

# **PHILIPPINE BIDDING DOCUMENTS**

Government of the Republic of the Philippines

## **DESIGN AND BUILD of the RENOVATION AND REHABILITATION OF THE 5<sup>TH</sup> FLOOR OF THE SANDIGANBAYAN CENTENNIAL BUILDING**

for the

**Sandiganbayan**

**PUBLIC BIDDING NO. 19-048-9**

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## CHECKLIST OF ELIGIBILITY AND FINANCIAL DOCUMENTS FOR SUBMISSION

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**DOCUMENTARY REQUIREMENTS SHOULD BE APPROPRIATELY SIGNED AND PROPERLY TABBED, AS FOLLOWS:**

### **I. TECHNICAL COMPONENT**

<b>A. ELIGIBILITY DOCUMENTS</b>	
<b>CLASS "A" DOCUMENTS</b>	
<i>Legal Documents</i>	
<b>TAB A</b>	Authority of the Signatory ( <b>Secretary's Certificate</b> for corporations/partnerships/cooperatives or <b>Special Power of Attorney (SPA)</b> for sole proprietorships).
<b>TAB B</b>	Philippine Government Electronic Procurement System (PhilGEPS) Certificate of Registration and Platinum Membership
<b>TAB C</b>	<p>Statement of the Bidder's Single Largest Completed Contract (SLCC) similar to the contract to be bid, in accordance with ITB Clause 5.4., with attached:</p> <ol style="list-style-type: none"> <li>1. Notice of Award (NOA) and/or Notice to Proceed (NTP),</li> <li>2. Project Owner's Certificate of Final Acceptance (POCFA) 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 (accompanied by certification from the head of the company or his/her authorized representative that the document submitted is substantial equivalent to the required <i>NOA or NTP</i> and <i>POCFA or CPES</i>) shall be submitted, using the form prescribed in <b>Section IX. Bidding Forms</b>.</li> </ol>
<b>TAB D</b>	<p>Statement of all its ongoing government and private contracts, including contracts awarded but not yet started, whether similar or not similar in nature and complexity to the contract to be bid, if any, with supporting documents using the forms prescribed in <b>Section IX. Bidding Forms</b>.</p> <ol style="list-style-type: none"> <li>1. Statement of All Ongoing Government and Private Construction Contracts;</li> <li>2. Statement of All Government and Private Contracts Awarded but</li> </ol>

	not yet started.
<b>TAB E</b>	<i>If applicable:</i> 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;
<b>TAB F</b>	Net Financial Contracting Capacity (NFCC) Computation in accordance with ITB Clause 5.5,
<b>CLASS "B" DOCUMENT</b>	
<b>TAB G</b>	<i>If applicable,</i> Venture Agreement (JVA) in accordance with RA 4566 using the form prescribed in Section IX. Bidding Forms.
<b>B. TECHNICAL DOCUMENTS</b>	
<b>TAB H</b>	<p>Bid security in accordance with ITB Clause 18. If the Bidder option to submit the bid</p> <p>security in the form of:</p> <ul style="list-style-type: none"> <li>• Bid Securing Declaration using the form prescribed in Section IX. Bidding Forms; or</li> <li>• Cash, Cashier's/Manager's Check, 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 equivalent to two percent (2%); or</li> <li>• Surety Bond equivalent to five percent (5%), it shall be accompanied by a certification by the Insurance Commission that the surety or insurance company is authorized to issue such instruments.</li> </ul>
<b>TAB I</b>	<p>Project Requirements, which shall include the following:</p> <ol style="list-style-type: none"> <li>1. Bidder's Organizational Chart for the Contract;</li> <li>2. List of bidder's personnel (e.g., Project Manager, Project Engineers, Materials Engineers, etc.), 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, using the forms prescribed in Section IX. Bidding Forms: <ol style="list-style-type: none"> <li>a. Key Personnel's Affidavit of Commitment to Work on the Contract.</li> </ol> </li> <li>3. List of Bidder's Major Equipment Units Pledged to the Contract owned, leased, and/or under purchase agreements using the form prescribed in Section IX. Bidding Forms, supported by any of the following, as the case may be, which must meet the minimum</li> </ol>



	<p>requirements for the contract set in the BDS:</p> <ol style="list-style-type: none"> <li>a. Proof of Ownership (Official Receipt and Certificate of Registration for motor vehicles and heavy equipment or Deed of Sale/Official Receipt for other equipment); or</li> <li>b. Bidder's Certification on the Equipment for the Contract.</li> </ol>
<b>TAB J</b>	Sworn statement in accordance with Section 25.3 of the IRR of RA 9184, using the form prescribed in Section IX. Bidding Forms.
<b>TAB K</b>	<p>Other Technical Documentary Requirements:</p> <ol style="list-style-type: none"> <li>1. Preliminary Conceptual Design</li> <li>2. Design and Construction Methods</li> <li>3. Value Engineering analysis of Design and construction Methods.</li> <li>4. Professional Regulation Commission (PRC) ID of the required key personnel as stated in the Bid Data Sheet (BDS);</li> <li>5. Bid Bulletin issued by the Bids and Awards Committee (BAC), if any;</li> </ol>

## **II. FINANCIAL COMPONENT**

<b>Financial Bid/Proposal</b> , using the form prescribed in Section IX. Bidding Forms.	
<b>TAB L</b>	Financial Bid Form, which includes bid prices and the bill of quantities, in accordance with ITB Clauses 15.1 and 15.3; and
<b>TAB M</b>	Detailed Estimate in the form of Unit Price Analysis, as stated in the BDS
<b>TAB N</b>	Cash Flow by the quarter and payment schedule, as stated in the BDS

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

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Republic of the Philippines  
Department of Budget and Management  
**PROCUREMENT SERVICE**  
**BIDS AND AWARDS COMMITTEE**



## Invitation to Bid

*for the*

**DESIGN AND BUILD**  
**of the**  
**RENOVATION AND REHABILITATION OF THE 5<sup>TH</sup> FLOOR OF THE**  
**SANDIGANBAYAN CENTENNIAL BUILDING**

**PUBLIC BIDDING NO. 19-048-9**

The *Sandiganbayan* through the *Procurement Service*, through the *General Appropriations Act for FY 2017* intends to apply the sum of *Sixty Million Five Hundred Fifty Thousand Eight Hundred Nineteen Pesos (Php 60,550,819.00)* being the Approved Budget for the Contract (ABC) to payments under the contract for the *Design and Build of the Renovation and Rehabilitation of the 5<sup>th</sup> Floor of the Sandiganbayan Centennial Building*. Bids received in excess of the ABC shall be automatically rejected at bid opening.

1. The *Procurement Service* now invites bids for:

Qty	Item / Description	Approved Budget for the contract	Delivery Period
1 Lot	<b>DESIGN AND BUILD of the RENOVATION AND REHABILITATION OF THE 5<sup>TH</sup> FLOOR OF THE SANDIGANBAYAN CENTENNIAL BUILDING</b>	₱ 60,550,819.00	The Intended Completion Date is within Three Hundred Fifty Five (355) Calendar Days from receipt of NTP.

Bidders should have completed a contract similar to the Project. The description of an eligible bidder is contained in the Bidding Documents, particularly, in Section II. Instructions to Bidders.

2. 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.

3. Interested bidders may obtain further information from the *Procurement Service* and inspect the Bidding Documents at the address given below from 8:00 AM to 5:00PM.

4. A complete set of Bidding Documents may be acquired by interested Bidders from the address below and upon payment of Bidding Documents in the amount as follows:

Qty	Item / Description	Amount of Bid Documents
1 Lot	DESIGN AND BUILD of the RENOVATION AND REHABILITATION OF THE 5 <sup>TH</sup> FLOOR OF THE SANDIGANBAYAN CENTENNIAL BUILDING	₱ 7,000.00

The schedule of bidding activities is as follows:

ACTIVITIES	SCHEDULE	VENUE
Advertisement/Posting of Invitation to Bid	February 19, 2019	<a href="http://www.philgeps.gov.ph">www.philgeps.gov.ph</a>
Issuance and Availability of Bid Documents	February 19, 2019	PS-DBM, CRISTOBAL ST., PACO, MANILA
Pre-Bid Conference	February 26, 2019; 1:30 P.M	PS-DBM, CRISTOBAL ST., PACO, MANILA
Request for Clarification	March 02, 2019	PS-DBM, CRISTOBAL ST., PACO, MANILA
Issuance of Supplemental Bid Bulletin	March 05, 2019	<a href="http://www.philgeps.gov.ph">www.philgeps.gov.ph</a>
Deadline of Submission and Opening of Bids	March 12, 2019; 1:30 P.M	PS-DBM, CRISTOBAL ST., PACO, MANILA

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

5. Bids must be duly received by the Procurement Division IX (PDIX) of the Procurement Service at the address below on or before **March 12, 2019; 1:30 PM**. All bids must be accompanied by a bid security in any of the acceptable forms and in the amount stated in **ITB** Clause 18.
6. The *Procurement Service* 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.

7. For further information, please refer to:

*PROCUREMENT SERVICE  
RR Road, Cristobal St., Paco, Manila  
689-7750  
pd9@ps-philgeps.gov.ph*



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**DALISAY CONTRINA P. DELA CHICA**  
Chairperson  
Bids and Awards Committee IX

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

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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 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 Section IX. Bidding Forms.

### **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 banks certified by the BSP as authorized to issue such financial instrument.</i>	Two percent (2%)

<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>	<p>Five percent (5%)</p>

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 Section IX. Bidding 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. 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 0 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***

N

# Bid Data Sheet

ITB Clause	
1.1	<p>The Procuring Entity is <i>the Sandiganbayan</i>.</p> <p>The name of the Contract is <b><i>Design and Build of the Renovation and Rehabilitation of the 5<sup>th</sup> Floor of the Sandiganbayan Centennial Building</i></b>.</p> <p>The identification number of the Contract is PUBLIC BIDDING NO. 19-048-9.</p>
2	<p>The Funding Source is:</p> <p>The Government of the Philippines (GoP) through the <i>General Appropriations Act for FY 2017</i> in the amount of <b><i>Sixty Million Five Hundred Fifty Thousand Eight Hundred Nineteen Pesos (Php 60,550,819.00)</i></b>.</p> <p>The name of the Project is: <b><i>Design and Build of the Renovation and Rehabilitation of the 5<sup>th</sup> Floor of the Sandiganbayan Centennial Building</i></b>.</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	<p>For this purpose, similar contracts shall refer to: <b><i>any contract in both design and construction with a contract amount of at least Php 30,275,409.50</i></b></p> <p>Adjusted contract price must be supported by the bidder's computation.</p>
8.1	Subcontracting is not allowed.
8.2	Not applicable.
9.1	<p>The Procuring Entity will hold a pre-bid conference for this Project on <b>February 26, 2019; 1:30 PM at</b></p> <p>Procurement Service Bids and Awards Committee IX 2nd Floor, PS Complex, RR Road Cristobal St., Paco, Manila</p>
10.1	<p>The Procuring Entity's address for clarification(s) on and/or interpretation of any part of the Bidding Documents is through:</p> <p><b><i>PROCUREMENT SERVICE BIDS AND AWARDS COMMITTEE IX RR Road, Cristobal St., Paco, Manila</i></b></p>

	689-7750 <i>pd9@ps-philgeps.gov.ph</i>
10.4	No further instructions.
12.1	<p>In the submission of bids, the following additional documents are required to be submitted during the opening of bids.</p> <p>i. Preliminary Conceptual Design Plans;</p> <p>ii. Design and construction methods;</p> <p>iii. Value engineering analysis of design and construction method.</p>
12.1 (a) (i)	<p>Valid and Current Certificate of PhilGEPS Registration ( Platinum Membership)</p> <p>The Valid PhilGEPS Certificate of Registration (Platinum Membership) shall reflect the following:</p> <p><i>a. SEC Registration Certificate/DTI Certificate for Sole Proprietorship/Cooperative Development Authority (CDA) for Cooperative;</i></p> <p><i>b. 2019 Mayor's/Business Permit for 2019</i></p> <p><i>c. Valid and Updated Tax Clearance;</i></p> <p><i>d. 2017 Audited Financial Statement; and</i></p> <p><i>e. Valid and Updated PCAB License</i></p> <p>If any of the listed documents are not updated/valid the bidder should also submit together with the philGEPS Platinum Certificate of Registration and Membership the updated/ valid file.</p>
12.1 (a) (ii)	<p>Bidders must also submit the following:</p> <p>1. Duly signed Statement of all Ongoing Government &amp; Private Construction Contracts including contracts awarded but not yet started.</p> <p><i>The supporting documents stated in the said form shall be submitted during post-qualification evaluation</i></p> <p>2. Duly signed Statement showing the bidder's Single Largest Completed Contract which is similar in nature.</p> <p><i>The supporting documents stated in the said form shall form part of the eligibility and technical documents to be submitted during opening of bids.</i></p> <p>See sample forms under Section IX. Bidding Forms.</p>
12.1(a)(iii)	The minimum PCAB Registration required for this project: Medium A

	(General Building), Category B																					
12.1(b)(ii) (ii.2)	<p>The minimum years of relevant experience requirements for key personnel are the following:</p> <p>i.</p> <table border="1"> <thead> <tr> <th><i>Key Personnel for Design</i></th><th><i>Minimum Relevant Experience</i></th></tr> </thead> <tbody> <tr> <td>1. Project (Licensed Architect)</td><td rowspan="8">(description and years per TOR)</td></tr> <tr> <td>2. Structural Engineer</td></tr> <tr> <td>3. Civil Engineer</td></tr> <tr> <td>4. Professional Electrical Engineer</td></tr> <tr> <td>5. Professional Mechanical Engineer</td></tr> <tr> <td>6. Sanitary Engineer</td></tr> <tr> <td>7. Environmental Specialist/Engineer</td></tr> <tr> <td>8. Electronics and Communications Engineer</td></tr> </tbody> </table> <p>ii.</p> <table border="1"> <thead> <tr> <th><i>Key Personnel for Construction</i></th><th><i>Minimum Relevant Experience</i></th></tr> </thead> <tbody> <tr> <td>1. Project (Licensed Architect)</td><td rowspan="5">(description and years per TOR)</td></tr> <tr> <td>2. Project (Civil Engineer)</td></tr> <tr> <td>3. Professional Electrical Engineer</td></tr> <tr> <td>4. Professional Mechanical Engineer</td></tr> <tr> <td>5. Sanitary Engineer</td></tr> <tr> <td>6. Safety Officer</td><td>Any Bachelors Degree (With Construction Occupational Safety and Health Training (COSH or BOSH) with minimum 5 years experience in Occupational Health and Safety.</td></tr> </tbody> </table> <p><i>Note:</i></p> <ul style="list-style-type: none"> <li>* <i>Key Personnel's Affidavit of Commitment to Work on the Contract;</i></li> <li>* <i>One (1) person should not be assigned to more than one (1) specific position/ designation at a time.</i></li> <li>* <i>This List must be supported by individual resumes of all personnel and photocopy of PRC Licenses of the Engineers.</i></li> </ul> <p>See sample forms under Section IX. Bidding Forms.</p>	<i>Key Personnel for Design</i>	<i>Minimum Relevant Experience</i>	1. Project (Licensed Architect)	(description and years per TOR)	2. Structural Engineer	3. Civil Engineer	4. Professional Electrical Engineer	5. Professional Mechanical Engineer	6. Sanitary Engineer	7. Environmental Specialist/Engineer	8. Electronics and Communications Engineer	<i>Key Personnel for Construction</i>	<i>Minimum Relevant Experience</i>	1. Project (Licensed Architect)	(description and years per TOR)	2. Project (Civil Engineer)	3. Professional Electrical Engineer	4. Professional Mechanical Engineer	5. Sanitary Engineer	6. Safety Officer	Any Bachelors Degree (With Construction Occupational Safety and Health Training (COSH or BOSH) with minimum 5 years experience in Occupational Health and Safety.
<i>Key Personnel for Design</i>	<i>Minimum Relevant Experience</i>																					
1. Project (Licensed Architect)	(description and years per TOR)																					
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12.1(b) (ii) (ii.3)	<p>The minimum major equipment requirements are the following:</p> <table><tr><th>Item No.</th><th>Number of Units</th><th>Equipment</th><th>Capacity</th></tr><tr><td>1</td><td>1</td><td>Portable Crane Lift or equivalent Equipment</td><td>-</td></tr><tr><td>2</td><td>1</td><td>Dump Truck</td><td>10 cu.m.</td></tr><tr><td>3</td><td>1</td><td>Power Broom</td><td>-</td></tr><tr><td>4</td><td>1</td><td>Generator Set</td><td>40KVA</td></tr><tr><td>5</td><td>1</td><td>One Bagger Concrete Mixer</td><td>-</td></tr></table> <p><i>Note: The bidder may choose the ff. options:</i></p> <p>1. Proof of ownership to be included in the Technical Proposal; or</p> <p>2. Lease Agreement between lessor and lessee and Proof of Ownership of the Lessor to be included in the Technical Proposal; or</p> <p>3. Purchase Agreement between the bidder and the owner. Certification of availability of equipment from the vendor for the duration of the project.</p> <p>See sample forms under Section IX. Bidding Forms.</p>	Item No.	Number of Units	Equipment	Capacity	1	1	Portable Crane Lift or equivalent Equipment	-	2	1	Dump Truck	10 cu.m.	3	1	Power Broom	-	4	1	Generator Set	40KVA	5	1	One Bagger Concrete Mixer	-
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3	1	Power Broom	-																						
4	1	Generator Set	40KVA																						
5	1	One Bagger Concrete Mixer	-																						
13.1	No additional Requirements																								
13.1(b)	<p>This shall include all of the following documents:</p> <p>1. Lump sum bid prices, which shall include the detailed engineering cost, in the bill of quantities (BOQ) in the prescribed form.</p> <p>2. Detailed estimates including a summary sheet indicating the unit prices of construction materials, labor rates and equipment and rentals used in coming up with the bid (VAT shall be 12% of the sum of Direct Costs &amp; Total Mark-Up)</p> <p>3. Cash flow by the quarter and payment schedule.</p>																								
13.2	The ABC is <b><i>Sixty Million Five Hundred Fifty Thousand Eight Hundred Nineteen Pesos (Php 60,550,819.00)</i></b> . Any bid with a financial component exceeding this amount shall not be accepted.																								
14.2	No further instruction.																								
15.4	No further instruction.																								
16.1	The bid prices shall be quoted in Philippine Pesos.																								
16.3	No further instructions.																								



17.1	The Bid Security shall be valid for One Hundred Twenty (120) Calendar Days from the date of opening of bids.
18.1	<p>The bid security shall be in the form of a Bid Securing Declaration or any of the following forms and amounts:</p> <ol style="list-style-type: none"> <li>1. The amount of <b>One Million Two Hundred Eleven Thousand Sixteen Pesos and 38/100 (P 1,211,016.38)</b>, if bid security is in form of cash, cashier's/manager's check, bank draft/guarantee or irrevocable letter of credit;</li> <li>2. The amount of <b>Three Million Twenty Seven Thousand Five Hundred Forty Pesos and 95/100 (P 3,027,540.95)</b>, if bid security is in form of Surety Bond.</li> </ol>
18.2	The Bid Security shall be valid for <i>One Hundred Twenty (120) Calendar Days</i> from the date of opening of bids.
20.3	<p>Each Bidder shall submit One (1) original and Two (2) copies of the first and second components of its bid.</p> <p>The duplicate- <i>i.e. copy 1</i>, must include the same documents as that of the original set of documents. In case, however, a bidder opts to submit cash as bid security, copy 1 need not contain photocopies of the same.</p>
21	<p>The address for submission of bids is:</p> <p><i>Procurement Service Bids and Awards Committee IX 2nd Floor, PS Complex, RR Road Cristobal St., Paco, Manila</i></p> <p>The deadline for submission of bids is on <b>March 12, 2019; 1:30 PM.</b></p>
24.1	<p>The place of bid opening is:</p> <p><i>PS Conference Room 2nd Floor, PS Complex, RR Road Cristobal St., Paco, Manila</i></p> <p>The bid opening will be held immediately after the deadline of submission of bids.</p> <p>During the opening of bids only the authorized representative shall be allowed to assist in the opening of bids. In case the authorized representative is not present, any representative of the authorized representative may be allowed to assist in the opening of bids provided that a separate written authorization from the authorized representative shall be presented for the purpose. Provided that the authorized representative is duly authorized to issue such further authority and the same is reflected in the Board</p>

	Resolution and/or Secretary's Certificate.
24.2	No further instructions.
24.3	No further instructions.
27.3	Partial bid is not allowed. The infrastructure project is packaged in a single lot and the lot shall not be divided into sub-lots for the purpose of bidding, evaluation, and contract award.
27.4	No further instructions.
28	<p>No other licenses and permits required.</p> <p>For purposes of Post-qualification the following document(s) shall be required:</p> <p>Proof of Ongoing and Awarded Contracts but not yet started contracts as identified in the Statement of All Ongoing Government &amp; Private Contracts, which shall include the following:</p> <ol style="list-style-type: none"> <li>1. Notice of Award for projects that are awarded but not yet started or equivalent; <b>and</b></li> <li>2. Certificate of accomplishments signed by the Owner or Project Engineer of the Owner should be submitted for on-going projects.</li> <li>3. Clearance/Certificate of No Pending Case from Sandiganbayan.</li> </ol> <p><i>N.B. Documents submitted during post-qualification as part of post-qualification documents must be certified by the authorized representative to be true copy/ies from the original.</i></p>
28.2	<p>The following income and business tax returns shall be required:</p> <ol style="list-style-type: none"> <li>1. Latest Income Tax Returns for 2018 for fiscal/calendar year (BIR Form 1701 or 1702) is required; and</li> <li>2. Value Added Tax Returns (Forms 2550M and 2550Q) or Percentage Tax Returns (Form 2551M) covering the six months period immediately preceding the date of opening of bids.</li> </ol> <p>The income tax and business tax returns stated above should have been filed through the Electronic Filing and Payment System (EFPS).</p> <p><i>N.B. Documents submitted during post-qualification as part of post-qualification documents must be certified by the authorized representative to be true copy/ies from the original.</i></p>
31.4(f)	<i>Additional documentary requirements to be submitted not later than ten (10) calendar days upon receipt of the Notice of Award.</i>

	<ol style="list-style-type: none"> <li>1. <i>Program of Works, to include but not limited to, construction schedule and S-curve, manpower schedule, construction methods, equipment utilization schedule, PERT/CPM and cash flow and payment schedule;</i></li> <li>2. <i>Construction Safety and Health Program (CSHP) approve by the Department of Labor and Employment (DOLE); evidence of submission as receive by DOLE is acceptable.</i></li> </ol>
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## ***Section IV. General Conditions of Contract***

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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***



# Special Conditions of Contract

GCC Clause									
1.17	The <b>Intended Completion Date</b> is within Three Hundred Fifty Five (355) Calendar Days from receipt of NTP.								
1.22	The Procuring Entity is:  Sandiganbayan Commonwealth Avenue cor. Batasan Road Quezon City								
1.23	The Procuring Entity's Representative is the Sandiganbayan's Project Manager concerned.								
1.24	The <b>Site</b> is located as follows: <table><tr><th>Qty</th><th>Item / Description</th><th>Location</th></tr><tr><td>1 Lot</td><td><b><i>Design and Build of the Renovation and Rehabilitation of the 5<sup>th</sup> Floor of the Sandiganbayan Centennial Building.</i></b></td><td>Commonwealth Avenue cor. Batasan Road, Q.C.</td></tr></table>			Qty	Item / Description	Location	1 Lot	<b><i>Design and Build of the Renovation and Rehabilitation of the 5<sup>th</sup> Floor of the Sandiganbayan Centennial Building.</i></b>	Commonwealth Avenue cor. Batasan Road, Q.C.
Qty	Item / Description	Location							
1 Lot	<b><i>Design and Build of the Renovation and Rehabilitation of the 5<sup>th</sup> Floor of the Sandiganbayan Centennial Building.</i></b>	Commonwealth Avenue cor. Batasan Road, Q.C.							
1.28	The Start Date is <i>the effective date indicated in the Notice to Proceed.</i>								
1.31	Design and Build of the Renovation and Rehabilitation of the 5 <sup>th</sup> Floor of the Sandiganbayan Centennial Building.								
2.2	No further instructions.								
5.1	The <b>Sandiganbayan</b> shall give possession of all parts of the Site to the Contractor beginning on the date of effectivity of contract until the date of its termination and/or project completion.								
6.5	The Design and Build Contractor shall employ the following <b>Key Personnel as stated in BDS Clause 12.1(b)(ii) (ii.2).</b>								
7.4(c)	No further instructions.								
7.7	No further instructions.								
8.1	No further instructions.								
10	The site investigation reports are as stated in the Terms of Reference.								
12.3	No further instructions.								
12.5	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,								

	<p>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.</p> <p>In case of semi-permanent structures, such as buildings of types 1, 2, and 3 as classified under the National Building Code of the Philippines, concrete/asphalt roads, concrete river control, drainage, irrigation lined canals, river landing, deep wells, rock causeway, pedestrian overpass, and other similar semi-permanent structures: Five (5) years.</p> <p>In case of other structures, such as Bailey and wooden bridges, shallow wells, spring developments, and other similar structures: Two (2) years.</p> <p>The Certificate of Acceptance shall be issued by the Sandiganbayan after the one-year defects and failures, if any, shall have been repaired by the Contractor to the satisfaction of Sandiganbayan. This Certificate shall be issued after the submission of an Acceptance Report by the Inspectorate Team and the warranty certificate of the Contractor.</p> <p>However, the contractor will still be held responsible for structural defects and/or failure of the completed project. The warranty period shall be 5 years from the final acceptance.</p> <p>In effect, even after the defects liability period, the warranty security shall still be required during the above applicable periods, and shall be returned only after the lapse of the above applicable warranty period. The warranty should be the full amount for the first year, and renewable every year thereafter, but subject to a reduction every year by the amount of depreciation on a straight line basis. For example, a project with a five (5) year warranty will have on its first year of warranty the full amount, for the second year <math>\frac{4}{5}</math> of the full amount, for the third year <math>\frac{3}{5}</math> of the full amount, for the fourth year <math>\frac{2}{5}</math> of the full amount, and the fifth year <math>\frac{1}{5}</math> of the full amount. Thus, for a five-year contract worth P 100 million, a warranty security in the form of a surety bond shall amount to P 30 million on the first year, P24 million on the second, P18 million on the third, P12 million on the fourth, and P6 million on the last year of effectivity.</p>
13	All partners to the joint venture shall be jointly and severally liable to the Procuring Entity.
15	<p>Contractor's All Risk Insurance (CARI)</p> <p>Shall be submitted by the contractor as part of the requirements for contract facilitation.</p>
18.3(h)(i)	No further instructions.
21.2	<p>The Arbiter is:</p> <p>Construction Industry Arbitration Commission 2/F &amp; 5/F, Executive Center Bldg. 369 Gil Puyat Ave., cor. Makati Ave., Makati City</p>

	Tel. Nos.: (+632) 895.4424 / 895.6826 Fax No.: (+632) 897.9336 E-mail: <b>ciapdti@yahoo.com</b>
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 <i>ten (10) calendar days</i> from acceptance of Notice of Award.
31.3	The period between Program of Work updates is 30 calendar days.  The amount to be withheld for late submission of an updated Program of Work is 5% of the contract amount.
34.3	The Funding Source is the <i>Government of the Philippines</i> .
39.1	The amount of the advance payment is 15% of the Contract Price to be paid before Demolition Works.
40.1	No further instructions.
51.1	The date by which operating and maintenance manuals are required is 10 days after project completion.  The date by which "as built" drawings are required is 10 days after project completion.
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 5% of the contract amount.





## ***Section VI. Specifications***

*(Pls see attached separately compiled Terms of Reference (TOR))*

## **TERMS OF REFERENCE**

### **FOR THE RENOVATION AND REHABILITATION OF THE FIFTH FLOOR OF THE SANDIGANBAYAN CENTENNIAL BUILDING UNDER A DESIGN AND BUILD PROCUREMENT SCHEME**

#### **BACKGROUND**

Pursuant to Republic Act No. 10660, two (2) additional Divisions in the Sandiganbayan were created consisting of six (6) new Justices, including their support and administrative staff. The said two (2) Divisions would be requiring office spaces, furniture, fixture and equipment in the discharge of their functions.

The fifth floor of the Sandiganbayan Centennial Building which was vacated by the Office of the Special Prosecutor will house the access stairs, two (2) courtrooms, two (2) Division Clerks of Court, and office spaces of the Sixth and Seventh Divisions and their support staff, and the Office of the Special Prosecution holding room. The current set-up however of the offices on the aforementioned floor is not similar to the second, third and fourth floors where two (2) courtrooms per floor are located, among other things. Hence, there is a need to renovate the same in order to provide a uniform design of offices to accommodate the two (2) additional Divisions.

#### **OBJECTIVE**

The Terms of Reference (TOR) shall provide for the requirements for the preparation of the Detailed Architectural and Engineering Design (DAED) and the renovation and rehabilitation of the Fifth Floor of the Sandiganbayan Centennial Building, as well as the Designer-Builders obligations and warranties, and penalties in cases of breach thereof, which should be handled in the shortest possible time, at the lowest possible cost and at an acceptable quality and performance to the Designer-Builders.

#### **SCOPE OF SERVICES OF DESIGNER-BUILDER**

The Designer-Builders shall perform the following services in four (4) phases:

1. Pre-design Phase
2. Detailed Architectural and Engineering Design (DAED) Phase
3. Construction Phase
4. Post-Construction Phase

#### **I. PRE-DESIGN PHASE**

##### **A. STRUCTURAL ASSESSMENT**

The Designer-Builders shall undertake a detailed structural investigation and assessment of the Sandiganbayan Building in order to assure its structural integrity since the building is beyond 15 years and to determine other conditions

that may probably affect the proposed renovation and rehabilitation of the fifth floor. Said assessment is also the requirement of the Quezon City Building Official. The As-Built Plans and Proposed Schematic Design for the Fifth Floor Renovation and Rehabilitation will be provided by the Sandiganbayan for reference in the conduct of assessment. The Designer-Builder shall submit a report and recommendation on the structural status/integrity of the building containing remediation/proposed plan as the case may be.

#### **B. ENVIRONMENTAL ASPECT**

The Designer-Builder shall prepare and submit an Environmental Performance Report and Management Outline required by the Department of Environment and Natural Resources (DENR) Environmental Management Bureau (EMB), National Capital Region.

#### **C. SITE DEVELOPMENT ANALYSIS**

The Designer-Builder shall conduct a comprehensive site analysis and submit a report thereon taking into consideration the parameters that influence the architectural design, including but not limited to the following:

1. Fifth floor form lay-out and development plans;
2. Physical link options;
3. Infrastructure constraints;
4. Existing service utilities;
5. Environmental issues

#### **D. PRELIMINARY DESIGN CONCEPT**

The Designer-Builder shall undertake architectural studies based on the space requirements of the Sandiganbayan. The studies must include an assessment of the basic court requirements including the administrative and support offices, as well as related facilities provided in the Brief Description of the Functional Design in Annex A, which is made an integral part of these Terms of Reference.

Using the information gathered from the site analysis and in consultation with the Sandiganbayan, the Designer-Builder shall prepare and submit a Preliminary Schematic Design Concept which shall include the basis of the design, design parameters and the Functional Design Brief / Scope of Works, attached herewith as Annex A. The Designer-Builder shall prepare the schematic design taking into consideration a range of harmonized architectural design concepts using techniques and developments in space planning and architectural and engineering designs. The schematic design concept shall include the following:

1. Spatial quality and functional adequacy — using new and effective layout planning systems, the Designer-BUILDER shall explore options to effectively satisfy the requirements of the Sandiganbayan, as indicated in the Matrix for Space/Room Requirements (Annex A);
2. Spatial allocation to meet the requirements of the varied functional, circulatory and operational needs of the new Divisions, including the layout for furniture, fixtures and equipment (FFE);
3. The Designer-BUILDER shall provide a schematic design for the exterior and interior architectural design elements to achieve the desired character of the offices for the Sandiganbayan's two (2) new Divisions.
4. The Designer-BUILDER shall present the schematic design to the Sandiganbayan in a 3-dimensional / perspective layout for comment/approval prior to preparation of the final architectural design concept.

#### **E. DEMOLITION**

The Designer-BUILDER shall commence the necessary demolition works upon receipt of the approved schematic design.

### **II. DETAILED ARCHITECTURAL AND ENGINEERING DESIGN (DAED) PHASE**

Upon approval of the schematic design concept by the Sandiganbayan, the Designer-BUILDER shall prepare the Detailed Architectural and Engineering Design (DAED). The DAED phase shall include the following:

#### **A. TECHNICAL ASPECT**

The Designer-BUILDER shall commence the preparation and conduct of the detailed architectural and engineering design, which shall include the following:

##### **A.1 ARCHITECTURAL AND INTERIOR DESIGN**

The Designer-BUILDER shall make a detailed plan of the specific functional requirements, site access, development of design elements, and an analysis of the spatial layout. The architectural and interior design shall focus on efficient construction detailing which should meet the visual, spatial, technological and ergonomic design objectives, and the required dimensions of structural elements, and shall be aesthetic, worthy of civic pride and provide a conducive working environment. Consistent with the architectural scheme, the interior fit-out design shall be developed, including layout, specifications for furniture, fixtures, and equipment,

modular partitions, and other related furnishings, as may be necessary, for the renovation and rehabilitation of the fifth floor of the Sandiganbayan Centennial Building.

#### **A.2. ENGINEERING AND BUILDING SERVICES DESIGN**

The following engineering and other building services designs shall be prepared:

- a. Structural plan
- b. Electrical plan that includes power and lighting systems, additional outlets specifically at the courtrooms, alternative sources of power supply in case of power outage;
- c. Mechanical and Fire Protection Systems design;
- d. Water supply and distribution systems layout;
- e. Voice and data system layout;
- f. Air-conditioning and ventilation systems;
- g. Closed Circuit Television (CCTV) systems layout;
- h. Information and Communications Technology (ICT) layout;
- i. Computer network cabling design;
- j. Auxiliary system;
- k. Sanitary facilities, plumbing, and drainage systems layout;
- l. Carpentry and floor layout; and
- m. Other utilities/layouts that may be identified by the Sandiganbayan.

Matters relating to air conditioning, power lighting, communications, accessibility and serviceability shall be explored and incorporated in the DAED. Loads and demands of major utilities shall be reviewed and assessed for adequacy of capacities. The operational efficiency of the Sandiganbayan shall be the primary consideration in the final architectural and engineering design.

The Designer-Builder shall submit the DAED to the Sandiganbayan for the latter's approval.

#### **A.3. IMPLEMENTATION SCHEDULE**

The Designer-Builder shall prepare and submit an implementation schedule for all stages of the Project from detailed design up to occupancy of the fifth floor to guide the Sandiganbayan in overseeing the progress of Project, and provide a list of key milestone dates from the design development phase up to subsequent work stages. The Designer-Builder shall also prepare and submit the following documents:

- a. PERT/CPM;

- b. S-Curve;
- c. Bar Chart or Gantt Chart;
- d. Manpower Schedule; and
- e. Equipment Schedule.

## **B. COORDINATION OF DESIGN**

Part of the quality control system is the regular internal design coordination meeting of the Designer-BUILDER and the Sandiganbayan including the design architect and the various engineering disciplines assigned for the project to provide inputs and consistency of contents, aspects and intentions. The Designer-BUILDER shall provide services-coordinated drawings with the use of Detailing Software (DS) to show all the utility systems of the fifth floor layout, reflecting each of the systems in relation to the other utilities to avoid a clash of service lines.

## **C. VALUE ENGINEERING**

The Designer-BUILDER shall regularly coordinate with the Sandiganbayan to keep it updated on the development of the design, and for the purpose of conducting value engineering of the design to provide a more efficient approach at the design development stage rather than at documentation stage.

## **D. FINAL DOCUMENTATION STAGE**

Final documentation shall commence upon approval by the Sandiganbayan of the DAED. The focus at this stage shall be on the production and issuance of complete design drawings, plans, technical specifications, design computations, implementation schedules, and other documents that represent and detail the whole design intent. The level of documentation shall reflect the design and comply with the National Building Code and local regulations for the acquisition of required permits. The Sandiganbayan shall check and review the DAED for the following:

- a. Completeness of the architectural and engineering design documents;
- b. Compliance with laws, rules and regulations; and
- c. Constructability

The final contract documentation package shall be supplied in Drafting and Specification formats. Drawings, specifications and design computations shall be signed and sealed by licensed architects and engineers for each discipline. Electronic files of the complete documents shall be provided. Engineering plans and drawings shall be in CADD format (.dwg) and in pdf format. Other documents shall be in pdf and editable formats.

These documents shall be submitted by the Designer-Builder to the Sandiganbayan for approval.

### **III. CONSTRUCTION PHASE**

#### **A. DESIGNER-BUILDER'S UNDERTAKINGS**

##### **A.1. PERMITS AND CLEARANCES**

The Designer-Builder shall promptly secure the following on its own account:

- a. Building Permit;
- b. Environmental Performance Report and Management Outline (EPRMO), if necessary;
- c. Zoning Permit, Electrical Permit, Fire Safety Permit, Occupancy Permit; and
- d. Other applicable permits and clearances from the local government units/regulating agencies.

##### **A.2. MOBILIZATION AND PROVISION OF TEMPORARY STRUCTURES AND FACILITIES**

The Designer-Builder shall mobilize all the required project team personnel, equipment, tools and manpower with the required skills and in sufficient number as may be necessary for his efficient undertaking of the project. The Designer-Builder shall provide and maintain the following:

- a. Temporary office and/or quarters with water, light, telephone and toilet facilities for the Designer-Builder's project team personnel;
- b. Temporary bunkhouses/quarters for the Designer-Builder's work force complete with toilet and bath facilities; and
- c. Waste staging area/s,

all of which shall be coordinated with the Security Division of the Sandiganbayan.

The Designer-Builder shall also prepare and implement a plan for egress upon completion of the project.

##### **A.3. CONSTRUCTION SUPERVISION**

The Designer-Builder shall execute all the works under the contract in strict accord with standard engineering methodology and procedures and shall be responsible for maintaining cleanliness and orderliness, health and safety of



general public in the project area throughout the duration of the contract. The Sandiganbayan shall assign its own Project Manager as may be necessary.

#### **A.4. ELECTRIFICATION**

The Designer-builder shall pay the expenses for the acquisition of the power connection to the local electric utility/cooperative for the temporary lighting of the work area and temporary facilities.

#### **A.5. QUALITY CONTROL**

The Designer-Builder shall adhere to the approved Minimum Material Testing Plan.

#### **A.6. PROPOSED DESIGN AND CONSTRUCTION SCHEDULE**

The target number of days to complete the construction project is One Hundred Fifty (150) Working days, to begin seven (7) calendar days from receipt of the approved DAED.

The working hours will be as follows:

Monday to Friday	5:00 PM to 1:00 AM
Saturday	8:00 AM to 5:00 PM
Overtime will be allowed subject to the approval of the Officer In Charge of the project.	

### **IV. POST-CONSTRUCTION PHASE**

#### **A. DOCUMENTATION**

The Designer-Builder shall submit the following project documentations within fifteen (15) calendar days from the completion and acceptance of the project:

- A.1. **PUNCH LIST / INSPECTION REPORT** checked and verified by the Technical Inspection and Acceptance Committee, and approved by the Sandiganbayan, as found to be compliant with the DAED;
- A.2. **AS-BUILT PLANS** duly signed and sealed by the concerned engineer with his/her valid registration/professional license number, date of registration and current PTR Number affixed/stamped on every page/sheet of the document of the following:



- Architectural
- Floor Layout
- Civil Design / Structural
- Electrical
- Sanitary/Plumbing
- Mechanical
- Fire Protection
- Other related Plans

- A.3. Other documents processed and issued in favor of the Sandiganbayan during the construction periods (i.e. Inspection Reports, Building / Mechanical / Electrical Permits, Fire Safety Reports, Clearances, and related documents).

## **B. CLEARING OF SITE**

The Designer/Builder shall clean the whole area by removing debris, discards, paint spots, excesses and spillage and shall leave the entire premises free from rubbish caused by their work to the satisfaction of the Sandiganbayan at no extra cost.

## **PROVISIONS COMMON TO ALL PHASES**

### **A. PROPONENT / BIDDER'S RESPONSIBILITIES**

1. The prospective bidders shall be responsible in carefully examining all documents. The bidders shall also acknowledge all conditions, local or otherwise, affecting the contract works, and arrive at an estimate of the facilities available and needed for the project. Failure to do so shall be at the proponent/bidder's risk.
2. The bidders shall determine all matters pertaining to the project, including the location and nature of work, climatic conditions, transportation and communication facilities, requirement and availability of materials, labor, water, electrical power and location and extent of aggregate source, and other factors that may affect the cost, duration and execution of the work. The bidders, by submitting their proposals, acknowledged that they had inspected the project site and determined the general characteristics of the project and conditions indicated above. The Sandiganbayan requires from the bidders a duly notarized affidavit of such site inspection.
3. Prior to the submission of proposals, the bidders are assumed to be familiar with all existing laws, decrees, ordinances, acts and regulations of the Philippines, which may affect or apply to the operations and activities during construction. However, if the cost of the awarded contract is affected by applicable new laws,

decrees, ordinances, regulations and other acts of government promulgated after the date of submission of proposals, a contract price adjustment may be made or appropriate relief be applied on a no loss - no gain basis provided such is not covered by the provisions on price escalation hereof and subject further to the availability of funds.

**B. REQUIREMENTS AND QUALIFICATIONS OF DESIGNER-BUILDER AND KEY PERSONNEL**

1. The Designer-BUILDER shall possess the following minimum qualifications:
  - a. Accreditation and Certification as qualified contractor with the Philippine Contractors Accreditation Board (PCAB) License Category for Buildings
  - b. At least ten (10) years experience in the construction of office fit-out, with minimum experience in two (2) relevant projects with the same scope and nature.
  - c. Not blacklisted by the Government Procurement Policy Board (GPPB), pertinent government agencies, or regulatory bodies.
2. The project requires the services of a team of qualified and competent experts and professional staff. These key personnel must meet the following minimum qualifications:
  - a. Project Architect – A licensed Architect with specialization in areas related to the Project, with at least Five (5) years experience as Project Architect in the preparation of detailed architectural and engineering design, planning and actual construction supervision, with minimum of two (2) projects of similar scope and nature in the last ten (10) years.
  - b. Structural Engineer – A licensed Civil Engineer with a Professional Regulation Commission (PRC) recognition as Structural Engineer, or a member of the Structural Engineering Specialty Division of the Philippine Institute of Civil Engineers (PICE) and an active member of the Association of Structural Engineers of the Philippines (ASEP) with at least ten (10) years experience in structural investigation and assessment of existing buildings including the preparation of detailed architectural and engineering design, planning and supervision, with a minimum of two (2) projects of similar scope and nature as the project handled within the last ten (10) years.
  - c. Project/Civil Engineer – A licensed Civil Engineer with at least five (5) years experience in construction preferably office fit-out, with a minimum of two (2) projects of similar scope and nature handled within the last ten (10) years.
  - d. Professional Electrical Engineer – A licensed Professional Electrical Engineer with at least five (5) years experience in the preparation of electrical systems design, preferable office fit-out including construction supervision of buildings

with a minimum of two (2) projects of similar scope and nature handled within the last ten (10) years.

- e. Professional Mechanical Engineer — A licensed Professional Mechanical Engineer with at least five (5) years experience in the preparation of mechanical and fire protection systems including air-conditioning and ventilation systems design with a minimum of two (2) projects of similar scope and nature handled within the last ten (10) years.
- f. Sanitary Engineer — A licensed Sanitary Engineer with at least five (5) years experience in the preparation of sanitary/plumbing systems design with a minimum of two (2) projects of similar scope and nature handled within the last ten (10) years.
- g. Environmental Specialist — A bachelor's degree holder with at least five (5) years experience in the preparation of detailed Environmental Performance Report and Management Plan (EPRMP), with a minimum of two (2) projects of the similar scope and nature handled within the last ten (10) years.
- h. Electronics and Communications Engineer — A licensed Professional Electronics and Communications Engineer with an appropriate accreditation or IT/ICT Certification; must have at least five (5) years experience in planning, design and implementation of Structured Cabling System (SCS) with at least two (2) projects of similar scope and nature handled within the last ten (10) years.

#### **C. DESIGNER-BUILDER'S WARRANTIES**

1. The Designer-Builder warrants that it shall conform strictly with the terms and conditions of these Terms of Reference.
2. The Designer-Builder warrants, represents and undertakes reliability of the service and that their manpower complements are hardworking, qualified/reliable and dedicated to do the service required to the satisfaction of the Sandiganbayan. It shall employ well-behaved and honest employees with IDs displayed conspicuously while working within the compound. It shall not employ Sandiganbayan employees to work in any category whatsoever.
3. The Designer-Builder shall comply with the following minimum safety and health program:
  - a. Designer-Builder shall provide personal protective equipment (PPE) such as hard hats, raincoats, working shades/clothes, and safety shoes to workers/employees who are assigned to hazardous areas;
  - b. Workers who handle equipment must thoroughly check their equipment, lubricate and handle them properly and should be cautious, extra careful at all times to avoid accidents while on duty;

- c. Wires, nails, bolts and other pointed objects should be properly stored in the working areas to avoid possible injuries/accidents; and
  - d. Workers/Employees are advised against the use of cigarettes, candles and other flammable materials to avoid fire.
  - e. All applicable benefits such as SSS and Philhealth shall be provided to every worker/employee assigned to the project.
  - f. A Medicare / first aid cabinet which contains over the counter drugs and other first aid supplies shall be readily available in case of sickness or accidents. In case of serious injuries, workers / employees should be immediately brought to nearest hospital;
  - g. Drinking liquor and gambling are strictly prohibited for the entire duration of the project.
4. The Designer-BUILDER's personnel shall take all necessary precautions for the safety of all persons and properties at or near their area of work and shall comply with all the standard and established safety regulations, rules and practices.
  5. The Designer-BUILDER shall be liable for any loss, damage, or injury as may be due directly through the fault or negligence of its personnel. It shall assume responsibility thereof and the Sandiganbayan shall be specifically released from any responsibility arising therefrom.
  6. The Designer-BUILDER shall neither assign, transfer, pledge any part or interest therein; however, sub-contracting may be allowed provided that the main contractor shall be responsible for the full compliance of all applicable provisions of this TOR by the sub-contractor.

#### **ID. INSTITUTIONAL ARRANGEMENTS**

1. The Designer-BUILDER shall report to the assigned Project Manager/Engineers of the Sandiganbayan for guidance on the direction, quality and pace of work. Outputs shall be submitted for quality review prior to finalization.
2. During the rendition of services, the Designer-BUILDER shall submit updates every two (2) weeks on the progress of activities, including issues and concerns, to the Sandiganbayan.
3. The Designer-BUILDER shall present deliverables in accordance with the Terms of Reference or as may be required by the Sandiganbayan.
4. The Designer-BUILDER shall, at all times, provide the Sandiganbayan with all the required reports.
5. The Designer-BUILDER shall provide its own computers and other office equipment at no cost to the Sandiganbayan.

6. Bid bulletins issued to prospective bidders shall be considered as integral parts of the Terms of Reference.

**E. SCHEDULE OF SUBMISSION OF DELIVERABLES / PENALTIES IN CASE OF DEFAULT**

DELIVERABLES	SUBMISSION	APPROVAL PERIOD	PENALTY
1. Structural Integrity Assessment and Remediation Report	Thirty (30) calendar days after day one from receipt of Notice to Proceed (NTP)	Thirty (30) calendar days from consolidated submission of 1, 2, 3, and 4	
2. Environmental Performance Report and Management Outline	Fifteen (15) calendar days from receipt of NTP		
3. Site Development Analysis Report	Fifteen (15) calendar days from receipt of NTP		
4. Preliminary Schematic Design Concept	Fifteen (15) calendar days from receipt of NTP		
5. Demolition	Forty-five (45) calendar days from receipt of schematic design		One tenth of one percent (1/10 of 1%) of the cost of the unperformed portion of the works for every day of delay
6. Complete Detailed Architectural and Engineering Design	Forty-five (45) calendar days from receipt of approval of the Schematic Design Concept	Thirty (30) calendar days from submission	One tenth of one percent (1/10 of 1%) of the cost of the unperformed portion of the works for every day of delay
7. Implementation Schedule including PERT/CPM, S-Curve, Bar Chart, Manpower Schedule and Equipment Schedule if			

necessary.			
8. Complete copies of the approved architectural and engineering Design Plans and Drawings and other Documents	Fifteen (15) calendar days from receipt of approval of the architectural and engineering design plans and drawings		
9. Construction Phase	One Hundred Fifty (150) calendar days from receipt of approved architectural and engineering design drawings		One tenth of one percent (1/10 of 1%) of the cost of the unperformed portion of the works for every day of delay
10. As-built Plans	Ten (10) calendar days after completion of the construction phase		
<b>Total</b>	250 days	60 days	

#### F. SCHEDULE OF PAYMENTS

Progress Billing shall be based on the following:

PROGRESS BILLING	PERCENT OF WORK COMPLETED	PERCENTAGE TERMS OF PAYMENT
First Billing	Thirty percent (30%) of the work accomplished	Thirty percent (30%) of the Contract Price less advance payment (mobilization fee)*, applicable withholding taxes and retention fund of ten percent (10%) of the contract price
Second Billing	Another thirty percent (30%) of work accomplished or sixty percent (60%) project completion	Thirty percent (30%) of the Contract Price less advance payment, applicable withholding taxes and retention fund of ten percent (10%) of the contract price
Final Billing	Final forty percent (40%) of work accomplished or one hundred percent (100%) project completion upon acceptance	Forty percent (40%) of the Contract Price less advance payment, applicable withholding taxes and retention fund of ten percent (10%) of the contract price

\* Pursuant to Sec. 4.1 of Contract Implementation Guidelines for the Procurement of Infrastructure Projects, Annex "E" of the Revised Implementing Rules and Regulations of R.A. 9184, which provides:

4.1. 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 Instructions to Bidders and other relevant Tender Documents.



**FUNCTIONAL DESIGN BRIEF/ SCOPE OF WORKS:**

The following minimum design requirements and such other requirements as may later be prescribed by the Sandiganbayan shall be incorporated by the Designer-BUILDER in the conceptual design development until the finalization of the Detailed Architectural and Engineering Design of the Project.

**DESIGN OBJECTIVES****Accessibility**

- ❖ To provide a staircase from fourth floor to fifth floor.
- ❖ To prepare traffic management plans during construction and operation of the building for both pedestrian and vehicular traffic flow.

**Aesthetics**

- ❖ To choose Architectural design elements that should be in harmony with existing design.
- ❖ To be able to use the quality materials for the project that will reflect the nature of the place, its historical context to give emphasis to the authority of the institution.

**Cost-effectiveness/Sustainability**

- ❖ The general lighting should be uniform level, widely distributed to avoid harsh shadows or strong contrast and free from direct or reflected glare. Supplementary lighting shall be specifically designed for particular visual task and arranged or provided with shading or diffusing devices to prevent glare;
- ❖ To maximize the use of energy by providing control system by zones within the facility;
- ❖ To use materials and equipment that will serve its purpose, with superior quality as per required specifications and with competitive/low price or LED;
- ❖ To incorporate the use of other sources of energy as support to the electric power provided by the MERALCO; and
- ❖ To use the state-of-the-art tools and equipment that are cost effective to help the operation and maintenance work.

**Functionality**

To design a project in such a way that the location layout and arrangement of the offices will effectively serve its functional and operational requirements.

- ❖ Study spatial requirements and facilities to aid in the design of a successfully functioning and operational fifth floor of the Sandiganbayan Centennial Building.
- ❖ To develop design concepts to promote the efficiency of Sandiganbayan personnel; and
- ❖ To provide sufficient facilities for the maintenance and storage requirements of the project.

#### Fire protection

- ❖ To remove/relocate the existing fire protection mechanisms such as smoke detectors and fire suppressants like sprinklers.

#### Sound Proofing

- ❖ To provide a design to satisfactorily meet the soundproofing requirements of the project per room with major considerations on the internal and external sources of sound as well as vibrations due to the operation equipment.

#### Water Supply

- ❖ To provide sufficient design for the effective distribution system for the water requirements of the fifth floor. Considering the possible tapping points from the existing water distribution system; and
- ❖ To use equipment and fixtures with the minimum water usage or consumption.

#### ICT SYSTEMS

- ❖ To provide for state of the art telecommunications and power cabling for ICT equipment in all rooms, and courtrooms, as needed;
- ❖ To provide telecommunications and additional CCTV connections;
- ❖ Upgrading of the existing Uninterrupted Power Supply (UPS) for computers;
- ❖ To provide connections to the main server room; and
- ❖ To provide Wireless internet access.

#### General Requirements

- ❖ Signages;
- ❖ Air-conditioning units requirements (Ceiling-type inverter 3 tonner);
- ❖ A well-designed courtroom audio system that includes microphones, audio processors, audio amplifiers and audio control system;
- ❖ Solar Protection Roller Blinds; and
- ❖ Tinted courtroom windows

#### Minimum Requirements for Particular Areas:

##### OFFICE OF THE CLERK OF COURT (OCC) III

- a) Reception Area
- b) Conference Room
- c) Staff Area



- d) Records room with built-in cabinets and ladder
- e) Pantry
- f) Head of Office
- g) Toilet and Bath
- h) Counter at the Front window

#### JUSTICES' CHAMBERS

- a) Reception area
- b) Staff area
- c) Records Room with Built-in Cabinets
- d) Pantry
- e) Conference Room
- f) Chamber with Built-in Cabinets
- g) At least three (3) Cubicles for the Court Attorneys
- h) Study Room
- i) Toilet and Bath

#### COURTROOM

- a) Ante room
- b) Toilet
- c) Justice's Rostrum
- d) Lawyer's area with two (2) rows of Lawyers Tables
- e) Audience Area
- f) Concealed Door
- g) Ramp for PWD
- h) Built-in projector Screen
- i) High ceiling

### MATRIX FOR SPACE/ROOM REQUIREMENTS

ITEM	LOCATION	ESTIMATED FLOOR AREA (SQ. M.)	NO. OF ROOMS	TOTAL (SQ. M.)
1	OGC III Reception Area Conference Room Staff Area Records Room  Pantry Head of Office Toilet and Bath	138.50  <i>Built in Cabinets with Ladder</i>	2	277
2	Justice's Room (Chairperson) Reception area Staff area	164.25		

	<i>Records Room</i> <i>Pantry</i> <i>Conference</i>  <i>Chamber</i>  <i>At least three (3) Cubicles for the Court Attorneys (IV &amp; V)</i>  <i>Study Room</i> <i>Toilet and Bath</i>	<i>Built-in Wooden Cabinets</i> <i>Relocate</i>   <i>With Built in Cabinets</i> <i>Flooring: Wood parquet</i>  <i>Resize</i>  <i>with Built-in Cabinets</i>		
3	<i>Justice's Room (Junior)</i> <i>Reception area</i> <i>Staff area</i> <i>Records Room</i> <i>Pantry</i>  <i>Chamber at least three (3) Cubicles for the Court Attorneys (IV &amp; V)</i>  <i>Study Room</i> <i>Toilet and Bath</i>	110.85    <i>Built-in cabinets</i>  <i>Resize</i>   <i>with Built-in Cabinets/bookstand elbow level</i>		
4	<i>Justice's Room (Senior)</i> <i>Reception area</i> <i>Staff area</i> <i>Records Room</i>  <i>Pantry</i> <i>Chamber</i>  <i>At least three (3) Cubicles for the Court Attorneys (IV &amp; V)</i>  <i>Study Room</i> <i>Toilet and Bath</i>	118.90    <i>Built-in Wooden Cabinets</i>  <i>With Built-in L-Type cabinets</i> <i>Resize</i>  <i>Bigger area for CA V</i>  <i>with Built-in Cabinets</i>		
5	<i>Courtroom</i> <i>Ante room</i> <i>Toilet</i> <i>Justice Rostrum with Beverage Holder</i>	168.00 <i>Resize</i> <i>Resize</i>		

	Witness stand Lawyer's Area Audience Area			
6	Holding Room ❖ Sub-meter for electricity & water ❖ Provision for Air-conditioning Units connections	75.60		
7	Main Lobby			219
8	Hallway			187.50
9	Common Female Toilet	Renovation		
10	Common Male Toilet			
11	Rear Female Toilet			
12	Rear Male Toilet			
13	Storage Room	Repainting		
14	Electrical Room			
15	Custodial Room			



PROJECT : SANDIGANBAYAN BUILDING  
 LOCATION : Commonwealth Avenue corner Barasan Road, Quezon  
 OWNER : SANDIGANBAYAN  
 IMPLEMENTING : PUBLIC ESTATES AUTHORITY  
 ARCHITECT : FELIPE M. MENDOZA AND PARTNERS  
 DATE : September 2, 1997

**PART 1 : BIDDING AND CONTRACT REQUIREMENTS (DIVISION 00)**

Division 00-020	Invitation to Bid
Division 00-101	Letter of Intent of Specialty Contractors
Division 00-110	Instruction to Bidders
Division 00-201	Summary of Materials and Finishes
Division 00-300	Proposal Form
Division 00-320	Proposal Form - Breakdown of Value of Work
Division 00-420	Contractor's List of Sub-contractors and Specialty Contractors

**PART 2 : TECHNICAL SPECIFICATIONS**

Division 01	General Requirements
Division 02	Site Work
Division 03	Concrete
Division 04	Masonry
Division 05	Metals
Division 06	Wood and Plastics
Division 07	Thermal and Moisture Protection
Division 08	Doors and Windows
Division 09	Finishes
Division 10	Specialties
Division 14	Conveying Systems
Division 15A	Mechanical
Division 15B	Plumbing
Division 16	Electrical

**PART 3 : GENERAL CONDITIONS**

**FELIPE M. MENDOZA AND PARTNERS**

ARCHITECTS - PLANNERS

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## PART 1

### BIDDING AND CONTRACT REQUIREMENTS (DIVISION 00)

Division 00-201

Summary of Materials and Finishes



## DIVISION 01 - GENERAL REQUIREMENTS

- 01 010 - SUMMARY OF WORK: All works of the project shall be properly monitored and reported to the Architect and the Owner. Work sequence shall be recorded.
- 01 030 - SPECIAL PROJECT PROCEDURES
- a. Alteration Procedures shall be properly documented. The Owner and Architect shall be informed. Changes shall occur only with the consent of the Owner. Changes not recorded will not be entertained if done.
- 01 040 - COORDINATION
- a. Project Coordination Meetings shall be conducted in site with the respective representatives. Consult representatives at least one week before scheduled coordination. The Agenda and Minutes shall be taken up and recorded with the attached attendance sheet.
- b. Pre-construction Conferences shall be well represented and attended.
- 01 050 - FIELD ENGINEERING: Grades, lines and levels shall be discussed and approved. Discrepancies shall be forwarded to the Architect for proper implementation of levels.
- 01 060 - REGULATORY REQUIREMENTS: Building Codes, Mechanical Codes, Electrical Codes and all governing Codes shall be complied with.
- 01 300 - SUBMITTALS: Construction schedules, Progress reports, Shop Drawings, Construction Photographs and the like shall be transmitted to the Owner and Architect. Refer to General Conditions (UAP Document 301) for proper transmittals.
- 01 400 - QUALITY CONTROL: Results of testing laboratory services shall be transmitted to the Architect for proper evaluation and recorded.
- 01 500 - CONSTRUCTION FACILITIES AND TEMPORARY UTILITIES

*Temporary Utilities* Temporary electricity, lighting, telephone services, water, sanitary facilities, first aid facilities and fire protection shall be supplied on site.

*Security* Protection of work and activity shall be guarded. Provide temporary G.I. fence or similar enclosure shall be used for site protection.

*Project Identification and Signs* Provide proper project identification and signs for the construction site. Submit layout for approval by the Owner and the Architect.

*Field Offices and Sheds* Ample space shall be provided to conduct coordination meetings on site.

*Testing, Adjusting and Balancing of Systems* All tests shall be taken and reported. Proper adjustments shall be taken with the consent of the Consultants, Architect and Owner.

*Contract Closeout* The project site shall be clean and cleared before acceptance. A punchlist shall be prepared by the Architect with the Owner and Contractor representatives. Project record documents shall be properly bound and submitted.

## DIVISION 02 - SITE WORK

### 02 050 - DEMOLITION

- a. The Contractor must provide adequate safety precautions, signages or installations to prevent damage to persons or property or utility lines passing through the site work.
- b.

### 02 100 - SITE PREPARATION

- a. Remove and relocate structures, remove above grade and below grade improvements, remove growth and vegetation and all other debris or garbage at the site. Include stripping of sod.

### 02 200 - EARTHWORK

- a. Borrow materials - selected, approved materials meeting the definition of pitrun sand and gravel.
- b. Backfill materials - free of stones larger than 50 mm roots and organic materials.
- c. Soil Treatment/Termite Control and Rodent Control:  
Use the following distributed by "MAPECON Phils. Inc.":
  - 1) Use Termite Proofing Work (TPW) with a ratio of 1 gallon : 1 drum for soil treatment of new construction.
  - 2) Use F3D with a ratio of 1 gallon : 1 drum for termites.
  - 3) Use Household Insecticide (HI) for cockroaches.
  - 4) Use Encapsulated Zinc Phosphate (EZP) for rodents.
  - 5) Use F3 Powder for maintenance for contamination of termites.
  - 6) Use HIRTU (HI Ready-to-Use) with a ratio of 1 bottle (60 cc) : 1 liter of diesel for mosquitos and cockroaches by the use of the fogging machine.Commence soil poisoning work only when ground and gravel bed have been prepared prior to pouring of concrete and when area is substantially dry.

### 02 400 - SITE DRAINAGE

- a. Drainage structures, pipes and fittings shall be as indicated in Sanitary plans.
- b. Catch basins shall be as indicated in plans, covers as manufactured by ACRO Metals or APPROVED EQUIVALENT.

### 02 440 - SITE IMPROVEMENTS

- a. Masonry fence as designed. Refer to Div. 03: Concrete for more specifications.
- b. Fence grillwork and gate as manufactured by ACRO Metals, Metma Trading and Industrial Corporation, HD Steel construction or APPROVED EQUIVALENT. Submit shop drawings for approval before fabrication and installation.
- c. Soil treatment, termite control, rodent control must be performed by the Contractor or Specialty Trade Supplier. Refer to 02 200: Earthwork.

- 02 480 - LANDSCAPING - Provide adequate garden soil of at least 300 mm in depth ready for planting. Soil must be free from debris accumulated during construction. Adequate hose bibbs must be provided. Refer to Sanitary plans and verify if not indicated in plans.

### 02 500 - PAVING AND SURFACING

- a. 17.22 Mpa (2,500 psi) concrete for all walkways, ramps, sidewalks, concrete curbs and gutters with 2,500 psi.
- b. 21.00 Mpa (3,000 psi) concrete for all roadways and parking.
- c. Provide carborundum strips for stairs to prevent slipping. Submit sample for architect's

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approval before installation.

- d. Use plain cement with floor hardener for ramp for the disabled. Provide carborundum strips to prevent slipping. Submit shop drawings for approval.
- e. Car park shall be with floor hardener. Refer to Div. 03:300 Concrete Cast-In Place.
- f. All concrete curbs shall be with minimum radius as indicated in plans. All curbs shall be 100 mm high from finish elevation of road.
- g. Use epoxy based reflective paints for all pavement markings: parking slots, directional arrows, curbs, numbers and or names, all identifying markers.

02 600 - PIPED UTILITY MATERIALS AND METHODS

- a. Manholes and cleanouts shall be as specified in the Sanitary plans. Refer to Division 15: Sanitary/Plumbing and Air-Conditioning.
- b. All pipes and fittings shall be as indicated in Sanitary/Mechanical plans. Refer to Division 15: Sanitary/Plumbing and Air-Conditioning.
- c. Refer to plans for concrete pipes size and type used. Verify depth of pipes from ground line to ease flow of drain.

02 700 - PIPED UTILITIES

- a. Refer to plans and Div. 13.410: Sanitary/Plumbing and Air-Conditioning for proper specifications for gas tank storage and piping.
- b. Refer to plans and Div. 15.400: Sanitary/Plumbing and Air-Conditioning for proper specifications for water systems. Refer to Architectural plans for location of water tank/cistern.
- c. Refer to plans and Div. 15.400: Sanitary/Plumbing and Air-Conditioning for proper specifications for Storm and Sanitary Sewerage Systems.
- d. Septic Tanks - Use 150 mm CHB walls with reinforcements as indicated in Structural plans with concrete base. Refer to structural plans for reinforced concrete walls.
- e. Fuel and Gas Tanks - Gas tank shall be stored outside the building (see plans for exact location) that is immediately exposed through air but shall be protected and secured at all times. Refer to Mechanical plans for pipe used and size.
- f. Water Tank - Refer to Sanitary plans for exact location. Submit brochure of tank for approval of engineer.
- g. Cistern - Refer to Structural plans for design and size. Provide waterproofing as indicated in Division 7: Thermal and Moisture Protection.

*Submit shop drawing of all tanks and its support for approval of the Engineer prior to fabrication and installation.*

02 800 - POWER AND COMMUNICATION UTILITIES

Refer to Structural plans for detail of service entrance. Always coordinate with in house electrician before execution of work. Refer to electrical plans for Power, Lighting and Telephone circuits. *Verify location of switches and outlets with Project Manager or owner's representative before installation.*

*Handwritten signature/initials*



## DIVISION 03 - CONCRETE

NOTE: Refer to Structural plans and General Construction Notes (see S-1) to confirm all values. Bevel all exposed concrete edges and corners 20mm wide.

### 03 100 - CONCRETE FORMWORK

- a. Use 50 x 75 mm and 50 x 100 mm form lumber respectively.
- b. Use 12.5 mm thick form plywood for all concrete work exposed to view.

### 03 200 - CONCRETE REINFORCEMENT

- a. All structural works shall be executed in accordance with the National Structural Code for Buildings (NSCB) Volume II, 1992. The document ACI-317-83 for reinforced concrete supplements the NSCB.
  - b. Material Strength
    - Concrete  $f_c'$  = 4,000 psi for all structural members & structural RC walls
    - 3,000 psi for slab on fill and architectural RC walls
    - Steel Rebars  $f_y'$  = 40,000 psi for 12 mm diameter bars and smaller
    - = 60,000 psi for 16 mm diameter bars and bigger
- Design Live Load = Refer to structural plans and computation.

### 03 300 - CAST-IN-PLACE CONCRETE

- a. 4,000 psi for conventional concrete of all substructures and superstructures.
- b. 3,000 psi for partition walls, curtain walls, slab on fill and curbs and gutters.
- c. Concrete Retarder - Use "Conplast RP264" by "Fosroc Philippines" or approved Equivalent.
- d. Concrete Bonding Agent - Use Davco L-Bond SBR as distributed by Chem-Kalz or approved Equivalent, for bonding old and new concrete.
- e. Concrete Floor Hardener - Use Davco Duramite Dry as distributed by Chem-Kalz or approved equivalent. Verify Architect for approved color scheme.
- f. Concrete Sealant - Use Davco Lapflex PS as distributed by Chem-Kalz or approved equivalent cement-based compound for sealing leaks/seepages through concrete or masonry walls and floors.
- g. Concrete Waterstops - Use "Supercast PVC" Waterstop by "Fosroc Philippines" or approved equivalent for concrete slab expansion joints. Submit sample section for approval.
- h. Aggregates - Gravel-well graded, clean, hard particles of gravel or crushed rocks 38 mm (1-1/2") maximum for slab and 20 mm (3/4") maximum for columns and beams.
- i. Sand-clean, washed sand.
- j. Cement - Portland cement by "Republic", "Hi-Cement", "Filipinas", "Island", "Rizal", or approved equivalent.

### 03 350 - SPECIAL CONCRETE FINISHES

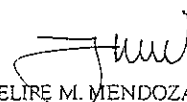
Use 10mm decorative cement/lattice board on concrete ledge and designated rooms by Jardine Davies. Refer to architectural details.

### 03 600 - GROUT

- a. Use "ABC Tile Grout" as ceramic joint filler as manufactured by Allgemeine-Bau-Chemie Phil., Inc. or colored "DAVCO Tile Grout SAC 20" as Distributed by Chem-Kalz. Submit sample color of grout with approved tile by owner and architect.

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# DIVISION 04 - MASONRY

NOTE: Refer to Structural Plans and General Construction Notes to confirm all values. Plaster all exposed masonry. Bevel all exposed edges and corners 20mm wide.

## 04 100 - MORTAR

- a. Refer to table on the Quantity of Cement and Sand for CHB Mortar per Square Meter as follows:

Size of CHB	Cement in Bags (40 kg.)	Sand in Cubic Meters
100 mm	0.525	0.04375
150 mm	1.013	0.08438

- b. Sand, Cement - same as specifications of Section 03 300.

## 04 150 - MASONRY ACCESSORIES

- a. Use # 16 G.I. tie wires.
- b. Use 10 mm diameter deformed steel structural grade reinforcement bar at 800mm linear interval for vertical reinforcements and at every three (3) layers of CHB for horizontal reinforcements.

## 04 200 - UNIT MASONRY

- a. Concrete hollow blocks machine-made, 5.2 MPa (750 psi) for load bearing, 2.6 MPa (350 psi) for non-load bearing. Use 150 mm thick CHB for exterior walls and 100 mm thick CHB for interior walls. Plastered and painted finish unless otherwise specified in plans.
- b. Sand, Cement - same as specifications of Section 03 300.
- c. Apply cement plaster on all masonry and R.C. walls including surfaces hidden by dropped ceilings.

## 04 400 - STONE

- a. Granite - use 19mm thick high grade "Blue Pearl GT" granite slabs as distributed by or "Pritt Marketing" or "CITE Trading". Submit cut polished sample for approval before installation.
- b. All Granite stones delivered on site shall be wet polished on all exposed surface and edges, unless specified to be flame or thermal finish.
- c. All Granite stones for walls shall be anchored to concrete surface using angle bars, cramps and dowels. All made of type 304 stainless steel or suitable non-ferrous metal. *Relying on adhesives alone for anchoring will not be allowed.*
- d. Fill cavity between concrete surface and back of granite with mortar up to 1500mm high from finish floor line to prevent breakage of panel.
- e. Maximum cut size of slabs will have a width of 1200mm and a height of 2400mm. Minimum size shall be 1200mm square.
- f. Maximum unsupported length of slab shall be 300mm horizontally and 600mm vertically.
- g. Use stainless steel anchor bolts to fasten cramps to surface of poured structural concrete. Provide stainless steel framing for surfaces made of masonry units that will be clad with granite. Fill cavity as recommended.
- h. Submit shop drawings of cladding system use and submit sample section of angle bars, cramps, anchor bolts and other anchoring devices used for Engineers approval before installation.
- i. All joints shall be sealed with a special silicon granite sealant with the same color of the stone.. After installation, all stone shall be polished and cleaned removing all dirt, excess mortar, stain and other defacements on all surfaces and edges. *Wire brushes and acid solutions are strictly prohibited for cleaning as to prevent scratching and discoloration of stones.*

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## DIVISION 05 - METALS

NOTE: Refer to Structural Plans and General Construction Notes to confirm all values. All exposed metals or steel shall be painted as indicated in Division 9.900 except for steel cast inside concrete and stainless steel finishes.

### 05 010 - METAL MATERIALS AND METHODS

- a. Use 16 mm square bar supports spaced at every 400mm interval by ACRO Metals, H.D. Steel, B.F. Metals, LEC Steel or APPROVED EQUIVALENT. Refer to Stair Details: Architectural and Structural.
- b. Use 50 mm diameter Stainless Steel Pipe Handrail by ACRO Metals, H.D. Steel, B.F. Metals, LEC Steel or approved equivalent. Submit sample section for architect's approval before fabrication and installation. Refer to Architectural plans for details.
- c. Use 16 mm diameter plain bar spaced at every 300 mm for ladder rung by ACRO Metals, H.D. Steel, B.F. Metals, LEC Steel or APPROVED EQUIVALENT. Provide steel handle for grip. Submit shop drawings for architect's approval before fabrication and installation.
- d. Submit samples of steel hangers and pipe supports for Engineer's approval before fabrication and installation.
- e. Use 12 mm diameter dowels by ACRO Metals, H.D. Steel, B.F. Metals, LEC Steel or APPROVED EQUIVALENT, fully welded to support handrail. Refer to stair details: Architectural and structural.
- f. Use 16 mm square bar supports at ever 150 MM and 900mm respectively by by ACRO Metals, H.D. Steel, B.F. Metals, LEC Steel or APPROVED EQUIVALENT. Refer to stair details: Architectural and structural.
- g. Use 10 mm diameter vertical steel bars by by ACRO Metals, H.D. Steel, B.F. Metals, LEC Steel or APPROVED EQUIVALENT. Refer to stair details: Architectural and structural.
- h. Use 6 x 25 mm flat bar plate by by ACRO Metals, H.D. Steel, B.F. Metals, LEC Steel or APPROVED EQUIVALENT. Refer to stair details: Architectural and structural.
- i. Use 16 x 45 mm Brass nosing welded to 6 mm diameter bars by Acetylene by by ACRO Metals, H.D. Steel, B.F. Metals, LEC Steel or APPROVED EQUIVALENT. Refer to Stair details: Architectural and structural. Submit sample for architect's approval.
- j. Use 37 mm diameter stainless steel railing for Fire Escape stairs by ACRO Metals, H.D. Steel, B.F. Metals, LEC Steel or APPROVED EQUIVALENT. Refer to stair details: Architectural and structural.
- k. Use 4.5 mm checkered plates fully welded on 4.5 x 38 x 38 angle bars with 6 mm bent plates for stringers by ACRO Metals, H.D. Steel, B.F. Metals, LEC Steel or APPROVED EQUIVALENT. Refer to stair details: Architectural and structural. Submit shop drawings before fabrication and installation.
- l. Use 40 mm diameter stainless steel pipe handrail by ACRO Metals, H.D. Steel, B.F. Metals, LEC Steel or APPROVED EQUIVALENT. Submit sample section for architects approval before fabrication and installation. Refer to architectural stair details.
- m. Use 16-mm diameter plain bar spaced at every 300 mm for ladder rung by ACRO Metals, H.D. Steel, B.F. Metals, LEC Steel or APPROVED EQUIVALENT. Provide stainless steel handle grip. Submit shop drawing for architects approval before fabrication and installation.
- n. Use 4 mm thick 75 x 75 angle bars for perimeter fence with 19 mm solid square bars for support by ACRO Metals, H.D. Steel, B.F. Metals, LEC Steel or APPROVED EQUIVALENT. Submit shop drawing for architect's approval before fabrication and installation.
- o. Submit sample of steel hangers and pipe supports for engineer's approval before fabrication and installation.
- p. Use spiral steel stair as manufactured by ACRO Metals, H.D. Steel, B.F. Metals, LEC Steel or APPROVED EQUIVALENT. Refer to stair details.
- ✓ q. Use Wrought Iron Grills for balcony, railing, gate, sliding door and as specified in plans as fabricated and installed by ACRO Metals, H.D. Steel, B.F. Metals, LEC Steel or APPROVED EQUIVALENT. Submit shop drawing for architect's approval before fabrication and

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installation.

