Republic of the Philippines
DEPARTMENT OF HEALTH
PHILIPPINE CHILDREN'S MEDICAL CENTER
Bids and Awards Committee
Quezon Avenue, Quezon City 1100
website: www.pcmc.gov.ph email: pcmcbac@gmail.com
Trunkline: 8588-9900 local 361/355 Telefax No.: 8924-0870

SECTION I

Invitation to Bid

One (1) Lot Supply of Labor and Materials for the Construction of Three (3) Storey Eskwelahang Munti

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IB-2022-139

Republic of the Philippines
DEPARTMENT OF HEALTH
PHILIPPINE CHILDREN'S MEDICAL CENTER
Quezon Avenue, Quezon City 1100
website: www.pcmc.gov.ph email: officeofthedirector@pcmc.gov.ph
Trunk Line: 8588-9900 to 20 Direct Line: 8924-6601

INVITATION TO BID
CIVIL WORKS

1. The **Philippine Children's Medical Center (PCMC)** through the **COB CY 2022** intends to apply the sum of **Twenty Million Pesos (Php20,000,000.00)** being the Approved Budget for the Contract (ABC) to payments under the following Invitation to Bid. Bids received in excess of the ABC shall be automatically rejected at bid opening.

Invitation to Bid	Item Description	Approved Budget for the Contract	Cost of Bidding Documents
	Supply of Labor and Materials for:		
IB-2022-139	**Construction of Three (3) Storey Eskwelahang Munti**	**10,000,000.00**	**10,000.00**
IB-2022-140	**Construction of Three (3) Storey Watcher's Dormitory**	**10,000,000.00**	**10,000.00**

2. The Philippine Children's Medical Center (PCMC) now invites bids for the above Procurement Project. Completion of the Works is required **within Three Hundred Sixty-Five (365) calendar days** from receipt and signing of Notice to Proceed. Bidders should have completed a contract similar to the Project. The Description of an eligible bidder is contained in the Bidding Documents, particularly, in Section II (Instructions to Bidders).

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

4. Prospective Bidders may obtain further information from PCMC and inspect the Bidding Documents at the address given below during office hours.

5. A complete set of Bidding Documents may be acquired by interested Bidders **starting October 14, 2022** from given address and website below and upon payment of the applicable fee stated above. The Procuring Entity shall allow the bidder to present its proof of payment for the fees by presenting the Official Receipt.

6. The Philippine Children's Medical Center will hold a **Pre-Bid Conference** on **October 26, 2022** at 10:00 A.M. through video conferencing via *Zoom Application* which shall be open to prospective bidders.

Meeting ID: 964 5984 2269
Passcode : IB20221394

7. Bids must be duly received through manual submission on or before **November 7, 2022 1:30 P.M., Guard-on-Duty, 3rd Floor, Procurement Division Area, PCMC Main Building.** Late bids shall not be accepted.

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

9. Bid opening shall be on **November 7, 2022, 2:00 P.M. 3rd Floor, Function Hall 1 & 2, PCMC Main Building**. Bids will be opened in the presence of the Bidders' representatives who choose to attend at the afore-mentioned venue. In compliance to social distancing and to support the government's effort to mitigate, if not contain the transmission of COVID-19, we will **strictly allow only one authorized representative** per bidder company to enter the venue during opening of bids. Provided further, that said authorized representative shall follow PCMC's safety protocol by wearing face masks while inside PCMC Premises.

10. The **Philippine Children's Medical Center (PCMC)** reserves the right to reject any and all bids, declare a failure of bidding, or not award the contract at any time prior to contract award in accordance with Sections 35.6 and 41 of the 2016 revised IRR of RA No. 9184, without thereby incurring any liability to the affected bidder or bidders.

