordinate work with all other trades.

B. STORAGE AND PROTECTION

- Protect millwork against dampness during and after delivery.
- Do not bring in interior finish, including doors into building until plaster thoroughly dry.

C. PRODUCTS

- Lumber

Kiln dried, selected, quarter sawn containing not more than 12 % moisture, free from imperfections impairing its strength, function and appearance with the same shade, color, grain configuration.

Trademark is required in each piece of lumber.

- Plywood

For interior plywood, use class B plywood whose species and thickness conform to schedule and drawings.

- Finish Hardware

D. EXECUTION

- Workmanship

Make all wood finish and millwork true to details clean and sharply defined.

Set panels to allow free movement in case of swelling shrinkage.

Conceal means of fastening various parts together.

E. FINISH

- Mill fabricates and erects interior finish as indicated on the drawings. Machine sand at the mill and hand smooth at the job.
- Separate with ¼ inch stone-cut joints all interior trims set against concrete masonry or wood.

- Make joints tight and in a manner to conceal shrinkage. Secure trim with fine finishing nails, screws, or glue where required.
- Set nails for putty stopping.
- Make window and door trim single length.
- Meter molding at corner, cope at angles.

F. WOOD JAMBS

- Set doorframes plumb and level and brace until built-in.
- Anchor wood frames to masonry with approved metal anchors on each side of jamb. Place top and bottom anchors 8 inches from head to floor.

G. WOOD SHELVING

- Each shelf shall be supported on a continuous wood cleat at walls.
- Secure cleats to masonry walls by expansion bolt or approved fastening device.

H. HARDWARE

- Accurately fit and install all required finish hardware items.
- If surface-applied hardware is fitted and applied before painting, remove all such items, except butts, and reinstall after painting work is completed.

WOOD DOORS

A. SCOPE OF WORK

- Furnish all materials and equipment and perform labor required to complete flush doors / panel doors.

B. SAMPLES

- Submit sample corner sections of wood doors and jamb for approval of the Architect.

C. PROTECTION

- Protect door adequately from scratches, and other stains with heavy building paper

D. PRODUCTS

- Fabricates

Assemble joints and doors with water resistant glue. Keep door under pressure until glue has thoroughly set.

Sand smooth finish doors. Provide with joints and clean cured molding.

Keep faces free from defects or machine marks that will show through the finish.

Flush doors Hollow Core

Provide doors with cross bending/solid section and edging. Make face veneer first quality-selected plywood or lawanit as indicated in the drawings or as specified herein.

E. EXECUTION

- Installation

Cut, trim and fit each door to each frame and hardware accurately.

Give allowance for painter's finish and possible swelling or shrinkage.

Provide not more than 1/8-inch clearance at lock end hanging styles and not more than ¼ inch at bottom.

Round all corners to 1/16-inch radius. Level slight lock and rail edge.

All doors shall operate freely and all hardware shall be properly adjusted and functioning.

GLASS JALOUSIE / STEEL WINDOWS AND FRAMES

A. SCOPE OF WORK

- Unless otherwise specified, the Contractor or his Sub-Contractor shall furnish all materials, tools, equipment apparatus, transportation, labor, supervision, management, and incidentals necessary and required for the completion and satisfactory performance of work in strict accordance with this section of the specification and the applicable drawings, subject to the terms and conditions of the Contractor.

B. SHOP DRAWINGS AND SAMPLES

- The Contractor shall before proceeding with the manufacture/assembly glass jalousie/steel windows prepare and submit complete manufacturing and installation drawings in full size and in triplicate, together with samples of member, section and hardware to be used for the approval of the Architect. Windows to be manufactured shall conform to the approved drawings and samples.
- Submit shop drawings of metal windows for approval. The drawings shall show complete details of construction, anchorage and samples.
- Guarantee

All steel works shall be guaranteed for one year from final acceptance of the Owner and the Architect.

C. PRODUCTS

- All members shall be hot-rolled new billet steel with frame and ventilator section not less than 25mm deep from front to back. Frame members to be of equally designed section only at points where called for by the detail drawings and continuous angle pins, as indicated on drawings shall be furnished. For frame at sills, zee type section of special design. With offset permitting downtrend left of the vent member to set flush when vent is in a fully closed position shall be used. Ventilator member shall have integral weathering baffles providing double flat weathering contacts of not less than 6mm width on all four sides of the vent. Muntin shall be 22mm x 25mm rolled to a section.

D. EXECUTION

- Construction
- Corners of vent shall be metered, electrically butt-welded and ground smooth. Corners of frame and all other window, joints and intersection of muntin with frame and vent members shall be coped and electrically welded. Muntin bars except where ventilators are to be continuous from head to sill and from jamb to jamb. Muntin cross joints shall be rigidly and neatly interlocked with faces flushed. Frame section and vent sills shall have weep-holes to provide drainage. Continuous weather drips shall be provided where required at the heads for side hinges ventilators or door. Windows and doors shall be designed for glazing from the outside with wire glazing clips and steel casement putty. All units shall be prepared for and supplied with necessary standard hardware, and for screen plans or drawings.
- Mullions

Rolled-steel T-bars, pipes, plate or other formed section or a combination of the as shown on drawings shall be furnished where two or more window units are installed in the same opening.

- Installation

No window unit shall be allowed, in any case, to be installed in place in the formwork previous to pouring concrete. Instead, grooves for grouting shall be caused to be formed along the side and heads of wall openings as indicated on detail.

Windows shall be erected and prepared openings by experienced window erection men. They be set plumb and true securely wedged and anchored as shown on detailed drawings and held in alignment during construction. All contacts between window and door wall units and adjacent steel including mullions shall be tightly sealed or bedded in mastic or approved sealing compound applied by the Contractor Ventilators shall be carefully adjusted before glazing.

Standard anchors, clips, and mullions, bolts or screws shall be provided by the window manufacturer provided suitable sinkages and frames for all mortised or counter-sunk hardware and insert steel reinforcement drilled and tapped for attaching all hardware. Frames in masonry shall have steel adjustable anchors for each jamb, spaced approximately 0.60m on center. Provide special anchors for securing to concrete as detailed.

Steel Doorframes or jambs formed to details shown with rebates to receive the doors. Make allowance of not more than 3mm clearance for doors. Neatly form all returns and edge. Frames shall be smooth and free from warp and buckle, the finish work shall be strong and rigid, neat in appearance and free from corners, and shall be reinforced and may be metered, their full length welded length and dressed of flush on the exposed surface. Meters shall be well formed and in true alignment. Set frames properly and braced against displacement during construction operation. During masonry work, grout the jambs solidly with masonry mortar. Protect all metal frames during construction.

- **Field Painting**

Prior to or immediately after steel windows has been erected and before glazing, one coat of oil-based metal protective paint shall applied. A second coat shall be applied after putty has dried and set, not sooner than 3 weeks after glazing.

- **Glass and Glazing**

Windows shall be glazed from the outside, using steel grade sash compound. Glass panels shall be bed-putted secured in place by copper-covered spring wire glazing clips furnished by the door manufacturer, and then face-puttees to a neat trim line. Glass shall be 6mm thick, clear, American or European made, unless other thickness is indicated on the drawings or as specified in the Schedule of Windows.

CEMENT FINISHES

A. SCOPE OF WORK

- Furnish materials and equipment and perform labor required to complete all plain cement, plaster finish.
- Samples

Submit test panels for Architect's approval before execution of the work.

B. EXECUTION

- Plain cement plaster finish

Provide all walls indicated with three coats of cement plasters (scratch coat, brown coat, finish coat). Mix each coat in the proportion of 1 part Portland Cement to Three parts sand by volume.

Apply the scratch coat with sufficient materials and pressure to insure a good bond and then scratch to a rough surface. Provide a thickness of 3/8-inch scratch coat.

Apply brown coat one day after applying scratch coat, with a thickness of 3/8 inch and level to a flat even surface. When stiff enough, trowel with a wooden float and cross hatch or broom lightly and evenly to secure a good mechanical bond for the finish coat. Wet the surface and keep from drying out for at least three days.

Apply finish coat seven days after the application of brown coat. Provide thickness of 1/8 inch. Keep the finish coat damp but not saturated for a period of seven days.

CERAMIC TILEWORK

A. SCOPE OF WORK

- Furnish materials equipment and perform labor required to complete all types of tile works.
- Samples
- Submit samples of floor and wall tiles including all required beads and moldings.

B. EXECUTION

- Application of scratch coat.

Thoroughly dampen but not saturated, surfaces of masonry or concrete walls before applying the scratch coat. Make surface areas appear slightly damp. Allow no free water on the surface.

On masonry, first apply a thin coat with pressure, then bring it out sufficient to compensate for the major irregularities on the masonry surfaces to a thickness of not less than 1/4 inch at any point.

Evenly rake scratch coats, but not dash coats, to provide good mechanical key for subsequent coats before the mortar applied by dashing until it has hardened.

On surfaces not sufficiently rough to provide good mechanical key, dash on the first coat with whisk brown or otherwise disturb mortar applied by dashing until it has hardened.

- Floor Tile Installation on Mortar Bed

Before spreading the setting bed, establish lines of borders and center the field work in the both directions to permit the pattern to be laid with a minimum of cut tiles.

Clean concrete sub-floor then moistens but not soaked. Afterwards, sprinkle dry cement over the surface and spread the mortar on the setting bed.

Mix mortar and one part Portland Cement to three parts sand. Tamp to assure good cover the entire area and screened to provide a smooth and level bed at proper height and slope.

Pitch floor to drains as required.

After setting bed has set sufficiently to be worked over, sprinkle dry cement over the surface and lay tile.

Keep tile joints parallel and straight over the entire area by using straight edge.

Tamp the tiles solidly onto the bed using wood blocks of size to ensure solid bedding free from depressions.

Lay tiles from centerlines outward and make adjustment at walls.

- Wall the installation on mortar bed.

Before application of mortar bed, dampen the surface of the scratch coat evenly to obtain uniform suction.

Use temporary or spot grounds to control the thickness of the mortar bed. Fill out the mortar bed even with grounds and rod it to a true plane.

Apply the mortar bed over an area no greater than can be covered with tile while the coat is still plastic.

Allow no single application of mortar to be $\frac{1}{4}$ inch thick.

Completely immerse wall tiles in clean water and soak of at least $\frac{1}{2}$ hour. After removal, stack tiles on edge long enough to drain off excess water. Re-soak and drain individual tiles that dry along edges.

Apply a bond coat $\frac{1}{32}$ – $\frac{1}{16}$ inches which to the plastic setting bed or to the back of each sheet or tile.

Press tiles firmly into the bed and beat into place within one hour.

Lay tile fields in rectangular block areas not exceeding 25 by 25 inches.

- Grouting

After tile has sufficiently set, force a maximum of grout into joints by trowel, brush or finger application

.

Before grout sets, strike or tool the joints of cushion-edgetile to the depth of the cushion

Fill all joints of square-edged tile flush with the surface of the tile. Fill all gaps and slips.

During grouting, clean all excess grout off with clean burdock, cloth or sponge.