05 100 - STRUCTURAL METAL FRAMING

- a. All structural steel shapes shall be ASTM A 36 structural steel unless otherwise indicated. Refer to structural plans.
- b. Steel trusses and steel purlins - by ACRO Metals, H.D. Steel, B.F. Metals, LEC Steel or its approved equivalent. Submit shop drawings for approval before execution. Confirm and Verify length span of trusses before fabrication and installation
- c. Granite Framing - Use 3mm thick stainless steel angular framing for granite cladding firmly anchored to concrete. Submit sample section for approval or engineer.
- d. Interior Wall framing - Use 0.8mm thick, 32 x 76mm G.I. metals for low partition and 32mm x 92mm G.I. metals for enclosing partition (or as specified in the drawings) for studs and track as manufactured by "JEA Steel Industries". Provide vertical studs spaced at 400mm on center, *and horizontal* studs spaced at 800mm high on center. Submit sample section for approval and provide shop drawing before installation.

05 500 - METAL FABRICATIONS - Refer to Div 05 010: Metal Materials and Methods.

- a. Metal grates for trenches and catch basins by ACRO Metals, H.D. Steel, B.F. Metals, LEC Steel or APPROVED EQUIVALENT. Refer to Sanitary plans for location of trenches and catch basins. Submit shop drawings for approval before fabrication and installation.
- b. Metal Railings for stair and balconies by ACRO Metals, H.D. Steel, B.F. Metals, LEC Steel or APPROVED EQUIVALENT. Refer to stair details for sizes of bars and supports. Submit shop drawing and sample section for approval before fabrication and installation.

05 900 - METAL FINISHES

- a. Provide two (2) coats of Red Oxide Metal Primer by "Davies" on all air exposed steel members before and after installation as directed under Division 9.900.

## DIVISION 06 - WOOD AND PLASTICS

### 06 100 - ROUGH CARPENTRY

- a. Lumber - Pressure Treated saba lumber for all concealed rough carpentry works as distributed by "Sta. Clara" or APPROVED EQUIVALENT. Refer to architectural plans and details.
- b. Plywood - 6 and 12 mm thick "Picop" tanguile plywood as distributed by "Sta. Clara" or APPROVED EQUIVALENT. Refer to architectural plans.

### 06 200 - FINISH CARPENTRY

- a. Lumber - Pressure treated apitong lumber for all hidden framing of closets, cabinets, counters, etc. as distributed by "Sta. Clara" or APPROVED EQUIVALENT. Refer to architectural plans.
- b. Plywood - 6 and 12 mm thick "Picop" tanguile or lawan plywood as distributed by "Sta. Clara" or APPROVED EQUIVALENT. Refer to architectural plans.
- c. Plywood - 6 and 12 mm thick "Marine" plywood as distributed by "Sta. Clara" or APPROVED EQUIVALENT. Refer to architectural plans.

### 06 300 - WOOD TREATMENT: Refer to Div. 06-200: Finish Carpentry, and Division 9.900: Painting.

- a. All plywood shall be "Picop" Brand of "Marine" Tanguile or Lawan as distributed by "Sta. Clara" or APPROVED EQUIVALENT. Refer to architectural plans.
- b. All lumber shall be pressure treated tanguile, apitong, lawan or saba as distributed by "Sta. Clara" or APPROVED EQUIVALENT. Refer to architectural plans.

### 06 400 - ARCHITECTURAL WOODWORK: Refer to Div. 06-200: Finish Carpentry and 06-300: Wood Treatment.

- a. Lumber - kiln-dried apitong as distributed by "A & C", "Sta. Clara" or APPROVED EQUIVALENT for all hidden framing or closets. Refer to architectural plans.
- b. Wood mouldings and cornices by "Delta Wood Products Corp." or approved equivalent in Ducco paint finish. Submit painted sample sections for architect's approval prior to purchase and installation. Refer to architectural plans.
- c. Wood railings will be from pressure treated apitong fabricated by "PC San Juan Wood Works", "AE Cruz Woodworks" or approved equivalent. Refer to architectural plans. Submit sample section for approval before fabrication and installation.
- d. Use "ABC Joint Compound" for filler by Allgemeine-Bau-Chemie Phil., Inc.

### 06 600 - PLASTIC FABRICATIONS

Use 4.5 mm thick diamond prismatic diffuser or 20 mm thick square eggcrate diffuser as distributed or manufactured by Lighting Fixture Manufacturer or MODERN PLASTIC or approved equivalent.

Also Refer to Division 16: Electrical for any plastics used in Diffusers and light troughs.

## DIVISION 07 - THERMAL AND MOISTURE PROTECTION

### 07 100 - WATERPROOFING MATERIALS

- a. Roof Decks - use "Nitoproof 600" as installed and manufactured by "FOSROC Philippines". Apply elastomeric membrane 1.3mm thick with two (2) inch reinforced concrete topping sloping towards drain; or use "Davco SOVACRYL" Cementitious waterproofing in 5 coats along surface and 300 mm high along perimeter sides of walls, with fiberglass wire mesh and appropriate concrete topping, as installed and distributed by "Chem-Kalz". *Waterproofing work shall be guaranteed to last five (5) years.*
- b. Media Agua, Gutters - use "Nitoproof RS" as manufactured by "FOSROC Philippines". Apply acrylic membrane 40 mills over surface and 300mm high along perimeter sides, or use "Davco SOVACRYL" Cementitious waterproofing in 2 coats along surface and 300 mm high along perimeter sides of walls, as installed and distributed by "Chem-Kalz".
- c. Toilets - use "Brushbond" as installed and manufactured by "FOSROC Philippines"; or use "Davco HEYDI K11 Flex" as installed and distributed by "Chem-Kalz". Apply cementitious coating 1 mm thick along surface and 300mm high along perimeter sides before tilework. *Waterproofing work shall be guaranteed to last five (5) years.*
- d. Cistern - use "Brushbond" as installed and manufactured by "FOSROC Philippines"; or use "Davco HEYDI K11 Flex" as installed and distributed by "Chem-Kalz". Apply cementitious coating 1 mm thick along interior surface and perimeter sides before tilework. *Waterproofing work shall be guaranteed to last five (5) years.*

### 07 150 - DAMPROOFING

Vapor/Moisture Barrier - Use "Barry Film", two layers of 0.152 mm (6 mils) thick per layer for all slabs on fill (Ground Floor slab).

### 07 200 - INSULATION

Use Polyisocyanurate (P.I.R.) foam insulation 50mm thick by DONG SHIN as pre-insulation together with roof by DN Steel.

### 07 400 - PREFORMED ROOFING AND SIDING

- a. Use ULTRA PANEL P.I.R. Pre-insulated panel .60mm thick pre-painted color sheet long-span Aluminum Zinc Alloy roof with 50mm P.I.R. foam insulation by "DN Steel Roofing", hard temper .0.60mm thick 80 ksi yield strength. Verify color with Architect before actual purchase.
- b. Use 0.60mm thick (base metal) plain pre-painted G.I. Sheets for Flashing and Counter Flashing by specified roof manufacturer.
- c. Supply necessary fasteners and accessories to complete the work.

Steel - wafer teks #10 x 16 mm  
Wood - flat head nail #10 x 3/4"

### 07 900 - JOINT SEALANTS

- a. Silicone Sealant - use any brand made in the U.S.A. for use in sealing joints between aluminum window frames and concrete walls, lavatories, countertops / splash boards, toilet sliding door partitions, etc. Submit brochure for approval.

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## DIVISION 08 - DOORS AND WINDOWS

### 08 100 - METAL DOORS AND FRAMES

- a. Steel doors (Full Flush or Full Louver or as indicated in schedule of doors) - Three (3) hour fire rated steel door either single or double leaf; by ACRO Metals, H.D. Steel, B.F. Metals, LEC Steel or APPROVED EQUIVALENT. Submit shop drawings for approval before fabrication and installation.
- b. Aluminum Doors and Frames - fabricated by "Ajax Aluminum Industries" or APPROVED EQUIVALENT in powder coat finish with color shaded glass. See schedule of doors. Submit shop drawings for approval before fabrication and installation. Verify color with architect and owner.

### 08 200 - WOOD AND PLASTIC DOORS

- a. Flush Hollow Core Doors - with 6 mm thick marine plywood on both sides or as indicated in schedule of doors fabricated by "P.C.S.J. Wood-Metal Works and Construction" or APPROVED EQUIVALENT.
- b. Louver Doors - full louver or half louver wood door with louver blades from 19 mm x 50 mm KD tanguile, 19 mm x 50 mm KD tanguile edging and 50 mm x 100 mm KD tanguile frame fabricated by "P.C.S.J. Wood-Metal Works and Construction" or APPROVED EQUIVALENT. See schedule of doors and windows.
- c. Panel Doors - fabricated by "P.C.S.J. Wood-Metal Works and Construction" or APPROVED EQUIVALENT. Submit shop drawings for approval before fabrication and installation. See schedule of doors and windows.
- d. Toilet Bar Doors - use PVC toilet bar doors as manufactured by "NELTEX". Refer to Schedule of Doors. Submit shop drawing for approval before fabrication and installation.

### 08 400 - ENTRANCES AND STOREFRONTS

- a. Aluminum Entrance Doors (double swing or sliding as indicated in the schedule of doors) - powder coated finish as manufactured "Ajax Aluminum Industries" with color shaded glass. Verify color with architect and owner.

### 08 500 - METAL WINDOWS

- a. Steel Casement and Awning Windows - as fabricated by ACRO Metals, H.D. Steel, B.F. Metals, LEC Steel or APPROVED EQUIVALENT. Painted same color as aluminum windows with color shaded glass.. Submit shop drawings for approval before fabrication and implementation. Verify color with architect and owner.
- b. Fixed Steel Louvers - fabricated by ACRO Metals, H.D. Steel, B.F. Metals, LEC Steel or APPROVED EQUIVALENT. Submit shop drawings for approval before fabrication and implementation. Painted as indicated in Division 9.900 . Verify color with architect and owner.
- c. Fixed Glass Windows on Aluminum Frame - powder coat finish; as manufactured by "Ajax Aluminum Industries" or APPROVED EQUIVALENT. Use color shaded glass. Submit shop drawings for approval before fabrication and implementation. Verify approved color scheme with architect and owner.
- d. Fixed and Sliding Windows on Aluminum Frame - powder coat finish; as manufactured by "Ajax Aluminum Industries" or APPROVED EQUIVALENT with color shaded glass. Submit shop drawings for approval before fabrication and implementation. Verify color scheme with architect and owner.

### 08 700 - HARDWARE

Refer to Schedule of doors and Windows. Submit samples and/or brochures for architect's  
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approval before fabrication and installation.

- a. Lockset - by "Schlage" distributed by Norton and Harrison. . Submit samples for Architect's approval before fabrication and installation. Refer to Schedule of Doors for actual Model type and Code.
- b. Door Closer by "LCN" distributed by Norton and Harrison, or "Ryobi Series 7000" distributed by Tamsons Enterprises. Submit samples for architect's approval before fabrication and installation. Refer to Schedule of Doors for actual Model type and Code.
- c. Extension Flush Bolt - Use "Ryobi" Hardware for aluminum, steel doors and wooden doors distributed by Tamsons Enterprises. Submit sample and/or shop drawings for approval before fabrication and installation.
- d. Top and Bottom Striker - Use "Ryobi" Hardware for aluminum, steel doors and wooden doors distributed by Tamsons Enterprises. Submit sample and/or shop drawings for approval before fabrication and installation.
- e. Top latch - Use "Ryobi" Hardware for aluminum, steel doors and wooden doors distributed by Tamsons Enterprises. Submit sample and/or shop drawings for approval before fabrication and installation.
- f. Door Stopper and Holder - Use "Ryobi" Hardware for aluminum, steel doors and wooden doors distributed by Tamsons Enterprises. Submit sample and/or shop drawings for approval before fabrication and installation.
- g. Panic Device - by "Von Duprin" Series 99 distributed by Maxinter or by Norton and Harrison. . Submit samples for architect's approval before fabrication and installation.
- h. Hinges - by "Hager" for wood doors or "BF Metals" for steel doors. Submit samples for architect's approval before fabrication and installation.
- i. Deadbolt - by "Schlage". Submit samples for architect's approval before fabrication and installation.
- j. Foot and head bolts - by "Hager". Submit samples for architect's approval before fabrication and installation.
- k. Door Stopper - Submit samples and/or brochures for architect's approval before fabrication and installation.
- l. Door Silencer - Submit samples and/or brochures for architect's approval before fabrication and installation.
- m. Door Handle - by "Schlage". Submit samples for architect's approval before fabrication and installation.
- n. Weather stripping and seals - by "NELTEX". Submit samples for architect's approval before fabrication and installation.
- o. Thresholds - Use "BF" Ex-F extruded aluminum threshold (fluted). Submit for architect's approval before fabrication and installation.

08 800 - GLAZING

- a. Glass Door - use 6 mm thick color shaded glass for awning windows as indicated in the schedule of doors and windows. Submit shop drawings/sample for approval before fabrication and installation. Verify color scheme with architect and owner.
- b. Glass Window - use 6 mm thick color shaded glass for doors and windows as indicated in schedule of doors and windows and miscellaneous details by Ajax Aluminum Fabricators. Submit sample for approval before fabrication and installation. *For windows marked 1,2,58 or window panels exceeding 2100mm for either width or length, use 8mm thick clear glass with LLUMAR professional grade metallized deluxe window film XD30GNSRPS or approved equivalent. Verify color scheme with architect and owner.*
- c. Mirror Glass - use 6 mm thick beveled facial mirror glass on 6 mm plywood backing with felt paper with aluminum frame by Ajax Aluminum Fabricators. Submit sample for approval before fabrication and installation.



DIVISION 09 - FINISHES

09 100 - METAL SUPPORT SYSTEMS

- a. Ceiling Suspension System - Use 19 x 50 mm metal furring and 12mm x 38mm metal carrying channel, all by JEA Steel Industries" or APPROVED EQUIVALENT. Submit sample for Architects approval.
- b. Acoustical Suspension System - Oven baked, pre-painted G.I. "L" and "T" runners - use the exposed grid system by "EXELCON Pacific" or or APPROVED EQUIVALENT. Submit sample for Architects approval.

09 230 - AGGREGATE COATINGS

- a. Pea Gravel Washout - clean, graded pebbles as per sample approved by the Architect.
- b. Provide Carborandum strips for concrete stairs. Submit sample for architect's approval before installation.

09 300 - TILE

- a. Ceramic Tile - by Lepanto Tiles Manufacturing, Inc. Submit samples for approval of color and type before installation.

Vitrified Floor Tiles	- 450 x 450 mm for main lobbies/court rooms
	200 x 200 mm for toilets and showers
	300 x 300 mm as indicated in plans
Non Skid Vitrified Floor Tiles	- 300 x 300 mm as indicated in plans
Glazed Wall Tiles	- 200 x 200 mm for toilet and showers
Vitrified Tiles	- 200 x 200 mm for Counter tops
Baseboard Tiles	- 200 x 200 mm inside toilets and showers

*Use Premium Color Tile for Lobbies, Courtrooms, Judges toilets, Directors Toilets, Chairman's Toilet and as specified in plans.*

- b. Tile Adhesive/Grout - use "ABC Tile Adhesive/Grout" as manufactured by "Allgemeine-Bau-Chemie Phil., Inc."
- c. Use Tile trim for toilet tile by HOMELUX or approved equivalent. Submit sample for approval.
- d. Use 450 x 450 mm GRANITO Homogeneous Tiles for lobby, elevator entrances, court rooms and as specified in plan by Lepanto Tiles Manufacturing, Inc. Submit sample for architects approval prior to installation.

09 500 - ACOUSTICAL TREATMENT

- a. Acoustical Ceiling - use 12mm thick moisture resistant gypsum boards as distributed by "JEA Steel Industries" or APPROVED EQUIVALENT. Submit sample for approval.
- b. Acoustical Panels - use 600 x 1200 x 16 mm "Baroque" Perforated acoustical boards of "Celotex" brand -USA by "EXELCON Pacific". Submit sample for approval before installation.
- c. Refer to 09 100: Metal Support Systems for Metal Ceiling Systems. Submit sample section of "T" and "L" runners for approval before fabrication and installation.

09 650 - RESILIENT FLOORING

- a. Vinyl Floor Tiles - use 300 x 300 x 2.5 mm thick Matico.Toli Vinyl tile distributed by G.S. Go Bros., APO Vinyl or Kent Vinyl. Submit sample for color approval prior to installation.
- b. Use Matico Brand Latex type vinyl adhesive as distributed by GS Go Bros.

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c. Clean and level all surfaces before installation.

09 690 - CARPETTING

- a. Use 450 x 450 mm CARPET TILES by COLLINS & AIKMAN floor covering as distributed by C & A CARPETS, INC. or approved equivalent. Submit sample for architects approval before installation.

09 900 - PAINTING

Submit sample of paint finishes on 300 x 300 mm wood panels for architect's approval prior to actual application.

- a. Exterior Painting - Use Davies Liquid-Tile Coating by Davies Paints. Apply 1 coat of Davies 5-700 Liquid-Tile Primer White. Verify with owner or architect for approved color scheme.
- b. Interior Painting - (for concrete or masonry, woodwork and as specified in plans) Use "Davies" as manufactured by Charter Chemical and Coating Corporation, applying all suggested preparation, application and drying techniques suggested by the manufacturer. Verify with owner or architect for approved color scheme.
- c. Steel and Wrought Iron - provide two (2) coats of red oxide primer by "Davies" on all air-exposed steel, except for stainless steel finishes, before application of final coating.
- d. Finished Carpentry - Use interior paint as indicated, in ducco finish or as indicated to be varnished or stained. Verify approved color with architect and owner.
- e. Wood Mouldings - Use interior paint as indicated, in ducco finish or as indicated to be varnished or stained. Verify approved color with architect and owner.
- f. Use Epoxy paint for interior walls, floors and ceiling by 3M epoxy paint, pioneer epoxy or Vergom for following rooms:

1. Workshop / carpentry room
2. All storage rooms
3. Pump rooms
4. All Electrical rooms
5. Softdrink storage room
6. Cistern
7. Gen-set house
8. All markings at parking area, provide zebra paint 1200 mm high on all perimeter walls and columns.

NOTE: Paint all exposed plastering including plantboxes. Use "ABC Joint Compound" for filler by Allgemeine-Bau-Chemie Phil., Inc.

09 950 - WALL COVERING

- a. CORK WALL COVERING - use cork materials as indicated thickness in plans from Campos Rueda Cork Inc. or approved equivalent. Submit samples for Architects approval
- b. VINYL WALL COVERING - use MAYFAIR vinyl wall covering as distributed by Frabel Interiorworld Phils. Inc. or approved equivalent. Submit sample of wall paper before installation for Architects approval
- c. Use METYLAN Paste for adhesives.

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## DIVISION 10 - SPECIALTIES

### 10 100 - CHALKBOARDS AND TACKBOARDS

- a. WHITE BOARD - wood -framed, glued to 6mm. Thick plywood backing with aluminum frame and marker/eraser holder. Submit sample for Architects approval before fabrication and installation.

### 10 150 - COMPARTMENTS AND CUBICLES

- a. TOILET PARTITIONS -All toilet partitions shall be CHB wall with 200 x 200 mm glazed wall tiles and 200 x 200 mm bottom and top border. All partitions shall not be fully closed from floor to ceiling but shall be 1800mm from finish floor line unless indicated in plans, supported at both ends with 200mm high opening below. As indicated in Details of toilets. Refer to detail drawings and Div. 9:300 Tiles.
- b. SHOWER COMPARTMENTS - Use 900mm x 900mm corner type single door swing or wall mounted sliding or as indicated in plans, shower enclosures with oven baked white aluminum frame and translucent acrylic glass as manufactured and distributed by BATHROOM PLUS or approved equivalent.

### 10 200 - LOUVERS AND VENTS

- a. Metal louvers for doors and windows by ACRO Metals or APPROVED EQUIVALENT. Painted refer to Division 9.900. Submit shop drawings and sample section for architect's approval before fabrication and installation

### 10 240 - GRILLES AND SCREENS

- a. Provide Wrought Iron Grilles as indicated in the Detail plans. Grill work by ACRO Metals or APPROVED EQUIVALENT. Painted refer to Division 9.900. Verify actual window / door opening before fabrication and installation.

### 10 290 - PEST CONTROL - Refer to Div. 2:200 - Earthwork.

### 10 350 - FLAGPOLES

- a. FLAGPOLE -use 200mm diameter G.I. pipe schedule 40 painted as per Division 9.900.
- b. Provide G.I. Pulley for flagpole. Submit sample for approval.
- c. Flagpole pedestal shall conform with submitted structural detail plan.

### 10 400 - IDENTIFYING DEVICES

- a. Gauge 16 Solid Brass Signage (polished) with neon light back lighting - submit shop drawings of signage for approval before installation. Submit sample brass section before fabrication.
- b. Provide signs for every room as manufactured by "Modagraphics", "Multi-link" or "Deogrades Ads" or approved equivalent. Submit shop drawing for approval before fabrication and installation.

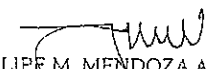
### 10 450 - PEDESTRIAN CONTROL, DEVICES

- a. Refer to Division 2:500 - Paving and Surfacing for signs for parking building.

### 10 520 - FIRE EXTINGUISHERS, CABINETS, AND ACCESSORIES

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- a. Use ABC Type Fire Extinguishers or as indicated in Sanitary/Mechanical plans.. Additional fire extinguisher shall be Owner supplied. Verify location in plans.
- b. Refer to Sanitary and Mechanical Plans - Fire protection System for detail of Fire cabinets and Fire Extinguishing system adopted for the building. Use indicated type and make of sprinkler heads and refer to Division 16:Electrical for fire alarm device use. Verify Architectural-Ceiling and Electrical plans for location.

10 800 - PARTITIONS

- a. FOLDING PARTITIONS - use VARIWALL sliding wall partition manufactured by: VARIFOLD ARCHITECTURAL PRODUCTS. Refer to Door Schedule and submit shop drawings before fabrication & installation
- b. ACCORDION FOLDING PARTITIONS - use VARIFOLD accordion partition with 8 inch panels as manufactured by: VARIFOLD ARCHITECTURAL PRODUCTS. Refer to Door Schedule and submit shop drawings before fabrication and installation.1

10 670 - STORAGE SHELVING

- a. Submit shop drawings for storage shelving. Refer to sections for sizes and interval of shelves. Submit detail shop drawing for all shelves in all storage rooms for approval before fabrication and installation. Painted gloss or flat with approved color by architect and owner.

10 800 - TOILET AND BATH ACCESSORIES

Colors of all fixtures shall be coordinated with the approved tiles submitted for approval. Also Refer to Division 14.450 for toilet fixtures and trims.

PUBLIC TOILETS

- a. Mirror - Provide 6mm thick X 800 mm tall X length equal to counter length. Facial mirror in aluminum frame with 6mm plywood backing and felt paper sandwiched in between, as manufactured by ALVIN Glass or approved equivalent.
- b. Recessed Paper Towel Dispenser and Receptacle - use "BOBRICK" Model B-43944 or approved equivalent, satin finish stainless steel, dispenses 600 c-fold of 800 multifold paper towels. Built in waste receptacle capacity should be 16 gal.
- c. Recessed Soap Dispenser - Use "BOBRICK" Model B-4063 or approved equivalent, corrosion resistant valve dispenser for liquid soap, lotion or detergent. Front of dispenser drawn, 20 gauge. (1.00mm), one piece construction with covered plastic soap vessel attached to back. 50 Fl. oz. Capacity, refillable. Concealed locking device. Vandal resistant. Unbreakable refill window.
- d. Toilet Paper Holder - Use "BOBRICK" Model B-667 or approved equivalent, Recessed Single roll toilet tissue dispenser. Type 304 stainless steel, bright polished finish.
- e. Hand Dryer - Use SIEMENS Hand dryer TH82501 with electronic sensor in silver casing. Submit sample for architect's approval.

CHAIRMAN and DIRECTOR'S TOILETS

- a. Mirror - Provide 6mm thick X 800 mm tall X 600mm wide fixed facial mirror, beveled edges, concealed mounting screws with 6mm plywood backing and felt paper sandwiched in between, as manufactured by ALVIN Glass or approved equivalent.
- b. Tissue and Soap Holder - Use AMERICAN STANDARD colored "Sabrina" recessed tissue and soap holder by Sanitary Wares manufacturing or approved equivalent.
- c. Shower Enclosures - provide corner type - single swing door or wall mounted sliding or as indicated in plan, powder coated white aluminum frame, cast on top of zocalo, with translucent acrylic as manufactured by BATHROOM PLUS or approved equivalent.

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PLUS or approved equivalent.

- f. Hand Dryer – Use SIEMENS Hand dryer TH82501 with electronic sensor in silver casing. Submit sample for architect's approval.

#### OTHER TOILETS

- a. Mirror - Provide 6mm thick X 800 mm tall X 600mm wide fixed facial mirror in aluminum frame with 6mm plywood backing and felt paper sandwiched in between, as manufactured by ALVIN Glass or approved equivalent.
- b. Tissue and Soap Holder – Use AMERICAN STANDARD colored “Sabrina” recessed tissue and soap holder by Sanitary Wares manufacturing or approved equivalent.
- c. Shower Enclosures – provide corner type – single swing door or wall mounted sliding or as indicated in plan, powder coated white aluminum frame ,  
set on top of zocalo, with translucent acrylic as manufactured by BATHROOM PLUS or approved equivalent.
- d. Grab Bar – provide single piece 40mm stainless steel grab bar, mounting concealed with stainless steel flange cover, as indicated in plans. Refer to BP 344 for height and clearance requirements.

#### SLOPSINK

- a. Provide metal rack above slop sink. Submit shop drawings for architect's approval before fabrication and installation.
- b. Use 25mm stainless steel bar hanger.

## DIVISION 11 - EQUIPMENT

- 11 050 - LIBRARY STACK SYSTEM
  - a. OWNER SUPPLIED Metal book shelves.
- 11 060 - THEATER AND STAGE EQUIPMENT
  - a. Lighting Control - use lighting control system as provided by ELECTRO SYSTEMS INDUSTRIES or its approved equivalent. Provide diagram of all Electrical and Equipment layout and connection for approval of Electrical Engineer prior to installation.
- 11 200 - WATER SUPPLY AND TREATMENT EQUIPMENT - Refer to Sanitary plans.  
Pumps shall be from "BELL & GOSSET, "FLINT", "WALING", OR "DAVEY", submit brochure for Engineers approval prior to purchase and installation
  - a. Water Pumps
  - b. Transfer pumps
  - c. Others
- 11 300 - FLUID WASTE DISPOSAL AND TREATMENT EQUIPMENT - Refer to Sanitary plans.
- 11 400 - FOOD SERVICE EQUIPMENT
  - a. Custom Fabricated Kitchen Equipment - use kitchen equipment as fabricated by GOMECO or APPROVED EQUIVALENT. Submit shop drawings for approval before fabrication and installation.
- 11 450 - RESIDENTIAL EQUIPMENTS
  - a. Refrigerators shall be owner provided.
  - b. Microwave Ovens shall be owner provided.
- 11 800 - TELECOMMUNICATION EQUIPMENT  
  
Refer to Electrical Plans and Technical Specifications for system used. Equipment shall be owner specified.

DIVISION 12- FURNISHINGS

12 100 - ARTWORK

- a. All paintings, photos, wall decor and hanging shall be owner supplied.
- b. Murals shall be commissioned by the owner to any person upon proper coordination with the Architect on theme and subject of painting.

12 300 - MANUFACTURED CABINETS AND CASEWORK

- a. Use Kiln Dry Tanguile for all cabinet doorframes and louvers. Verify actual measurements before fabrication and installation. Submit shop drawing for architect's approval.
- b. Use ¾ inch or 20mm thick plywood for shelves (minimum height for every shelf interval will be 400mm- start from top of baseboard upwards). Submit shop drawing for architect's approval. Painted as per Division 9.900.
- c. Use Overlap HE 700 heavy duty concealed hinges by HETTICH or approved equal for cabinet doors.

12 500 - WINDOW TREATMENT

- a. Provide mini-blinds for all perimeter windows by Products Unlimited or approved equivalent. Submit samples for approval prior to purchase and installation.

12 600 - FURNITURE AND ACCESSORIES

- a. All furniture for offices, cafeteria, library, conference rooms, dinettes and multi-purpose hall including all of its accessories, like waste receptacles, desk lamps, etc., shall be owner supplied and specified through recommendation of the Architect.

12 670 - RUGS AND MATS

- a. All mats, Rugs and other floor matting shall be owner supplied.

12 800 - INTERIOR PLANTS AND PLANTING

- a. Type of plants, interior and exterior flora, shall be upon the discretion and supply of the owner.

## DIVISION 13 - SPECIAL CONSTRUCTION

### 13 410 - LIQUID AND GAS STORAGE TANKS

- a. LPG tank storage room shall be open to outside air at all times. Verify Mechanical plans on piping details and hook up for supply.

### 13 510 - RESTORATION OF UNDERGROUND PIPELINES

- a. In an event that while excavating the area, underground piping was found and could be damaged in the process, confer immediately with the owner or architect or representative of the owner. Relocate such pipe if needed upon verification and coordination with the owner, or as according to plan.

### 13 600 - UTILITY CONTROL SYSTEMS

- a. Generator shall be owner supplied and shall be housed according to plan. Refer to Plans and Electrical Details.
- b. Gas and Air control devices and their location shall be according to the Mechanical plans provided and Division 15 of this specification.
- c. Circuit Breakers and other Power control devices and its location shall be according to Electrical Plans provided and Division 16 of this specification.
- d. Water Control devices and their location shall be according to Sanitary/Plumbing plans provided and under Division 15.400 of this specification.

### 13 970 - FIRE SUPPRESSION AND SUPERVISORY SYSTEM

- a. Fire Suppression system and control shall be according to Mechanical and Electrical layouts in plans and details supplied.



## DIVISION 14 - CONVEYING SYSTEMS

### 14 100 - DUMBWAITERS

- a. Electrically operated dumbwaiter shall be from MITSUBISHI as supplied by International Elevator and Equipment, Inc. or approved equivalent, capacity shall be 50 kgs. and located according to plans.

### 14 200 - ELEVATORS

Passenger Elevator shall be GPS II Series from MITSUBISHI as supplied by International Elevator and Equipment, Inc., and located according to plans.

#### MAIN LOBBY

Two (2) car elevator, Fifteen (15) person capacity per elevator, operating from ground to sixth floor. Interior car finish shall be hairline stainless steel with ceiling model C-E20S (lighting fixture included) in Vinyl Floor covering. Use Car Operating Panel and Position Indicator model CBM-C10. Use Hall Position Indicator and Call Button model PIM-C20 for all floors. Door Finish shall be Hairline stainless steel inside and outside for all floors.

#### JUDGE'S ELEVATOR

Single car elevator, Six (6) person capacity, operating from basement to sixth floor. Interior car finish shall be in according to plans and details. Use Car Operating Panel and Position Indicator model CBM-C10. Use Hall Position Indicator and Call Button model PIM-C10 for all floors. Door Finish shall be Hairline stainless steel outside for all floors and powder coated steel sheet inside with approved color by architect.

#### SERVICE ELEVATOR

Single car elevator, Six (6) person capacity, operating from basement to sixth floor. Interior car finish shall be plastic laminate steel sheet with approved color by architect or owner with ceiling model C-N10S (lighting fixture included) and vinyl floor covering. Use Car Operating Panel and Position Indicator model CBM-C10. Use Hall Position Indicator and Call Button model PIM-C10 for all floors. Door Finish shall be Painted steel sheet inside and outside for all floors with approved color by architect or owner.

Common accessories: Automatic car fan shut-off, automatic car light shut-off, emergency car light with charger, car gong, interphone, overload protective device with alarm, bell and signal light.

### 14 500 - MATERIAL HANDLING SYSTEM

- a. Chutes – refer to division 11.170: Waste Handling System.

## DIVISION 15 - MECHANICAL

### 15 050 - BASIC MATERIALS AND METHODS

As indicated size and schedule in Mechanical plans. Submit shop drawings and sample sections for Engineers approval before installation. Refer to Mechanical Technical specification for more details.

### 15 250 - INSULATION

As indicated type in Mechanical plans. Submit shop drawings and sample sections for Engineers approval before installation. Refer to Mechanical Technical specification for more details.

### 15 400 - PLUMBING SYSTEMS

As indicated in plans. Any discrepancy between plans and specifications, coordinate with architect. Submit sample section for engineer's approval before installation. Refer to Sanitary / Plumbing Technical specification for more details.

#### Cold Water Systems

- a. G.I. Pipes - US made Schedule 40 for exposed pipes unless indicated in plans. Painted with primer and final coating.
- b. PVC pipes - "NELTEX" brand for embedded pipes.
- c. Check valves and Union valves - U.S. made. Submit sample for engineer's approval.

#### Soil And Waste Piping Systems

- a. Pipes - "Silva" or "Dong Tek" for cast iron soil and waste pipe and fittings. "NELTEX" brand for pvc waste pipe and fittings.

#### Roof Drainage Systems

- a. Pipes - "NELTEX" pvc pipes and fittings for downspouts.
- b. Roof Drains - Dome type "Metma" brand. Submit sample for architects approval.
- c. Vent Pipes - as indicated in plans and Technical specification.

#### Plumbing Equipment

Refer to plans and Plumbing Technical specification for more details. Submit brochures before installation for engineers approval.

#### Floor And Shower Drains

- a. Floor drains - "Metma" cast brass, nickel-plated surface plate, screw on lid with slotted hole. perforations and consisting of adjustable strainer and secondary drain pan. Submit sample for approval.

#### Clean-outs And Clean-out Access Covers

- a. Clean-out Plugs - Cast brass ferrule with countersunk top screw cover, flush at floor finish or wall.

### 15 450 - PLUMBING FIXTURES AND TRIMS

Verify color between architect and owner before installation. Also Refer to Div. 10:800 - Toilet and Bath Accessories

#### PUBLIC TOILETS

- a. Toilets - use AMERICAN STANDARD colored "Carmela" flush valve type toilet by

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Sanitary Wares Manufacturing or approved equivalent with Flush Valve by Sloan Valve Company (USA).

- b. Lavatory – use one piece lavatory and counter by POLYTEX or approved equivalent with ROCA "Sprint" self closing press action with time flow as distributed by BATHROOM PLUS or approved equivalent.
- c. Urinals – Use AMERICAN STANDARD colored "Washbrook" Urinal by Sanitary Ware Manufacturing or approved equivalent, with Flush valve by Sloan Valve Company (USA).

#### DIRECTOR'S TOILET

- a. Toilet – Use AMERICAN STANDARD "Sophia" one piece tank type water closet by Sanitary Wares manufacturing or approved equivalent.
- b. Lavatory – Use AMERICAN STANDARD "Sophia" pedestal type lavatory complete with Fittings in brass finish, all by Sanitary Wares Manufacturing or approved equivalent. Submit sample for architect's approval.
- c. Showers – Use Polished brass shower set with pulsating showerhead, three piece diverter with clear knob handle and tub filler, by DELTA faucets or approved equivalent.

#### CHAIRMAN'S TOILET

- a. Toilet – Use AMERICAN STANDARD "Sophia" one piece tank type water closet by Sanitary Wares manufacturing or approved equivalent.
- b. Lavatory – Use AMERICAN STANDARD "Sophia" pedestal type lavatory complete with Fittings in brass finish, all by Sanitary Wares Manufacturing or approved equivalent. Submit sample for architect's approval.
- c. Showers – Use Polished brass shower set with pulsating showerhead, three piece diverter with clear knob handle and tub filler, by DELTA faucets or approved equivalent.

#### OTHER TOILET

- a. Toilet – Use AMERICAN STANDARD colored "Ventura" tank type toilet complete with fittings, by Sanitary Wares Manufacturing or approved equivalent.
- b. Lavatory – Use AMERICAN STANDARD colored "Diana" wall-hung lavatory complete with Standard Fittings, all by Sanitary Wares Manufacturing or approved equivalent.
- c. Shower – Use ordinary chrome finish shower set with showerhead, three piece diverter and tub filler. Submit sample for architect's approval.

#### HANDICAP TOILET

- a. Toilet – Use AMERICAN STANDARD colored "Carmela" flush valve toilet by Sanitary Wares Manufacturing or approved equivalent with Flush Valve by Sloan Valve Company (USA).
- b. Lavatory – Use AMERICAN STANDARD colored "Carmela" Wall hung lavatory by Sanitary Wares Manufacturing or approved equivalent. Refer to BP 344 for height required of lavatory fixture.

#### PANTRY SINK

Use Single bowl stainless steel sink with drain board, ROCA Model J-70 995mm x 490mm as distributed by BATHROOM PLUS or approved equivalent, with ROCA "Brava" Gooseneck mixer tap. Submit sample before installation for architect's approval.

#### DRINKING FOUNTAIN

Use HAWS HF8 Electric Water cooler flush against wall, heavy gauge stainless steel cabinet with foot pedal control as distributed by RR Alivio General Merchandising or approved equivalent.

15 500 - FIRE PROTECTION

- a. Fire Hose Cabinets and Accessories - as indicated in plans and Mechanical / Sanitary Technical specifications.
- b. Portable Fire Extinguishers - use ABC type fire extinguishers. Submit brochure before installation for architect's approval. Refer to plans for exact location.
- c. Fire Suppression System - refer to Mechanical plans and details for suppression system use.
- d. Fire Alarm System - refer to Division 16:Electrical

15 650 - REFRIGERATION

- a. Condensers and cooling units - use KOPPEL AIR-CONDITIONERS AND COOLING UNITS as manufactured and distributed by: ABB KOPPEL, PHILIPPINES or its approved equivalent. Refer to Mechanical Plans for layout type & make.

15 800 - AIR DISTRIBUTION

- a. Duct work shall be according to Mechanical plans and details.
- b. Duct work insulation shall be according to Mechanical plans and details.
- c. AHU shall be according to Mechanical plans and details.
- d. Exhaust Fans - shall be according to Mechanical plans and details. Submit sample for Engineer's approval.
- e. Dampers - shall be according to Mechanical plans and details. Submit sample for Engineer's approval.
- f. Ceiling Diffusers - use PVC Square louver by NELTEX or approved equivalent. Submit sample for architect's approval.
- g. Wall Diffusers - use PVC louver by NELTEX or approved equivalent. Submit sample for architect's approval.
- h. Filters - shall be according to Mechanical plans and details. Submit sample for Engineers approval.

15 900 - CONTROLS AND INSTRUMENTATIONS

- a. Control Panels - shall be according to Mechanical plans and details. Verify plan for exact location.
- b. Instrumentation - Thermostats, Humidistats and Aquastats shall be according to Mechanical plans and details.

## DIVISION 16 - ELECTRICAL

### 16 050 - BASIC MATERIALS AND METHODS

As indicated size, type and make in Electrical plans. Refer to Electrical Technical Specifications. Submit sample of item or section for engineers and architects approval.

- a. Wire - copper, soft drawn and annealed, 98% conductivity.
- b. Rigid Conduit - standard weight, mild steel hot galvanized or sherardized by "Matsushita" or "Sushimoto" for service entrance.
- c. Outlet boxes and fittings - by "National Electric Products Corp." or Aapproved equivalent
- d. Switches - "Mekoisha" or "National".
- e. Receptacle - "Mekoisha" or "National".
- f. Outlet Plate - "Mekoisha" or "National" Stainless steel (width not to exceed 70mm)
- g. Panel and Cabinets - "Westinghouse" type AB or "G.E."
- h. Circuit Breakers - "Westinghouse" type A.B. or "G.E."

### 16 200 - POWER GENERATION

- a. Generator - optional or as according to Electrical plans, use 650kw Caterpillar / Komatsu / Cummins. Refer to Site Development plan for location of Genset house.
- b. Cooling Equipment such as air-conditioning shall be according to Mechanical plans and Specifications.

### 16 300 - POWER TRANSMISSION

- a. Power Center for the building shall be located as indicated in plan. Provide lock for door for safety. Refer to Electrical plans.
- b. Circuit breakers shall be according to Electrical plan for type and capacity. Refer to Electrical Technical specifications for more details.
- c. Pad mounted transformer shall be provided as indicated in Electrical plans. Verify type and make.

### 16 400 - SERVICE AND DISTRIBUTION

- a. Electrical and Telephone service shall be underground unless indicated in plans.
- b. Grounding shall be provided for as indicated in plans.
- c. Lightning Arrestor shall be according to Electrical plans. Verify location of arrestor.

### 16 500 - LIGHTING

- a. Recessed Lighting - Use "FCD 240", "FCD140", "FCD 220", and "FCD 120" all with mirrorized reflector and eggcrate diffuser by: FULBRIGHT LIGHTING or approved equivalent.  
-use continuous "FCL 120", with mirrorized reflector and prismatic diffuser for light troughs as manufactured by: "Fullbright Lighting". Submit sample for approval of Architect before installation.
- b. Interior Surface Mounted - Use "VENUS - SQ" for Ceiling mounted circular lamp with square wrap around prismatic diffuser as manufactured by: "Fullbright Lighting" or approved equivalent. Submit sample for approval of Architect before installation.
- c. Suspended Lighting (Floor Lobby) - use GARRIGA RATTAN series with special width of 890mm minimum ( for architects approval before installation) by AZCOR Lighting or approved equivalent. Submit picture sample for architects approval.
- d. Exterior Surface Mounted - Use "FIM 140" with acrylic or polycarbonate diffuser complete with ballast and lamp by "Fullbright Lighting"; use "FCP 120" for single 20 watt lamp in white powder coated housing and wrap around diffuser complete with ballast - by "Fullbright

SANDIGAN BAYAN BUILDING

SMF/25

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Prepared by: Attilio Lander  
09/01/97

- Lighting"; Submit sample for architects approval before fabrication and installation.
- e. Pinlights – Use PHILIPS SL Downlight series with anodized and sandblasted aluminum reflector and white die cast aluminum rim complete with corresponding 25 watt SL lamp, all by PHILIPS Lighting or approved equivalent. Submit sample for architects approval before installation.
  - f. Incandescent Fixture - Porcelain surface mounted with 25 watt PHILIPS SL lamp.
  - g. Flood Lights – use M/SNF 300 series floodlight with housing and lamp by PHILIPS Lighting or approved equivalent. Submit sample before installation for approval.

16 600 - SPECIAL SYSTEMS

- a. Emergency Light and Power System shall be provided for according to Electrical plans and Technical Specifications.
- b. Generator System shall be optional or as indicated in Electrical plans supplying power to areas and equipment as indicated according to Electrical plans.

16 700 - COMMUNICATIONS

- a. Alarm and Detection System - US made alarm for doors with dedicated alarm device. See Schedule of Doors. Submit brochure for approval before installation.
- b. Fire Alarm and Detection System- US made Fire Alarm and Detection System as reflected in Electrical plans. Submit brochure for approval before installation.
- c. Telephone System shall be according to plans. Telephone Units shall be owner provided.

16 850 - HEATING AND COOLING

- a. Condensers and cooling units – use KOPPEL AIR-CONDITIONERS AND COOLING UNITS as manufactured and distributed by: ABB KOPPEL, PHILIPPINES or its approved equivalent. Refer to Mechanical Plans for layout type & make.

## PART 2

### TECHNICAL SPECIFICATIONS

Division 01	General Requirements
Division 02	Sitework
Division 03	Concrete
Division 04	Masonry
Division 05	Metals
Division 06	Wood and Plastics
Division 07	Thermal and Moisture Protection
Division 08	Doors and Windows
Division 09	Finishes
Division 10	Specialties
Division 14	Conveying Systems
Division 15A	Mechanical
Division 15B	Plumbing
Division 16	Electrical

DIVISION 01 000: GENERAL REQUIREMENTS

PART 1: GENERAL

1.01 The General Conditions and other Contractual Documents apply to each of the Specifications.

1.02 The provisions contained in Division 01 apply to each Division of the Specifications.

1.03 Cleaning

- a. The Contractor shall keep the premises clean during the progress of the work as specified under Division 01 700 CONTRACT CLOSEOUT.

1.04 Manufacturer's Directions

- a. Manufactured articles, materials or equipment shall be applied, installed, connected, erected, used, cleared, and conditioned in accordance with the Manufacturer's printed directions unless otherwise indicated in the Contract Documents.

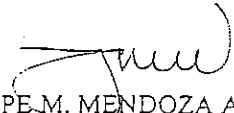




SECTION 01 010: SUMMARY OF THE WORK

PART 1: GENERAL

- 1.01 Furnish all labor, materials, equipment, plant, tools, transportation and other facilities to complete the general construction work including PLUMBING, ELECTRICAL AND MECHANICAL WORKS and connections of utilities to existing sources necessary for the successful completion of the project ready for use.
- 1.02 Construct catch basins, metal gratings, septic vaults parking areas, driveways, curbs, and gutters, sidewalks. Cleaning and Grading of areas as shown in the plans.
- 1.03 All materials to be used shall be new except as otherwise indicated in the specifications and shall be of specific quality and furnished in sufficient quantity to facilitate proper and speedy execution of the work.
- 1.04 The Contractor shall confine his apparatus, storage of materials and the operation of his workmen to limits indicated by law, ordinances, and permits, and shall leave all walks, driveways, roads, and entrances unencumbered.

  
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SECTION 01 015: CONTRACTOR'S USE OF PREMISES

PART 1: GENERAL

- 1.01 The Contractor shall confine his apparatus, storage of materials and the operation of his workmen to limits indicated by law, ordinances, and permits, and shall leave all walks, driveways, roads, and entrances unencumbered.

SECTION 01 019: OWNER FURNISHED OPTION

PART 1: GENERAL

- 1.01 Should the Owner opt to furnish critical materials for the project corresponding adjustment in the contract cost shall be made.
- 1.02 Upon agreement between the Owner and the Contractor as to the materials, the Owner is to purchase, the Contractor shall furnish to the Owner all necessary information, including source of supply, to enable the Owner to properly purchase such materials.
- 1.03 The Owner shall be responsible for the ordering and delivery of owner-furnished materials, fixtures and equipment which should be completed with its integral parts upon arrival with a guarantee from the manufacturer or dealer of the performance of fixtures and equipment.
- 1.04 Once the materials, fixtures and equipment are delivered at the site, it will be the responsibility of the Contractor to provide the necessary insurance and storage facilities to protect them against damage, fire, loss and pilferage. Any damage or loss of the materials, fixtures or equipment once under the custody of the Contractor shall be at his own expense and the delay that may be caused by the replacement will not entitle the Contractor for extension of time.

PART 1: GENERAL

1.01 Project Coordination

- a. Supervises and coordinates the works of the various sub-contractors in order to achieve an efficient and satisfactory implementation of the scheduling, delivery and storage of materials, fixtures and equipment and proper installation of conduits, roughing-in utilities, fixtures and equipment in conformity with the drawings, specifications, contract documents and other manufacturers' catalogues and instructions.

1.02 Cutting - Patching - Digging

- a. The Contractor shall coordinate all cutting, fitting or patching of the work required to make its several parts come together properly and fit to receive or to be received by other portions of his own work or that of the subcontractors or the installing material men as shown upon or reasonably implied by the Drawings or Specifications for the completed structure, and he shall make or have made proper and sufficient repair or closure after them as the Architect may direct.
- b. The Contractor or subcontractor shall not allow any work to be endangered by cutting, digging, drilling, etc., and shall not cut or alter the work of any Trade without the prior consent from the Architect.

SECTION 01 060: REGULATORY REQUIREMENT

PART 1: GENERAL

1.01 Permits, Fees, Licences, and Taxes

- a. The Contractor shall secure and pay all permits, fees, licenses, and taxes necessary for the execution of the work.
- b. The Contractor and others working under his jurisdiction shall perform work in compliance with the rules, regulations, and ordinances of any kind required by governmental authority or other agency having jurisdiction over this work.
- c. The Contractor shall secure all certificates of inspection and occupancy that may be required by the authorities having jurisdiction over the work. These certificates shall be delivered to the Architect upon completion of the work.



SECTION 01 200: PROJECT MEETINGS

PART 1: GENERAL

1.01 Pre-Construction Conferences

- a. A pre-construction meeting between the Architect or other representatives designated by the Owner and the Contractor shall be held at the site prior to the commencement of the work. This meeting shall be for the purpose of resolving current problems, further orienting the Contractor to the requirements of the Drawings and Specifications, informing the Contractor of the Architect's responsibility to the Owner for the supervision, and working out with the Contractor a general schedule of supervision.

1.02 Progress Meetings

- a. The Contractor shall meet weekly or as required with the Architect or the Owner's Representative to verify the progress of the work.

1.03 Job Site Administration Meeting

- a. The Contractor shall meet weekly with his sub-contractors on a scheduled basis to coordinate construction of the project with various Trades.
- b. The Architect or his Representative shall be invited to these meetings.

SECTION 01 300: SUBMITTALS

PART 1: GENERAL

1.01 Construction Schedules

- a. The Contractor shall contact the Architect or the Owner's Representative before covering up any work so that proper inspection may be made.

1.02 Network Analysis Schedules

- a. The Contractor shall prepare a PERT-CPM Construction Schedule to indicate the following:
  1. All activities necessary to complete the project.
  2. Monthly value of each activity.

1.03 Shop Drawings, Product Data, and Samples

- a. The Contractor shall review, stamp with his approval, and submit shop drawings and submittals for approval of the Architect for conformance of the design concept and information given in the Contract Documents. The work shall be in accordance with the Drawings and Specifications.
- b. Where specified or required, the Contractor shall submit samples to the Architect together with specification material, affidavits, and other documentation as may be required by the Architect. It is the Contractor's specific responsibility to ascertain that the samples submitted have been checked and approved by him. The cost of the samples together with the transportation, delivery, and any other costs shall be borne by the Contractor.
- c. The samples shall be submitted in duplicate. One of each sample shall be retained in the office of the Architect until the completion of the Project.
- d. Where samples are specifically required to be submitted for approval, no work involving the samples/ materials shall proceed until written approval has been obtained from the Architect.

SECTION 01 400: QUALITY CONTROL

PART 1: GENERAL

1.01 Testing Laboratory Services

- a. Testing provisions are as outlined in Article 10 of the General Conditions.



TECHNICAL SPECIFICATIONS  
DIVISION 01: GENERAL REQUIREMENTS  
SECTION 01 500: TEMPORARY CONSTRUCTION FACILITIES AND UTILITIES

PART 1: GENERAL

- 1.01 Temporary structures and facilities as outlined in Article 15 of the General Conditions.

SECTION 01 700: CONTRACT CLOSEOUT

PART 1: GENERAL

1.01 Cleaning

- a. The Contractor shall keep the premises and the building free from accumulations of waste or rubbish caused by his employees, sub-contractors, and at the time of completion of the work, he shall remove all rubbish from under and about the building, all his tools, scaffolding, and surplus materials, and he shall have the building clean and habitable, having thoroughly swept the floors, cleaned the windows, and dusted flat surfaces such as cabinet tops and window sills.
- b. Prior to and during the process of painting, staining or varnishing, the area where such work is in progress shall be cleared of all debris, rubbish, or building materials which may cause dust. Floors shall be swept as required and all possible steps taken to keep the area dust free.
- c. In addition to the general cleaning noted above, the Contractor shall do the following special cleaning for all trades at the completion of the work:
  1. Remove putty stains from all glass. Wash and polish the glass inside and outside, exercising care not to scratch the glass.
  2. Remove marks, stains, fingerprints, and other soil and dust from the painted, decorated, or stained work.
  3. Clean and polish woodwork.
  4. Clean and polish hardware for all Trades. This shall include removal of stains, dust, dirt, paint, etc.
  5. Remove spots, soil and paint from the tile work, and wash the tile.
  6. Clean fixtures and equipment, and remove stains, paint dirt, and dust.
  7. Remove temporary floor protection, and clean and polish floors.
  8. Clean exterior and interior metal surfaces, including doors and windows required to have polished finishes, of oils, stains, dust and dirt, etc.
  9. Polish surfaces leaving them without fingerprints or other blemishes.

1.02 Project Record Documents

- a. It shall be the responsibility of the Contractor to require the Mechanical, Plumbing, and Electrical Contractors to keep accurate as-built drawings, descriptive letters if their work is constructed in any way at variance to that shown on the Contract Documents. Other Contractors shall supply as-built drawings and/or descriptive letters if required.
- b. These as-built drawings shall be delivered to the Architect prior to receiving his certification for the final payment.

1.03 Operations and Maintenance

- a. Before the final payment, the Contractor shall obtain from his Mechanical, Plumbing, Electrical and Sound Sub-contractors the operating instructions and/or maintenance manuals as called for in the respective Specifications.

1.04 Warranties and Bonds

- a. In the case of any work performed by the Contractor where guarantees are required, the Contractor shall secure the guarantees and/or warranties properly addressed and in favor of the Owner. Copies of these documents shall be delivered to the Architect upon completion of the Contractor's work and prior to the final payment.
- b. Delivery of the guarantees and/or warranties shall not relieve the Contractor from any obligation assumed under any other provisions of this Contract.
- c. Nothing herein intends or implies that guarantees and/or warranties shall apply to work abused or neglected by the Owner.

DIVISION 01 700: CONTRACT CLOSEOUT

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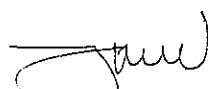


DIVISION 02: SITEWORK

PART 1: GENERAL

- 1.01 Division 01 applies to this Division.
- 1.02 Provide labor, materials, and equipment necessary for completion of work unless noted otherwise.

DIVISION 02 000: SITEWORK

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FELIPE M. MENDOZA AND PARTNERS

SECTION 02 050: DEMOLITION

PART 1: GENERAL

1.01 Scope

- a. General Division 02 applies to this Section.
- b. Includes:
  - 1. Furnish labor and materials required to complete demolition as shown in Contract Documents.

PART 2: EXECUTION

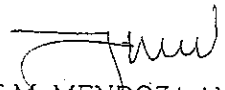
2.01 Permits

- a. Contact local Building Official to familiarize with laws and regulations governing the work.
- b. Notify corporations, companies, individuals, and local authorities owning conduits running to property. Arrange for removal of wires running to and from the property. Remove pipes and sewers in accordance with instructions of the above owners.

2.02 Protection

- a. Protect and maintain conduits, drains, sewers, pipes and wires that are to remain on property.
- b. Remove work demolished from property as directed.
- c. Erect and use dust chutes for removal of materials, rubbish and debris.
- d. Perform work in orderly and careful manner with due consideration for neighbors and the public.
- e. Demolish masonry in small sections using bracing and shoring where necessary to avoid collapse of structure.
- f. Promptly, remove materials, rubbish, and debris from building and premises.

DIVISION 02 050: DEMOLITION

  
FELIPE M. MENDOZA AND PARTNERS

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SECTION 02 010: SUB-SURFACE INVESTIGATION

PART 1: GENERAL

1.01 SCOPE

- a. Visit site and become acquainted with site conditions.
- b. Prior to bidding, bidder may make sub-surface investigations to satisfy himself with site and subsurface conditions.
- c. Make no deviations from Contract Documents without specific and written approval of the Owner.
- d. Owner has secured the services of a Soils Engineer to aid in design of a project. The following conditions apply:
  1. A soils investigation report has been prepared by: \_\_\_\_\_ referred to as Soils Engineer.
  2. This report may be inspected at the Architect's office.
  3. This report was obtained only for use by the Architect in design and is not part of the Contract Documents.
  4. Report and boring log is available for Contractor's information but is not a warranty of subsurface conditions.
- e. Should conditions be encountered which are not at variance with those indicated in soils investigation report, the Contractor shall immediately notify the Owner or the Soils Engineer.

DIVISION 02 010: SUB-SURFACE INVESTIGATION

  
FELIPE M. MENDOZA AND PARTNERS

Page 1 of 1

SECTION 02 100: SITE PREPARATION

PART 1: GENERAL

1.01 Scope

a. Work Included:

1. Labor, materials, equipment, plant and other facilities and the satisfactory performance of all work necessary to complete the preparation of site, excavation, and grading.

1.02 Examination Of Site

- a. Visit the site of the work and examine the premises to fully understand all existing conditions relative to the work.
- b. No increase in cost or extension of performance time will be considered for failure to know its condition.

1.03 Permits

- a. Secure and pay for the necessary permits needed for work.

1.04 Protection

- a. Workmen: Provide adequate measures to protect workmen and passersby in the site.
- b. Surrounding area: Streets and adjacent property shall be fully protected throughout the operations.
- c. Surface drainage: Provide in a manner to avoid creating a nuisance to adjacent areas during the period of construction.

SECTION 02 200: EARTHWORK

PART 1: GENERAL

1.01 Scope

a. Work Included:

1. Furnish all labor, equipment and materials for excavation and backfilling.
2. Inspect site to survey necessary labor, equipment and materials.
3. Excavation and hauling of excavated materials.
4. Backfilling and grading up to the property line

b. Related Work Specified Elsewhere:

1. Preparation of subgrade for concrete pouring.
2. Preparation of subgrade for asphaltic concrete paving.
3. Trenching and backfilling for storm sewer system.
4. Trenching and backfilling for underground electrical supply.

1.02 Protection

- a. Provide adequate bracing and shoring to protect existing construction as may be required.
- b. Perform all excavation work with a minimum amount of damage to work which is to remain.
- c. Repair any damage caused by negligence of Contractor at his own expense.
- d. Provide adequate protection measures for materials, men, and adjoining property.
- e. Avoid creating nuisance to adjacent areas.

1.03 Measurement and Payment

- a. Excavation shall be measured in its original position by cross-sectioning the area excavated. Volumes will be computed from the cross-section measurements by the average-and-area method.
- b. Accepted quantities will be paid for at the contract price per unit of measurement for excavation, including embankment construction.

PART 2: PRODUCTS

2.01 Materials

- a. Barrow materials shall be selected, laboratory approved material obtained from off-site sources and having 3.5 percent liquid limit, and 4 to 12 percent plasticity index.
- b. Granular fill to form a capillary water barrier shall be clean, crushed non-uniformly graded and of a size which will pass a 25 millimeter mesh screen and be retained on a No. 4 mesh screen.
- c. Excavated material approved for use as backfill shall be free of fibers, vegetables or organic materials, boulders, large rocks or pockets, lumps or other concentration of silt, debris, or cinders.
- d. No fill material shall be placed when free water is standing in the area where fill is to be placed.

PART 3: EXECUTION

3.01 Preparation

a. Stakes and Batter Boards

1. Stake out the building accurately and establish grades. Secure the approval of the Owner and/or Architect.
2. Erect batter boards and reference mark where they will not be disturbed during construction.
3. Store materials and conduct work in such a manner as to preserve all reference marks.
4. Re-establishment of lines and grades where necessary shall be done at the Contractor's expense.

b. Rough Grading

1. Cut and fill and machine grade the site area.
2. Deposit materials in horizontal layers not exceeding 0.20 meters (8 inches) in depth and compact to 95% of maximum density. (Modified Proctor Test)

3.02 Excavation

a. Foundations

1. Excavate to grade indicated.
2. Excavate trenches to a neat size, leveled to line at the bottom ready to receive the foundation.
3. Excavation greater than required by the drawings and specifications and which is within the bearing area of walls, footings, or floor slabs shall be filled with Class "D" concrete at Contractor's expense.
4. All foundations are designed for an allowable soil bearing capacity of 95.70 kPa (2,000 psf) unless indicated otherwise. Contractor shall report to the Engineer actual soil conditions uncovered and confirm actual soil bearing capacity before any concreting is started.

b. Trenching for Utility and Foundation Drawings

1. Excavate to a point 1.5 meters beyond building line of sufficient distance from the walls and footings to allow placement and removal of forms.
2. Backfill materials and concrete fill. Where excavation is at lower levels or greater depth than required for foundation, or where unsatisfactory material is removed, the excess material shall be replaced with backfill material, except below grade beams, footings and other structural concrete where fills to proper depth or level shall be with concrete of the same strength as specified.

3.03 Dewatering

- a. Water encountered during excavation shall be removed by piling or pumping; care being taken that the surrounding particles of soil are not disturbed or removed.
- b. Pump water out of excavated areas throughout the construction.



TECHNICAL SPECIFICATIONS  
DIVISION 02: SITEWORK

3.04 Sub-Drainage

- a. Excavate trenches for underground utility systems and drain lines. Grade and tamp to provide firm bed trenches for drain lines.
- b. When rock is encountered, excavate to a depth 15 centimeters below the bottom of the pipe, and before pipe is laid, the space below the pipe shall be filled with sand, gravel or crushed stone.

3.05 Soil Compaction

- a. All existing earth within building lines that has been disturbed should be placed in 15 centimeters layers and compacted to 95% of maximum density required for fill.

3.06 Disposal of Excavated Material

- a. Surplus materials resulting from the site excavating and grading operations shall be removed from the site and disposed off in a proper manner.

3.07 Backfilling and Grading

- a. Backfilling
  1. Commence after approval of construction below finish grade, underground utility systems inspected and tested, forms removed and the excavation cleaned of trash and debris.
  2. Place in layers not more than 15 centimeters thick and evenly compact and ram by wetting, tamping or rolling until the correct grade.
- b. Finish Grading
  1. Place filling materials in horizontal loose layers not exceeding 15 centimeters in thickness and spread, mix and place in such a manner as to produce a uniform thickness of material.
  2. Start in deepest area and progress approximately parallel to finished grade.
  3. Grade finish surface to drain water away from the building.

SECTION 02 280: SOIL TREATMENT

PART 1: GENERAL

1.01 Scope

- a. Furnish materials and equipment and perform labor required to complete soil poisoning work.

1.02 Examination of Site

- a. Visit the site of the work and examine the premises to fully understand all existing conditions relative to the work.

PART 2: PRODUCTS

2.01 Soil Poisoning

- a. Soil poison shall be water-based emulsions. One of the following may be used:
1. Benzene Hexachloride - 0.8 percent gamma isomer concentration
  2. Chlordane - 1 percent concentration.
  3. Dieldrin - 0.5 percent concentration.
  4. Aldrin - 0.5 percent concentration
  5. Heptachlor - 0.5 percent concentration.

PART 3: EXECUTION

3.01 Application

- a. Soil poisoning work shall not begin until all preparations for footing and/or slab placement have been completed.
- b. Soil poison shall not be applied when soil is excessively wet.
- c. After grading and leveling the soil in the ground and layer of gravel laid preparatory to the pouring of concrete, flood or soak every square meter of floor area with soil poison working solution.
- d. Thoroughly drench and saturate every linear meter excavation of footings, retaining walls and other foundation work with soil poison working solution before pouring concrete.
- e. 5.0 liters of soil poison working solution per linear meter shall be applied to all areas immediately below expansion joints, and all areas, where slab will be penetrated by pipe ducts and other construction features.
- f. Hollow masonry walls resting on grades shall have its voids treated with 2.5 liters of soil poison working solution per linear meter of wall. Poisons are poured directly into the hollow spaces.
- g. Prior to landscaping of the lawn, saturate every linear meter perimeter of the building about 3 meters wide with soil poison working solution.

- h. Treat earth fill thoroughly. As soon as fill is packed and leveled, drench every 1 square meter area with soil poison working solution.

3.02 Inspection and Test

- a. One sample of concentrated toxicant shall be tested.
- b. One sample of working solution shall be tested for each 1,000 square meter of tested area. There shall be at least two samples tested.
- c. Samples shall be taken and analytical tests performed by approved testing laboratory. Test shall be paid for by the Contractor. The results shall be submitted to the Architect.

3.03 Guarantee

- a. Upon completion of the work, and a condition of final acceptance, the Owner shall be furnished with a written guarantee which shall provide that: the soil-poisoning treatment shall prevent sub-terranean termites from attacking the building or its contents for a period of not less than 5 years.

SECTION 02 400: SITE DRAINAGE

PART 1: GENERAL

1.01 Scope

- a. Furnish materials and equipment and perform labor required to complete the storm drainage system external to the building.  
This section includes drop inlets, side inlets, catch basins, manholes, manhole covers and frames, headwalls, culverts, drainage ditches and related rip-rap, concrete raceways and flumes, downspout connections and piping of concrete, asbestos, steel or such other materials suitable for the system.

1.02 Protection

- a. Protect materials from loss, injury or defacement. Lost or damaged materials shall be replaced by the Contractor at his own expense.

PART 2: PRODUCT

2.01 Materials

- a. Drainage Pipes
  - 1. Plain concrete Drain Pipe and fittings, 10 to 20 centimeters inside diameter: T&G conforming to ASTM C-14-59.
  - 2. Reinforced Concrete Drain Pipes and fittings 25 centimeters and bigger: Centrifugally cast or vibrated T & G conforming to ASTM C-76-59T.
- b. Jointing Material - one part cement to two parts sand in proportion with oakum yarning.
- c. Building Storm Drain connections to main concrete wye branch and cleanout, T & G. Or use junction boxes.
- d. Area Drain Catch Basin - Load-bearing concrete hollow blocks (CHB) or reinforced concrete grating covers as shown on the drawings.
- e. Manhole - Precast reinforced concrete sections with galvanized steel ladder rung and cast iron frame and cover.

PART 3: EXECUTION

3.01 Excavation and Pipe Laying

- a. Excavate trenches for all underground pipe lines to required depths and grades.
- b. Sink bell projections so that pipe will rest on well tamped solid bedding for its entire length.
- c. Lay pipes in trenches true to line and grade. Properly bed each section of the pipe and shape trench to fit the lowest 90 degree arc of pipe circumference.
- d. Lay water and sewer pipes in separate trenches.

DIVISION 02 400: SITE DRAINAGE

  
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3.02 Backfilling

- a. Pipe lines shall be tested by Contractor and by Owner's representative prior to backfilling.
- b. Clean and free all excavation from trash and debris.
- c. Backfill shall consist of same material excavated or other approved materials. Free backfill of debris and big stones. Place backfill in horizontal layers not exceeding those indicated on the drawings.
- d. Carefully place and tamp backfill under and around pipe barrel in such a manner so as not to disturb pipe line and joints.
- e. Properly moist each backfill layer and compact by hand or machine to an optimal density that will prevent excessive settlement and shrinkage.
- f. Bring backfill to suitable elevation above grade to provide for anticipated settlement and shrinkage.

SECTION 02 480: LANDSCAPING

PART 1: GENERAL

- 1.01 Division 02 General applies to this Section.
- 1.02 Verification of Dimensions and Quantities.
  - a. Before proceeding with work, check and verify dimensions and quantities.
  - b. Plant totals are for convenience of Contractor only and are not guaranteed. Verify Drawing totals.
  - c. All planting indicated on Drawings is required unless indicated otherwise.
- 1.03 Precautions
  - a. Take care and prepare in work to avoid conditions which will create hazards. Post signs or barriers as required.
  - b. Provide adequate means for protection from damage through excessive erosion, flooding, heavy rains, etc. Repair or replace damaged area as directed by the Architect.

SECTION 02 485: LAWNS AND PLANTINGS

PART 1: GENERAL

1.01 Scope

- a. Furnish materials and equipment and perform labor required to complete: soil preparation lawns.
- b. See drawings and details for extent of work required.
- c. Plants, trees, and shrubs to be furnished and planted by others.

PART 2: PRODUCTS

2.01 Materials

- a. Topsoil - fertile, natural soil, typical of locality, from stones, clay and weeds and as approved by the Architect.
- b. Fertilizers and Manures - shall supply nutrients, improve soil structure, aeration and waterholding capacity and promote micro-biological activity.
- c. Trees - sturdy, reasonably straight stem according to species intended use. It must have a well balanced branching head or well defined straight and central leader with branches growing from stem in reasonable symmetry.
- d. Open-Ground Shrubs - according to species, cut back or trimmed to encourage bushiness.

PART 3: EXECUTION

3.01 Stripping of Soil

- a. Strip topsoil to its entire depth from areas to be occupied by building, roads, walks and other structure and pile where it will not interfere with building operations.
- b. Strip and pile topsoil before any excavation is begun. Stripped topsoil shall be free from clay, large stones and debris. Use topsoil exclusively for finish grading.

3.02 Placing of Topsoil

- a. As soon as practicable after rough grading has been completed and approved, the sub-grade shall be scarified to a depth of 10 centimeters (4 inches). 20 centimeters (8 inches) layer of topsoil shall be spread over the scarified sub-grade.
- b. Topsoil previously stripped and stockpiled may be used. Contractor shall furnish additional topsoil to provide the thickness specified.

3.03 Fertilizing

- a. Prior to placing sod, proper commercial fertilizer shall be uniformly spread over the topsoil.

DIVISION 02 485: LAWNS AND PLANTINGS

  
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3.04 Sodding

- a. After topsoil is placed, the entire area shall be covered with sod.
- b. Sod shall contain a good cover of living grass. Sod shall be out approximately 28 millimeters (1-1/2 inches) thick and be free from weeds, stones, and crab grass.
- c. When sod is cut, height of grass shall not exceed 10 centimeters.
- d. Sod shall be placed smoothly, edge to edge with staggered joints and then tamped or rolled to eliminate air pockets.
- e. On slopes 2 is to 1 and greater, fasten sod in place with wood pegs or other approved methods.
- f. Water sod as soon as possible as it shows evidence of excessive drying.
- g. Maintain sod for a period of two months after laying. If at the length of two months the building has not yet been completed, continue maintaining the lawn until such a time that the building has been accepted by the Owner. Maintenance shall consist of providing protection against traffic, repairing, damaged or settled areas, refertilizing, watering, weeding and mowing.

3.05 Planting

- a. Do not plant when ground is wet or water-clogged. Whenever possible arrange planting so that all plants in one layout or in one section of the layout are put at the same time.
- b. Plants that arrive but cannot be planted immediately shall be stored properly and exposed roots covered with damp sacking or protective material.
- c. Open trench shall be deep enough to hold roots.
- d. Place plants in the trench so that the tops lay at an angle or about 45 degrees. Then fill in trench with soil and trod soil firmly over roots.
- e. Large bundles of plants shall be opened before heeling-in so that the roots are in contact with soil.
- f. Plants which make a dense mass of ribbons roots, giving a rootball, are lifted with the soil attached and root-ball wrapped in sacking.
- g. The rootball shall be soaked in water on arrival without removing the sacking. Place plant in a prepared hole at the correct depth. Cut ties holding the sack, do not remove sacking as it may damage the roots.



SECTION 02 500 ROADS AND PARKING

PART 1: GENERAL

1.01 Scope

- a. Furnish all materials, labor, equipment, plant, tools, to complete the roads and parking as shown in drawings.
- b. Work shall be done in accordance with the DHP Standard Specifications for Highways and Bridges, 1972 Edition, Special Provisions, and Supplemental Specifications pertaining to this project.
- c. Suitable topsoil shall be scraped and deposited in the storage piles as designated by the Architect. This shall be used later for finishing exposed slopes and surfaces of earth sections.
- d. Extent of work shall be as shown on the drawings and specifications.

1.02 Basis of Payment for deletions or additions shall be in unit quantities as per submitted Unit Prices on the Proposal Form.

PART 2: PRODUCTS

2.01 Materials

- a. Barrow Material - shall be selected laboratory approved, pit run gravel, talus rock disintegrated, granite, sand shale cinders, coral, or other similar materials selected. It should not contain more than 35% passing the No. 200 sieve and the fraction of the material passing the No. 40 sieve shall have a liquid limit not greater than 35 and plasticity index not greater than 12.
- b. Crushed Stone Base Course - shall consist of hard durable fragments of stone and a filler of sand or other finely divided mineral matter. The composite base course materials shall be free from vegetable matter and lumps or balls of clays, and shall meet the requirements for base course as called for in the DPH Specifications.

Grading Requirements shall be as per AASHTO Methods T-11 and T-27.

REQUIREMENTS FOR GRADING	
Sieve Designation (Square Mesh Sieves)	Percent Weight Passing Type "B" Base Course
38 millimeters (1-1/2")	100
25 millimeters (1")	85 - 100
No. 4	20 - 45
No. 200	5 - 12

c. Asphaltic Materials

1. Shall be made from an asphaltic base petroleum homogeneous and free from water, except Emulsified Asphalt which is made from an emulsion of asphalt and water. Asphalt shall not have been distilled at high temperature and shall upon arrival at the site not show sign of separation into lighter and heavier components.
2. All tests shall be as per AASHTO Specifications or methods

DIVISION 02 500: ROADS AND PARKINGS

  
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PART 3: EXECUTION

- 3.01
- a. Placing and Spreading of Base Coarse  
Placing shall be placed on the prepared sub-grade and compacted in layer to the thickness shown on the plans. Materials shall be deposited and spread in a uniform layer and without segregation of size. Spreading shall be from dump boards, spreader boxes or mechanical equipment.
  - b. Mixing Base Coarse Materials  
After depositing on the prepared sub-grade, it shall be thoroughly mixed to the full depth of the required layer by means of a self-propelled or tractor-drawn blade grader having a wheel base of at least 4.6 meters, and weighing not less than 3,048 kilograms. In order to prevent segregation of particle sizes and to aid in compaction of the materials.
  - c. Rolling Base Coarse
    1. Immediately following the final mixing and spreading, all materials shall be compacted to full by rolling with a 3-wheeled or tandem roller weighing at least 8,128 kilograms or with a multiple-wheeled rubber-tired roller loaded and directed to give satisfactory compaction.
    2. Rolling shall progress gradually from the sides to the center, parallel with the center line of the road and it shall continue until compaction is satisfactory to the Engineer.
    3. After rolling all the base coarse materials the surface shall be bladed and smoothened. Blading and rolling shall be performed alternately as required or directed to maintain a smooth, even surface.
    4. Base coarse materials shall be machine tamped along curb, headers or walls and at all places not accessible to rollers.
    5. All layers of loose materials shall be sprinkled with water during rolling, tamping and blading.
  - d. Spreading of Choker Aggregate
    1. After final rolling of coarse aggregates, choker aggregate shall be spread evenly over the surface until the voids are filled up to within approximately 1 centimeter of the surface and if possible the surface shall be broomed with push brooms and diagonal brooms.
    2. After spreading and brooming, rolling is again started and adding and spreading of choker aggregate is repeated until a smooth surface is obtained.
  - e. Application of Bituminous Materials
    1. First Application - shall be done after rolling the coarse and choker aggregate and shall not be done during rainy weather.  
Application shall be uniformly applied in the amount specified on the tabulation below.
    2. Second application - shall be done after the spreading of the key aggregate and its rolling is done. Surface shall be swept clean of all loose materials and application shall be done uniformly in the amount specified in the table on the next page.

Sequence of Placing Operations and Approximate Amounts of Materials required per Square Meter

	Bituminous Material (liters per sqm.)	A G G R E G A T E			
		Coarse kls./sqm.	Choker kls./sqm.	Key kls./sqm.	Cover kls./sqm.
First Spreading		90			
Second Spreading			10		
First Application	3.5				
Third Spreading				10	
Second Application	3.5				
Fourth Spreading				8	
Third Application	2.0				
Fifth Spreading					8
TOTAL	9.0		126		

The required amounts given in the above tabulation for each application and spreading approximate and the exact amount shall be set by the Engineer. Total amounts of bituminous material per square meter may be varied by the Engineer to fit conditions, but the total amount of aggregate per square meter shall be that required by the table, corrected only for specific gravity.