11. For further information, please refer to:

PCMC BAC Secretariat
3rd Floor, Procurement Division
PCMC Main Building
Quezon Avenue, cor. Agham Road Quezon City
Trunkline : 8588-9900 Loc 361 / 355
Fax Number: 924-0870
Email : pcmcbac@gmail.com

12. You may visit the following websites:

For downloading of Bidding Document : www.pcmc.gov.ph
www.philgeps.gov.ph

October 14, 2022

EMMA A. MARIANO, CPA, MGM-ESP
Chairman, Bids & Awards Committee

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SECTION II

Instructions to Bidders

One (1) Lot Supply of Labor and Materials for the Construction of Three (3) Storey Eskwelahang Munti

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IB-2022-139

1. Scope of Bid

The Procuring Entity, **Philippine Children's Medical Center (PCMC)** invites Bids for the **One (1) Lot Supply of Labor and Materials for the Construction of Three (3) Storey Ekwelahang Munti**, with Project Identification Number **IB-2022-139**.

The Procurement Project (referred to herein as "Project") is for the construction of Works, as described in Section VI (Specifications).

2. Funding Information

2.1. The GOP through the source of funding as indicated below for **COB CY 2022** in the amount of **Ten Million Pesos (Php10,000,000.00)**.

2.2. The source of funding is:

b. GOCC and GFIs, the Corporate Operating Budget.

3. Bidding Requirements

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

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

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

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

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

5. Eligible Bidders

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

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

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

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

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

6. Origin of Associated Goods

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

7. Subcontracts

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

The Procuring Entity has prescribed that:

a. Subcontracting is allowed. The portions of the Project and the maximum percentage allowed to be subcontracted are indicated in the **BDS,** which shall not exceed fifty percent (50%) of the contracted Works.

7.2 The Supplier may identify its subcontractor during the contract implementation stage. Subcontractors identified during the bidding may be changed during the implementation of this Contract. Subcontractors must submit the documentary requirements under Section 23.1 of the 2016 revised IRR of RA No. 9184 and comply with the eligibility criteria specified in **ITB** Clause 5 to the implementing or end-user unit.

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

8. Pre-Bid Conference

The Philippine Children's Medical Center will hold a Pre-Bid Conference on **October 26, 2022 at 10:00 A.M.** through video conferencing via Zoom Application which shall be open to prospective bidders, as indicated in paragraph 6 of the **IB.**

9. Clarification and Amendment of Bidding Documents

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

10. Documents Comprising the Bid: Eligibility and Technical Components

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

10.2. If the eligibility requirements or statements, the bids, and all other documents for submission to the BAC are in foreign language other than English, it must be accompanied by a translation in English, which shall be authenticated by the appropriate Philippine foreign service establishment, post, or the equivalent office having jurisdiction over the foreign bidder's affairs in the Philippines. For Contracting Parties to the Apostille Convention, only the translated documents shall be authenticated through an apostille pursuant to GPPB Resolution No. 13-2019 dated 23 May 2019. The English translation shall govern, for purposes of interpretation of the bid.

10.3. A valid special PCAB License in case of Joint Ventures, and registration for the type and cost of the contract for this Project. Any additional type of Contractor license or permit shall be indicated in the **BDS**.

10.4. A List of Contractor's key personnel (e.g., Project Manager, Project Engineers, Materials Engineers, and Foremen) assigned to the contract to be bid, with their complete qualification and experience data shall be provided. These key personnel must meet the required minimum years of experience set in the **BDS**.

10.5. A List of Contractor's major equipment units, which are owned, leased, and/or under purchase agreements, supported by proof of ownership, certification of availability of equipment from the equipment lessor/vendor for the duration of the project, as the case may be, must meet the minimum requirements for the contract set in the **BDS**.

11. Documents Comprising the Bid: Financial Component

11.1. The second bid envelope shall contain the financial documents for the Bid as specified in **Section IX. Checklist of Technical and Financial Documents**.

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

11.3. For Foreign-funded procurement, a ceiling may be applied to bid prices provided the conditions are met under Section 31.2 of the 2016 revised IRR of RA No. 9184.

12. Alternative Bids

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

13. Bid Prices

All bid prices for the given scope of work in the Project as awarded shall be considered as fixed prices, and therefore not subject to price escalation during contract implementation, except under extraordinary circumstances as determined by the NEDA

and approved by the GPPB pursuant to the revised Guidelines for Contract Price Escalation guidelines.

14. Bid and Payment Currencies

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

14.2. Payment of the contract price shall be made in:

a. Philippine Pesos.