- Cleaning

Sponge and wash tile thoroughly with clean water after the grout had stiffened. Then clean by rubbing with damp cloth or sponge and polish

Clean with dry cloth.

RESILIENT TILE FLOORING

A. SCOPE OF WORK

- Summary

The General Conditions apply to all work under this section of the specification.

- Unless otherwise specified, the Contractor shall furnish all materials, tool, equipment, apparatus, appliances, transportation, labor, supervision, management and incidentals necessary and required for the completion and satisfactory performance of work in strict accordance with this section of the Specifications and the applicable drawings, subject to terms and conditions of the Contractor.

B. PRODUCTS

- Vinyl Tiles

Details and color schemes to be determined by Architect.

- Tile Adhesive

As manufacturer's specifications.

- Floor Divider Strips

Heavy top strips, brass ¼ inch top thickness with an offset or projection below the top of the strip and extending it from one side.

C. EXECUTION

- Preparation of surface

Clean the floor thoroughly of all dirt, grease, paint drops, etc. leaving a surface suitable for the installation of the vinyl tile the resulting concrete surface therefore, shall be smooth, even thoroughly dry and clean, before a layer of the manufacturer's adhesive is laid to receive the tile in accordance with the manufacturer's primer.

If the Engineer so requires, because of the concrete surface conditions, the manufacturer's primer shall prime the concrete surface.

- Laying Vinyl Tile Workmanship

The Vinyl Tiles shall be laid according to details and color scheme approved by the consulting Architect and shall be carefully matched and the seams cut. All seams and edges shall be cemented carefully snug fit with the manufacturer's adhesive for the purpose. The surface of the finish floor shall be left smooth, clean and in first class condition.

Only experienced men shall be employed in this work.

All borders shall follow the line of the permanent fixtures and the width of the border may vary to allow for variations in the dimensions of rooms, size of tiles and design selected. The tiles shall but against the base floor level. Approved metal moldings shall be provided at door openings and such points where so required.

Do not begin work until work of other trades including painting has been completed.

- Floor divider metal

Floor divider strips (heavy top strip), ¼ inch thickness with an offset or projection below the top of the strip and extending from it on one side, shall be laid straight and true between Vinyl Tile flooring and other floor finishes like cement, terrazzo, granolithic, tile, etc. This projection provides a bearing surface for a vinyl tile and brass strips to the flush. Where jointing occur at door openings, strips shall be set directly under center of doors.

- Cleaning, Waxing, and Polishing

At completion of the work, the Contractor shall clean all Vinyl Tile works, remove all cement dirt or other foreign substances.

Apply two coats of water emulsion wax and polish each coat to produce a well-polished finish.

Do not permit traffic on finished floors unless they are protected with heavy papers.

- Adjustments

The installation shall be thoroughly inspected and all necessary adjustment shall be made within one-month time.

Tiles that have not "seated" in level glance with surrounding tiles shall have heat applied locally or quickly rolled to surrounding floor tile level. Repair tile showing minor fracture, shall have heat locally applied and then quickly rolled.

Tiles showing broken corners or fracture line entirely across their surface shall be warmed and then removed. Substitute new tile of same color and thickness.

WROUGHT IRON GRILLES

A. SCOPE OF WORK

- Furnish all labor materials, equipment, plant and other facilities necessary for fabrication, delivery and installation of all security grill work shown on drawings and as herein specified.
- All work under this division shall be subject to the General Conditions accompanying these specifications. The Contractor and the Sub-Contractor for this portion of the work is required to refer thereto.

B. GENERAL

- The Contractor shall furnish and installs all wrought iron grillwork indicated on the drawings or specified herein.

C. FABRICATION

- All work is to be first quality, by experienced craftsman and fabricated in a shop capable of producing the higher grade of metal work and whose principal business is the manufacturer of architectural metals.
- All joints and splices shall be electrically welded and ground smooth.
- Before delivery to the job site, all wrought iron grille work shall be shop painted with a coat of rust inhibitive primer such as red lead.
- All seams shall be ground smooth.

D. INSTALLATION

- All work shall rigidly install in a first class manner done by experienced mechanics.

E. GUARANTEE

- Furnish guarantee to Owner per requirements of the General Conditions for period of one year after date of final acceptance of building.

SPECIFICATIONS FOR STRUCTURAL WORKS

Working Drawings

- This "General Notes & Specifications for Structural Works" shall form a part of the Structural Plans.
- In the interpretation of these structural plans, indicated dimensions shall govern and distances or sizes shall not be scaled for construction purposes.
- In cases of conflict in details or dimensions between the Architectural and Structural Plans, refer to the Engineer or his authorized representative for final decision.
- In cases of conflict between the Structural Plans and the General Notes and Specifications, the Plans shall govern.

A. DESIGN LOADS

- Dead Loads

The design loads unless otherwise specified in the structural plans are as follows:

Concrete	150 pcf
Partitions (As reflected on plan)	20 psf (minimum)
Concrete Topping	25 psf
Ceiling Utilities/Mechanical/Electrical/ Plumbing	5 psf

The Architect and building contractor shall get the approval of the Structural Engineer for any loading different from exceeding these loads.

The Concrete Hollow Block partition and R.C. walls as indicated in the structural plans. Additional CHB and R.C. walls shall be subject to the approval of the Structural Engineer.

- Live Loads

The design live loads unless otherwise specified in the plans are 50 psf:

Classrooms	40 psf
Corridor / Stair	100 psf
Roof	20 psf

These design live loads shall never be exceeded at any time during the life of the structure without the written consent of the Structural engineer.

It shall be the responsibility of the Owner of the building to get the approval of the Structural Engineer of any live load that will be imposed on any area of the building different from and or exceeding the design live loads specified herein.

No portion of the building shall be used as temporary storage of construction materials in excess of the design live loads with the consent of the Structural Engineer.

- Earthquake Loads

The design earthquake loads are as per the provision of the "Uniform Building Code (USA) 1994 Edition" for Earthquake Zone 4. These loads are assumed to be statically applied to the structure.

- Wind Loads

The design wind loads are as per the provision of the "National Structural Code for Building (PHIL) 2001"

- Equipment Loading

Equipment not indicated in the plans shall be not installed without the approval of the Structural Engineer.

The manufacturer shall submit equipment data specifying the weight, and its reaction at the base, and its vibration characteristics.

B. REINFORCED CONCRETE CONSTRUCTION

- Cement shall conform to Portland Cement ASTM C150.
- Concrete aggregates shall conform to ASTM C33 except the aggregates failing to meet these specifications but which have produced concrete of adequate strength and durability may be used to the approval of the Structural Engineer.
- Water used in mixing concrete shall be clean and free from injurious amounts of oil, acids, alkalis, salts, organic material or other substances deleterious to concrete or steel. In addition, the mixing water for pre-stressed concrete shall not contain deleterious amounts of chloride ion.

- Reinforcing bars shall conform to ASTM A615.
- Admixtures to be used in concrete shall be subject to prior approval by the Structural Engineer.
- Cement and aggregates shall be stored in such a manner as to prevent their deterioration or the intrusion of foreign matter.

Concrete cylinder samples for strength tests of each class of concrete shall be taken not less than twice a day nor less than once for each 50 cum. of concrete or for each 490 sq.m. of surface area place. The cylinder samples for strength tests shall be taken cured and tested in accordance with ASTM C172, ASTM C31, and ASTM C39.

- Acceptance of Concrete

Concrete poured will be considered satisfactory if the average of all sets of these consecutive strength test falls below the required f_c' and not individual strength test falls below the required f_c' by more than 500 psi.

- Core tests and load tests

If individual tests of laboratory cured cylinder samples produced strength more than 500 psi below f_c' core test and or load tests may be resorted subject to the approval by the Structural Engineer.

- Mixing of Concrete

All concrete shall be mixed until there is a uniform distribution of the materials and shall be discharged completely before the mixer is recharged.

- Conveying of Concrete

Concrete shall be conveyed from the mixer to the place of final deposit by methods that will prevent the separation or loss of materials.

- Depositing of Concrete

Concrete shall be deposited as nearly as practicable in its final position to avoid segregation due to re handling or flowing.

- Curing

Concrete shall be maintained in a moist condition for at least 7 days after placing. Wet burlap may be laid over the slab constantly applied with water.

C. CONCRETE MIXES

Unless otherwise indicated in the drawings, the minimum 28-day cylinder compressive strength shall be as follows:

- a) Foundation ----- $f_c' = 3000$ psi
- b) Columns ----- $f_c' = 3000$ psi
- c) Slab on Fill ----- $f_c' = 3000$ psi
- d) Suspended beam & Slab ----- $f_c' = 3000$ psi
- e) All others ----- $f_c' = 2000$ psi

D. FOOTINGS

- Assumed allowable soil bearing capacity, in the absence of soil investigation report, is 2000 psf. The Contractor shall verify actual soil condition at site.
- Existing underground pipes, tunnels, etc., shall be brought to the attention of the Structural Engineer for evaluation.
- An excavation adjacent to an existing structure shall be provided with adequate sheet piling by the Contractor. The sheet piles shall be properly designed to resist earth and water pressure as well as surcharge loading on the footings of the adjacent existing structures.
- Unless otherwise detailed in the plans CHB wall footing shall be as per figures on Sheet SS-1.
- RC Slab on fill other than pressure slab @ basement shall be .125m thick with 10-mm bars at 0.30 m.o.c. each way unless otherwise indicated in the plans.
- All earth fill supporting ground slabs for flooring, parking, sidewalk, etc., shall be compacted to 90% proctor in layers of 0.30m. Unless otherwise specified by the Structural Engineer.

E. REINFORCED CONCRETE BEAMS

- Unless otherwise noted in the plans or specifications camber all RC beams at least 6 mm (1/4") for every 4500mm (15') of clear span except cantilevers which shall be 19mm (3/4") for every 3000 mm (10') of clear span.
- If there are two or more layers of reinforcing bars, use 25-mm separators spaced at 0.90 m.o.c. In no case shall there be less than two separators between layers of bars.
- If beam reinforcing bars end in a wall, the clear distance for the bar to the farther face of the wall shall be not less than 5 bar diameters. The reinforcing bar shall terminate on a standard 90 degrees hook.
- Beam reinforcing bars supporting slab reinforcement shall be 25 mm from the bottom of the finish.
- When a beam crosses a girder, rest beam bars on top of the girder bars. At column intersection girder bars shall be on top of beam bars.
- Lengths of bar cut off and bar clearances shall be as specified in Sheet S-1.

- Top bar splices shall be located at mid-span and bottom bar splices at column supports. Unless otherwise indicated in the plans splice lengths shall follow those given for development length as per figure on Sheet S-1.

F. REINFORCED CONCRETE SLABS

- Unless otherwise noted in plans or specifications, camber all R.C. slabs 3mm (1/8") per 3000 mm (10') of shorter span.
- If slabs are reinforced both ways, bar along the shorter span shall be placed below those along the long span at the center and over the longer span bars near the supports.
- Lengths of bar cut off shall be as specified in Sheet SS-1.
- Concrete covering shall be 18 mm for top and bottom bars.
- Unless otherwise specified by the Engineer, bar chairs shall be provided at least 600 mm. each way to support top and bottom bars separately.