SECTION 02 528 CONCRETE CURBS, GUTTER AND SIDEWALKS

PART 1: GENERAL

1.01 Scope

- a. Furnish all materials, labor, equipment, plant, tools to complete the concrete curbs and gutters including sidewalks as shown on the drawings.
- b. Related works specified elsewhere:
  1. Concrete, Division 3.

1.02 Protection

- a. Protect all materials from dirt, and injurious substances that may affect the strength of concrete and cement.

1.03 Payment

- a. Basis of payment for deletions or additions shall be measured in cubic meters measured in place with the unit prices in accordance with the unit prices on the Proposal Form.

PART 2: PRODUCTS

2.01 Materials

- a. Cement shall be as per ASTM Standard Specifications for Portland Cement (ASTM Designation C-150 Latest Revision) for Type 1 Portland Cement.
- b. Concrete Aggregates
  1. Aggregates shall be well-graded, clean, hard particles of sand or crushed rock conforming to the "STANDARD SPECIFICATIONS FOR CONCRETE AGGREGATES". (ASTM Designation C-33 - latest revision).
  2. Sand - shall be coarse sand free from injurious materials. Sand from salt water are not allowed.
- c. Water - shall be clean and free from injurious amounts of oils, acids, alkali, organic materials or other deleterious substances.
- d. Forms - shall either be wood or steel.
- e. Controlled Strengths of Concrete - concrete shall develop a minimum 28-day cylinder strength of 17.23 MPa (2,500psi).

PART 3: EXECUTION

3.01 Excavation and Bed Preparation

- a. Excavate to required depth and true to line and grade. All soft and unstable materials shall be removed and replaced with good suitable material acceptable to the Engineer.
- b. Provide granular material such as gravel or cinder to form a bed for the combination curb and gutter.

3.02 Formwork

- a. Formwork for at least 3 meters of curb and gutter, except on curves shall be prepared and checked for alignment and grade.
- b. Removal of form shall be allowed 24 hours after pouring of concrete.

3.03 Concrete Placement

- a. Concrete may be placed in gutter to the full depth required. It shall be placed in layers not exceeding 12 centimeters.  
Top of curb and gutter shall be floated smooth. Finishing of concrete shall be done by pure cement when concrete has not set.
- b. Joints: Provide construction joints at a maximum spacing of 5 meters which shall be separated by use of steel or wood templates and later filled up with roofing paper dipped in asphalt or a pre-moulded expansion joint.
- c. Curing
  1. Surfaces shall be protected and cured within 24 hours. It should always be kept moist to prevent cracks.
  2. It should also be covered with plastic or canvass during heavy downpour.

DIVISION 03 000 CONCRETE

PART 1: GENERAL

1.01 General Conditions and Division 01 apply to this Division.

1.02 Scope

a. Includes:

1. Furnish labor, materials, and equipment necessary for completion of work unless indicated or noted otherwise.
2. Application or installation of concrete accessories.


b. Furnished by Sub-contractor but installed by this Section:

1. Inserts, bolts, boxes, templates, and fastening device for other work, including those for bases only for Mechanical and Electrical, shall be provided by Sub-contractor involved.

c. Related Work Specified Elsewhere:

1. Electrical, Plumbing and Mechanical devices including boxes, conduits, pipes, hangers, inserts, and other work to be embedded in concrete shall be furnished and installed by Sub-contractor involved prior to pouring unless arranged differently by Contractor.

DIVISION 03 000: CONCRETE

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SECTION 03 100 CONCRETE FORMWORK

PART 1: GENERAL

1.01 Scope

a. Work Included:

1. All labor, materials, equipment, plant, tools and other facilities necessary to complete all concrete formwork whether cast-in-place or precast.
2. Refer to General Conditions.
3. Work shall be done in accordance with the "SPECIFICATIONS FOR CONCRETE AND REINFORCED CONCRETE" as adopted by the Department of Public Works, Philippines, and the "REQUIREMENTS FOR REINFORCED CONCRETE (ACT 318-63)", insofar as they do not conflict with specific provisions.

1.02 Protection

- a. Provide forms that will produce correctly aligned concrete.
- b. Choice of fitting shall be done correctly.
- c. Support of forms shall be done rigid and extra care must be exercised in considering weights and side pressure.

PART 2: PRODUCTS

2.01 Materials

a. Forms:

1. Plywood, metal, plaster of Paris or plastic materials or surfaced lumber forms shall be used for all concrete work whether cast-in-place or precast.
  2. In no case shall the-forms for beams and slabs be less than 12.3 millimeters (1/2") thick plywood for exposed concrete, 20 millimeters (3/4") T & G for covered concrete.
- b. Quality: Provide forms that will produce correctly aligned concrete. Plastering in general shall not be allowed so that care shall be exercised in the choice of surface of forms and fittings that will be in contact with concrete.

PART 3: EXECUTION

3.01 Preparation

- a. Check all formwork for plumbness and correct alignments.
- b. Provide openings for column forms for cleaning and inspection preferably at lowest points of pour lifts.
- c. Provide camber as indicated in construction notes.

DIVISION 03 100: CONCRETE FORMWORK

  
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3.02 Forms and Shoring

a. Removal:

1. Forms and shoring shall not be removed until concrete is adequately set and strong enough to withstand anticipated loadings and in no less than what is required in the following tabulations:

Parts of Structure	Classification of Parts	Time Required
Footings	a) Massive footing	a) 1 day (24 hours)
	b) Cantilever footing	b) 4 days (120 hours)
	c) Slab footing	c) 5 days (121 hours)
Walls and Pilasters	a) Massive walls, 30 centimeters	a) Up to 60 centimeters (2 ft.) high - 1 day (24 hours). Add 1 day for additional 90 cm. (3 ft.) of height or fraction thereof.
	b) Thin walls - less than 30 cm.	b) Up to 180 cm. (6 ft.) high - 2 days (48 hrs.). Add 1-1/2 days (36 hrs.) for every additional 90 cm. of height or fraction thereof but not more than 28 days (672 hrs.).
	c) Cantilever walls	c) to f) without loads same as a & b.
	d) Buttresses	
	e) Counterforts	
	f) Diaphragm	
Columns	a) Ratio of height to least dia. up to 4.	a) 2 days (48 hours)
	b) Add to the above least 15.	b) Ratio of height to dia. from 4 to number 1 day (24 hrs.) for every additional 90 cm. (3 ft.) of height or fraction thereof but not more than 28 days (672 hrs.).
Slabs	a) 90 cm. (3 ft.) to 210 cm. (7 ft.) span	a) 90 cm. (3 ft.) span - 5 days (120 hrs.). Add 1/2 (12 hrs.) for every 30 cm. (1 ft.) span or fraction thereof.
	b) Over 210 cm. (7 ft.) span.	b) 210 cm. (7 Ft.) span - 7 days (168 hrs.). Add 1/2 day (12 hrs.) for every 30 cm. (1 every 30 cm. (1 ft.) additional span or fraction thereof but not more than 28 days (672 hrs.).

2. Forms and shorings may be removed earlier than specified above provided that test samples of concrete are taken and are shown to be adequately strong to carry safely, dead and construction loads to the satisfaction of the Engineer.

*[Handwritten mark]*



SECTION 03 200 CONCRETE REINFORCEMENT

PART 1: GENERAL

1.01 Scope

a. Related Work Specified Elsewhere

1. Concrete Formwork: Section 03 100
2. Masonry: Division 04
3. Moisture Control: Division 07

1.02 Protection

- a. Storage of Materials: Steel reinforcements shall be stored under cover or otherwise prevented from rusting.
- b. Concrete cover shall be determined before concrete pouring is started.

1.03 Design Condition

All steel reinforcements shall be designed in accordance with ACI Building Code (ACI 318-63) and Uniform Building Code (Latest Edition).

1.04 Testing

The Owner, his duly authorized representative or the Architect shall have the right to order the test of any steel supplied by the Contractor or the Owner entering into the concrete or reinforced concrete. Such tests shall conform to the ASTM Designations enumerated below on materials. Samples shall be provided by the Contractor without cost to the Owner and expenses for testing shall be borne by the Contractor and copies of results shall be furnished the Owner and the Architect.

1.05 Measurement and Payment

Steel reinforcement shall be measured by weight either in kilograms or tonnes and shall be paid to the Contractor based on steel weights as per unit price submitted on the proposal form. Steel bars that are not installed shall not be paid for by the Owner.

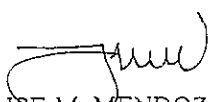
PART 2: PRODUCTS

2.01 Materials

a. Steel Bars:

1. Reinforcing steel bars to be used shall be new and free from rust, oil, grease or kinds.
2. Shall conform to the latest edition of ASTM Designation A615-68 Specifications.
3. Reinforcing Steel shall be: Intermediate grade - For 16 mm diameter and above.  
Structural grade - For 12 mm diameter and below.
4. Ties and stirrups for beams and columns as well as slab reinforcements may be plain bars unless noted in the plan or specified herein.

DIVISION 03 200: CONCRETE REINFORCEMENT

  
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PART 3: EXECUTION

3.01 Preparation

- a. Remove all loose rust or scale, adhering materials and oil or other materials which tend to destroy bond between concrete and reinforcement before steel is placed or before pouring.
- b. All bars shall be bent cold.

3.02 Placing Reinforcements

a. Metal Reinforcements

1. Placing shall be in accordance with the plans furnished. Refer to the Architect in case of doubt or ambiguity in placing of steel.
2. Reinforcing bars shall be accurately placed and adequately secured by concrete metal wires, or metal chair spacers.
3. Spacing of bars shall be done in accordance with the ACI - Building Code or as follows: Clear distance between parallel bars shall be one and one half (1-1/2) times the diameter for round bars, and twice the side dimension for square bars.
4. Clear distance shall not be less than 2.54 cm. (1 inch) nor more than 1-1/3 times the minimum size of aggregates.
5. Where bars are used in two or more layers, the bars in the upper layers shall be placed directly above those in the lower layers at a clear distance of not less than 2.54 centimeters (1 inch).

b. Stirrups and Ties

1. Bends for stirrups and ties shall be made around a pin having a diameter of not less than 6 times the minimum thickness of the bar, except that for bars larger than 2.54 centimeters (1 inch), the pin shall not be less than 8 times the minimum thickness of the bar.

3.02, Offset and Splices in Reinforcement

a. Splices

1. In slabs, beams and girders at points of maximum stress shall be generally avoided, and may be allowed only upon written approval of splice details by the Engineer.
2. Provide sufficient lap to transfer stress between bars by bonding shear or by welding.
3. Splices in adjacent bars shall be generally staggered.

- b. Offsets - Where changes in cross section of columns occur, longitudinal bars shall be offset in a region where lateral support is afforded. Where offset, the scope of the included portion shall not be more than one in six (1:6) and in case of tied columns the ties shall be spaced in 7.5 centimeters on center for a distance of 30 centimeters (1 foot) below the point of offset.

PART 1: GENERAL

1.01 Scope

- a. Related Works Specified Elsewhere
  - 1. Concrete Formwork: Division 03 Section 03 100
  - 2. Concrete Reinforcement: Division 03 Section 03 200
  - 3. Masonry: Division 04
  - 4. Moisture Control: Division 07
  - 5. General Conditions
- b. Foundations and Bedded Slabs
- c. All other structural concrete member except precast concrete.

1.02 Protection

- a. Cement and aggregate shall be stored in such a manner as to prevent deterioration on intrusion by foreign matter.
- b. Deteriorated or damaged materials shall not be used for concrete.

1.03 Measurement and Payment: Cast-in-place concrete shall be measured in cubic meter and payment shall be based on the actual poured volume using the unit prices on the proposal form.

1.04 Design Conditions: All strengths of concrete shall be as indicated on the construction notes.

PART 2: PRODUCTS

2.01 Materials

- a. Cement: Portland cement shall conform to the Standard Specifications for Portland Cement (ASTM Designation C-150, Latest Revision) for Type I Portland Cement.
- b. Concrete Aggregates:
  - 1. Well graded, clean, hard particles of gravel or crushed rock conforming to the "STANDARD SPECIFICATIONS FOR CONCRETE AGGREGATES" (ASTM Designation C-33, Latest Revision).
  - 2. Maximum size of aggregate shall not be longer than 1/5 of the narrowest dimension between sides of the forms nor larger than 3/4 of the minimum clear spacing between reinforcing bars, and in no case larger than 2.5 centimeters in diameter.
- c. Water shall be clean and free from injurious amounts of oils, acids, alkali, organic materials or other deleterious substances.
- d. Concrete Additives
  - 1. Calcium Chloride in the amount of not more than 630 grams per 40-kilo bag of cement may be used as an accelerator and curing agent with the prior approval of the Engineer.

DIVISION 03 300: CAST-IN-PLACE CONCRETE

  
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2. Pozzolith 3R or Daratard shall be used in the amounts as recommended by the Manufacturer in the following:
  - a) Open terrace floor slabs and roof slabs.
  - b) Concrete parapets and concrete gutters.
  - c) All columns.
  - d) All core walls, retaining walls, basement walls, ramps and water tanks, if any. The use of additives does not relieve the Contractor of the obligation to produce the concrete strengths in Section 2.02.

2.02 Controlled Strengths of Concrete

- a. Concrete for all columns, beams, girders, walls, framed slabs, stairs, footing foundations, roof slabs, and gutters shall develop a minimum 28-day cylinder strength of \_\_\_\_\_. (See Construction Notes)
- b. Concrete for bedded floor slabs, walks, manholes, catch basins, curbs and gutters, pavements shall develop a minimum 28-day cylinder strength of \_\_\_\_\_. (See Construction Notes)

2.03 Method of Determining Strength

The Contractor shall submit mix designs obtained from samples made in accordance with "STANDARD METHOD OF TAKING AND CURING CONCRETE COMPRESSION AND FLEXURE SPECIMENS (ASTM Designation C192)" and "STANDARD METHOD OF TESTING COMPRESSIVE STRENGTH OF MOLDED CONCRETE CYLINDERS (ASTM Designation C39)" for each strength required stating the proposed slump and the proportional weights of cements, saturated surface dry aggregates, and water. These mixers shall be proved by preliminary tests 30 days before concreting and shall show a 28-day strength of 15 percent higher than the ultimate required. No substitutions shall be made in the materials or mix without additional tests to show that the quality of concrete is satisfactory.

2.04 Concrete Proportions and Consistency

- a. Cement and Aggregate: Proportions shall be such as to produce a concrete mixture which will work readily into the corners and angles of the forms and around reinforcement with the method of placing materials to segregate, or excess free water to collect on the surface. The combined aggregates shall be of such composition of sizes that when separated on the No. 4 U.S. Ltd. sieve, the weight passing the sieve (fine aggregate) shall not be less than 30 percent nor greater than 50 percent of the total, except that these proportions do not necessarily apply to lightweight aggregates.
- b. Measurement:
  1. Concrete materials shall be measured preferably by weight such that the proportion can be accurately controlled and easily checked at any time during work.
  2. Measurement of materials for ready mixed concrete shall conform to STANDARD SPECIFICATIONS FOR READY MIXED CONCRETE, ASTM Designation C94, where applicable.

# TECHNICAL SPECIFICATIONS

## DIVISION 03: CONCRETE

3. The water content shall, in no case, exceed 27 liters per bag of cement for all portions in the structure. Slumps shall be within the following limits:

<i>Portions of Structure</i>	<i>Slumps (Centimeters)</i>
Columns and end supported beams, girders, slabs	7.5 - 15
Foundation elements, bedded slab and cantilevered beams and slabs	5.0 - 10

- c. Job Mix Adjustment of Water Content: Shall be allowed only on permission of the Engineer and provided that cement is also added to keep the original water cement ratio of the design mix.

### 2.05 Mixing Concrete

- a. No hand mixing shall be allowed, except in case of emergency such as mixer breakdown during pouring operations and shall stop at the first allowed construction joint. All concrete shall be machine mixed for at least 1-1/2 minutes after all materials including water are in the mixing drum.
- b. The mixer shall be of an approved size and type which will ensure a uniform distribution of material throughout the mass, it shall be equipped with a DEVICE FOR ACCURATELY MEASURING AND CONTROLLING THE AMOUNT OF MIXING WATER IN EACH BATCH.
- c. Placing of material in mixer shall be done in such a way that first batch of concrete materials placed in the mixer shall contain sufficient excess of cement, sand and water to coat the inside of the drum without reducing the cement content of the mix to be discharged.
- d. Re-tempering of concrete shall not be permitted.

## PART 3: EXECUTION

### 3.01 Preparation

- a. Forms:
  1. Shall be inspected, cleaned and all installations checked before concrete is placed.
  2. Surfaces shall be thoroughly wet and grouted before placing concrete.
  3. All laitance from previous pouring shall be renewed pouring.

### 3.02 Depositing Concrete

- a.
  1. Depositing shall be done without segregation, rehandling or flowing of concrete. It shall be done with the use of buggies, buckets, or wheel barrows. Use of chutes will not be allowed except to transfer concrete from hoppers to buggies, wheelbarrows or buckets in which case shall not exceed 6 meters in aggregate length.
  2. Placing of concrete with a free drop or fall of more than 1.5 meters are not allowed.
  3. Conveyors when used shall be kept full of concrete and ends shall be kept buried in the newly placed concrete as pouring progresses.
- b. Vibration:
  1. No placing of concrete will be allowed without vibrators.
  2. Segregation due to over vibration shall be avoided.
  - 3.

DIVISION 03 300: CAST-IN-PLACE CONCRETE

  
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- c. Construction Joints:
  - 1. If possible, concreting shall be done continuously until section is complete. When stoppage of concrete operations occur, construction joints shall be placed either horizontally or vertically as indicated by the Engineer and provided with shear keys or dowels to develop bond.
  - 2. Construction joints shall be as per plan or shall be approved or as directed by the Engineer.

3.03 Curing Concrete

- a. Finished Surface
  - 1. Keep concrete continuously wet or moist for at least one week after placing.
  - 2. Floors and vertical surface may be sprayed with an approved retarder.
  - 3. Curing shall begin as soon as concrete has attained initial set.
- b. Curing additive may be used. A minimum of 48 hours continuous moist curing after placing of concrete shall be done after which subsequent additional curing can be dispensed with.
- c. Roof Deck and Terraces: Concrete roofing shall be moist cured at least seven (7) days irrespective of whether curing additives is used or not.

3.04 Repair of Concrete

- a. Imperfections:
  - 1. Repairs shall be completed within 24 hours after removal of forms.
  - 2. Fins shall be neatly removed from exposed surfaces.
- b. Large Bulges: Where present large bulges and abrupt irregularities protrude, it shall be removed by bush hammering and grinding.
- c. Drypack Filling
  - 1. Shall be used for holes having at least one surface dimension less than the depth of the hole.
  - 2. Holes left by the removal of fasteners from the ends of rods; for grand and pipe recessed, and for narrow slots cut for repair of cracks shall also be filled with dry pack.
  - 3. Drypack shall not be used for filling behind reinforcement and for filling holes that extend completely through the concrete.
- d. Mortar filling placed under impact by use of mortar gun shall be used for holes too wide for drypack filling and no deeper than the far side of the reinforcement nearest the surface.
- e. Concrete filling shall be used for holes extending entirely through the concrete, for holes which are greater in area than 1,000 square centimeters and deeper than 10 centimeters and for holes in reinforced concrete which are greater in area than 500 square centimeters and which extend beyond reinforcement.
- f. All materials, procedures and operations used in the repair of concrete shall be as directed.
- g. Fillings shall be bonded tightly to the surface of the holes and shall be sound and free from shrinkage, cracks and drummy areas after the fillings have cured and dried.

TECHNICAL SPECIFICATIONS  
DIVISION 03: CONCRETE

- h. The cost of all materials, labor and equipment used in the repair of all materials shall be borne by the Contractor.

3.05 Floor Finishes

- a. Shall be noted carefully by the Contractor. Prepare the slabs suitable in surface and elevation to receive such finishes.
1. Where plain cement floor finish is specified, same shall be bonded. The slab shall be brought to a true surface 2 centimeters - 1.3 centimeters (3/4" to 1/2") below finished floor elevation and it shall be roughened by being naked as it sets. At a later date, when it is time to apply the finish, the slab shall be thoroughly cleaned by brushes and with a small jet from a high pressure hose.
  2. All dirt shall be removed from crevices and depressions. After the surface has been wet, it shall be grouted with 1:1 grout. The 2 centimeters (3/4") sand finish composed of 1 sand mixed with 7.6 - 11.4 liters (2 to 3 gallons) of water per bag of cement shall be supplied, rammed, screened and floated. This shall be trowelled when sufficiently dry to a smooth hard finish using a light dusting of cement only.
  3. Coloring admixtures shall be as determined by the Architect.

3.06 Test on Concrete

- a. Reasonable number of tests on the concrete may be required by the Owner during the progress of the work. Not less than four (4) cylindrical specimens shall be made for each test of which at least two (2) shall be reserved for the 28-day test. Not less than one (1) test shall be made in case less than one (1) test for each day's concreting. Samples shall be secured and molded in accordance with "METHOD OF SAMPLING CONCRETE (ASTM Designation C172) and METHOD OF MAKING AND CURING CONCRETE COMPRESSION AND FIXTURE TEST SPECIMENS IN THE FIELD (ASTM Designation C31)". The Contractor shall provide the samples to be taken at the place of deposit and as specified by the Engineer, without cost of testing the samples. The Contractor shall take care of transporting the samples to the approved testing laboratory without the cost to the Owner.
- b. To conform to the requirements of these specifications, the average strength of test samples representing each class of concrete as well as the average of any five consecutive strength tests representing each class of concrete, shall be equal to or greater than the specified strength and not more than one strength test in 10 shall have an average value less than 90 percent of the specified strength.
- c. Should the tests fail to give the required strength the Owner shall have the right to order a change in proportions or in the procedure of curing of the concrete for the rest of the structure.

3.07 Liquidated Damages (for failure to meet concrete strength requirements)

- a. For failure to meet the specified strength of concrete which has been designed, prepared, and deposited by the Contractor, the Contractor shall pay the Owner as liquidated damages and not as penalty on the amount of concrete represented by the samples.
1. For concrete less than 100% but greater than 90% of specified strengths, payment of \_\_\_\_\_ per cubic meter of concrete.

TECHNICAL SPECIFICATIONS

DIVISION 03: CONCRETE

2. For concrete less than 100 % but greater than 80% of specified strength, payment of \_\_\_\_\_ per cubic meter of concrete.
  3. For concrete with less than 80% of the specified strength, removal of the concrete so deposited and replacement of same at the expense of the Contractor or payment by Contractor of \_\_\_\_\_ per cubic meter at the discretion of the Engineer.
- b. In any case of failure to meet specified strengths, the Contractor may, at his expense, obtain concrete core sampling from the poured concrete and the compressive strength of same as determined by the competent testing authority shall be taken as conclusive evidence of its strength and integrity, provided the borings will not impair the safety of the structure and can be satisfactorily replaced. To determine adequacy of affected parts, the Owner shall have the option to order load tests on parts of the structure where concrete strength tests are below 80% than specified. These tests are to be in accordance with ACI 318-63 recommendation and their costs are to be borne by the Contractor.
- c. In case of failure of samples to meet specified strength of the extent measured in 1) or 2) above, the Contractor shall be required to prolong the curing of the poured concrete as directed by the Engineer, in addition to the payment for the liquidated damages mentioned above in a).



SECTION 03 400 PRECAST CONCRETE

PART 1: GENERAL

1.01 Scope

- a. Furnish materials and equipment and perform labor required to complete all precast concrete work.
- b. See drawings for sizes, details, location, anchorage and other information relating to precast work.

1.02 Qualification of Fabricator

- a. Procure precast components from experienced fabricators subject to Architect's approval as per Article 25 of the UAP General Conditions.

1.03 Samples

- a. Three (3) samples of precast panels measuring 1.20 by 1.20 meters showing texture and exposed aggregate should be submitted 10 days before bidding to the Architect in order that the Contractor will have a fair basis on the finish required by the Architect.

1.04 Mock-Up

- a. Make a full-size structural model for approval prior to manufacture of all precast units.

1.05 Delivery And Storage

- a. Do not transport precast units from casting beds before  $f_c' = 20.67 \text{ MPa}$  (3,000 psi) is attained.
- b. Store precast units in vertical position.

PART 2: GENERAL

2.01 Materials

- a. Cement - conforming to standard specifications for Type 1 Portland Cement (ASTM Designation C-150, Latest Edition)
- b. Coarse Aggregates - well graded, clean, hard particles of gravel or crushed rock and clean washed sand.
- c. Fine Aggregates - clean, washed "Porac" sand
- d. Water - clean and free from injurious amounts of oil, acids, alkali, organic materials or deleterious substances.
- e. Concrete Additives - "Pozzolith" or "Daratard" to reduce water-cement ratio
- f. Reinforcements - structural grade.

2.02 Controlled Strength of Concrete

- a. Concrete shall have  $f_c' = 20.67$  MPa (3,000 psi) in 28 days.

PART 3: EXECUTION AND INSTALLATION

- 3.01 Placing of reinforcements - reinforcing bars shall be firmly secured and welded and held in position in the forms to avoid displacements during the placing of concrete.
- 3.02 Lifting - lift precast only at pick-up points as indicated in the drawing. Do not lift the precast panel at any other points.
- 3.03 Lifting Hooks - after placements of precast units into position, burn-off lifting hooks close to concrete and fill concrete depressions with mortar.
- 3.04 Texture - tool finish texture showing exposed aggregates must be done mechanically by means of pneumatic hammer.

A

SECTION 03 450 PRECAST PLASTER OF PARIS

PART 1 GENERAL

1.01 Scope

- a. Furnish materials and equipment and perform labor required to complete all precast plaster of paris work.
- b. See drawings and details for location, quantity and other requirements.

1.02 Qualification of Fabricator

- a. Procure precast components from experienced precast fabricators subject to the Architect's approval as per Article 35 of the UAP General Conditions.

1.03 Samples

- a. Submit sample panels unharmed and free from damage.

1.04 Delivery

- a. Deliver precast panels unharmed and free from damage. Delivery shall be timed such that materials received shall be installed immediately upon receipt.

1.05 Protection

- a. Protect finished work from scratches, blemishes, stains, or other imperfections until turn-over of building to the Owner.

PART 2: PRODUCT

2.01 Materials

- a. Plaster of Paris - First class grade.
- b. Burlap - for reinforcement
- c. Titanized Steel - for all screws, bolts and other anchoring device
- d. Clean Potable Water - for all water mix.

PART 3: EXECUTION

3.01 Workmanship

- a. Plaster of Paris precast panels shall have burlap reinforcements with a minimum thickness of 12 millimeter (1/2 inch) for the precast panels.
- b. All necessary anchoring and fitting devices shall be provided.

SECTION 03 450: PRECAST PLASTER OF PARIS

  
FELIPE M. MENDOZA AND PARTNERS

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DIVISION 04 000 MASONRY

PART 1 GENERAL

1.01 Division 01 applies to this Division.

1.02 Scope

a. Includes:

1. Provide labor , materials and equipment necessary for completion of work unless indicated or noted otherwise.

DIVISION 04 000: MASONRY

  
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SECTION 04 100 MORTAR-CEMENT PLASTER FINISH

PART 1: GENERAL

1.01 Scope

a. Work Included :

1. All labor, materials, equipment, plant and other facilities and the satisfactory performance of all work necessary to complete all cement and masonry work shown on the drawings and specified herein.
2. Refer to the General Conditions accompanying these specifications.

PART 2: PRODUCTS

2.01 Materials

- a. Sand : ASTM C35-27
- b. Portland Cement : ASTM C150-67, Type I.
- c. Water shall be clean and free from deleterious substances.

2.02 Mixes

a. Cement Mortar

1 part	- Portland Cement
2 parts	- Sand
but not more than:	
1 part	- Portland Cement
3 parts	- Sand

PART 3: EXECUTION

3.01 Installation

a. Applications of Cement Plaster

1. Scratch Coat: Apply with sufficient force and material to form full keys or bond. Cross scratch as soon as scratch coat has attained initial set and apply brown coat as soon as possible.
2. Brown Coat: Scratch or brown for bond of finish coat and allow to set hard. Keep brown coat moist until finish coat is applied.
3. Finish Coat: Bring to true, even surfaces with roads, debris, and trowel smooth, leaving finished surface free from tool marks and blemishes. Keep cement plaster moist for at least 3 days and protect against rapid drying until cured.

DIVISION 02 100: MORTAR-CEMENT PLASTER FINISH

  
FELIPE M. MENDOZA AND PARTNERS

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SECTION 04 200 UNIT MASONRY

PART 1 GENERAL

1.01 Scope

- a. Furnish materials and equipment and perform labor required to complete:  
brick masonry and concrete unit masonry
- b. See drawings for sizes, details and location of work required.

1.02 Handling and Storage

- a. Handle in a manner to prevent undue chipping and breakage.
- b. Protect storage piles, stacks or bins from heavy traffic.
- c. Provide platforms to protect bottom piles from contact with soil.

PART 2: PRODUCTS

2.01 Materials

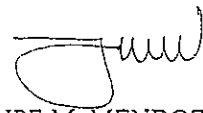
- a. Concrete Hollow Blocks - 100 mm x 200 mm x 400 mm and 150 mm x 200 mm x 400 mm and 200 mm x 200 mm x 800 mm.
- b. Ceramic Hollow Blocks - 100 mm x 150 mm x 300 mm and 150 mm x 150 mm x 300 mm.
- c. Mortar - 1 part Portland Cement, 3 parts sand
- d. Wire ties - 16 gauge looped at both ends
- e. Bars and Rods - ASTM Standards for masonry reinforcement and minimum diameter of 10 millimeters (3/8 inch).

PART 3: EXECUTION

3.01 Erection

- a. Lay all masonry units plumb, true to line, level and with accurately spaced courses.
- b. Bond shall be kept plumb throughout. Corners and reveals shall be plumb and true.
- c. Built-in anchors, wall plugs, and accessories to masonry as erection progresses.
- d. Each course shall be solidly bedded in Portland Cement mortar. All must be damp when laid.
- e. Units terminating against beam or slab soffits shall be wedged tight with mortar and reinforcement properly secured to dowels.
- f. Reinforcement shall be as shown in drawings. Minimum reinforcement is 12.5 millimeters (1/2 inch) round horizontal bars at every 3 courses and 12.5 millimeters (1/2 inch) round vertical bars at every 2 blocks.

DIVISION 04 200: UNIT MASONRY

  
FELIPE M. MENDOZA AND PARTNERS

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3.02 Unfinished Work

- a. Unfinished work shall be stepped back for joining with new works.
- b. Before new work is started all loose mortar shall be removed and the exposed joint thoroughly wetted not less than one hour before laying new work.

3.03 Plastering

- a. Grout wall to be plastered generously and let dry.
- b. Apply scratch coat same as specified under Section 09 300 - 3.01 or Section 04 100.
- c. Final plaster finish shall be 1 part Portland Cement and 2 parts sand. Plaster shall conceal all joints and even-out wall surface to a uniform smooth finish using Manila paper or rubber sponge.

3.04 Cleaning

- a. Wash finish wall with a solution of 10 percent by volume of muriatic acid applied with stiff fiber brushes.

3.05 Openings


- a. Provide beam blocks over or above openings not exceeding 1.20 meters span with same height and width as unit masonry blocks exceeding at least two masonry block lengths beyond the edge of the opening into the wall.
- b. Provide 2 - 4 longitudinal reinforcing bars (12.5 millimeters diameter) each at top and bottom of beam blocks with ties at 25 centimeters (10 inches on center).
- c. For openings over 1.20 meters (4 feet) in span; refer to drawing of cast-in-place design of lintel beam.

DIVISION 05 000 METALS

PART 1: GENERAL

- 1.01 Division 01 applies to this Division.
- 1.02 Submit shop drawings as required by the General Conditions.
- 1.03 Scope
  - a. Includes:
    - 1. Provide labor, materials, and equipment necessary for completion of work unless indicated or noted otherwise.

DIVISION 05 000: METALS

  
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FELIPE M. MENDOZA AND PARTNERS



SECTION 05 100 STRUCTURAL METAL FRAMING

PART 1: GENERAL

- 1.01 Division 05 General applies to this Section

PART 2: PRODUCTS

- 2.01 Structural steel to be used for fabrication and erection of this structure shall comply with all the pertinent provisions of AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDING," 1969 7th Edition.
- 2.02 All structural steel shapes shall be ASTM A-36 structural steel unless otherwise indicated.
- 2.03 Use E 70 XX electrodes for all members jointed.
- 2.04 All bolts used unless otherwise specified shall be ASTM A-307 bolts.
- 2.05 Primer shall be rust inhibiting metal primer.

PART 3: EXECUTION

- 3.01 Structural steel except where encased in concrete shall be thoroughly cleaned and given one prime coat of materials specified above, well-worked into metal joints and open spaces. Machine finished surfaces shall be protected against corrosion. Clean welds, grind serious abrasions, and apply field prime touch up.
- 3.02 Erection shall be in accordance to best practice, and includes setting, aligning, and bracing required.

SECTION 05 103 STEEL TRUSSES

PART 1: GENERAL

1.01 Scope

a. Includes:

1. Furnishing and installing steel trusses complete with purlins, sag bolts, and accessories.
2. Section 05 100 Structural Metal Framing is a part of this section.

PART 2: PRODUCTS

- 2.01 Chord, web member, gusset plates, purlins, sag bolts, etc., as detailed in drawings.

PART 3: EXECUTION

- 3.01 Fabrication, including splices and structural connections, shall conform to AISC Structural Steel Detailing.
- 3.02 Provide camber when indicated in drawings.

DIVISION 05 103: STEEL TRUSSES

  
FELIPE M. MENDOZA AND PARTNERS

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SECTION 05 160 FRAMING SYSTEMS

PART 1: GENERAL

1.01 Scope

a. Includes:

1. Furnishing and installing steel trusses complete with purlins, sag bolts, and accessories.
2. Section 05 100 Structural Metal Framing is a part of this Section

PART 2: PRODUCTS

- 2.01 Chord, web members, gusset plates, purlins, sag bolts, etc., as detailed in drawings.

PART 3: EXECUTION

- 3.01 Fabrication, including splices and structural connections, shall conform to AISC Structural Steel Detailing
- 3.02 Provide camber when indicated on drawings.

DIVISION 05 160: FRAMING SYSTEMS

  
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SECTION 05 104 BOLTS AND STEEL EMBEDDED IN CONCRETE

PART 1: GENERAL

1.01 Scope

a. Includes:

1. Anchors, plates, channels, angles, bolts, etc.

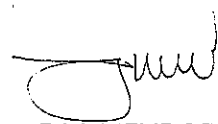
PART 2: PRODUCTS

- 2.01 As specified in Section 05 100 General.

PART 3: EXECUTION

- 3.01 Fabricate and install according to approved details and connected.

DIVISION 05 104: BOLTS AND STEEL EMBEDDED IN CONCRETE

  
FELIPE M. MENDOZA AND PARTNERS

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SECTION 05 500 METAL FABRICATIONS

PART 1: GENERAL

1.01 Scope

- a. Furnish materials and equipment and perform labor required to complete: metal stair and railing; brass nosing; brass grating; steel grating; steel railing and sleeves
- b. See drawings for size, details, and location of work required.

1.02 Sample

- a. Submit sample of sections of metal stairs and brass grating in accordance with Article 10.02: "Samples of Materials" of the UAP General Conditions.

PART 2: PRODUCTS

2.01 Materials

- a. Structural steel shall conform to ASTM Designation A7.
- b. Brass nosing and grating - as approved by the Architect.
- c. Standard, black steel pipe ASTM A120-66 for steel railing and sleeves.

PART 3: EXECUTION

3.01 Metal Stair

- a. Stair stringers shall be either channels, flat plates or formed plates bent or rolled to sizes and shapes shown.
- b. Tread riser brackets shall be 32 mm x 28.5 mm (1 1/4 x 1-1/8 inch) angle welded to stringers.
- c. Form sub-treads and risers of not less than No. 14 gauge steel.

3.02 Brass Nosing

- a. Provide brass nosing on all stair treads.

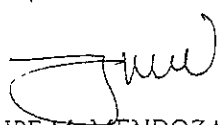
3.03 Brass Grating and Steel Grating

- a. Provide brass grating and steel grating as shown in the drawings.

3.04 Steel Railing and Sleeves

- a. Install connectors in accord with manufacturer's instruction and recommendations. Railings shall be smooth, with all projections and corners ground smooth.
- b. Welds shall be flash.

DIVISION 05 500: METAL FABRICATIONS

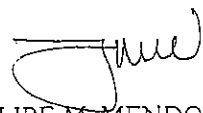
  
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TECHNICAL SPECIFICATIONS  
DIVISION 05: METALS

- c. Members shall be neatly coped and continuously welded or mechanically expanded at all junctions.
- d. Top rails shall run continuously over posts.
- e. All welding shall be done neatly and substantially with fillets dressed to uniform radius, with all excess metal removed and weld ground smooth.
- f. All posts shall be plumb with 3 millimeter (1/8 inch) of vertical. Longitudinal members shall be parallel with each other and with floor surfaces or slope of stairs to within 3 millimeters per 3 running meter (1/8 inch per 10 running feet). Center lines of all members within each run of railing shall lie in the same vertical plane.

DIVISION 05 500: METAL FABRICATIONS

  
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DIVISION 06 000 WOOD AND PLASTICS

PART 1: GENERAL

- 1.01 Division 01 applies to this Division.
- 1.02 Lumber and plywood shall be protected and kept under cover both in transit and at jobsite.
- 1.03 Materials shall not be delivered unduly long before it is required.
- 1.04 Store on level racks and keep free of ground to avoid warping. Stock to ensure proper ventilation and drainage.
- 1.05 Members or parts shall be framed, anchored, tied and braced to develop strength and rigidity necessary for purposes for which they are used.
- 1.06 Preparation, fabrication, and installation of wood members, glues and mechanical devices for fastening thereof shall conform to good engineering practices.

DIVISION 06 000: WOOD AND PLASTICS

  
FELIPE M. MENDOZA AND PARTNERS

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SECTION 06 050 FASTENERS AND SUPPORTS

PART 1: GENERAL

1.01 Scope

- a. Includes:
  - 1. Connectors
  - 2. Rough hardware not specified elsewhere
- b. Related Work Specified Elsewhere
  - 1. Bolts embedded in concrete or masonry

PART 2: PRODUCTS

- 2.01 Bolts, wood screws, steel joist hangers, expansion bolts shall be of standard type and make for job requirements.

PART 3: EXECUTION

- 3.01 Install as instructed or as necessary.



SECTION 06 100 ROUGH CARPENTRY

PART 1: GENERAL

1.01 Scope

- a. Furnish materials and equipment and perform labor required to complete: framings, sheathings and related rough carpentry work as indicated on the drawings and/or specified herein.
- b. Include in the work, plates, straps, joints, hangers, rods, dowels, rough hardware, fasteners and other miscellaneous iron and steel items pertinent to rough carpentry work.
- c. See drawings and details for location of framing, sheathing and related rough carpentry work required.

1.02 Storage and Protection

- a. Stack framing lumber and plywood to ensure against deformation and maintain proper ventilation.
- b. Protect lumber and plywood from elements.
- c. Lumber in contact with concrete or masonry shall be coated with asphalt or any approved preservative.

PART 2: PRODUCTS

2.01 Lumber

- a. Moisture Content - Not to exceed 20 percent.
- b. Grade and trademark - Required on each piece of lumber.
- c. Quality - Lumber must be sound, thoroughly seasoned well cut and free from warp.
- d. Preservative and Pressure Treatment - All lumber shall be pressure impregnated with waterborne preservatives like wolman salt, boliden salt and tanalith H.R.. Surface cut after treatment shall be brush coated with same preservative.

2.02 Plywood: Unless otherwise specified or indicated in drawings, use the following:

- a. For exterior exposed plywood: use 12.5 millimeters (1/2 inch) thick waterproof plywood.
- b. For interior plywood: use 6 millimeters (1/4 inch) thick and 12.5 millimeter (1/2 inch) thick as shown in drawings.
- c. Pressure treatment: all plywood shall be pressure treated.

2.03 Rough Hardware and Metal Fasteners

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

PART 3: EXECUTION

3.01 Installation

- a. Framing shall be cut square on bearings, closely fitted accurately set to required lines and levels and rigidly secured in place. Plane and dress side of frames that will receive wallboards of sidings.
- b. Wood furring and nailers shall be in accordance with detail drawings. Where not indicated on the drawings or mentioned herein, furring strips shall be 2.5 centimeters x 5.0 centimeters (1" x 2") spaced at 40 centimeters (16 inches) on centers bothways. Fasten wood furring securely by expansion bolts or other approved device at every 60 centimeter (2 ft.) on centers. Wood plugs shall not be used.

3.02 Schedules

- a. Treated Apitong Lumber shall be used for:
  1. Vertical and horizontal studdings of wood partitions.
  2. Ceiling nailers and ceiling joists.
  3. Trusses and purlins.
  4. Other related rough lumber works.
- b. Well-seasoned yakal shall be used for all plates, plugs, and other portions of the work directly in contact with concrete or masonry.  
Treated apitong may, however be used for framing in contact with concrete and masonry only on the following:
  1. Framing of plywood finishing over masonry wall located in the second floor and other upper floors.
  2. Framing of ceiling finishes and eaves in the second floor and other upper floors.
- c. Treated plywood shall be used for:
  1. All acoustic plywood backing
  2. Exposed wood ceiling

SECTION 06 200 FINISH CARPENTRY

PART 1: GENERAL

1.01 Scope

- a. Furnish materials and equipment and perform labor required to complete

running and standing trim mouldings  
wood stairs and handrails  
lumber and solid wood panel work  
wood door frames and casings  
plywoods and hardboards  
veneer  
built-in cabinetry and countertops  
wood baseboards and woodbands

and related finish carpentry work as indicated in the drawings and/or specified herein.

- b. See drawings and details for location and quantity of finish carpentry work required.

1.02 Storage and Protection

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

1.03 Measurements and Coordination

- a. Check and verify measurements at site prior to fabrication.  
b. Coordinate work with all other related trades.

1.04 Samples

- a. Submit samples of trim, mouldings, handrails, door frames, solid wood panel work in accordance with Article 10.02 "Samples of Materials" of the UAP General Conditions.

PART 2: PRODUCTS

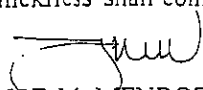
2.01 Lumber

- a. Kiln dried quarter sawn containing not more than 14% moisture, free from imperfections impairing its strength and finish.  
b. Trademark is required on each piece of lumber.

2.02 Plywood

- a. For interior plywood, use Class A plywood the specie and thickness shall conform to Schedule and Drawings.

DIVISION 06 200: FINISH CARPENTRY

  
FELIPE M. MENDOZA AND PARTNERS

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PART 3: EXECUTION

3.01 Workmanship

- a. All wood finish, millwork and built-in cabinet work shall be true to details, clean and sharply defined.
- b. Panels must be set to allow for free movement in case of swelling and shrinkage.
- c. Means of fastening various parts together shall be concealed.

3.02 Finish

- a. Mill, fabricate and erect interior finish as indicated on the drawings. Machine-sand at the mill and handsand smooth at the job site.
- b. Interior trim set against concrete, masonry or wood shall be separated with 6 millimeters (1/4 inch) stone cut joints.
- c. Intersecting plywood veneers or plywood panels shall be finished with a corner trim of wood with same specie and finish as the plywood.
- d. Make joints tight and in a manner to conceal shrinkage. Secure trim with fine finishing nails, screws, or glue where required.
- e. Set nails for putty stopping.
- f. Window and door trim shall be single length.
- g. Miter mouldings at corners, cope at angles.

3.03 Wood Door Jambs and Heads

- a. Set door frames plumb and level and brace until built-in.
- b. Anchor wood frames to masonry with approved metal anchors on each side of the jamb. Place top and bottom anchors 20 centimeters (8 inches) from head and floor.

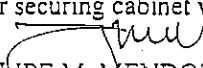
3.04 Wood Shelving

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

3.05 Built-In Cabinets and Countertops (Mill Made)

- a. Fabricate counters and cabinets in accordance with details.
- b. Only sound kiln-dried lumber or plywood shall be used.
- c. Erect cabinet straight, level and plumb and securely anchor in place. Scribe and closely fit cabinets to adjacent work. Provide necessary grounds and anchors for securing cabinet work in place.

DIVISION 06 200: FINISH CARPENTRY

  
FELIPE M. MENDOZA AND PARTNERS

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3.06 Fixed Glass on Wood Frames

- a. Where fixed glass is set on wood frames thoroughly prime rabbets and wood stops. Fit stops and secure in place loosely with chrome oval-head screws.

3.07 Hardware Installation

- a. Accurately fit and install all finished hardware items required.
- b. If surface-applied hardware is fitted and applied before painting, remove all such items, except butts, and re-install after painting is completed.

3.08 Schedules

- a. Kiln-dried Tanguile Lumber shall be used for:
  1. Exposed woodwork at ceiling including wood slats
  2. Other finish carpentry work as shown on the drawings, unless indicated or specified otherwise.
- b. Kiln-dried Narra Lumber shall be used for:
  1. Cabinets and shelving
  2. Solid wood stair treads
  3. Stair handrails
  4. Solid wood panelling
  5. Solid wood mouldings and trim
- c. Well-seasoned Guijo Lumber shall be used for:
  1. Door jambs and heads
  2. Window jambs, heads and sills

SECTION 06 400 ARCHITECTURAL WOODWORK

PART 1: GENERAL

1.01 Scope

- a. Furnish materials and equipment and perform labor required to complete:  
cabinetry using veneers;  
finishes and joinery associated with fine  
furniture;  
panel work joined and finished in same manner as fine furniture
- b. See drawings and details for location and quantity of custom woodwork required.

1.02 Qualification

- a. Manufacture of custom woodwork shall be approved by the Architect. Refer to Article 10 of UAP General Conditions.

1.03 Samples

- a. Submit sample panels in accordance with Article 10.02 "Samples of Materials" of the UAP General Conditions.

1.04 Protection

- a. Protect cabinetry and panel work by temporarily covering with heavy building paper or other means to protect from damage until completion of building.

1.05 Measurements and Coordination

- a. Check and verify measurements at site prior to fabrication.
- b. Coordinate work with all other trades.

PART 2: PRODUCTS

2.01 Solid Wood

- a. Kiln dried narra quarter sawn containing not more than 14% moisture free from imperfections impairing its strength and finish.
- b. Trade mark is required on each piece of lumber.

PART 3: EXECUTION

3.01 Workmanship

- a. Follow design and details shown on the drawings. Where practicable, work shall be finished and assembled at mill.
- b. All joints shall be tight and formed to conceal shrinkage. Shop miters 10 centimeters (4 inches) or more from heel to point shall be glued or locked. Make dowels and tenons to a driving fit. Make shop joints with waterproof glue.
- c. Assemble panel work in such a manner as to allow free movement of panels.
- d. Prime or stain panels before framing into place. Applied mouldings shall be secured to stiles and rails and not to panels.

3.02 Schedules

- a. Use kiln dried narra lumber for all solid wood cabinetry and panelwork.
- b. Use first quality plywood veneer for all veneer work. Grain and color of plywood veneer shall match the grain and color of solid wood.



DIVISION 07 000 THERMAL AND MOISTURE PROTECTION

PART 1: GENERAL

1.01 Division 01 applies to this Section.

1.02 Scope

a. Includes:

1. Furnish labor, materials, and equipment necessary for completion of work unless indicated or noted otherwise.

DIVISION 07 000: THERMAL AND MOISTURE PROTECTION

  
FELIPE M. MENDOZA AND PARTNERS

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SECTION 07 100 WATERPROOFING

PART 1: GENERAL

1.01 Scope

- a. Furnish materials and equipment and perform labor required to complete:

membrane waterproofing; hydrolithic waterproofing; liquid waterproofing; metallic oxide waterproofing and cementitious waterproofing

- b. See drawings and details for location of work required.

1.02 Submittals

- a. Manufacturer's Literature: submit two copies

1.03 Guarantee

- a. Materials and workmanship shall be guaranteed for at least five (5) years.

PART 2: PRODUCTS

2.01 Membrane Waterproofing

- a. Primer: Asphalt free from water and other foreign materials Conform to ASTM D41.  
b. Membrane: Smooth, evenly woven, open mesh glass fibers impervious to acid, heat, dampness and rot.

It must permit complete penetration of asphaltic compound or bituminous coating.

- c. Mopping Material

1. Below ground level - Type A. A soft, adhesive "Self-Healing" asphalt.
2. Above ground level - Type B. Where asphalt is not exposed to temperatures exceeding 51.7 degrees Celsius (125 degrees Fahrenheit).
3. Above ground level - Type C, where asphalt is exposed on vertical surfaces in direct sunlight or above temperatures of 51.7 degrees Celsius (125 degrees Fahrenheit).

2.02 Hydrolithic Waterproofing

- a. Heavy cement-based coating compatible to reinforced concrete wall. It must prevent build-up of water vapor which causes blistering, flaking and peeling of paint films.  
b. Material must thoroughly fill and seal pores and voids such that it can be used against water pressure on the interior surface of walls below grade.

2.03 Liquid Waterproofing

- a. Waterproofing compound of elastomeric or other substances applied in liquid form and cured to an impervious membrane.

2.04 Metallic Oxide

- a. Finely pulverized powder made from gray cast iron that has been treated chemically and physically to produce waterproofing qualities through oxidation of iron particles.

2.05 Cementitious Waterproofing

- a. Crystalline waterproofing materials packaged in powder form and mixed with water for application as a cementitious slurry coating on concrete surfaces, or as a Dry-Pac for sealing of construction joints and repair of cracks.

PART 3: EXECUTION

3.01 Membrane Waterproofing

a. Preparation of Surface

1. Thoroughly clean concrete surfaces of all dirt dust, oil patches and other foreign matters.
2. Check slope of concrete decks and gutter and correct slope when necessary.
3. Insure that area to be waterproofed is completely dry, and holes, cracks and crevices repaired.
4. When there is reasonable doubt as to the presence of moisture in the area to be waterproofed, expose same to direct sunlight for another 24 hours or heat all suspected spots with use of blowtorch.

b. Application

1. Apply asphalt primer at the rate of 4 liters (1 gallon) per 10 square meters (100 square feet) evenly by brushing or spraying.
2. Application shall be done in one direction strip by strip and overlapping each other to assure uniform thickness.
3. Let dry prime coat until it is ready to receive next coat or layer as specified.
4. As soon as prime coat is workable, lay a single layer of fiberglass cloth smoothly and free from irregularities and folds.
5. Lay cloth without disturbing the fabric and conforming to the size and shape of the area to be covered.
6. Lay carefully and or side laps in order to assure an even thickness throughout the whole area to be covered.
7. Apply a single coat of asphalt materials (mastic black) at the rate of 12 to 16 liters per 10 square meters (3 to 4 gallons per 100 square feet).
8. Meshes of treated fabric shall not be completely closed or sealed by the bituminous material, but shall sufficiently open to allow successive moppings of the plying material to seep through.
9. Cover ply more than the minimum amount of surfacing necessary to prevent sticking in plys.
10. After application, surfaces shall be uniformly smooth, free from irregularities, folds, or knots.



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11. Repeat the procedure in as many layers required or as specified in the schedule or drawings.
12. In case of interruption of work or sudden exposure to moisture, remove layer exposed to moisture, and repeat procedure until completion of the process.

c. Protective Coatings

1. Sand mastic - one part "Weatherkote" and 4 parts washed and screened sand by volume. Lay mixture by trowel at an average of 3 millimeters (1/8 inch) thick over surface.
2. Aluminum heat reflecting finish - apply at the rate of 4 liters per 10 square meter (1 gallon per 100 square feet) over thoroughly dried "sand mastic" coating.

d. Metal Cap Flashing

1. Provide cap flashing of 24 gauge G.I. sheet in 2.40-meter (8-foot) lengths except where shorter pieces are required. Lap end joints 30 centimeters (12 inches) and solder. Fold exposed bottom edge of flashing 6 millimeters (1/4 inch) or underside for stiffeners.
2. Where cap flashing is terminated in raked joints or in prepared masonry or stone reglets; fasten flashing with wedges every 30 centimeter (12 inches) and fill reglet on vertical surfaces continuous with plastic cement and on horizontal surfaces, continuous with molten lead.
3. Where cap flashing is connected to preformed lock in through-wall flashing, form upper edge of cap flashing to engage in preformed lock. Mallet lock down tight to provide a spring action against base flashing.

3.02

Hydrolithic Waterproofing

a. For Walls Above Grade

1. Coatings shall adequately cover holes, voids, pitmarks, honey comb and form marks, while maintaining architectural details of flutings, vertical lines, groovings, special shapes and decorative moldings.

b. For Walls Below Grade

1. Clean concrete surface free of all laitance, dirt, grease, form oil, efflorescence, paint and other foreign materials.
2. Apply a trowel coat as per manufacturer's specifications.

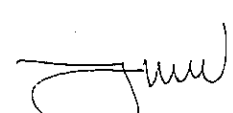
3.03

Liquid Waterproofing

a. Surface Preparation

1. All floor surfaces to which liquid waterproofing is to be applied shall be dry, clean, smooth and free from oil or grease and from projections that might puncture the coatings.
2. Floor decks shall be kept dry prior to and during installation.
3. Final cleaning method shall be treating the concrete surfaces with 10% to 15% solution of muriatic acid to remove laitance and impurities.
4. After acid has stopped foaming or boiling, immediately rinse thoroughly with water.

DIVISION 07 100: WATERPROOFING

  
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b. Applications

1. Apply a primer coat of elastomeric coating standard of the manufacturer at the rate of 1.3 liters per 10 square meters (1/3 gallons per 100 square feet) over surfaces.
2. After the primed surfaces has dried, apply 35 dry mils of coating at the rate of 10 sq.m. per 3.79 liters for three (3) coatings to all surfaces be brushed or rolled.
3. Allow three (3) hours or longer between coatings if relative humidity is above 70%.
4. When using roller application method, the material shall not be rolled excessively.
5. Right quantity of material and proper application strokes shall be made to produce a uniform firm thickness and to prevent undue sagging.
6. The coat must flow into all cracks, control joints and pores. For clean up purposes, use water.

3.04 Metallic Oxide

- a. Mix to consistency of thick grout and apply as per manufacturer's specifications.

3.05 Cementitious Waterproofing

a. Surface Preparation

1. All surfaces to be waterproofed shall be examined for form tie holes and structural defects such as honeycombing, rock pockets, faulty construction joints, cracks, etc.
2. Concrete surfaces to be treated must be clean and free of laitance, dirt, films, paint, coatings or other foreign matter. The surfaces must also have an open capillary system so as to provide "tooth and suction" for the treatment. If surfaces are too smooth, the concrete should be acid etched or lightly sandblasted (or waterblasted).
3. Structural defects such as cracks, faulty construction joints and honeycombing should be routed out to sound concrete and repaired in accordance with the specification manual repair procedures.
4. Horizontal surfaces should preferably have a rough wood float or broom finish. All concrete laitance must be removed either by etching with muriatic acid or by light waterblasting or sandblasting.

b. Applications

1. Application of all materials shall be done by or under the direction of a manufacturer's representative, or a person who is thoroughly experienced in the installation of cementitious waterproofing materials.
2. The treatment should be applied with a semi-stiff bristle brush, janitor's broom (for large horizontal applications) or with specialized spray equipment.
3. The treatment must be uniformly applied under the conditions and quantities specified. One coat should have a thickness of just under 1/16 inch (1.2 mm).
4. When a second coat is required, it should be applied after the first coat has reached an initial set but is still "green" (less than 48 hours). Light pre-watering between coats may be required due to drying.
5. The treatment cannot be applied in rain or during freezing conditions. For best results, application should take place at temperatures above 40 degrees F (4 degrees C).

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c. Curing

1. A misty fog spray of water must be used for curing the treatment. Curing must begin as soon as the coating has hardened sufficiently so as not to be damaged by a fine spray. Under most conditions, it is sufficient to spray treated surfaces three times a day for 2 - 3 days. In hot climates spraying may be required more frequently. During the curing period, the treatment must be protected from rainfall, frost and puddling of water.
2. For concrete structures that hold liquids (e.g. reservoirs, tanks, etc.), the treatment should be cured for three (3) days and then allowed to set for 12 days before filling with liquid.

d. Mixing of Concentrate

1. General: Mixed by volume with clean water free from salt or other deleterious materials. Materials shall be mixed in quantities which can be applied within 20 to 30 minutes from the time of mixing. As the mixture thickens, it shall be stirred frequently, but no additional water shall be added.
2. Mixing for Brush Application: Dry powder shall be measured and mixed into the mixing container. Water shall be measured and mixed into the powder with a paddle on a slow speed electric drill, (250 rpm) or other type of mixer which will ensure adequate mixing. For small jobs, it may be mixed by hand and trowel. Mixing proportions shall be as follows:

Coverage:	Proportions by Volume:
1.5 lb./sq.yd.	5 powder to 2 water
2.0 lb./sq.yd.	3 powder to 1 water

3. Mixing for Spray Application: Mixing shall be the same as for brush application in the preceding paragraph, except that a thinner mixture is required. The following proportions are to be used only as a guide. Spray applications may require slightly different proportions in order to properly match the type of equipment and pressures used.

Coverage:	Proportions by Volume:
1.5 lb./sq.yd.	5 powder to 3 water

PART 4: SCHEDULE OF WATERPROOFING

4.01 Membrane Waterproofing

a. For walls and floors of basement under water	-	3 layers membrane
b. For toilet rooms above ground	-	3 layers membrane
c. For canopy, concrete roof gutters; inside face of building	-	2 layers membrane
d. For deck roof	-	3 layers membrane

4.02 Hydrolithic Waterproofing

a. For interior face of wall of basement below grade	-	Apply one coat. For porous areas apply as many as necessary coats
b. For inside surface of concrete gutter outside building line	-	Apply one coat. For porous areas apply as many as necessary coats.

TECHNICAL SPECIFICATIONS  
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4.03 Liquid Waterproofing

a. For walls and floors of basement under water	-	40 mils
b. For toilet rooms above ground	-	20 mils
c. For canopy, concrete roof gutters, machine room	-	20 mils
d. For deck roof	-	40 mils

4.04 Metallic Oxide Waterproofing

- a. For all vertical and horizontal construction joints below grade.

4.05 Cementitious Waterproofing

- a. Mixing of Concentrate

1. General: Mixed by volume with clean water free from salt or other deleterious materials. Materials shall be mixed in quantities which can be applied within 20 to 30 minutes from the time of mixing. As the mixture thickens, it shall be stirred frequently, but no additional water shall be added.
2. Mixing for Brush Application: Dry powder shall be measured and mixed into the mixing container. Water shall be measured and mixed into the powder with a paddle on a slow speed electric drill, (250 rpm) or other type of mixer which will ensure adequate mixing. For small jobs, it may be mixed by hand and trowel. Mixing proportions shall be as follows:

Coverage:	Proportions by Volume:
1.5 lb./sq.yd.	5 powder to 2 water
2.0 lb./sq.yd.	3 powder to 1 water

3. Mixing for Spray Application: Mixing shall be the same as for brush application in the preceding paragraph, except that a thinner mixture is required. The following proportions are to be used only as a guide. Spray applications may require slightly different proportions in order to properly match the type of equipment and pressures used.

Coverage:	Proportions by Volume:
1.5 lb./sq.yd.	5 powder to 3 water

*[Handwritten mark]*

SECTION 07 150 DAMPROOFING

PART 1: GENERAL

1.01 Scope

- a. Furnish materials and equipment and perform labor required to complete:
  - bituminous dampproofing
  - silicone dampproofing
  - cementitious dampproofing
  - preformed vapor barrier
- b. See drawings and details for location and other requirements.

1.02 Submittals

- a. Manufacturer's Literature: submit two copies.

1.03 Guarantee

- a. Materials and workmanship shall be guaranteed for at least five (5) years.

1.04 Test

- a. Spray silicone coated surfaces lightly with water after it has dried out.

1.05 Protection

- a. Protect bituminous coating from scratches or damage during normal drying time.
- b. Protect all surfaces that are not intended to be coated with water repellant.

PART 2: PRODUCTS

2.01 Silicone Dampproofing

- a. Silicone water repellant - colorless, containing 5% solutions of silicone resin in volatile hydrocarbon solvent.
- b. Solvent-type Silicone - federal specifications, SS-W-110 B containing 5% silicone resin.
- c. Water-soluble silicone - transparent, non-staining, containing at least 2% silicone solids.

2.02 Cementitious Dampproofing

- a. Cement-based moisture barrier coating for use under interior plaster or exterior masonry walls.

2.03 Preformed Vapor Barrier

- a. Any of the following materials:
  - 1. asphalt
  - 2. polyethelene
  - 3. elastomers
  - 4. synthetic and natural rubber
  - 5. metal and other substances

PART 3: EXECUTION

3.01 Application of Bituminous Dampproofing

- a. Clean surface to be dampproofed thoroughly and make reasonably smooth by correcting and repairing cracks, crevices, holes and other concrete surface imperfections.
- b. Make sure concrete surface is thoroughly dry.
- c. Ensure that brush coats are thickly applied to compensate for 50% shrinkage.
- d. Allow 24 hours for drying each before subsequent coats are applied.
- e. Allow 14 days minimum drying time for last coat before permitting water contact or before backfilling earth against it.

3.02 Application of Silicone Dampproofing

- a. Silicone water-repellant - for use on exterior surfaces of concrete and masonry above grade. Do not use for concrete or masonry surfaces below grade.
- b. Solvent-type silicone - for use on limestone, exposed aggregate concrete and other light colored masonry.

3.03 Application of Cementitious Dampproofing

- a. Thoroughly clean interior surfaces at exterior masonry walls to be plastered.
- b. Brush cement-based coating in sufficient quantity to fill all voids, cracks and other concrete surface imperfections. Leave surface in rough abrasive texture by brooming afterwards.
- c. Cover with cement plaster and thoroughly cure as per manufacturer's specifications.

3.04 Application of Vapor Barrier

- a. Install as shown on the drawings and as per manufacturer's specifications.

3.05 Cleaning

- a. Clean all aluminum and glass surfaces that are contaminated with silicone immediately.



TECHNICAL SPECIFICATIONS  
DIVISION 07: THERMAL AND MOISTURE PROTECTION

3.06 Schedule

a. Bituminous Damproofing			
1.	For exterior face of wall of basement above water	-	one coat
b. Silicone Damproofing			
1.	Water soluble silicone for use on limestone and exposed aggregate finish	-	one coat
c. Cementitious Damproofing			
1.	For interior face of walls basement below grade without water pressure	-	one coat
d. Preformed Vapor Barrier			
1.	For floor slab direct on ground or on fill	-	see drawings for number of layers



SECTION 07 200 INSULATION

PART 1: GENERAL

1.01 Division 07 General applies to this Section.

DIVISION 07 200: INSULATION

  
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SECTION 07 201 EXPANDED POLYSTYRENE FOAM

PART 1: GENERAL

1.01 SCOPE

a. Includes:

1. Insulation on walls, ceilings, underside of roof deck and elsewhere, as indicated.

PART 2: PRODUCTS

- 2.01 Use 50 millimeter thick, fire retardant grade, non-toxic styropor.

PART 3: EXECUTION

- 3.01 Install in accordance with manufacturer's specifications.

TECHNICAL SPECIFICATIONS  
DIVISION 07: THERMAL AND MOISTURE PROTECTION  
SECTION 07 202 UNFACED BLANKET AND BATT INSULATION

PART 1: GENERAL

1.01 Scope

a. Includes:

1. Apply to walls, ceilings, underside of roof deck and elsewhere as detailed.

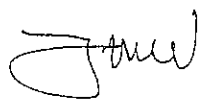
PART 2: PRODUCTS

- 2.01 "Fiberglass" or "Rockwell" by ACI Fiberglass or Philippine Insulation Co. Inc.

PART 3: EXECUTION

- 3.01 Install as per manufacturer's directions.

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TECHNICAL SPECIFICATIONS  
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- d. Lay sheets in a manner such that vertical joints are broken. Lay top sheets with side corrugation down. Nail upper end of each sheet securely to purlins with 8-d G.I. nail in the valley of every second corrugation. The upper end of each sheet shall be covered by other sheets or by ridge and hip rolls.
- e. Secure lower end of first sheet laid at gutter line by straps to the purlins after gutter hangers are in place. Use No. 24 gauge strap one inch wide with corners clipped off at riveting ends. Bend strap around purlins and rivet to the sheets.
- f. Place first row of straps at gutter line. Then rivet the lower end of every sheet to the sheet beneath at the top of every fourth corrugation. Such rivets to alternate with rivets engaging the straps.
- g. Rivet side laps with two lines of rivets staggered and spaced not to exceed 23 centimeters (9 inches) on centers.
- h. Follow manufacturer's specifications/procedures in installing longspan pre-painted roofing.

3.02 Ridge Rolls, Hip Rolls and Valleys

- a. Use 0.6 millimeters (Gauge 24) ridge roll. Minimum lap of ridge roll shall be 30 centimeters (12 inches) over roofing sheets. Rivet ridge to roofing sheets at top of every fourth corrugation in addition to rivets engaging top line of straps.
- b. Use 0.6 millimeters (Gauge 24) hip roll. Minimum lap of hip roll shall be 30 centimeters (12 inches) over roofing sheets. Rivet hip roll at every second corrugation.
- c. Use 0.6 millimeters (Gauge 24) valley. Project 45 centimeters (18 inches) away and under roofing sheet edge each way and secure to framework with G.I. nails spaced not to exceed 30 centimeters (12 inches) on centers.

3.03 Flashing and Counter Flashing

- a. Use 0.6 millimeters (gauge 24) plain G.I. sheet for flashings at intersection of roof and parapet walls. Raise one wing of flashing not less than 20 centimeters (8 inches) high terminated at horizontal reglet.
- b. Where corrugations run parallel to the walls, corrugate one wing of the flashing sheet to match corrugation of G.I. sheets while other wing shall go up against the walls and counter flashed.

DIVISION 08 000 DOORS AND WINDOWS

PART 1: GENERAL

- 1.01 Division 01 applies to this Division
- 1.02 Submit Shop Drawings in accordance with the provision of the General Conditions.
- 1.03 Furnish labor, materials, and equipment necessary for completion of work unless indicated or noted otherwise

DIVISION 08 000: DOORS AND WINDOWS

  
FELIPE M. MENDOZA AND PARTNERS

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SECTION 08 100 METAL DOORS AND FRAMES

PART 1: GENERAL

1.01 Scope

- a. Furnish materials and equipment and perform labor required to complete  
hollow metal doors and frames,  
aluminum doors and frames,  
installation of hardware.
- b. See drawings and details for sizes, location, extent and other requirements.

1.02 Shop Drawings

- a. Submit shop drawings of fabricated items showing sizes of all members and methods of joining and anchoring. Refer to Article 5 "Shop Drawings" of the UAP General Conditions

1.03 Samples

- a. Submit sample corner sections of metal doors and metal buck or jambs in accordance with Article 10.02 "Samples of Materials" of the UAP General Conditions.

1.04 Protection

- a. Before shipment from factory, cover aluminum work with heavy building paper or other adequate covering to protect finish surface from mortar, plaster, finger prints, scratches or stains.
- b. Aluminum surfaces in contact with concrete, plaster, steel, or other dissimilar metal parts shall be given a coat of suitable alkali-resistant bituminous paint.
- c. Aluminum shall have a hard, smooth satin finish and shall receive a coating of methacrylate lacquer as an additional protection.
- d. Shop paint with two coats of air dried zinc chromate rust inhibitive primer all metal items except aluminum brass or stainless steel.

PART 2: PRODUCTS

2.01 Materials

- a. Hollow Metal Doors
  - 1. Door Frames - Gauge 16 cold-rolled pickled
  - 2. Hinge Plates - Gauge 10 or heavier.
  - 3. Plates for lock and lockset - Gauge 12 or heavier.

b. Aluminum

1. Extruded sections - alloy 6063-T5.
2. Fastening device - cadmium plated.
3. Anchor bolts - pressed or rolled and galvanized.
4. Shimming material - chemically treated wood.

2.02 Fabrication

a. Hollow Metal Doors

1. Flush Type - flush type door shall be 4.5 centimeters (1-3/4") thick. Reinforced doors with formed steel sections extending full height of doors and spaced not over 20 centimeters (8") O.C. vertically.  
Tops and bottoms of doors shall have continuous stiffener channels welded to side plates.  
Insulate in each space between reinforcement with fiberboard or cork to deaden metallic sound.  
Edges at top sides shall be reinforced and finished flush.
2. Panel Type - Formed of gauge 18 cold rolled steel. Reinforce, weld and grind smooth all joints at intersections. Insulate panels, rails and stiles with cork or fiberboard to deaden metallic sound. Panel moulds shall be mitered and welded at corners and assembled to stiles and rails with interlocking members. Reinforce top and bottom of doors with continuous channels. Spot weld in place.

b. Kalamein or Metal Covered Door:

1. Flush Type - Construct cores of thoroughly seasoned kiln dried wood, two ply laminated or built up of required thickness. Cover core under heavy pressure. Make vertical seams flush with door surfaces. Fill joints with solder and grind smooth.
2. Panel Type - Each stile and rail shall consist of not more than two continuous length of thoroughly seasoned kiln dried wood dressed 1.5 mm (1/16 inch) less than finish door thickness. Extend stiles full height of door. Panel cores shall be either 6 mm (1/4 inch) asbestos or 3-ply laminated plywood.  
Cover stile, rails and panels with 24 gauge galvanized or zinc coated steel sheets. Lock or weld joints together between stiles and rails. Flush seams with solder and grind smooth. Construct panel mouldings, muntins and glass beads of 0.89 mm (.035 inch) US gauge hollow steel with corners mitered and brazed.

- c. Tinclad Fire Door and Frames - conform to requirements of Underwriter's Laboratories for the type and use of openings indicated or required.  
Cores shall be 2 or 3 ply kiln-dried laminated wood. Cover core on all sides with 9 kilogram (20 lbs.) terne plate. Weld corners of frame and grind smooth. Welding may be done at jobsite. Provide standard automatic or self-closing devices required.

- d. Rolling Metal Doors - rolling doors shall be formed of interlocking metal slats hot galvanized steel or aluminum rolled into easy curves to form a door of sufficient section to resist wind pressure of 0.95 kPa per square meter (20 lbs. per square foot).



e. Aluminum Works

1. Wall Panel Assembly - Accurately mate vertical and horizontal pieces flush at intersections. Assembled dimensions shall conform to the drawings.
2. Door Assembly - Door stiles and top rails for swing doors shall be from solid intrusions. Fit members to hairline joints.

PART 3: EXECUTION

3.01 Installation

- a. All frames shall be erected plumb, square, and true to line and level, with secure fastening to structures and anchors. Formed steel stiffeners and reinforcement shall be installed within frames at all joints where top screw fastenings are used in connection with embedded strap anchorage.
- b. Doors shall be installed by authorized representative of the manufacturer, but not before all plastering is completed.
- c. All glazing beads and bars shall be tap-screw set and let loose. All items of hardware shall be adjusted for proper functioning.

3.02 Hardware

- a. All metal doors and frames shall be mortised, reinforced, drilled and tapped for mortise hardware finish under "Finish Hardware".

3.03 Inspection

- a. Carefully examine and clean all aluminum surfaces and test all framing and hardware. Make all repairs and adjustment to the work, leaving it in a satisfactory condition.

3.04 Schedule

- a. Refer to Schedule of Drawings.

SECTION 08 200 WOOD DOORS

PART 1: GENERAL

1.01 Scope

- a. Furnish materials and equipment and perform labor required to complete  
panel doors,  
flush doors  
and other wood doors
- b. See drawings and details for sizes, location, extent and other requirements.

1.02 Samples

- a. Submit sample corner sections of wood doors and jambs in accordance with Article 10.02 "Samples of Materials" of the UAP General Conditions.

1.03 Protection

- a. Adequately protect doors from scratches, and other stains with heavy building paper.

PART 2: PRODUCTS

2.01 Materials

- a. Plywood : First quality plywood grain and color suitable for natural finish.
- b. Framings : Kiln dried tanguile treated lumber for interior framings and kiln dried narra for exposed edge framing.

2.02 Fabrication

- a. Assemble joints in doors with water resistant glue; keep doors under pressure until glue has thoroughly set.
- b. Sand smooth finish door. Door must have tight joints and clean cut mouldings.
- c. Faces shall be free from defects or machine marks that will show through the finish.
- d. Wood flush doors hollow core:
  - 1. Size, design and thickness shall be as indicated on the drawings.
  - 2. Doors shall have cross banding and faces of two or more plies with a combined minimum thickness of 2.5 millimeters (1/10 inch) after sanding. Face veneer shall be first quality selected plywood either rotary-cut or sliced-cut. Provide lock blocks of size required for hardware used. Rails and side edge bands shall be of hardwood same as face veneer.
  - 3. Doors shall be trimmed square and factory pre-fit to standard sizes.

e. Wood panel doors:

1. Panel doors shall have solid stiles and rails and framed mortise and tenon construction.
2. Raised and flat panels shall be same specie as stiles and rails.

PART 3: EXECUTION

3.01 Installation

- a. Each door shall be accurately cut trimmed and fitted to its frame and hardware.
- b. Give allowance for painter's finish and possible swelling or shrinkage.
- c. Clearance at lock and hanging stiles and at top shall not exceed 3 millimeters (1/8 inch). At bottom not bigger than 6 millimeters (1/4 inch).
- d. All corners shall be rounded to 1.5 millimeters (1/16 inch) radius. Lock and rail edges shall be slightly leveled.
- e. The screws for hardware shall not be driven, but merely started by driving and then screwed home.
- f. All doors shall operate freely and with all hardware properly adjusted and functioning.

3.02 Schedule

Refer to Schedule of Drawings.

SECTION 08 550 FINISH HARDWARE

PART 1: GENERAL

1.01 Scope

- a. Furnish materials and equipment and perform labor required to complete all jalousie windows as shown in drawings.
- b. See drawings for schedule of sizes, types, and details of all jalousie windows.

1.02 Shop Drawings and Samples

- a. Submit shop drawings per Article 5 "Shop Drawings" of UAP General Conditions.
- b. Submit sample sections, hardware, operators, and accessories per Article 10.02 "Samples of Materials" of the UAP General Conditions.

PART 2: PRODUCTS

2.01 Materials

- a. Jalousies - Roto operated
- b. Glass Blades - 5.5 mm (7/32") thick, Industrex, smooth edge, secured by heat-treated aluminum clips with integral spring unit.
- c. Weather Stripping - Bulb type B.F. Goodrich Geon Vinyl.
- d. Insect Screen - Insert overlap type with specially rolled section and 18/18 mesh Alcad aluminum cloth woven by manufacturer Sinclair to "Opal" aluminum insect screen.

PART 3: EXECUTION

3.01 Measurements

- a. For regular and low sill height openings, base height measurement of jalousies from bottom of window head line downwards.
- b. Follow alignment shown in detailed drawings for width measurements. Transmit questions to the Project Manager and/or Architect for clarifications.

3.02 Adjusting

- a. No wooden moulding or fillers of any kind is allowed upon failure to provide exact opening in window frame due to non-conformity to manufacturer's standard.

3.03 Guarantee

- a. Operators shall function properly and shall have positive locking in closed position.
- b. The structure shall be guaranteed against penetration of insects.