15. Bid Security

15.1. The Bidder shall submit a Bid Securing Declaration or any form of Bid Security in the amount indicated in the **BDS**, which shall be not less than the percentage of the ABC in accordance with the schedule in the **BDS**.

15.2. The Bid and bid security shall be valid until ***120 calendar days.*** Any bid not accompanied by an acceptable bid security shall be rejected by the Procuring Entity as non-responsive.

16. Sealing and Marking of Bids

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

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

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

Use of indelible ink color blue shall be used by the authorized signatory in signing the required forms. ***Strictly NO using of staple wire and thick materials for tab***

The **First (1st) Envelope**, shall contain the following Technical Documents accomplished in five (5) sets, **each set filed in a folder/ data binder**

The **Second (2nd) Envelope** shall contain the Financial Component accomplished in five (5) sets, **each set filed in a folder/ data binder**

All copies should be certified as true copy

COLOR CODING OF FOLDERS/ENVELOPES	**BROWN**

LABEL ON THE ENVELOPE/S:
Name of PROCURING ENTITY
Name of CONTRACT TO BE BID
IB Number
DATE of Bid Opening
Name of the Bidder Company
Address of the Bidder Company

IDENTIFY THE ENVELOPES:
as: > Technical Component Requirements
(original, copy 1, 2, 3 & 4)
> Financial Component Requirement
(original, copy 1, 2, 3 & 4)

17. Deadline for Submission of Bids

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

18. Opening and Preliminary Examination of Bids

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

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

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

19. Detailed Evaluation and Comparison of Bids

19.1. The Procuring Entity's BAC shall immediately conduct a detailed evaluation of all Bids rated "*passed*" using non-discretionary pass/fail criteria. The BAC shall consider the conditions in the evaluation of Bids under Section 32.2 of 2016 revised IRR of RA No. 9184.

19.2. If the Project allows partial bids, all Bids and combinations of Bids as indicated in the **BDS** shall be received by the same deadline and opened and evaluated simultaneously so as to determine the Bid or combination of Bids offering the lowest calculated cost to the Procuring Entity. Bid Security as required by **ITB** Clause 16 shall be submitted for each contract (lot) separately.

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

20. Post Qualification

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

21. Signing of the Contract

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

CONFORME:

Authorized Signatory Signature over printed name	Contact No:
Name of Company/Firm	Company's Official Email Address (Where notices will be sent)
	Company's Official Contact No.

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SECTION III

Bid Data Sheet

One (1) Lot Supply of Labor and Materials for the Construction of Three (3) Storey Eskwelahang Munti

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IB-2022-139

Bid Data Sheet

<table>
<tr><th>ITB Clause</th><th></th></tr>
<tr><td>5.2</td><td>For this purpose, contracts similar to the Project refer to contracts that have the same major categories of work, which shall be:
SLCC of at least 5 Million project cost for General Building construction completed within 5 years with a satisfactory rating.</td></tr>
<tr><td>7.1</td><td>Subcontracting is allowed only for the following works:
1. Concreting works

However, subcontracting of any portion shall not relieve the bidder from any liability or obligation that may arise from the contract of this project.</td></tr>
<tr><td>10.3</td><td>Valid Special Philippine Contractor's Accreditation Board (PCAB) License and registration:
• License Category B, Medium A, General Building</td></tr>
<tr><td>10.4</td><td>The key personnel must meet the required minimum years of experience set below:

<table>
<tr><th>Key Personnel</th><th>General Experience / Relevant Experience</th><th>No. of Personnel</th></tr>
<tr><td>Project Engineer/ Architect</td><td>At least 10 years and above of experience in construction management</td><td>1</td></tr>
<tr><td>Field Engineer/ Architect</td><td>At least 5 years of experience in construction management</td><td>1</td></tr>
<tr><td>Construction Safety Engineer</td><td>Licensed Engineer/ Architect, DOLE Accredited/ Trained</td><td>1</td></tr>
<tr><td>Electrical Engineer</td><td>Licensed Electrical Engineer, With experience in construction of health care facility</td><td>1</td></tr>
</table></td></tr>
<tr><td>10.5</td><td>The minimum major equipment requirements are the following:

<table>
<tr><th>Equipment</th><th>Capacity</th><th>Number of Units</th></tr>
<tr><td>Dump Truck</td><td>Min of 5 cu m</td><td>Min. of 1</td></tr>
</table></td></tr>
<tr><td>12</td><td>Value engineering is allowed</td></tr>
<tr><td>15.1</td><td>The bid security shall be in any of the following forms and amounts:

a. Bid Securing Declaration [use of Form No. DOBA-PCMC-BDF5 is required]

b. The amount of not less than <u>Php200,000.00</u> (2% of the ABC) if bid security is in cash, cashier's/manager's check, bank draft/guarantee or irrevocable letter of credit issued by a Universal or Commercial Bank; or

c. The amount of not less than <u>Php500,000.00</u>(5% of the ABC), if bid security is in the form of Surety Bond callable upon demand issued by a surety or insurance company duly certified by Insurance Commission as authorized to issue such security.</td></tr>
</table>

19.2	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.
20	The **Lowest Calculated Bidder** and **In case of a Joint Venture Agreement, each of its partner** shall submit the following documentary requirements within a non-extendible period of **five (5) calendar days** from receipt of the notification that contain the following: 1. Latest Income and Business Tax Returns filed and paid through the BIR Electronic Filing (EFPS). 2. Affidavit of Site Inspection (*use of Form no. **DOBA-PCMC-SIF22** is required)* *3.* Valid ISO Certificate *4.* Duly accomplished Certificate of Undertaking *5.* Certificate of Performance in letterhead of their clients indicating the contact numbers and email addresses signed by the authorized head of the Department from three (3) clients of the bidder issued within the last six (6) months prior to bid opening. ***Note:*** Certification issued by PCMC – Procurement Section must be included if bidder had done business with us. Certification of which should be of same category (e.g. equipment/supplies) of project being bided. Failure of the Bidder declared as LCB to duly submit the requirements stated above or a finding against the veracity of such shall be ground for forfeiture of the bid security and disqualify the Bidder for award.

21	Within ten (10) calendar days upon receipt of Notice of Award, Winning bidder shall submit five (5) copies of the following documents which shall form part of the contract: *1.* Manpower Utilization Schedule (*use of Form No.* ***DOBA-PCMC-MUF13*** *is required).* 2. Construction Schedule through Gantt Chart (for construction activities) and S-Curve (for financial requirements) *3.* Equipment Utilization Schedule (*use of Form No.* ***DOBA-PCMC-EUF21*** *is required).* *4.* PERT – CPM *5.* Construction Safety and Health Program ***Note: Must be in accordance with the rules and regulations and other orders and issuances by the DOLE*** 6. Signed *Conforme* on Section II. Instructions to Bidders on all pages 7. Signed *Conforme* on Section III. Bid Data Sheet on all pages 8. Signed *Conforme* on Section IV. General Conditions of the Contract on all pages 9. Signed *Conforme* on Section V. Special Conditions of the Contract on all pages 10. Signed *Conforme* on Section VI. Specifications on all pages

CONFORME:

Authorized Signatory Signature over printed name	Contact No:
Name of Company/Firm Contact No.	Company's Official Email Address (Where notices will be sent)
Company's Official	

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SECTION IV

General Conditions of Contract

One (1) Lot Supply of Labor and Materials for the Construction of Three (3) Storey Eskwelahang Munti

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IB-2022-139

1. Scope of Contract

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

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

2. Sectional Completion of Works

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

3. Possession of Site

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

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

4. The Contractor's Obligations

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

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

5. Performance Security

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

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

6. Site Investigation Reports

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

7. Warranty

7.1. In case the Contractor fails to undertake the repair works under Section 62.2.2 of the 2016 revised IRR, the Procuring Entity shall forfeit its performance security, subject its property(ies) to attachment or garnishment proceedings, and perpetually disqualify it from participating in any public bidding. All payables of the GOP in his favor shall be offset to recover the costs.

7.2. The warranty against Structural Defects/Failures, except that occasioned-on force majeure, shall cover the period from the date of issuance of the Certificate of Final Acceptance by the Procuring Entity. Specific duration of the warranty is found in the **SCC**.