G. REINFORCED CONCRETE COLUMNS

- Unless otherwise indicated, the column pedestal embedded in the ground shall be 50 mm. larger than the column as per plan at the basement floor level, or ground floor level if there is no basement.
- Construction joints in columns shall be located at the top of the pedestal (basement floor line, or ground floor line if there is no basement) or at least a distance above the floor equal to the maximum dimension of the column or 1/6 story height.
- All ties shall be fastened to column vertical reinforcement by means of wires at all intersection portions of ties and columns rebar.
- Not more than one-half (1/2) of the total number of bars shall be spliced at the same level. The lap be 1.3 l_d of the bar development length. Splices shall be staggered at a distance of at least 40 bar diameters.
- Column bar splice lengths shall follow those tabulated for development on Sheet SS-1.
- Lap welded splice maybe used ion lieu of the above. The capacity of the weld provided shall be 125% larger than the tensile capacity of the bigger bar being spliced. No butt-welded splices are allowed unless otherwise permitted by the Structural Engineer.
- Confinement ties shall be provided on all columns at beam column intersections as shown in S-1.

H. REINFORCED CONCRETE WALLS

- Unless otherwise indicated in the plans, the R.C. wall horizontal bars shall be inside the vertical bars – (retaining wall).

- Reinforcing bars shall have at least 30mm concrete clearance except in 100-mm wall or less where they shall be at the center.
- Carry vertical bar 600 mm above floor level to provided for splices when necessary. Elsewhere stop at 50 mm. below the top of the slab, the bar shall terminate on a standard 90-degree hook.
- Horizontal and vertical bars conforming to ASTM A615 shall have a minimum splice lapping and wired with No. 16 G.I. wire provided that splices in adjacent bars are staggered at least 1.50 m.o.c. Not more than one-half (1/2) of the total number of bars shall be spliced at the same line. Splices shall be staggered a distance of at least 40 bar diameters.
- All opening on walls or slabs less than 300mm thick shall be reinforced as per Figure on Sheet SS-1.
- At wall intersections and corners, the anchorage length provided shall be as shown on Figure on SS-1.

I. C.H.B. WALLS

- Unless otherwise specified, the vertical and horizontal reinforcements for CHB shall be as indicated in the standard details.
- Lintel beams to be used shall be (t x 0.20m.) reinforced by 4-12 mm bars with 10 mm at 300 mm o.c. ties where "t" is the CHB wall thickness.
- Lintel beam shall be provided at top of CHB wall openings. It shall extend at least 200mm beyond the openings.
- For high walls, lintel beams shall be provided at 3000mm o.c.
- For long walls, stiffener columns shall be provided at 3000mm o.c.
- Where CHB walls adjoin R.C. Columns and beams, provide dowels on R.C. column and beams prior to pouring to match CHB wall reinforcement. The dowels shall be 12mm bars at 600 mm. o.c.
- Where columns and beams have been poured without the CHB wall dowels, provided ½" dia bolts at 400mm o.c. These anchors shall be drilled and grouted w/ conc. Epoxy. No chipping off of concrete columns and beams is allowed unless permitted by the Engineer.

J. STRUCTURAL TOLERANCES

Unless otherwise specified by the Engineer, the following are the acceptable structural tolerances for cast-in-place concrete construction. All dimensions, which are not within the required tolerances, shall be corrected prior to pouring of concrete. Tolerances for pre-cast concrete construction shall be ½ of the values given below:

- a) Cross sectional dimensions and location of reinforcement, pre-stressing steel and pre-stressing steel ducts.

Dimensions less than 200 mm	-	+ 6mm
200mm to 600 mm	-	+ 9mm
Over 600mm	-	+12mm
b) Member lengths or height (Max. limitation = 12mm)	-	6mm per 3.0 meters
c) Deviation from straight line (Sweep and or plumpness)	-	6mm per 3.0 meters
d) Locations of bar cut-off or bonds	-	+50mm

K. CONCRETE PROTECTIONS FOR REINFORCEMENT

The following minimum concrete cover shall be provided for reinforcing bars. For bar bundles, the minimum cover shall equal the equivalent diameter of the bundled bars needed but not be more than 2 inches on the tabulated minimum whichever is greater.

- Cast-in-place concrete (pre-stressed concrete construction)
 - a) Cast against and permanently
Exposed to earth 75 mm
 - b) Exposed to earth or weather
20mm dia. and larger 50 mm
 - c) Not exposed to weather or in contact with ground,
Slabs walls and joints.

36 mm dia. and smaller	19mm
No. 14 and No. 18	38mm
Beams, girders and columns	
Principal reinforcements, ties	
Stirrups or spirals	38mm

L. REINFORCING BARS

- All reinforcing bars shall be deformed conforming to ASTM A615-68 unless otherwise noted in the plans the minimum yield strength of the reinforcing bars to be used corresponding to the structural member shall be as enumerated below:
 - a) $f_y = 33,000$ psi for 12mm & smaller sizes
 - b) $f_y = 40,000$ psi for 16mm & larger sizes

- Splice and anchorage lengths requirements follow those set for development length (l_d) as shown in SS-1 unless otherwise indicated in the plans or approved by the Structural Engineer.

- Equivalent metric size bars when used shall be as per tabulations below:

No. 3	10mmØ
No. 4	12mmØ
No. 5	16mmØ
No. 6	20mmØ
No. 8	25mmØ
No. 9	28mmØ
No. 10	32mmØ
No. 11	36mmØ

M. STANDARD HOOK

- A standard hook for rebars if required shall be either of the following:

A semicircular turn plus an extension of at least 4-bar diameter but not less than 62mm at the free end of the bar.

A 90-degree turn plus an extension of at least 12 bars diameter at the free end of the bar.

- Minimum diameter of bend measured on the inside of the bar shall be as follows :

10mmØ to 25mmØ	- 6 bar diameter
28mmØ to 36mmØ	- 8 bar diameter
No.14 to 18	- 10 bar diameter

N. WELDED SPLICES

- Lap welded splices when used shall develop a resistance equal to at least 125 percent of the tensile capacity of the bar being spliced.
- Butt-welded splice when used shall be considered 75% efficient. The remaining 50% capacity to develop 125 percent of the tensile capacity of the bar shall be provided for by an additional welded lap splice connection on the same joint.
- The Contractor for approval shall submit details of all welded splices by the Structural Engineer.
- Only certified welders shall be allowed to perform welding operations. These welders shall be subject to the approval of the Work Engineers.
- Testing of welds shall be by X-ray Method (non-destructive tests) unless otherwise directed by the Structural Engineer.

- Connection of crossing bars by track welding is not permitted.

PLUMBING WORKS

A. GENERAL

- **Scope of Work**

The work to be undertaken in this Division shall consist of the furnishing of all materials, labor, tools, equipment and other facilities and equipment and the satisfactory performance of all work necessary of complete installation, testing and operation of the plumbing system in accordance with the applicable consisting of, but not necessarily limited to the following :

Water distribution and supply pipes to equipment and plumbing fixtures.

Install storm drainage system which include canopy drain, roof downspout, junction boxes and connection to storm drain or to open channel or to on the low ground.

Provide oil, waste and vent pipes system and connection to septic tank and connection of outlet waste line to nearest existing storm drain.

Install plumbing fixtures, fittings, trims and accessories for the toilets.

Leakage tests of water supplies, sanitary and storm drainage system.

Pressure test of newly installed water system.

Disinfecting of water distribution system.

Submit certificate of test on installed equipment and piping system.

Secure all permits and licenses as required.

Prepare and submit reproducible Final As-built plans and (4) set of white prints signed and sealed by Registered Sanitary Engineer or Master Plumber.

Furnish a written one-year warranty on the plumbing and equipment installation.

Investigate and coordinate with other trades of all possible conflicts of plumbing works with others.

- **Coordinate With Other Trades**

The Contractor is required to refer to the General Conditions and to all architectural, structural, electrical and mechanical plans and specifications and shall investigate all possible interference and conditions affecting this work.

- Responsibility

The contractor and all persons or Companies providing or both for this project are specially referred to the General Conditions of the Specifications and the various other contract documents, which may affect the completion of any work of the other trades. In the absence of complete agreement among the Sub-contractors of the General Contractor (Authorized by the Owner), supply dealers, or others affected by the construction, the General Contractor is to be held responsible for the Coordination and completion of all the works.

- Drawings and Specification

The General Drawings and these Specifications are complementary to each other and any labor or materials whether called for or both if necessary for the successful operation of any particular type of fixtures or equipment specified under this contract shall be furnished and installed without additional cost to the Owner.

- Intent

It is not intended that the drawings shall show every pipe, fitting, valve and appliance. All such items, whether specifically mentioned or not, or indicated on drawings, shall be furnished and installed necessary to complete the system in accordance with the best practice of the plumbing trade and to the satisfaction of the Owner/Architect.

- Permits and Inspection

The Contractor shall obtain and pay for all permits bonds and inspection fees and shall be responsible for all penalties incurred by himself or his agents.

- Workmanship

All works shall be performed in first class and neat workmanship by plumbers and their work shall be satisfactory to the Architect and to the Owner.

- Code to be followed

All plumbing work to be done shall be in accordance with the National Plumbing Code of the Philippines and with the requirements of all applicable laws of the Republic and all local codes and ordinances.

B. MATERIALS

- Approved Materials

Within 30 days after the award of contract, the Contractor shall submit for the Owner's Representative approval, four (4) copies of all equipment and materials he proposes to use under this contract.

After written approval of the above list, and before purchase of any equipment or material, the Contractor shall submit for approval four (4) complete sets of detailed information consisting of manufacturer's bulletins, shop drawings and part list of equipment and the materials to be provided under this contract.

The Contractor shall assume the cost of and the entire responsibility for any change in the work as shown on the Contract, which maybe occasioned by approval of materials other than specified.

- Standard for Materials

All materials shall conform to the standard listed below:

Centrifugal cast iron pipe	-	ANSI A21.6
Cast iron soil pipe fitting	-	ANSI A21.6
Black Iron Pipe	-	ASTM a 53 Standard, Schedule 40
Malleable Iron Fittings	-	ASTM A – 338
PVC pipe and fittings	-	ASTM - D 1784, CS 256 for water

Pressure pipes, sanitary II, Series 1000 for waste and vent pipes.

Union patent (malleable iron, for ferrous pipes): U.S. Federal Specifications

WW U – 531. Type B Zinc – coated.

Non-reinforced concrete sewer, storm drain and culvert pipe - ASTM C–14-82

Galvanized Iron Pipe - ASTM A – 53, Schedule 40

Reinforced concrete culvert, storm drain and sewer pipe - ASTM C 76-84

Cement - ASTM C150 – 86 Type I

Deformed reinforcement bar- ASTM A496

- Alternate Materials

Use of any materials, device, fixtures and appurtenances not specified in these specifications maybe allowed, provided that such alternate item has been approved in writing by the Owner's Representative and Contractors claim for its suitability. The cost for testing shall be paid for by the Contractor.