DIVISION 08 200: WOOD DOORS

  
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SECTION 08 710 FINISH HARDWARE

PART 1: GENERAL

1.01 Scope

- a. Furnish materials and equipment and perform labor required to complete:  
  
finish hardware for doors,  
windows and cabinets
- b. See drawings and schedules for other requirements.

1.02 Samples

- a. Submit samples of locksets, hinges, doors and cabinet pulls, door closers and other finish hardware and accessories as per Article 10.02 "Samples of Materials" of the UAP General Conditions.

1.03 Packaging

- a. Individually pack and deliver to jobsite in manufacturer's original container each finish hardware item required.
- b. All hardware shall have all the necessary screws, keys, instructions and installation template for spotting mortising tools.
- c. Furnish packing list to identify the quality and type of hardware in every package.

PART 2: PRODUCT

2.01 Hinges

- a. For medium weight low-frequency door: use full mortise, plain bearing, regular weight.
- b. For medium weight medium-frequency door: use full mortise, ball bearing, regular weight.
- c. For medium heavy weight, high-frequency door: use full mortise, ball bearing, extra heavy weight.
- d. For hollow-metal doors with channel-iron jambs: use full surface, ball bearing hinges.
- e. For wood or kalamein doors with wood or metal jambs: use half surface, ball bearing hinges.
- f. Refer to Schedule of Doors for other details.

2.02 Cylindrical Locksets

- a. High grade cylindrical locksets, heavy or standard duty.
- b. Mechanism to be heavy gauge, cold rolled steel in cylindrical housing with all parts zinc plated and dichromated for maximum resistance against rust and corrosion.

DIVISION 08 710: FINISH HARDWARE

  
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2.03 Mortise Locks

- a. For interior doors use Type 190L US Federal Specifications FF-H-106
- b. For exterior doors use Type 190M US Federal Specifications FF-H-106

2.04 Sliding-Folding Locks

- a. For exterior doors use double cylinder locks.
- b. For interior doors use single cylindrical locks.
- c. Provide cylinder mortise hook bolt dead lock for all sliding and folding doors.

2.05 Panic-Exit Device

- a. Instantaneous and fool-proof. No outside operation.
- b. Vertical bolts latch door at top and bottom and automatic latch stop to retain bolts in retracted position while door is open and automatically released when door is closed.

2.06 Door Closer

- a. To conform to US Federal Specifications FFH-121 C Type 3230 with following sizes:

Door Width	Size of Door Closer
750 mm (2'-6") max. width	Size 2
1050 mm (3'-6") max. width	Size 3
1450 mm (4'-10") max. width	Size 4
1200 mm (4 feet) max. width	

2.07 Miscellaneous Door Hardware

- a. For doors that will strike an object, provide rubber bumper or door stop. Type and location of installation to be approved by the Architect.
- b. For heavy frequency door with door closer and mortise locks provide stainless steel push plates.
- c. For double leaf wooden doors provide 2 flush bolts 45 centimeters (18" long).
- d. For silencing the door when it strikes the stop strip and to prevent rattles, install three (3) silencers in the stop of frame.

2.08 Sliding-Folding Door Hardware

- a. For interior Bi-folding doors provide the following:

- 1. Tracks
  - Extruded aluminum anodized finish. Must be able to withstand maximum load of 16 kilograms (35 pounds) per folding panels.

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1. Hangers - Zinc plated steel with two nylon rollers and self-leveling feature for smooth and quiet operation.
  2. Pivots - Heavy gauge steel bottom and top pivots zinc plated with nylon bearing surfaces.
- b. For exterior sliding-folding doors provide the following:
1. Tracks - Gauge 13 wrought steel maximum load capacity of 454 kilograms (1,000 pounds)
  2. Ball-bearing Hanger - ball-bearing on the swivel and on the wheel to withstand maximum load of 68 kilograms (150 pounds).

2.09 Key Cabinet

- a. Furnish one (1) key cabinet about 450 capacity for each branch.
- b. Weld hook and label pockets to cabinet panels.
- c. Include printed key gathering envelope, reserve tags, self-locking key clips requiring no tools for assembly, key receipts and receipts holders, and 3 parts visible card index.

PART 3: EXECUTION

3.01 Installation

- a. Install hardware to fit details as shown on the drawings and as per manufacturer's specifications. Supply all necessary templates and instructions required.

3.02 Keying

- a. Locks shall be keyed in sets and sub-sets. Where locks are specified to be keyed alike in anyone system furnish a total of 4 keys for each set.

SECTION 08 730 WEATHER STRIPPING AND SEALS

PART 1: GENERAL

1.01 Scope

- a. Provide materials and equipment and perform labor required to complete all types of weather stripping in the form of:

metallic inserts,  
pile fabric strips,  
gaskets or other flexible substance

- b. See drawings and details for types and location of weather stripping strips.

1.02 Samples

- a. Submit sample strips of weather strip elements in accordance with Article 10.02 "Samples of Materials" of the UAP General Conditions.

PART 2: PRODUCTS

2.01 MATERIALS

- a. Weather stripping materials shall meet the following tests:

1. Rubbin resistance test: No change in section after 1,000 times in the following:

Grip distance - 25 mm  
Stroke - 40 mm  
Load - 1 kg.

2. Chemical reaction test: No abnormal change after at least 24 hours soaked in:

Hydrochloric Acid, Sulfuric Acid, Liquid Ammonia, Acetic Acid and Caustic Soda.

3. Heat resistance and cold endurance test: No cracks or deformation after 48 hours in 100 degrees Celsius and after 12 hours at 30 degrees Celsius.

PART 3: EXECUTION

3.01 INSTALLATION

- a. Install on all exterior doors and window openings to render them watertight.

- b. Install on all interior doors to silence door.



SECTION 08 800 GLASS AND GLAZING

PART 1: GENERAL

1.01 Scope

- a. Furnish glass free from imperfections and water marks and other materials and equipment and perform labor required to complete all glass and glazing work.
- b. See drawings for size, location and details.

1.02 Samples

- a. Submit samples of glass panel in accordance with Article 10.02 "Samples of Materials" of the UAP General Conditions.

PART 2: PRODUCTS

2.01 Material

- a. Plate Glass - mechanically round and polished after rolling resulting in parallel, distortion free surfaces. Use where good vision is required.
- b. Float Glass - manufactured by "floating" continuous ribbon of molten glass onto a bath of molten tin where it is repeated to obtain a flat, fire-polished finish. It is then allowed to cool to a degree permitting it to be drawn on rollers in a long oven and then annealed. Commonly used in windows, sliding doors, and window walls.

- Grade AA - intended for use where superior quality is required.
- Grade A - intended for selected glazing
- Grade B - intended for general glazing

2.02 Glazing: Glazing materials for glass installation may be:

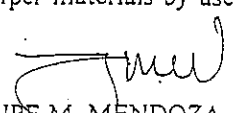
- a. Bulk compounds such as:
  - Mastics - elastic compounds and non-skinning compound.
  - Putties - wood sash putty, metal sash putty.
  - Sealants - one component, two components.
- b. Preformed sealants such as:
  - Synthetic polymer-base sealants - resilient or non resilient type.
  - Preformed gaskets - compression type, structural type.

PART 3: EXECUTION

3.01 Glazing

- a. Prevent glass from all contact with metal or any hard or sharper materials by use of resilient shims placed at quarter points.

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TECHNICAL SPECIFICATIONS  
DIVISION 08: DOORS AND WINDOWS

- b. Use resilient sealants.
- c. Use stops in sizes permitting a "good grip" on the glass.
- d. Install glass only in openings that are rigid, plumb and square.
- e. Allow sufficient clearance at edges of glass to compensate for its expansion or for some settlement of the building. Clearance should be 6 millimeters (1/4 inch) from edge to frame and 3 millimeters (1/8 inch) for face.
- f. Markings, banners, posters, and other decal shall not be applied directly to glass surface as these could cause thermal stress.
- g. Removal of putty or glazing compound smears from glass shall be performed by the glazing contractor during the materials' normal work life. Failure to do so may result in damage to the glass.

3.02 Heat Absorbing Glass

- a. Special attention must be given to the installation of all types of heat absorbing glass, because of its ability to absorb heat. Partial shading, painted signs, large interior labels, tight draperies or blinds, heavy masonry structure and heating-cooling outlets directing air against the glass may increase edge tension stresses.
- b. The ability of heat absorbing glass to resist solar energy breakage is primarily related to its edge strength. Therefore:
  - 1. Edges must be cleaned out.
  - 2. Do not install glass with flared edges at the bottom.
  - 3. Do not seam edges.
  - 4. Do not nip edges nor scarf corners.
  - 5. Be careful not to bump or brush edges against metal or other hard objects.
  - 6. Avoid the use of pocket flush glazing.
  - 7. Radius cutting should be reviewed by manufacturer.

DIVISION 09 000 FINISHES

PART 1: GENERAL

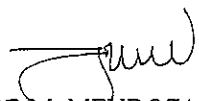
1.01 Division 01 applies to this Division.

1.02 Scope

a. Includes:

1. Furnish labor, materials, and equipment as necessary for completion of this work unless indicated or noted otherwise.

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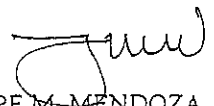


SECTION 09 100 METAL SUPPORT SYSTEMS

PART 1: GENERAL

1.01 Division 09 General applies to this Section.

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SECTION 09 130 ACOUSTICAL SUSPENSION SYSTEM

PART 1: GENERAL

1.01 Scope

a. Includes :

1. Provide ceiling suspension systems to receive acoustical ceiling tiles.

PART 2: PRODUCTS

2.01 Suspension System for Lay-in Tile

a. System shall meet requirements of ASTM C-635-78 "Metal Suspension Systems for Acoustical Tile".

1. Aluminum main runners and cross T's shall have a 25mm exposed face and a 600mm x 600mm module or a 600mm x 1200mm module (refer to ceiling layout).
2. Hanger-wire - 2.05 mm (12 gauge) cold rolled electro-galvanized steel matching system finish.

b. Approved Manufacturer

1. "Hooven Comalco, Inc." or "Ajax Aluminum Industries" or "Reyphil-Altech Fabrication Industries, Inc."

PART 3: EXECUTION

3.01 Recommended practice for installation of metal furring suspension systems designed in ASTM C-636-76 shall govern this installation.

3.02 Give particular attention to required hanger wire placement and fixture protection. Individual component deflection shall not exceed 1/360 of the span.

SECTION 09 225 VENEER STONE

PART 1: GENERAL

1.01 Scope

- a. Furnish materials and equipment and perform labor required to complete all natural stone work used for:  
wainscoting floor tile,  
counter tops and base
- b. See drawings and details for location and extent of work required.

1.02 Qualification of Installer

- a. Secure approval from Architect for qualified and experienced sub-contractors for this portion of the work as per Article 25 of the UAP General Conditions.

1.03 Samples

- a. Submit samples of materials, anchorage device and adhesives for approval by the Architect as per Article 10.02 of the UAP General Conditions.

1.04 Delivery and Storage of Materials

- a. Protect materials from breakage during delivery and handling and properly store materials in the best manner to avoid damages.

1.05 Protection

- a. Protect adjacent floor, walls, ceiling from being soiled, stained or damaged by reason of the required work.

PART 2: PRODUCTS

2.01 Stones

- a. Limestone - approved grade, color, grain and texture.
- b. Adobe stone - free from imperfections and of approved color and texture.

2.02 Anchors, Dowels and Clamps: Anchors, dowels, clamps and bolts shall be steel or wrought iron, hot zinc-coated after fabrication and of the following sizes and shapes:

- a. Dowels - 75 millimeters (3 inches) long, cut from 12 millimeters (1/2 inch) rebar.
- b. Clamps - 4.75 millimeters x 32 millimeters x 200 millimeters (3/16 x 1-1/4 inches by 8 inches) long after bending with ends turned 25 millimeters (1 inch) into stone.
- c. Anchors for Masonry - 4.75 millimeters x 32 millimeters (3/16 x 1-1/4 inches) extending 100 millimeters (4 inches) and outer end bent 25 millimeters (1 inch) onto stone.

For concrete: Metals slots or inserts, 3 millimeters x 32 millimeters (1/8 x 1-1/4 inches) and turned into stone 25 millimeters (1 inch).

PART 3: EXECUTION

3.01 Cutting

- a. Cut stone accurately to shape and dimensions with joints and bonding as shown.
- b. Where stone facing is not supported at each floor it shall be supported by a continuous shelf angles at every 3 meters (10 feet).
- c. Beds and ends shall be straight and at right angles to face.
- d. Where open joints are required make joints 6 millimeters (1/4 inch) wide and 16 millimeters (5/8 inch) deep.

3.02 Setting

- a. Stone shall be set by experienced stone masons.
- b. Set each stone plumb, level and true to line in full bed of mortar and tap lightly to even bearing.
- c. Do not build up stone facing more than 2 courses above backing.

3.03 Pointing and Caulking

- a. Brush joints clean. Carefully remove any wedges so that pointing will be continuous.
- b. After thoroughly wetting, point all joints flush with pointing mortar except those to be left open or caulked.

3.04 Cleaning

- a. Upon completion of work, leave stone clean and free from mortar stains or traces of cleaning compound and then thoroughly polish.

SECTION 09 230 PLASTERED AGGREGATE TOOL FINISH

PART 1: GENERAL

1.01 Scope

- a. Furnish materials and equipment and perform labor required to complete all exposed aggregate finish.
- b. See drawings for sizes, details and location of work required.

1.02 Qualifications

- a. Manufacturer must be approved by the Architect.

1.03 Samples

- a. Test panels of 1.20 x 1.20 meters (4 feet x 4 feet) shall be prepared by the Contractor for Architect's approval before execution of the work.

PART 2: PRODUCTS

2.01 Materials

- a. Coarse Aggregate - clean, hard particles of gravel or crushed rocks sizes to be determined by the Architect after approval of test panels.
- b. Sand - well graded, clean, free from soluble salts and organic impurities.
- c. Water - clean, potable water.
- d. Cement - conform to ASTM Standards.

PART 3: EXECUTION

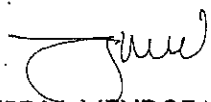
3.01 Preparation of Surface

- a. Concrete and masonry surfaces shall be clean, free from dust, grit, grease and other foreign matters.
- b. For concrete surface, remove skin with bladed hammer until coarse aggregate is exposed.
- c. For masonry, wet surface thoroughly and apply 1 layer or scratch coat cement plaster.

3.02 Application

- a. Wet concrete or masonry surfaces thoroughly with water.
- b. Mix mortar aggregate in approximately the following proportion:  
1 part cement : 1 part "Porac" sand : 2 parts coarse aggregate  
Concrete admixture to reduce water-cement ratio and to produce a workable mixture.

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TECHNICAL SPECIFICATIONS  
DIVISION 09: FINISHES

- c. Apply mixed mortar aggregate on one panel in one continuous operation with a minimum thickness of 19 millimeters (3/4 inch.)
- d. Do not use mortar guide in applying mixed mortar aggregate. Use instead spots of mixed mortar aggregate placed approximately 1.8 meters (6 feet) apart.
- e. Use string as guide in producing an even surface.

3.03 Tooling

- a. The next day after application of mixed mortar aggregate, gently tool the applied mortar by pneumatic hammer until the coarse aggregate shows uniformly on the surface.

3.04 Curing

- a. Cure plastered aggregate after tooling for at least 5 days.

3.05 Protection

- a. Protect finished wall by a coat of "Prime-A-Pell" water repellent or "Thompson's" water seal.

SECTION 09 231 PEA GRAVEL

PART 1: GENERAL

1.01 Scope

- a. Furnish materials and equipment and perform labor required to complete all pea gravel works.
- b. See drawings and details for location, extent and other requirements.

1.02 Qualification

- a. Experienced and qualified pebble washout contractor shall be approved by the Architect.

1.03 Samples

- a. Submit sample panels of different colors and sizes of gravel in accordance with Article 10.02 of the UAP General Conditions.

1.04 Protection

- a. Protect finished work from traffic and damage until turnover of building to Owner.

PART 2: PRODUCTS

2.01 Materials

- a. Portland Cement
- b. Luna graded pebble
- c. White cement
- d. Colored cement

PART 3: EXECUTION

3.01 Preparation

- a. Check and correct pitch of floors to provide good drainage.
- b. Clean area to be worked on and keep wet for at least 4 hours before scratch coat is applied.
- c. Scratch coat shall not be less than 19 millimeters (3/4-inch) in thickness. Proportion of scratch coat shall be: 1 part Portland cement to 2 parts sand by volume

3.02 Application

- a. Apply pebble washout grout with pressure to obtain solid adhesion to surface of concrete.
- b. Pebble washout grout shall be composed of 1 part portland cement (or white cement) to 2-1/2 parts quart size pebble trowelled to a hard, smooth even plane, redded and floated to a uniform surface not less than 10 millimeters (3/8 inch) thick. For black pea gravel use necessary black cement to get required shade.
- c. When the pebble washout grout had initially set, spray surface lightly with clean water.
- d. Wash down cement paste by means of soft brush and water to expose the natural texture of the pebble.

3.03 Cleaning

- a. Before turn over of building to the Owner, wash pebble surfaces with 1 part muriatic acid to six parts water.

SECTION 09 260 GYPSUM WALLBOARD SYSTEMS

PART 1: GENERAL

1.01 Scope

- a. Furnish materials and equipment and perform labor required to complete all gypsum board works for walls and/or ceilings.
- b. Refer to drawings for sizes, location and extent of work required.

1.02 Sample

- a. Submit sample for Architect's approval as per Article 10.02 of the UAP General Conditions.

1.03 Delivery

- a. All gypsum boards shall be delivered and stored in undamaged condition as packaged by the manufacturer, with the manufacturer's seals and labels in tact.

PART 2: PRODUCTS

2.01 Materials

- a. Types:
  1. Standard Type
  2. Aluminum Foil Laminated Type
  3. PVC Laminated Type
  4. Moisture Resistant Type
  5. Extra Fire Resistant (Type X)
- b. Types of Edges:
  1. Square Edge
  2. Tapered Edge
- c. Sizes and Thickness:
  1. Square Edge
    - 9mm x 1200 mm x 2400mm (20.0 kg/sheet)
    - 12mm x 1200 mm x 2400mm (26.6 kg/sheet)
    - 15mm x 1200 mm x 2400mm (37.0 kg/sheet)
  2. Tapered Edge
    - 9mm x 1200 mm x 2400mm (20.0 kg/sheet)
    - 12mm x 1200 mm x 2400mm (26.6 kg/sheet)
    - 15mm x 1200 mm x 2400mm (37.0 kg/sheet)
- d. Adhesive - special non-staining waterproof type resistant to alkaline solution. Adhesive shall develop a minimum adhesive strength of 6.895kPaq (1 pound per square inch) of contact surface within 48 hours after erection of units, at 21.1 degrees Celsius (70 degrees F).

PART 3: EXECUTION

3.01 Installation

- a. Install acoustical tile units true to line and in even plane according to ceiling pattern shown on the drawings.
- b. Application of acoustic tile shall be done by the manufacturer or his authorized applicators and in strict accordance with the specifications of the manufacturer.
- c. Where tile is applied with adhesive, spot-prime back of tile at each corner with thin layer of adhesive and then apply adhesive over the four primed spots so that resultant area of adhesive in contact with both surfaces will be at least 100 square centimeters (16 square inches).
- d. Sprayed-on type of acoustical materials shall be applied to thickness required to produce the noise reduction coefficients required. The finished surface shall be level or plumb and uniform texture and color. After finishing spray-over acoustical surfaces with thin color binder as recommended by manufacturer.

SECTION 09 300 TILE WORK

PART 1: GENERAL

1.01 Scope

- a. Furnish materials and equipment and perform labor required to complete ceramic glazed and vitrified ceramic tile work.
- b. See drawings and details for location and extent of work required.

1.02 Samples

- a. Submit samples of floor and wall tiles including all required beads and mouldings as per Article 10.02 of the UAP General Conditions.

1.03 Delivery of Materials

- a. Deliver all materials in original cartons and containers with labels intact and seals unbroken.

1.04 Protection of Finished Work

- a. Cover floors with heavy building paper before foot traffic is permitted over finished tiles floors.
- b. Lay board walkways on floors to be used as passageways.

PART 2: PRODUCTS

2.01 Ceramic Tiles

- a. Ceramic Glazed Wall Tiles - standard grade bright or matte glazed, square edged or cushion edged with integral spacers approximately 8 millimeters (5/16 inch) thick.
- b. Vitrified Ceramic Floor Tiles - standard grade vitrified unglazed natural clay type, dust-pressed or extruded approximately 6 millimeters (1/4 inch) thick.
- c. Trim - compatible with type, color, thickness, face, size and finish of specified wall tiles.
- d. Accessories - soap holders and paper holders shall be recessed type to follow color of specified wall tiles.

2.02 Grout Materials

a. Portland Cement Grout

1. Scratch Coat : 1 part portland cement to 5 parts damp sand to 1/5 part hydrate lime.
2. Mortar Bed : 1 part portland cement to 5 parts damp sand to 1/2 part hydrate lime.
3. Bond Coat : Neat portland cement paste.

b. "ABC" Tile Grout and "ABC" Tile Adhesive.

1. Follow strictly manufacturer's mixing specifications.

PART 3: EXECUTION

3.01 Application of Scratch Coat

- a. Thoroughly dampen, but do not saturate surfaces of masonry or concrete walls before applying the scratch coat. Surface areas shall appear slightly damp. Allow no free water on the surface.
- b. On masonry first apply a thin coat with great pressure, then bring it out sufficiently to compensate for the major irregularities on the masonry surfaces to a thickness of not less than 6 millimeters (1/4 inch) at any point.
- c. On surfaces not sufficiently rough to provide good mechanical key, dash on the first coat with a whisk broom or fiber brush using a strong whipping motion. Do not trowel or otherwise disturb mortar applied by dashing until it has hardened.
- d. Evenly rake scratch coats, but not dash coats, to provide good mechanical key for 1 subsequent coat before the mortar has fully hardened.

3.02 Floor Tile Installation on Mortar Bed

- a. Before spreading the setting bed, establish lines of borders and center the fieldwork in both directions to permit the pattern to be laid with a minimum of cut tiles.
- b. Clean concrete sub-floor then moisten but not soak. Afterwards sprinkle dry cement over the surface and spread the mortar on the setting bed.
- c. Mix mortar 1 part Portland cement to 3 parts sand. Tamp to assure good bond over the entire areas and screed to provide a smooth and level bed at proper height and slope.
- d. Pitch floor to drain as required.
- e. After setting bed has set sufficiently to be worked over, sprinkle dry cement over surface and lay tile.
- f. Keep tile joints parallel and straight over the entire area by using straight edges.
- g. Tamp the tile solidly onto the bed, using wood blocks of size to ensure solid bedding free from depressions.
- h. Lay tiles from center lines outward and make adjustments at walls.

3.03 Wall Tile Installation on Mortar Bed

- a. Before application of mortar bed, dampen the surface of scratch coat evenly to obtain uniform suction.
- b. Use temporary or spot grounds to control the thickness of the mortar bed. Fill out the mortar bed even with the ground and rod it to a true plane.
- c. Apply the mortar bed over an area no greater than can be covered with tiles while the coat is still plastic.

- d. Allow no single application of mortar to be 19 millimeters (3/4 inch) thick.
- e. Completely immerse glazed wall tile in clean water and soak it at least 1/2 hour. After removal, tile on edge long enough to drain off excess water. Resoak and drain individual tiles that dry along edges.
- f. Apply a bond coat 0.8 millimeters to 1.6 millimeters (1/32 to 1/16 inch) thick to the plastic setting bed or to the back of each sheet or tile.
- g. Press tile firmly into the bed and beat into place within 1 hour.
- h. Lay tile fields in rectangular block areas not exceeding 60 centimeters x 60 centimeters (24 x 24 inches). Cut the setting bed through its entire depth along the edges of each block area after placement and before subsequent block are installed.
- i. Within 1 hour after installation of tile, remove strings from string-set tile and wet the faces of face-mouthed tile and remove the paper and glue. Avoid using excess water. Adjust any tile that is out of alignment.

### 3.04 SETTING TILE ON ADHESIVE TWO METHODS

NOTE: There are two methods of setting tiles with adhesive.

- a. Combing adhesive over the entire foundation surface is called the "Floating" method.
- b. Spreading it on the back of each tile as set called "Buttering" method.

The floating method is generally preferred because it is faster, gives a more uniform appearance, uses less adhesive, and give better waterproofing treatment to the wall.

The buttering method is recommended where tile must be cut and fitted around plumbing and electrical fixtures.

#### a. Floating Method

- 1. Apply gobs of adhesive to wall and comb out adhesive with a trowel or scraper having notches and flats as recommended by manufacturer.
- 2. Hold the trowel at a 30 to 45 degree angle to the wall surface for easy spreading and maximum coverage.
- 3. Set tile, using a slight twisting motion and press down to give a final adhesive thickness of 1.5 millimeters (1/16 inch).
- 4. Do not allow spread adhesive to stand over 45 minutes before setting tile.

#### b. Buttering Method

- 1. Apply sufficient adhesive to the back of each tile to produce a spot of approximately 75 centimeters (3 inches) in diameter, when bonded.
- 2. Press down adhesive thickness to 1.5 millimeters (1/16 inch) using a slight twisting motion.



3.05 Setting Tiles on "ABC" Tile Adhesive

- a. Follow strictly manufacturer's instructions for application on floor and wall surfaces.

3.06 Grouting

- a. After tile has sufficiently set, force a maximum of grout into joints by trowel, squeeze, brush or finger application.
- b. Before grout sets, strike or tool the joints of cushion-edged tile to the depth of the cushion.
- c. Fill all joints of square edged tile flush with the surface of the tile. Fill all gaps or skips.
- d. During grouting clean all excess grout off with clean burlap, other cloths or sponges.
- e. For "ABC" tile grouts, request approval by the Architect of the appropriate color/shade of grout material and follow strictly manufacturer's specification on application/use.

3.07 Cleaning

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

SECTION 09 500 ACOUSTICAL TREATMENT

PART 1: GENERAL

1.01 Scope

- a. Furnish materials and equipment and perform labor required to complete all acoustic tile work.
- b. Refer to drawing for sizes, location and extent of work required.

1.02 Sample

- a. Submit sample for Architect's approval as per Article 10.02 of the UAP General Conditions.

PART 2: PRODUCTS

2.01 Materials

- a. 19 millimeters x 600 millimeters x 600 millimeters (3/4" x 2' x 2') or 19 millimeters x 600 millimeters x 1200 millimeters (3/4" x 2' x 4') fissured finish rated class A under the Flame Resistance section of the Federal Specifications SS A-1181. Can be washed when necessary and repainted without losing acoustical efficiency.
- b. 10 millimeters (3/8 inch) thick Acoustic Pulp sprayed on concrete.
- c. Adhesive - special non-staining water-proof type resistant to alkaline solution. Adhesive shall develop a minimum adhesive strength of 6.895 kPa (1 pound per square inch) of contact surface within 48 hours after erection of units, at 21.1 degrees Celsius (70 degrees F).

PART 3: EXECUTION

3.01 Installation

- a. Install acoustical tile units true to line and in even plane according to ceiling pattern shown on the drawings.
- b. Application of acoustic tile shall be done by the manufacturer or his authorized applicators and in strict accordance with the specifications of the manufacturer.
- c. Where tile is applied with adhesive, spot-prime back of tile at each corner with thin layer of adhesive and then apply adhesive over the four primed spots so that resultant area of adhesive in contact with both surfaces will be at least 100 square centimeters (16 square inches).
- d. Sprayed-on type of acoustical materials shall be applied to thickness required to produce the noise reduction coefficient required. The finished surface shall be level or plumb and uniform texture and color. After finishing spray-over acoustical surfaces with thin color binder as recommended by manufacturer.

SECTION 09 570 WOOD PARQUET FLOORING

PART 1: GENERAL

1.01 Scope

- a. Furnish materials and equipment and perform labor required to complete all parquet floor work.
- b. See drawings and details for location and extent of work required.

1.02 Samples

- a. Submit sample panels of different color grains and patterns of wood parquet flooring in accordance with Article 10.02 of the UAP General Conditions.
- b. Thickness of parquet must not be less than 19 millimeters (3/4 inch).

1.03 Delivery and Storage

- a. Handle and store all flooring materials in undamaged condition as packaged by the manufacturer, with seals and label intact.
- b. Store all materials at the jobsite in the area where they are to be installed for at least 72 hours prior to installation.

1.04 Inspection

- a. Examine surfaces to receive wood parquet flooring and do not begin installation until defects have been corrected and the surfaces meet specifications.
- b. Do not begin work until work of other trades which goes through flooring has been completed.
- c. Do not begin installation of tile until floor is thoroughly dry.

PART 2: PRODUCTS

2.01 Materials

- a. Primer - Must be of uniform consistency and guaranteed by manufacturer.
- b. Wood - Philippine Hardwood, kiln dried. Composed of 75 to 80 percent quarter-sawed wood for dimensional stability.

PART 3: EXECUTION

3.01 Installation

- a. Installation must be done by experienced installers approved by the Architect.
- b. Spaces in which flooring is being set shall be closed to traffic and to other work until flooring is firmly set.
- c. Follow the adhesive manufacturer's directions for mixing and applying primers and adhesives, covering all surfaces evenly.
- d. Do not cover any area exceeding the maximum working area recommended by the manufacturer. Install flooring within the time limits recommended by the manufacturer. Remove dried adhesive and adhesive that has formed a film and recoat the area.
- e. Place flooring so that fields and patterns are centered on area. No tile or block shall be less than one-half size.
- f. Before installation, lightly dampen face paper of flooring. Lay flooring with face paper damp. Re-dampen as necessary.
- g. Lay flooring tone, level, even and with tightly aligned joints.
- h. Cut flooring to fit building contours or edges.
- i. Apply pressure to flooring to assure intimate contact and proper adhesion.
- j. Provide expansion joints between floor tiles when necessary.

3.02 Sanding and Finishing

- a. Sanding must be done by experienced sanders approved by the Architect.  
  
Area must be sanded uniformly but thickness of parquet floor must not be reduced to less than 12.5 millimeters (1/2 inch).
- b. Broom, clean and dry wood parquet floor then apply one coat of sealer.
- c. Apply two coats of clear "Johnson" floor wax. Polish with dry clean cotton rags.

3.03 Protection

- a. Cover finished floor with heavy building paper until final acceptance of the project by the Owner.

SECTION 09 650 RESILIENT FLOORING

PART 1: GENERAL

1.01 Scope

- a. Furnish materials and equipment and perform labor required to complete resilient flooring work.
- b. See drawings and details for location and extent of work required.

1.02 Sample

- a. Submit samples of tiles including all required moldings as per Article 10.02 of the UAP General Conditions.

1.03 Delivery and Storage

- a. All resilient flooring materials shall be delivered and stored in undamaged condition as packaged by the manufacturer, with manufacturer's seals and labels intact.

1.04 Inspection

- a. Surfaces to receive resilient flooring shall meet the minimum requirements established by the manufacturer of the flooring.
- b. Surfaces to receive resilient flooring shall be examined and work shall not be started until defects have been corrected by the General Contractor.
- c. Work shall not be started until work of other trades, which goes through resilient flooring, has been completed.
- d. No resilient flooring shall be installed over floors that have been treated with chemical compounds without the written permission of the General Contractor.

1.05 Tolerances

- a. Sub-floor surfaces shall not vary by more than 28 millimeters (1-1/8 inches) in any 3-meter (ten-foot) dimension. Neither shall they vary at a rate greater than 1.5 millimeters (1/16 inch) per running 30 centimeters (1 foot).

PART 2: PRODUCTS

- 2.01 Asphalt Tile - standard stock sizes are 225 mm x 225 mm (9 x 9 inches) by 3 mm (1/8 inch) thick, 300 mm x 300 mm x 4.75 mm (12 x 12 inches by 3/16 inch) thick. Only tile with complete pattern penetration are recommended for general commercial use.
- 2.02 Cork Tile - standard sizes are 150 mm x 150 mm (6"x6"), 225 mm x 225 mm (9" x 9") and 300 mm x 300 mm (12"x 12"). Standard thickness are 3 mm (1/8"); 4.75 mm (3/16" and 8 mm (5/16"); 6 mm (1/4") and 12.5 mm (1/2") thickness are also available.

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# TECHNICAL SPECIFICATIONS

## DIVISION 09: FINISHES

- 2.03 Homogeneous Vinyl - standard sizes are 225 mm x 225 mm (9" x 9"), 300 mm x 300 mm (12" x 12"); other sizes are available on special order; standard thickness are 1.5 mm (1/16"), 2.4 mm (3/32") and 3 mm (1/8"); sheet vinyl are available in 914 mm x 1143 mm (36 x 45 inches).
- 2.04 Backed Resilient Vinyl - available in rolls of 1829 millimeters (72 inches) wide by 1066 mm x 30.48 meters (42 to 100 feet) long; standard tile size is 225 mm x 225 mm (9" x 9") 300 mm x 300 mm (12"x12").
- 2.05 Linoleum - available in rolls 1829-millimeter (72-inch) wide by 1066 mm to 2286 mm (42 to 90 feet) long; thickness are 1.5 mm (1/16"), 3 mm (1/8"); standard tile sizes are 225 mm x 225 mm (9" x 9") and 300 mm x 300 mm (12 by 12 inches).
- 2.06 Rubber-standard size are 225 mm x 225 mm (9" x 9") and 300 mm x 300 mm (12" x 12") or 450 by 330 mm (18" x 13") and 914 mm c 914 mm (36" x 36") sizes. Standard thickness are 3 mm (1/8 inch) and 4.75 mm (3/16") gauge.
- 2.07 Vinyl Tiles - Standard sizes are 225 mm x 225 mm (9"x9"), 300 mm x 300 mm (12" x 12"). Thickness are 1.5 mm (1/16"), 2.4 mm (3/32") and 3 mm (1/8 inch).
- 2.08 Linoleum Paste - sulfite-liquor-based liquids used to install linoleum, rubber tiles, some vinyls, cork tile and lining felt. This is water based which remain forever water soluble; unsuitable for use on concrete slabs on ground or on suspended slabs which are not thoroughly dry, or around spillage.
- 2.09 Asphaltic Adhesive - can be used on concrete both above and below grade and or suspended wood floors with or without lining felt.
- 2.10 Epoxy Adhesive - permit installation of rubber and solid vinyl tiles on concrete in contact with the earth below grade (in absence of hydrostatic pressure).

## PART 3: EXECUTION

### 3.01 Application of Adhesive

- a. The adhesive manufacturer's directions for mixing shall be followed. The surface shall be covered evenly with adhesive.
- b. The area covered by one application of adhesive shall not exceed the maximum working area recommended by the manufacturer. Resilient flooring shall be installed within the time limits recommended by the manufacturer. If adhesive films over or dries, it shall be removed and the area shall be recoated.

### 3.02 Installation of Resilient Flooring

- a. Resilient flooring shall be placed so that fields patterns center on area. No tile shall be less than 1/2 size.
- b. Resilient flooring shall be laid true, level and even with tight, aligned points. Resilient flooring shall be cut to and around all perimeter cabinets and fixtures.
- c. Flooring shall be rolled in accordance with the manufacturer's directions to assure intimate contact and proper adhesion.

DIVISION 09 650: RESILIENT FLOORING

  
FELIPE M. MENDOZA AND PARTNERS

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TECHNICAL SPECIFICATIONS  
DIVISION 09: FINISHES

3.03 Installation of Top-Set Cove Base : Firmly cement base to dry wall. Form internal and external corners and end stop from preformed units. Scribe base accurately to trim and plinths.

3.04 Installation of Flash Cove Base

- a. For concrete and plaster walls not having wood grounds, binding strip corners and end stops shall be insulated with adhesive or as described in paragraph b or c.
- b. In concrete walls, the binding strip shall be nailed to the studs.
- c. On wood-stud walls, the binding strip shall be nailed on the studs.
- d. Cove base fillet strip shall be installed with adhesive at intersection of floor or wall.
- e. Flash cove base shall be fitted to binding strips, stops, and to flooring and installed with adhesive.

SECTION 09 900 PAINTING

PART 1: GENERAL

1.01 Scope

- a. Furnish materials and equipment and perform labor required to complete painting and varnishing work.
- b. See drawings for location, quantity and extent of surfaces to receive paints.

1.02 Delivery of Materials

- a. Deliver at jobsite in original containers with label intact and seals unbroken.
- b. Submit to the Owner the manufacturer's certificate of origin and quality of paints including quantity purchased.

1.03 Qualification of Painting Contractor

- a. Painting Contractor shall be approved by the Owner and the Architect.

1.04 Test Panels

- a. Sample panels of selected color or shade shall be prepared on 30 centimeters x 30 centimeters (1' x 1') plywood panels for approval of the Architect.

1.05 Protection

- a. Provide all drop cloth and other coverings requisite to protection of floors, walls, aluminum, glass finishes and other works.

PART 2: PRODUCTS

2.01 Paint Materials

- a. Conform to requirements of the standard specifications of the Standardization Committee on Supplies and the Institute of Science and Technology, Manila.
- b. Tinting colors and thinning materials must be the same brand as the paint specified.

2.02 Schedule

EXTERIOR

- |                                      |   |  |
|--------------------------------------|---|--|
| a. Exterior concrete painted surface | - | First coat- Clear Penetration Primer         |
| b. Exterior concrete ferrous         | - | Second and Third Coat - as stated in summary |
| c. Exterior metal galvanized         | - | prime with epoxy enamel primer               |
| d. Exterior wood painted             | - | prime with zinc chromate primer              |
| e. Exterior wood varnished           | - | 3 coats oil based paint                      |
|                                      | - | water repellant varnish                      |

DIVISION 09 900: PAINTING

  
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TECHNICAL SPECIFICATIONS  
DIVISION 09: FINISHES

INTERIOR

- a. Interior concrete or masonry painted - 2 coats acrylic based masonry paint
- b. Interior concrete exposed aggregate finish - no paint
- c. Interior metal ferrous - prime with epoxy enamel primer
- d. Interior woodwork sea mist - 3 coats 3 parts thinner, 1 part lacquer paint
- e. Interior woodwork - apply wood filler
- 1st coat: one part sanding sealer to one part solvent
- 2nd coat: 2/3 sanding sealer to 1/3 solvent
- 3rd coat: same as 2nd coat
- 4th coat: pure solvent
- f. Interior woodwork painted - 3 coats oil-based paint

PART 3: EXECUTION

3.01 Preparation of Surfaces

	PREPARATION	TREATMENT	SURFACE CORRECTION
CONCRETE AND MASONRY	Remove all loose dirt, excess mortar or any film left from concrete curing oil, grease, or compound.	Treat with one kilo of zinc sulfate crystals to 4.5 liters of water (1 gal.).	Putty surface with patching compound.
WOOD WORK	Thoroughly sand to remove excessive roughness, loose edges, splinters and splinters then brush.	Knots, snappy streaks and stain from wood preservatives shall be given a thin coat of Shellac.	Fill all cracks, nail holes and other surface defects with patching paste or putty.
METAL WORK	Remove rust, grease or other foreign matter.	Wash with metal treatment solution.	Scrape, wirebrush, sandblast or clean with flame.

3.02 WORKMANSHIP

- a. All paints shall be evenly applied. Coats shall be of proper consistency and well brushed out so as to show a minimum of brush marks.
- b. Thoroughly stir paint to keep pigment evenly in suspension when paint is being applied.
- c. All coats shall be thoroughly dry before the succeeding coat is applied. Allow at least 24 hours between application of coats.
- d. If surfaces are not fully covered or cannot be satisfactorily finished in the number of coats specified, such preparatory coats and subsequent coats as may be required shall be applied to attain the desired evenness of the paint without extra cost to the Owner.
- e. If surface is not in proper condition to receive paint, the Architect shall be notified immediately. Work on the questioned portion shall not be commenced until receipt of order to proceed from the Architect.

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- e. If surface is not in proper condition to receive paint, the Architect shall be notified immediately. Work on the questioned portion shall not be commenced until receipt of order to proceed from the Architect.

*[Handwritten mark]*

- f. Hardware, hardware accessories, plates, lighting fixtures and other similar items shall be removed or otherwise protected during the painting operations and re-installed after completion of work.

3.03 Procedure for Sea-Mist Finish

- a. Depress wood grain by steel brush and sand surface lightly.
- b. Apply sanding sealer.
- c. Apply two coats of industrial lacquer paint.
- d. Spray last coat mixed with lacquer.
- e. Apply pastewood filler thinned with turpentine or paint thinner to wood surface.
- f. Wipe off pastewood filler immediately.
- g. Spray flat or gloss lacquer whichever is specified.

3.04 Procedure for Ducco Finish

- a. Sand surface thoroughly.
- b. Apply primer surfacer white or gray by brush or spray.
- c. Apply lacquer spot putty in thin coat. Allow each coat to become thoroughly dry before applying next coat.
- d. Apply primer surfacer. Allow 2 hours drying time before applying the next coat.
- e. Apply 1-coat of flat tone semi-gloss enamel as per Architect's color scheme.

SECTION 09 951 VINYL/FABRIC WALL COVERING  
PART 1: GENERAL

1.01 Scope

- a. Furnish materials and equipment and perform labor required to complete vinyl/fabric wall covering work.
- b. See drawings and details for location and extent of work required.

1.02 Samples

- a. Submit samples for each color and pattern specified as per Article 10.02 of the UAP General Conditions.

1.03 Inspection

- a. Surfaces to receive wall covering shall meet the minimum requirements established by the manufacturer if the wall covering.
- b. Plaster surfaces shall be dry and sound, free from surface chalk.
- c. Concrete block walls shall be leveled to tolerances
- d. Gypsum board walls and plywood panel walls shall have all nails and screws recessed, with all joints and nails or screw depressions taped and sparkled, sanded and primed with one coat of vinyl sealer.
- e. Painted surfaces shall be in sound conditions and shall not contain water-sensitive materials or pigments that bleed in water or oil.
- f. Surfaces to receive wall coverings shall be examined and work shall not be started until work of other trades that pass through wall covering has been completed.

- 1.04 Tolerances: Wall surfaces shall not vary more than 3 millimeters (1/8 inch) in any 3-meter (10-foot) dimension: neither shall they vary at a rate greater than 1.5 millimeters per 30 centimeters (1/16 inch per running foot).

PART 2: PRODUCTS

- 2.01 Adhesives: Heavy-bodied water soluble paste shall be used as specified by manufacturers of vinyl-coated wall coverings. Adhesives should contain a suitable mildew inhibitor.

2.02 Vinyl-Coated Wall Covering

- a. Type I - Light Duty: Wall coverings having a minimum total weight of 0.24 kilograms/square meter (7 ounces per square yard) and intended for use as a maintenance-free covering for areas subjected to light abrasions or wear, and for ceilings.
- b. Type II - Medium Duty: Wall coverings having a minimum weight of 0.44 kilograms/square meter (13 ounces per square yard) and intended for general use in areas where there is average traffic and scuffing.

TECHNICAL SPECIFICATIONS  
DIVISION 09: FINISHES

- c. Type III - Heavy Duty: Wall coverings having a minimum weight of 0.75 kilograms/square meter (22 ounces per square yard) and intended for use only for walls and/or wainscoting protection in areas exposed to damage by movable equipment or to abusive condition
- d. Class 1 - Regular Finish: Wall covering having a support backing that is 100% chemically treated to prevent mildew.
- e. Class 2 - Mildew Resistant: Wall covering having a support backing chemically treated to prevent mildew.

PART 3: EXECUTION

3.01 Application of Adhesive: Follow the adhesive manufacturer's direction for mixing and applying adhesive.

3.02 Installation of Wall Coverings

- a. Use fabric panels in exact order as they are cut from rolls; use rolls in consecutive order. Apply paste to the fabric back using a roller or paste brush.
- b. Trim deeply textured patterns, or patterns on which strip must be matched on the work table.
- c. Hang smooth, non-match patterns by pasting strips in the wall, overlapping the edges, and "double cutting" through both thicknesses. Use a 1 millimeter (0.40) or 1.5 millimeter (0.60") zinc or aluminum strip between wall and material when cutting, to avoid gouging the wall.
- d. Use stiff-bristle brush or flexible broad knife to eliminate air pockets and to secure the wall covering to the wall surface.
- e. Fill in spaces above and below windows, above doors and similar areas in sequence from the roll, not later than when all full-length pieces have been installed.
- f. Remove excess paste from each seam as it is made before proceeding to next seam. Use sponge dampened with plain water. Wipe seam clean with dry cloth towel.
- g. Examine each seam carefully when completed. Trim additional selvage where required to achieve a color and pattern match at seam.
- h. Remove hardware, accessories, plates and similar items to allow fabric to be installed. Upon completion of each square, replace the above items.
- i. The installed fabric shall be secure, smooth, clean without wrinkles, gaps or overlaps.
- j. Wrap wall covering 15 centimeters (6 inches) beyond inside and outside corners; cutting at corners will not be acceptable; nor will horizontal seams be accepted.
- k. Where applicable, install wall covering before the installation of plumbing, casings, bases, cabinets, etc.
- l. Except on match patterns, hang panels by reversing alternate strips.

DIVISION 09 951: VINYL/FABRIC WALL COVERING

  
FELIPE M. MENDOZA AND PARTNERS

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DIVISION 10 000 SPECIALTIES

PART 1: GENERAL

- 1.01 Division 01 applies to this Division.
- 1.02 Storage
  - a. Store materials to avoid hindering work of other Sections and to avoid damage or soiling of materials.
- 1.03 Shop Drawings
  - a. Submit three copies for items included in this Division in accordance with Division 01. In lieu of shop drawings on small items, a sample may be furnished which, when approved, may also be used in the Project.
- 1.04 Install in accordance with manufacturer's instructions.
- 1.05 General Clarifications
  - a. Check construction progress to make sure that necessary slight adjustments in basic construction shall be made to fit specialties ordered. It shall be the responsibility of suppliers to advise the Contractor of changes in size to make required adjustments without additional cost to the Owner. If suppliers fail to do so, they shall be responsible for having adjustments made at their expense when specialties are installed.
  - b. Furnish anchors and fastenings as required.
- 1.06 Guarantees and Warranties
  - a. Deliver to Owner through Contractor in proper form, guarantee and warranties on specialty items, none of which shall be less than one year.
  - b. Materials, equipment, or installation found to be defective or non-conforming to specification standards shall be replaced or repaired at Supplier's expense or his installers.
- 1.07 Installation:
  - a. Installation shall be complete and under direction of a competent supervisor who, before final acceptance, shall run operation tests with movable parts to the satisfaction of the Architect.

SECTION 10 400: IDENTIFYING DEVICES

PART 1: GENERAL

1.01 SCOPE

- a. Furnish materials and perform labor required to complete directories, letters, and insignia.

1.02 SAMPLE AND SHOP DRAWINGS

- a. Submit samples of letters and shop drawings of directories and insignia for approval by the Architect as per Article 10 and Article 5 of the UAP General Conditions.

1.03 QUALIFICATIONS OF MANUFACTURER

- a. Manufacturer of all works under this section of the specifications shall be approved by the Architect as per Article 10.02 of the UAP General Conditions.

PART 2: PRODUCT

2.01 Materials

- a. Brass and/or plastic and/or stainless steel as shown on drawings.
- b. Wood for mounting base.

PART 3: EXECUTION

3.01 Workmanship

- a. Execute in high quality workmanship comparable with artworks.

SECTION 10 415 BULLETIN BOARDS

PART 1: GENERAL

1.01 Scope

- a. Furnish materials and equipment and perform labor required to complete all bulletin boards.
- b. Refer to drawings.

PART 2: PRODUCTS

2.01 MATERIALS

- a. 12.5 millimeters (1/2") thick plywood backing.
- b. 12.5 millimeters (1/2") thick neltex board tacking.
- c. Black felt facing.
- d. Aluminum or wood frame as shown on drawing.
- e. 6 millimeters (1/4") plate clear sliding glass on standard rollers, tracks and guides.

PART 3: EXECUTION

3.01 Workmanship

- a. All bulletin boards shown on the drawings shall be furnished and installed true to line, plane and levels.



SECTION 10 520 FIRE EXTINGUISHERS AND CABINETS

PART 1: GENERAL

1.01 Scope

a. Includes:

1. Furnish and install wall-mounted fire extinguishers.
2. Furnish and install fire extinguishers and cabinets.

1.02 Correlate work with other trades.

PART 2: PRODUCTS

2.01 Fire Extinguishers

- a. Units shall be of 15 lb. (6.8 kg) dry power ABC stored pressurized type equipped with a pressure gauge. Unit shall not require recharging except after use.
- b. Instructions for repairs, maintenance, and recharging, shall be attached to and a part of fire extinguisher units.
- c. Units shall be tested and approved by Underwriters Laboratory. UL rating shall appear on extinguisher label.

2.02 Fire Extinguisher Cabinets shall be two-piece, semi-recessed type, with shop primed steel tubs, return trim and doors. Doors shall have roller catches with a minimum glass area in upper section.

PART 3: EXECUTION

3.01 Installations shall be neat and secure without visual flaws.

SECTION 10 800 TOILET AND BATH ACCESSORIES

PART 1: GENERAL

1.01 Scope

- a. Furnish materials and perform labor required to complete installation of Toilet and Bath Accessories.
- b. Refer to Drawings for location, sizes, details and extent of work involved.

1.02 Samples

- a. Submit samples of all toilet and bath accessories to be installed for approval by the Architect as per Article 10.02 of the UAP General Conditions.

PART 2: PRODUCTS

2.01 Accessories

- a. Toilet Paper Holder - Porcelain sunk-type similar color as wall tiles. Provide one for each water closet stall.
- b. Sanitary Napkin Receptacle - Stainless steel as per Architect's design. Provide one for every women's toilet room.
- c. Waste Receptacle - Stainless steel as per Architect's design. Provide one for every toilet room.

PART 3: EXECUTION

3.01 Installation of Accessories

- a. Locate accessories as indicated on the drawings.
- b. Where accessories are required to be set in cement grout they shall be thoroughly bedded and allowed to set firmly.
- c. Where accessories are set with screws, provide the necessary grounds, inserts, screws and bolts as required to provide suitable anchorage.
- d. Use brass screws or bolts for securing concealed members and use oval head chromium plated screws and bolts where exposed.
- e. Unless otherwise indicated on the drawings, the approximate height from floor to center of accessories shall be as follows:

Toilet Paper Holder - 710 millimeters to 760 millimeters (28 to 30 inches)

Sanitary Napkin Receptacle - 760 millimeters to 910 millimeters (30 to 36 inches).

DIVISION 11 000 EQUIPMENT

PART 1: GENERAL

- 1.01 Division 01 applies to this Division.
- 1.02 Storage
  - a. Store materials to avoid hindering work of other Sections and to avoid damage or soiling of materials.
- 1.03 Shop Drawings
  - a. Submit three copies for items included in this Division in accordance with Division 01. In lieu of shop drawings on small items, a sample may be furnished which, when approved, may also be used in the Project.
- 1.04 Install in accordance with manufacturer's instructions.
- 1.05 General Clarifications
  - a. Check construction progress to make sure that necessary slight adjustments in basic construction shall be made to fit specialties ordered. It shall be the responsibility of suppliers to advise the Contractor of changes in time to make required adjustments without additional cost to the Owner. If suppliers fail to do so, they shall be responsible for having adjustments made at their expense when specialties are installed.
  - b. Furnish anchors and fastenings as required.
- 1.06 Guarantees and Warranties
  - a. Deliver to Owner through Contractor in proper form, guarantee and warranties on specialty items, none of which shall be less than one year.
  - b. Materials, equipment, or installation found to be defective or non-conforming to the specification standards shall be replaced or repaired at Supplier's expense or his installers.
- 1.07 Installation:
  - a. Installation shall be complete and under direction of a competent supervisor who, before final acceptance, shall run operation tests with movable parts to the satisfaction of the Architect.

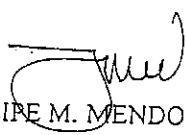
TECHNICAL SPECIFICATIONS  
DIVISION 12: FURNISHINGS

DIVISION 12 000 FURNISHINGS

PART 1: GENRAL

1.01 Division 01 applies to this Division.

DIVISION 12 000: FURNISHINGS

  
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FELIPE M. MENDOZA AND PARTNERS

SECTION 12 100 ARTWORK

PART 1: GENERAL

1.01 Scope

- a. Furnish all Artwork required.

1.02 Qualification of Artwork Supplier

- a. Supplier or artist of all Artwork pieces shall be subject to the Architect's approval.

PART 2: PRODUCTS

2.01 Required Art Pieces

- a. Oil painting on canvas with 12.5 millimeters (1/2-inch) plywood backing.
- b. Brass metal sculpture.

PART 3: EXECUTION

SECTION 12 600 FURNITURE

PART 1: GENERAL

1.01 Scope

- a. Furnish materials and equipment and perform labor required to complete all free standing movable furnishings such as chairs, sofas, desks, cabinets, and others.
- b. Refer to Drawings

1.02 Samples

- a. Submit samples of typical joints, sections, hardware finish and color of furniture for approval by the Architect as per Article 10.02 of the UAP General Conditions

PART 2: PRODUCTS

Acceptable materials are:

- a. Wood - kiln dried Narra or Tanguile
- b. Plywood - Narra: 6 millimeters (1/4 inch), 12.5 millimeters (1/2 inch) or 19 millimeters (3/4 inch) thick.
- c. Upholstery - non-sag - #9 for seat  
- #11 for backrest  
Coil spring; Marcelo Foam Rubber; Urethane; Abaca Waste; Cotton batting; Cotton twine; U-nail; cuttacks; shoe tacks; Piping Cord; Alexander thread; wax; twine; Rugby; Parket rubber cement and Hand Cardboard
- d. Upholstery cover - Naughyde or Fabric as per schedule
- e. Miscellaneous - U.S. made metal sliders, rubber casters, chrome or brass ball casters

PART 3: EXECUTION

3.01 Workmanship

- a. Framing - cut square on bearings, closely fitted, accurately set to require lines and levels and rigidly secured in place.
- b. Millwork and Trim - conform to design and details and finished smooth and free from machine or tool marks that will show through finish.
- c. Joints - shall be tight and formed so as to conceal shrinkage. Shop liters 10 centimeters (4 inches) or more from heel to point and shall be glued and locked.
- d. Varnishing - done in accordance with the best workmanship of the trade.

DIVISION 13 000

PART 1: GENERAL

- 1.01 Special construction, as its name indicates, is unique - and required inspection commensurate with the level of uniqueness and the special demands and characteristics of the materials utilized. In many cases, inspection of special construction is a composite of the components making up the special construction. In other cases, manufacturer's or designer's direction must be carefully followed. Wherever possible, those parties involved in the specification and production of the special construction components should be made a party to their inspection. Often, the contractor or vendor provides a special field erection representative for direction and quality control.

TECHNICAL SPECIFICATIONS  
DIVISION 14: CONVEYING SYSTEMS

DIVISION 14 000 CONVEYING SYSTEMS

PART 1: GENERAL

1.01 Division 01 applies to this Division.

DIVISION 14 000: CONVEYING SYSTEMS

  
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FELIPE M. MENDOZA AND PARTNERS



SECTION 14 200 ELEVATOR

PART 1: GENERAL

1.01 Scope

- a. Furnish materials and equipment and perform labor required to complete all labor work.
- b. See drawings for sizes, details, location and extent of work required.

1.02 Description of Conveyor System

- a. Control - Multi-Voltage Control Equipment. This system is arranged to provide smooth and practically constant acceleration and retardation under all operating conditions. During the acceleration and retardation periods, the voltage applied to the elevator motor is gradually changed by varying the field strength of the generator without interruption of power to the motor.
- b. Motor Generator Set - two-bearing, self-ventilated type. Rotating element will have a single continuous steel shaft. Motor shall operate at moderate speed with high efficiency and low power consumption and shall have sufficient capacity to handle without overheating the peak currents typical of elevator service.
- c. Automatic Starting and Stopping of Motor: Generator Set - started automatically by the registration of a car or landing call and shall continue to run for approximately 12 seconds after the car has answered the last registered call.
- d. Protective Devices - overload relays shall be supplied to protect the driving motor of the motor generator set against overload or phase failure and the generator armature against over-load.
- e. Starter - furnish suitable magnet switches for starting the motor generator set.
- f. Operating Devices:
  1. In the car: Flush type finished metal panel containing a series of push buttons number to correspond to the landings services, as emergency-stop switch, light switch and an emergency call button connected to a bell which serves as an emergency signal.
  2. At the hoistway landing: Provide "UP" or "DOWN" push button at each intermediate landing and a single button at each terminal landing.
- g. Operation: Car shall not be started unless the car door is in the closed position and all hoistway doors are locked in the closed position.

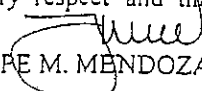
1.03 Permits and Fees

- a. Obtain and pay for all necessary government inspection permit.

1.04 Guarantee

- a. The elevator contractor shall guarantee that the materials and workmanship of the apparatus installed by him under these specifications are new and first class in every respect and that he will

DIVISION 14 200: ELEVATOR

  
FELIPE M. MENDOZA AND PARTNERS

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TECHNICAL SPECIFICATIONS  
DIVISION 14: CONVEYING SYSTEMS

make good any defects, not due to ordinary wear and tear or improper use of cars which may develop within one year from date of completion.

1.05 Submittals

- a. Furnish five sets of drawings free of charge showing the general arrangement of the elevator equipment for approval before work is begun.

PART 2: PRODUCTS

2.01 Car Platform - constructed of structural steel frames covered with 2 layers of wood flooring shall be T & G Pinewood underside of car platform shall be covered with gauge 16 sheet metal.

2.02 Other Accessories provided:

- a. Hoistway entrances (refer to drawing)
- b. Door operator
- c. Geared traction machine
- d. Steel tees guide rails
- e. Slide guides for car and counter weight
- f. Spring buffers for car and counter weight
- g. Rubber sound reducing pads
- h. Rail brackets and fastenings, machine beams, wiring material, counterweight, screen, hoist and governor ropes.
- i. Vinyl tiles and lighting fixtures
- j. Car position indicator
- k. Combination hall position indicator and button
- l. Brake, motor micro self-leveling sheaves and beams
- m. Erection wiring materials
- n. Other necessary accessories and item to complete

PART 3: EXECUTION

3.01 Installation

- a. Install in a first-class workmanship manner in accordance with applicable codes governing the requirements of all installation.
- b. Paint all exposed elevator work after installation.

3.02 Maintenance

- a. Furnish maintenance free of charge on the entire elevator work for a period of 3 months after completion of the work.

SECTION 15 011 MECHANICAL GENERAL REQUIREMENTS

PART 1: GENERAL

1.01 Application: All sections of Division 15, "Mechanical" of this project except as specified otherwise in each individual section.

1.02 Work Included

- a. Supply and Installation of Air-Conditioning Equipment (Regular and Precision units) including piping, fittings, supports, accessories, insulation, controls and other accessories.
- b. Mechanical air ventilation and exhaust system including ductwork, registers, grilles support and all required accessories.
- c. Supply and Installation of starters, relays and other controls components necessary for equipment operations.
- d. Relocation of existing air conditioning equipment and controls including dampers, pipes, ducts, wires, conduits and all required accessories.
- e. Testing, Adjusting and Balancing of air and water systems including instruments, labor and all necessary equipment.
- f. Grouting of openings in floors and walls after all pipes, or ducts are in place and sealing of all openings if not used.
- g. Anything that has been omitted in any item of work or materials usually furnished, which are necessary for the completion of the Mechanical Work as outlined herein before. Such items must be and are hereby included in this Division of Work.

1.03 Submittals:

Submit shop drawings, manufacturer's data and certificates for equipment, materials and finish, and pertinent details for each system where specified in each individual section, and obtain approval before procurement, fabrication, or delivery of the items to the job site. Partial submittals are not acceptable and will be returned without review. Submittals shall include the manufacturer's name, trade name, catalog model or number, nameplate data, size, layout dimensions, capacity, project specification and paragraph reference, applicable industry, and technical society publication reference, years of satisfactory service, and other information necessary to establish contract compliance of each item the Contractor proposes to furnish. Photographs of existing installations and data submitted in lieu of catalog data are not acceptable and will be returned without approval.

- a. Shop Drawings: Drawings shall be a minimum of 215 mm by 280 mm in size, with a minimum scale of 1:100 m., except as specified otherwise. Drawings shall include floor plans, sectional views, wiring diagrams, and installations details of equipment; and equipment spaces identifying and indicating proposed location, layout and arrangement of items of equipment, control panels, accessories, piping, ductwork, and other items that must be shown to assure a coordinated installation. Wiring diagrams shall identify circuit terminals, and indicate the internal wiring for each item of equipment and the interconnection between each item of equipment. Drawings shall indicate adequate clearance for operation, maintenance, and replacement of operating equipment devices. If

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TECHNICAL SPECIFICATIONS  
DIVISION 15A: MECHANICAL

equipment is disapproved, drawings shall be revised to show acceptable equipment and be resubmitted.

- b. Manufacturer's Data: Submittals for each manufactured item shall be manufacturer's descriptive literature of cataloged products, equipment drawings, diagrams, performance and characteristic curves, and catalog cuts.

c. Codes, Permits and Fees:

1. The work under this contract is to be installed according to the latest requirements of the following: *Mechanical - Philippine National Building Code Regulations of Muntinlupa*. Nothing contained in these specifications or shown on the drawings shall be construed as to conflict with National and Local Ordinances or Laws governing the installation of the Mechanical Work, and all such laws and ordinances are hereby made part of these specifications. The Contractor is required to meet the requirements thereof.
2. Codes and standards of the following organizations other than mentioned above are referenced in this Division:
  - American Society for Testing Materials (ASTM)
  - American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE)
  - Air Moving and Conditioning Association, Inc. (AMCA)
  - American Refrigeration Institute (ARI)
  - Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA)
  - National Fire Protection Association (NFPA)
  - American National Standard Institute (ANSI)
  - National Electrical Manufacturer's Association (NEMA)
  - Sheet Metal and Air Conditioning Contractors' National Association, Inc. (SMACNA) Publications
3. All construction permits and fees required for this work shall be obtained by the Contractor. The Contractor shall furnish the Architect, the Engineers and the Owner final certificated of inspections and approval from the proper government authorities after the completion of the work. The Contractor shall prepare all as-built plans and all other paperwork required by the approving authorities.
4. Approval from authorities of all plans for construction shall be secured by the Contractor.

- d. Standards Compliance: -When materials or equipment must conform to the standards such as the American national Standards Institute (ANSI), American Society for Testing and Materials (ASTM), National Electrical Manufacturers Association (NEMA), American Society of Mechanical Engineers (ASME), American Gas Association (AGA), American Refrigeration Institute (ARI), and Underwriters Laboratories (UL), proof of such conformance shall be submitted to the Owners for approval. If an organization uses a label or listing to indicate compliance with a particular standard, the label or listing will be acceptable evidence, unless otherwise specified in the individual sections. In lieu of the label or listing, the Contractor shall submit a certificate from an independent testing organization, which is competent to perform acceptable testing and is approved by the Engineers. The certificate shall state that the item has been tested in accordance with the specified organization's test methods and that the item conforms to the specified organization's standard. For materials and equipment whose compliance with organizational standards or specifications is not regulated by an organization using its own listing or label as proof of compliance, a certificate of compliance from the manufacturer shall be submitted for approval. the certificate shall identify the manufacturer, the product, and the referenced standard and shall simply state that the manufacturer certifies that the product conforms to all requirements of the project specification and of the referenced standards listed.

  
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TECHNICAL SPECIFICATIONS  
DIVISION 15A: MECHANICAL

- 1.04 Operation and Maintenance Manual: Furnish an operation and maintenance manual for each item of equipment. Furnish copies of the manual bound in hardback binders or an approved equivalent. Furnish one complete manual prior to the time that equipment tests are performed, and furnish the remaining manuals before the contract is completed. Inscribe the following identification on the cover: the words *OPERATION AND MAINTENANCE MANUAL*, the name and location of the equipment or the building, the name of the Contractor, and the contract number. The manual shall include the names, addresses, and telephone numbers of each subcontractor installing equipment, and of the local representatives for each item of equipment. The manual shall have a table of contents and be assembled to conform to the table of contents with the tab sheets placed before instructions covering the subject. The instructions shall be legible and easily read, with large sheets of drawings folded in. The manual shall include: wiring and control diagrams with data to explain detailed operation and control of each item of equipment; a control sequence describing start-up, operation and shutdown; description of the function of each principal item of equipment; the procedure for starting; the procedure for operating; shutdown instruction; installation instructions; maintenance instructions; lubrication schedule including type, grade, temperature range, and frequency; safety precautions, diagrams, and illustrations; test procedures; performance data; and parts list. The parts list for equipment shall indicate the sources of supply, recommended spare parts, and the service organization which is reasonable convenient to the project site. The manual shall be complete in all respects for equipment, controls, accessories, and associated appurtenances provided.
- 1.05 Posted Operating Instruction: Furnish approved operating instructions for each system and principal item of equipment for the use of the operation and maintenance personnel. The operating instructions shall include wiring diagrams, control diagrams, and control sequence for each principal item of equipment. Operating instructions shall be printed or engraved, and shall be framed under glass or in approved laminated plastic and posted where directed. Operating instructions

  
FELIPE M. MENDOZA AND PARTNERS

# MECHANICAL Technical Specification

SANDIGANBAYAN BUILDING



## SECTION 15011

### MECHANICAL GENERAL REQUIREMENTS

#### PART 1 - GENERAL

1.1 APPLICATION: All sections of Division 15, "Mechanical" of this project except as specified otherwise in each individual section.

#### 1.2 WORK INCLUDED:

1.2.1 Supply and installation of air handling units, fan coil units and Air cooled Condensing Unit including foundations, supports, refrigerant piping, valves, fittings and all required accessories.

1.2.2 Supply and installation of air distribution system including ducts, dampers, sound attenuators, diffusers, grilles, plenums, insulation, supports and all required accessories.

1.2.3 Supply and installation of exhaust system including, fans, filters, ducts, supports and all required accessories.

1.2.4 Supply and installation of Control System including controllers, sensors, actuators, starter relay, wires, conduits and components necessary for equipment operations.

1.2.5 Testing, Adjusting and Balancing of the mechanical system including instruments, labor and all necessary equipment.

1.2.6 Grouting of openings in floors and walls after all pipes, or ducts are in place and sealing of all such openings if not used.

1.2.7 Anything that has been omitted in any item of work or materials usually furnished, which are necessary for the completion of the Mechanical Work as outlined herein before. Such items must be and are hereby included in this Division of Work.

1.3 SUBMITTALS: Submit shop drawings, manufacturers' data and certificates for equipment, materials and finish, and pertinent details for each system where specified in each individual section, and obtain approval before procurement, fabrication, or delivery of the items to the job site. Partial submittals are not acceptable and will be returned without review. Submittals shall include the manufacturer's name, trade name, catalog model or number, nameplate data, size, layout dimensions, capacity, project specification and paragraph reference, applicable industry, and technical society publication references, years of satisfactory service, and other information necessary to establish contract compliance of each item the Contractor proposes to furnish. Photographs of existing installations and

data submitted in lieu of catalog data are not acceptable and will be returned without approval.

1.3.1 Shop Drawings: Drawings shall be a minimum of 215 mm by 280 mm in size, with a minimum scale of 1:100 m, except as specified otherwise. Drawings shall include floor plans, sectional views, wiring diagrams, and installation details of equipment; and equipment spaces identifying and indicating proposed location, layout and arrangement of items of equipment, control panels, accessories, piping, ductwork, and other items that must be shown to assure a coordinated installation. Wiring diagrams shall identify circuit terminals, and indicate the internal wiring for each item of equipment and the interconnection between each item of equipment. Drawings shall indicate adequate clearance for operation, maintenance, and replacement of operating equipment devices. If equipment is disapproved, drawings shall be revised to show acceptable equipment and be resubmitted.

1.3.2 Manufacturer's Data: Submittals for each manufactured item shall be manufacturer's descriptive literature of cataloged products, equipment drawings, diagrams, performance and characteristic curves, and catalog cuts.

1.3.3 Codes, Permits and Fees:

1.3.3.1 The work under this contract is to be installed according to the latest requirements of the following:

Mechanical - Philippine National Building Code  
Regulations of the Quezon City

Nothing contained in these specifications or shown on the drawings shall be construed as to conflict with National and Local Ordinances or Laws governing the installation of the Mechanical Work, and all such laws and ordinances are hereby made part of these specifications. The Contractor is required to meet the requirements thereof.

1.3.3.2 Codes and standards of the following organizations other than mentioned above are referenced in this Division:

1.3.3.2.1 American Society for Testing Materials (ASTM)

1.3.3.2.2 American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE).

1.3.3.2.3 Air Moving and Conditioning Association, Inc. (AMCA).

1.3.3.2.4 American Refrigeration Institute (ARI).

1.3.3.2.5 Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA).



1.3.3.2.6 National Fire Protection Association (NFPA).

1.3.3.2.7 American National Standard Institute (ANSI)

1.3.3.2.8 National Electrical Manufacturer's Association (NEMA)

1.3.3.2.9 Sheet Metal and Air Conditioning Contractors' National Association, Inc. (SMACNA) Publications

1.3.3.3 All construction permits and fees required for this work shall be obtained by the Contractor. The Contractor shall furnish the Architect, the Engineers and the Owner final certificates of inspection and approval from the proper government authorities after the completion of the work. The Contractor shall prepare all as-built plans and all other paperwork required by the approving authorities.

1.3.3.4 Approval from authorities of all plans for construction shall be secured by the Contractor.

1.3.4 Standards Compliance: When materials or equipment must conform to the standards of organizations such as the American National Standards Institute (ANSI), American Society for Testing and Materials (ASTM), National Electrical Manufacturers Association (NEMA), American Society of Mechanical Engineers (ASME), American Gas Association (AGA), American Refrigeration Institute (ARI), and Underwriters' Laboratories (UL), proof of such conformance shall be submitted to the Owners for approval. If an organization uses a label or listing to indicate compliance with a particular standard, the label or listing will be acceptable evidence, unless otherwise specified in the individual sections. In lieu of the label or listing, the Contractor shall submit a certificate from an independent testing organization, which is competent to perform acceptable testing and is approved by the Engineers. The certificate shall state that the item has been tested in accordance with the specified organization's test methods and that the item conforms to the specified organization's standard. For materials and equipment whose compliance with organizational standards or specifications is not regulated by an organization using its own listing or label as proof of compliance, a certificate of compliance from the manufacturer shall be submitted for approval. The certificate shall identify the manufacturer, the product, and the referenced standard and shall simply state that the manufacturer certifies that the product conforms to all requirements of the project specification and of the referenced standards listed.

1.4 OPERATION AND MAINTENANCE MANUAL: Furnish an operation and maintenance manual for each item of equipment. Furnish copies of the manual bound in hardback binders or an approved equivalent. Furnish one complete manual prior to the time that equipment tests are performed, and furnish the remaining manuals before the contract is completed. Inscribe the following

identification on the cover: the words OPERATION AND MAINTENANCE MANUAL, the name and location of the equipment or the building, the name of the Contractor, and the contract number. The manual shall include the names, addresses, and telephone numbers of each subcontractor installing equipment, and of the local representatives for each item of equipment. The manual shall have a table of contents and be assembled to conform to the table of contents with the tab sheets placed before instructions covering the subject. The instructions shall be legible and easily read, with large sheets of drawings folded in. The manual shall include: wiring and control diagrams with data to explain detailed operation and control of each item of equipment; a control sequence describing start-up, operation and shutdown; description of the function of each principal item of equipment; the procedure for starting; the procedure for operating; shutdown instructions; installation instructions; maintenance instructions; lubrication schedule including type, grade, temperature range, and frequency; safety precautions, diagrams, and illustrations; test procedures; performance data; and parts list. The parts lists for equipment shall indicate the sources of supply, recommended spare parts, and the service organization which is reasonably convenient to the project site. The manual shall be complete in all respects for equipment, controls, accessories, and associated appurtenances provided.

1.5 POSTED OPERATING INSTRUCTIONS: Furnish approved operating instructions for each system and principal item of equipment for the use of the operation and maintenance personnel. The operating instructions shall include wiring diagrams, control diagrams, and control sequence for each principal item of equipment. Operating instructions shall be printed or engraved, and shall be framed under glass or in approved laminated plastic and posted where directed. Operating instructions shall be attached to or posted adjacent to each principal item of equipment and include directions for start up, proper adjustment, operating, lubrication, shutdown, safety precautions, procedure in the event of equipment failure, and other areas as recommended by the manufacturer of each item of equipment. Operating instructions exposed to the weather shall be made of weatherproof materials or shall be suitably enclosed to be weather protected. Operating instructions shall not fade when exposed to sunlight and shall be secured to prevent easy removal or peeling.

1.6 INSTRUCTION TO OPERATING PERSONNEL: When specified in other sections, the Contractor shall furnish the services of competent instructors who will give full instruction to the designated personnel in the adjustment, operation, and maintenance, including pertinent safety requirements, of the equipment or system specified. Each instructor shall be thoroughly familiar with all parts of the installation and shall be trained in operating theory as well as practical operation and maintenance work. Instruction shall be given during the first regular work week after the equipment or system has been accepted and turned over to the Government for regular operation. The number of man-days (8 hours) of instruction furnished shall be as

specified in other sections. When more than 4 man-days of instruction are specified, approximately half of the time shall be used for classroom instruction. All other time shall be used for instruction with the equipment or system. When significant changes or modifications in the equipment or system are made under the terms of the contract, additional instruction shall be provided to acquaint the operating personnel with the changes or modifications.

1.7 DELIVERY AND STORAGE: Equipment and materials shall be handled, stored, and protected to prevent damage before and during installation, in accordance with the manufacturer's recommendations and as approved. Damaged or defective items shall be replaced.

1.8 STANDARD PRODUCTS/SERVICE AVAILABILITY:

1.8.1 Materials and Equipment: Materials and equipment shall be standard products of a manufacturer regularly engaged in the manufacture of such products, which are of a similar material, design and workmanship. The standard products shall have been in satisfactory commercial or industrial use for two years prior to bid opening. The two year use shall include applications of equipment and materials under similar circumstances and of similar size.

1.8.2 Experience Required: The two years' experience must be satisfactorily completed by a product which has been sold or is offered for sale on the commercial market through advertisements, manufacturers' catalogs, or brochures.

1.8.3 Alternative Service Record: Products having less than a two-year field service record will be acceptable if a certified record of satisfactory field operation for not less than 6000 hours, exclusive of the manufacturer's factory or laboratory tests, can be shown.

1.8.4 Service Support: The equipment items shall be supported by service organizations. The Contractor shall submit a list of qualified permanent service organizations for support of the equipment which includes their addresses and qualifications. These service organizations shall be reasonably convenient to the equipment installation and able to render satisfactory service to the equipment on a regular and emergency basis during the warranty period of the contract.

1.8.5 Manufacturer's Nameplate: Each item of equipment shall have a nameplate bearing the manufacturer's name, address, model number, and serial number securely affixed in a conspicuous place; the nameplate of the distributing agent will not be acceptable.