8. Liability of the Contractor

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

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

9. Termination for Other Causes

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

10. Dayworks

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

11. Program of Work

11.1. The Contractor shall submit to the Procuring Entity's Representative for approval the said Program of Work showing the general methods, arrangements, order, and timing for all the activities in the Works. The submissions of the Program of Work are indicated in the **SCC.**

11.2. The Contractor shall submit to the Procuring Entity's Representative for approval an updated Program of Work at intervals no longer than the period

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

12. Instructions, Inspections and Audits

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

13. Advance Payment

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

14. Progress Payments

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

15. Operating and Maintenance Manuals

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

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

CONFORME:

Authorized Signatory Signature over printed name	Contact No:
Name of Company/Firm Contact No.	Company's Official Email Address (Where notices will be sent)
Company's Official	

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SECTION V

Special Conditions of Contract

One (1) Lot Supply of Labor and Materials for the Construction of Three (3) Storey Eskwelahang Munti

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IB-2022-139

Special Conditions of Contract

GCC Clause	
2	The **Intended Completion Date** is **Three Hundred Sixty-Five (365) calendar days** *from the starting date; the starting date being seven (7) calendar days from the issuance of the Notice to Proceed.* **Note: The contract duration shall be reckoned from the start date and not from the contract effectivity date**
4.1	The site will be turned over to the contractor upon receipt of Notice to Proceed
6	The site investigation reports are: • Site survey and Geotechnical Reports
7.2	*[In case of permanent structures, such as buildings of types 4 and 5 as classified under the National Building Code of the Philippines and other structures made of steel, iron, or concrete which comply with relevant structural codes (e.g., DPWH Standard Specifications), such as, but not limited to, steel/concrete bridges, flyovers, aircraft movement areas, ports, dams, tunnels, filtration and treatment plants, sewerage systems, power plants, transmission and communication towers, railway system, and other similar permanent structures:]* **Fifteen (15) years.**
10	b. No dayworks are applicable to the contract.
11.1	The Contractor shall submit the Program of Work to the Procuring Entity's Representative within *Fourteen (14) calendar days* of delivery of the Notice of Award.
11.2	The amount to be withheld for late submission of an updated Program of Work is *2% of the Total Contract Price* amounting to _____ *[amount in local currency]*
13	The amount of the advance payment is *Fifteen percent (15%) of the Total Contract Price* amounting to _____ _____ *[amount in local currency]*
14	Materials and equipment delivered on the site but not completely put in place shall be included for payment.

15.1	The date by which operating and maintenance manuals are required is *Upon Project Completion and this document is part of the requirements for final payment* The date by which "as-built" drawings are required is *Upon project completion*
15.2	The amount to be withheld for failing to produce "as built" drawings and/or operating and maintenance manuals by the date required is 2% of the total contract price _____ *[amount in local currency]*.

CONFORME:

_____ _____

Authorized Signatory
Signature over printed name

Contact No:

_____ _____ _____

Name of Company/Firm
Contact No.

Company's Official Email Address
(Where notices will be sent)

Company's Official

Republic of the Philippines
PHILIPPINE CHILDREN'S MEDICAL CENTER
Bids and Awards Committee
Quezon Avenue, Quezon City 1100
588-9900 loc 361 Website: www.pcmc.gov.ph email: bac@pcmc.gov.ph

SECTION VI

Specifications

One (1) Lot Supply of Labor and Materials for the Construction of Three (3) Storey Eskwelahang Munti

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IB-2022-139

TERMS OF REFERENCE

PCMC-IB No. 2022-139: Eskwelahang Munti
Section VI. Specifications

TABLE OF CONTENTS

I. ABBREVIATIONS

Whenever the following terms, titles, or abbreviations are used in these Terms of Reference or in any document or instrument where these references govern, the intent and meaning are as noted.