Test shall be done by any agency approved by the Owner's Representative and in accordance with generally accepted standards. In the absence of such standards, the Owner's Representative may specify the test procedure.

To any substitution, all health and safety requirements shall be observed.

The Contractor shall, together with his bid, submit a list of materials which he intends to use in list of the materials specified in the contract documents which he believes he cannot supply and stating the reason for the substitution. Material shown in this list shall be installed as specified and no further request for substitution shall be made except when he can show a valid reason.

Request for substitution shall be accompanied by:

- Reason for substitution;
 - Certificate of test indicating quality of substitute materials;
 - Cost comparison with materials originally specified.
- Identification of materials

Each length pipe, each fitting, trap, fixture and device used in the plumbing and piping system shall be cast, stamped or indelibly marked on name, the weight, the type, the class of product when as required but the standard mentioned in the Sub-section 2.2 mentioned above.

All plumbing fixtures and materials installed without the above trade marks shall be removed and replaced with properly marked fixtures and fittings without any extra cost to the Owner.

- Materials schedule

PIPE AND FITTINGS MATERIALS

ITEMS	GIP Sch. 40 Standard	PVC Sanitary II Series 1000	Cast Iron Pipe (CIP)	CU Type L
A. Plumbing	X (indoor)			
1. Cold water supply				
2. Hot water supply				X
3. Outdoor Sanitary Sewer system		X		
4. Indoor House drain System			X	
5. Downspout	X			
6. Soil, waste	(Sch.20)			
7. Vent		X		

Legend:

- GI - Galvanized Iron Pipe
- PVCP - Polyvinyl Chloride Pipe

- CIP - Cast Iron Pipe
- Cu Type L - Copper Pipe

- **Notes:**

Where uneven settlement at pipe joints is likely to occur, use Gilbault joint or the other suitable flexible fittings.

GI pipe when buried underground shall be given corrosion protection (painted with coal tar enamel and wrapped with non-water absorbent and painted again with coal tar enamel and wrapped with non water absorbent felt).

Gate Valves and Check Valves

Of Valves	Disc	Stem	Body	Connection	Standards	Remarks
75 mm (3") and Larger check Valves, 10.5 kgs/cm ² (150 psi)	Swing Disc	-	Iron with Bronze Trim	Flanged	AWWA c.500-71	
63mm (2-1/2") and smaller check valves, 10.5 kgs/sq.cm. (150psi) Working pressure.	Lift Disc	-	All Bronze	Female Threaded	Federal WW-V-58	
75mm (3") and larger Gate valves exposed 10.5 kg/sq.cm.(150psi) working pressure.	-	Rising	Iron with Bronze Trim	Flanged	AWWA c.500-71	
63mm (2-1/2") and smaller gate valves 10.5kg/sq.cm. (150psi) working pressure.	-	OS&Y	All Bronze	Federal Female Threaded	Specs WW-V-58	
75mm (3") and larger gate valves 10.5 kgs/sq.cm (150 psi) working pressure.	-	-	IBBM	AWWA	-	For use with pumping install.

- **Notes:**

Swing Check valves 75mm and larger shall be provided with spring or weighty load control attached to flap disc axle.

When valves are placed or located in a box or compartment the valve stem shall be non-rising but provided with VALVE OPEN and CLOSE indicator attached to stem.

Hose Bibbs

Hose bibb shall be size 13mm (1/2") male and 19mm (3/4") hose thread, bronze body conforming to ASTM Specification B62 suitable for cold water pressure up to 10.5 kg/cm (150psi), equal or similar to No. 58 Chicago hose valve screwed connections, with rubber composition disc, American Standard Taper Pipe Thread on the inlet and standard hose thread on male outlet.

Pipe Hangers

- Horizontal Runs:
- Adjustable mild steel or malleable iron pipe hangers
- Vertical Runs:
- Mild steel clamp or collars
- Hangers for water and vent pipes:
- For 63mm (2-1/2") and larger: Band Type 6.285mm x 32.5 mm (1/4" x 1 1/4") flat mild steel black iron with round iron rod with plates and knots.
- For 50mm (2") and smaller: Split Ring Type with 9.4mm (3/8") iron rods with inserts, plates and knots, toggle bolt clamps expansion shield.

Jointing

- Cold Water Lines:
- Flanged Joints Gasket "Garlock" of equal Screwed Joints: U.S.
- Federal Specification GG – P – 251.
- Sanitary Drainage Lines: Lead and oakum CISP, PVC cement or
- Rubber ring for PVC.
- Storm Drainage Lines:
- Cement mortar for concrete drain pipes, PVC cement for PVC pipes.
- Dissimilar Pipes: Adapter fittings shall be used.

Drains

- Similar or equal to "ASA" Model No.- 40B, with Type 125mm
- Strainer or approved equal.
- Floor drains (at toilets/baths): "ASA" Model No. – 40B, with Type 125mm strainer or approved equal.
- Balcony drains: ASA No. 40 – 9A
- Roof Drains: ASA No.10 – 8.2

Outdoor Pipe Lines, Appurtenances

- Sewer Junction Boxes
- -2000 psi reinforced concrete with pre-cast R.C. cover provided 2 recessed steel lifting eyes.
- Area- Drain Catch Basin – 2000 psi R.C. with cast iron grating cover.

- Storm Drain Junction Boxes – 2000 psi R.C. cover provided 2
- Recessed lifting eyes.
- Sewer Pipe Concrete Encasement – 3000psi R.C.

Float Valve

- Shall be hydraulically operated, pilot controlled diaphragm actuated, single seated with disc. Valve shall open wide when float is at low water level and close drip type when float is high level. Class 125 Cast Iron body with bronze trim.

Testing of Materials

Samples of various types and kinds of materials shall be approved by the

Owner's Representative before any work is started. During the progress of work, a sufficient number of samples to ascertain the quality, maybe tested and the cost of such samples shall be included in the price bid by the Contractor. Results of test shall be submitted to the architect for evaluation at least working days before materials is due for installation the job.

C. INSTALLATION

- General

Cutting and repairing

The work shall be laid out in advance and any cutting of construction shall be done with the written permission of the Owner's Representative or his authorized representative. Roughing in for pipes and fixtures shall be carried out along with the construction of the building of structure. Openings shall be left in walls and floors of proper sizes correctly located for the pipes but the contractor shall do any additional cutting needed in case of error or omission and shall properly replace any concrete work or flashing around the pipes as maybe required without additional cost to the Owner.

All items to be embedded in concrete shall be thoroughly cleaned free from all rust, scale and paint.

Protection

The Plumbing Contractor shall protect all his work and materials from loss, injury or defacement. Protection of fixtures and materials shall be provided by boards, papers and or cloth as required as required, and any loss, damage or deface materials shall be replaced by the Plumbing Contractor at his own expense.

Installation

The work throughout shall be executed in accordance with the best practice of the trade and in the best and true manner under the direction of the licensed Sanitary Engineer or Master Plumber and to the satisfaction of the Owner's Representative who will interpret the intent of the contract drawings and specifications and shall have the power to eject any work or materials which are not in full accordance herewith.

The piping in any location shall be closed-up, furred-in, or

Covered before the examination and testing of it by the government inspector, Owner or their representative.

- Plumbing Fixtures and Equipment:

All bids to be considered shall include installation of all plumbing fixtures shown on the drawing and specified by the Owner's Representative.

All plumbing fixtures and equipment shall be installed free and open in a manner to prove easy access for cleaning and shall be furnished with all brackets, cleats, plates and anchor required to support the fixtures and equipment rigidly in place.

After installation of a any or all the plumbing fixtures for the building, same shall be kept clean and in working order and shall not be used by any one until the building has been formally turned over to and accepted by the Owner.

Fixtures, fittings, trims, faucets, escutcheon, traps and waste pipes that are exposed to view in finished spaces shall be brushed, with polished chromium plating or nickel finish, unless otherwise specified.

The Plumbing Contractor shall be responsible for the supply of fixture fittings (or trims) which are not provided with the fixture but required for the complete installation. All fixtures shall be carefully checked to determine the items that must be provided to complete the installation.

All fixtures shall be provided with the individual shut-off valve so that any fixture maybe separately controlled without affecting other fixtures supplied from the same distribution line.

All flushometer valves shall be equipped with vacuum breaking devices.

- Fittings

All change in size of soil waste and drain lines shall be made with reducing fittings or reducers.

Where it becomes necessary to use short-radius fittings in any other locations, prior written approval of the Architect shall be obtained.

No fitting or connections that offers abnormal obstruction to flow shall be used.

Enlargement of a 75mm (3") closet bend or stub to a 100mm (4") pipe is acceptable.

- Cleanout Plugs and Traps

Cleanout Plugs

Cleanout installed in connection with cast iron-bell and spigot shall consist of a long – sweep quarter bend, or one or two eight-bends extended to an easily accessible place, or where indicated on the drawings.

An extra-heavy, cast brass ferrule with counter-sunk tap screw cover shall be caulked into the hub of the fittings and shall be even or level with finish floor or wall.

Where clean-outs in connection with thread pipes are indicated and are accessible, they shall be cast-iron drainage T pattern 90 degree branch fittings with the extra heavy brass screw plugs of the same size as the pipe up to, and including 100mm (4").

Traps

Every plumbing fixtures connected to the sanitary drainage system shall be equipped with a trap. Traps are specified to be supplied with the fixture, i.e. water closets and urinals.

Each trap shall be placed as near to the fixture as possible.

Traps installed on hub and spigot type shall be extra-heavy cast iron.

Traps installed on threaded type shall be recessed drainage pattern.

- Sleeves and Supports

General

Pipe sleeves, pipes support, and fixture shall be furnished and set, and the Contractor shall be responsible for their proper permanent locations.

Pipes shall no be permitted to pass through columns, footings, beams or ribs unless noted on the drawings or with the written approval of the Owner's Representative.

Pipe Sleeves

Pipe sleeves shall be installed and properly secured in place at all points where pipes pass through masonry of concrete.

Pipe sleeves except sleeves through footings shall be sufficient diameter to provide approximately $\frac{1}{4}$ " clearance around the pipe or insulation.

Pipe sleeves in walls and partition shall be cast-iron or steel pipe.

Flashing sleeves shall be installed where pipes pass through waterproofing membrane.

The sleeves shall be provided with an integral flashing flange or a clamping device to which a flashing shield can be clamped or soldered.

The space between the pipe sleeve shall be made watertight by inserting packed-oakum and filling the remaining space with poured lead or epoxy and caulking thoroughly.

Escutcheon shall be installed around all exposed pipes except water closet starts or bends passing through finished floors, walls or ceilings. Escutcheons shall be of sufficient outside diameter to cover the sleeve opening and shall fit snugly around the pipe. Escutcheons shall be cast-brass chrome plated of the approved size and make, provided with a set screw to properly hold escutcheons in place.

Fixtures and Equipment Supports and Fastening

All fixtures and equipment shall be supported and fastened in a safe and satisfactory manner.