1.9 SAFETY REQUIREMENTS: Belts, pulleys, chains, gears, couplings, projecting setscrews, keys, and other rotating parts located so that any person can come in close proximity thereto

shall be fully enclosed or properly guarded. High-temperature equipment and piping so located as to endanger personnel or create a fire hazard shall be properly guarded or covered with insulation of a type as specified herein. Items such as catwalks, ladders, and guardrails shall be provided where required for safe operation and maintenance of equipment.

1.10 MANUFACTURER'S RECOMMENDATIONS: Where installation procedures or any part thereof are required to be in accordance with the recommendations of the manufacturer of the material being installed, printed copies of these recommendations shall be furnished prior to installation. Installation of the item will not be allowed to proceed until the recommendations are received. Failure to furnish these recommendations can be cause for rejection of the material.

1.11 ELECTRICAL REQUIREMENTS: Electrical components of mechanical equipment and systems such as motors, starters, and Start/Stop button controls and pilot shall be provided under this Division and shall be as specified herein and as necessary for complete and operable systems. Extended voltage range motors will not be permitted. Interconnecting wiring for components of packaged equipment shall be provided as an integral part of the equipment. All interconnecting power wiring and conduit for field erected equipment and all control wiring rated at 100 volts or higher and conduit shall be as specified in Division 16. Control wiring rated under 100 volts and conduit shall be as specified in Division 15. Motor control equipment forming part of motor control centers or switchgear assemblies and all necessary conduit and wiring connecting such assemblies, centers, or other power sources to mechanical equipment shall conform to Division 16.

\*\*\* END OF SECTION \*\*\*

## SECTION 15840

### DUCTWORK AND ACCESSORIES

#### PART 1 - GENERAL

1.1 APPLICABLE PUBLICATIONS: The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

##### 1.1.1 Air-Conditioning and Refrigeration Institute (ARI) Publications:

410-81 Forced-Circulation Air-Cooling and Air-Heating Coils

610-74 Standard for Central System Humidifiers

##### 1.1.2 Air Diffusion Council (ADC) Publications:

1062 R4 Equipment Test Code

AD-63 Measurement of Room-to-Room Sound Transmission Through Plenum Air Systems

##### 1.1.3 American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Publications:

52-76 Methods of Testing Air Cleaning Devices Used in General Ventilation for Removing Particulate Matter

##### 1.1.4 American Society for Testing and Materials (ASTM) Publications:

A 123-78 Zinc (Hot-Galvanized) Coatings on Products Fabricated From Rolled, Pressed, and Forged Steel Shapes, Plates, Bars, and Strip

A 167-81 Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip

A 386-78 Zinc-Coating (Hot-Dip) on Assembled Steel Products

A 527-80 Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Lock-Forming Quality

B 117-73 Method of Salt Spray (Fog) Testing  
(R 1979)

C 553-70 Mineral Fiber Blanket and Felt Insulation  
(R 1977) (Industrial Type)

D 1654-79a Standard Evaluation of Painted or Coated  
Specimens Subjected to Corrosive  
Environments

#96-80 Water Vapor Transmission of Materials

1.1.5 National Fire Protection Association (NFPA) Publication:

90A-78 Installation of Air Conditioning and  
Ventilating Systems

1.1.6 Sheet Metal and Air-Conditioning Contractors' National  
Association (SMACNA) Publications:

(1975) High Pressure Duct Construction Standards  
(HPDCS)

(1976) Low Pressure Duct Construction Standards  
(LPDCS)

(1967) Manual for the Balancing and Adjustment  
of Air Distribution Systems

1.1.7 Underwriters' Laboratories, Inc. (UL) Publications:

181-81 Factory-Made Air Duct Materials and Duct  
Connectors

555-79 Fire Dampers and Ceiling Dampers

586-77 Test Performance of High Efficiency,  
Particulate, Air-Filter Units

900-77 Test Performance of Air Filter Units

1096-81 Electric Central Air-Heating Equipment

1.2 GENERAL REQUIREMENTS: Section 15011, "General  
Requirements, Mechanical," with the additions and modifications  
specified herein, applies.

1.2.1 SUBMITTALS

1.2.1.1 Manufacturer's Data:

- a. Dampers
- b. Insulation and Vapor Barrier
- c. Louvers
- d. Diffuser, Registers and Grilles

1.2.2 SMACNA Duct Construction Manuals: The SMACNA

recommendations shall be considered as mandatory requirements. Substitute the word "shall" for the word "should" in these manuals.

1.2.3 Pressure-Velocity Classification: Production areas shall be classified as low pressure duct class.

## PART 2 - PRODUCTS

### 2.1 SHEET METAL MATERIALS:

2.1.1 Galvanized Steel Sheets: ASTM A 527; weight of galvanized coating shall be not less than 1-1/4 ounces total for both sides of one sq. ft. of a sheet.

2.1.2 Galvanized Steel Hot Dipped After Fabrication: ASTM A 123.

2.2. LOW PRESSURE DUCT CONSTRUCTION: Duct construction, and reinforcements shall conform with the SMACNA LPDCS and NFPA 90A. Ducts shall not pulsate or vibrate when in operation. Air leakage shall be less than one percent of the system capacity. Limits where pressure classification for rectangular ducts systems change shall be as indicated. Curved elbows shall have a centerline radius not less than 1-1/2 times the width of ducts. Sheet metal gages shall be as follows:

Thickness (mm)	Longest side dimension (mm.)
0.6	Less than 750
0.8	775 to 1200
1.0	1225 to 1800
1.2	Greater than 1800

2.2.1 Joints: Construct joints to meet the requirements of the leakage test herein specified.

2.2.2 Fittings: Square elbows, round elbows, fittings, branch take-offs, transitions, splitters, duct volume dampers, fire dampers, flexible connections, and access doors shall conform with the SMACNA LPDCS. Test holes shall be factory fabricated, airtight, and noncorrosive with screw cap and gasket.

2.2.3 Rectangular Ducts: Joints between sections of duct and between ducts and fittings shall be as required by SMACNA LPDCS.

### 2.3 CASINGS AND PLENUMS:

2.3.1 Field-Fabricated Components: Unless otherwise indicated, metal thickness, reinforcements, joint sealing, and fabrication and erection of equipment casings and plenums shall conform with SMACNA HPDCS and LPDCS.

2.3.2 Factory-Fabricated Components: Factory-fabricated and insulated sheet metal may be used if conforming to paragraph

"Field-Fabricated Components." The panels shall be of modular design pretested for structural strength, thermal control, condensation control, and acoustical control. The panel joints shall be sealed and access doors shall be gasketed to prevent air leakage. Insulate access doors. Fasteners shall be corrosion resistant.

## 2.4 DIFFUSERS, REGISTERS, AND GRILLES:

2.4.1 Material and Finishes: Construct diffusers, registers, and grilles of steel or aluminum. Exterior and exposed edges shall be rolled, or otherwise stiffened and rounded. Steel parts shall be factory zinc-phosphate treated prior to priming and painting and or have a baked-on enamel finish. Colors shall be selected or approved by the Architect and Engineers.

2.4.2 Sound Pressure Level: The inlets and outlets shall be sound rated and certified in accordance with ADC 1062 R4, in dB of noise criterion (NC) based on sound power level minus 10 dB (10 Exp. minus 12 watts ref.) in each octave band. Conform with the following permissible room sound pressure levels:

NC Range, dB	Typical Application
25-30	Conference Rooms
30-35	All other areas

2.4.3 Throw: Defined as distance from the diffuser, register, or grille to the point which the air velocity falls below 100 feet per minute. Throw shall not exceed 1.5 times the outlet mounting height.

2.4.4 Drop: Maximum drop of air stream shall not be so great that it is within 6 feet of the floor at the end of the throw.

2.4.5 Ceiling Diffusers: Equip with baffles or other devices required to provide proper air distribution pattern as indicated. Provide factory-fabricated, single key, volume dampers. Except Linear air diffusers internal parts shall be removable through the diffuser-neck for access to the duct and without the use of special tools.

2.4.5.1 Circular, Square, and Rectangular Diffusers: Each ceiling diffuser shall consist of four or more concentric circular elements designed to deliver air radially in a generally horizontal direction without excess smudging of the ceiling. The interior elements of square and rectangular ceiling diffusers may be circular, square, or rectangular as manufacturer's standard.

2.4.6 Registers: Supply registers shall be double-deflection type. Provide volume dampers furnished by the manufacturer. Volume dampers shall be of the group-operated, opposed-blade type and key adjustable by inserting key through face of register. Operating mechanism shall not project through any part of the



register face. Provide exhaust and return registers as specified for supply registers, except that they shall have a single set of nondirectional face bars or vanes having the same appearance as the supply registers.

2.4.7 Grilles: Construct and finish as specified above for registers, except that volume dampers shall be omitted.

## 2.5 DUCT SLEEVES AND PREPARED OPENINGS:

2.5.1 Duct Sleeves and Closure Collars: Fabricate from 20 gage galvanized steel. Where sleeves are installed in bearing walls or partitions, use black steel pipe, standard weight, instead.

2.5.2 Prepared Openings: Provide one-inch clearance between the duct and the sleeve.

2.6 DEFLECTORS: Factory-fabricated and factory-or-field-assembled units consisting of curved turning vanes for uniform air distribution and change of direction with minimum turbulence and pressure loss. Provide curved vanes for square elbows.

2.7 ACCESS DOORS: Door frame shall be welded in place. Door shall be rigid and airtight with neoprene gaskets and two or more galvanized steel hinges and tension fasteners. Provide doors as large as practical. Mount doors, if possible, so that air pressure holds them closed.

2.8 DAMPERS AND LOUVERS: Shall be 2-gage heavier than ducts in which installed. Dampers shall be opposed-blade type. The construction shall be of aluminum or galvanized steel with interlocking edges and maximum 10-inch blade width. Conform with SMACNA HPDCS.

2.9.1 Splitter Manual Volume Dampers: Balancing, factory-fabricated type. Equip dampers with accessible mechanism such as quadrant operators or 3/16-inch rods brought through the side of ducts with locking setscrew and bushing. Where operators occur in finished portions of the building, operators shall be chrome-plated with all exposed edges rounded.

2.9.2 Fire Dampers: Provide on all penetrations of machine room walls and floors.

2.9.3 Louvers: Fixed type. Fold or bead the edges of louver blades to exclude driving rain. Louver frames shall be made of 161 aluminum. Provide bird (insect) screen constructed of the same type metal as the louvers.

2.9.4 Bird Screens: 1/2-inch by 1/2-inch mesh, 0.063-inch diameter aluminum wire or 0.013-inch diameter stainless steel wire. Insect screen frames shall be grooved type with vinyl or neoprene spline insert for securing screen cloth.

2.10 DUCT INSULATION: Fiberglass, ASTM C 553, Type I (flexible resilient), Class B-5 (up to 204 degrees C), 48 kg. cu. m. nominal, with double reinforced aluminum foil vapor barrier, to be used on concealed ducts.

2.10.1 Rigid Fiberglass: ASTM C 612; block and board type; Class 2 (up to 204 degrees C); 80 kcm cu. m. with aluminum foil vapor barrier for exposed ducts.

2.10.2 Fire Resistance: Insulation, adhesives, vapor-barrier materials, and other accessories, except as specified herein, shall be noncombustible. The materials shall not have a flame-spread rating more than 25 and a smoke-developed rating not more than 50 in accordance with NFPA 255, ASTM E 84, or UL 723.

2.10.3 Insulation Thickness: Use 50 mm thick for production area and dry storage. For other areas, use 25 mm thick rigid or flexible blanket insulation on ducts, plenums, and casings with operating temperatures 90 degrees C or less.

2.10.4 CANVAS INSULATION JACKETS: Provide Canvass Jackets on exposed insulated ducts and paint with the same color as the ceiling.

2.10.5 ADHESIVES, SEALANTS, AND COMPOUNDS: Shall be compatible with materials to which applied and suitable for the service. They shall comply with requirements for fire resistance.

#### 2.10.6 ACCESSORIES:

2.10.6.1 Insulation Bands: 20 mm wide plastic straps.

2.10.6.2 Anchor Pins: Provide anchor pins and speed washers recommended by the insulation manufacturer.

2.10.6.3 Aluminum-Foil-Backed Pressure-Sensitive Adhesive Tape: 75 mm minimum width and limited to use on insulation with aluminum foil facing.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION:

3.1.1 General: Installation shall conform with NFPA 90A and SMACNA LPDCS. Provide mounting and supporting of ductwork and accessories including, but not limited to, structural supports, hangers, vibration isolators, stands, clamps and brackets, access doors, and dampers. Use electrical isolation between dissimilar metals. Install ductwork accessories as indicated in accordance with the manufacturer's printed instruction. Allow clearance for inspection, repair, replacement, and service.

3.1.2 Ductwork: Install airtight. When air distribution systems are operated, there shall be no chatter, vibration, or dust marks.

3.1.2.1 Field Changes to Ductwork: Those required to suit the sizes of factory-fabricated equipment actually furnished, shall be designed to minimize expansion and contraction. Use gradual transitions in field changes as well as modifications to connecting ducts.

3.1.2.2 Dampers: When installed on ducts to be thermally insulated, equip each damper-operator with stand-off mounting brackets, bases, or adapters to provide clearance between the duct and operator not less than the thickness of insulation. Stand-off mounting items shall be integral with the operator or standard accessory of damper manufacturer.

3.1.2.3 Deflectors: Provide in square elbows, duct-mounted supply outlets, take-off or extension collars to supply outlets, and tap-in branch-off connections. Adjust supply outlets to provide air volume and distribution as indicated or specified.

3.1.2.4 Fire Dampers: Install for ducts penetrating machine room walls, walls and where ducts systems serve two or more floors in accordance with UL 555.

3.1.2.5 Access Doors: Provide for automatic dampers, volume dampers, fire dampers, coils, thermostats, temperature controllers, valves, filters, and other concealed apparatus requiring service and inspection in the duct systems.

3.1.2.6 Duct Sleeves and Prepared Openings: Install for duct mains, duct branches, and ducts passing through roofs and ceilings. The Contractor shall be responsible for the proper size and location of sleeves and prepared openings.

3.1.2.6.1 Duct Sleeves: Allow one-inch clearance between duct and sleeve or one-inch clearance between insulation and sleeve for insulated ducts, except at grilles, registers, and diffusers.

3.1.2.6.2 Prepared Openings: Allow one-inch clearance between duct and opening or one-inch clearance between insulation and opening for insulated ducts, except at grilles, registers, and diffusers.

3.1.2.6.3 Closure Collars: Provide of not less than 4 inches wide on each side of walls or floors where sleeves or prepared openings are installed. Fit collars snugly around ducts and insulation. Ground smooth edges of collar to preclude tearing or puncturing insulation covering or vapor barrier. Use nails with maximum 6-inch centers on collars.

3.1.2.6.4 Packing: Pack with Fed. Spec. HH-I-1030 mineral fiber in spaces between sleeve or opening and duct or duct insulation.

3.1.3 Duct Supports: Unless otherwise indicated, provide not less than two one-inch by 1/16-inch galvanized strap-iron hangers

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spaced one on each side of duct. Anchor risers in the center of the vertical run to allow ends of riser free vertical movements. Attach supports only to structural framing members and concrete slabs. Do not anchor supports to metal decking unless a means is provided and approved for preventing the anchors from puncturing the metal decking. Where supports are required between structural framing member, provide suitable intermediate metal framing.

3.1.3.1 Flexible Collars and Connections: Provide flexible collars between fans and ducts or casings and where ducts are of dissimilar metals, as indicated or required. For round ducts, securely fasten flexible connections by zinc-coated steel clinch-type draw-bands. For rectangular ducts, lock flexible connections to metal collars.

3.1.4 Inspection Plates and Test Holes: Provide where required in ductwork or casings for all balance measurements. Test holes shall be factory fabricated, airtight, and noncorrosive with screw cap and gasket. Extend cap through insulation.

3.1.5 Acoustical Duct Lining: Apply the lining in cut-to-size pieces attached to interior of ducts with fire-resistant adhesive. Top and bottom pieces shall lap the side pieces. Secure pieces together with welded pins or clips. Do not distort the ducts or burn through or mar the finish surface of ducts. Pins and washers shall be flush with the surface of duct liners. Seal breaks and punctures of duct liner coating with fire-resistant adhesive. Exposed edges of the liner at duct-ends and other joints where lining will be subject to erosion shall be coated with a heavy brush coat of fire-resistant adhesive. To prevent delamination of glass fibers. Duct liners may also be applied to flat-sheet-metal with fire-resistant adhesive. At top and bottom surface of ducts; duct liners shall be then secured by welded pins or adhered clips.

3.1.6 Flashings: Provide waterproof flashings where ducts pass through exterior walls and roofs.

3.1.7 Cleaning of Ducts: Remove all debris and dirt from ducts and wipe clean. Before installing air outlets, use air handler to blow dry air through entire system at maximum attainable velocity. Provide temporary air filters for this operation.

3.2 FIELD TESTS AND INSPECTIONS: The Contractor is responsible for the administration and direction of tests. Furnish instruments, equipment, connecting devices, and personnel for the tests. Notify Engineers days before inspection or testing is scheduled.

3.2.1 Low Pressure Ductwork Tests: Test ducts, plenums, and casings for air leakage. Prior to application of insulation, subject new ductwork to static pressure equivalent to that

indicated or implied in drawings. Before installing supply outlets, apply temporary caps where outlets will be connected. Connect a test blower temporarily to inlet end of duct and, by throttling its intake, adjust static pressure in duct to required value. Read voltage and current to blower motor and total static pressure across blower wheel. Apply these data to AMCA-certified performance table for the test blower to derive volumetric flow rate (CFM) of air injected into duct. This amount shall not exceed 5 percent of total air that duct is required to deliver. Remove temporary caps and test blower.

### 3.2.3 Performance Testing and Balancing:

3.2.3.1 Balancing and Testing of Air Systems: To achieve and confirm compliance with drawings and specifications. Prepare complete report of final test results and submit in quadruplicate. In all of the above, comply with SMACNA Manual for the "Balancing and Adjustment of Air Distribution Systems."

3.2.3.2 Sound Level Tests: Upon completion of testing and balancing of air systems, conduct sound level tests of conditioned spaces. Use approved calibrated sound level meter and record sound levels in dBA with air systems off, with heating system only operating, and with cooling system only operating. Record the following data for each room and system in quadruplicate:

- a. Background sound level (systems off).
- b. Total sound level with one system operating.
- c. Total sound level corrected for background.
- d. Sound power rating by manufacturer of the respective outlet.

3.2.3.2.1 Test Locations: Take sound level reading at location 6 feet from face of each outlet on a line at 45 degrees with face of outlet.

3.2.3.2.2 Remedial Action: If sound level at any observation point exceeds 50 dBA, the Contractor shall take remedial action as directed.

### 3.3 INSULATION

3.3.1 Preparation: Do not apply insulation until surfaces to be covered have been leak tested, have had rust and scale removed, and have been cleaned, dried, and inspected.

3.3.2 Application: Insulation shall be clean and dry when installed and kept dry during finish application. Wetted insulation will not be approved for installation. Install materials neatly with smooth and even surfaces with jackets drawn tight and smoothly cemented down on longitudinal and end laps. Scrap pieces shall not be used where a full-length section will fit. All surface finishes shall be extended to protect all surfaces, ends, and raw edges of insulation. Coatings and adhesives shall be applied at the manufacturer's recommended

coverage per gallon.

3.3.2.1 Name Plates and Access Plates: Do not insulate name plates or ASME labels. Bevel insulation around name plates and ASME stamps.

3.3.2.2 Ducts, Plenums, and Casings: Insulate ventilating, and air conditioning, supply and return, from the outside air intake to the room outlets. Insulate flexible runouts, plenums, casings, and air handlers. Install rigid insulation on exposed ducts in inside and outside locations. Where indicated, provide rigid insulation lining inside ducts. Use flexible blanket insulation on concealed interior ducts and on exposed round or oval ducts. Insulation shall be continuous through walls and floors except at fire dampers.

3.3.2.3 Access Plates and Doors: On internally insulated ducts, plenums, and casings, continue insulation on access plates and doors. On externally insulated ducts, plenums, and casings, provide insulation-filled hollow steel panels and doors for access openings larger than 1 m, where high operating temperatures present a hazard to personnel, or where moisture condensation on low temperature systems is a problem. Bevel insulation around access plates and doors.

3.3.2.4 Rigid Insulation: Secure rigid insulation by impaling over pins or anchors located not more than 75 mm from edge of boards and spaced not more than 450 mm centers and secured with washers and clips. Spot-weld anchor pins or attach with a waterproof adhesive especially designed for use on metal surfaces. Apply insulation with joints tightly butted. Where vapor barrier is specified, all joints, breaks, punctures, and voids shall be filled with vapor barrier coating compound and covered with vapor seal material identical to that surrounding. Neatly bevel insulation around name plates and access plates and doors. Each pin or anchor shall be capable of supporting a 10 kilogram force load. Protruding ends of clips shall be cut off flush after clips are secured and sealed with aluminum backed pressure sensitive tape and coated with silicone adhesive.

3.3.2.5 Flexible Blanket Insulation: Apply tightly and smoothly to duct. Seal joints of insulation with 100 mm wide waterproof bonding adhesive tape. In addition to adhesive tape, secure flexible insulation on the bottom of rectangular, horizontal, and sloping ducts with wire or outward clinch staples.

3.3.4.1 Equipment Insulation: Apply equipment insulation to fit as closely as possible to equipment. Insulation shall be grooved or scored where necessary to fit the contours of equipment. Stagger end joints where possible. Bevel the edges of the insulation for cylindrical surfaces to provide tight joints. Join sections of cellular glass insulation with bedding compound. After the insulation is in place on areas to be insulated, except where metal-encased, fill joints, seams,

chipped edges, or depressions with bedding compound to form a smooth surface. Bevel insulation around name plates, ASME Stamp, and access plates. Insulation on equipment that must be opened periodically for inspection, cleaning, and repair shall be constructed so insulation can be removed and replaced without damage.

3.3.4.2 Ducts, Plenums, Casings, and Equipment: Duct insulation and finishes shall be continuous through walls and floors except at fire dampers.

3.3.4.3 Exposed in Indoor Locations: Provide insulation with factory-applied jacket with integral vapor-barrier, as required by the service. Where use of factory-applied jacket would result in wrinkles or fishmouths, apply the following finishes. Where vapor barrier is required, apply two coats of Mil. Spec. MIL-C-19565, Type II, vapor-barrier coating with glass cloth or tape embedded between coats. Overlap glass cloth or tape 2 inches at joints. Where regular and irregular shapes occur, use factory-applied jackets and other finishes specified above in combinations.

\*\*\* END OF SECTION \*\*\*

## SECTION 15653

### UNITARY AIR CONDITIONING SYSTEMS

#### PART 1 -- GENERAL

1.1 APPLICABLE PUBLICATIONS: The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

1.1.1 Air Conditioning and Refrigeration Institute (ARI)  
Publications:

Z10-81	Unitary Air Conditioning Equipment
Z60-75	Application, Installation and Servicing of Unitary Systems
310-82	Packaged Terminal Air Conditioners
360-81	Commercial and Industrial Unitary Air Conditioning Equipment

1.1.2 American National Standards Institute (ANSI)  
Publications:

B16.22-80	Wrought Copper and Bronze Solder-Joint Pressure Fittings
B31.5-83	Refrigerant Piping

1.1.3 American Society of Heating, Refrigerating, and Air Conditioning Engineers, (ASHRAE) Inc. Publications:

1980	Systems, Handbook and Product Directory
No. 15-78	Safety Code for Mechanical Refrigeration

1.1.4 American Society of Mechanical Engineers (ASME)  
Publication:

1983	Boiler and Pressure Vessels Code Section VIII-Vessels, Division 1 - 1983, with Addenda
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1.1.5 American Society for Testing and Materials (ASTM)  
Publications:



B 88-83	Seamless Copper Water Tube
B 209-83	Aluminum and Aluminum-Alloy Sheet and Plate
B 280-83	Seamless Copper Tube for Air Conditioning and Refrigeration Field Service
C 534-82	Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tabular Form
E 84-81a	Test for Surface Burning Characteristics of Building Materials

1.1.6 American Welding Society (AWS) Publication:

A5.8-81	Brazing Filler Material
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1.1.7 Manufacturers Standardization Society (MSS) of the Valve and Fittings Industry Publications:

SP-58-83	Pipe Hangers and Supports - Materials and Design
SP-69-83	Pipe Hangers and Supports - Selection and Application

1.1.8 National Electrical Manufacturers Association (NEMA) Publications:

MG-1-78 (R 82)	Motors and Generators
MG-1-78 (R 83)	Industrial Control and Systems
ICS 2-78 (R 83)	Industrial Controls Devices, Controllers and Assemblies
ICS 6-78 (R 83)	Enclosures For Industrial Controls and Systems

1.1.9 Underwriters Laboratories (UL) Publications:

109-78	Tube Fittings for Flammable and Combustible Fluids, Refrigeration Service and Marine Use
873-79	Temperature Indicating and Regulating Equipment

1.2. GENERAL REQUIREMENTS: Section 15011, "Mechanical General

Requirements," with the following additions and modifications, applies.

1.2.1 Submittals:

1.2.1.1 Manufacturer's Data:

- a. Air Conditioners
- b. Refrigerant Piping and Accessories

1.2.2 Piping Definition: Piping, as used in this specification, includes pipe, flexible unicellular insulation, tubes, flanges, bolting, gaskets, valves, and fittings; the pressure containing parts of other components such as strainers, sight gages, and dehydrators; and pipe supporting fixtures and structural attachments.

1.2.3 Safety Standard: Design, manufacture, and installation of mechanical refrigeration equipment shall conform to ASHRAE 15.

1.2.4 Motors: NEMA MG1. Motor starters shall conform to NEMA ICS 1 and ICS 2. Determine specific motor characteristics to insure provision of correctly sized starters and overload heaters. Motors shall be designed to operate at full capacity with a voltage variation of plus or minus 10 percent of the motor voltage rating. Motor size shall be sufficient for the duty to be performed and shall not exceed its full load nameplate current rating when driven equipment is operated at specified capacity under the most severe conditions likely to be encountered. Each motor shall be provided with short circuit and thermal overload protection as well as other safety devices as specified in the latest edition of the Philippine Electrical Code. When motor size provided differs from the size indicated or specified, the Contractor shall make the necessary adjustments to the wiring, disconnect devices, and branch circuit protection to accommodate the equipment actually provided.

## PART 2 - PRODUCTS

2.1 SPLIT-SYSTEM AIR CONDITIONERS: The separate assemblies shall be designed to be used together and ratings shall be based on the use of the matched assemblies. Provide performance diagrams for units with capacities not certified by ARI to demonstrate that the components of the air conditioning system furnished will satisfy the capacity requirement specified or indicated on the drawings. The system capacity, electrical characteristics and operating conditions shall be as indicated. Each motor shall be provided with short circuit and thermal overload protection as well as other safety devices as specified in the latest edition of the Philippine Electrical Code.

2.1.1 Single Zone Units: Units shall be single zone type arranged to draw through the coil sections.

2.1.2 Compressors: Hermetic or semihermetic type. Provide compressors with devices to prevent short cycling when shutdown by safety controls. Device shall delay operation of compressor motor for at least 3 minutes but not more than 6 minutes. Provide compressors with crankcase heaters. Motors shall be constant speed, squirrel-cage induction, low-starting current, high-torque type. Motor starter enclosure shall be general-purpose or weather-resistant type as needed in accordance with NEMA ICS 6.

2.1.3 Coils: Tubes shall be constructed of copper tubes mechanically expanded and bonded to aluminum fins of aluminum alloy 7072.

2.1.4 Condenser Controls: Provide high and low pressure switches and low oil pressure switch.

2.1.5 Fans, Condenser and Evaporator: Evaporator fan shall be manufacturer's standard. Select pulleys at approximately midpoint of the adjustable range. Motors shall be totally enclosed type. Starter enclosure shall be general-purpose or weather-resistant type as needed in accordance with NEMA ICS 6.

2.1.6 Temperature Control Systems: Thermostats shall be of the adjustable type and shall conform to applicable requirements of UL 873. Thermostats for air conditioners shall be provided with contacts hermetically sealed against moisture, corrosion, lint, dust, and foreign material. Thermostats shall be designed to operate on not more than 1.0 degrees Centigrade differential and of suitable range calibrated in degrees Fahrenheit or Centigrade. Thermostats shall have fixed cooling anticipation. Thermostat shall contain temperature sensing elements electrically connected to control the refrigeration compressor. The electrical characteristics shall be as indicated. The thermostat or subbase shall contain system selector switches to provide "FAN, COOL and OFF" and fan selector switches. All necessary relays, contactors, transformers, or motor starters shall be provided and located in a panel or panels for easy replacement and service.

#### 2.1.6.1 Controls:

2.1.6.1.1 When fan selector switch is in "ON" position, the fan shall run continuously.

2.1.6.1.2 When thermostat is in "COOL" position with fan selector switch in "ON" position, the compressor and the condenser fan shall cycle together and the evaporator fan shall run continuously.

2.2 FILTERS: Provide filters to filter fresh air and return air and locate inside air conditioners. Filters shall be cleanable (reusable) type. Filters shall conform to UL 900. Polyurethane filters shall not be used on units with multiframe filters.

2.3 REFRIGERANT PIPING AND ACCESSORIES: Provide accessories

as specified herein. A filter-drier shall be provided in the liquid line.

2.3.1 Field-Assembled Piping: Material and dimensional requirements for field-assembled refrigerant piping, valves, fittings, and accessories shall conform to ASHRAE 15 and ANSI B31.5, except as herein specified. Refrigerant piping shall be cleaned, dehydrated, and sealed when delivered. Refrigerant piping shall be seamless copper tubing, hard drawn, Type or L, conforming to ASTM B 88, except that tubing with outside diameters of 1/4-inch and 3/8-inch shall have nominal wall thickness of not less than 0.30-inches and 0.032-inches, respectively. Soft annealed copper tubing conforming to ASTM B 280 may be used where flare connections to equipment are required only in nominal sizes less than 1-inch.

2.3.2 Fittings: ANSI B16.22 for solder-joint fittings. UL 109 for flared tube fittings.

2.3.3 Brazing Filler Material: AWS A5.8.

2.3.4 Pipe Hangers and Supports: As indicated in the drawings.

2.3.5 Pipe Sleeves: Provide sleeves where piping passes through walls, floors, roofs, and partitions. Secure sleeves in proper position and location during construction. Provide sleeves of sufficient length to pass through entire thickness of walls, floors, roofs, and partitions. Provide not less than 8 mm space between exterior of piping or pipe insulation and interior of sleeve. Firmly pack space with insulation and calk at both ends of the sleeve with plastic waterproof cement which will dry to a firm but pliable mass, or provide a segmented elastomeric seal.

2.3.5.1 Sleeves in Masonry and Concrete Walls, Floors, and Roofs: Provide ASTM A 53 or ASTM A 120, Schedule 40 or Standard Weight, zinc-coated steel pipe sleeves. Extend sleeves in floor slabs 75 mm above the finished floor.

2.3.5.2 Sleeves in Partitions and Other Than Masonry and Concrete Walls, Floors, and Roofs: Provide zinc-coated steel sheet having a nominal thickness of not less than 0.6 mm.

2.3.6 Insulation: Flexible Unicellular conforming to ASTM C534; 1/2 in. thick for tube size 1/4 to 1-1/4 in. dia. and 3/4 in. thick for tube size 1-1/2 to 3 in. dia. Provide aluminum cladding on pipes exposed to the weather.

2.3.7 Electrical Conduits: Conduits shall be electrical metallic tubing. Waterproof flexible connections shall be provided to motors exposed to outdoor conditions.

2.3.8 Electrical Wires: THW by Phelps Dodge.

## PART 3 - EXECUTION

### 3.1 INSTALLATION: ARI 260, and as specified herein.

3.1.1 General: Install equipment and components in a manner to insure proper and sequential operation of the equipment and equipment controls. Installation of equipment not covered herein or in manufacturers instructions shall be installed as recommended by manufacturers representative. Provide proper foundations for mounting of equipment, accessories, appurtenances, piping and controls including; but not limited to, supports, vibration isolators, stands, guides, anchors, clamps and brackets. Foundations for equipment shall conform to equipment manufacturers recommendation, unless otherwise indicated on drawings. Set anchor bolts and sleeves accurately using properly constructed templates. Anchor bolts shall be of adequate length and provided with welded-on plates on the head end embedded in the concrete. Level equipment bases, using jacks or steel wedges, and neatly grout-in with a nonshrinking type of grouting mortar. Locate equipment to allow working space for all necessary servicing such as shaft removal, disassembling compressor cylinders and pistons, replacing or adjusting drives, motors, or shaft seals, valves, access to automatic controls, refrigerant charging, lubrication, oil draining and working clearance under overhead lines. Provide electric isolation between dissimilar metals for the purpose of minimizing galvanic corrosion.

3.1.2 Unitary or Split Type Air Conditioning System: Install system as indicated, in accordance with the requirements of ASHRAE 15, and as recommended in the manufacturers installation and operational instructions.

3.1.3 Electrical Work: Electric motor-driven equipment specified herein shall be provided complete with motors, motor starters, and controls. Electrical equipment and wiring from disconnect switches to equipment shall be provided. All electrical work shall be in accordance with the Philippine Electrical Code. Provide manual or automatic control and protective devices required for the operation herein specified and any control wiring required for controls and devices but not indicated.

3.1.4 Piping: Brazing, bending, forming and assembly of refrigerant piping shall conform to ANSI B31.5.

3.1.4.1 Pipe Hangers and Supports: Design and fabrication of pipe hangers, supports, and welding attachments shall conform to MSS SP-58. Hanger types and supports for bare and covered pipes shall conform to MSS SP-69 for the system temperature range. Unless otherwise indicated, horizontal and vertical piping attachments shall conform to MSS SP-58.

3.1.4.2 Refrigerant Piping: Cut pipe accurately to measurements established at the site and work into place without

springing or forcing. Install piping with sufficient flexibility to adequately provide for expansion and contraction due to temperature fluctuation. Where pipe passes through building structure pipe joints shall not be concealed, but located where they may be readily inspected. Run all pipe to be insulated as indicated and as required with sufficient clearance to permit application of insulation. Run all piping essentially as indicated and detailed on the plans; to avoid interference with other piping, conduit, or equipment. Except where specifically indicated otherwise, run piping plumb and straight and parallel to walls and ceilings. Trapping of lines shall not be permitted except where indicated. Provide sleeves of suitable size for all lines passing through building structure. Braze refrigerant piping with silver solder complying with AWS A5.8. The inside of tubing and fittings shall be free of flux. Clean the parts to be jointed with emery cloth and keep hot until the solder has penetrated the full depth of the fitting and the extra flux has been expelled. Cool joints in air and remove flame marks and traces of flux. During the brazing operation, prevent an oxide film from forming on the inside of the tubing by slowly flowing dry nitrogen through the tubing to expel the air. Make provisions to automatically return oil on halocarbon systems. Installation of piping shall comply with ANSI B31.5.

3.1.4.3 Returning Oil From Refrigerant System: Install refrigerant lines so that the gas velocity in the evaporator suction line is sufficient to move the oil along with the gas to the compressor. Where equipment location requires vertical risers, the line shall be sized to maintain sufficient velocity to lift the oil at minimum system loading and corresponding reduction of gas volume. Install a double riser when excess velocity and pressure drop would result from full system loading. The larger riser shall have a trap, of minimum volume, obtained by use of 90 degree and 45 degree ells. Arrange the small riser with inlet close to bottom of horizontal line, and connect to top of upper horizontal line. Do not install valves in risers.

3.1.4.4 Provide refrigerant driers, sight glass liquid indicators, and strainers in refrigerant piping when not furnished by the manufacturer as part of the equipment. Install driers in liquid line with service valves and valved bypass line the same size as liquid line in which the drier is installed. Size of driers shall be determined by the piping and installation of the unit on location. Moisture indicators shall be installed in the liquid line downstream of the drier. Indicator connections shall be the same size as the liquid line in which it is installed.

3.1.4.5 Locate strainers close to equipment they are to protect. Provide a strainer in the common refrigerant liquid supply to two or more thermal valves in parallel when each thermal valve has a built-in strainer. Install strainers with screen down and in direction of flow as indicated on strainer's body.

3.1.4.6 Flexible Unicellular Insulation: Bond cuts, butt joints, ends, and longitudinal joints with adhesive. Miter 90-degree turns and elbows, tees and valve insulation. Where pipes penetrate fire walls, provide mineral-fiber insulation inserts and sheet-metal sleeves. Insulate flanges, unions, and fittings in accordance with manufacturer's published instructions. Apply two coats of vinyl lacquer finish to flexible unicellular insulation in outside locations.

3.1.6 Access Panels: Provide access panels for all concealed valves, controls, dampers, and other fittings requiring inspection and maintenance.

3.1.7 Air Filters: Install air filters to allow access space for servicing the filters. Install filters with suitable sealing to prevent bypassing of air.

3.1.8 Flashing and Pitch Pockets: Provide flashing and pitch pockets for equipment supports and roof penetrations and flashing where piping or ductwork passes through exterior walls.

### 3.2 FIELD TESTS:

3.2.1 Tests: All tests shall be performed by and everything required for test shall be furnished by the Contractor, including personnel. Equipment and materials certified as having been successfully tested by the manufacturer in accordance with referenced specifications and standards will not require retesting before installation. Equipment and materials not tested at the place of manufacture shall be tested before or after installation, as applicable, where necessary to determine compliance with referenced specifications and standards.

3.2.1.1 Leak Testing: Upon completion of installation of the air conditioning equipment, test all factory- and field-installed refrigerant piping with Nitrogen to a test pressure of 300 psig and maintain for 24 hours to acquire a leak-tight refrigerant system. If leaks are detected at time of installation or during the guarantee period, remove the entire refrigerant charge from the system, correct the leaks, and retest the system.

3.2.1.2 Evacuation, Dehydration, and Charging: After leak testing, evacuate the system using a reliable gage and a vacuum pump capable of pulling a vacuum of at least 1 mm Hg absolute. Evacuate system in accordance with the triple-evacuation and blotter method or in accordance with equipment manufacturers printed instructions. System leak testing, evacuation, dehydration, and charging with refrigerant shall comply with the requirements contained in ARI 260.

3.2.1.3 Startup and Operation Tests: Test the air conditioning systems and systems components for proper operation. Adjust safety and automatic control instruments as necessary to insure proper operation and sequence. The operational test shall be not less than 8 hours.

3.2.1.4 Performance Tests: Upon completion of evacuation, charging, startup, final leak testing, and proper adjustment of controls, systems shall be performance tested to demonstrate compliance with performance and capacity requirements. Test systems for not less than 8 hours, during which time hourly readings shall be recorded. At the end of the test period, the readings shall be averaged and the average shall be considered to be the system performance. SMACNA standard forms for Testing and Balancing complete with Engineer's or Manufacturer's data, and performance data shall be submitted.

\*\*\* END OF SECTION \*\*\*



## SECTION 15011B

### FIRE PROTECTION GENERAL REQUIREMENTS

#### PART 1 - GENERAL

1.1 APPLICATION: All sections of Division 15, "Mechanical" of this project except as specified otherwise in each individual section.

#### 1.2 WORK INCLUDED:

1.2.1 Supply and Installation fire protection water supply system including diesel engine driven fire pump, electric motor driven jockey pump, controllers, concrete base, engine exhaust system, insulation, day tank, fuel piping, fittings, supports, accessories, insulation, controls and other accessories.

1.2.2 Supply and installation of wet pipe automatic sprinkler system including sprinkler heads, pipes, valves, supports, and all required accessories.

1.2.3 Supply and installation of standpipe and hose system including hose stations, fire hose valves, cabinets, hangers, supports and all required accessories.

1.2.4 Supply and installation of wet chemical type system for the kitchen hood including controls, tanks, agents, detection system, nozzles, pipes, valves supports and all required accessories.

1.2.5 Supply and installation of a fire alarm system for the supervision of the sprinkler system including supervisory switches, flow switches, fire alarm control panel, wires and conduits from circuit breakers provided by the electrical contractor to panel, interlocks with the kitchen hood fire protection system and the building fire alarm control panel.

1.2.6 Grouting of openings in floors and walls after all pipes, or ducts are in place and sealing of all such openings if not used.

1.2.7 Anything that has been omitted in any item of work or materials usually furnished, which are necessary for the completion of the Fire Protection Work as outlined herein before. Such items must be and are hereby included in this Division of Work

1.3 SUBMITTALS: Submit shop drawings, manufacturers' data and certificates for equipment, materials and finish, and pertinent details for each system where specified in each individual section, and obtain approval before procurement, fabrication, or delivery of the items to the job site. Partial submittals are

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not acceptable and will be returned without review. Submittals shall include the manufacturer's name, trade name, catalog model or number, nameplate data, size, layout dimensions, capacity, project specification and paragraph reference, applicable industry, and technical society publication references, years of satisfactory service, and other information necessary to establish contract compliance of each item the Contractor proposes to furnish. Photographs of existing installations and data submitted in lieu of catalog data are not acceptable and will be returned without approval.

1.3.1 Shop Drawings: Drawings shall be a minimum of 215 mm by 280 mm in size, with a minimum scale of 1/8 inch per foot, except as specified otherwise. Drawings shall include floor plans, sectional views, wiring diagrams, and installation details of equipment; and equipment spaces identifying and indicating proposed location, layout and arrangement of items of equipment, control panels, accessories, piping, ductwork, and other items that must be shown to assure a coordinated installation. Wiring diagrams shall identify circuit terminals, and indicate the internal wiring for each item of equipment and the interconnection between each item of equipment. Drawings shall indicate adequate clearance for operation, maintenance, and replacement of operating equipment devices. If equipment is disapproved, drawings shall be revised to show acceptable equipment and be resubmitted.

1.3.2 Manufacturer's Data: Submittals for each manufactured item shall be manufacturer's descriptive literature of cataloged products, equipment drawings, diagrams, performance and characteristic curves, and catalog cuts.

#### 1.3.3 Codes, Permits and Fees:

1.3.3.1 The work under this contract is to be installed according to the latest requirements of the following:

Mechanical - Philippine National Building Code  
Regulations of Guezon City

Nothing contained in these specifications or shown on the drawings shall be construed as to conflict with National and Local Ordinances or Laws governing the installation of the Mechanical Work, and all such laws and ordinances are hereby made part of these specifications. The Contractor is required to meet the requirements thereof.

1.3.3.2 Codes and standards of the following organizations other than mentioned above are referenced in this Division:

1.3.3.2.1 American Society for Testing Materials (ASTM)

1.3.3.2.2 American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE).

1.3.3.2.3 Air Moving and Conditioning Association, Inc. (AMCA).

1.3.3.2.4 American Refrigeration Institute (ARI).

1.3.3.2.5 Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA).

1.3.3.2.6 National Fire Protection Association (NFPA).

1.3.3.2.7 American National Standard Institute (ANSI)

1.3.3.2.8 National Electrical Manufacturer's Association (NEMA)

1.3.3.2.10 Sheet Metal and Air Conditioning Contractors' National Association, Inc. (SMACNA) Publications

1.3.3.3 All construction permits and fees required for this work shall be obtained by the Contractor. The Contractor shall furnish the Architect, the Engineers and the Owner final certificates of inspection and approval from the proper government authorities after the completion of the work. The Contractor shall prepare all as-built plans and all other paperwork required by the approving authorities.

1.3.3.4 Approval from authorities of all plans for construction shall be secured by the Contractor.

1.3.4 Standards Compliance: When materials or equipment must conform to the standards of organizations such as the American National Standards Institute (ANSI), American Society for Testing and Materials (ASTM), National Electrical Manufacturers Association (NEMA), American Society of Mechanical Engineers (ASME), American Gas Association (AGA), American Refrigeration Institute (ARI), and Underwriters' Laboratories (UL), proof of such conformance shall be submitted to the Owners for approval. If an organization uses a label or listing to indicate compliance with a particular standard, the label or listing will be acceptable evidence, unless otherwise specified in the individual sections. In lieu of the label or listing, the Contractor shall submit a certificate from an independent testing organization, which is competent to perform acceptable testing and is approved by the Engineers. The certificate shall state that the item has been tested in accordance with the specified organization's test methods and that the item conforms to the specified organization's standard. For materials and equipment whose compliance with organizational standards or specifications is not regulated by an organization using its own listing or label as proof of compliance, a certificate of compliance from the manufacturer shall be submitted for approval. The certificate shall identify the manufacturer, the product, and the referenced standard and shall simply state that the manufacturer certifies that the product conforms to all requirements of the project.

specification and of the referenced standards listed.

1.4 OPERATION AND MAINTENANCE MANUAL: Furnish an operation and maintenance manual for each item of equipment. Furnish copies of the manual bound in hardback binders or an approved equivalent. Furnish one complete manual prior to the time that equipment tests are performed, and furnish the remaining manuals before the contract is completed. Inscribe the following identification on the cover: the words OPERATION AND MAINTENANCE MANUAL, the name and location of the equipment or the building, the name of the Contractor, and the contract number. The manual shall include the names, addresses, and telephone numbers of each subcontractor installing equipment, and of the local representatives for each item of equipment. The manual shall have a table of contents and be assembled to conform to the table of contents with the tab sheets placed before instructions covering the subject. The instructions shall be legible and easily read, with large sheets of drawings folded in. The manual shall include: wiring and control diagrams with data to explain detailed operation and control of each item of equipment; a control sequence describing start-up, operation and shutdown; description of the function of each principal item of equipment; the procedure for starting; the procedure for operating; shutdown instructions; installation instructions; maintenance instructions; lubrication schedule including type, grade, temperature range, and frequency; safety precautions, diagrams, and illustrations; test procedures; performance data; and parts list. The parts lists for equipment shall indicate the sources of supply, recommended spare parts, and the service organization which is reasonably convenient to the project site. The manual shall be complete in all respects for equipment, controls, accessories, and associated appurtenances provided.

1.5 POSTED OPERATING INSTRUCTIONS: Furnish approved operating instructions for each system and principal item of equipment for the use of the operation and maintenance personnel. The operating instructions shall include wiring diagrams, control diagrams, and control sequence for each principal item of equipment. Operating instructions shall be printed or engraved, and shall be framed under glass or in approved laminated plastic and posted where directed. Operating instructions shall be attached to or posted adjacent to each principal item of equipment and include directions for start up, proper adjustment, operating, lubrication, shutdown, safety precautions, procedure in the event of equipment failure, and other areas as recommended by the manufacturer of each item of equipment. Operating instructions exposed to the weather shall be made of weatherproof materials or shall be suitably enclosed to be weather protected. Operating instructions shall not fade when exposed to sunlight and shall be secured to prevent easy removal or peeling.

1.6 INSTRUCTION TO OPERATING PERSONNEL: When specified in other sections, the Contractor shall furnish the services of competent instructors who will give full instruction to the designated personnel in the adjustment, operation, and

maintenance, including pertinent safety requirements, of the equipment or system specified. Each instructor shall be thoroughly familiar with all parts of the installation and shall be trained in operating theory as well as practical operation and maintenance work. Instruction shall be given during the first regular work week after the equipment or system has been accepted and turned over to the Government for regular operation. The number of man-days (8 hours) of instruction furnished shall be as specified in other sections. When more than 4 man-days of instruction are specified, approximately half of the time shall be used for classroom instruction. All other time shall be used for instruction with the equipment or system. When significant changes or modifications in the equipment or system are made under the terms of the contract, additional instruction shall be provided to acquaint the operating personnel with the changes or modifications.

1.7 DELIVERY AND STORAGE: Equipment and materials shall be handled, stored, and protected to prevent damage before and during installation, in accordance with the manufacturer's recommendations and as approved. Damaged or defective items shall be replaced.

#### 1.8 STANDARD PRODUCTS/SERVICE AVAILABILITY:

1.8.1 Materials and Equipment: Materials and equipment shall be standard products of a manufacturer regularly engaged in the manufacture of such products, which are of a similar material, design and workmanship. The standard products shall have been in satisfactory commercial or industrial use for two years prior to bid opening. The two year use shall include applications of equipment and materials under similar circumstances and of similar size.

1.8.2 Experience Required: The two years' experience must be satisfactorily completed by a product which has been sold or is offered for sale on the commercial market through advertisements, manufacturers' catalogs, or brochures.

1.8.3 Alternative Service Record: Products having less than a two-year field service record will be acceptable if a certified record of satisfactory field operation for not less than 6000 hours, exclusive of the manufacturer's factory or laboratory tests, can be shown.

1.8.4 Service Support: The equipment items shall be supported by service organizations. The Contractor shall submit a list of qualified permanent service organizations for support of the equipment which includes their addresses and qualifications. These service organizations shall be reasonably convenient to the equipment installation and able to render satisfactory service to the equipment on a regular and emergency basis during the warranty period of the contract.

1.8.5 Manufacturer's Nameplate: Each item of equipment shall

have a nameplate bearing the manufacturer's name, address, model number, and serial number securely affixed in a conspicuous place; the nameplate of the distributing agent will not be acceptable.

1.9 SAFETY REQUIREMENTS: Belts, pulleys, chains, gears, couplings, projecting setscrews, keys, and other rotating parts located so that any person can come in close proximity thereto shall be fully enclosed or properly guarded. High-temperature equipment and piping so located as to endanger personnel or create a fire hazard shall be properly guarded or covered with insulation of a type as specified herein. Items such as catwalks, ladders, and guardrails shall be provided where required for safe operation and maintenance of equipment.

1.10 MANUFACTURER'S RECOMMENDATIONS: Where installation procedures or any part thereof are required to be in accordance with the recommendations of the manufacturer of the material being installed, printed copies of these recommendations shall be furnished prior to installation. Installation of the item will not be allowed to proceed until the recommendations are received. Failure to furnish these recommendations can be cause for rejection of the material.

1.11 ELECTRICAL REQUIREMENTS: Electrical components of mechanical equipment and systems such as motors, starters, and Start/Stop button controls and pilot shall be provided under this Division and shall be as specified herein and as necessary for complete and operable systems. Extended voltage range motors will not be permitted. Interconnecting wiring for components of packaged equipment shall be provided as an integral part of the equipment. All interconnecting power wiring and conduit for field erected equipment and all control wiring rated at 100 volts or higher and conduit shall be as specified in Division 16. Control wiring rated under 100 volts and conduit shall be as specified in Division 15. Motor control equipment forming part of motor control centers or switchgear assemblies and all necessary conduit and wiring connecting such assemblies, centers, or other power sources to mechanical equipment shall conform to Division 16.

\*\*\* END OF SECTION \*\*\*

## SECTION 15330

### FIRE EXTINGUISHING SPRINKLER SYSTEMS (WET PIPE)

#### PART 1 - GENERAL

1.1 APPLICABLE PUBLICATIONS: The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

1.1.1 American Society for Testing and Materials (ASTM) Publications:

A 53-83 Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless

A 120-84 Pipe, Steel, Black and Hot-Dipped Zinc-Coated (Galvanized) Welded and Seamless, for Ordinary Uses

1.1.2 Factory Mutual System (FM) Publication:

Approval Guide (1985)

1.1.3 National Fire Protection Association (NFPA) Publications:

13 Sprinkler Systems

24 Private Fire Service Mains and Their Appurtenances

70 National Electrical Code

72A Installation, Maintenance and Use of Local Protective Signaling Systems for Guard's Tour, Fire Alarm and Supervisory Service

72B Installation, Maintenance and Use of Auxiliary Protective Signaling Systems

1.1.4 Underwriters Laboratories Inc. (UL) Publications:

262-80 Gate Valves for Fire-Protection Service  
& Am 83

Fire Protection Equipment Directory (1985)

1.2 QUALIFICATIONS OF INSTALLER: Prior to installation, submit data for approval showing that the Contractor has successfully installed automatic fire extinguishing sprinkler systems of the same type and design as specified herein, or that Contractor has a firm contractual agreement with a subcontractor having such required experience. The data shall include the names and locations of at least two installations where the

Contractor, or the subcontractor referred to above, has installed such systems. The Contractor shall indicate the type and design of each system and certify that each system has performed satisfactorily in the manner intended for a period of not less than 18 months.

1.3 GENERAL REQUIREMENTS: Section 15011B, "Fire Protection General Requirements", applies to this section, with the additions and modifications specified herein.

1.4 DESCRIPTION OF WORK: The work includes providing new automatic wet pipe fire extinguishing sprinkler systems, Class II wet standpipe system, and Class I dry standpipe system. The equipment, materials, installation, workmanship, examination, inspection, and testing shall be in strict accordance with the required and advisory provisions of NFPA 13, except as modified herein. Each system shall include all materials, accessories, and equipment inside and outside the building to provide each system complete and ready for use. Install each system to give full consideration to blind spaces, piping, electrical equipment, ductwork, and other construction and equipment in accordance with detailed drawings to be submitted for approval. Devices and equipment for fire protection service shall be UL listed or FM approved for use in wet pipe sprinkler systems. In the NFPA publications referred to herein, the advisory provisions shall be considered to be mandatory, as though the word "shall" had been substituted for "should" wherever it appears; reference to the "authority having jurisdiction" shall be interpreted to mean the Fire Protection Consultant or as designated by the Owners.

1.5 SUBMITTALS: Partial submittals will not be acceptable. Annotate descriptive data to show the specific model, type, and size of each item the Contractor proposes to provide.

1.5.1 Manufacturer's Data:

- a. Alarm valves
- b. Valves, including gate, check, and globe
- c. Water motor alarms
- d. Sprinkler heads
- e. Pipe hangers and supports
- f. Water flow switch
- g. Fire department connection

1.5.2 Operation and Maintenance Manuals:

- a. Alarm valves

1.6 AS-BUILT (RECORD) WORKING DRAWINGS: After completion, but before final acceptance of the work, furnish a complete set of drawings of each system for record purposes. Furnish upon acceptance the as-built drawings. Drawings shall be reproducible drawings similar to full size con@d



1.7 ELECTRICAL WORK: Provide electrical work associated with this section including power wiring from electrical disconnect switches to equipment. Provide control and sprinkler system fire alarm wiring, including connections to fire alarm systems, under this section in accordance with NFPA 70. Provide wiring in rigid metal conduit or intermediate metal conduit, except electrical metallic tubing conduit may be used in dry locations not enclosed in concrete or where not subject to mechanical damage.

## PART 2 - PRODUCTS

2.1 SPRINKLER HEADS: Heads shall have nominal 0.50-inch orifice. Release element of each head shall be of the ordinary temperature rating except for the kitchen, and basement parking area which shall be of intermediate temperature rating or higher as suitable for the specific application. Provide polished stainless steel ceiling plates or chromium-plated finish on copper alloy ceiling plates, and chromium-plated pendent sprinklers below suspended ceilings. Finish shall be subject to the Architect's approval.

2.1.1 Location of Sprinkler Heads: Heads in relation to the ceiling and the spacing of sprinkler heads shall not exceed that permitted by NFPA 13. Uniformly space sprinklers on the branch piping.

2.2 CABINET: Provide metal cabinet with extra sprinkler heads and sprinkler head wrench adjacent to each alarm valve. The number and types of extra sprinkler heads shall be as specified in NFPA 13.

2.3 ALARM VALVE: Provide variable pressure type alarm valve complete with retarding chamber, alarm test valve, alarm shutoff valve, drain valve, pressure gauges, accessories, and appurtenances for the proper operation of the system.

2.4 WATER MOTOR ALARM: Provide alarm of the approved weatherproof and guarded type, to sound locally on the flow of water in each corresponding sprinkler system. Mount alarm on the outside of the outer walls of each building as shown on the plans.

2.5 WATER FLOW SWITCH: Provide switch with circuit opener or closer for the automatic transmittal of an to the sprinkler system fire alarm system and the building fire alarm system. Alarm actuating device shall have mechanical diaphragm controlled retard device adjustable from 10 to 60 seconds and shall instantly recycle.

2.6 FIRE HOSE CABINETS: Provide as shown on the drawings. Cabinets at the basement parking area shall be surface mounted all other units shall be flushed on the wall. Firehose cabinet shall contain a 40 mm diameter angle type firehose valve, 30

meters of 25 mm diameter firehose, nozzle and a portable fire extinguisher. Trim shall be stainless steel.

2.7 ABOVEGROUND PIPING SYSTEMS: Inspect, test, and approve piping before covering or concealing. Provide fittings for changes in direction of piping and for all connections. Make changes in piping sizes through tapered reducing pipe fittings; bushings will not be permitted.

2.7.1 Sprinkler Pipe and Fittings: ASTM A53 Schedule 40 seamless. Plain-end fittings with mechanical couplings and fittings which use steel gripping devices to bite into the pipe when pressure is applied will not be permitted. Rubber gasketed grooved-end pipe and fittings with mechanical couplings shall be permitted in pipe sizes 1.5 inches and larger. Fittings shall be UL listed or FM approved for use in wet pipe sprinkler systems. Fittings, mechanical couplings, and rubber gaskets shall be supplied by the same manufacturer.

2.7.2 Pipe Hangers and Supports: Provide in accordance with NFPA 13.

2.7.3 Valves: NFPA 13. Valves shall be UL listed or FM approved for fire protection service.

2.7.3.1 Gate Valves: Shall be of the outside screw and yoke (OS & Y) type approved for fire service. Gate valves shall open by counterclockwise rotation. All gate valves shall be provided with supervisory switches to indicate partially closed or fully position. Supervisory switch shall be part of this contract's sprinkler fire alarm control system.

2.7.3.2 Check Valves: Flanged clear opening swing-check type with flanged inspection and access cover plate for sizes 100 mm diameter and larger.

2.7.3.3 Fire Hose Valve (Dry Standpipe): Gate Valve, 65 mm diameter, with National Standard male hose thread or a thread pattern compatible with that use by the local fire department. Valve shall be provided with cap and chain.

2.7.4 Identification Signs: NFPA 13. Attach properly lettered and approved metal signs to each valve and alarm device.

2.7.5 Inspector's Test Connection: Provide test connections where indicated on the plans and portion of each sprinkler system equipped with an alarm device. Provide test connection piping to a location where the discharge will be readily visible and where water may be discharged without property damage.

2.7.6 Main Drains: Provide drain piping to discharge at safe points outside each building or to sight cones attached to drains of adequate size to readily receive the full flow from each drain under maximum pressure. Provide auxiliary drains as required by NFPA 13.

2.8 PIPE SLEEVES: Provide where piping passes through walls, floors, roofs, and partitions. Grout sleeves in position and location during construction. Provide sleeves of sufficient length to pass through entire thickness of walls, floors, roofs, and partitions. Provide clearance between exterior of piping and interior of sleeve in accordance with NFPA 13. Firmly pack space with noncombustible insulation. Caulk both ends of the sleeve with plastic waterproof cement which will dry to a firm but pliable mass, or provide a segmented elastomeric seal.

2.8.1 Sleeves in Masonry and Concrete Walls, Floors, and Roofs: Provide ASTM A 53 or ASTM A 120, hot-dip galvanized steel pipe sleeves. Extend sleeves 75 mm above the finished floor.

2.8.2 Sleeves in Partitions and Other Than Masonry and Concrete Walls, Floors, and Roofs: Provide hot-dip galvanized steel sheet having a nominal weight of not less than 0.90 psf.

2.9 ESCUTCHEON PLATES: Provide one piece or split hinge type metal plates for piping passing through floors, walls, and ceilings in exposed spaces. Provide polished stainless steel plates or chromium-plated finish on copper alloy plates in finished spaces. Provide paint finish on plates in unfinished spaces. Secure plates in proper position.

2.10 FIRE DEPARTMENT CONNECTIONS: Provide connections approximately 3 feet above finish grade, of the approved two-way type with 65 mm National Standard female hose threads with plug and chain.

2.11 DETECTION SYSTEMS: Provide sprinkler system supervision and detection. Connecting wiring shall be supervised. Provide wiring in protective metal conduit or tubing. Detectors located in areas subject to moisture or exterior atmospheric conditions shall be types approved for such locations. Furnish not less than two spare detectors of each type for each system.

2.11.1 Control Panel: Provide a control panel for the sprinkler system. Install in a surface-mounted steel cabinet with hinged doors and cylinder lock. Control panels shall be a neat, compact, factory-wired assembly containing components and equipment necessary to perform specified operating and supervisory functions of the system. House batteries in a lockable steel cabinet. Finish interior and exterior of cabinet with enamel paint; attach prominent rigid plastic or metal identification plates. Provide trouble lights on cabinet door, and provide trouble alarm above cabinet top. Provide 120 volts ac service, transformed through a two-winding isolation type transformer and rectified to low-voltage dc for operation of all system actuating, signal sounding, trouble signal, and fire alarm tripping circuits.

2.11.2 Secondary Power Supply: Provide nickel cadmium, lead calcium, or sealed lead acid rechargeable storage batteries and

battery charger. Dry cell batteries will not be permitted.

2.11.3 Storage Batteries: Provide rechargeable lead calcium or sealed lead acid type with sufficient ampere-hour rating to operate the system under supervisory and trouble conditions for 60 hours and signal devices under alarm conditions for an additional 10 minutes. Separate cells to prevent contact between terminals of adjacent cells and between battery terminals and other metal parts.

2.11.4 Battery Charger: Provide solid state automatic two rate type, capable of recharging completely discharged batteries to fully charged condition in 24 hours or less. Locate charger within the control panel or within the battery cabinet.

2.11.5 Wiring: Provide in accordance with NFPA 70. Obtain ac primary power for control panel, battery charger as directed by the Electrical Engineers. Provide independent, properly fused safety switches, with provisions for locking the covers and operating handles in the POWER ON position for such connections. Paint the switch boxes red and identify by a permanent lettered designation. Wire for 120-volt circuits shall be No. 12 AWG minimum. Wire for low-voltage dc circuits shall be No. 14 AWG minimum. Provide wiring in rigid metal conduit, or intermediate metal conduit.

2.11.5.1 Conductor Identification: Identify circuit conductors within each enclosure where a tap, splice, or termination is made. Identify conductor by plastic coated, self-sticking printed markers or by heat-shrink type sleeves. Attach and secure markers to prevent accidental detachment. Properly identify control circuit terminations.

2.11.6 Fire Alarm: Provide equipment for the automatic transmittal of an alarm over the building fire alarm system and arrange to actuate by the flow of water.

2.11.7 Trouble Alarm: Provide local 4-inch electric alarm bell to indicate trouble or failure of the detection system or closure of a valve.

## PART 3 - EXECUTION

3.1 INSTALLATION: Equipment, materials, installation, workmanship, examination, inspection, and testing shall be in accordance with NFPA 13, except as modified herein. Install piping straight and true to bear evenly on hangers and supports. Keep the interior and ends of new piping and existing piping affected by Contractor's operations thoroughly cleaned of water and foreign matter. Keep piping systems clean during installation by means of plugs or other approved methods. When work is not in progress, securely close open ends of piping to prevent entry of water and foreign matter. Inspect piping before placing into position.

3.2 FIELD PAINTING: Clean, pretreat, prime, and paint new fire extinguishing sprinkler systems including valves, piping, conduit, hangers, supports, miscellaneous metalwork, and accessories. Apply coatings to clean, dry surfaces, using clean brushes. Clean the surfaces to remove dust, dirt, rust, and loose mill scale. Immediately after cleaning, provide the metal surfaces with one coat of pretreatment primer applied to a minimum dry film thickness of 0.3 mil, and one coat of primer applied to a minimum dry film thickness of 1.0 mil. Provide primed surfaces with one coat of red enamel applied to a minimum dry film thickness of 1.0 mil. Shield sprinkler heads with protective covering while painting is in process. Upon completion of painting, remove protective covering from sprinkler heads. Remove sprinkler heads which have been painted and replace with new sprinkler heads. Provide primed surfaces with the following:

### 3.3 FIELD TESTING AND FLUSHING:

3.4.1 Preliminary Tests: Hydrostatically test each system at 200 psig for a 2-hour period with no leakage or reduction in gauge pressure. Flush piping with potable water in accordance with NFPA 13. Piping above suspended ceilings shall be inspected, tested, and approved before installation of ceilings. Test the alarms and other devices. Test the water flow alarms by flowing water through the inspector's test connection. When tests are completed and corrections made, submit a signed and dated certificate, similar to that specified in NFPA 13, with a request for formal inspection and tests.

3.5.2 Formal Inspection and Tests: Fire Protection Consultant and Owner's representative will witness formal tests and approve all systems before acceptance. Submit the request for formal inspection at least 8 days prior to inspection date. An experienced technician regularly employed by the system installer shall be present during the inspection. During the inspection, repeat any or all of the required tests as directed. Correct defects in work provided by the Contractor, and make additional tests until the systems comply with all contract requirements. Furnish appliances, flow meters, equipment, fuel, instruments, connecting devices, and personnel for the tests.

\*\*\* END OF SECTION \*\*\*

## SECTION 15540

### FIRE PUMPS

#### PART 1 - GENERAL

1.1 APPLICABLE PUBLICATIONS: The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

##### 1.1.2 American National Standards Institute (ANSI) Publications:

- B16.1 Cast-Iron Pipe Flanges and Flanged Fittings
- B16.3 Malleable-Iron Threaded Fittings
- B16.5 Steel Pipe Flanges and Flanged Fittings
- B16.9 Factory-Made Wrought Steel Butt welding Fittings
- B16.11 Forged Steel Fittings, Socket-Welding and Threaded
- B16.18 Cast Copper Alloy Solder-Joint Pressure Fittings
- B16.21 Nonmetallic Flat Gaskets for Pipe Flanges
- B16.39 Malleable-Iron Threaded Pipe Unions
- B31.1 Power Piping  
& Am 80  
& Am 81

##### 1.1.3 American Society for Testing and Materials (ASTM) Publications:

- A 53 Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
- A 120 Pipe, Steel, Black and Hot-Dipped Zinc-Coated (Galvanized) Welded and Seamless, for Ordinary Uses
- A 193 Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service
- A 194 Carbon and Alloy Steel Nuts for Bolts for High-Pressure and High-Temperature Service
- B 32 Solder Metal

B 88      Seamless Copper Water Tube

C 533      Calcium Silicate Block and Pipe Thermal Insulation

1.1. 3      Factory Mutual System (FM) Publication:

Approval Guide

1.1.4      National Fire Protection Association (NFPA)  
Publications:

20          Centrifugal Fire Pumps

24          Outside Protection

37          Stationary Combustion Engines and Gas Turbines

70          National Electrical Code

1.1.4      Underwriters' Laboratories, Inc. (UL) Publications:

Fire Protection Equipment Directory

58          Steel Underground Tanks for Flammable and  
Combustible Liquids

80          Steel Inside Tanks for Oil Burner Fuel

142          Steel Aboveground Tanks for Flammable and  
Combustible Liquids

262          Gate Valves for Fire Protection Service

1.2      GENERAL REQUIREMENTS: Section 15011B "Fire Protection  
General Requirements," applies to this section, with the  
additions and modifications specified herein.

1.3      DESCRIPTION OF WORK: The work includes providing diesel  
engine driven centrifugal horizontal split case type fire pumps,  
pressure maintenance (jockey) pump, and related work. Each  
system shall be complete and ready for operation. Equipment,  
materials, installation, and workmanship shall be in accordance  
with NFPA 20 and NFPA 70, except as modified herein. Devices and  
equipment for fire protection service shall be listed by  
Underwriters' Laboratories, Inc., or approved by the Factory  
Mutual System. In the NFPA publications referred to herein, the  
advisory provisions shall be considered to be mandatory, as  
though the word "shall" had been substituted for "should"  
wherever it appears.

1.4      SUBMITTALS: Partial submittals will not be acceptable.  
Annotate descriptive data to show the specific model, type, and  
size of each item the Contractor proposes to furnish. Prepare  
shop drawings on sheets not smaller than 20 cm by 75 cm, and  
include data essential to the proper installation of each system.

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1.4.1 Manufacturer's Data:

- a. Pumps, drivers, and controllers
- b. Pipe and fittings
- c. Valves including gate, check, and relief valves
- d. Gages
- e. Hose valve manifold test header
- f. Devices and associated equipment

1.4.2 Shop Drawings:

- a. Pumps, drivers, and controllers
- b. Complete circuit diagrams
- c. Interior wiring diagrams of each controller

1.4.3 Certificates of Compliance:

- a. Pumps, drivers, and controllers

1.4.4 Certified Data:

- a. Manufacturer's pump discharge curves

1.4.5 Operation and Maintenance Manuals:

- a. Pumps, drivers, and controllers

1.4.6 Posted Operating Instructions:

- a. Pumps, drivers, and controllers

1.5 ELECTRICAL MOTORS, CONTROLLERS, CONTACTORS, AND DISCONNECTS: Furnish motors, controllers, contactors, and disconnects with their respective pieces of equipment. Motors, controllers, contactors, and disconnects shall conform to and shall have electrical connections provided by the electrical specifications. Controllers and contactors shall have a maximum of 120-volt control circuits, and auxiliary contacts for use with the controls furnished. When motors and equipment furnished are larger than sizes indicated, the cost of providing additional electrical service and related work shall be included under this section.

1.6 ELECTRICAL WORK: Work associated with this section shall be provided by this contractor from the disconnects to the electrical driven equipment complying with the requirements of the electrical specifications. Fire alarm system is specified in Section 15340. Provide control and fire alarm wiring, including connections to fire alarm systems, under this section in accordance with NFPA 70. Provide rigid metal conduit or intermediate metal conduit, except electrical metallic tubing conduit may be used in dry locations not enclosed in concrete or where not subject to mechanical damage.

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1.7 SEQUENCE OF OPERATION: The jockey pump shall be the lead pump which shall start automatically whenever the pressure in the main system is reduced to 115 psig, automatically upon tripping of the sprinkler system, or manually when the starter is operated. Fire Pump shall continue to run until shut down manually.

## PART 2 - PRODUCTS

### 2.1 SYSTEM COMPONENTS:

2.1.1 Fire Pumps: Pumps shall be automatic start and manual stop. Each pump capacity at rated head shall be not less than that indicated 750 gpm at a discharge pressure of 120 psig. Each pump shall furnish not less than 150 percent of rated capacity at not less than 65 percent of total rated head. Pumps shall be of the centrifugal horizontal split case with automatic air released.

2.1.2 Alarm: Provide an audible or visible alarm with electrical power supplied as indicated, with alarm located at outside the pump room. Alarm signal shall be activated upon the following conditions: engine drive controller has operated into an engine running condition, engine drive controller main switch has been turned to OFF or to MANUAL position, trouble on engine driven controller or engine]. Exterior alarm devices shall be weatherproof type. Provide alarm silencing switch and red signal lamp, with signal lamp arranged to come on when switch is placed in OFF position.

2.1.3 Pressure Maintenance Pump: Provide pump to maintain a pressure of 160 psig on the system. Provide pump of the electrically driven, horizontal shaft, centrifugal type with a rated discharge of 30 gpm at 120 psig. Pump shutoff pressure shall not exceed the design working pressure of the system. Pump shall draft from the suction supply side of the suction pipe gate valve of the pump and shall discharge into the system on the downstream side of the pump discharge gate valve. Provide approved indicating gate valves of the outside screw and yoke type in the maintenance pump suction and discharge piping. Provide an approved check valve in the maintenance pump discharge outlet and the discharge gage valve. Provide a pressure switch in the system supply main near the point where it leaves the pump room which shall cause the maintenance pump to start when the pressure drops to 110 psig and to stop when the pressure reaches 125 psig.

2.1.4 Electric Motor Driver: Provide electrical motors, controllers, contactors, and disconnects as specified herein. Power supply to each motor and controller shall be as indicated.

2.1.4.1 Motors: Motor horsepower shall be not less than pump horsepower requirements at all points on the pump operating curve.

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2.1.4.2 Controllers: Controllers shall be approved for fire pump service and arranged for automatic manual push button pump starting and manual pushbutton pump shutdown. Controller shall be completely terminally wired, ready for field connections, and mounted in a moisture resistant enclosure arranged so that controller current carrying parts will not be less than 300 mm above the floor.

2.1.5 Diesel Engine Driver: Engine shall be listed or approved for fire pump service and shall be of the make and horsepower rating recommended by the pump manufacturer for the pump being provided. Engine horsepower shall be adequate to drive the pump at all conditions of speed and load over the full range of the pump performance curve. Diesel engine shall be of the compression ignition type with electric starting device taking current from two battery units mounted not less than 20 mm above the floor. Provide lead-acid or lead-calcium type batteries.

2.1.5.1 Controller: Mount not less 300 mm above the floor. Controller shall be manual pushbutton and automatic starting, and manual pushbutton shutdown.

2.1.5.2 Battery Charger: Charger shall be an integral part of the controller or a separate wall-mounted unit. Provide voltmeter to indicate the state of the battery charge and provide ammeter to indicate rate of charge.

2.1.5.3 Fuel System External to Engine: Provide in accordance with NFPA 20 and NFPA 37. Provide vent piping with weatherproof vent cap. Provide flexible bronze or stainless steel piping connectors with single braid at each piping connection to diesel engine. Supply, return, vent, and fill piping shall be steel piping, except supply and return piping may be copper tubing.

2.1.5.3.1 Steel Pipe: ASTM A 53 or ASTM A 120, Schedule 40, black steel, threaded end connections. Provide ANSI B16.3 threaded fittings and ANSI B16.39 threaded unions.

2.1.5.3.2 Tanks: UL 80 for aboveground steel tanks. Provide minimum of 30-inch inside diameter flanged manhole on top of tank including extension tube, gasket, and bolted cover.

2.1.5.3.3 Valves: Valves shall have threaded end connections with a union on all but one side of the valve or solder end connections for connections between bronze valves and copper tubing. Ball and butterfly valves with two-position lever handles may be used in lieu of gate valves. Provide valves suitable for fuel oil service.

2.1.5.4 Exhaust System External to Engine: Provide in accordance with NFPA 20 and NFPA 37.

2.1.5.4.1 Steel Pipe: ASTM A 53 or ASTM A 120, Schedule 80,

black steel, welding end pipe. Provide ANSI B16.9 or ANSI B16.11 welding fittings of the same material and weight as the piping. Insulate with 100 mm thick calcium silicate insulation.

2.1.5.4.2 Flanges: ANSI B16.5, Class 150. Provide flanges for connections to diesel engines, exhaust mufflers, and flexible connections. Gaskets shall be ANSI B16.21, composition ring, 1.5 mm thick. Provide ASTM A 193, Grade B7 bolts and ASTM A 194, Grade 7 nuts.

2.2.3 Valves: Provide valves of types listed or approved for fire protection service with flanged or threaded end connections.

2.2.3.1 Gate Valves: Provide outside screw and yoke type which open by counterclockwise rotation.

2.2.3.2 Check Valves: Provide flanged clear opening swing check type valve with flanged inspection and access cover plate for sizes 4 inches and larger.

2.2.3.3 Relief Valve: Provide each pump with an approved relief valve conforming to NFPA 20.

2.2.4 Hose Valve Manifold Test Header: Construct header of steel pipe conforming to ASTM A 53 or ASTM A 120, Schedule 40, black steel, with butt welding end connections. Provide butt welding fittings conforming to ANSI B16.9 of the same material and weight as the piping. Provide ANSI B16.5, Class 150 flanged inlet connection to hose valve manifold assembly. Each test header outlet shall have approved bronze hose gate valve with 2.5-inch National Standard male hose threads with cap and chain; locate 3 feet above grade. Welding shall be metallic arc process in accordance with ANSI B31.1, including qualifications of welders.