Inserts shall be securely anchored and the anchors shall be properly filled with mortar. Inserts shall be installed even or level with finish wall and shall be completely concealed with the fixtures and installed.

Where through bolts are used, they shall be provided plates or washers at the back and set so the heads, nuts, cap nuts and screw heads shall be chromium plated and shall be provided with chrome plated brass washer.

Use a water closet floor flange for mounting fixtures with an appropriate ball wax as gasket. Use stainless steel bolt and knots to fasten the flange and foot of the water closet.

- **Hangers, Anchors, Guide Inside Buildings**

All piping shall be rigidly supported by means of approved hangers and support. Piping shall be supported to maintain required position and pitching of lines to prevent vibration and to secure piping in place and shall be so arranged as to provide space for expansion and contraction.

Hangers shall conform to the standard details but the contractor may, if he elects use other commercial hangers having parts not lighter than indicated on the details, provided that he has obtained prior to written approval of the engineer. Chains, straps, perforated bars or wire hangers will not be permitted.

Inserts shall be cast-iron steel and shall be of type to receive a machine bolt in one horizontal direction and shall be installed before the concrete is poured.

Vertical runs of pipe shall be supported by mild steel clamps or collars spaced not more than two floors apart.

Schedule of hangers on water piping shall be as shown on the detailed plan.

- Ceilings, Plates, and Flashing:

Floor, Walls and Ceiling Plates:

Where uncovered or exposed pipes through floor, finish walls or finished ceilings, they shall be fitted with chromium plated steel plates.

Plates shall be large enough to completely close the hole around the pipe and shall be squared, octagonal, or round with the less dimension not less than 38mm (1 ½") larger than the diameter of the pipe.

- Joints and Connections

Fixture connections:

Closet bolts shall not be less than 6mm (1/4") in diameter and shall be equipped with chromium plated cap nuts washers.

The system shall hold this water for a full 30 minutes during which time there shall be drop more than 100mm (4").

If and when the Architect decides, the additional test is needed such, as an air or smoke test on the drainage system, the Contractor shall perform such test without additional cost to the Owner.

- Pressure Test for Water System

Upon completion of the roughing-in and before setting fixtures, the entire hot and cold water piping system shall be tested at a hydrostatic pressure one-and-half times the expected working pressure in the system when in operation, and proved tight this pressure (but not less than 10.57 kg/c.m. or 150 psi) for a period of two hours.

Where the portion of the water piping system is concealed before completion, this portion shall be tested separately in a manner similar to the described for the entire system and in the presence of the Owner's Representative.

- Leakage Test for the Water System

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

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

Leakage test shall be made only after the minimum of 24 hours after the pipe to be tested has been filled with water. No test shall be made until at least 7 days after the last concrete thrust or reaction backing has been cast with standard cement.

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

Each section of pipeline shall be slowly filled with water and the specified test pressure, measured at the point of lowest elevation, shall be applied by means of a positive displacement type pump, in manner satisfactorily to the Owner's Representative.

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

ALLOWABLE LEAKAGE RATE PER 100 JOINTS PER OR PIPE DIAMETER AT PRESSURE STIPULATED.

PRESSURE		LEAKAGE RATE	
PSI	Kg/cm ²	Liters/Hour	Liters/2Hour
50	3.50	1.45	2.90
75	5.30	1.75	3.50
100	7.00	2.05	4.10
125	8.80	2.30	4.60
150	10.50	2.50	5.00
200	14.00	2.90	5.80

- Defective Work

If inspection or test shows any defect, such work or materials shall be replaced and the inspection and test repeated until satisfactory to the Owner's Representative.

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

No caulking of screw joints or holes will be accepted.

- Disinfection of Water Distribution System

The entire water system shall be thoroughly flushed and disinfected with chlorine before it is placed in operation.

Chlorinating materials shall be either liquid chlorine or hypochlorite, as specified, and shall be introduced into the water lines in a manner approved by the Owner's Representative.

The chlorine dosage shall be such as to provide not less than 50mg per liter of available chlorine.

Following a contact period of not less than 24 hours, the heavily chlorinated water shall be flushed from the system with clean water until the residual chlorine content is not greater than 2 tenths (0.02) mg/L. All valves in water lines being sterilized shall be closed several times during the testing period.

- Disinfection of Water Tanks

The water tanks and reservoir shall be thoroughly finished and disinfected with chlorine before it is placed in operation.

Chlorinating materials shall be liquid chlorine or hypochlorite, as specified and shall be introduced into the water tanks and reservoir by swabbing and approved protection for the worker's safety shall be provided during the swabbing work.

The chlorine dosage shall be such as to provide not less than 50 parts per million (50ppm) of available chlorine.

Following a contact period of not less than a period of 24 hours, the heavily chlorinated water shall be flushed from the system with clean water until the residual chlorine content is not greater than two tenths (0.02ppm).

- Refer to Structural Specification for Reinforcement
- Painting

All exposed soil, waste and vent piping of cast-iron is asphalt or tar coated shall be given two coats of shellac and two coats of oil enamel finish coating.

Color Code

All exposed piping, shall be adequately and durably identified by distinctive color paints as follows:

Cold water pipe	-	Blue
Hot water pipe	-	Blue with Red bands at 1.00m on center
Aluminum	-	Gray Green
Storm water pipe	-	Orange
Sewerage pipe	-	Black
Vent pipe	-	Gray

E. GUARANTEE

- The Plumbing Contractor shall furnish to the Owner a written guarantee covering the satisfactory operation of the plumbing installation in all its part for a period of one year after date of acceptance. During this period the plumbing contractor shall repair or replace any defective work and pay for any repair or replacement cost.

F. WATER RESERVOIRS

- Piping, fittings, and miscellaneous metal works

Furnish and install all pipes, fittings, valves, specials, pipe supports, miscellaneous metal works and all required appurtenances as shown in the plans and as required to make the entire water tank piping system operable.

All materials furnished and installed shall be new and guaranteed free from defects, in design materials and workmanship.

Adequate protection, measures shall be provided to protect pipe, fittings, valves and all other materials from damage and injury during storage and installation.

Wall pipe sleeves shall be cast-iron seepage ring or anchor ring.

- Manhole Frame Cover

All casting for manhole frames shall tough gray iron, free from wraps, cracks, holes, swells, and cold shuts, and approximately 3.2mm (1/8") thick.

All casting shall conform to the requirements of ASTM Standard A-48 for gray iron casting.

- Ladder Rungs

Ladder rungs inside the reservoir shall be 19mm (3/4") diameter round bars, stainless steel for outside the reservoir, shall be cast iron and as shown in the drawing They shall be placed on the walls as shown in the drawings.

- Installation

All pipes shall be carefully placed and supported at the proper lines and grades and where possible shall be sloped to permit complete draining.

Piping runs shown in the drawings shall be followed as closely as possible, except for minor adjustments to avoid architectural and/or structural features. If major relocation is required they shall be subjected to the approval of the Architect.

Piping shall be properly supported by suitable anchors, brackets, or hangers. Vertical pipes shall be anchored by suitable galvanized steel traps. Pipes supports shall be provided as shown on the plans and whatever else necessary to prevent strain on joints to facilitate taking down pipes.

Carefully inspect all pipes and fittings before installation. Inspection of pipes shall include light tapping with a hammer to detect cracks or defects. No pipe, fittings or valves are cracked or show defects shall be used.

All pipes and fittings shall be carefully cleaned immediately before installation. Every open end of a pipe shall be carefully capped or plugged before leaving the work.

- Pipe Jointing

Flanged Pipe shall true to length. Joints shall be made up square with even pressure upon the gaskets and must be perfectly watertight. Gasket shall fit the outside dimension of the pipe accurately so that surplus materials projects out into the flow area. The completed joint shall be smooth and properly aligned.

- Pipe Through Walls

All equipment shall be supplied from reputable firms engaged in the manufacture of each particular item. The entire assembly when installed shall be given a start-up and test run to prove that all specifications have met before acceptance. The test duration shall be 24 hours.

G. EQUIPMENT

- All equipment shall be supplied from the reputable firms engage in the manufacture of each particular item. The entire assembly when installed shall be given a start-up and test run to prove that all specifications have met before acceptance. The test duration shall be 24 hours.
- The equipment and installation shall be guaranteed for a period of at least one-year trouble free operation.

H. PUMPS

- General

The specification hereinstated are basic guides only. Another items not so indicated but which are obviously necessary for the proper operation of the system as intended shall be supplied and installed, in accordance with accepted engineering standards.

Manual of operation and maintenance and list of spare parts shall be supplied together with the equipment.

The supplier shall submit at least four (4) copies of pumps performance curves showing among others, the pump rating and the pump efficiency, properly marked out.

Accessories to be supplied for each pump shall include non-slam type check valve (Claval), two vibration insulators and two gate valves, of size as the pump suction and another discharge and rated 68 kg/cm² (150psi) for each pump and pipe fittings necessary for complete installation.

Price quoted shall include cost of delivery of all quoted items to the jobsite, proper installation and pump and motor installation dimension drawings.

The brands, names and place of manufacture of pumps, motors, valves, controls and all accessories where applicable shall be indicated in the quotation. Include also a description of the pump impellers being offered.

A metal name plate indicating in indelible letters for the correct specifications of the pump and motors shall be properly attached to the assembly at a location such that the information written thereon can be conveniently read by all concerned.

- **Booster Pumps for the Hydropneumatic System**

Number of units: Two identical units.

Capacity of each unit: As shown in the drawings.

Type: Centrifugal horizontal-end suction vertical split, coupled to an electric motor in common base, suitable for pumping domestic water supply.

Electric Motor Drive: 230 V, 3 Phase, 60 cycles open drip proof.

Motor Controls: Reduced voltage magnetic starter, H-O-A switches over load relays, alternators and pressure switch to stop and start the pumps at high and low pressure cut-off/cut-in and liquid level detector at reservoir to prevent pump from running dry.

Accessories: Vibration insulating hose connection at suction and discharge line and pressure relief valve at discharge only.

- **Pressure Tanks**

Vertical Tank, stainless steel and 100 psi rating. The tank capacity is shown in the drawing. Provide with accessories as relief valve, sight glass tube level indicator encased in copper or stainless steel tubing, fully automatic air volume controller device, pressure gauge (in 100mm dial face diameter), cocks, pressure switch and drain valve.

I. As-Built Drawings

The plumbing Contractor, shall mark down with the red pencil on the two sets of plumbing plans all the revision, omissions, and or additions to various plumbing installation, drawings as the construction progress. One set of the plans as marked shall be submitted to the Architect after completion of the work.

Before the final payment is made to the Contractor, he shall submit to the Owner, As-Built drawing incorporating all the change made and noted in the marked plans retained by him. The As-Built Drawings shall be prepared on reproducible form.

The Plumbing Contractor shall prepare and submit the As-Built Drawings without extra cost to the Owner.

J. Miscellaneous

- Throughout the construction period, open ends of all installed pipelines shall be kept closed by temporary plugs. Drainage lines shall not be kept closed by temporary plugs. Drainage lines shall not be used to conduct dirty construction wash-water, especially those with cement, to avoid possible clogging.
- The contractor shall provide a temporary fire protection system, at each building during the construction period. This shall be of sufficient capacity to put out any fire that maybe break out at any of the building floors due to the construction operations. This is in addition to temporary extinguisher required.
- A temporary potable water supply shall be available to construction workers at each building floor as the construction work progress.
- A temporary human excreta disposal system shall be provided by the Contractor to serve the workers during the construction period.

ELECTRICAL WORKS

I. GENERAL PROVISIONS:

A. WORK DESCRIPTION, GENERAL:

- The work to be done under this specification consist of fabrication, complete details of the electrical works at the subject premises and all work and materials incidental to the proper completion of the installation except those portion of the work which are expressly stated to be done by others.

- All works shall be in accordance with governing codes and regulations and with the specifications.
- The requirements with regards to materials and workmanship specify the required standards for the furnishing of all labor, materials, and appliances necessary for the complete installation of the work specified herein and indicated on the drawings.
- These specifications are intended to provide a broad outline of the required installation but are not intended to include all details of design and construction.

B. CODES, INSPECTION, PERMITS AND FEES

- The work under this contract is to be installed according to the latest requirements of the following:
 1. Philippine National Building Code
 2. Philippine Electrical Code
 3. Electric Cooperative in that areas
- All construction permits and fees required for these works shall obtain by and at the expense of the Contractor. The Contractor shall furnish the Architect, the Engineers and the Owner of the final certificate of inspection and approval from the concerned government authorities after the completion of the work. The Contractor shall prepare all shop drawings, as-built plans and other paper work required by the approving authorities.
- The Contractor shall secure approval from authorities of all plans for construction.

C. RECORD OF DRAWINGS

- The contractor shall record all deviations of the actual installation based on the contract drawings. Upon completion of work, the Contractor shall submit two copies of the as-built drawings indicating the work installed and finished including new information (revisions) not originally shown in the contract drawings to the Engineers for the approval as to conformance with the design concepts and compliance with pertinent code provisions. After such approval, the Contractor shall submit the as-built drawings original to the Owner.

D. COORDINATION

- Coordinate timing of installation with work of other trades.
- Systems provided shall be completed and operable and shall include required accessories fastenings and supports.
- Determine required locations, arrangements and quantities of equipment and materials from drawings, schedules and specifications.
- All equipment shall be installed in strict compliance with manufacturer's recommendations.

- On certain items of equipment specified on other contracts requiring electrical connections, the Contractor shall provide such connections as required.

E. MINOR MODIFICATIONS

- The plans as drawn are based upon architectural plans and details. Show conditions as accurately as possible to indicate them to scale. The plans do not show all fittings necessary to fit the building conditions. The location of outlets, apparatus, and equipment shown on the plan are just approximated. The Contractor shall be responsible for the proper location in order to make them fit, with architectural details and instructions from engineers representative at the site.

F. GUARANTEE

- The Contractor shall guarantee that the electrical system is free from all grounds, from all defective workmanship and materials that will remain in good condition for a period of one year from the date of acceptance of work. This Contractor at his own expense shall repair any defects appearing within the aforementioned period.
- The Contractor shall indemnify and save the Owner, the Architect and the Engineers from and against all liability for damage arising from injuries or disabilities to persons or damage to property occasioned by an act or omissions of the Contractor or any of his subcontractors including any and all expenses, legal or otherwise which maybe incurred by the Owner, the Architect or the Engineers in the defense of any claim, action and suit.

G. APPROVALS, SUBSTITUTIONS, Etc.

- Wherever hereafter the word "Approval" or "Approved" (make, type, size, arrangement, etc.) are used specifically with regard to manufactured items, etc., or wherever it is desired to substitute a different make or type, all information pertinent to the adequacy and adaptability of the proposed apparatus, shall be submitted to the engineers for their approval before the apparatus is ordered or installed.

H. SUB-CONTRACTS, Etc.

- This Contractor shall be held fully responsible for the work of any sub-contractor or manufacturer performing work for or supplying materials as it is intended that the entire electrical work when finally delivered to the Owner shall be ready in every respect for satisfactory and efficient operation.

I. WORKMANSHIP

- The work throughout shall be executed in the best and most thorough manner to the satisfaction of the Architect and Engineers, who will jointly interpret the meaning of the drawings and specifications and shall have power to reject any works and materials which in their judgement are not fully in accordance therewith.

II BASIC MATERIALS AND METHODS

A. GENERAL

- Furnish and install all conduits, joints, outlet boxes, wires and miscellaneous materials required for wiring, as specified herein and as shown on drawings.
- Furnish and install all power and control wiring to all equipment except as otherwise specified.
- Perform test and adjustments and submit specific reports herein.

B. POLYVINYLCHLORIDE CONDUIT

- General: Standard trade size, heavy wall, manufactured to NEMA TC – 2 type rated for 90-degree C cable.
- Materials: Polyvinyl chloride conduit extruded use Atlanta or approved equivalent.
- Nominal Size: 20mm diameter minimum.
- Couplings and Fittings:
- Use Limitations

As specified in the latest edition of the PEC.

Not permitted where subject to mechanical damage

- Pulling Hardware: flat fish tape with ball and flexible leather or polyethylene or manila rope. Use of steel pulling cable not permitted.

C. CONDUIT INSTALLATION

- General: Install in accordance with applicable codes and recognized standard of good practice.
- Actual routing subject to approval
- Joints: Make with approved couplings and unions to provide electrically continuous and moisture tight systems.

D. CONDUCTOR INSTALLATION

- Place all wiring, in a raceway or types indicated. Provide all required and indicated accessories for proper installation of all wiring

- Splicing:

Permissible only in junction boxes or similar accessible location. Number of splices held to absolute minimum.

E. DISTRIBUTION PANEL BOARD-FUSIBLE SWITCH

- General: Furnish and install distribution and power panel boards as indicated in the panel board schedule and where shown on the drawings. Panel boards shall be dead front safety types, equipped with quick-break fusible branch switches and approved for service entrance. The acceptable manufacturers of the panel board are General Electric and Square "D" or approved equal.
- Fusible switches: All fusible branch switches shall be quick-make, quick-break, with visible blades and dual horsepower ratings. Switch handles shall physically indicate ON and OFF position. Such handles shall be able to accept three padlocks having heavy duty industrial type shackles. Covers shall be interlocked with the switch handles to prevent opening in the ON position. A means shall be provided to allow authorized personnel to release the interlock for inspection purposes when a switch is ON. A cardholder providing circuit identification shall be mounted on each branch switch. Switches shall be provided with a Bussman Fusetron fuses or as noted on the drawings.
- Bussing Assembly: Panel board bus structure and main lugs or main switch shall have current ratings as shown on the board schedule. The bus structure shall accommodate plug-on or bolted branch switches and motor starters as indicated in the panel board schedule without modification to the bus assembly. Provide solid neutral (S/N) assembly when required.
- Equipment Rating: Switches and panel board bus structure shall be safe and without failure withstand short circuits on the systems capable of delivering up to 50,000 amperes RMS symmetrical, unless otherwise noted.
- Cabinet: Panel board assembly shall be enclosed in a steel cabinet. The rigidity and gauge of steel is to be as specified in UL Standard for Cabinets. The size of wiring gutters shall be in accordance with UL Standard. Cabinets shall be equipped with a front door and shall be full finish steel with rust inhibiting primer and baked enamel finish.

F. PANEL AND BOX

- Box, plain steel front, complete with hinged door, polished metal catch and lock Manufacturer's standard finish. Repair any damage to finish in a manner acceptable to the engineer.
- Mounting: Flush and surface required.
- Cardholder on inside of the door with clear plastic cover and complete type written schedule of panel branch circuits. Leave spare circuits blank.
- Nameplate: Required at each panel.
- Installation: As shown, maximum distance from the floor to the highest breaker (centerline) shall be 1.8m. Provided mounting materials required make connections

specified as shown. Use collars around mounting bolts or equivalent means to provide air space between panels and walls.

- Warranty: A warranty for a period of one year shall be provided for failure of components resulting from normal use and/or factory defects.

G. SERVICE ENTRANCE

- Service Voltage: 230V, single phase, 2 wire, 60 Hz.
- Installation: Contractor shall furnish and install the complete service entrance, conduits and accessories.
- Conduits: Use RSC "NICH" or approved equal.

III. LIGHTING

A. GENERAL

- Furnish, install and wire all equipment and materials required for complete lighting system as specified as shown.

B. LIGHTING FIXTURES

- Fluorescent Fixture: housing - #22 gauge, B. I. Sheet formed, screw with machine stove bolt and/or welded.
- Fluorescent Fixture Ballast: 230V, high power factor, rapid start, manufactured by Philips, G. E. or approved equal.
- Wiring:

General: Fixture wiring shall comply with fixture manufacturer's recommendation and PEC requirements.

Incandescent Fixtures: Use type TF wire in unwired fixtures. Minimum wire size 3.5mm".

- Location: Approximately as shown. Modify to avoid other equipment or structural components. Provide necessary conduits, wire, fittings and miscellaneous materials.

C. COORDINATION

- Coordination installation of all lighting fixtures with work of other trades
- Coordination exact location of fixtures with respect to suspended ceiling layout to achieve uniformity.

D. SHOP DRAWINGS AND SAMPLES

- Prepare and submit for approval before manufacturing the following:

Fabrication drawings

Sample of each fixtures

E. WARRANTY

- All fixture components shall be covered with a warranty for a period of one year against failure resulting from normal use and/or factory defects.

F. GENERATOR

- General

The generator shall be _____ Kw standby duty, single phase, 2w, 60Hz, 1800 RPM, 240V, and shall have two bearings of the sleeve type and shall be direct connected to the engine flywheel with a flexible coupling. The generator shall have full armature winding. The transient voltage drop on sudden application of 100% rated load shall be less than 15%.

Voltage Regulator shall be of the same manufacturer as generator, with manual/automatic switch.

Generator shall be open drift-proof construction with an over all efficient of at least 90% of at full load.

The generator shall have full rated neutral brought out at the terminals for system use.

- Conduits and Fittings:

Conduits in general shall be Intermediate Metallic Conduit (IMC).

No Conduits shall be used in any system smaller than 15mm internal diameter electric trade size, nor shall have more than four (4) 90 degrees bends in any one run and where necessary, pull boxes shall be provided as directed.

No wire shall be pulled into any conduits until the conduit system is completed in all details, in the case of concealed work until all rough plastering machinery has been completed, and in the exposed work until the conduit work has completed in every detail.

- Wires and Cables

All wire shall be copper; soft drawn and annealed shall be of 98% conductivity, shall be smooth and true of cylindrical form and vibration shall be within 1% of the actual size.

All wires and cables shall comply with the requirements of UL as they apply to the particular usage.

All wires and cables shall be as manufactured by Phelps Dodge, American Wires and Cables, or approved equal.

THHN/THWN can be used for the same size of wires provided the allowable current do not exceed that of

All wires 8 mm" and larger shall be stranded copper.

For power system, no wire smaller than 3.5 mm" shall be used except for control leads unless otherwise specified.