2.2.5 Pipe Sleeves: Provide where piping passes through walls, floors, roofs, and partitions. Secure sleeves in proper position and location. Provide sleeves of sufficient length to pass through entire thickness of walls, floors, roofs, and partitions.

## PART 3 - EXECUTION

3.1 INSTALLATION: Equipment, materials, installation, and workmanship shall be in accordance with NFPA 20, except as modified herein. Install piping straight and true to bear evenly on supports.

3.1.1 Cleaning of Piping: Keep the interior and ends of new piping thoroughly cleaned of water and foreign matter. Keep piping systems clean during installation by means of plugs or other approved methods. When work is not in progress, securely close open ends of piping and fittings so that water and foreign matter will not enter the pipes or fittings. Inspect piping

before placing into position.

3.2 PIPE AND FITTINGS: Inspect, test, and approve piping before burying, covering, or concealing. Provide fittings for changes in direction of piping and for all connections. Make changes in piping sizes through tapered reducing pipe fittings; do not use bushings.

3.2.1 Threaded Connections: Jointing compound for pipe threads shall be polytetrafluoroethylene (PTFE) pipe thread tape, pipe cement and oil, or PTFE powder and oil; apply only on male threads. Provide exposed ferrous pipe threads with one coat primer applied to a minimum dry film thickness of one mil.

3.2.2 Pipe Hangers (Supports): Provide additional hangers to support the concentrated loads in piping between hangers, such as for flanged valves.

3.2.2.1 Piping to Receive Insulation: Provide temporary wood spacers between the insulation protection shield and the pipe in order to properly slope the piping and to establish final elevations. Temporary wood spacers shall be of the same thickness as the insulation to be provided.

3.2.2.2 Maximum Spacing Between Hangers:

3.2.2.2.1 Vertical Piping: Support metal piping at each floor, but at not more than 3 meter intervals.

3.2.2.2.2 Horizontal Piping: Support ductile iron piping at 1.5 meter intervals, except that for pipe exceeding 1.5 meters length, provide supports at intervals equal to the pipe length but not exceeding 3.0 meters. Support steel piping as follows:

MAXIMUM SPACING (METERS)

Nominal Pipe Size (MM)	25 and under	32	40	50	65	75	90	100	150
Steel Pipe	2.1	2.1	2.7	3.0	3.0	3.6	3.6	3.6	3.6

3.3 NAMEPLATES: Provide laminated plastic nameplates for equipment, gages, thermometers, and valves; stop valves in supplies to fixtures will not require nameplates. Laminated plastic shall be 3mm thick Melamine plastic, black with white center core. Surface shall be a matte finish. All corners shall be square. Accurately align lettering and engrave into the white core. Minimum size of nameplates shall be 25 mm by 65 mm. Lettering shall be minimum of 6 mm high normal block lettering. Key the nameplates to a chart and schedule for each system. Frame charts and schedules under glass and place where directed near each system.

Furnish two copies of each chart and schedule. Each inscription shall identify its function. Equipment nameplates shall show the following information:

- a. Manufacturer, type, and model number
- b. Contract number and accepted date
- c. Capacity or size
- d. System in which installed
- e. System which it controls

3.4 DISINFECTION: Disinfect the new water piping. Fill the piping systems with solution containing minimum of 50 parts per million of available chlorine and allow solution to stand for minimum of 24 hours. Flush the solution from the systems with clean water until maximum residual chlorine content is not greater than 0.2 parts per million.

3.5 INSTRUCTING OPERATING PERSONNEL: Upon completion of the work and at a time designated by the Owners, provide for a period of not less than one 8-hour working day the services of experienced technicians regularly employed by the manufacturer of the pumps and the drivers to instruct operating personnel in the proper operation and maintenance of the equipment.

3.6 FLUSHING: Flush all new pump suction and discharge piping at 150 percent of rated pump capacity. Where the pump installation involves more than one pump, the flushing volume shall be the total quantity of water flowing when all pumps are discharging at 150 percent of their rated capacities. The new pumps may be used to attain the required flushing volume. Continue flushing operations until water is clear, but for not less than 10 minutes. Submit a signed and dated flushing certificate with a request for field testing.

### 3.7 FIELD TESTING:

3.7.1 Preliminary Tests: Hydrostatically test each piping system at 200 psig for a period of 2 hours. Perform tests on pumps, drivers, and equipment, including visual equipment checks to insure compliance with approved shop drawings; pump start-run to insure proper operation and to detect any leakage of piping, valves, and fittings; sequence of operation check; verification that all required pump accessories have been provided; test of pump alarm devices; and additional inspections and tests necessary to insure that the entire pump installation is correct, complete, and ready for operation. When preliminary tests have been completed and corrections made, submit a signed and dated certificate with a request for a formal inspection and tests.

3.7.2 Formal Inspection and Tests: The Fire Protection Consultant will witness formal tests and approve all systems before they are accepted. Submit the request for formal inspection at least 10 working days prior to the date the inspection is to take place. An experienced technician regularly employed by the pump installer shall be present during the

inspection. Where pumps are engine driven, an experienced technician regularly employed by the engine manufacturer capable of demonstrating that all engine trouble alarms and operating features perform as required shall be present. Tests shall include 100 and 150 percent capacity flows and pressures, and no-flow pressures for conformance with manufacturer's characteristic curves. At this inspection repeat any or all of the required tests as directed. Correct defects in the work provided by the Contractor, and make additional tests until it has been demonstrated that the system complies with all contract requirements. Manufacturer's certified shop test characteristic curves for each pump being tested must be furnished by the Contractor at the time of the pump acceptance test. Furnish appliances, equipment, water, electricity, instruments, connecting devices, and personnel for the tests.

\*\*\* END OF SECTION \*\*\*

# PLUMBING / SANITARY Technical Specification

SANDIGANBAYAN BUILDING

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PROJECT: SANDIGANBAYAN (COA Complex, Commonwealth Ave. cor.  
Batasan Rd. Quezon City)  
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Section 15400  
PLUMBING SYSTEMS  
PART I GENERAL

1.01 DESCRIPTION

1.01.1 The Contractor shall provide all items, articles, materials, operation or methods listed, mentioned or scheduled on the drawings and/or herein, including all labor, materials, equipment and incidentals necessary and required for their completion.

1.01.2 The contract drawings and specifications are complementary to each other, and any labor or materials called for by either, whether or not called for by both, if necessary, for the successful operation of any of the particular type of equipment furnished and installed will be without additional cost to the owner.

All dimensional locations of fixtures, drains, riser and pipe chase shall be verified on the architectural drawings and manufacturers catalogue.


In cases where there are conflicts between the drawings and the specifications, the contractor shall within three (3) days, inform the Engineer of such conflicts.

1.01.3 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 the drawings shall be furnished and installed, if necessary, to complete the system in accordance with the best practice of the plumbing trade and to the satisfaction of the Engineer and the Owner.

1.01.4 The Plumbing Contractor is required to refer to all architectural, structural, mechanical and electrical plans and specifications, and shall investigate all possible interferences and conditions affecting his work.

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COMPREHENSIVE DESIGN SERVICES CO.  
28 July 1997 15400-01

PLUMBING SYSTEM  
SPECIFICATIONS

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1.01.5 Electrical system are not included in this division, but the Plumbing Contractor will provide all facilities and make provisions for the installation of the work as construction progresses.

A. SCOPE OF WORK

1. Work included under this section of the specifications consists in furnishing all labor, tools and equipment, appliances and materials necessary for complete installation, testing and operation of the plumbing system in accordance with the contract.

- (a) Sanitary drains from the building and their connections to the point of discharge as shown in the plans as verified at jobsite.
- (b) Roof, ground and basement storm drainage system and connections to storm drainage system as shown in the plans as verified at jobsite.
- (c) Soil, waste and vent pipe system within the building
- (d) Cold and hot water distribution and supply pipes to the equipment, fixtures and hose bibbs.
- (e) Plumbing fixtures, trims and accessories.
- (f) Water meter and MWSS connections as shown in the plans.
- (g) Payments for all permit incidental to the completion of the project.
- (h) The Contractor shall provide all necessary shop drawings and as-built plans.
- (i) All other works described in other sections of this document necessary for the completion of this contract.
- (g) All other itmes not mentioned in the specifications nor shown in the plans but are necessary to complete the system shall be included in this contract.

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## B. WORK BY OTHERS

1. The following work or materials in conjunction with the work to be done or installed by others.
  - a. Water for construction purposes other than required in this division and temporary toilet facilities.
  - b. Pumping, shoring, general excavations and backfill.
  - c. Painting, except as required by the Plumbing Code and these specifications.
  - d. Conduits and electrical wires for electrode connections from 4th basement to elevated watertank.

### 1.02 SUBMITTALS

- 1.02.1 Within fifteen (15) days after award of contract, the Plumbing Contractor shall submit for the Engineers approval four (4) copies of all complete list of manufacturer name of all materials he proposes to use.
- 1.02.2 After approval of the above list and before purchase of any equipment or materials, the Plumbing Contractor shall submit to the Engineer for approval four (4) complete sets of detailed information consisting of manufacturers bulletins, shop drawings and part list of the materials to be provided under this contract.
- 1.02.3 The Plumbing Contractor shall assume the cost of and the entire responsibility of any change in the work as shown in the contract drawings which may be occasioned by approval of materials other than those specified.

### 1.03 APPLICABLE CODE AND STANDARDS

- 1.03.1 All plumbing works to be done and sizes of pipes to be used shall be in accordance with the National Plumbing Code of the Philippines.
- 1.03.2 The Plumbing Contractor shall verify the above paragraphs with each section of the specifications and coordinate his work so that the General Contractor will understand clearly the intent of the work to be done.

## PART 2- PRODUCTS

### 2.01 DESCRIPTION:

2.01.1 All materials to be used shall conform with the standards specified. All classes listed are not necessarily required for this project. Of classes listed, only those specifically called for under sections of this Division or shown shall be provided. Use of materials shall further be governed by other requirements imposed on other sections of this specification. Materials shall be subject to test necessary to ascertain their fitness if the Engineer so requires.

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

2.03 IDENTIFICATION OF MATERIALS: Each length of pipe, fittings, traps, fixtures and devices used in the plumbing system shall have cast, stamped or indelibly marked on it the manufacturer's trademark or name, the weight, type and classes of products when so required by the standards mentioned.

All materials and equipment mentioned in this specification, including all incidental items not specifically indicated but required to complete the contract shall be new and free from defects. If damaged during the course of construction, it shall be repaired or replaced as directed by the Project Manager at no additional cost to the Owner.

### 2.04 STANDARD SPECIFICATION FOR MATERIALS AND EQUIPMENT

- |     |   |  |
|-----|---|--|
| (A) | ASTM C-76-74                                  | Concrete Storm Sewer Pipes                                       |
| (B) | ASTM A74-75, CS-188-66<br>U.S. Federal Specs. | Cast Iron Soil Pipes and<br>Fittings ASA Metals or<br>Equivalent |

- (e) ASTM A-120-76  
ANSI Standard B-36  
10-70 Grade B Sche. 40      Galvanized Iron Pipes and Fittings
- (f) Federal Specs. WW-V-58  
(for sizes 2 1/2" and smaller)      Bronze Gate Valves
- (g) Federal Specs. QQ-L-201      Lead Sheet
- (h) AWWA C500-58 (for sizes 3" and larger)      Gate Valves
- (i) AWWA C700-64, Positive Displacement Type, shall be Rockwell or Badger      Water Meter
- (j) U.S. Federal Specs. WW-U-531, Type B Zinc-Coated      Union Patents (Malleable Iron for ferrous pipes)
- (k) ISO 161/L, SDR 13.5      Polybutylene Pipe for Irrigators
- (l) ASTM 2729-71      PVC Pipes and Fittings
- (m) ASTM D2564      Solvent Cement for jointing of uPVC pipes

## 2.05 GALVANIZED IRON PIPES

### 2.05.1 PIPES AND FITTINGS FOR COLD WATER SYSTEM

- a. All cold water pipings inside the building shall be galvanized iron pipe schedule 40 with malleable iron fittings as manufactured by Super and goodyear pipes.
- b. Galvanized sheet metal 18 U.S. gage for steel penetration thru non-water proofed walls and floors above ground.
- c. Pipe material to ASTM or ANSI A-120-76 seamless or electric resistance welded (ERW) hot dipped zinc coated.

#### 2.05.2 FITTINGS, PIPE SIZES AND WEIGHTS

- a. Cold water service up to 3 in., 125 lbs. screwed malleable iron.
- b. For pipe sizes above 3 in., 200 lbs. slip on flange.

#### 2.06 CAST IRON PIPES AND FITTINGS

- 2.06.1 Cast iron soil pipes and fittings for drainage shall be in accordance with Standard Federal Specification. (see item 2.04 of page 15400-4).
- 2.06.2 All stacks of cast iron soil pipes shall be extra heavy weight including its horizontal building drain.
- 2.06.3 All cast iron soil and drainage pipe shall be pitched 1/4" per foot but in no case flatter than 1/8" per foot.
- 2.06.4 Caulking to conform with the Federal Specification QQ-L-156. Chemicaulk A & B may be used as a substitute.

#### 2.07 POLYVINYL CHLORIDE PIPE (PVC)

- 2.07.1 Pipe material and fittings equivalent to Series 1000 or Series 600 of Neltex . Rigid (UPVC) pipe and drainage pattern fittings or equal.
- 2.07.2 Solvent cement joint to ASTM D2564.
- 2.07.3 Series 1000 for all downspouts and main vents.
- 2.07.4 Series 600 for all branch vent pipes and fittings.

#### 2.08 FLANGES, BOLTING, GASKETS AND UNIONS

- 2.08.1 Provide flanges at flange connection to equipment, and valves, welding neck, slip on or threaded as required.

##### a) Welded Steel Pipe.

- 1. Class 300 black forged steel welding flanges 1/16 in. raised face to ASTM or ANSI/ASME A-181 Grade 1.

2. Class 150 black forged steel welding flanges 1/16 in. raised face to ASTM or ANSI/ASME A-181 Grade 1.
3. Bolts to ASTM A-193 regular hexagonal head unfinished, heavy semi-finished hexagonal nuts to ASTM A-194.
4. Gasket flat ring or fullface impregnated asbestos or "Cranite" or equal.

b) Screwed Galvanized Steel Pipe.

1. A-120 pipe use Class 150 galvanized cast iron flanges and ASTM A-307 Grade B bolts and nuts hexagonal semi-finished finish. Threaded to ANSI B2.1.
2. Full flat face non-metallic impregnated asbestos gaskets.

2.08.2 Provide unions at each threaded or soldered connections to equipment, and valves for pipe sizes up to 2 in.

- a. Black steel Class 250 screwed black malleable iron, ground joint, brass-to-iron seat.
- b. Galvanized steel Class 250 screwed galvanized malleable iron, ground joint, brass-to-iron seat.
- c. Copper tubing Class 150 cast bronze or cast brass ground joint, non-ferrous seat with solder ends. Manufactured by Nibco or equal.
- d. Unions on ferrous pipes two inches in diameter and smaller shall be malleable iron and zinc-coated.
- e. Unions on water piping two and one-half inches in diameter and larger shall be flanged pattern.

2.08.3 Provide Dielectric unions for dissimilar metal pipe connection ( copper to steel ) to prevent galvanic action and corrosion. Manufactured by EPCO Sales Inc., Model FX or GX as applicable or equal.

## 2.09 VALVES

- 2.09.1 Gate valves of branches to supply fixtures shall be crane 125#.
- 2.09.2 Valves up to and including two inches shall be threaded ends, rough bodies, and finished trimmings.
- 2.09.3 Valves 2 1/2 in. diameter and larger shall have iron bodies, brass mounted and shall have either screws or flanged ends.

TYPE AND SIZE OF VALVE	STEM	BODY	END CONNECTION	APPLICABLE STANDARDS
1. 75 mm and larger gate valves, inside boxes (150 psi working pressure)	: Non-Rising :	: Iron with Bronze trim :	: Flanged :	: AWWA C500-59 :
2. 75 mm and larger check valves (150 psi working pressure)	: -do- :	: -do- :	: Flanged :	: AWWA C500-59 :
3. 67 mm and smaller gate valves inside boxes (150 psi working pressure)	: Non-Rising :	: All bronze :	: Female Threaded :	: Federal Specs WW-V-58 :
4. 67 mm and smaller check valves (150 psi working pressure)	: -do- :	: All bronze :	: Female Threaded :	: Federal Specs WW-V-58 :
5. 67 mm and smaller globe valves (150 psi working pressure)	: Rising :	: -do- :	: Female Threaded :	: UL Approved :
6. 75mm and larger gate valves exposed (150 psi working pressure)	: Rising :	: Iron with bronze trim :	: Flanged :	: AWWA C500-59 :
7. 67 mm and smaller gate valves, (150 psi working pressure)	: Rising :	: All bronze :	: Female Threaded :	: Federal Specs WW-V-58 :

- 2.09.4 Gate valves and check valves for transfer pump pipings shall be tested at 150 psi for a period of 2 hours.

## 2.10 TRAPS

- 2.10.1 Traps installed on hub-and-spigot pipe shall be extra heavy cast iron.
- 2.10.2 Traps installed on threaded pipe shall be recessed drainage pattern.
- 2.10.3 No trap which depends for its seal on the action of movable parts shall be used, full S-traps, bell traps and crown vented traps are prohibited.
- 2.10.4 Trap Cleanouts: Each fixture trap except those cast integral or in combination with fixtures in which the trap seal is readily accessible or if the trap is removable shall have an accessible brass trap screw of ample size.
- 2.10.5 Underground traps except P-traps on floor drains shall be provided with removable cleanouts.

## 2.11 VACUUM BREAKERS :

- 2.11.1 Provide vacuum breaker on the supply side or discharge side of each, hose bibb, fixture and equipment as indicated or required.

## 2.12 SHOCK ABSORBERS (Water Hammer Arrestors) :

- 2.12.1 Provide air capped chamber where shown on the drawings, on all individual branch water lines to equipment or fixtures.



## 2.13 CLEANOUT AND CLEANOUT ACCESS COVERS

### 2.13.1 CLEANOUTS

- a. Cleanout shall be of the same size as the pipe, but cleanout larger than four inches will not be required, except as shown in the drawings.
- b. Cleanouts installed in connection with cast iron bell and spigot pipes shall consist of a long sweep quarter bends extended to an easily accessible place or where indicated on the drawings.
- c. An extra heavy cast-brass ferrule with countersunk tap screw cover shall be caulked into the hub of the fitting and shall be extended using the Zurn cleanout access covers until flushed with the floor or wall.
- d. Cleanouts shall be provided in all soil, storm or waste lines at every change in direction greater than 45 degrees.
- e. Cleanouts shall be not more than 50 feet apart in horizontal drainage lines of 4 inch nominal diameter or less and not more than 100 feet apart for larger pipes.

2.13.2 Cleanout and cleanout access cover shall be Zurn or approved equal as indicated below.

APPLICATION	TYPE	PRODUCT NO.
Concealed Drainage Lines	Horizontal Cleanouts with Access Covers	Z-1440-5
Exposed Drainage Lines	Horizontal and Vertical Cleanouts	Z-1440
Finished Floor Area	Floor Level Access Cleanouts	Z-1425-6
	Tile Floors	Z-1400-1
Finished Walls	With Round Plate Access Covers	Z-1440-1

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## 2.14 DRAINS

- |  |   |
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| (a) Floor Drains at Toilets                                      | ASA 40-9A, Pipe Size 2" by ASA Metals or approved equal.    |
| (b) Floor Drains at Machine & Genset Room/<br>Transformer Vault/ | ASA 40-9F, Pipe Size 3" & 4" by Metals or approved equal.   |
| (c) Balcony Drains   | ASA 40-9A, Pipe Size 3" by ASA Metals or approved equal.    |
| (d) Tank Drain   | ASA 40-9N, Pipe Size 4" by ASA Metals or approved equal.    |
| (e) Grating Cover  | ASA Grates X H - 12" x 24" by ASA Metals or approved equal. |
| (f) Deck Drains  | ASA 10-12, Pipe Size 4" by ASA Metals or approved equal.    |
| (g) Parking Area Drains  | ASA 40-9J, Pipe Size 4" by ASA Metals or approved equal.    |
| (h) Ledge & Planter Box Drains                                   | ASA 20-5.4, Pipe Size 3" by ASA Metals or approved equal.   |
| (i) Roof and Canopy Drains                                       | ASA 10-8, Pipe Size 4" by ASA Metals or approved equal.     |
| (j) Overflow Drains (planters)                                   | ASA OV-2, Pipe Size 2" by ASA Metals or approved equal.     |

## 2.15 HOSE BIBBS

- 2.15.1 Hose bibbs shall be Crane 125# made of male inlet threads, hexagon shoulder and three quarter inch hose connections.

## 2.16 PIPE SLEEVES

- 2.16.1 Pipe sleeves shall be installed and properly secured in place at all points where pipes pass through masonry or concrete, except unframed floors on earth.
- 2.16.2 Pipe sleeves shall be of sufficient diameter to provide approximately one-quarter inch clearance around the pipe or insulation.

- 2.16.3 Pipes sleeves in walls and partitions shall be of wrought iron or steel pipe. Pipe sleeves in concrete beams or concrete fireproofing shall be wrought iron or steel pipe.
- 2.16.4 Pipe sleeves thru floors shall be galvanized steel pipe schedule 26. Sleeve in floor shall extend not less than one inch and not more than two inches above, and the space around the pipe shall be packed with plastic materials and made water tight.
- 2.16.5 Pipe sleeves in footings shall be or steel pipe and shall be not less than four inches larger in diameter than the pipe to be installed.
- 2.16.6 Flashing sleeves shall be installed where pipe pass through waterproofing membrane. The sleeves shall be provided with an integral flashing flange or clamping device to which a flashing shield shall be of sixteen ounce, soft sheet copper, shall extend not less than eight inches from the sleeves and flashing flanges and should be thoroughly mopped into the membrane.
- 2.16.7 The space between the pipes and sleeves shall be made water tight by inserting a picked Oakum gasket and filling the remaining space with poured lead caulking thoroughly.
- 2.16.8 All pipe penetration sleeves shall be galvanized schedule 40 steel pipe with anchor plate or collar for waterproofed exterior or interior concrete walls ( watertanks ), waterproofed exterior or interior concrete beams and girders.

## 2.17 HANGERS AND SUPPORTS

### 2.17.1 PIPE HANGERS, INSERTS AND SUPPORTS

- a. Horizontal runs of pipe shall be hung with adjustable wrought iron or malleable iron pipe hangers spaced not over 10 feet apart, except hub-and-spigot soil pipes which shall have hangers spaced not over five feet apart and located near the hub.
- b. Trapeze hangers may be used in lieu of separate hangers on pipes running parallel to and close to each other.

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- c. Chains, straps, perforated turnbuckles or other approved means of adjustment, except that turnbuckles may be omitted for hangers on soil or wastepipes from individual toilet rooms to maintain stacks when space does not permit their use.
- d. Inserts shall be of cast steel and shall be of type to receive a machine bolt or nut after installation. Inserts shall be permitted adjustment of the bolt in one horizontal direction and shall be installed before the concrete is poured.
- e. Vertical runs of pipe shall be supported by wrought iron clamps or collar spaced not more than 20 feet apart or as shown in the plans.
- f. Chromium plated pipe shall have a clearance of not less than three-quarter inch nor more than one inch when run on the face of marble or plaster, and the pipe shall be supported where required by cast brass supports finished to match the pipes.
- g. Provide clamps and sway braces for all risers and downfeeds (at every floor).
- h. Provide sway braces or clamps at every 10 feet for lines running along beams and at every beam for lines running across beams.

## 2.18 FLOOR, WALLS, AND CEILING PLATES

- 2.18.1 Where uncovered exposed pipes pass through floors, finished walls or ceilings, they shall be fitted with chromium plated cast brass plates or chromium plated pipe or steel plates on ferrous pipes.
- 2.18.2 Plates shall be large enough to completely close the hole around the pipes and shall be octagonal or round with the least dimension not less than one and one-half inches larger than the diameter of the pipe. Plates shall be well secured.

## 2.19 PUMP SPECIFICATIONS FOR WATER DISTRIBUTION

### 2.19.1 HYDROPNEUMATIC PUMPS

Furnish and install where shown on plans a unitized factory assembled two-pump hydropneumatic system, package type, capable of supplying 100 GPM against 100 FT.TDH. Each pump shall be driven by a 3 HP electric motor, 3500 RPM, 220 volts, 3 phase, 60 hertz equipped with suitable starters, control panel, pressure switches and pressure gauges, 220 gallons capacity bladder surge tank, set at 20/40 psi, cut-in and cut-off pressure setting and all necessary accessories.

### 2.19.2 TRANSFER PUMPS

Furnish and install vertical - in line bronze fitted, single stage, centrifugal pump. Each pump shall be rated to deliver 250 GPM against 400 FT.TDH. Each pump shall be driven vertically thru a 50 HP electric motor, 3500 RPM, 230 volts, 3 Phase, 60 Hertz. The pump assembly shall be mounted on a heavy duty cast iron support stand for floor - mounting, complete with the following accessories :

- a) Magnetic reduced voltage starter for each pumps
- b) Automatic pump alternator
- c) LH \BW liquid level controllers for pumping up and high/ low water level cut-off

### 2.19.3 ELEVATOR PIT PUMPS

Furnish and install where shown on plans, two (2) units non-clog submersible pumps to deliver 20 GPM against 20 FT. TDH. driven by a 1/2 HP submersible motor, 1800 RPM, 220 volts, 1 phase, 60 hertz equipped with suitable starters and all necessary accessories.

2.19.4 Approved Brand : Aurora pump or equivalent.

#### 2.19.5 DRAINAGE SUMP PUMPS

Furnish and install where shown on plans Duplex type non-clog submersible sump pumps. Each pump shall be capable of delivering 300 GPM against 40 FT. TDH. Each pump shall be driven by a 5 HP submersible motor, 1800 RPM, 220 VOLTS, 3-phase, 60 HERTZ complete with the following accessories :

- a) Magnetic starter for specified pumps
- b) Automatic pump alternator
- c) Three (3) mercury type liquid level controllers
- d) Access cover, guide rails and lifting chains for each pump

#### 2.21.6 Sewage Ejectors

One (1) set, duplex type, non-clog submersible pumps capable of delivering 50 GPM against 30 Ft. TDH. Each pump shall be driven by a 2 HP submersible motor, 1800 RPM, 230 volts, 3-phase, 60 Hertz, complete with the following accessories :

- a) Direct-on-line magnetic starter for each pump
- b) Three (3) mercury type liquid level controller
- c) Quick disconnect pump connector
- d) Access cover
- e) Guide rails with lift chain
- f) Mechanical pump alternator

Note: Pumps shall operate alternately or simultaneously if required.

## PART 3 - EXECUTION

### 3.01 PIPING INSTALLATION :

3.01.1 General : Piping shall be installed as shown on the drawings, as recommended by the manufacturer and as directed during installation, straight and direct as possible, forming right angles or parallel lines with building walls and other pipes, and neatly spaced. Erect pipe risers plumb and true, parallel with walls and other pipes neatly spaced.

- a. All piping shall be properly supported or suspended on stands, clamps, hangers, or equivalent of approved design. Supports shall be installed in such a manner to permit pipe free expansion and contraction while minimizing vibration.
- b. Do not install pipes in a manner which interferes with other pipes, ducts, conduits, equipment and adjacent structures of the building.
- c. The arrangement, positions and connections of pipes, fixtures, drains, valves and the like, indicated on the drawings shall be followed as closely as possible. The right is reserved by the Project Manager to change locations and elevations to accomodate conditions which may arise during the progress of the work, prior to installation, without additional compensation for such changes.
- d. The responsibility for accurately laying out the work and coordination of installation with other contracts rests with this contractor. Any field layout interferences that occur shall be reported immediately to the Project Manager.
- e. All pipes shall be cut accurately to measurements and shall be worked into place without springing or forcing. Changes in pipe sizes shall be made with reducing fittings.

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- f. Roughing-in for pipes and fixtures shall be carried along with the building construction. Correctly located openings of proper sizes shall be provided where required in the walls and floors for the passage of pipes. All items to be embedded in concrete shall be thoroughly cleaned and free from all rust, scale and paint.
- g. Pipes shall not pass through columns, footings, beam of ribs, except where noted on the drawings.

### 3.01.2 COLD WATER SYSTEM

- a. The piping shall be extended to all fixtures, outlets, and equipment from the gate valves installed in the branch near the riser.
- b. All pipings above ground shall be run parallel with the lines of the building unless otherwise shown in the plans.
- c. No water pipings shall be buried in floors unless specifically indicated on the drawings or approved by the Engineer.
- d. All service pipes, valves and fittings shall be kept at sufficient distance from other work to permit finished covering not less than one-half inch from such work or from finished covering on the different service.
- e. Changes in pipes shall be made with reducing fittings.
- f. No valve shall be installed with its stem below the horizontal. All valves shall be gate valves unless otherwise specified or noted on the drawings.
- g. Unions shall be concealed in walls, ceilings and partitions, except where they are enclosed in a metal frame box and cover.
- h. All coldwater lines shall be tested at 150 psi for a period of two (2) hours before covering.



### 3.01.3 THREADED PIPE JOINTS :

- a. All pipes shall be reamed before threading. All screw joints shall be made with graphite and oil or with an approved graphite compound applied to male threads only. Threads shall be full out, and not more than three threads on the pipe shall remain exposed
- b. Caulking of threaded joints to stop or prevent leaks will not be permitted. Use 3M pipe thread sealant or equivalent on all G.I. or steel pipes screwed on threaded joints.

### 3.01.4 SOIL AND WASTE PIPING SYSTEMS

- a. Fittings: All changes in pipe sizes on soil, waste and drain lines shall be made with reducing fittings.
- b. Bell and Spigot Joints: Lead joints shall be made by centering the spigot within the bell after the spigot has been driven home, and the joints yarned with jute or hemp, closely compacted, so as to leave a depth of two inches for the lead. Each joint shall be filled with lead in one continuous pouring from the laddle. Joints shall be poured full and the thoroughly caulked at least three times around with the proper caulking tools.
- c. All changes in direction shall be made by the appropriate use of forty-five degrees wyes or long sweep bends, except that sanitary tees may be used on vertical stacks and short quarter bends or elbows may be used in soil and waste lines where the change in direction of flow is from the horizontal to the vertical and on the discharge from the water closet.
- d. No trap which depends for its seal on the action of movable parts shall be used, full S-traps, bell traps and crown vented traps are prohibited.

### 3.01.5 VENT SYSTEM

- a. All main vertical soil and waste stacks shall be extended full size to and above the roof line to act as vents, except where otherwise specifically indicated.

- b. Vent pipes in roof spaces shall be run as close as possible to underside of roof with horizontal piping pitched down to stacks without forming traps. Vertical vent pipes may be connected into one main vent riser above the highest vented fixtures.
- c. Where an end or circuit vent pipe from any fixtures or line of fixtures is connected to a vent line serving other fixtures, the connections shall be at least four feet (4') above the floor on which the fixtures are located to prevent the use of vent line as waste.
- d. Horizontal waste receiving the discharge from two or more fixtures shall be provided with end vents unless separate venting of fixtures is noted.
- e. All vents embedded in concrete shall be G.I. pipes, schedule 40.
- f. All fixtures shall be individually vented.

#### 3.01.6 PIPING GRADES AND SLOPES :

- a. Keep all horizontal runs of piping, except where concealed in partitions, as high as possible and close to the wall.
- b. Piping shall be properly graded or pitched to insure easy circulation, drainage and prevent water hammer and noise. Slopes as follows unless otherwise indicated.
- c. Hot and cold water shall pitch, up in the direction of flow at 1 inch in 60 feet horizontal run.
- d. Maintain a minimum of 1 percent or 1 inch in 8'4" horizontal run for all sanitary soil, wastes and leader lines.

#### 3.02 CLEANING AND PAINTING

##### 3.02.1 ALL EXPOSED METAL SURFACES

- a. All exposed metal surfaces shall be rid of grease, dirt or other foreign materials.

- b. Chrome or nickel plated pipings, fittings and trimmings shall be polished upon completion.
- c. All equipment, fixtures, valves and fittings shall be cleaned of grease and sludge which may have accumulated. Any stoppage or discoloration, or other damage to parts of the building, its finish or furnishings due to the system shall be repaired by the Contractor.

### 3.02.2 PAINTING

- a. All exterior surfaces of pipings to be installed in or through concrete floor fill or tile floors and underground shall be given one coat of acid resisting paint having a bituminous base.
- b. Pipe hanger supports and all other iron works in concealed spaces shall be thoroughly cleaned and painted with one coat of asphalt varnish.
- c. Finish and all other iron works shall be as directed by the Architect.
- d. Exposed C.I. pipes and fittings that are tar or asphalt coated shall be given two coats of shellac prior to application of two coats of oil paint as directed by the Architect.

### 3.03 UNION CONNECTIONS

- 3.03.1 Slip joints shall be permitted only in trap seals or on the inlet side of the traps.
- 3.03.2 Tuckers or hub drainage fittings shall be used for making union connections wherever practicable in connection with dry vents. Use of screws and (except fitting bushed in the sand).

### 3.04 PLUMBING SYSTEM TEST

- 3.04.1 The entire system of drains, waste and vent piping inside the building shall be tested. Water test shall be in accordance with the Plumbing Code. Every portion of the system shall be tested to a hydrostatic pressure equivalent to at least 10-foot head water. After filling, water supply shall be shut-off and allowed to stand 1/2 hour under test, during which time there shall be no drop greater than 4".

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- 3.04.2 Upon completion of the roughing-in and before setting fixtures, the entire cold water piping system shall be tested at 150 psi for a period of two hours before covering.
- 3.04.3 Where a portion of the water piping system is to be concealed before completion, this portion shall be tested in a manner similar to that described for the entire system.
- 3.04.4 The Contractor shall furnish and pay for all devices, materials, etc., labor and power required in connection with all tests. All tests shall be made in the presence and satisfaction of the Sanitary Engineer, Plumbing and other City Inspectors, and other public utilities having jurisdiction.
- 3.04.5 Defects disclosed by the test shall be repaired or if required by the Engineer or his representative, defective work shall be replaced without extra charge to the Owner. Test shall be repeated as directed until all works are proven satisfactory.
- 3.04.6 The Contractor shall also be responsible for the other trades that may be damaged or disturbed by the tests or the repair or replacement of his own work and shall restore the damage to its original condition without extra cost to the Owner.
- 3.04.7 The Contractor shall notify the Engineer, Plumbing Inspector and others having jurisdiction at least a week in advance of making the required tests so arrangements can be made for their presence to witness the test.
- 3.04.8 All repairs to pipings shall be made with new materials at the expense of the Contractor.

### 3.05 GUARANTEE FOR PLUMBING SYSTEM

- 3.05.1 The Plumbing Contractor shall furnish to the Owner a written guarantee covering the satisfactory operations of the plumbing installation in all its parts for a period of one (1) year after the date of acceptance. During this period, the Plumbing Contractor shall repair or replace any defective work and pay for any repair or replacement cost.

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### 3.06 WARRANTY FOR EQUIPMENT

3.06.1 The following equipment if furnished by the Contractor in any section of the specifications shall be guaranteed against defective design, materials and workmanship for a period of one (1) year from the date of final acceptance.

- a) Hydropneumatic Pump
- b) Transfer Pump
- c) Elevator Pit Pump

3.06.2 Upon receipt of a written complaint and during the period of the guarantee, all defective parts shall be replaced by the Contractor at his own expense.

### 3.07 COLOR CODING FOR PIPES

- (a) Cold Water Pipes - - - - - Green with White Band at 1.00 o.c.
- (b) Hot Water Pipes - - - - - Red with White Band at 1.00 o.c.
- (c) Sewage Pipes - - - - - Black with Red Band
- (d) Vent Pipes - - - - - Green
- (e) Storm Sewer Pipes - - - - - Black with Green Band

### 3.08 DISINFECTION

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

3.08.2 Chlorine shall be liquid chlorine or hypochlorite (HTH) and shall be introduced into the water lines in a manner approved by the Sanitary Engineer.

3.08.3 Chlorine dosage shall be to provide no less than 50 parts per million (or mg/l) of available chlorine and allowed to stand for 24 hours, after which the system shall be flushed with potable water until the residual chlorine content is about 0.2 parts per million. All valves in the system shall be opened and closed several times during the chlorinating period.

3.08.4 The interior of the underground reservoir and elevated water tank shall be thoroughly washed and swabbed with chlorine or hypochlorite solution containing 200 parts per million (mg/l) available chlorine and allowed to stand for at least 16 hours, after which the tank shall be flushed with potable water before placing in service.

Before washing and swabbing with chlorine solution, the tank shall be thoroughly cleaned of all debris, dirt or dust to the satisfaction of the Engineer.

3.08.5 The Contractor shall furnish and pay for all devices, chlorine materials, labor and power required for disinfection purposes. Disinfection shall be made in the presence of the Sanitary Engineer.

### 3.09 UNDERGROUND DRAINAGE SYSTEM

#### 3.09.1 EXCAVATING

- a. Trenches for all underground pipelines shall be excavated to the required depths and grades.
- b. Bell holes shall be provided so that pipe will rest on well tamped solid ground for its entire length.
- c. Where rock is encountered, excavation shall extend to a depth six inches below the pipe bottom and before pipe is laid, the space between the bottom of pipe or other approved filling materials.

### 3.09.2 PIPE LAYING

- a. Pipes in trenches shall be laid true to line and grade on a stable or suitably prepared foundation, each section of the pipe being bedded and bottom of the trench shaped to fit the lowest quadrant of the pipe circumference.

### 3.09.3 BACKFILLING

- a. After pipe lines have been tested, inspected and approved by the Engineer, and prior to backfilling, all forms and bracings shall be removed and the excavation shall be cleaned from trash and debris.
- b. Materials for backfilling shall consist of approved materials and shall be free of debris or big rocks.
- c. Backfill shall be placed in horizontal layers, properly moistened and compacted to an optimum density that will prevent excessive settlement and shrinkage.

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SECTION 15450  
PLUMBING FIXTURES AND TRIMS  
PART 1 - GENERAL

1.01 DESCRIPTION OF WORK :

- A. Work Included : Install complete, Owner furnished sanitary plumbing fixtures, trims and supply fittings, traps, valves, and supports in accordance with the contract documents.
- B. Furnish and install adaptors, couplings and devices required for complete connections of all sanitary plumbing fixtures and trims other than those supplied by the owner.
- C. All fixtures shall be completely new, free from defects, function efficiently and shall be cleaned, with trims polished and ready for use before acceptance.
- D. All plumbing fixtures and equipment shall be installed free and open in a manner to provide easy access for cleaning and shall be furnished with all brackets, cleats, plates and anchors required to support the fixtures and equipment rigidly in place.

1.02 TECHNICAL INFORMATION :

- A. The Project Manager shall provide pertinent and related technical information to the Contractor for Owner furnished materials and equipment as required upon written request.

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## PART 2 - PRODUCTS

### 2.01 STANDARDS :

- A. The products shall be as specified by the Architect.
- B. Unless otherwise specified, all fittings, escutcheons, faucets, traps, exposed piping and trims, shall be brass chrome plated over nickel plate with polished finish. Any hanger not visible shall likewise be chrome plated over nickel plate.
- C. Dimensional tolerances to ANSI Standards A112.19.2.

### 2.02 MATERIALS :

- A. General for all sanitary plumbing fixtures unless otherwise specified.
  - 1. Vitreous Ware : Fired vitreous china ware of the best quality, non-absorbent and burned so that the whole mass is thoroughly fused and vitrefied, producing a material while in color, which when fractured shall show a homogenous mass, close-grained and free from pores. Glazed finish thoroughly fused and united to the body, without discoloration, chips, or flaws, and free from craze. Warped or otherwise imperfect fixtures shall not be accepted.
  - 2. Fixtures : Free from imperfections, true as to line, angles, curves, and color, smooth. watertight and quiet in operation.
  - 3. Location, Type, Color and Finishes : See architectural drawings.
  - 4. The Plumbing Contractor shall be responsible for the supply of the fixture fittings (or trims) which are not provided with the fixture, but required for a complete installation. All fixtures shall be carefully checked to determine the items which must be provided to complete the installation.

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5. Air Chambers : All individual branches to fixtures and/or equipment shall be provided with air chambers shock absorbers as shown on the drawings (12" long for 1/2"Ø vertical, 18" for 3/4"Ø vertical).

2.03. SCHEDULE OF FIXTURES :

2.03.1 Refer to Architect's specifications and drawings.

PART 3 - EXECUTION

3.01 FIXTURE INSTALLATION :

- A. Support all fixtures securely in a neat workman like manner on approved carriers or supports. The method of support for each fixture shall be approved type manufacturer's standard, except where fixture designations on the drawings indicate modifications.
- B. Floor mounted water closets shall be installed with standard lead caulked cast bronze adaptor flange, wax gasket and hold down bolts with nuts, washers and bolt head cover on closet flange. Bolt head exposed cover shall match the color finish of the closet.
- C. Lavatories shall be supported on concealed chair carriers, single or double as required, with block base foot support bolted to floor, and adjustable sleeve for arm adjustment, steel pipe upright and adjustable alignment truss. Concealed arms shall be provided with leveling screws and locking device and shall be designed to receive threaded escutcheons. Slab type lavatories (wall mounted) shall be furnished with extra-heavy, cast brass chrome plated threaded escutcheon between the fixture and the wall. The escutcheon shall be screwed on the adjustable sleeve or arm. Countertop lavatories shall be built and anchored into architectural vanity countertops including trims as means of support.
- D. Urinals shall be supported on concealed chair carrier with block base supports bolted to floor, top plate for supporting concealed fixture hanger and through bolts to keep lower part of fixture free of wall, steel pipe uprights, adjustable sleeves, and adjustable alignment truss.

- E. Showerheads shall be wall mounted with supply pipe and fittings concealed. Height and spacing as shown on the drawings or as recommended by the manufacturer.
- F. Bath tubs shall be floor mounted with pipe and fittings concealed except finish trims and accessories. Provisions for installation and maintenance access of concealed trims and accessories shall be coordinated with architectural finishes.
- G. Wall mounted sinks shall be installed with manufacturer's standard concealed carrier or supports and otherwise supported by countertops as indicated on the drawings.
- H. Install all fixtures level and flush with finish floors and partitions.
- I. Drawings indicate fixtures layout dimensions. All rough-in dimensions shall be based on final finished dimensions. Deviations from the drawings due to actual site condition shall be approved by the Project Manager.
- J. All fixtures shall be provided with individual shut-off valves for cold water supplies so that any fixture may be separately controlled without affecting other fixtures supplied with the same distribution line.
- K. Fixture fittings, trims, faucets, traps, water supply pipes and waste pipes that are exposed to view in finished spaces shall be painted with one coat of red lead primer and two finish coats of enamel paint, the color to be designated by the Architect unless otherwise specified.
- L. Every plumbing fixture or equipment requiring connections to the sanitary drainage system shall be equipped with a trap.
- M. Each trap shall be placed as near the fixture as possible. No fixture shall be double-trapped.

3.02 TESTING AND CLEANING :

- A. The Project Manager or his authorized representatives shall conduct field inspection of all completed or partially completed installed plumbing fixtures prior to scheduled testing
- B. All plumbing fixtures shall be properly protected from use and drainage during the construction period. At the end of the work and prior to approval, the fixtures shall be cleaned as per manufacturer's recommendations, to the satisfaction of the Architect.
- C. After installation of any or all the plumbing fixtures of the building, same shall be kept clean and in working order, but shall not be used by anyone until the building has been formally turned over to and accepted by the Owner.
- D. Water running test shall be conducted for all fixtures in the presence of the Project Manager or his authorized representatives, in order to insure soundness, leakage-free and quiet operation.

# ELECTRICAL Technical Specification

SANDIGANBAYAN BUILDING

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PROJECT : SANDIGANBAYAN (COA Complex, Commonwealth Ave., cor.  
Batasan Rd. Quezon City)  
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Section 16050  
ELECTRICAL ENGINEERING WORKS  
PART 1 GENERAL

1.0 DESCRIPTION

1.01 The work to be done under this division of the specification consist of the fabrication, furnishing, delivery and installation complete in all details of the electrical works at the subject premises and all work 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 done in accordance with the governing codes and regulations, except where same shall conflict with such codes etc., which later shall then govern. The requirements with regard 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. The specifications are intended to provide a broad outline of the required equipment and are not intended to include all details of design and construction.

1.02 Laws/Code and Regulations

The work under this DIVISION shall be executed in accordance with the latest requirements of the following:

- Building Code of the Philippines
- Philippine Electrical Code
- Laws, ordinances, and regulations of the locality having jurisdiction over the project.
- Power Utility Company
- Philippine Long Distance Company
- UAP Doc 301

The requirements of the above mentioned governing laws/codes and the requirements of the companies having involvement/participation are hereby made part of this specification and the ELECTRICAL CONTRACTOR is required to comply the same.

This does not relieve the ELECTRICAL CONTRACTOR from complying with requirements of specification or drawings in excess of above laws and ordinances of above codes and requirements which are not prohibited by the same.

#### 1.03 Guarantee

The ELECTRICAL CONTRACTOR shall guarantee that the electrical system is free from all grounds and defective materials and workmanship for a period of one (1) year from the date of acceptance of the work. All defects arising within the guarantee period shall be remedied by the Electrical Contractor at his own expense.

The Electrical Contractor shall indemnify and save harmless the Owner from and against all claims, suits, actions, or liabilities for damage arising from injuries, disabilities or loss of life to persons or damage to public or private property resulting from fault or any act of Contractor or his representative in the representative in the execution of the work.

The partial acceptance of the work for the purpose of making partial payments, based on the estimated cost satisfactorily completed by the ELECTRICAL CONTRACTOR, shall not be considered as final acceptance of that portion of the work.

#### 1.04 Drawings and Specifications

- a) The electrical plans, which constitute an integral part of this specifications, shall serve as the working drawings. The plans indicate the general layout and arrangement of the complete electrical system and other works.
- b) The drawings and specifications are meant specifically to be complementary to each other and where it is called for by one shall be binding as if called for by both. Anything which is basically required to complete the installation of the proper operation but not expressly mentioned on the drawings and/or specification shall be furnished and installed by the ELECTRICAL CONTRACTOR at no extra cost to the Owner as though specifically stipulated or shown in both.

- c) The Owner shall have the final decision on any apparent conflict between the drawings and specifications or on under the controversial point in either or both.
- d) All dimensional and locations shown on the plans are approximate and shall be verified in the field as actual locations, distances and levels are governed by actual conditions.

## 2.0 SCOPE OF WORK

### 2.01 Work Included

The work to be done under this DIVISION shall include the furnishing of all tools, labor, equipment, fixtures and materials. Each complete and in proper working condition unless one or the other is specifically excluded or stated otherwise in these specifications. The scope of work shall include but not limited to the following items:

- a) Incoming primary entrance conduits, cables, service entrance pedestal primary pole and accessories.
- b) Transformer banks, primary protection, supports and accessories.
- c) Transformer vaults accessories.
- d) Low voltage switchboards, distribution panelboards, automatic transfer switches, power and lighting panelboards, circuit breakers, double throw switches supports and accessories.
- e) Wiring system for branch circuits, signal circuits, feeder wires subfeeders including respective conduits, fittings, wire gutters, pullboxes, supports and accessories.
- f) Wiring termination or connection to all equipments and wiring devices including necessary slices as indicated in the drawings.
- g) Supply and installation of all lighting outlets and accessories including necessary supports.
- h) Telephone systems including outlets, telephone cabinet, cable, conduit, jacketed wires, supports and accessories.



- i) Complete grounding system.
- j) Complete fire alarm system
- k) Complete intercom system
- l) Sub-meters / supply including metering equipment.
- m) Meter centers for normal power supply.
- n) Coordination with other trade of work/contractor.
- o) Coordination with companies / offices including handling of all matters related to power service, telephone service and permits.
- p) Preparation of necessary shop drawings that may be required by the Architect / Engineer, power company/telephone company.
- q) Preparation of necessary as-built drawings.
- r) Optional electrical work related to the project which the owner may decide to include/install.
- t) Supply and installation of all materials not shown in the drawings nor mentioned in these specifications but are necessary to complete the project shall form part of this contract.

## 2.02 Work not included

- a) Incoming telephone service entrance to Main Dis - tribution Frame (MDF).
- b) Telephone equipment.
- c) Termination/connection to motors including provision of control wires.
- d) All concreting works including reinforced concrete encasement for service entrance and feeder conduits, manholes & concrete foundation of equipment.
- e) All other items whose furnishing and/or installing are indicated as being specifically excluded from the electrical works in these specifications and drawings.

### 3.0 PROCEDURE

#### 3.01 Workmanship

The ELECTRICAL CONTRACTOR shall execute the work in the most thorough, prompt, and workmanlike manner and in accordance with the plans and specifications. The installation shall be done thru standard method and good engineering practice.

#### 3.02 Materials

All materials to be installed shall be brand new except as otherwise noted in the plans or specifications. The materials shall be as specified. No substitution of materials shall be allowed. Should the ELECTRICAL CONTRACTOR find it necessary to use another type/brand of materials instead of the specified item, he shall first obtain from the Owner prior to the installation. Any substituted materials installed without the approval of the Owner shall be subject to replacement.

#### 3.03 Coordination

It is the sole responsibility of the ELECTRICAL CONTRACTOR to conduct coordination of his activities with the following:

- a) Other trades and suppliers
- b) Owner
- c) PLDT
- d) Meralco
- e) Local Government Authority

#### 3.04 Deviations from the Plans

No deviations from the plans is to be made unless given notice or approval from the Owner or his duly authorized representative.

#### 3.05 Records Drawings and 'AS-BUILT' Plans

The ELECTRICAL CONTRACTOR is required to keep an active record of the actual installation during the progress of the job. This shall be the reference in the preparation of the 'AS-BUILT' plans which shall include all pertinent information. Complete in all aspect of the actual information not originally shown in the contract drawings. The 'AS-BUILT' plans shall

be prepared by the ELECTRICAL CONTRACTOR at his expense and shall be submitted to the Owner and the ENGINEER 'AS-BUILT' drawings shall be a pre-requisite for the final acceptance of the electrical works.

Submit two (2) copies of the 'AS-BUILT' signed and dry sealed by the ELECTRICAL CONTRACTOR'S Registered Professional Electrical Engineer. Original tracing reproduceable copy shall be submitted to the Owner.

### 3.06 Samples and shop Drawings

- a) 30 days prior to the installation or fabrication of materials the ELECTRICAL CONTRACTOR shall submit to the Owner the following for approval.
  - 1) Shop drawings of panelboards showing arrangements of circuit breakers, bus bar, sizes, lugs, etc.. Indicate all dimensions.
  - 2) Shop drawings or samples required as noted in the drawings.
  - 3) Samples and catalogs of materials intended to be installed.
    - circuit breakers
    - disconnect switches
    - wiring devices (switches and c.o's)
    - lighting fixtures
    - lighting diffusers
    - conduits
    - wires
    - other electrical materials
  - 4) Shop drawings for the telephone system from the telephone terminal cabinet to the outlets.
  - 5) Complete shop drawings for the fire alarm system.
  - 6) Detailed shop drawings for wire gutters, conduit runs, pull boxes, etc..
  - 7) Complete shop drawings of conduit runs.
- b) The ELECTRICAL CONTRACTOR shall also submit to the Owner without delay shop drawings and other submittals which may be required by the Owner during the progress of the construction.

c) The above requirements shall be submitted to the Owner at the earliest possible time to give allowance for checking and verification. These shall be complete in all aspect.

d) Submit four (4) sets of each shop drawings.

### 3.07 Electric Power

The ELECTRICAL CONTRACTOR shall be responsible for his own electric power needs for the execution of the job.

### 3.08 Test

Conduits test on all electrical conductors installed in the presence of the Owner or his duly authorized representative.

- a) check the grounds.
- b) insulation resistance test
- c) continuity test for all outlets
- d) voltage level test
- e) phase relationship
- f) check circuit connection at panel boards, all single phase circuit shall be connected to phase as shown in the load schedule.

### 3.09 Submit Reports on Tests

All reports must be formal, typewritten and properly identified.

3.10 All defects found during the test shall be repaired immediately by the ELECTRICAL CONTRACTOR.

3.11 All tools, equipment and instruments needed to conduct test shall be on the account of the Contractor.

## 4.0 METHODS AND MATERIALS

### 4.01 Wiring Method

All wiring shall in general be installed inside standard conduits. All conduits shall be embedded in between double wall partitions, where the of concealed/embedded conduits is impractical or impossible, exposed conduits wiring may be used provided approval from the Owner have been secured.

#### 4.02 Location of Outlets

All outlets shall be truly centered in panels and spaces provided thereof. Any discrepancy in the outlets location between the electrical plan shall be brought at once to the attention of the Owner before installation.

#### 4.03 Grounding System

All metallic conduits, supports, cabinets and equipment shall be properly electrically grounded and/or bonded by means of copper straps. The conduits of each system shall be grounded by connecting to the water service pipe/ground rods.

Ground bars shall be bars, solid or stranded copper American wires or Phelps Dodge with sizes as shown on the plans. Ground wires shall be run at least 0.45m below natural grade line and without sharp kinks or bends.

Ground rods shall be 25mm x 3m unless otherwise indicated on the drawings. Hot dip galvanized steel vertically driven with head end 0.45m below natural grade line and provided with KSU BURNDY necessary to meet required ground resistance.

Ground resistance shall be as specified in Philippine Electrical Code article 4.2.8.3 and as required by the utility company.

## PART II PRODUCTS

### 4.04 Conduits

- a) Rigid steel conduits (RSC) and Intermediate metal conduits (IMC) :
  - 1) Standard trade size hot dipped galvanized with inside enamel or epoxy coating, Matsushita, or approved as equal.
  - 2) Joints - threaded coupling for joints.
  - 3) Use - service entrance, lighting and power, fire alarm system
- b) Polyvinyl chloride conduits (PVC)
  - 1) Standard trade sizes, schedule 40 "Neltex", "Powerguard" or approved as equal.
  - 2) Auxilliary system
- c) Flexible liquid - Tight Conduits
  - 1) Standard trade sizes, UL approved or equivalent
  - 2) Galvanized steel with outer liquid tight plastic jacket

### 4.05 Boxes

- a) All boxes shall be GA 16 (min.) TIMCO or approved as equal.

### 4.06 Conduits/Fittings

- a) Condulets shall be standard type 'TIMCO' brand.

### 4.07 Wires

- a) Wires shall be concealed copper .98% or better conductivity, insulated singled, except as noted on the drawings.
- b) Brand - Phelps Dodge 600 volts class type as indicated on the plans.
- c) Wires greater than # 8 square mm shall be stranded.

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d) Minimum size shall be #3.5 TW for power and lighting circuits.

e) Telephone wire shall be # 22 AWC jacketed type 4 wires.

#### 4.08 Connectors (For Meter Centers)

Use solderless mechanical 1 pressure-type lugs, copper.

#### 4.09 Insulation

All splices shall be properly insulated using 3m Brand electrical tape. Application of insulation shall be equivalent to the insulation of the wire concerned. Use filler compound. "Scotchfill" or approved equal at sharp edges to provide smooth surface before taping.

#### 4.10 Panelboards and Circuit Breaker

a) Panelboards shall contain a single brand of circuit breakers as manufactured by "General Electric " or approved equal.

b) All circuit breakers used as main shall be "Bolt On" type molded case, thermal magnetic protective, quick make, quick break, number and size as shown in the schedule. Internal common trip for 2 and 3 pole breakers.

c) Breaker minimum interrupting capacities shall be based on NEMA and UL procedures.

d) All circuit breakers used as branches rated at 50AT and below and specifically installed in lighting panel boards shall be "Plug-in-type", otherwise it shall be "bolt-on-type", internal common trip for 2 and 3 pole breakers.

#### 4.11 Kilowatt-hour Meters

Shall be of socket-type with rating as indicated in the drawings. Meter shall be capable of operating within 80%-130% of rated voltage. Meter shall be equipped with 4-dial pointer-type register with multiplier tabs. Meter shall be designed positive easy calibration. Meter shall be equipped with stainless cover ring and plastic base to provide corrosion and weather-resistant seal.

#### 4.12 Safety Switches

- a) All safety switches shall be rated as shown in the plans. Fusible type unless noted otherwise.
- b) Brand shall be "Super".
- c) All safety switches rated at 60A and above shall be spring assisted.

#### 4.13 Wiring Devices

- a) Lighting switches shall be of the quiet type, spring operated thumbler operation, minimum capacity of 10A at 230 volts. Switches shall be "NATIONAL" flush mounted type. Submit samples prior to the purchase of the switches. Mounting height will be 1.37 AFL.
- b) Receptacle Outlet: All convenience outlets shall be "NATIONAL" standard type, duplex type, parallel slots, flush mounting type. Cover plates shall be subject to the approval of the Owner. Submit samples for approval. Weatherproof outlets shall have same type as the convenience outlets except that the cover shall be of weatherproof type. Mounting height will be 0.30m AFL.
- c) Special purpose outlet - These shall be "Eagle" brand heavy duty, rated at no less than the full load ampere of the appliance to be served. Cover plate shall be subject to Owner's approval.
- d) Only one (1) brand of wiring device shall be used for the project.

#### 4.14 Lighting System

- a) Furnish, install and wire all equipment and materials required for complete lighting system as specified and shown on the plans.
- b) Lampholder shall be locking type, spring loaded bi-pin.
- c) Fluorescent lamps shall be cool white and rapid start or as shown on the plans.
- d) Fluorescent fixtures ballast shall be 230V high power factor, rapid start premium close or as shown on the plans and as manufactured by "Philips".
- e) Fixtures wiring shall comply with the manufacturer's recommendations and PEC requirements.



### PART 3 EXECUTION

#### 4.15 Installation of Conduits

- a) Installation is in accordance with PEC and of good engineering practice.
- b) Use standard trade size locknut and bushing at each end terminating in boxes/panelboards. Ensure electrically continuous conduit system.
- c) Provide independent conduits supports using hangers supports or fastening spaced in accordance with good engineering practice and PEC.
- d) Use adjustable trapeze hangers for horizontal parallel runs. Submit shop drawings for approval.
- e) Conduits must be concealed except in impractical areas and in mechanical/electrical rooms. Exposed conduits must be parallel to or at right angles to contour of walls slabs, etc. Use condulets wherever necessary.
- f) Conduits joints shall not be more than the equivalent of three (3) 90 degree bends between pulling points.
- g) Cut ends of conduits square with hand or power saw and ream to remove burrs and sharp edges. Do not use wheel cutter. Conduit threads cut on job shall have the same effective length, dimensions and taper as factory cut threads.
- h) Provide hangers, supports or fastening at each elbow and at end of every straight run terminating in a box or cabinet. Rigid fastening shall be spaced in accordance with the PEC.
- i) Clamps shall be galvanized maleable iron one hole strap, beam, clamps or other approved device with necessary bolts and expansion shields.
- j) Trapeze, hangers must be used for parallel runs of conduits clamps at end run and at each elbow. Paint hangers one prime coat of red lead or zinc chromate, and one finish coat of an approved color. Hangers are not detailed but must be adequate to support combined weight of conduit conductors and hangers, submit shop drawings for approval.

#### 4.16 Wireway/Pull Boxes

- a) Gauge formed sheet and reinforced sheet metal with screw fastened cover. Provide without knockout.
- b) Paint Wireway/box with manufacturer's standard baked enamel over lead primer.

#### 4.17 Boxes

- a) Outlet Boxes - outlet boxes shall be provided for each wiring device or lighting fixtures/outlet.
- b) Junction Boxes - provide junction boxes for splicing or pulling wires. Provide as shown on the plans or wherever necessary.
- c) All boxes shall be electrically grounded.

#### 4.18 Conduits/Fittings

Conduits, fittings shall be used with exposed conduits to maintain good symmetry with adjacent wall, etc..

#### 4.19 Wires

- a) Use standards in pulling wires.
- b) Splices of wires/cables shall be done inside junction boxes or auxilliary gutters using standard connectors. No wires shall be spliced inside conduits.

#### 4.20 Panelboards and Circuit Breaker

- a) NEMA type/enclosure unless noted; PEC rules and regulations circuit breakers type shall be 460V and 230V number of pole as required.
- b) Word "space" indicated in the schedule shall mean that complete bus, insulators, etc. shall be included ready to accept future circuit breaker of the same frame size as the largest branch circuit breaker.
- c) Maximum distance from floor to uppermost part of the panelboards shall be 1.80m.
- d) Panel directory shall be provided for each panelboards complete with necessary data. All circuit breaker of panelboards shall be marked to its actual phase connection (i.e. OAB, BC, CA).

- e) Directory shall be typewritten and placed inside of panel doors.
- f) Specifications for panel boards, and air circuit breaker.
  - 1) Panel boards to be used shall be flush mounted in areas that are visible to the general public, (such as corridor and lobbies) and may be flush or semi-flush mounted when located in the Electrical rooms or in areas where they are not visible to the general public. All panel boards shall be mounted, set plumb and installed symmetrical with surrounding objects.
  - 2) Each lighting panel board shall be mounted in baked enamel, 16 gauge cabinet properly reinforced, and of sufficient size to allow gutter space with a minimum of 100mm (4 inches) on all sides.
  - 3) Each cabinet shall be furnished with a plain pressed trim and a door of No. 14 gauge, steel, painted with two coats, to match the surrounding walls. Doors shall be furnished with hinges, door stop and lock with keys, all doors being keyed alike. Single door shall be provided for lighting panels.
  - 4) Power distribution panels shall be similar to lighting panels, except that minimum gutter space all around shall be 114 mm (4-1/2 inches) on all sides, if mains are 225 amperes. Use 204 mm (8 inches), if mains are 400 to 600 amperes. Gutter space indicated are minimum.
  - 5) Circuit breakers shall be of the common trip magnetic thermal type, with the ratings and number of poles as indicated in the load schedule and on the drawings.
  - 6) Interrupting capacities of the various ACB in symmetrical amperes shall be as follows:

FOR LIGHTING CIRCUITS ON LOADS:

ACB AMPERES	240 VOLTS
70 and below	10,000 V
70 to 100	10,000 V
Above 100 A	22,000 V

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FOR INDUSTRIAL TYPE MOTORS & DISTRIBUTION PANEL  
BOARDS :

AMPERES	240 VOLTS	480 VOLTS
70 and below	25,000 V	14,000 V
Above 70 to 250	25,000 V	18,000 V
Above 250 to 400	42,000 V	30,000 V
Above 400 to below 800	65,000 V	35,000 V
Above 800	85,000 V	50,000 V

5.0 TELEPHONE SYSTEM

5.01 The ELECTRICAL CONTRACTOR shall furnish and install all materials and labor necessary to complete the system in accordance with the latest issue of BICS standard. Any changes or addition required for proper operation of the system shall be supplied without additional cost to the Owner.

- a) Conduit system including boxes, cabinets.
- b) Telephone outlets
- c) Number 22-4/C jacketed wires from telephone terminated cabinet to outlet.
- d) Grounding system

5.02 All wiring shall be run through rigid PVC conduits. Cables for telephone branch conduits shall be 0.32 sq. mm. (#22 AWC) twisted triple PVC jacketed with number of runs shown on the plans.

5.03 Telephone lines to each outlets shall be properly tagged at each outlets and at the telephone terminal cabinet. Splicers shall be made with 3mm #UG splicers.

5.04 A continuous length of bars, stranded 14 sq. mm copper wire connected to the building grounding system shall be terminated at the terminal cabinet thru a ground bushing.

5.05 Outlet boxes for telephone instruments shall be of size and type to suit individual location. Wall telephone outlets shall be provided with a 9.8 mm cord hole at the middle.

- 5.06 The terminal cabinet shall be cold gauge steel construction and provided with snap catch and brass lock. The cabinet shall be provided with 9 mm thick pressure-treated wooden backboard and required number of terminal blocks.

## 6.0 FIRE DETECTION AND FIRE ALARM SYSTEM DESCRIPTION

### A. Operation

The system shall utilize smoke and heat detectors, manual stations, bells, annunciator and control panel with supervisory buzzer and lights. The early stage of fire outbreak sensed by the detector will send a pre-sentinal on duty of the situation. If, upon verification by the guard, the signal is confirmed, the general alarm thru the bells can be issued by operating on the FACP or on any manual station. The system can be reset to normal surveillance mode thru the operation on the FACP.

### B. Components and Features

#### 1. Fire Alarm Control Panel ( FACP )

This FACP shall be flush mounting type. It shall be able to handle at least 15 detector per circuit and must be capable of initiating general alarm condition. Input voltage shall be for 230 volt, single phase, 60 hertz, and shall incorporate the following features.

- a. Visual alarm thru lamps to indicate zone coverage indication of fire outbreak. The annunciator panel shall consist of supervised lamp indicator representing at least 32 zones.
- b. Testing Switch
- c. Reset control to switch off the general alarm and then resume automatic detention.
- d. Provide component necessary for outgoing automatic signal for feature connections to a main FACP. This signal from the smoke detectors to this FACP shall likewise be automatically transmitted to another control panel called the main fire alarm control panel ( MFACP ) likewise.

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e. Stand by 24 volts DC battery.

f. This FACP shall be provided with a component for the "incoming signal " such that any signal from a main FACP will automatically activate the alarm bell of this FACP.

g. FACP normal power supply shall homerun to panel ( LPBE-2 ) located at basement EE room.

## 2. Fire Alarm Bell

Fire alarm bell shall be for 24 VDC operation gong type, at least 150mm diameter.

## 3. Manual Station

Equipped with telephone jack for fireman's communication system fresh butter type with reset switch color red. Shall be interfasciable to monitor module that is addresseable.

## 4. Fire Alarm Control Balance

- must be monitored or supressed
- with battery back-up supply charger module and clearer module
- with fire zone indicator lamp
- various test function
- trouble lamps indicator
- test continuity
- rest switched
- lamp test
- trouble fire alarm sounder or "buzzer"
- with back-up digital zone indicator

## C. Brand / Manufacturer

The equipment / drawings to be installed shall be "EDWARDS" or approved equal.

## D. Requirements :

1. Installation shall comply with the manufacturer's standard / requirements.
2. Prior to installation of any equipment, the Contractor shall submit shop drawing on actual wiring runs, one line diagram, detailed drawing necessary for installation, and equipment specification sheets.

3. All other items not specifically mentioned but are necessary for the completion of the fire protection and alarm system in accordance with the approved plans and specifications.

E. Test

The Contractor shall apply such tests for the equipment/ devices as follows :

- a. Fire alarm bell
- b. Fire Alarm Annunciator
- c. Manual Station
- d. Zone system & etc.

Replace or remedy all effective works and devices. Submit typewritten report to Engineer.

# **SPL-2 – HEALTH AND SAFETY**

## **GENERAL GUIDELINES**

In compliance with Section 17 of DOLE D. O. No. 13, the implementation of construction safety shall be considered in all stages of project procurement (design, estimate, and construction) and its cost shall be integrated to the overall project cost under Pay Item "SPL-Construction Safety and Health" as a lump sum amount, to be quantified in the detailed estimate. Likewise, all requirements, provisions, and instructions pertaining to the implementation of Construction Safety and Health in every project shall be included in the project bidding documents specifically under the Instructions to Bidders.

Further considering industry practices and applicable government requirements, the following guidelines are hereby issued to all concerned:

### **1. Definition of Terms**

As used herein, the terms below shall be defined as follows:

#### **a. Occupational Safety and Health - As defined is the:**

- 1) Promotion and maintenance of the highest degree of physical, mental, and social well-being of workers in all occupation;
- 2) Prevention among its workers of any departures from health caused by their working conditions;
- 3) Protection among workers in their employment from risk usually from factors adverse to health; and,
- 4) Placing and maintenance of worker in an environment adopted to his/her psychological ability.

#### **b. Occupational Safety and Health Standard (OSHS)**

By the powers vested in the Department of Labor and Employment under Article 162 of the Labor Code of the Philippines, the Occupational Safety and Health Standards (OSHS) was promulgated for the guidance and compliance of all concerned with the main objective of protecting every workingman against the dangers of injury, sickness or death through safe and healthful working conditions, thereby assuring the conservation of valuable manpower resources and the preservation of loss or damage to lives and properties, consistent with national development goals and with the State's commitment for the development of every worker as a complete human being.

Likewise, further described as: rules and regulations implementing Article 162 (Safety and Health Standards), Book IV, Title I, P. 0.442; set of mandatory OSH standards which codifies all safety orders being enforced prior to its promulgation; and - contains administrative requirements, general safety and health rules, technical safety regulations, and other measures to eliminate or reduce OSH hazards in the work place.



**c. Construction Safety and Health Standards** - shall mean Rule 1410, Construction Safety and other relevant rules of the Occupational Safety and Health Standards (as amended) of the Department of Labor and Employment (DOLE).

**d. Construction Safety and Health Program** - refers to a set of detailed rules to cover the processes and practices that should be utilized in a specific construction site in conformity with the OSHS including the personnel responsible and the penalties for violations thereof.

**e. Construction Safety and Health Officer** - refers to safety personnel or any employee/worker trained by his employer to implement occupational safety and health programs in accordance with the provisions of DOLE D.O. No. 13 and the Occupational Safety and Health Standards (OSHS).

**f. Personal Protective Equipment (PPE) and Devices** - are equipment and devices designed to protect employees from workplace injuries or illness resulting from contact with chemical, radiological, physical, electrical, mechanical, or other workplace hazards. It also includes variety of devices and garments such as face shields, safety glasses, hard hats, safety shoes, goggles, coveralls, gloves, vests, earplugs, respirators, safety harness and lifelines.

## **2. Purpose**

The purpose of these guidelines is to establish a uniform methodology in estimating the required resources (manpower and equipment) for the implementation of Construction Safety and Health Standards in the workplace in compliance with the provisions of DOLE D.O. No. 13.

## **3. Methodology**

The minimum construction safety and health requirements for project shall be prepared during the detailed engineering stage.

In order to establish a uniform basis for estimating the required quantity of resources (manpower and equipment) for a project the following methodology shall be used.

### **a. Construction Safety and Health Program (CSHP)**

Section 5 of the DOLE D.O. NO.13 provides that every construction project shall have a suitable Construction Safety and Health Program (CSHP).

For the purpose of these guidelines, all projects regardless of amount, funding source and mode of implementation shall comply with the minimum safety and health requirements.

The contractor's proposed CSHP shall be in accordance with DOLE D.O. No. 13, series of 1998 and its Procedural Guidelines to be submitted as part of the first envelope (Technical Proposal) during the bidding process and later the winning bidder shall submit the same for approval of the DPWH authority, subject to concurrence by DOLEBWC.

For project to be implemented by administration, a CSHP shall also be prepared by the DPWH Implementing Office in accordance with the requirements of DOLE D. O. No.

13, s. of 1998 and likewise it shall also be submitted to DPWH authority for approval and thereafter to be concurred also by the DOLE-BWC.

The required Construction Safety and Health Program (CSHP) for specific project shall include but not limited to the following:

- a. composition of the Safety and Health personnel responsible for the proper implementation of CSHP;
- b. specific safety policies which shall be undertaken in the construction site, including frequency of and persons responsible for conducting toolbox and gang meetings;
- c. penalties and sanctions for violations of the Construction Safety and Health Program;
- d. frequency, content and persons responsible for orienting, instructing and training all workers at the site with regard to the Construction Safety and Health Program which they operate; and
- e. the manner of disposing waste arising from the construction.

#### **b. Construction Safety and Health Organization**

To ensure that the Construction Safety and Health Program are observed and implemented at the project site, at the start of D.O. No. 56 s. 2005 construction, each site shall have an established construction safety and health organization composed of the following personnel:

##### **b.1 Safety Engineer/Officer**

Section 7.1 of D.O. NO.13 states that "The general contractor must provide for a full time Officer, who shall be assigned as the General Construction Safety and Health Officer to oversee full time the overall management of the Construction Safety and Health Program".

Section 7.2 states that " The general contractor must provide for additional Construction Safety and Health Officer/s in accordance with the requirements for Safety Man / Officer of Rule 1033, Training and

Personnel Complement, as amended by DOLE D.O. No. 16 depending on the total number of personnel assigned to the construction project site, to oversee the effective compliance with the

Construction Safety and Health Program at the site, under the direct supervision of the General Construction Safety and Health Officer".

For the purpose of these guidelines, and as recommended by DOLE, for every construction project with 100 and above workers, an accredited safety officer by DOLE-BWC shall be employed. Only the cost for the Construction Safety and Health Officer, whether on full time or part time basis, actually assigned at the construction site shall be included in the cost estimate.

On the part of the government, the implementing office shall designate as part of their project staff a Safety Engineer who shall be responsible for ensuring compliance with the pertinent DOLE

Guidelines as well as the DPWH Guidelines on Occupational Safety and Health during the execution of the construction. The counterpart safety and health officer of the contractor shall closely coordinate and report to the government Safety Engineer.

## **b.2 Health Personnel**

Rule 1412.01 of OSHS states that "at every construction site there shall be an organized and maintained medical and dental health service and personnel" conforming with Rule 1960 Occupational Health Services.

For the purpose of these guidelines only the medical and dental practitioners actually assigned in the project site and as required on the above stated Rule shall be included in the total cost of safety.

Manpower rates shall be based on the prevailing rates of such professionals in the area which is found favorable to the government.

Employment period shall be based on the approved project duration and shall be adjusted correspondingly as the duration increases/decreases.

## **c. Personal Protective Equipment and Devices (PPE)**

Section 6 (Personal Protective Equipment) of D. O. No. 13 guidelines states that "every employer shall, at his own expense, furnish his workers with protective equipment for eyes, face, hands and feet, lifeline, safety belt/harness, protective shields and barriers whenever necessary by reason of the hazardous work process or environment, chemical or radiological or other mechanical irritants or hazards capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical agent".

All Personal Protective Equipment and Devices shall be in accordance with the requirement of the Occupational Safety and Health Standards (OSHS) and should pass the test conducted and/or standards sets by the Occupational Safety and Health Center (OSHC).

For General Construction Work the required Basic PPEs for all workers shall be Safety Helmet, Safety Gloves and Safety Shoes. Specialty PPEs shall be provided to workers in addition to or in lieu of the corresponding basic PPE as the work or activity requires.

## **d. Signages and Barricades**

Construction Safety Signages and Barricades shall be provided as a precaution and to advise the workers and the general public of the hazards existing in the worksite.

For road construction signages and barricades, it shall be in accordance with or in compliance to Department Circular No.9, Series of 2004 (Re: Road Safety Manuals and Handbooks) particularly on the 'Road Works Safety Manual.

## **e. Facilities**

Section 16 of DOLE D.O. NO.13 requires that the employer shall provide the following welfare facilities in order to ensure humane working conditions;

- a. adequate supply of safe drinking water;
- b. adequate sanitary and washing facilities;
- c. suitable living accommodation for workers, and as may be applicable, for their families; and
- d. separate sanitary, washing and sleeping facilities for men and women workers.

For the purpose of these guidelines, facilities related to construction safety and health shall be in accordance with OSH Standards and the manner of costing shall be based on previously approved guidelines of the Department, duly quantified as a separate pay item.

#### **f. Safety and Health Training**

Section 13 of DOLE D.O. No. 13 requires that the contractor shall provide continuing construction safety and health training to all technical personnel under his employ.