- Installation

Installation shall conform to the requirement of the code.

Testing

The generator set shall receive the manufacturer's factory load testing prior to delivery.

Prior to acceptance of the installation, equipment shall be tested on site for 8 hrs. Continuous operation without any failure to show it is free of any defects will easily start and be subjected to full load test or that load that is available at the job site. Should failure occur during the testing, the Contractor shall rectify the deficiencies and shall repeat testing procedure at his own expense and to the satisfaction of the owner.

On completion, of the installation, a factory trained supplier or dealer's representative shall perform start-up based on operating instructions book.

SPECIALTY WORKS

A. STRUCTURAL STEEL WORKS

Scope:

- This section includes structural steel work complete.

General:

- Connection for which details are not indicated shall be designed in accordance with the “American Institute of Steel Construction Manual of Steel Construction” and shall be welded and bolted.

Requirements.

- Handling, shipping and storing of steel work.
- All materials shall be handled shipped and stored in a manner that will prevent distortion or other damage. Materials shall be stored in a clean location and keep properly drained. All damage materials shall be replaced or repaired by at the expense of the Contractor.
- Anchor bolts and sag rods shall conform to ASTM A 307 and applicable portions of A 36.
- Structural carbon steel for plates, angles, or shapes shall conform to ASTM specification A36.
- Cold-formed, light gauge structural member shall be formed from sheet or strip not less than 5mm thick and conforming to “Specifications for the Designed Light Gauge Cold-Form Steel Structural Members” of the American Iron and Steel Institute.
- Saddle shall be standard manufactured products of section shown and shall be heat treated, extruded aluminum alloy 6063-TS, conforming to ASTM Specification B221.
- Expansion shields shall be of the style, type and size suited for the intended use. Shields shall be accurately recessed and unless otherwise indicated shall be not less than 50mm into concrete or masonry.
- Bolts, nuts and washers shall be zinc-coated, regular commercial grade size as indicated and shall conform to ASTM specification A307.
- Power driven nails shall be steel, especially formulated to produce high ductility and hardness and capable of being explosively driven through the medium to be attached.
- Welding electrodes and rods for manual welding shall conform to AWS Specification A5.1 860.
- Expanded metal lath shall be as indicated and shall be of the close mesh, heavy duty and rigid type.
- Nails shall be common or finishing of the proper sizes for the intended use and shall be of the best commercial standard.
- Stainless steel and anchor clips, bolts and plates shall be of configuration and sizes shown and shall conform to the best commercial standard as approved.
- Workmanship and finish shall be equal to the best practice of modern shops for the respective work. Exposed surfaces shall have the smooth finish; sharp and well defined

lines. Section shall be well framed to shape and size with the sharp lines and angles; curved work shall be sprung evenly to curves. All necessary rivets, lags and brackets shall be provided so that the work can be assembled in a neat and substantial manner. Holes for bolts and screws shall be drilled. Fastenings shall be concealed where practicable. Thickness of metal and details of assembly and supports shall provide ample strength and stiffness. Joints exposed to the weather shall be formed to exclude water. Metal work shall be provided with proper clearances. Works shall be fabricated and installed in a manner that will provide for expansion and contraction, prevent the shearing of bolts, screws and other fastening, insure rigidity and provide close fitting of sections.

- Inserts and sleeves. Inserts of suitable and approved type shall be furnished and installed where necessary for the support of piping, mechanical equipment or apparatus, or other work. Steel pipe sleeves of suitable types and size shall be provided where indicated and where required for all pipe passing through floors, roofs or walls.
- Anchors and bolts shall be provided where indicated and where necessary for fastening work in place. They shall be embedded in the concrete and masonry as the work progresses and shall be spaced about 61cm on centers, unless otherwise indicated or specified. Sizes, kinds and spacing of anchors not indicated or specified shall be necessary for their purposes. All anchor and anchor bolts in exterior walls and in area exposed to weather shall be zinc coated, all those in other location shall be coated heavily bituminous paint.

Structure's subject to static loading.

- Holes for bolts shall be drilled or sub-punched and reamed except that where the thickness of the material is not greater than the nominal diameter of the bolt plus 3mm, the holes may be punched full size.

Common bolts.

- Bolts transmitting shear shall be threaded to such a length that not more than one thread would be within the grip of the metal. The bolts shall be of such length that they will extend entirely through the nuts with the beveled end outside the nut. Bolt heads and nuts shall be drawn tight against the work with a suitable wrench not less than 38 cm long. Bolt heads shall be tapped with a hammer while the nut is being tightened.

Shop Painting

- All structural steel work, except zinc coated surfaces and steelwork to be embedded in concrete or mortar, shall be shop painted. Surfaces to be welded shall be not coated within 75mm of the weld, prior to welding. Surfaces shall thoroughly dry and clean when the paint is applied. No painting shall be done in wet weather except undercover; the temperature shall be above 45 degrees F but not over 90 degrees F. Paint shall be applied thoroughly. Surfaces that will be concealed or inaccessible after assembly shall be painted prior to assembly.

Cleaning

- Except as modified herein, surfaces shall be cleaned to bare metal by a suitable blasting process. Surfaces that maybe damaged by blasting shall be cleaned to bare metal by

powered wire brushing or other mechanical means. Surface that will be enclosed from the weather and subject to exposure no more corrosive than an indoor atmosphere controlled for human comfort, maybe cleaned by wire brushing or other manual or mechanical means for removal of loose mill scale, rust, dirt and grease. Baring surfaces, including contact surfaces within friction type joints shall not be painted or galvanized but shall be coated with rust preventive coating applied, applied in the shop. The coating shall be removed just prior to field erection using a remover approved by the rust preventive manufacturer. The surfaces when assembled shall be free from rust, greases, dirt and other foreign matter.

Pre-treatment

1. Except as modified herein, immediately after cleaning surfaces shall be coated with coat of pre-treatment coating applied to a dry film thickness of 0.3 to 0.5 mil or be given a crystalline phosphate base coating shall be applied only to blast-cleaned bare metal surfaces.

Match marking

- Members and component part of structures shall be assembled and match marked prior to erection to ensure accurate assembly and adjustment of position on final erection. Painted assembly markings shall be removed from any surface to be welded or riveted. Scratch or notch marks shall be located in a manner that will not affect the strength of member or cause concentrations of stress.

Erection

1. General. Except as modified herein, erection shall be done in accordance with the applicable specifications and standards of the AISC "Manual of Steel Construction". Erecting equipment shall be suitable for the work and shall be in first class condition. Where parts cannot be assembled or fitted properly as results of errors in fabrication or of deformation due to handling or transportation, such condition shall be reported immediately to the construction architect/engineer and his approval of the method correction obtained. The correction shall be made in his presence. Bent or damaged parts shall be rejected. Steelwork shall drain properly. Pockets in structure exposed to the weather shall be filled with waterproof materials. Safety belts and lines shall be used by workers on high structures, unless safe working platforms or safety nets are provided.

Assembly.

- The frame of steel structure shall be carried up true as shown and all match markings shall be followed. Temporary bracing shall be used wherever necessary to support all loads to which the structure maybe subjected, including equipment and operation thereof and piles of materials. Such bracing shall be left in a place as long as maybe required for safety. The various members forming parts of a completed frame after being assembled shall be aligned and adjusted accurately before being fastened. Fastening of splices of compression members shall be done after the abutting surfaces have been brought completely into contact. No riveting, welding or bolting shall be done until match of the structure has been stiffened and aligned properly. Bearing surfaces and surfaces, which will be in permanent contact, shall be cleaned before the members are assembled. As erection progress, the works shall be bolted or welded sufficiently to take care of all dead load, wind and erection stresses. Splices will be permitted only where indicated. Erection bolts used in welded construction maybe tightened securely and left in place, if removed, the holes shall be filled with plug welds.

Field Welding

Shall be as specified for shop fabrication of welded construction. Any shop paint on surfaces adjacent to joints to be field-welded shall be wire-brushed to reduce the paint film to a minimum.

Field Painting

All exposed surfaces of steelwork shall be shop painted. Surfaces where the shop coat of paint to be damaged shall be retouched using the same system as the original shop painting. Surfaces, which will be in contact after erection except when in contact with bolted and welded connections, shall be given one finish coat before erection. The cleaning, pre-treatment and priming of welds and the areas adjacent thereto shall be done promptly after the acceptance of the weld and shall be as specified under the shop painting.

B. FIRE ALARM SYSTEM

- Furnish and install a Fire Alarm system as manufactured by Edwards or approved equal as described in this specification and indicated in the drawings. The system is to be wired and installed in accordance and left in the first class operating conditions.
- Operation: At each stairway, exits and other locations shown in the plans, there shall be non-coded fire alarm station. At each location where shown, there shall be a bell or horn operating in any station and shall cause all sounding devices to operate continuously until the fire alarm station has been restored to normal. It shall also be possible for those in authority to transmit a test signal in any station. The station and sounding devices shall be connected to a control panel, which shall permit a small supervisory current to pass through the entire system. A trouble bell shall also be provided and shall sound continuously in the event of failure of the main power supply source or a ground fault at each installation wearing circuits.
- Equipment: Install where shown a flush non-coded manual fire alarm station. Flush station shall mount on standard outlet boxes with single gang cover.
- Install where shown on plans and under dome vibrating bell. Size and number of signals to be located so that they maybe heard by all occupants of the building.
- The Electrical Contractor shall provide and install smoke detectors, wiring and connection flow switches. The fire alarm panel shall be factory wired to accept this and any other devices specified herein or as shown on the drawings.
- Fire Extinguishers

Furnish and install eight (8) units of fire extinguishers, brand Stallion, 10 lbs. Per unit, mounted at 1.2 high at locations specified by the Consultant/Architect, four (4) units at the first floor and four (4) units at the second floor.

DIGEST SPECIFICATION

- | | |
|-----------------------------|---|
| 1. Soil Poisoning | Mapecon/Chlordane Solution F-3 or F-5 or approved equivalent. |
| 2. Wood Preservation | Cuprinol/Solignum or approved equivalent. |

- 3. Roofing Works** 0.40mm thick Long-Span Roofing, Corrugated, Pre-painted
- 4. Concrete Works**
- a. Portland Cement Island, Republic or any equivalent brand but consistent
 - b. Rebars Structural grade conforming to Bureau of Product Standard and ASTM specifications
 - c. Tie wires Gauge 16 commercial G.I. wires
- 5. Masonry Works** Non-load Bearing 6" THK CHB, 4" THK CHB
- 6. Finishing Works**
- a. Glazed and Vitrified tiles Vitrified or Ceramic Tiles for toilet walls and floor, "Mariwasa, Fil-Hispano" or approved equivalent.
 - b. Paints "Davies"/"Boysen" Quick-Dry, Latex, Red Lead Primer and Enamel Paints or approved equivalent.
- 7. Plumbing Works**
- a. PPR PN16 (COLD) "Wavin, Thermovar, Bugatti" or approved equivalent with ISO standard
 - b. PPR PN20 (HOT) "Wavin, Thermovar, Bugatti" or approved equivalent with ISO standard
 - c. G.I. Pipes "Mayer" Galvanized Iron, Gauge #40 approved equivalent
 - d. Drainage, Waste, Vent PVC pipes Polyvinyl Chloride for DWV System with ISO Standard or approved equivalent.
 - e. Water Closet "Saniware, Karat", 1.6 GPF Round Front or approved equivalent.
 - f. Lavatory "Saniware Monica, Sarah" Wall-Hung Type Lavatory or approved equivalent
 - g. Tissue Holder "Saniware, Sabrina" Porcelain Coated Tissue Holder or approved equivalent.
 - h. Faucets "Price Pfister", Nickel-Plated, Plain or approved equivalent.
 - i. Floor & Roof drain Stainless Steel, beehive type with detachable stainless strainer.
- 8. Electrical Works**
- a. Wires Type as specified, "Columbia", "Phiflex", American wires & Cables" or approved equivalent.
 - b. Pipes & Fittings Rigid Steel Conduits (RSC) & Fittings or Intermediate Metal Conduit (IMC) & Fittings: "Nitchi" or approved equivalent. PVC Conduits (Thick-walled type) &

Fittings: "Neltex, Emerald, Moldex" or approved equivalent.

c. Wiring Devices "Panasonic" or approved equivalent.

(Convenience Outlet/Switch) Convenience outlet shall be grounding type

d. Lighting Fixture Lamp: T5 "Philips, G.E or approved

equivalent.

Ballast: Electronic type

Lampholder: Heavy duty type

e. Pinlight Housing: 6" dia. aluminum with mirrored reflector"

Lamp: Compact fluorescent, PL type

f. Panelboard Branch circuit protection: Bolt-on type (20AT – 70AT) "GE" Westinghouse, "Fuji", Mitsubishi, "Square-D" or approved equivalent Main protection: Molded case type (for 100AT and above), OR Bolt-on type (for 30AT – 70AT) "GE" Westinghouse, "Fuji", Mitsubishi, "Square-D"

Enclosure: Dead-front, Nema-1 (for indoor); Nema-3R (for outdoor); flush or surface-mounted with

appropriate ground terminals

g. Junction Box 4 x 4 PVC with cover & screw

h. Utility Box 2 x 4 PVC with cover & screw

i. Pull box Size as required; Nema-3R or Ga.#16 with cover and appropriate knock-outs, painted (1 coat primer; 2 coats gray paint)

9. Hardwares

a. Lock set "Schlage, Alpha", or approved equivalent. Lever

type for Classroom doors and Toilet door for Person with

Disability (PWD)

b. Door Hinges "Stanley", Loose pin, wrought steel button tip

ball, or approved equivalent.

10. Carpentry Works a. Panel Doors Tanguile, Kiln Dried (1 3/4" thk.)

b. Flush Doors Hollow core (1 3/4" thk) with Two facemarine plywood, for toilet Doors Tanguile Kiln Dried (1 3/4" thk)

c. Door Jambs 2" x 6" (50mm x 150mm) Tanguile/Guijo/Yacal

d. Windows (Front) Clear Glass panel blades in Jalou plus casing with transom (satin-finish) on 2" x 6" Tanguile/Guijo sill.

e. Windows (Rear) For Multi-storey; Steel Casement Windows with 1/4" thick clear glass

f. Chalkboards 1/4" thk. Lawanit Paint Finish on 2"x2" Tanguile, Kiln Dried S

- RDovetail Anchor Slots

Standard size, 20 gauge galvanized steel with removable filler installed for abutting masonry and at 24 inch o. c. for facing masonry where shown.

- Flashing Reglets

26 gauged galvanized sheet, with removable filler and beveled edges.

- Anchoring Inserts

Approved propriety type inserts for the load capacity and use shown.

- Fabricated Embedments

Install only as shown and as specified.

- Form Release

Non-staining, non-reactive rust preventive guaranteed not to affect bond of surface application to concrete.

F. FABRICATION AND ERECTION

- Forms

Design, construct, erect, support, brace, maintain and remove forms in conformance with the requirements of ACI318 part 1, 2 and 3 exclusive and ACI347 for loads lateral pressure and allowable stresses; in addition to other design parameters such as wind loads.

- Shores

Shores shall be adjustable by screw jacks or wedges.

- Preparation of Forms

Clean forms before each use. All steel forms shall be free of rust and scale.

- Form Re-use: The Number of reuses is dependent on the resulting finish quality and is subject to approval.
- Form Joints; Forms shall be butted types.
- External Corner: Chamfered unless noted.

- Cleanouts: Where required provide temporary openings panels in the forms to facilitate cleaning, placing and inspection.
- Cambers: Where specified camber is noted position the forms to maintain hardened concrete lines with specified tolerances measured for camber lines. Camber is to maintain as noted plus or minus 3mm (1/8 inch) until shoring is removed.
- Form Release: Coat removable forms with forms release agent before reinforcing is placed and in accordance with manufacturer's instruction. Remove release agents from reinforcing steel embedments solvents recommended by the manufacturer.

G. STRIPPING AND RESHORING

- General: Do not remove forms or shoring until the concrete members have acquired sufficient strength to support their weight and subsequent construction loads without defection. Forms shall be moved in a manner to assure safety of the structure.
- Time: Form and supports shall remain in place until the concrete has attained sufficient strength to support the loads to be applied but in no case shall they be stripped in less than the following minimum periods.

Columns	-	2 days
Walls	-	2 days
Sides of Beams and Girders	-	2 days
Floor Slabs	-	14 days
Shoring for Beams and Girders	-	14 days
Beam and Girders	-	14days

- Reshore: Reshore immediately after stripping slab, beams and girders that support subsequent formwork. Retain reshore for as many levels as required to combine the liveload capacities of cured floors to support the loads of the subsequent fresh construction loads. Reshore at minimum of two consecutive levels.

MASONRY WORK

A. SCOPE OF WORK

- Furnish all labor, materials, equipment, plant and other facilities and perform all operations on necessary to complete the Masonry Work requirements hereinafter specified.
- All work under this Division shall be subject to the General Conditions accompanying these specifications. The Contractor and Sub-Contractor for this portion of the work are required to refer specifically thereto.

B. MATERIALS

- Concrete Hollow Blocks: Shall be Machine Bilt, Non-Load Bearing (NLB) or approved equivalent. Minimum face shell thickness shall be 1" Nominal face 7" x 17" normal thickness shown. Hold all units in storage for a period of not less than 28 days (including curing period) and do not deliver prior to that time unless strength and other test indicate compliance with this specification.
- Mortar Aggregate: Natural river sand, clean free from soluble salts and organic matter, grades from fine to coarse, compatible with the thickness of joints in which used.
- Cement: Shall be Portland cement/Union Premium or approved equal.
- Mortar:

General: Mix mortar from 3 to 5 minutes in such quantities as are needed for immediate use. No retampering will be permitted on mortar stiffness because of premature setting. Discard such materials, as well as those that have not been used within one hour after mixing.

Proportioning: Cement mortar shall be one (1) part Portland Cement and two (2) parts sand by volume but not more than one (1) Portland cement and three (3) parts sand by volume.

C. HANDLING AND STRUCTURE

- Take care in handling masonry units to avoid chipping and breakage. Locate storage piles and stacks so as to avoid being disturbed. Barricade to protect from damage by construction operation. Stack masonry units, reinforcement and other materials on wood blocking above ground.

D. SCAFFOLDING

- Provide all scaffolding required for masonry work, including cleaning down on completion, remove.

E. SAMPLES AND TESTING

- Sample blocks shall be taken at random from every one thousand (1000) blocks delivered. Average strength of concrete hollow blocks shall not be less than 400 lbs. per square inch. Test shall be at the expense of the Contractor.

F. CUTTING AND PATCHING

- Consulting other trades in advance of masonry work and make provision for installation of their work to avoid unnecessary cutting and patching. Experienced masons shall do all cutting and patching.

G. HOLLOW METAL FRAMES

- Fill jamb of all pressed steel hollow frames occurring in masonry walls with mortar and carefully point all joints between metal frames and adjacent masonry and other construction.

H. WALL FLASHING

- Build in wall flashing at base of cavity wall formed to exclude water, bended in and covered with mortar. Keep joints to a minimum but where necessary, lap 6' and seal with plastic cement.

I. LAYING CONCRETE BLOCKS

- Lay units in common bond with uniform coursing and jointing. All concrete block joints shall be uniform thickness, approximately 3/8 tooled concave where exposed and flush cut where concealed, making 16' x 8' course. Butter vertical and horizontal joints full with mortar.

Bond courses at corners and intersection and tie to abutting walls as per TRU-LOK Specifications.

Reinforce concrete block walls continuously in two 2) consecutive courses below openings; using TRU-LOK shall be provided at every 16" of vertical wall height for load bearing walls. Lay units full thickness of partition from floor slabs to height shown, and where necessary cut.

GLASS AND GLAZING

A. SCOPE OF WORK

- Furnish all labor equipment, plant and other facilities required to complete all glazing work as shown in the drains and schedule and hereinafter specified.
- All work included under this division shall be subject to the General Conditions accompanying these specifications. The Contractor and the Sub-Contractor for this portion of the work is required to refer especially thereto.

B. GENERAL

- The type and the location of the glass are indicated. Determine the actual size by measuring the opening to be glazed, each piece of glass shall bear the Manufacturer's label giving his name and the quality, type and thickness of the glass. Do not remove label until final cleaning.

C. MATERIALS

- All glass for the aluminum storefront and drops shall be..." thick tinted polish plate glass as indicated in the schedule of windows and shall be those manufactured by the Republic Glass or approved equal.
- Size shall be those shown on the drawings.

D. SHOP DRAWINGS

- The Contractor shall furnish copies of the drawings showing dimensions and details and indicating all necessary items to the Architect for approval.
- Any correction required by the Architect shall be done immediately by the Contractor and corrected copies of drawings affected shall be returned to the Architect. The examination and approval of shop drawings by the Architect shall not relieve the Contractor from any obligation to perform the work strictly in accordance with plans and specifications. The responsibility for errors in shop drawings shall remain with the Contractor.

E. INSTALLATION OF GLASS

- General: Employ only skilled labor. Set glass without springing, accurately fitted and carefully set using setting and spacer blocks in accordance with the recommendation of the glass manufacturer. Set all glass before final painting. Take every precaution to insure first-glass free from edge chips cracks or other defects and all glazing materials properly installed to meet approval.
- Examination of Surfaces: Before commencing the setting examine surfaces and report to the Architect in writing any defect in it. Commencement of work shall indicate the acceptance of the surface as satisfactory.
- Breakage: The Contractor shall be responsible for all glass broken because of faulty setting and shall be replaced at his expense.
- Expansion: Allow for expansion of glass as per manufacturer's recommendation.

F. GUARANTEE

- Furnish guarantee to Owner as per requirements of the General Conditions for the period of one year after date of final acceptance of building.

Section VII. Drawings

Insert here a list of Drawings. The actual Drawings, including site plans, should be attached to this section or annexed in a separate folder.