### **4. Costing**

In consideration of the cost involved of providing the necessary safety equipment and manpower for an effective implementation of safety in the workplace, and in compliance with DOLE D.O. No. 13, with safety as a separate pay item, the following shall be used as a guide:

#### **a. Personal Protective Equipment**

The PPEs shall be provided by the Constructor, and its cost shall be duly quantified and made part of the overall cost of safety and health (SPL). The use of PPEs shall conform to Rule 1080, Personal Protective Equipment and Devices of OSHS.

#### **b. Clinical Materials and Equipment**

Clinical materials and equipment such as medicines, beds and linens, other related accessories shall be to the account of the Constructors implementing the project and shall be in accordance with Rule 1960, Occupational Health Services of OSHS.

#### **c. Signages and Barricades**

The quantities and cost of signages and barricades necessary for a specific item of work shall be quantified and made part of that particular pay item of work.

For general signages and barricades not included in specific pay item of work but necessary for promoting safety in and around the construction site, the quantities and cost shall be a separate pay item and included in the overall cost of safety and health (SPL).

#### **d. Facilities**

Facilities such as portable toilets, waste disposal, sanitary and washing facilities, convenient dwellings and office, adequate lighting, and other facilities related to construction safety and health shall be in accordance with OSH Standards and previously

approved guidelines of the Department and shall be quantified and the cost thereof be made a separate pay item under "Facilities for the Engineers" and "Other General Requirements" as required in the DPWH Standard Specifications.

**e. Salaries/wages of Health and Safety Personnel**

Labor cost for the medical and safety personnel actually assigned in the field shall be included in the overall cost of safety and health (SPL). Duration of employment shall be based on project duration of the particular project.

**f. Safety and Health Training**

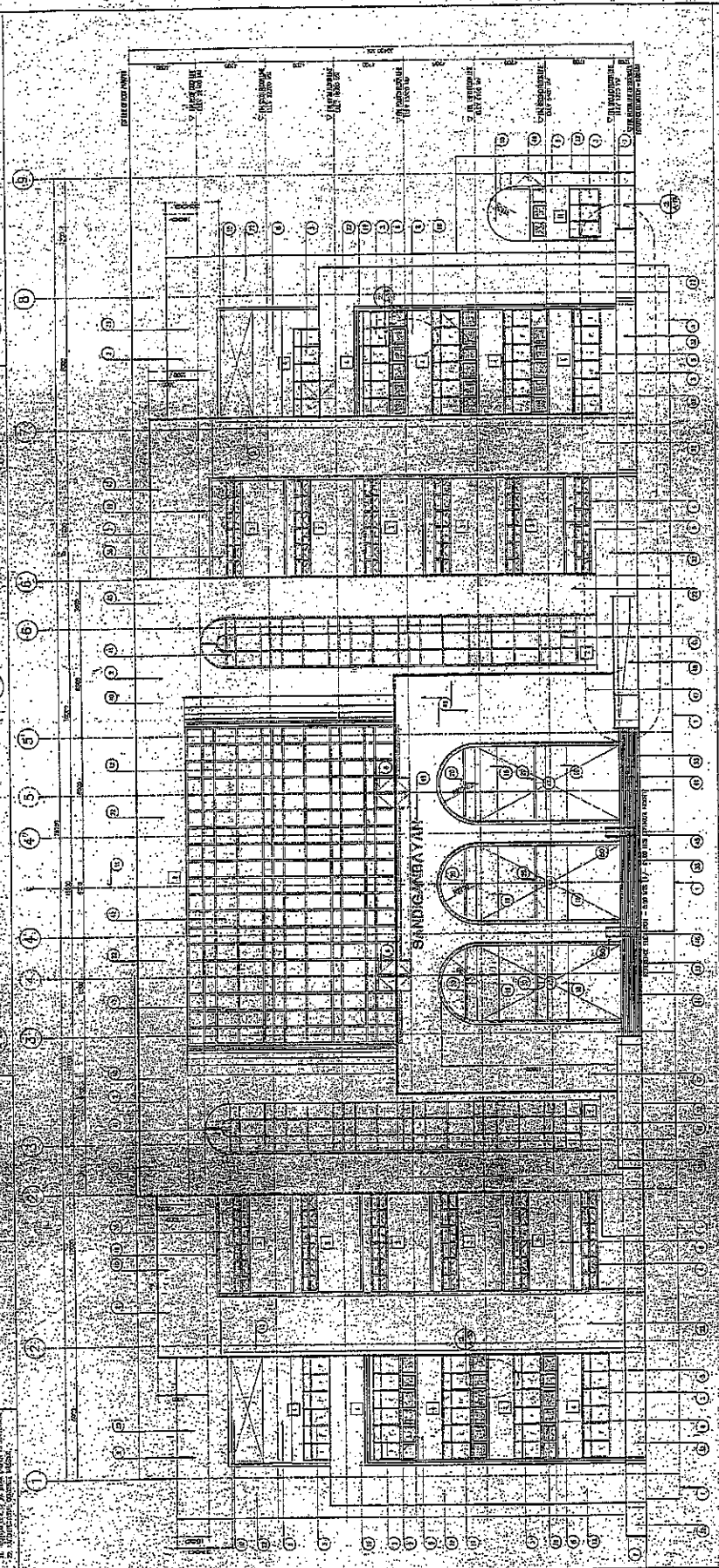
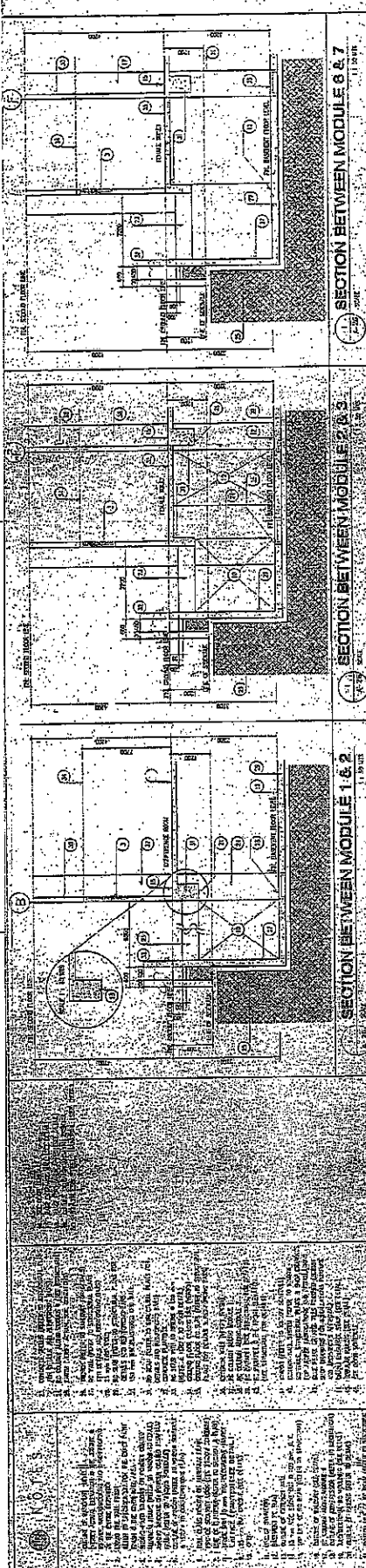
Cost associated for the provision of basic and continuing construction safety and health training to all safety and technical personnel shall be made part of the indirect/overhead cost of the project.

ITEM NUMBER	DESCRIPTION	UNIT OF MEASUREMENT
SPL-2	Provision on Health and Safety	I.s.

## ***Section VII. Drawings***

*(Please see separately compiled Drawings)*

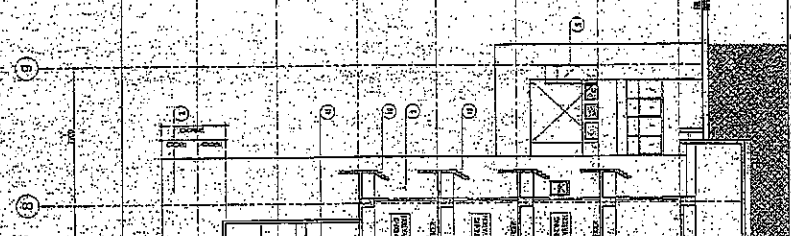




<p>1.00 MET</p> <p>1:50</p>	<p>1.00 MET</p> <p>1:50</p>	<p>1.00 MET</p> <p>1:50</p>	<p>1.00 MET</p> <p>1:50</p>	<p>1.00 MET</p> <p>1:50</p>
<p>SECTION BETWEEN MODULE 1 &amp; 2</p>	<p>SECTION BETWEEN MODULE 2 &amp; 3</p>	<p>SECTION BETWEEN MODULE 6 &amp; 7</p>	<p>FRONT ELEVATION FACING WEST</p>	<p>AS BUILT PLAN</p>
<p>1.00 MET</p> <p>1:50</p>	<p>1.00 MET</p> <p>1:50</p>	<p>1.00 MET</p> <p>1:50</p>	<p>1.00 MET</p> <p>1:50</p>	<p>1.00 MET</p> <p>1:50</p>
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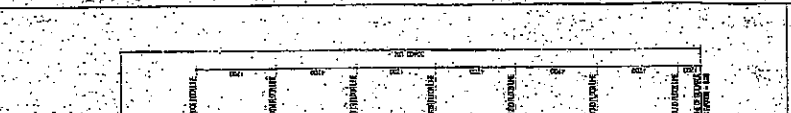
<p><b>REVISIONS</b></p> <p>1.00 MET</p> <p>1:50</p>	<p><b>CLIENT</b></p> <p>1.00 MET</p> <p>1:50</p>	<p><b>DESIGNER</b></p> <p>1.00 MET</p> <p>1:50</p>	<p><b>DATE</b></p> <p>1.00 MET</p> <p>1:50</p>	<p><b>PROJECT</b></p> <p>1.00 MET</p> <p>1:50</p>
<p><b>REVISIONS</b></p> <p>1.00 MET</p> <p>1:50</p>	<p><b>CLIENT</b></p> <p>1.00 MET</p> <p>1:50</p>	<p><b>DESIGNER</b></p> <p>1.00 MET</p> <p>1:50</p>	<p><b>DATE</b></p> <p>1.00 MET</p> <p>1:50</p>	<p><b>PROJECT</b></p> <p>1.00 MET</p> <p>1:50</p>



[illegible]

Architectural floor plan of a building. The plan shows a rectangular structure with several rooms and structural elements labeled. The layout includes a large central area, a smaller room on the left, and a series of rooms on the right. Structural elements like columns and beams are indicated by dashed lines. Labels include:

- ROOM 100
- ROOM 101
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- ROOM 103
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- ROOM 463



METRICOS & PARTNERS P.L.L.C.	IS	PEA CONSTRUCTION TASK FORCE	SAN on G
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[illegible]

### NOTES

1. GENERAL NOTES: SEE SPECIFICATIONS FOR MATERIALS AND CONSTRUCTION.
2. FOUNDATION: SEE FOUNDATION PLAN FOR DETAILS.
3. ROOF: SEE ROOF PLAN FOR DETAILS.
4. WALLS: SEE WALL SECTION FOR DETAILS.
5. FLOORS: SEE FLOOR PLAN FOR DETAILS.
6. CEILING: SEE CEILING PLAN FOR DETAILS.
7. MECHANICAL: SEE MECHANICAL PLAN FOR DETAILS.
8. ELECTRICAL: SEE ELECTRICAL PLAN FOR DETAILS.
9. PLUMBING: SEE PLUMBING PLAN FOR DETAILS.
10. PAINT: SEE PAINT SPECIFICATIONS FOR DETAILS.
11. FINISHES: SEE FINISH SPECIFICATIONS FOR DETAILS.
12. GLAZING: SEE GLAZING SPECIFICATIONS FOR DETAILS.
13. FURNITURE: SEE FURNITURE SPECIFICATIONS FOR DETAILS.
14. EQUIPMENT: SEE EQUIPMENT SPECIFICATIONS FOR DETAILS.
15. ACCESSORIES: SEE ACCESSORIES SPECIFICATIONS FOR DETAILS.
16. OTHER: SEE OTHER SPECIFICATIONS FOR DETAILS.

#### SECTION ALONG MOD. 2

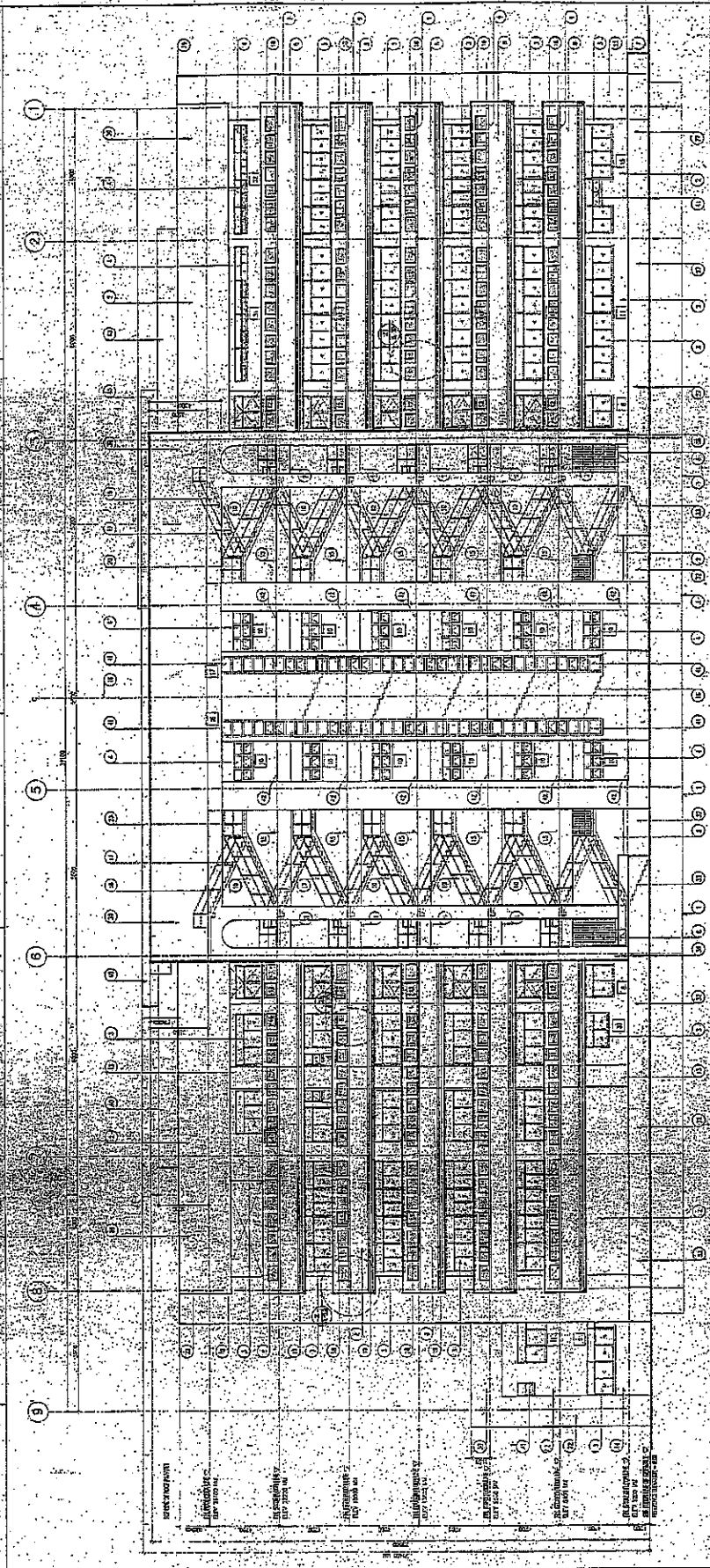
1/2" = 1'-0"

#### SECTION ALONG MOD. 7

1/2" = 1'-0"

#### SECTION BETWEEN MODULES 5 & 6

1/2" = 1'-0"



### REAR ELEVATION FACING EAST

1/2" = 1'-0"

#### SECTION ALONG MOD. 2

1/2" = 1'-0"

#### SECTION ALONG MOD. 7

1/2" = 1'-0"

#### SECTION BETWEEN MODULES 5 & 6

1/2" = 1'-0"

REAR ELEVATION FACING EAST

1/2" = 1'-0"

SECTION ALONG MOD. 2

1/2" = 1'-0"

SECTION ALONG MOD. 7

1/2" = 1'-0"

SECTION BETWEEN MODULES 5 & 6

1/2" = 1'-0"

SECTION ALONG MOD. 2

1/2" = 1'-0"

SECTION ALONG MOD. 7

1/2" = 1'-0"

SECTION BETWEEN MODULES 5 & 6

1/2" = 1'-0"

SECTION ALONG MOD. 2

1/2" = 1'-0"

SECTION ALONG MOD. 7

1/2" = 1'-0"

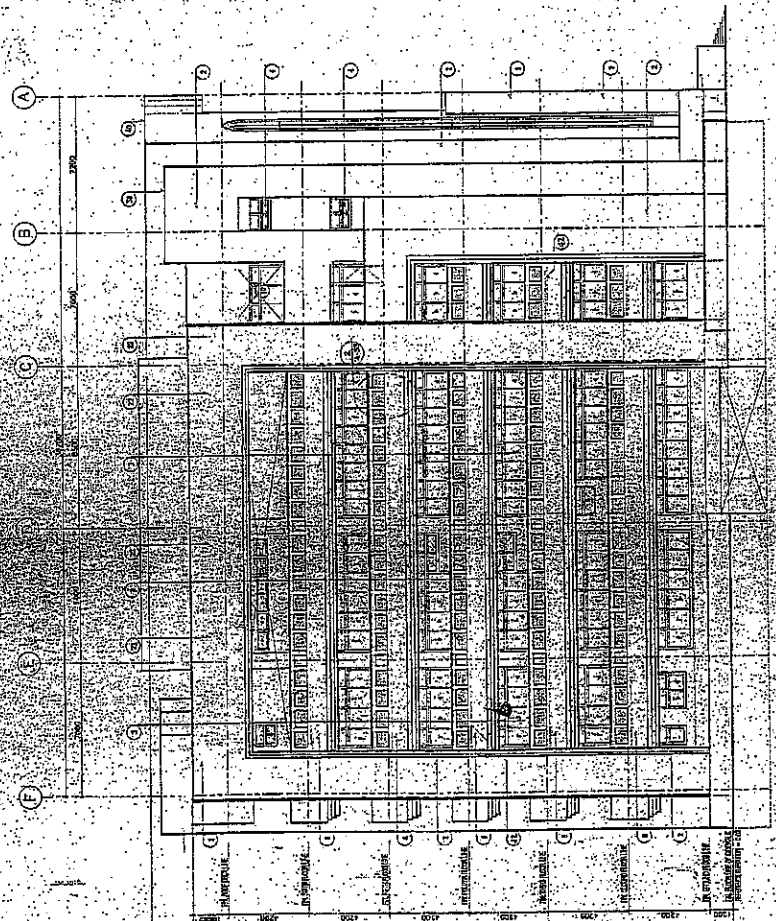
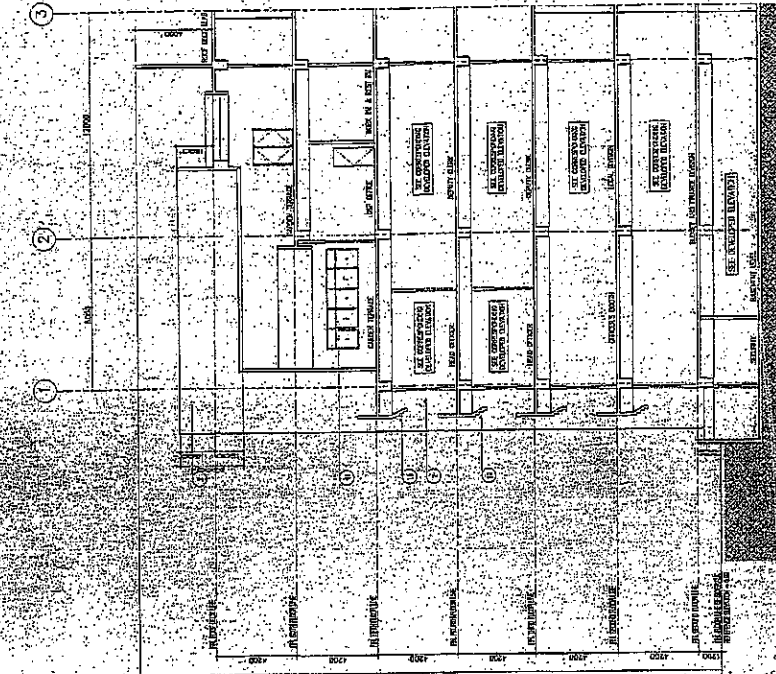
# NOTES

1. All dimensions are in millimeters unless otherwise specified.
2. All materials and workmanship shall conform to the latest editions of the Saudi Building Code (SBC) and the relevant standards of the Saudi Standards, Metrology and Quality Organization (SSMCO).
3. The contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities.
4. The contractor shall maintain accurate records of all construction activities and materials used.
5. The contractor shall ensure that all construction activities are carried out in accordance with the approved drawings and specifications.
6. The contractor shall ensure that all construction activities are carried out in a safe and sound manner.
7. The contractor shall ensure that all construction activities are carried out in a timely manner.
8. The contractor shall ensure that all construction activities are carried out in a cost-effective manner.
9. The contractor shall ensure that all construction activities are carried out in a sustainable manner.
10. The contractor shall ensure that all construction activities are carried out in a socially responsible manner.

SECTION BETWEEN MODULES D & E

SECTION BETWEEN MODULES B & C

SECTION BETWEEN MODULES A & B



ARCHITECTURAL BAY SECTION BETWEEN MODULES B & C

LEFT ELEVATION FACING NORTH

SAUDIAN BAY SECTION BETWEEN MODULES B & C

SAUDIAN BAY SECTION BETWEEN MODULES B & C

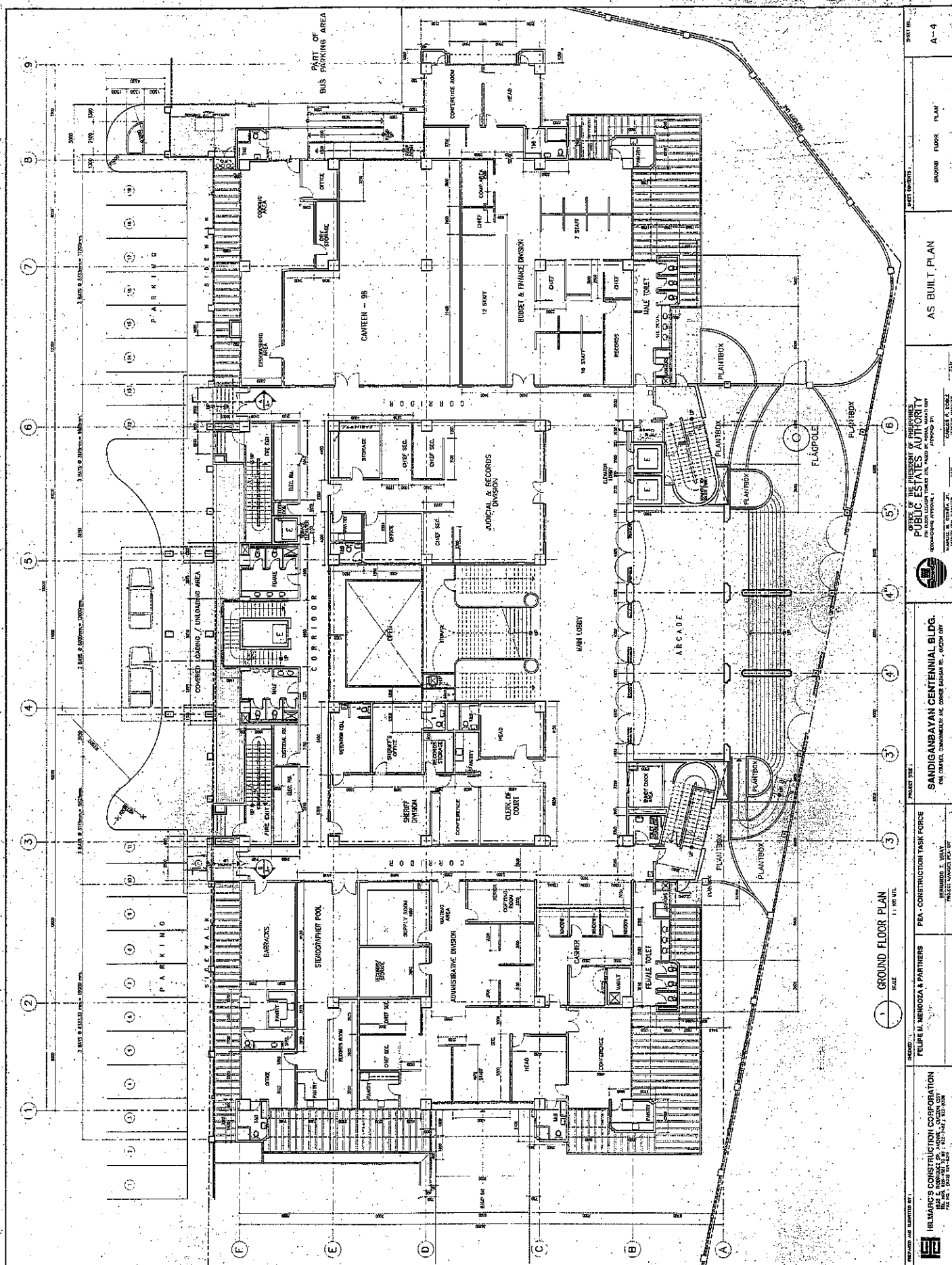
SAUDIAN BAY SECTION BETWEEN MODULES B & C

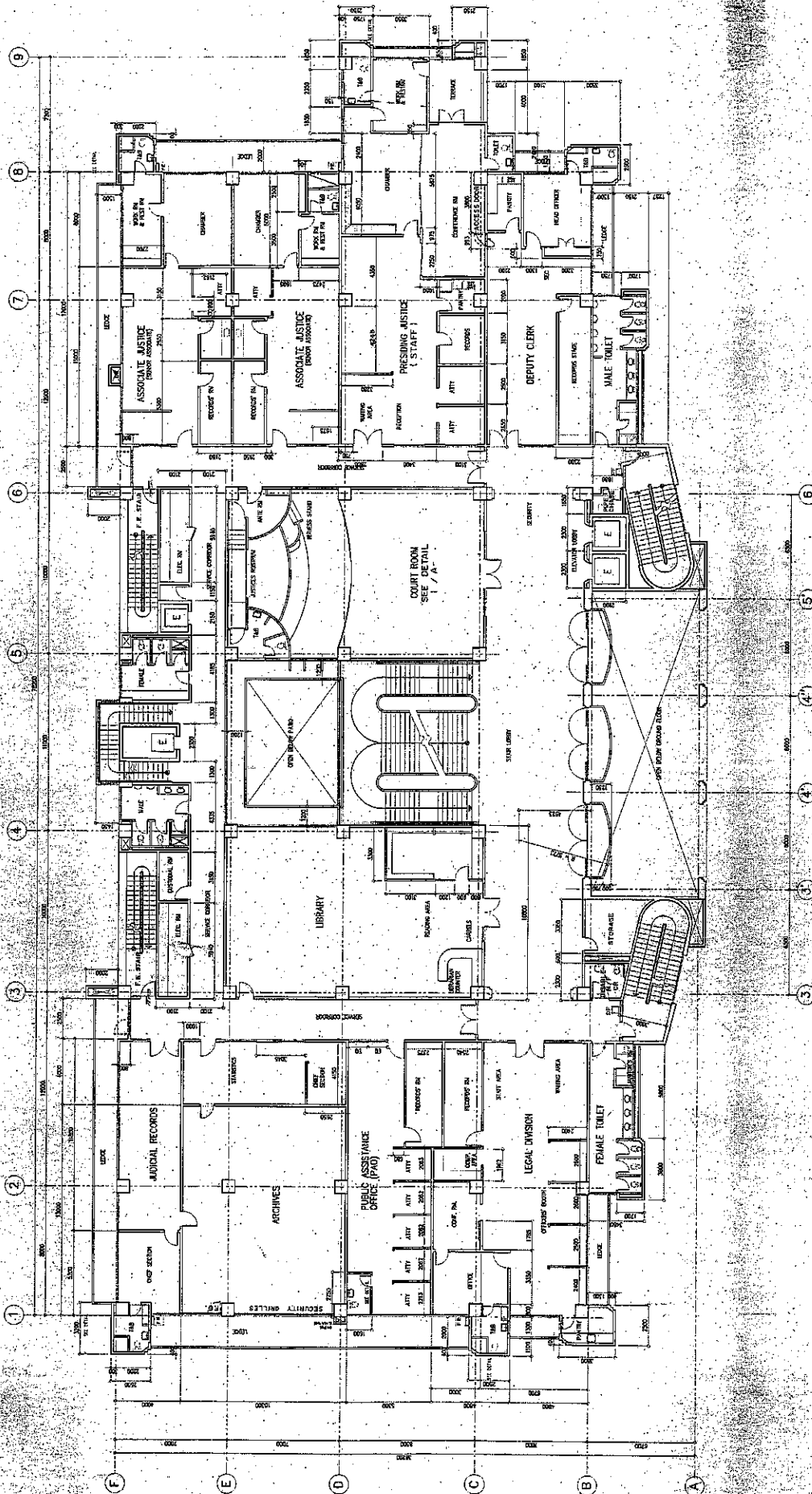
SAUDIAN BAY SECTION BETWEEN MODULES B & C

SAUDIAN BAY SECTION BETWEEN MODULES B & C

SAUDIAN BAY SECTION BETWEEN MODULES B & C



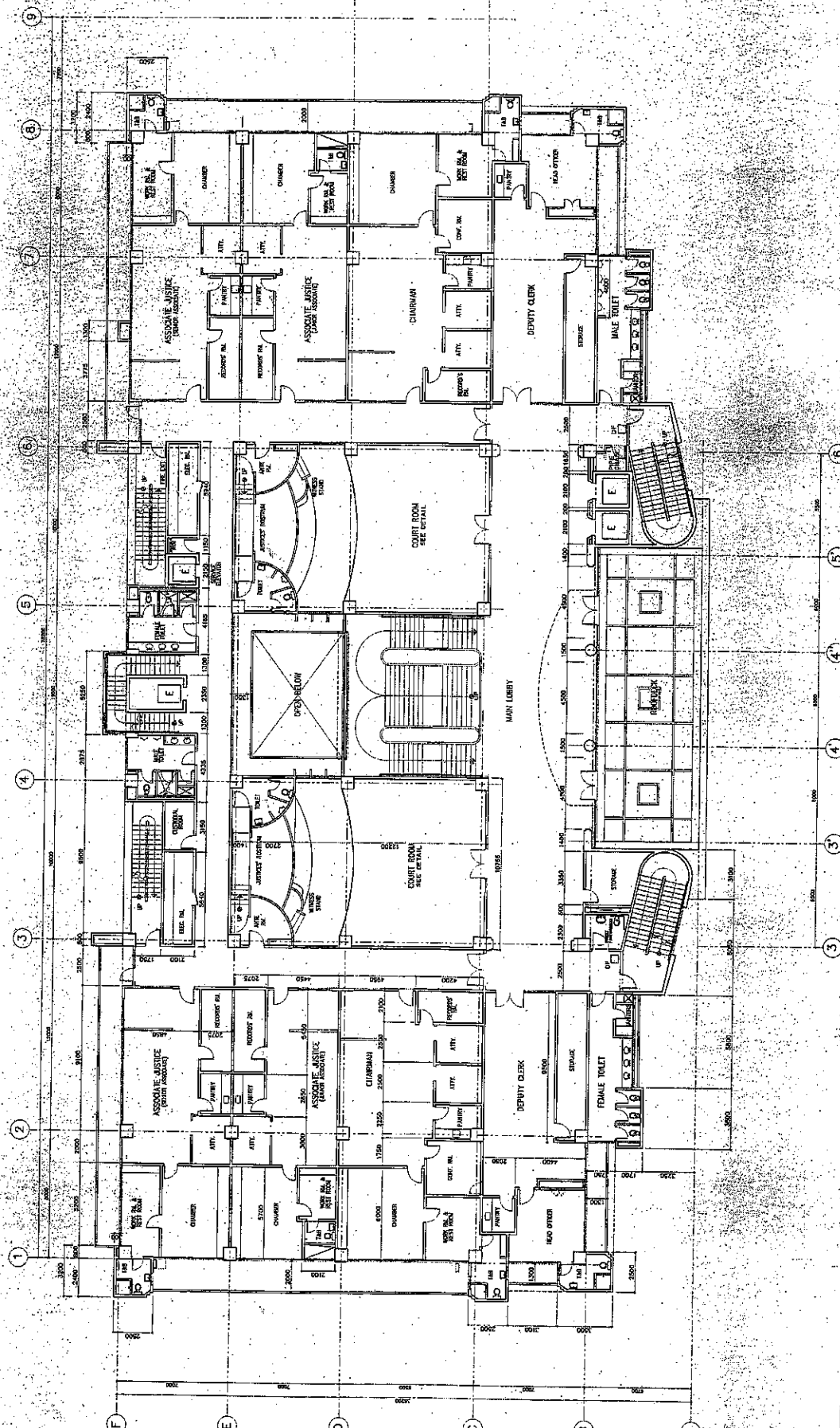




1 SECOND FLOOR PLAN  
SCALE: 1/8" = 1'-0"

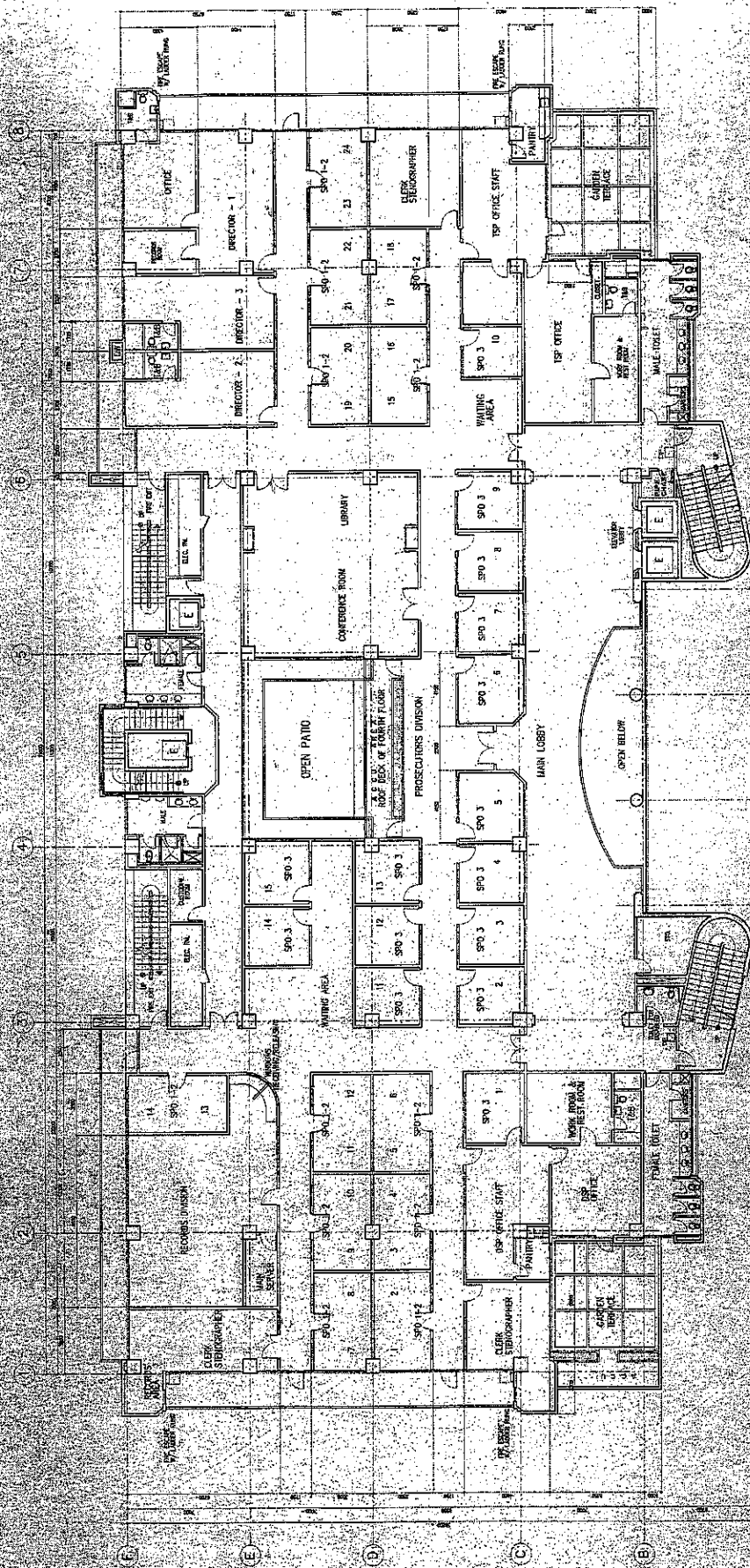
<p>DESIGNED AND DRAWN BY: <b>HILMARCOS CONSTRUCTION CORPORATION</b> RMA C. MONTANO, JR., PROJECT ARCHT. RMA C. MONTANO, JR., PROJECT ARCHT. RMA C. MONTANO, JR., PROJECT ARCHT.</p>	<p>OWNER: <b>OFFICE OF THE PRESIDENT OF THE PHILIPPINES</b> <b>PUBLIC ESTATES AUTHORITY</b> RECONSTRUCTION PROJECT MANAGED BY: <b>MANUEL S. ESPINOSA, JR.</b> PROJECT MANAGER: <b>MANUEL S. ESPINOSA, JR.</b></p>	<p>PROJECT TITLE: <b>SANDIGANBAYAN CENTENNIAL BLDG.</b> ON CORNELIO CORPUZ BLVD. AND CORNELIO BLVD., CEBU CITY</p>	<p>DATE: _____</p>	<p>PROJECT TYPE: <b>1 SECOND FLOOR PLAN</b> SCALE: 1/8" = 1'-0"</p>	<p>AS BUILT PLAN</p>	<p>SECOND FLOOR PLAN</p>	<p>AS BUILT PLAN</p>	<p>DATE: _____</p>
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FOURTH FLOOR PLAN  
SCALE: 1" = 30' 0"

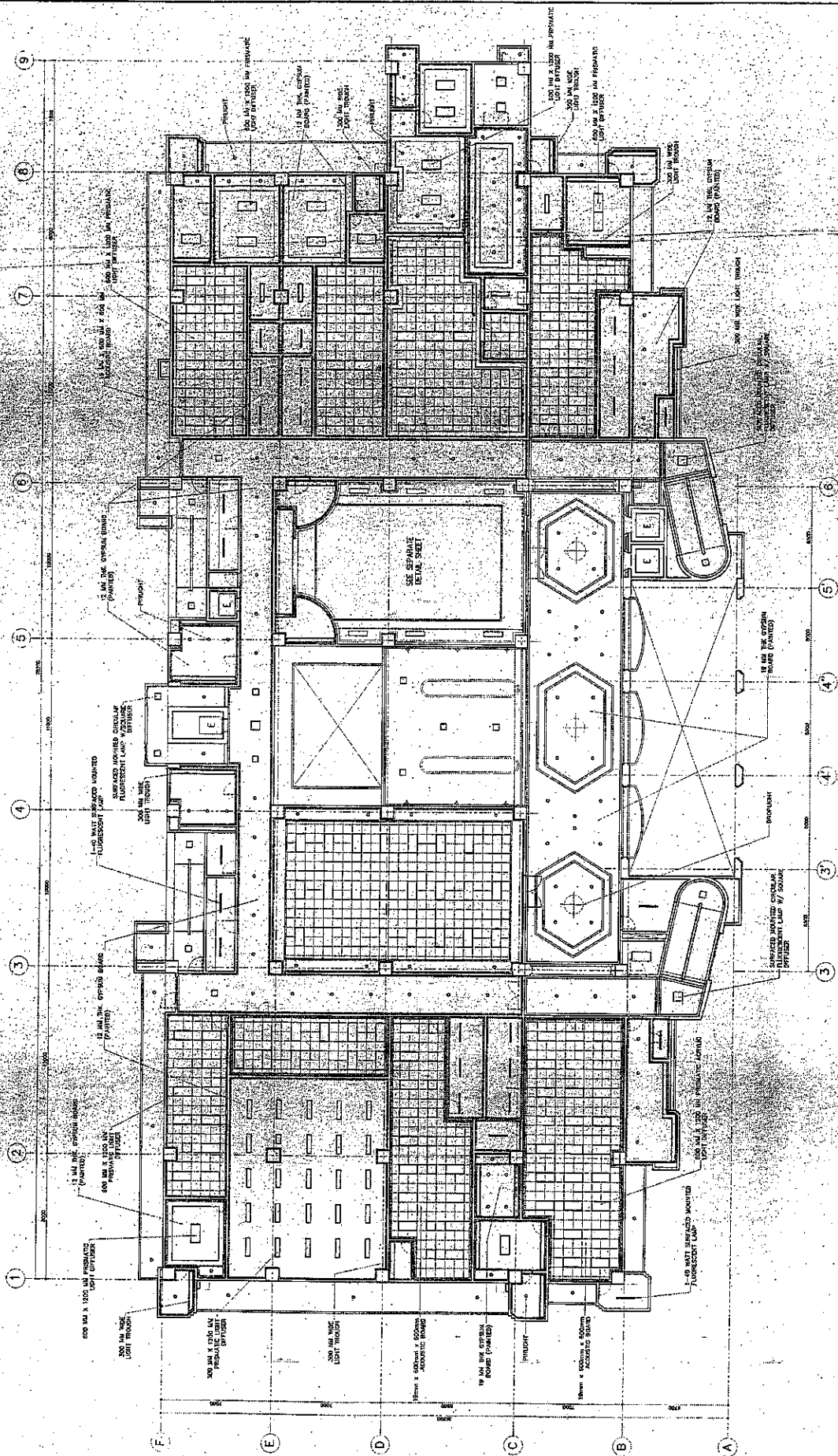
<p><b>HILMARCS CONSTRUCTION CORPORATION</b> INCORPORATED IN THE PHILIPPINES 1000 N. RIVER ROAD, SUITE 100, RIVERVIEW, CALIFORNIA 94591</p>	<p>DESIGNED BY: <b>FELIPE M. MENDOZA &amp; PARTNERS</b> 1000 N. RIVER ROAD, SUITE 100, RIVERVIEW, CALIFORNIA 94591</p>	<p>PROJECT TITLE: <b>SANDIGANBAYAN CENTENNIAL BLDG.</b> FOR THE COMPLETION OF THE SANDIGANBAYAN BLDG. PROJECT</p>	<p>PROJECT NO.: <b>PEA - CONSTRUCTION TASK FORCE</b> EDUARDO J. VERA PROJECT MANAGER</p>	<p>DATE: <b>AS BUILT PLAN</b></p>	<p>SHEET NO.: <b>A-7</b></p>
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 <p><b>HILMAR'S CONSTRUCTION CORPORATION</b>          1101 S. WILSON ST., SUITE 100          LOS ANGELES, CA 90007          TEL. (213) 481-1000 FAX (213) 481-1001</p>	<p><b>PEA-CONSTRUCTION TASK FORCE</b></p> <p><b>TELUPE M. MENDOZA &amp; PARTNERS</b>          10000 WILSON BLVD., SUITE 100          LOS ANGELES, CA 90024          TEL. (310) 591-1000 FAX (310) 591-1001</p>	<p><b>SANDIGANGBAYAN CENTENNIAL BLDG.</b>          DEL COMPLEJO, MANABALAN AVE. CORNER DEL CAMINO 16, CORDON CITY          MANILA, PHILIPPINES</p>	<p><b>PEA-CONSTRUCTION TASK FORCE</b></p> <p><b>TELUPE M. MENDOZA &amp; PARTNERS</b>          10000 WILSON BLVD., SUITE 100          LOS ANGELES, CA 90024          TEL. (310) 591-1000 FAX (310) 591-1001</p>	<p><b>PEA-CONSTRUCTION TASK FORCE</b></p> <p><b>TELUPE M. MENDOZA &amp; PARTNERS</b>          10000 WILSON BLVD., SUITE 100          LOS ANGELES, CA 90024          TEL. (310) 591-1000 FAX (310) 591-1001</p>	<p><b>PEA-CONSTRUCTION TASK FORCE</b></p> <p><b>TELUPE M. MENDOZA &amp; PARTNERS</b>          10000 WILSON BLVD., SUITE 100          LOS ANGELES, CA 90024          TEL. (310) 591-1000 FAX (310) 591-1001</p>	<p><b>PEA-CONSTRUCTION TASK FORCE</b></p> <p><b>TELUPE M. MENDOZA &amp; PARTNERS</b>          10000 WILSON BLVD., SUITE 100          LOS ANGELES, CA 90024          TEL. (310) 591-1000 FAX (310) 591-1001</p>	<p><b>PEA-CONSTRUCTION TASK FORCE</b></p> <p><b>TELUPE M. MENDOZA &amp; PARTNERS</b>          10000 WILSON BLVD., SUITE 100          LOS ANGELES, CA 90024          TEL. (310) 591-1000 FAX (310) 591-1001</p>	<p><b>PEA-CONSTRUCTION TASK FORCE</b></p> <p><b>TELUPE M. MENDOZA &amp; PARTNERS</b>          10000 WILSON BLVD., SUITE 100          LOS ANGELES, CA 90024          TEL. (310) 591-1000 FAX (310) 591-1001</p>	<p><b>PEA-CONSTRUCTION TASK FORCE</b></p> <p><b>TELUPE M. MENDOZA &amp; PARTNERS</b>          10000 WILSON BLVD., SUITE 100          LOS ANGELES, CA 90024          TEL. (310) 591-1000 FAX (310) 591-1001</p>
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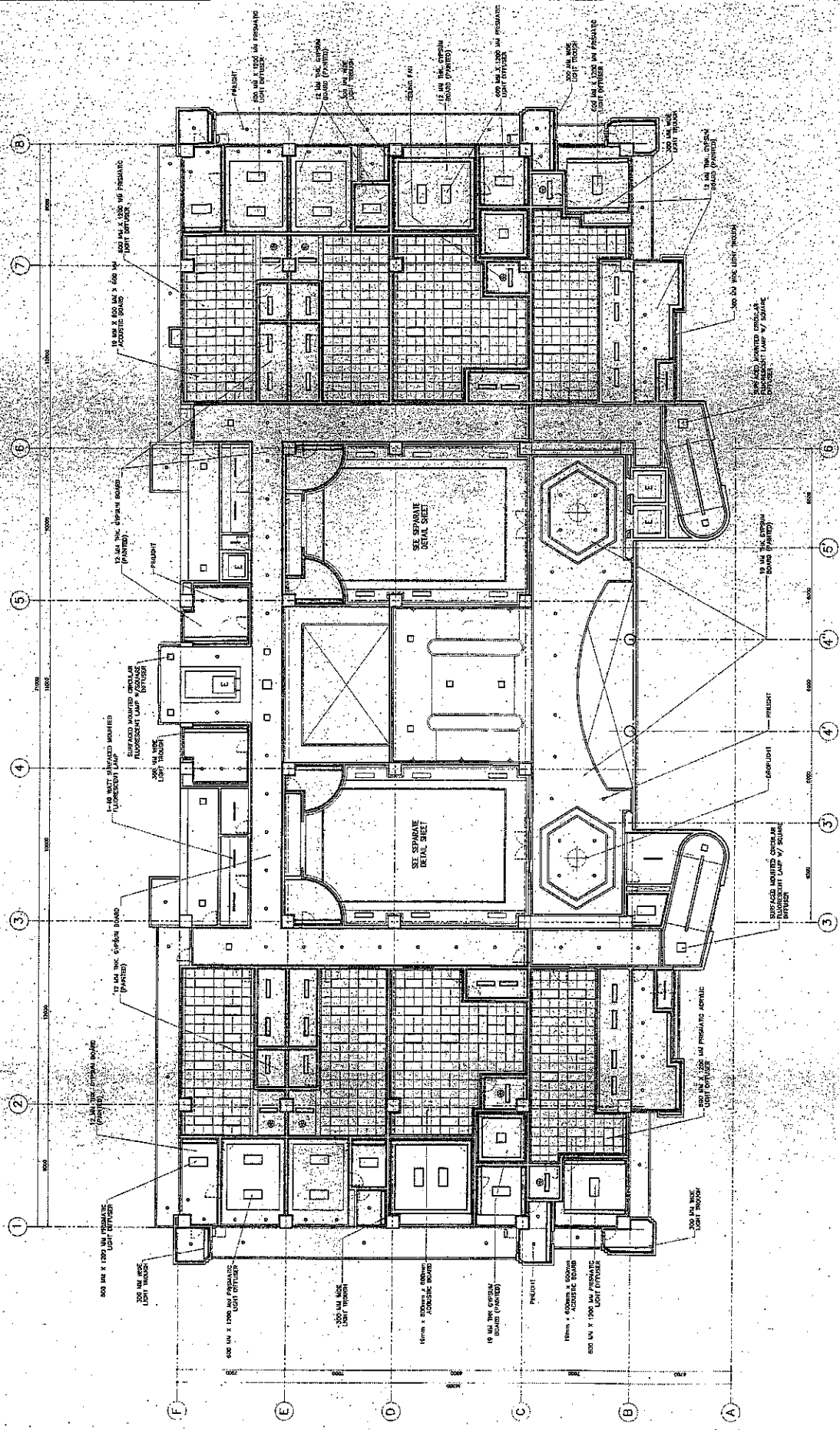




SECOND FLOOR REFLECTED CEILING PLAN  
1:100 SCALE

<p>DATE: 11/10/11</p>	<p>PROJECT NO. A-14</p>
<p>PROJECT NAME: SANDIGANBAYAN CENTENNIAL BLDG.</p>	<p>AS-BUILT PLAN</p>
<p>DESIGNED BY: FELIPE D. MENDOZA, JR.</p>	<p>APPROVED BY: [Signature]</p>
<p>PROJECT MANAGER: [Name]</p>	<p>DATE: 11/10/11</p>
<p>HI-MARC'S CONSTRUCTION CORPORATION 1000 N. RIVER ST. # 200, RIVERVIEW, CALIF. 94591</p>	<p>OFFICE OF THE PRESIDENT &amp; AUTHORITY PUBLIC UTILITIES AUTHORITY 1000 N. RIVER ST. # 200, RIVERVIEW, CALIF. 94591</p>





FOURTH FLOOR REFLECTED CEILING PLAN  
SCALE: 1:500

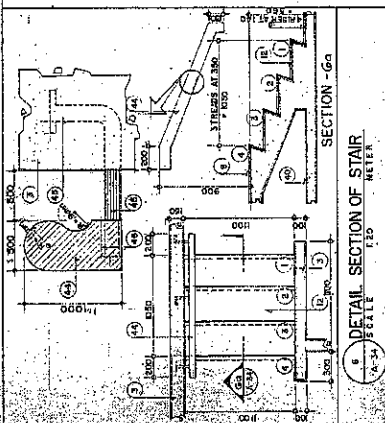
<p>PROJECT NO. 100-100-100</p>	<p>SHEET NO. A-10</p>
<p>AS BUILT PLAN</p>	<p>PLANS RECAPED DURING PLAN</p>
<p>SANDIGANBAYAN CENTENNIAL BLDG. CONSTRUCTION TASK FORCE REBUILDING 1, 2, 3 &amp; 4 CONSTRUCTION TASK FORCE</p>	<p>REPUBLIC OF THE PHILIPPINES DEPARTMENT OF INTERIOR OFFICE OF THE SECRETARY</p>
<p>PREPARED BY: HILMAR'S CONSTRUCTION CORPORATION 1000 A. REYNOLDS ST., SUITE 100, CENSALEX CITY TEL. NO. 330-10-10</p>	<p>DATE: 10/10/00</p>



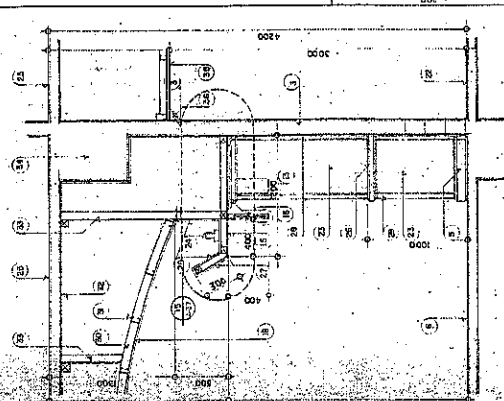


## NOTES

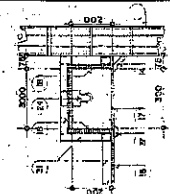
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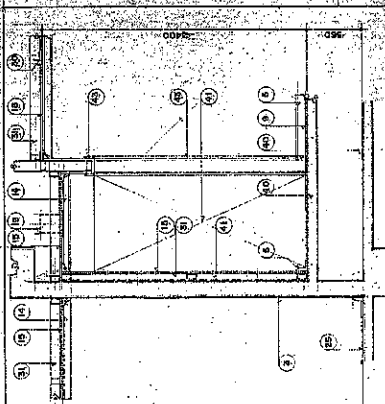
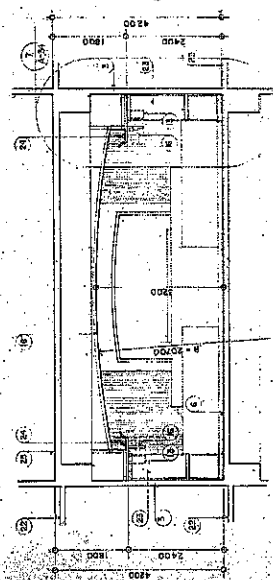
6 DETAIL SECTION OF STAIR



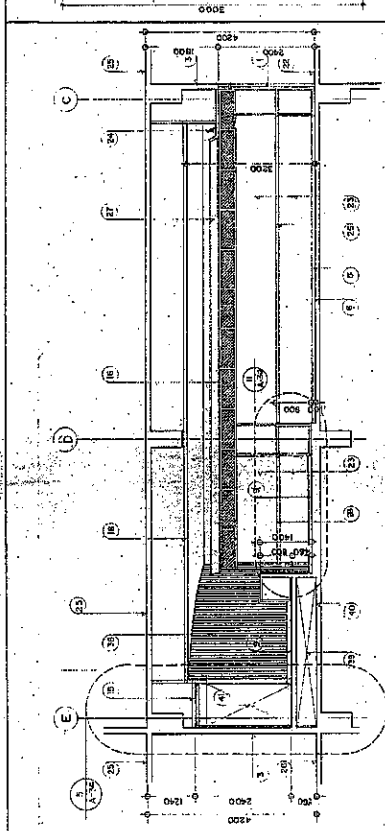
7 DETAIL SECTION



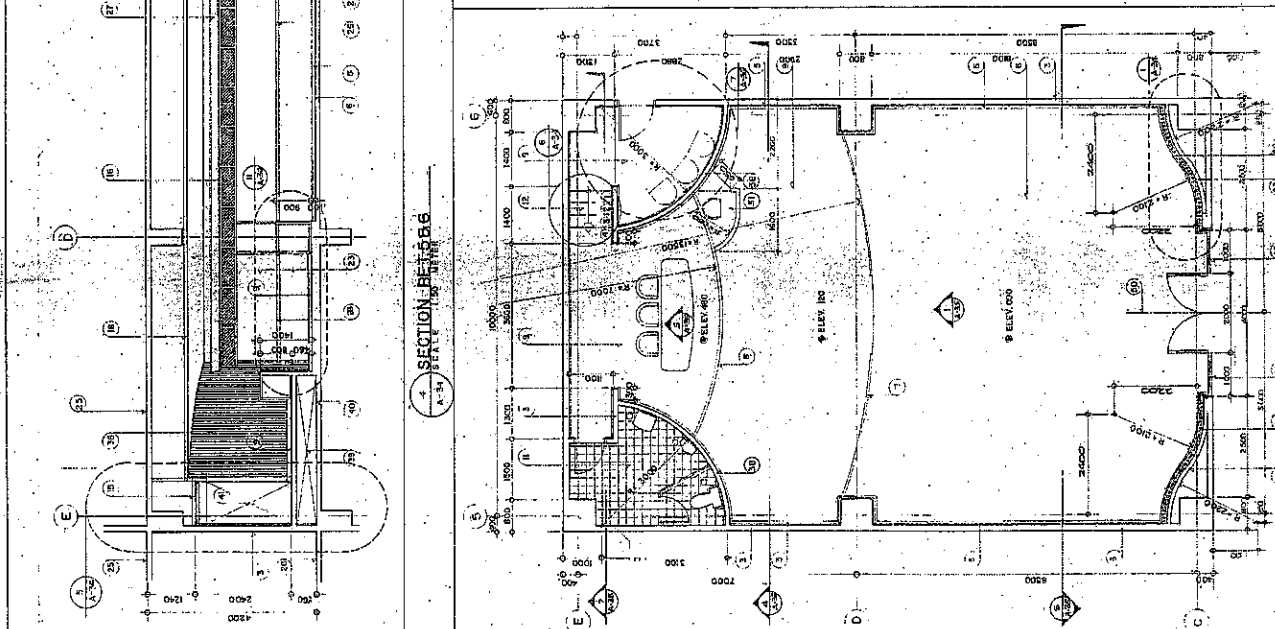
DETAIL SECTION  
SCALE 1"=1'0" HORIZONTAL



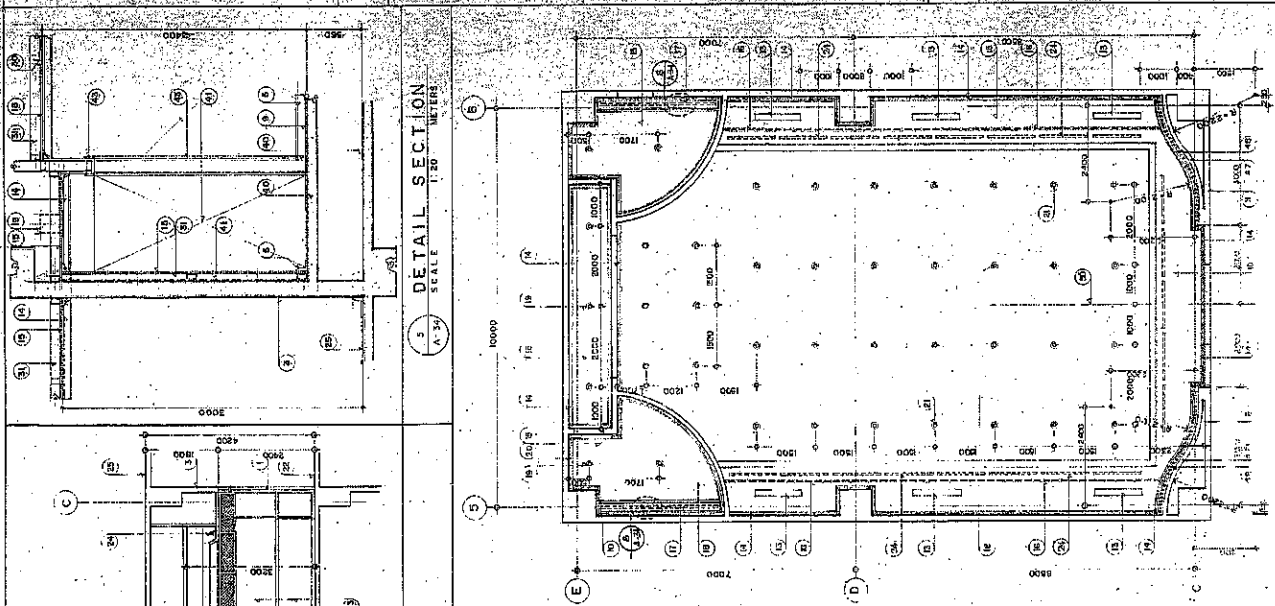
DETAIL SECTION



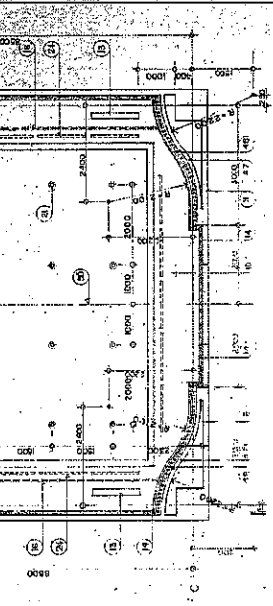
SECTION-BET-586



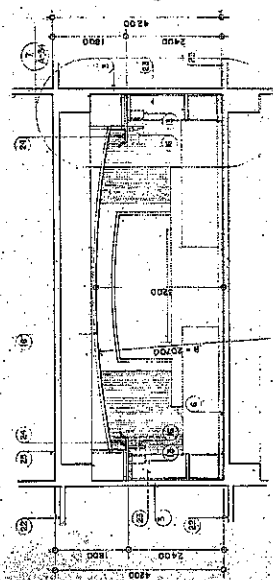
1 DETAIL PLAN OF COURT ROOM  
SCALE 1/8" = 1'-0"  
MEYER




3 - DETAIL OF REFLECTED CEILING - NEVER



SECTION 3  
SCALE  
A-24  
7.2 VDS

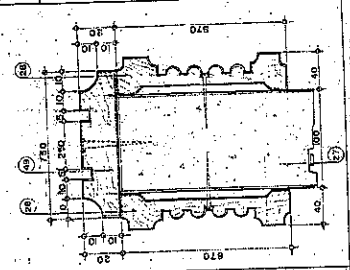


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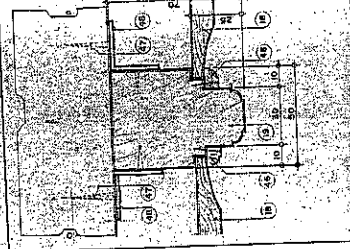
 <p><b>HILBARD'S CONSTRUCTION CORPORATION</b>          150 E. HENRIETTA AVENUE          AUSTIN, TEXAS 78701-2501          FAX NO. (512) 451-1100          TEL. NO. (512) 451-1101</p>	<p><b>PEA, CONSTRUCTION TASK FORCE</b></p> <p><b>FRUPE &amp; HENRICH &amp; PARTNERS</b>          1000 N. WILSON          AUSTIN, TEXAS 78701-2501          FAX NO. (512) 451-1100          TEL. NO. (512) 451-1101</p>	<p><b>SANDIGANBAYAN CENTENNIAL BLDG.</b>          611 HWY 72, CAMPOREDON, IN THE CORNER BULACAN BL., QUEZON CITY</p>	<p><b>PROJECT NO.</b></p>	<p><b>AS BUILT PLAN</b></p>	<p><b>DATE</b></p>	<p><b>REFLECTS CEILING PLAN &amp; COMP. ROOM DETAIL, GENERAL NOTES</b></p>	<p><b>A-21</b></p>
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# NOTES

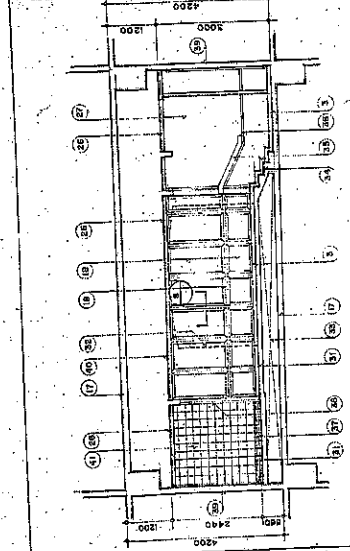
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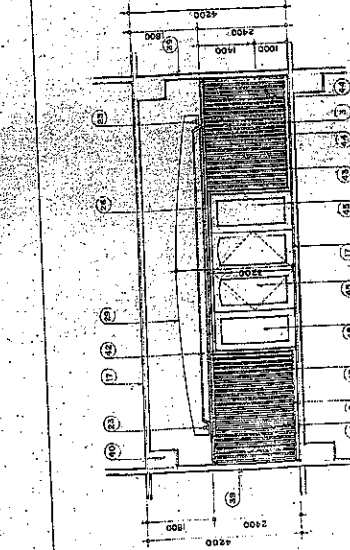
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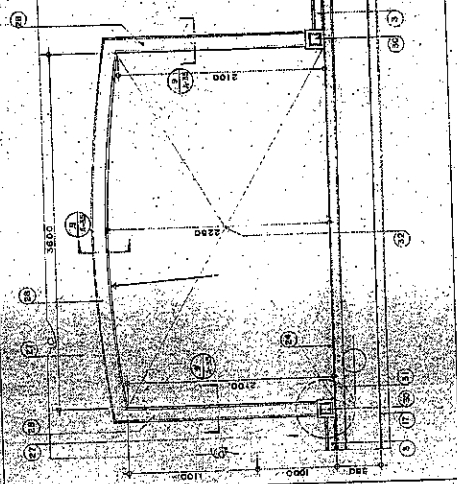
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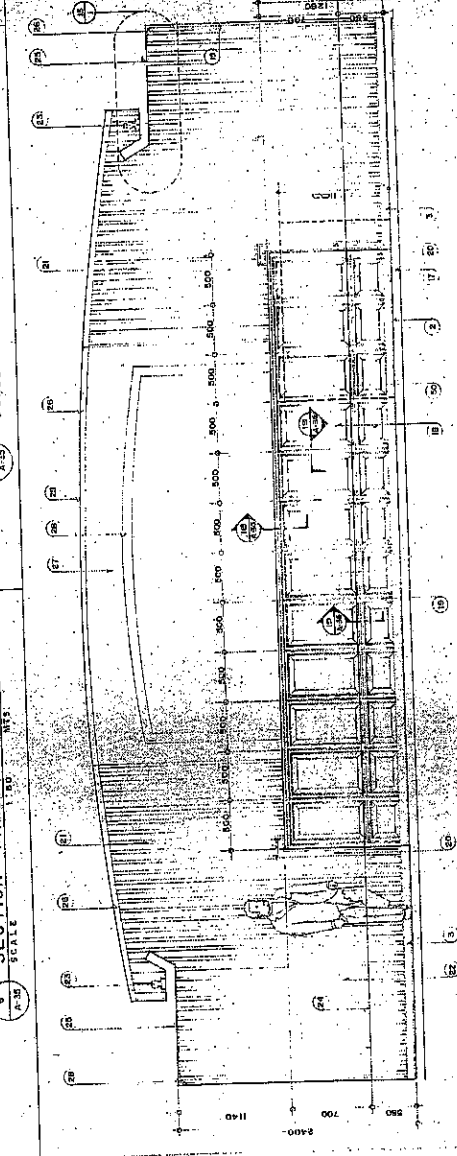
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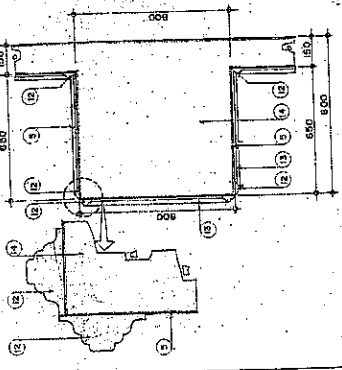
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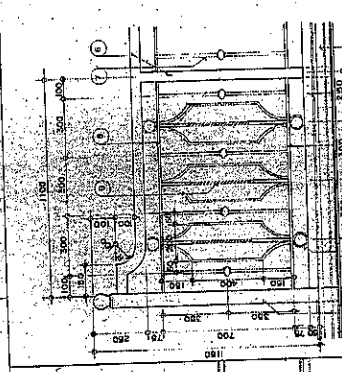
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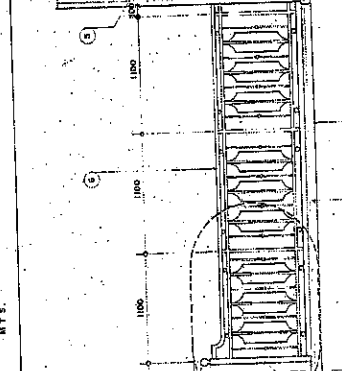
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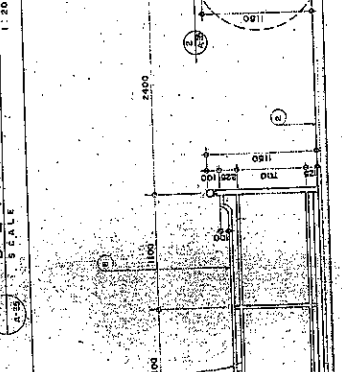
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DETAIL ELEVATION  
SCALE: 1/8" = 1'-0"



DETAIL ELEVATION  
SCALE: 1/8" = 1'-0"



DETAIL ELEVATION  
SCALE: 1/8" = 1'-0"

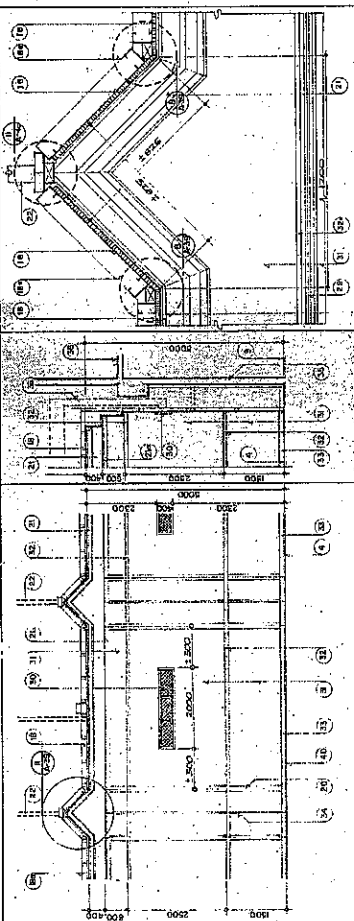
<p><b>PREPARED AND SUBMITTED BY:</b>  <b>HI-MARK'S CONSTRUCTION CORPORATION</b>          1000 N. 10TH ST., SUITE 100          DENVER, CO 80202</p>		<p><b>DESIGNED BY:</b>  <b>FEUER &amp; MONTGOMERY PARTNERS</b>          1000 N. 10TH ST., SUITE 100          DENVER, CO 80202</p>		<p><b>FOR CONSTRUCTION TASK FORCE:</b>  <b>REYNOLDS &amp; WATSON</b>          1000 N. 10TH ST., SUITE 100          DENVER, CO 80202</p>		<p><b>PROJECT NAME:</b>  <b>SANDIGANBAYAN CENTENNIAL BLDG.</b>          1000 N. 10TH ST., SUITE 100          DENVER, CO 80202</p>		<p><b>DATE OF PRESENTATION:</b>  <b>PUBLIC ESTIMATES AUTHORITY</b>          1000 N. 10TH ST., SUITE 100          DENVER, CO 80202</p>		<p><b>SCALE:</b>          1/8" = 1'-0"</p>		<p><b>AS BUILT PLAN</b></p>		<p><b>DETAIL SECTION AND DETAILS ELEVATION</b></p>	
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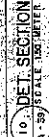


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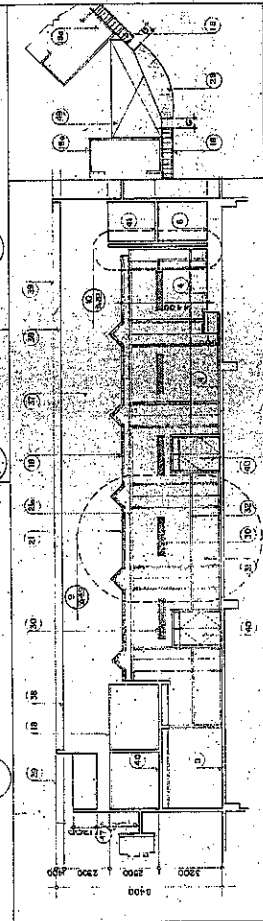
SUBJECTS OF THIS REPORT ARE:  
WALL CASE WEST DISTRICT  
SECTION  
JAMES W. HANCOCK THE SHOLDS  
STC-ETALIA  
MAYOR'S HONORARY VOTED FOR OUR  
TULSA CITY LEADERSHIP APPROVED  
ETERNALIST  
HUMAN COMMUNITY FILE TULSA  
CAPITULATED LETTER IN  
STATIONERY  
OUTLINE OF WALL EASTMENT ABOVE  
BACKGROUND  
PRODUCTION SCREEN (REFER TO  
SPECIFICATION)  
OUTLINE OF PRODUCTION BOOTH  
ABOVE  
CONCLUSION  
TULSA SPOKE WOMEN TULSA FOUNDRY



11 DETAIL SECTION  
A-39 SCALE 1/8" = 1'-0" MEIER



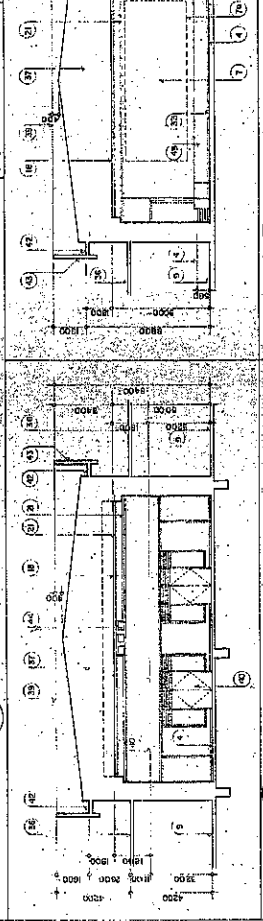
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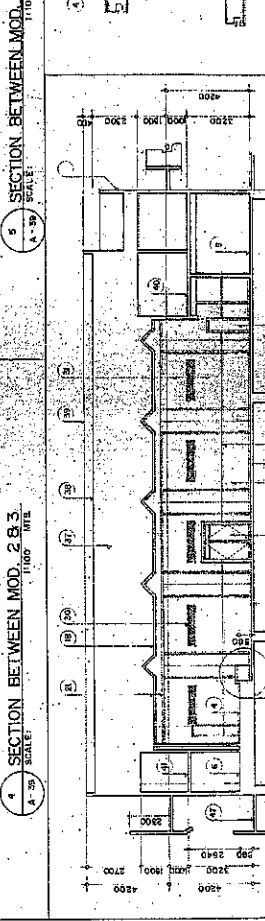
8 DETAIL  
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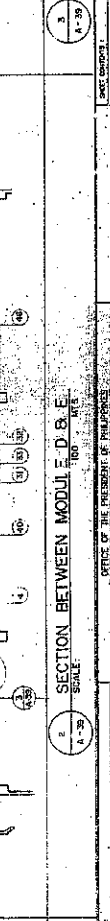
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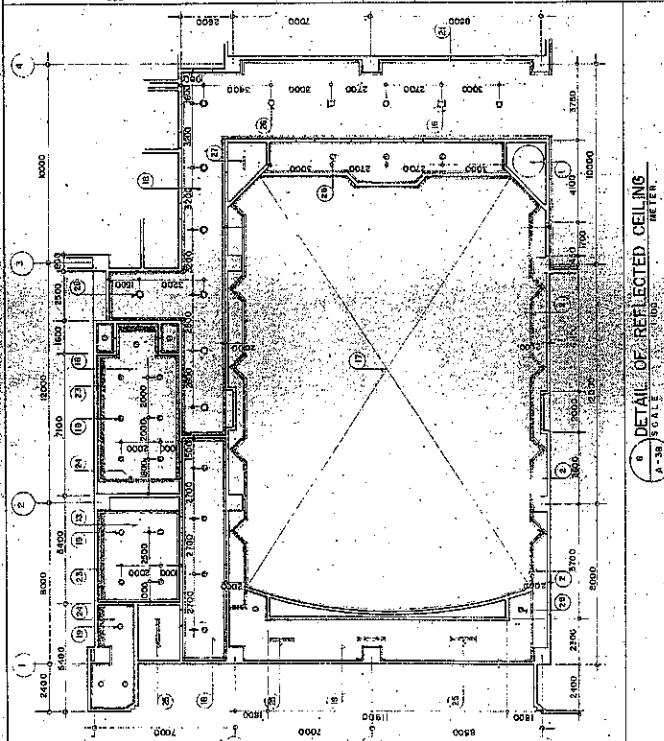
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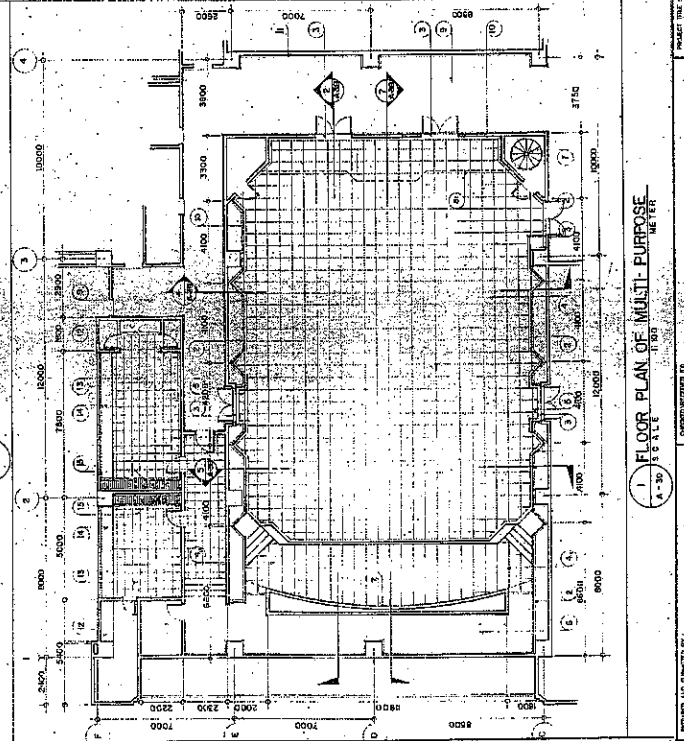
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**PUBLIC ESTATES AUTHORITY**  
FOR WEATHER SENSORS AND PLACES OF RESIDENCE. MANAGED BY THE  
APPROPRIATE AGENCIES.



100

DOZA & PARTNERS  
PEA - CONSTRUCTION

AYAN CENTENNIAL BLDG.  
MADISON AVE. CORNER PALACE SQ., SECON CITY

**PUBLIC ESTATES AUTHORITY**  
FOR WEATHER SENSORS AND PLACES OF RESIDENCE. MANAGED BY THE  
APPROPRIATE AGENCIES.

AS BUILT P:AN

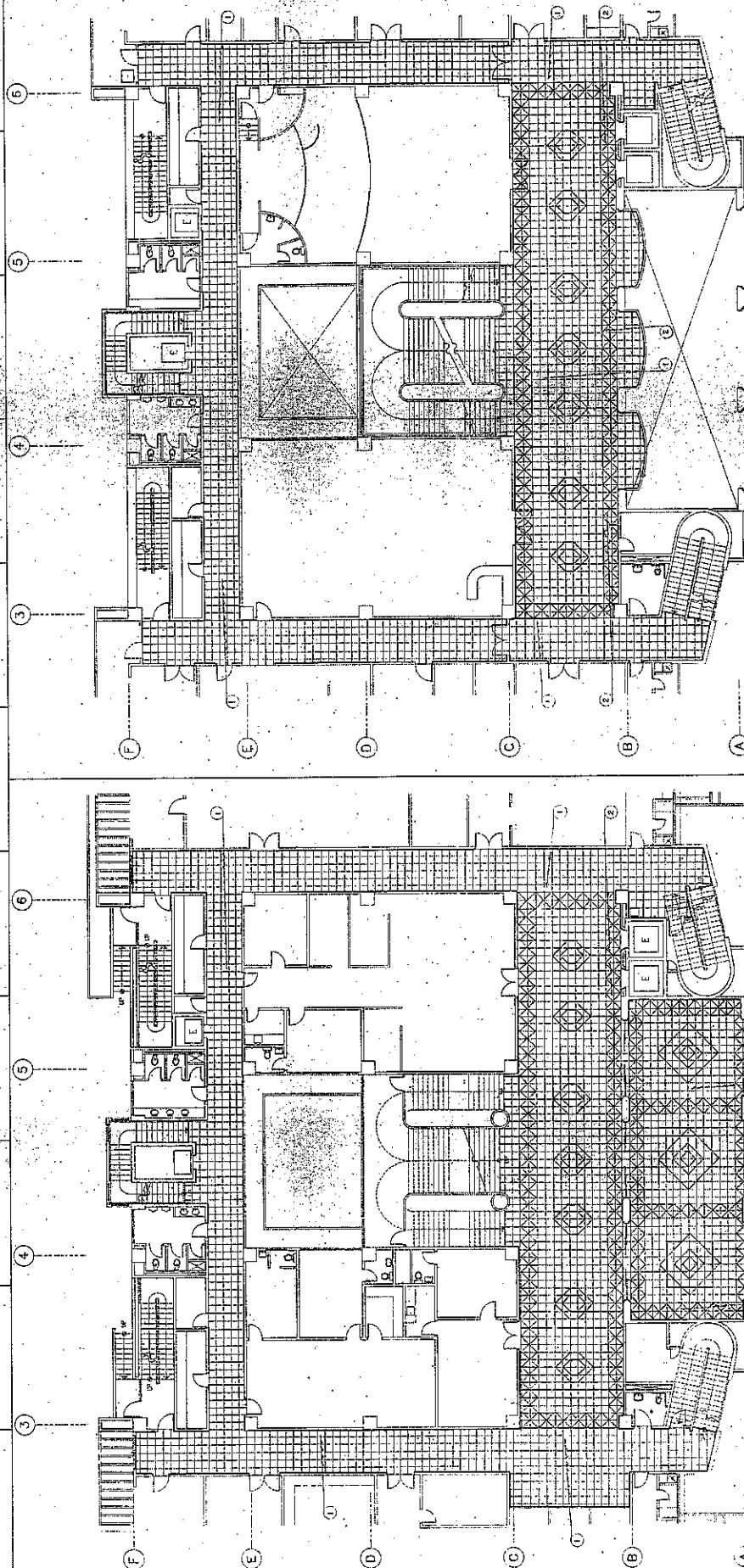
SECTION NUMBER PURPOSE

-35-

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# NOTES

1. 600 x 600 mm VITRIFIED FLOOR TILES
2. 600 x 600 mm VITRIFIED FLOOR TILES



NOTE: SUBMIT SAMPLES OF TILE COLORS & TYPE FOR APPROVAL BY THE ARCHITECT BEFORE INSTALLATION.

1 GROUND FLOOR FLOORING PATTERN  
SCALE: 1/8" = 1'-0"

2 TYPICAL 2ND, 3RD, & 4TH FLOOR FLOORING PATTERN  
SCALE: 1/8" = 1'-0"

PREPARED AND SUBMITTED BY:  
**HILMARC'S CONSTRUCTION CORPORATION**  
1000 N. 10TH ST., SUITE 100  
DENVER, CO 80202  
TEL: (303) 733-1100

DESIGNED BY:  
**FELIPE M. MENDOZA & PARTNERS**  
1000 N. 10TH ST., SUITE 100  
DENVER, CO 80202  
TEL: (303) 733-1100

PEA: CONSTRUCTION TASK FORCE  
REVISIONS: 1. REV. 1/1/00  
2. REV. 1/1/00

PROJECT TITLE:  
**SANDIGANBAYAN CENTENNIAL BLDG.**  
US CORRAL COMMODORATE, CORRAL ALAMITO, C. 1, 2ND FL.

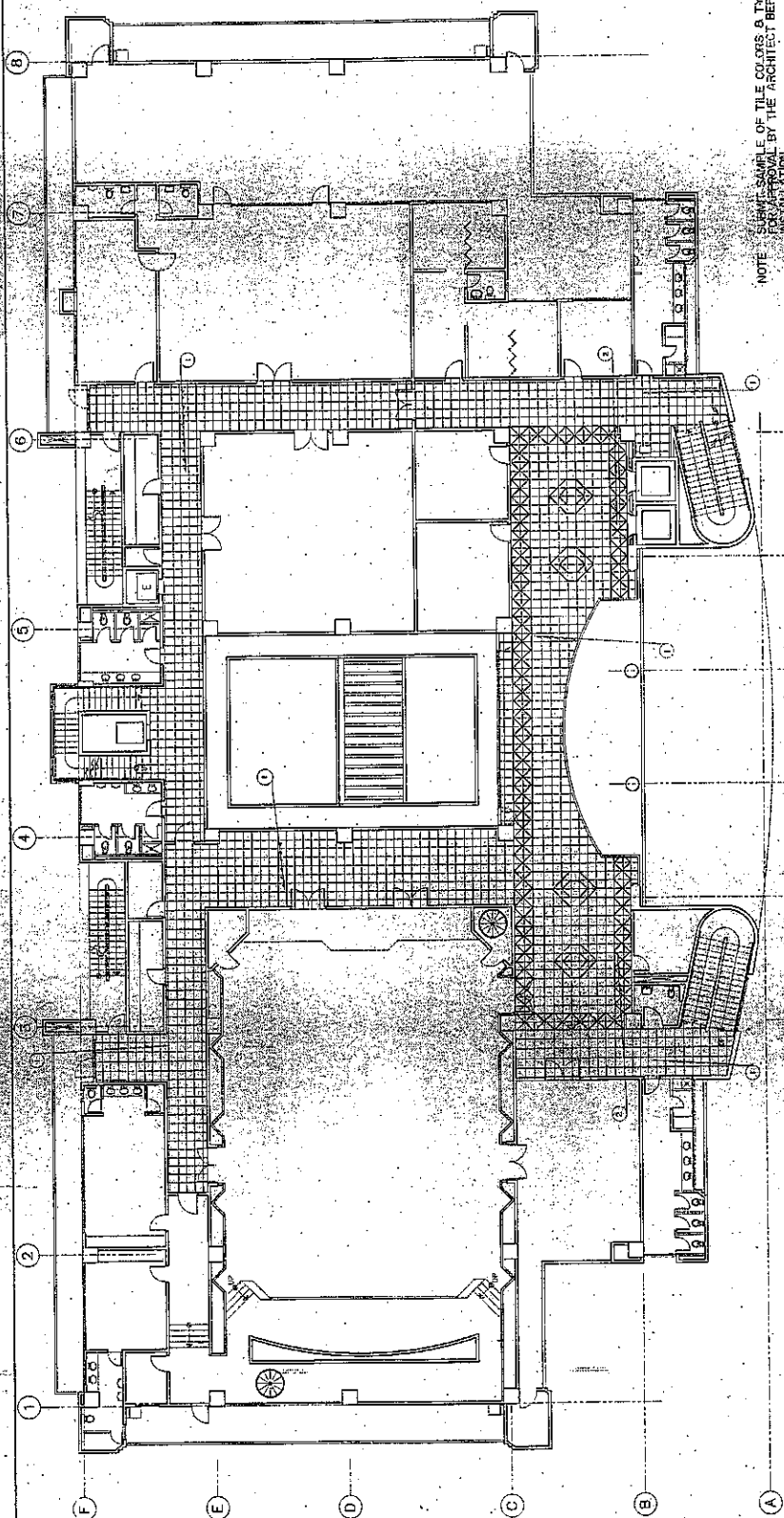
APPROVED BY:  
**PUBLIC ESTATES AUTHORITY**  
THE ALP (ALP) UNDER THE ALP & ALP ACT  
APPROVED BY:  
VALERIO E. MENDOZA, JR. PRESIDENT  
CARLOS A. MENDOZA, JR. VICE PRESIDENT

AS BUILT PLAN

FLOORING PATTERN

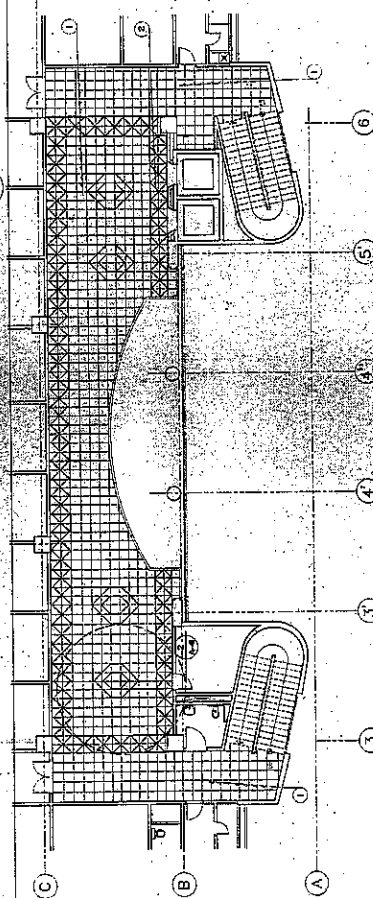
SHEET NO.  
A-37

- 450mm X 450mm VITRIFIED  
CLAY TILE  
FROM 450mm X 450mm VITRIFIED  
CLAY TILE

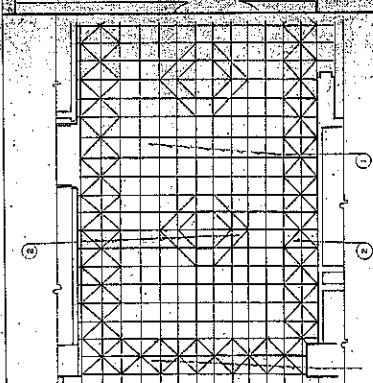


NOTE: SUBMIT SAMPLE OF TILE COLORS & TYPE FOR APPROVAL BY THE ARCHITECT BEFORE INSTALLATION.

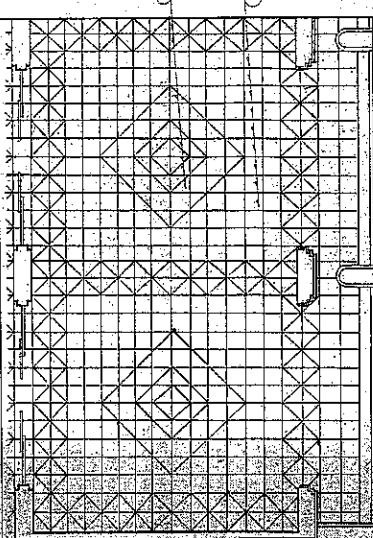
**SIXTH FLOOR FLOORING PATTERN**



**FIFTH FLOOR FLOORING PATTERN**



**SPOT DETAIL**



**SPOT DETAIL**.....  
1.60 METERS

**HILMARC'S CONSTRUCTION CORPORATION**  
1135 E. ROOSEVELT ST., ANCHORAGE, ALASKA 99501  
TELEPHONE: 907-563-1100 FAX: 907-563-1101  
TELETYPE: 907-563-1101

<p>CEPEX/RECORD IN</p> <p>FELIPE M. MERDOZA &amp; PARTNERS</p>	<p>PEA CONSTRUCTION TASK FORCE</p>
<p>PERMANENT &amp; GRAY</p>	<p>PEA CONSTRUCTION TASK FORCE</p>

**SANDIGANBAYAN CENTENNIAL BLDG.**  
ONE COMPLEX COMPOUND W. LIT. CENTER BAYVIEW RD. QUEZON CITY

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AS BUILT PLAN

FOOT DETAIL OF FLOORING INTERIOR

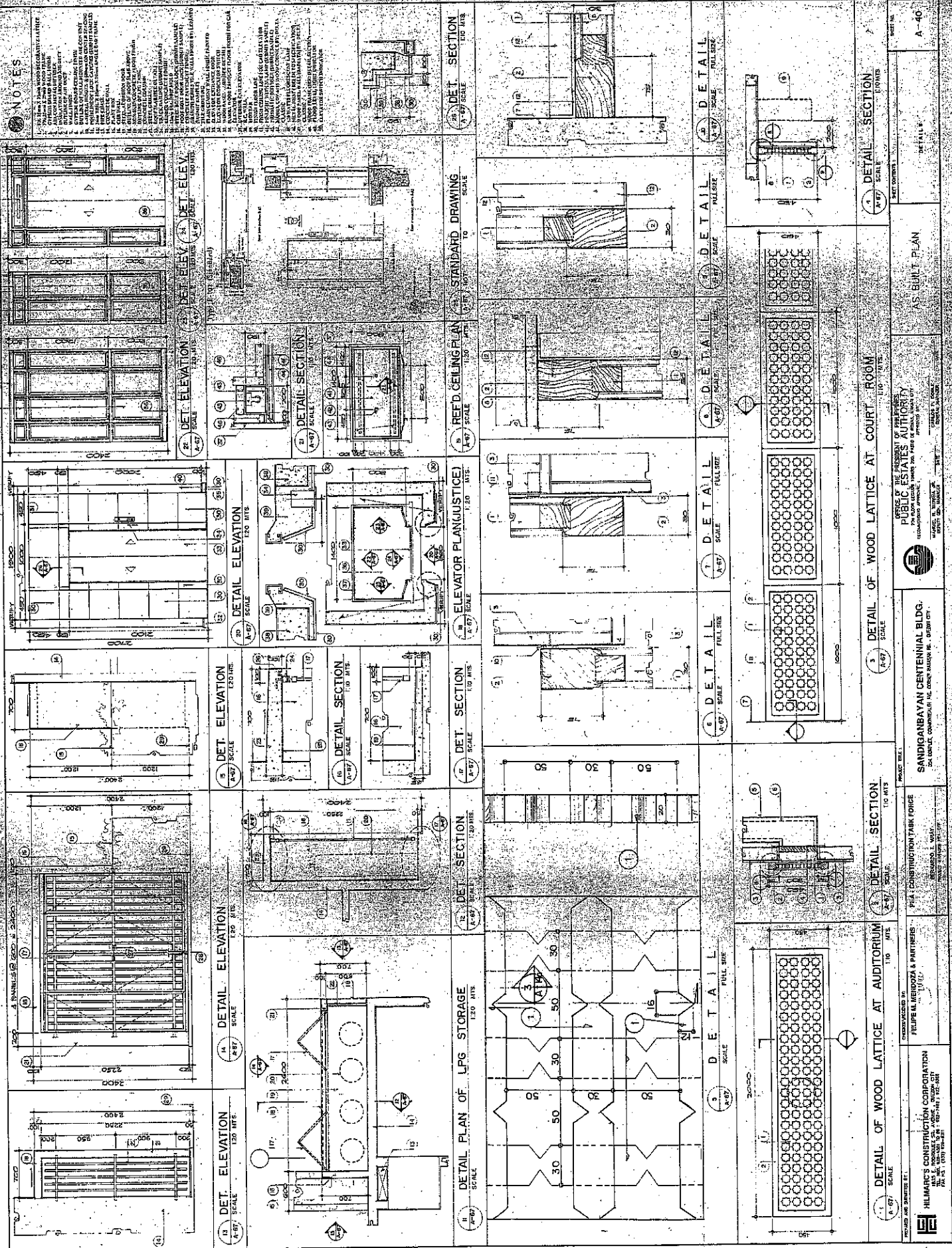
A-38



SALE, IN DETAIL

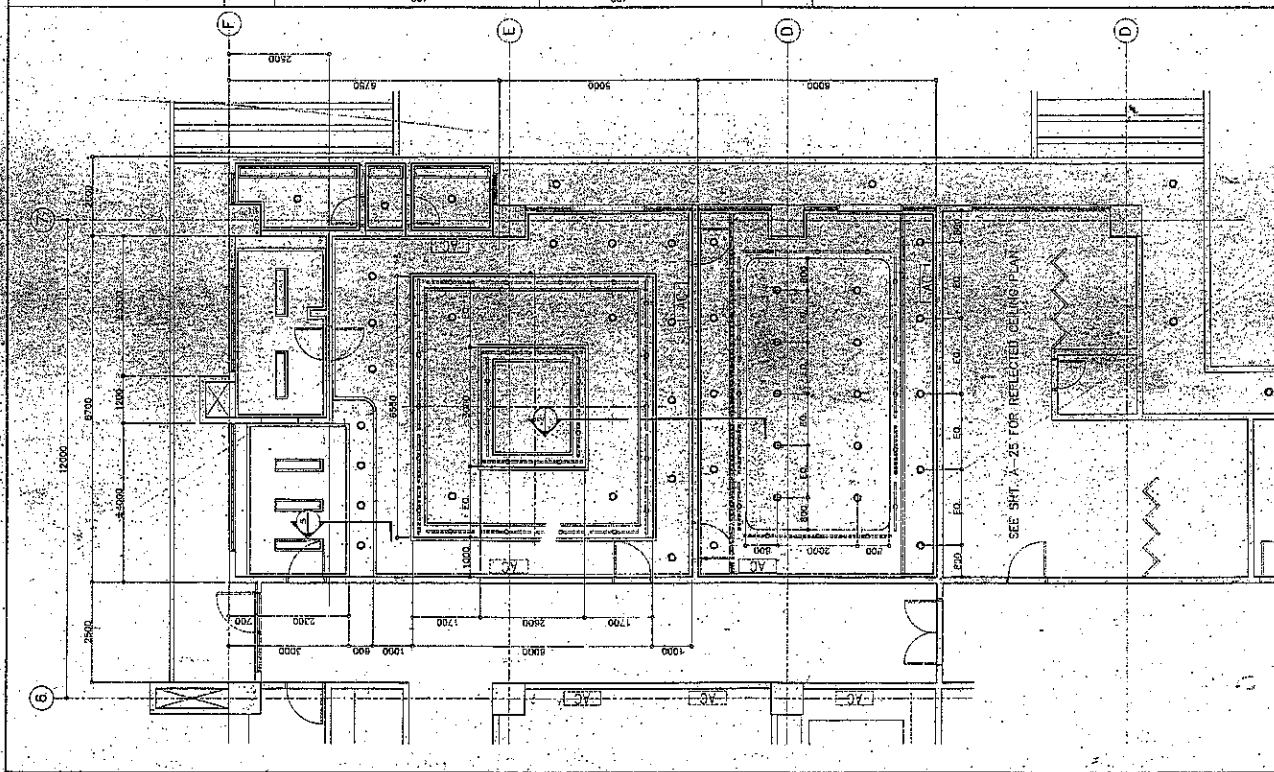
EXHIBIT NO.

A-39









1 REFLECTED CEILING PLAN OF JUSTICE LOUNGE, CONFERENCE RM. & PANTRY

SCALE 1/8" = 1'-0"

DESIGNED BY: HILLMANN CONSTRUCTION CORPORATION

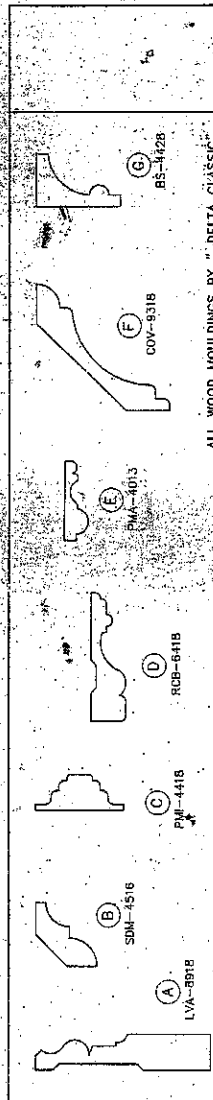
PROJECT NO. 100-100-100

DATE: 10/10/10

BY: [Signature]

FOR: SANDIGANBAYAN CENTENIAL BLDG.

ON: [Address]

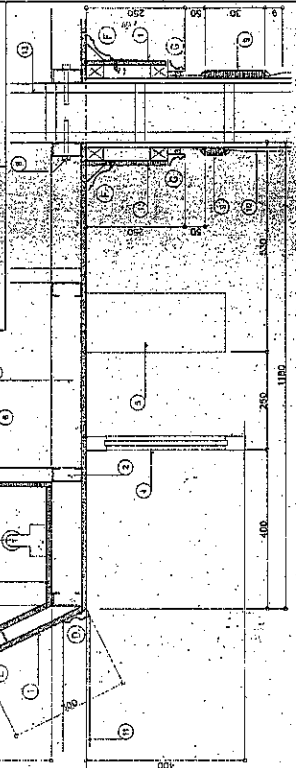


7 DETAIL OF WOOD MOULDING

SCALE 1/2" = 1'-0"

NOTES:

1. WOOD: ALL WOOD MOULDINGS SHALL BE 1/2" THICK, 4" HIGH, AND 1/2" WIDE.
2. FINISH: ALL WOOD MOULDINGS SHALL BE FINISHED WITH A GLOSSY FINISH.
3. INSTALLATION: ALL WOOD MOULDINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
4. MAINTENANCE: ALL WOOD MOULDINGS SHALL BE MAINTAINED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
5. REPAIRS: ALL REPAIRS TO WOOD MOULDINGS SHALL BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
6. REPLACEMENT: ALL REPLACEMENT WOOD MOULDINGS SHALL BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
7. PAINT: ALL WOOD MOULDINGS SHALL BE PAINTED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
8. STAIN: ALL WOOD MOULDINGS SHALL BE STAINED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
9. SEALER: ALL WOOD MOULDINGS SHALL BE SEaled IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
10. PROTECTANT: ALL WOOD MOULDINGS SHALL BE PROTECTED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

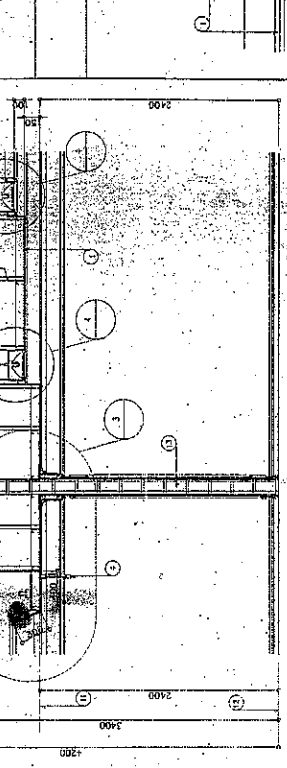


3 TYPICAL DETAIL SECTION

SCALE 1/8" = 1'-0"

NOTES:

1. WOOD: ALL WOOD MOULDINGS SHALL BE 1/2" THICK, 4" HIGH, AND 1/2" WIDE.
2. FINISH: ALL WOOD MOULDINGS SHALL BE FINISHED WITH A GLOSSY FINISH.
3. INSTALLATION: ALL WOOD MOULDINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
4. MAINTENANCE: ALL WOOD MOULDINGS SHALL BE MAINTAINED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
5. REPAIRS: ALL REPAIRS TO WOOD MOULDINGS SHALL BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
6. REPLACEMENT: ALL REPLACEMENT WOOD MOULDINGS SHALL BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
7. PAINT: ALL WOOD MOULDINGS SHALL BE PAINTED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
8. STAIN: ALL WOOD MOULDINGS SHALL BE STAINED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
9. SEALER: ALL WOOD MOULDINGS SHALL BE SEaled IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
10. PROTECTANT: ALL WOOD MOULDINGS SHALL BE PROTECTED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.



2 PARTIAL DETAIL SECTION OF JUSTICE LOUNGE, CONFERENCE ROOM

SCALE 1/8" = 1'-0"

DESIGNED BY: HILLMANN CONSTRUCTION CORPORATION

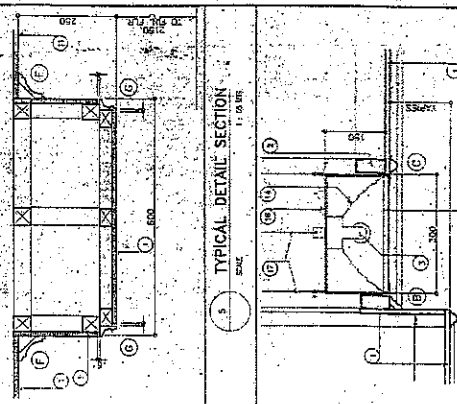
PROJECT NO. 100-100-100

DATE: 10/10/10

BY: [Signature]

FOR: SANDIGANBAYAN CENTENIAL BLDG.

ON: [Address]



4 TYPICAL DETAIL SECTION

SCALE 1/8" = 1'-0"

DESIGNED BY: HILLMANN CONSTRUCTION CORPORATION

PROJECT NO. 100-100-100

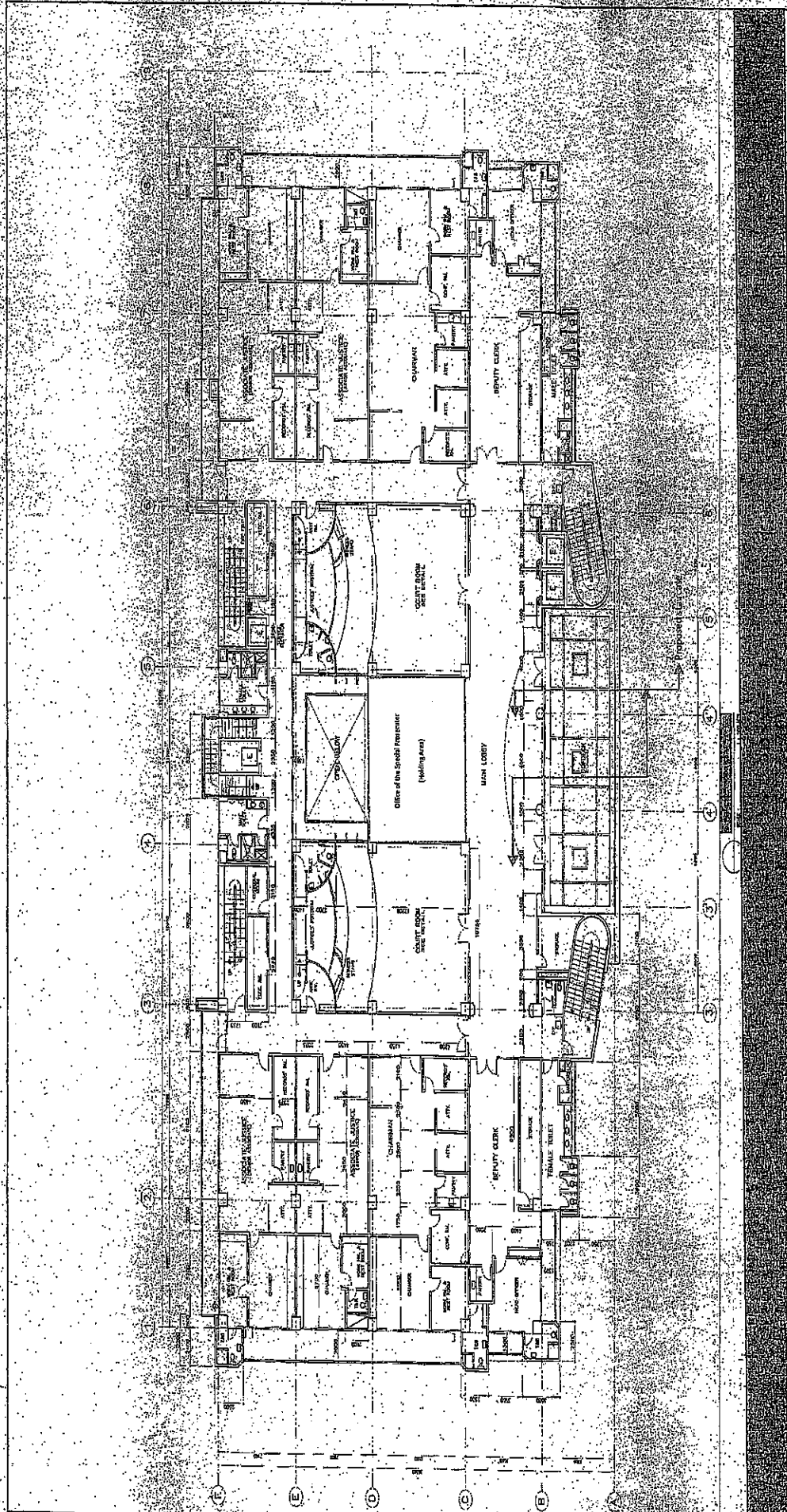
DATE: 10/10/10

BY: [Signature]

FOR: SANDIGANBAYAN CENTENIAL BLDG.

ON: [Address]

# PROPOSED FIFTH FLOOR PLAN



Handwritten signature or initials.

## ***Section VIII. Bill of Quantities***



## BILL OF QUANTITIES

PROJECT : Design and Build - Renovation and Rehabilitation of Fifth Floor

LOCATION : Sandiganbayan Centennial Building, Commonwealth Avenue, Quezon City

OWNER : SANDIGANBAYAN

The bidder shall be responsible for the accuracy and completeness such that, all items of work, quantities, materials, plant, tools, equipment and labor including Testing, Commissioning, Adjusting of all Systems to complete the Project, in accordance with the PBD and TOR, are covered in his Bid. Please see attached Bill of Quantities Cost Estimate Guide.

NOTE: Prices include miscellaneous costs, contingencies, profit and 12% VAT.

ITEM DESCRIPTION	UNIT	QUANTITY	TOTAL COST	UNIT COST
<b>A. PRE-DESIGN PHASE</b>				
1. Structural Integrity Assessment				
2. Comprehensive Site Analysis				
<b>B. DESIGN PHASE</b>				
1. Preliminary Architectural Design Concept				
2. Detailed Architectural and Engineering Design				
<b>C. CONSTRUCTION PHASE</b>				
<b>I. GENERAL REQUIREMENTS</b>				
A. Mobilization and Demobilization				
B. Temporary Facilities				
1. Field office, warehouse and bunkhouse				
2. Maintenance of facilities				
C. Permits for building construction to Occupancy Permit including Environmental Performance Report and management Outline required by the Department of Natural Resources (DENR) Environmental Mangement Bureau (EMB)				
D. Support equipment such as lifting equipment				
E. Provisional sum for preferred share to utilities (Water, power and drainage)				
F. Billboard/signboard				
G. Health and Safety				
<b>TOTAL GEN. REQUIREMENTS</b>				
<b>II. SITEWORKS</b>				
Demolition of concrete and dry walls and proper disposal of debris <i>And all other materials, accessories and incidentals necessary to complete the works.</i>				
<b>TOTAL SITEWORKS</b>				
<b>III. CIVIL &amp; ARCHITECTURAL WORKS</b>				
<b>A. Concreting works</b>				
a. Concrete (4,000 psi/3,000 psi)				
b. Rebars				
c. Forms and scaffoldings <i>And all other materials, accessories and incidentals necessary to complete the works.</i>				
<b>Subtotal Concreting Works</b>				
<b>B. Masonry Works</b>				
CHB 6"/4"				
Plastering				
Topping works				
Lintel beams				
Stiffner column				
Doors or windows opening plastering				
Pre cast concrete moulding <i>And all other materials, accessories and incidentals necessary to complete the works.</i>				
<b>Subtotal Masonry Works</b>				
<b>C. Finishes</b>				
1. Floor finishes				
a. vitrified floor tiles				
b. laminated flooring <i>And all other materials, accessories and incidentals necessary to complete the works.</i>				
<b>Subtotal Floor Finishes</b>				

ITEM DESCRIPTION	UNIT	QUANTITY	TOTAL COST	UNIT COST
<b>2. Ceiling Finishes</b>				
a. 12 mm thick Gypsum Board				
b. 19mm x 600mm x 600mm Acoustic Board				
c. 6mm thick Marine Plywood				
d. Rubbed Concrete Finish				
e. Light Through, Egg Crate Diffuser, Prismatic Light Diffuser				
And all other materials, accessories and incidentals necessary to complete the works.				
<b>Subtotal Ceiling Finishes</b>				
<b>3. Wall Finishes</b>				
a. Gypsum Board Wall Portion				
b. Plain Cement				
c. Wood Slats				
d. Wood Panelling				
e. Granito Tile Wall Finish				
f. Decorative Cement Board				
And all other materials, accessories and incidentals necessary to complete the works.				
<b>Subtotal Wall Finishes</b>				
<b>D. Carpentry Works</b>				
1. Cabinets/Shelves				
2. Counter				
3. Wood Lattice				
4. Cornices/Mouldings				
5. Baseboard				
6. Wooden Handrail				
And all other materials, accessories and incidentals necessary to complete the works.				
<b>Subtotal Carpentry Works</b>				
<b>E. Roofing Works</b>				
1. Roof Framing and Purlins				
2. Ga #24 Prepainted longspan roofing sheet including accessories				
3. Roof Insulation				
And all other materials, accessories and incidentals necessary to complete the works.				
<b>Subtotal Roofing Works</b>				
<b>F. Waterproofing/Damp Proofing</b>				
1. 3-ply Membrane Waterproofing				
2. Polythelene Moisture Barrier sheet including accessories				
3. Roof Insulation				
And all other materials, accessories and incidentals necessary to complete the works.				
<b>Subtotal Waterproofing / Damp Proofing</b>				
<b>G. Metal Works</b>				
1. Stair Railings				
2. Balcony/Court Railings				
3. Steel Gratings				
4. Ladder Rungs				
And all other materials, accessories and incidentals necessary to complete the works.				
<b>Subtotal Metal Works</b>				
<b>H. Miscellaneous Works</b>				
1. Toilet/shower Partition				
2. Tile Counter/cabinet (100mm x 100mm)				
3. Tile Counter Top/Splash Board (150mm x 150mm)				
4. Facial Mirror w/ plywood backing				
5. Seal & Signages (Reflectorized/acrylic)				
6. Staircase and accessories				
7. Disabled Grab Bar				
And all other materials, accessories and incidentals necessary to complete the works.				
<b>Subtotal Miscellaneous Works</b>				

K

ITEM DESCRIPTION	UNIT	QUANTITY	TOTAL COST	UNIT COST
<b>I. Doors and Windows</b>				
1. Doors				
a. Panel Door w/ Glass				
b. Panel Door (sizes varies)				
c. Flush Hollow Core Door				
d. Flush Hollow Core Door w/ Glass Slat				
e. Fire Exit Steel Door with Panic Device				
f. Full Louver Wood Door				
g. Full Louver Steel Door				
h. PVC Toilet Bar Door				
i. Steel Door				
j. Half Louver Wood Door				
h. W.I. Grille Door				
And all other materials, accessories and incidentals necessary to complete the works.				
<b>Subtotal Doors</b>				
2. Windows				
a. Fixed Glass Window on Aluminum Frame				
b. Sliding Glass Window on Aluminum Frame				
c. Steel Casement Window				
And all other materials, accessories and incidentals necessary to complete the works.				
<b>Subtotal Windows</b>				
3. Jambs and Hardwares				
And all other materials, accessories and incidentals necessary to complete the works.				
<b>TOTAL DOORS &amp; WINDOWS</b>				
<b>J. Painting/Varnishing Works</b>				
1. Painting				
2. Varnishing				
3. Tile Coat				
4. Duco Paint				
5. Epoxy Painting				
6. Wooden Handrail				
And all other materials, accessories and incidentals necessary to complete the works.				
<b>Subtotal Painting/Varnishing Works</b>				
<b>TOTAL CIVIL &amp; ARCHITECTURAL WORKS</b>				
<b>III. PLUMBING WORKS</b>				
1. Sewer Line				
a. CI Pipes and Fittings				
b. Miscellaneous Items such as Plumbing Oakum, Epoxy A&B, Hanger, Pipe Clamp, Pipe Sleeves, Trust Block, Paint				
And all other materials, accessories and incidentals necessary to complete the works.				
<b>Subtotal Sewer Line</b>				
2. ACU Drain				
a. PVC Pipes and Fittings				
b. FCU Drain				
c. Miscellaneous Items such as hanger, Pipe Sleeves, Enamel Paint, PVC Solvent Cement, insulation, Ledge Drain				
And all other materials, accessories and incidentals necessary to complete the works.				
<b>Subtotal ACU Drain</b>				
3. PVC Vent Pipeline				
a. PVC Pipes and Fittings				
b. Miscellaneous Items such as hanger, Enamel Paint, PVC Solvent Cement				
And all other materials, accessories and incidentals necessary to complete the works.				
<b>Subtotal PVC Vent Pipeline</b>				
4. Cold Water Supply System				
a. GI Pipes and Fittings				
b. Valves				
b. Miscellaneous Items such as Teflon Tape and Gasket Cement				
And all other materials, accessories and incidentals necessary to complete the works.				
<b>Subtotal Cold Water Supply System</b>				

2

ITEM DESCRIPTION	UNIT	QUANTITY	TOTAL COST	UNIT COST
5. Drainage System				
a. Downspout				
PVC Pipes and Fittings				
Miscellaneous Items such as Hanger, Pipe Clamp/Bracket, PVC Solvent				
b. Roof Drain/Strainer				
Roof Drain				
Ledge Drain				
And all other materials, accessories and incidentals necessary to complete the works.				
Subtotal Roof Drain / Strainer				
6. Plumbing Fixtures				
a. Water Closet				
b. Lavatory complete with Fittings and accessories				
c. Urinal complete with Fittings and accessories				
d. Toilet Paper Holder				
e. Soap Holder				
f. Shower set 1 valve diverter stainless				
g. Pantry Sink				
h. Sink				
i. SS Faucet 1/2"				
j. Floor Drain				
k. Liquid Soap Dispenser				
l. Towel Bar				
m. Robe Hook				
And all other materials, accessories and incidentals necessary to complete the works.				
Subtotal Plumbing Fixtures				
TOTAL PLUMBING/SANITARY WORKS				
IV. MECHANICAL WORKS				
1. Airconditioning Equipment				
2 Tonner Wall Mounted (Split Type) Inverter				
And all other materials, accessories and incidentals necessary to complete the works.				
Subtotal Airconditioning Equipment				
2. Ventilation Equipment				
Ceiling type with ducting				
And all other materials, accessories and incidentals necessary to complete the works.				
Subtotal Ventilation Equipment				
Subtotal Air Distribution System				
3. Refrigerant Pipings, electricals, drains, hangers, brackets, etc. (Packaged)				
And all other materials, accessories and incidentals necessary to complete the works.				
Subtotal Refrigerant Pipings				
5. Fire alarm and Suppression System				
a. Pipes and Fittings				
And all other materials, accessories and incidentals necessary to complete the works.				
Subtotal Pipes and Fittings				

ITEM DESCRIPTION	UNIT	QUANTITY	TOTAL COST	UNIT COST
b. Sprinkler Heads				
Pendent, Upright and Sidewall Type				
Sprinkler Plate Recessed				
And all other materials, accessories and incidentals necessary to complete the works.				
Subtotal Sprinkler Heads				
c. Fire Hose Cabinets				
Fire Hose Cabinet Complete w/ Accessories				
Fire Alarm Check Valve Assembly				
And all other materials, accessories and incidentals necessary to complete the works.				
Subtotal Fire Hose Cabinets				
e. Conduits, Fittings and Boxes				
And all other materials, accessories and incidentals necessary to complete the works.				
Subtotal Conduits, Fittings and Boxes				

Handwritten signature or mark.

f. Wires and Cables				
1.25 sq.mm. TF Wire				
3.5 sq.mm. THW Wire				
And all other materials, accessories and incidentals necessary to complete the works.				
Subtotal Wires and Cables				
g. Equipment Devices				
Photoelectric Smoke Detector				
Electronic Heat Detector, 135°F				
Fire Alarm Bell, 6", 24 VDC				
Manual Pull Station, Single Action with				
Telephone Jack				
Surge Suppressor for FACP				
Testing and Commissioning				
And all other materials, accessories and incidentals necessary to complete the works.				
Subtotal Equipment Devices				
f. Miscellaneous Materials				
Pipe Hangers and Brackets				
And all other materials, accessories and incidentals necessary to complete the works.				
Subtotal Miscellaneous Materials				
TOTAL MECHANICAL WORKS INCLUDING FIRE ALARM AND SUPPRESSION SYSTEM				
V. ELECTRICAL WORKS				
1. Distribution Feeders, Risers and Panel Board				
a. Conduits, Fitting, Gutters & Boxes				
b. Wires and Cables				
c. Panel Boards, MTS & KW-HR Meter				
And all other materials, accessories and incidentals necessary to complete the works.				
Subtotal Distribution Feeders, Risers and Panel Board				
2. Power System (Equipment Power Wiring & Receptacles)				
a. Conduits, Fitting, Gutters & Boxes				
b. Wires and Cables				
c. Equipment Protective Devices				
d. Wiring Devices				
And all other materials, accessories and incidentals necessary to complete the works.				
Subtotal Power System (Equipment Power Wiring &Receptacles)				
3. Lighting System				
a. Conduits, Fitting, Gutters & Boxes				
b. Wires and Cables				
c. Wiring Devices				
d. Disconnect Switch				
e. Lighting Fixtures				
And all other materials, accessories and incidentals necessary to complete the works.				
Subtotal Lighting System				

N



ITEM DESCRIPTION	UNIT	QUANTITY	TOTAL COST	UNIT COST
<b>VI. AUXILLIARY WORKS</b>				
1. Telephone and Intercom System				
a. Conduits, Fitting, & Boxes				
b. House Cable				
c. Equipment and Devices				
And all other materials, accessories and incidentals necessary to complete the works.				
<i>Subtotal Telephone &amp; Intercom System</i>				
2. ICT				
And all other materials, accessories and incidentals necessary to complete the works.				
<i>Subtotal ICT</i>				
<b>TOTAL AMOUNT</b>				

Submitted By:

Name of Bidder's Representative:

\_\_\_\_\_

Signature:

\_\_\_\_\_

Date :

\_\_\_\_\_

*[Handwritten mark]*

## ***Section IX. Bidding Forms***

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**Bid Form**

Date: \_\_\_\_\_  
 Invitation to Bid No: \_\_\_\_\_

**To: SANDIGANBAYAN**  
 Commonwealth Avenue  
 cor. Batasan Road  
 Quezon City

**Through: PROCUREMENT SERVICE**  
*Bids and Awards Committee IX*  
 2nd Floor, PS Complex, RR Road  
 Cristobal St., Paco, Manila

We, the undersigned, declare that:

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

Item No.	Qty	Item / Description	Total Price
1	1 Lot	<i>Design and Build of the Renovation and Rehabilitation of the 5<sup>th</sup> Floor of the Sandiganbayan Centennial Building</i>	

**TOTAL PRICE IN WORDS**

Item No. 1: | \_\_\_\_\_

The **Final Bid Price** is net of any discount offered.

- (c) Our Bid shall be valid for a period of *[insert number]* days from the date fixed for the Bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- (d) If our Bid is accepted, we commit to obtain a Performance Security in the amount of *[insert percentage amount]* percent of the Contract Price for the due performance of the Contract;
- (e) Our firm, including any subcontractors or suppliers for any part of the Contract, have nationalities from the following eligible countries: *[insert information]*;

- (f) We are not participating, as Bidders, in more than one Bid in this bidding process, other than alternative offers in accordance with the Bidding Documents;
- (g) Our firm, its affiliates or subsidiaries, including any subcontractors or suppliers for any part of the Contract, has not been declared ineligible by the Funding Source;
- (h) We understand that this Bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal Contract is prepared and executed; and
- (i) We understand that you are not bound to accept the Lowest Calculated Bid or any other Bid that you may receive.
- (j) We likewise certify/confirm that the undersigned, is the duly authorized representative of the bidder, and granted full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for the [Name of Project] of the [Name of the Procuring Entity].
- (k) We acknowledge that failure to sign each and every page of this Bid Form, including the Bill of Quantities, shall be a ground for the rejection of our bid.

Name: \_\_\_\_\_  
In the capacity of: \_\_\_\_\_  
Signed: \_\_\_\_\_  
Duly authorized to sign the Bid for and on behalf of: \_\_\_\_\_  
Date: \_\_\_\_\_

**Form of Contract Agreement**

---

THIS AGREEMENT, made this *[insert date]* day of *[insert month]*, *[insert year]* between *[name and address of PROCURING ENTITY]* (hereinafter called the "Entity") and *[name and address of Contractor]* (hereinafter called the "Contractor").

WHEREAS, the Entity is desirous that the Contractor execute *[name and identification number of contract]* (hereinafter called "the Works") and the Entity has accepted the Bid for *[insert the amount in specified currency in numbers and words]* by the Contractor for the execution and completion of such Works and the remedying of any defects therein.

**NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:**

1. In this Agreement, words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to.
2. The following documents shall be attached, deemed to form, and be read and construed as integral part of this Agreement, to wit:
  - (a) General and Special Conditions of Contract;
  - (b) Drawings/Plans;
  - (c) Specifications;
  - (d) Invitation to Bid;
  - (e) Instructions to Bidders;
  - (f) Bid Data Sheet;
  - (g) Addenda and/or Supplemental/Bid Bulletins, if any;
  - (h) Bid form, including all the documents/statements contained in the Bidder's bidding envelopes, as annexes, and all other documents 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;
  - (i) Eligibility requirements, documents and/or statements;
  - (j) Performance Security;
  - (k) Notice of Award of Contract and the Bidder's conforme thereto;
  - (l) Other contract documents that may be required by existing laws and/or the Entity.
3. In consideration of the payments to be made by the Entity to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Entity to execute and complete the Works and remedy any defects therein in conformity with the provisions of this Contract in all respects.

4. The Entity hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects wherein, the Contract Price or such other sum as may become payable under the provisions of this Contract at the times and in the manner prescribed by this Contract.

IN WITNESS whereof the parties thereto have caused this Agreement to be executed the day and year first before written.

Signed, sealed, delivered by \_\_\_\_\_ the \_\_\_\_\_ (for the Entity)

Signed, sealed, delivered by \_\_\_\_\_ the \_\_\_\_\_ (for the Contractor).

Binding Signature of Procuring Entity

\_\_\_\_\_

Binding Signature of Contractor

\_\_\_\_\_

*[Addendum showing the corrections, if any, made during the Bid evaluation should be attached with this agreement]*

Omnibus Sworn Statement

REPUBLIC OF THE PHILIPPINES )  
CITY/MUNICIPALITY OF \_\_\_\_\_ ) S.S.

**AFFIDAVIT**

I, *[Name of Affiant]*, of legal age, *[Civil Status]*, *[Nationality]*, and residing at *[Address of Affiant]*, after having been duly sworn in accordance with law, do hereby depose and state that:

**1. *Select one, delete the other:***

*If a sole proprietorship:* I am the sole proprietor or authorized representative of *[Name of Bidder]* with office address at *[address of Bidder]*;

*If a partnership, corporation, cooperative, or joint venture:* I am the duly authorized and designated representative of *[Name of Bidder]* with office address at *[address of Bidder]*;

**2. *Select one, delete the other:***

*If a sole proprietorship:* As the owner and sole proprietor or authorized representative of *[Name of Bidder]*, I have full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for *[Name of the Project]* of the *[Name of the Procuring Entity]* *[insert “as shown in the attached duly notarized Special Power of Attorney” for the authorized representative]*;

*If a partnership, corporation, cooperative, or joint venture:* I am granted full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for *[Name of the Project]* of the *[Name of the Procuring Entity]*, accompanied by the duly notarized Special Power of Attorney, Board/Partnership Resolution, or Secretary’s Certificate, whichever is applicable;

3. *[Name of Bidder]* is not “blacklisted” or barred from bidding by the Government of the Philippines or any of its agencies, offices, corporations, or Local Government Units, foreign government/foreign or international financing institution whose blacklisting rules have been recognized by the Government Procurement Policy Board;
4. Each of the documents submitted in satisfaction of the bidding requirements is an authentic copy of the original, complete, and all statements and information provided therein are true and correct;

5. *[Name of Bidder]* is authorizing the Head of the Procuring Entity or its duly authorized representative(s) to verify all the documents submitted;

6. **Select one, delete the rest:**

*If a sole proprietorship:* The owner or sole proprietor is not related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

*If a partnership or cooperative:* None of the officers and members of *[Name of Bidder]* is related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

*If a corporation or joint venture:* None of the officers, directors, and controlling stockholders of *[Name of Bidder]* is related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

7. *[Name of Bidder]* complies with existing labor laws and standards; and
8. *[Name of Bidder]* is aware of and has undertaken the following responsibilities as a Bidder:
- a) Carefully examine all of the Bidding Documents;
  - b) Acknowledge all conditions, local or otherwise, affecting the implementation of the Contract;
  - c) Made an estimate of the facilities available and needed for the contract to be bid, if any; and
  - d) Inquire or secure Supplemental/Bid Bulletin(s) issued for the *[Name of the Project]*.
9. *[Name of Bidder]* did not give or pay directly or indirectly, any commission, amount, fee, or any form of consideration, pecuniary or otherwise, to any person or official, personnel or representative of the government in relation to any procurement project or activity.
10. *[Name of Bidder]* hereby assigns the following contact number/s and e-mail address/es as the official telephone/fax number and contact reference of the company where the PS BAC and PS notices may be transmitted.

Telephone No/s.: \_\_\_\_\_  
Fax No/s.: \_\_\_\_\_  
E-mail Add/s.: \_\_\_\_\_  
Mobile No.: \_\_\_\_\_



It is understood that notices/s transmitted in any of the above-stated telephone/fax numbers and/or e-mail address/es are deemed received as of its transmittal and the reckoning period for the reglementary periods stated in the bidding documents and the revised Implementing Rules and Regulations of Republic Act No. 9184 shall commence from receipt thereof.

IN WITNESS WHEREOF, I have hereunto set my hand this \_\_\_\_ day of \_\_\_\_, 20\_\_ at \_\_\_\_\_, Philippines.

\_\_\_\_\_  
Bidder's Representative/Authorized Signatory

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

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

**NAME OF NOTARY PUBLIC**

**Serial No. of Commission** \_\_\_\_\_

**Notary Public for** \_\_\_\_\_ **until** \_\_\_\_\_

**Roll of Attorney's No.** \_\_\_\_\_

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

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

**Doc. No.** \_\_\_\_\_

**Page No.** \_\_\_\_\_

**Book No.** \_\_\_\_\_

**Series of** \_\_\_\_\_.

**\*The identification card shall be at least one of those acceptable proofs of identity as identified under the provisions of the 2004 Rules on Notarial Practice, also required to submit/attached a photocopy of identification card used.**

Note:

*“Sec. 12. Competent Evidence of Identity – The phrase “competent evidence of identity” refers to the identification of an individual based on:*

At least one current identification document issued by an official agency bearing the photograph and signature of the individual, such as but not limited to, passport, driver's license, Professional Regulations Commission ID, National Bureau of Investigation clearance, police clearance, postal ID, voter's ID, Barangay certification, Government Service and Insurance System (GSIS) e-card, Social Security System (SSS) card, Philhealth card, senior citizen card, Overseas Workers Welfare Administration (OWWA) ID, OFW ID, seaman's book, alien certificate of registration/immigrant certificate of registration, government office ID, certification from the National Council for the Welfare of Disabled Persons (NCWDP), Department of Social Welfare and Development (DSWD) certification;

**Bid-Securing Declaration**

**(REPUBLIC OF THE PHILIPPINES)**  
**CITY OF \_\_\_\_\_ ) S.S.**  
**x-----x**

**Invitation to Bid: *Public Bidding No. 19-048-9:***

***Design and Build of the Renovation and Rehabilitation of the 5<sup>th</sup> Floor of the  
Sandiganbayan Centennial Building***

**To: SANDIGANBAYAN**  
Commonwealth Avenue  
cor. Batasan Road  
Quezon City

**Through: PROCUREMENT SERVICE**  
*Bids and Awards Committee IX*  
*2nd Floor, PS Complex, RR Road*  
*Cristobal St., Paco, Manila*

I/We, the undersigned, declare that:

1. I/We understand that, according to your conditions, bids must be supported by a Bid Security, which may be in the form of a Bid-Securing Declaration.
2. I/We accept that: (a) I/we will be automatically disqualified from bidding for any contract with any procuring entity for a period of two (2) years upon receipt of your Blacklisting Order; and, (b) I/we will pay the applicable fine provided under Section 6 of the Guidelines on the Use of Bid Securing Declaration, within fifteen (15) days from receipt of written demand by the procuring entity for the commission of acts resulting to the enforcement of the bid securing declaration under Sections 23.1(b), 34.2, 40.1 and 69.1, except 69.1 (f), of the IRR of RA 9184; without prejudice to other legal action the government may undertake.
3. I/We understand that this Bid-Securing Declaration shall cease to be valid on the following circumstances:
  - a. Upon expiration of the bid validity period, or any extension thereof pursuant to your request;

- b. I am/we are declared ineligible or post-disqualified upon receipt of your notice to such effect, and (i) I/we failed to timely file a request for reconsideration or (ii) I/we filed a waiver to avail of said right;
- c. I am/we are declared as the bidder with the Lowest Calculated Responsive Bid, and I/we have furnished the performance security and signed the Contract.

**IN WITNESS WHERE OF**, I/We have hereunto set my/our hand/s this \_\_\_\_ day of [month] [year] at [place of execution]

***[Insert NAME OF BIDDER'S AUTHORIZED REPRESENTATIVE]***

***[Insert signatory's Legal capacity]***

Affiant

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

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

**NAME OF NOTARY PUBLIC**

**Serial No. of Commission** \_\_\_\_\_

**Notary Public for** \_\_\_\_\_ **until** \_\_\_\_\_

**Roll of Attorney's No.** \_\_\_\_\_

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

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

**Doc. No.** \_\_\_\_\_

**Page No.** \_\_\_\_\_

**Book No.** \_\_\_\_\_

**Series of** \_\_\_\_\_.

**\*The identification card shall be at least one of those acceptable proofs of identity as identified under the provisions of the 2004 Rules on Notarial Practice, also required to submit/attached a photocopy of identification card used.**

*A*

*“Sec. 12. Competent Evidence of Identity – The phrase “competent evidence of identity” refers to the identification of an individual based on:*

At least one current identification document issued by an official agency bearing the photograph and signature of the individual, such as but not limited to, passport, driver's license, Professional Regulations Commission ID, National Bureau of Investigation clearance, police clearance, postal ID, voter's ID, Barangay certification, Government Service and Insurance System (GSIS) e-card, Social Security System (SSS) card, Philhealth card, senior citizen card, Overseas Workers Welfare Administration (OWWA) ID, OFW ID, seaman's book, alien certificate of registration/immigrant certificate of registration, government office ID, certification from the National Council for the Welfare of Disabled Persons (NCWDP), Department of Social Welfare and Development (DSWD) certification;

LIST OF KEY PERSONNEL PROPOSED TO BE ASSIGNED TO THE CONTRACT (FOR DESIGN)

“Annex E-1”

Business Name : \_\_\_\_\_  
Business Address : \_\_\_\_\_

	Project (Licensed Architect)	Structural Engineer	Civil Engineer	Professional Electrical Engineer	Professional Mechanical Engineer	Sanitary Engineer	Environmental Specialist /Engineer	Electronics and Communications Engineer
1. Name								
2. Address								
3. Date of Birth								
4. Employed Since								
5. Relevant Experience								
(a) Description; (b) Number of Years								
6. Previous Employment								
7. Education								
8. PRC License								
9. Cost of Biggest Project Handled								
10. Years of Experience in Proposed Position								

Note: This List must be supported by individual resumes of all personnel and photocopy of PRC Licenses of the Engineers.

Submitted by : \_\_\_\_\_  
Designation : \_\_\_\_\_  
Date : \_\_\_\_\_  
(Printed Name & Signature of Authorized Representative)



LIST OF KEY PERSONNEL PROPOSED TO BE ASSIGNED TO THE CONTRACT (FOR CONSTRUCTION)

“Annex E-2”

Business Name :  
Business Address :

	Project (Licensed Architect)	Project (Civil Engineer)	Professional Electrical Engineer	Professional Mechanical Engineer	Sanitary Engineer	Safety Officer
11. Name						
12. Address						
13. Date of Birth						
14. Employed Since						
15. Relevant Experience						
(a) Description; (b) Number of Years						
16. Previous Employment						
17. Education						
18. PRC License/ Accreditation from DOLE- OHSC (for the Health and Safety Officer)						
19. Cost of Biggest Project Handled						
20. Years of Experience in Proposed Position						

Note: This List must be supported by individual resumes of all personnel and photocopy of PRC Licenses of the Engineers.

Submitted by :  
Designation :  
Date :

(Printed Name & Signature of Authorized Representative)

LIST OF EQUIPMENT, OWNED OR LEASED AND/OR UNDER PURCHASE AGREEMENT, PLEDGED TO THE PROPOSED CONTRACT

Business Name : \_\_\_\_\_  
Business Address : \_\_\_\_\_

Description	Model/Year	Capacity/Performance/Size	Plate No.	Motor No./ Body No.	Location	Condition	Proof of Ownership/ Lessor/Vendor
<b>A. Owned</b>							
i.							
ii.							
iii.							
iv.							
v.							
<b>B. Leased</b>							
i.							
ii.							
iii.							
iv.							
v.							
<b>C. Under Purchase Agreement</b>							
i.							
ii.							
iii.							
iv.							
v.							

Note: This List must be supported by proof of ownership, lease and/or purchase agreement. For lease and purchase agreement, proof of ownership from the lessor or certification of availability of equipment from the vendor for the duration of the project.

Submitted by : \_\_\_\_\_

(Printed Name & Signature of Authorized Representative)

Designation : \_\_\_\_\_

Date : \_\_\_\_\_



STATEMENT OF SINGLE LARGEST COMPLETED CONTRACT SIMILAR TO THE CONTRACT TO BE BID

Business Name : \_\_\_\_\_  
Business Address : \_\_\_\_\_

Name of Contract	a. Owner Name b. Address c. Telephone Nos.	Nature of Work	Contractor's Role		a. Amount at Award b. Amount at Completion	a. Date Awarded b. Date Completed
			Description	%		
<u>Government</u>						
<u>Private</u>						

Note: This statement shall be supported by:

- 1. Any of the following (Notice of Award/ Contract /Notice to Proceed); and
- 2. Project Owner's Certificate of Final Acceptance issued by the Owner other than the Contractor or the Constructors Performance Evaluation System (CPES) Final Rating (minimum Satisfactory Rating).
- 3. Similar contracts shall refer to any contract in both design and construction with a contract amount of **Php 30,275,409.50**.

Submitted by : \_\_\_\_\_  
Designation : \_\_\_\_\_  
Date : \_\_\_\_\_  
(Printed Name & Signature of Authorized Representative)



## Format of Curriculum Vitae (CV) for Proposed Professional Staff

---

Proposed Position: \_\_\_\_\_

Name of Firm: \_\_\_\_\_

Name of Staff: \_\_\_\_\_

Profession: \_\_\_\_\_

Date of Birth: \_\_\_\_\_

Years with Firm/Entity: \_\_\_\_\_ Nationality: \_\_\_\_\_

Membership in Professional Societies: \_\_\_\_\_

\_\_\_\_\_

Detailed Tasks Assigned: \_\_\_\_\_

\_\_\_\_\_

### Key Qualifications:

*[Give an outline of staff member's experience and training most pertinent to tasks on project. Describe degree of responsibility held by staff member on relevant previous projects and give dates and locations. Use about half a page.]*

\_\_\_\_\_

### Education:

*[Summarize college/university and other specialized education of staff members, giving names of schools, dates attended, and degrees obtained. Use about one quarter of a page.]*

---

### **Employment Record:**

*[Starting with present position, list in reverse order every employment held. List all positions held by staff member since graduation, giving dates, names of employing organizations, titles of positions held, and locations of projects. For experience in last ten years, also give types of activities performed and client references, where appropriate. Use about two pages.]*

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### **Languages:**

*[For each language, indicate proficiency: excellent, good, fair, or poor in speaking, reading, and writing.]*

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### **Certification:**

I, the undersigned, certify that to the best of my knowledge and belief, these data correctly describe me, my qualifications, and my experience.

\_\_\_\_\_  
*[Signature of staff member and authorized representative of the firm]*

Date: \_\_\_\_\_  
*Day/Month/Year*

Full name of staff member: \_\_\_\_\_

Full name of authorized representative: \_\_\_\_\_

**“Annex J”**

**KEY PERSONNEL’S AFFIDAVIT OF COMMITMENT TO WORK ON THE CONTRACT**

1. I \_\_\_\_\_ have committed my services for the position of

*(Name of  
Professional/Individual)*

\_\_\_\_\_ for the Contract if it is awarded to the Bidder.

*(Key Personnel Position)*

2. I, therefore, commit to assume the said position for the Contract once it is awarded to the Bidder, and I shall employ the best care, skill, and ability to perform the duties of such position in accordance with the Conditions of Contract, Specifications, Drawings, and other provisions of the Contract Agreement. I am aware that I have to stay in the jobsite for the duration of my assignment.

3. I do not allow the use of my name to enable the Bidder to qualify for the Contract without my commitment to assume the said position, since I understand that to do so shall be a sufficient ground for my disqualification from this Contract and future biddings of the Sandiganbayan.

4. I submit, and certify as true and correct, the following information:

a. Name : -

b. Date of Birth : -

c. Nationality : -

d. Profession : -

e. PRC License No. and Date of Validity : -

f. Employment Record and Work Experience Relevant to the Project : (Please fill in the table below; use additional sheet(s) if necessary)

i. Project Name & Location ii. Project Owner's Name & Address iii. Employer's Name and Address iv. Position i.	i. Project Description ii. Total Project Cost	i. Part of Project Handled ii. Cost of Part	i. Start Date of the Project ii. Completion Date of the Project iii. Total Period of Engagement to the Project
Completed Projects: (see example below)			
i. Road Repair in Orani, Bataan ii. Municipality of Orani / Orani, Bataan	i. Pavement Maintenance Works ii. Php1,000,000.00	i. Surveying Works ii. Incidental cost to the project	i. January 1, 2016 ii. April 30, 2016 iii. Four (4) months

On-going Projects: (see example below)			
i. Road Repair in Dinalupihan, Bataan ii. Municipality of Dinalupihan / Din., Bataan	i. Pavement Maintenance Works ii. Php2,000,000.00	i. Surveying Works ii. Incidental cost to the project	i. January 1, 2017 ii. N/A iii. Four (4) months

\_\_\_\_\_  
Name and Signature of Professional/Individual Committing to the Contract

\_\_\_\_\_  
Date

REPUBLIC OF THE PHILIPPINES)  
CITY OF \_\_\_\_\_)S.S.

SUBSCRIBED AND SWORN to before me this \_\_\_\_ day of \_\_\_\_\_ 2018  
at \_\_\_\_\_, Philippines. Affiant/s is/are personally known to me  
and was/were identified by me through competent evidence of identity as defined in the 2004  
Rules on Notarial Practice (A.M. No. 02-8-13-SC). Affiant/s exhibited to me his/her [insert type of  
government identification card used], with his/her photograph and signature appearing thereon,  
with no. \_\_\_\_\_.

Witness my hand and seal this \_\_\_\_ day of \_\_\_\_\_.

NOTARY PUBLIC

Doc. No. \_\_\_\_;  
Page No. \_\_\_\_;  
Book No. \_\_\_\_;  
Series of 2018.

**N.B.** One (1) person shall only have one (1) position/ designation.

## JOINT VENTURE AGREEMENT

KNOW ALL MEN BY THESE PRESENTS:

➤

➤ This **JOINT VENTURE AGREEMENT** (hereinafter referred to as the “Agreement”), entered into this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_ at \_\_\_\_\_ City, Philippines by and among:

➤ \_\_\_\_\_, a domestic corporation duly organized, registered and existing under and by virtue of the laws of the Republic of the Philippines, with office address at \_\_\_\_\_, represented by its \_\_\_\_\_, hereinafter referred to as “\_\_\_\_\_”;

- and -

➤ \_\_\_\_\_, a domestic corporation duly organized, registered and existing under and by virtue of the laws of the Republic of the Philippines, with office address at \_\_\_\_\_, represented by its \_\_\_\_\_, hereinafter referred to as “\_\_\_\_\_”;

- and -

➤ \_\_\_\_\_ a foreign corporation organized and existing under and by virtue of the laws of \_\_\_\_\_, represented by its \_\_\_\_\_, hereinafter referred to as “\_\_\_\_\_”;

(Henceforth collectively referred to as the “**Parties**”

**WITNESSETH: That**

**WHEREAS**, the Procurement Service (PS) has recently published an Invitation to Apply for Eligibility and to Bid for the Supply and Delivery of \_\_\_\_\_ for the \_\_\_\_\_;

**WHEREAS**, the parties have agreed to pool their resources together to form the “\_\_\_\_\_ Joint Venture”, hereinafter referred to as the Joint Venture, under the laws of the Philippines, for the purpose of participating in the abovementioned procurement of PS-DBM;

NOW, THEREFORE, for and in consideration of the foregoing premises and the covenants hereto set forth, the Parties have agreed as follows:

## ARTICLE I

### ORGANIZATION OF THE JOINT VENTURE

SECTION 1. Formation – The Parties do hereby agree and bind themselves to establish, form and organize a Joint Venture pursuant to the laws of the Republic of the Philippines, in order for the JV to carry on the purposes and objectives for which it is created;

SECTION 2. Name – The name and style under which the JV shall be conducted is

" \_\_\_\_\_ ";

SECTION 3. Principal Place of Business – The JV shall maintain its principal place of business at \_\_\_\_\_;

SECTION 4. Preparation and Documentation – The Parties shall secure and/or execute such certifications, documents, deeds and instruments as may be required by the laws of the Republic of the Philippines for the realization of the JV and in compliance with the Project. Further, they shall do all other acts and things requisite for the continuation of the JV pursuant to applicable laws;

SECTION 5. The Joint Venture shall be represented by the \_\_\_\_\_ in all biddings, related procurement transactions and other official dealings that it shall enter into with the PS-DBM and third parties, such transactions to include, among others, the submission of eligibility documents, bids, registration documents obtaining bonds, performing the principal contract in the event that the contract is awarded in favor of the Joint Venture, receipt of payment for goods delivered, and similar and related activities.

SECTION 6. The period of the Joint Venture shall begin upon execution of this Agreement and shall continue until the complete performance of its contractual obligations to PS-DBM, as described in Article II hereof, or upon its termination for material breach of any term or condition of this Agreement, by service of a written statement in English on the other Party, not less than 90 days prior to the intended date termination

## ARTICLE II PURPOSE

SECTION 1. The primary purpose of the Joint Venture is to participate in the public bidding to be conducted by the DBM-PS Bids and Awards Committee for the supply and delivery of \_\_\_\_\_ for the \_\_\_\_\_.

SECTION 2. If the above-described contract/s is/are awarded to the Joint Venture, the Joint Venture shall undertake the performance thereof to PS-DBM, and such other incidental activities necessary for the completion of its contractual obligations.

## ARTICLE III SOLIDARY LIABILITY OF THE PARTIES

SECTION 1. In the performance of the contract/s that may be awarded to the Joint Venture by the PS-DBM, and all other related activities/obligations, as described in Article II hereof, the Parties bind themselves jointly and solidarily, in the concept of solidarily debtors, subject to the right of reimbursement, as provided in the relevant provisions of the Civil Code of the Philippines.



**ARTICLE IV  
CONTRIBUTION AND OTHER ARRANGEMENTS**

SECTION 1. Contribution – The Parties shall contribute the amount of \_\_\_\_\_  
(Php ) to support the financial requirements of the Joint Venture, in the following proportion:

A.	-	P	.00
B.	-	P	.00
TOTAL		P	.00

Additional contributions to the Joint Venture shall be made as may be required for contract implementation. In addition, \_\_\_\_ shall contribute any labor and contract management requirements.

SECTION 2. Profit Sharing – The share of the Parties to the JV from any profit derived or obtained from the implementation and execution of the Project shall be distributed pro rata to each, in accordance with the contribution and resources each has provided to the JV;

SECTION 3. Liquidation and Distributions – Any sum remaining after deducting from the total of all moneys or benefits received for the performance of the contract, all costs incurred by the JV after award of the contract for the Project pursuant to the accounting practices established for the JV, shall be distributed in accordance with the relative balances in the accounts of each Party pursuant to Sec.1 of this Article upon completion, final accounting, termination and liquidation of the JV. In the event of liquidation and termination of JV, and after taking into account the shares of the Parties in all income, gain, deductions, expenses, and losses, should the account of a Party contain a negative balance, such Party shall contribute cash to the JV sufficient to restore the said balance to zero;

SECTION 4. Sharing of Burden of a Net Loss – In case a net loss is incurred, additional contributions shall be made by the Parties in accordance with their respective shares.

**ARTICLE V  
MISCELLANEOUS PROVISIONS**

SECTION 1. The provisions of the Instructions to Bidders, Supplemental Bid Bulletin, and other bidding documents issued by the PS-DBM in relation to the contract described in Article II hereof, shall be deemed incorporated in this Agreement and made an integral part thereof.

SECTION 2. This Agreement shall be binding upon and inure to the benefit of the Parties and their respective successors and assigns.

SECTION 3. The Parties herein are duly represented by their authorized officers.

SECTION 4. Governing Law - This Agreement shall be governed by and construed according to the laws of the Republic of the Philippines. Venue of any court action arising from this Agreement shall be exclusively laid before the proper court of the \_\_\_\_\_, Philippines.

IN WITNESS WHEREOF, the parties have set their hands and affixed their signatures on the date and place first above-stated.

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Signed in the Presence of:

\_\_\_\_\_  
\_\_\_\_\_

### ACKNOWLEDGMENT

REPUBLIC OF THE PHILIPPINES )  
CITY/MUNICIPALITY OF \_\_\_\_\_) S.S.  
PROVINCE OF (in the case of Municipality)

This instrument refers to a Joint Venture Agreement consisting of \_\_\_\_\_ pages, including the page on which this Acknowledgement is written, and signed by the parties and their instrumental witnesses.

**SUBSCRIBED AND SWORN to before me this \_\_\_\_ day of [month] [year] at [place of execution], Philippines. Affiant/s exhibited to me his/her [insert type of government identification card used\*], with his/her photograph and signature appearing thereon, with no. \_\_\_\_\_ issued on \_\_\_\_ at \_\_\_\_.**

**Witness my hand and seal this \_\_\_\_ day of [month] [year].**

#### NAME OF NOTARY PUBLIC

Serial No. of Commission \_\_\_\_\_

Notary Public for \_\_\_\_\_ until \_\_\_\_\_

Roll of Attorney's No. \_\_\_\_\_

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

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

Doc. No. \_\_\_\_  
Page No. \_\_\_\_  
Book No. \_\_\_\_  
Series of \_\_\_\_.

#### Note:

"Sec. 12. Competent Evidence of Identity – The phrase "competent evidence of identity" refers to the identification of an individual based on:

*At least one current identification document issued by an official agency bearing the photograph and signature of the individual, such as but not limited to, passport, driver's license, Professional Regulations Commission ID, National Bureau of Investigation clearance, police clearance, postal ID, voter's ID, Barangay certification, Government Service and Insurance System (GSIS) e-card, Social Security System (SSS) card, Philhealth card, senior citizen card, Overseas Workers Welfare Administration (OWWA) ID, OFW ID, seaman's book, alien certificate of registration/immigrant certificate of registration, government office ID, certification from the National Council for the Welfare of Disabled Persons (NCWDP), Department of Social Welfare and Development (DSWD) certification;*