ACI	American Concrete Institute
ANSI	American National Standards Institute
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
AWS	American Welding Society
BFP	Bureau of Fire Protection
BPS	Bureau of Product Standards
CDC	Center for Disease Control and Prevention Manual
DOH	Department of Health
EPA	Environmental Protection Agency
FM	Factory Mutual
FSIC	Fire Safety Inspection Certificate
ICRA	Infection Control Risk Assessment
IEC	International Electro-technical Commission
IMC	Intermediate Metal Conduit
MBT	Master Builders Technologies
ME Code	Mechanical Engineering Code of the Philippines
MOA	Memorandum of Agreement
NAMPAP	National Plumbers Association of the Philippines
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NPCP	National Plumbing Code of the Philippines
NSCP	National Structural Code of the Philippines
NWRB	National Water Resources Board
PCMC	Philippine Children's Medical Center
PNS	Philippine National Standards
PSSE	Philippine Society of Sanitary Engineers, Inc.
SHGC	Solar Heat Gain Coefficient
UL	Underwriters' Laboratories

II. DEFINITION OF TERMS

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

1.1. **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.

1.2. The **Completion Date** is the date of completion of the Works as certified by the Procuring Entity's Representative.

1.3. The **Contract** is the contract between the Procuring Entity and the Contractor to execute, complete, and maintain the Works.

1.4. The **Contract Price** is the price stated in the Letter of Acceptance and thereafter to be paid by the Procuring Entity to the Contractor for the execution of the Works in accordance with this Contract.

1.5. **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.

1.6. 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.

1.7. The **Contractor's Bid** is the signed offer or proposal submitted by the Contractor to the Procuring Entity in response to the Bidding Documents.

1.8. **Days** are calendar days; months are calendar months.

1.9. **Day works** 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.

1.10. A **Defect** is any part of the Works not completed in accordance with the Contract.

1.11. The **Defects Liability Certificate** is the certificate issued by Procuring Entity's Representative upon correction of defects by the Contractor.

1.12. 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.

1.13. **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.

1.14. **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.

1.15. The **Intended Completion Date** refers to the date 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.

1.16. **Materials** are all supplies, including consumables, used by the Contractor for incorporation in the Works.

1.17. 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.

1.18. **Permanent Works** 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.

1.19. **Plant** refers to the machinery, apparatus, and the like intended to form an integral part of the Permanent Works.

1.20. The **Procuring Entity** is the party who employs the Contractor to carry out the Works.

1.21. The **Site** is the place provided by the Procuring Entity where the Works shall be executed and any other place or places, or notified to the Contractor by the Procuring Entity's Representative as forming part of the Site.

1.22. **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.

1.23. **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.

1.24. **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.

1.25. The **Start Date,** 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.

1.26. A **Sub-Contractor** 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.

1.27. **Temporary Works** are works designed, constructed, installed, and removed by the Contractor that are needed for construction or installation of the Permanent Works.

1.28. **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; (iii) and the carrying out of all duties and obligations of the Contractor imposed by this Contract.

III. BACKGROUND

The Philippine Children's Medical Center (PCMC) is one of the government-owned and controlled corporations for Specialized Health Care under the Department of Health and located at Quezon Ave., Quezon City. It is a 200-bed capacity tertiary hospital with a mandate to provide pediatric care, offer training programs for medical and allied health care providers, and be a center in clinical research. It offers a wide array of general and subspecialty services in pediatrics, surgery and allied medicine. It has training programs involving general pediatrics, adolescent medicine, ambulatory medicine, hematology and oncology, infectious disease, nephrology, pulmonology, intensive care, neonatology, neurodevelopmental pediatrics, psychiatry, neurology, perinatology, pediatric gynecology, pediatric surgery, pediatric and perinatal anesthesia, radiology, dentistry, physical therapy, occupational therapy, respiratory therapy, medical technology and nursing. Lastly, it has produced researches relevant to the day-to-day care of the well and sick child.

The proposed construction of Philippine Children's Medical Center's Eskwelahang Munti aims to serve the special needs of children in a facility for education free from discrimination and cater to said special needs.

IV. PROJECT COMPONENTS

A. The project calls for the construction of **PCMC Eskwelahang Munti (Phase 1)**, a Three (3) Storey Building with a floor area of 100 sq. m. per floor (total of 300 sq. m.) with the ground floor as its usable portion. The main scope of works with attached drawings are as follows:

1. Geotechnical survey, foundation and earthworks
2. Structural Works
3. Architectural Works
4. Electrical Works
5. Plumbing Works
6. Fire Protection Works

B. The Contractor may conduct Value Engineering, if necessary, to completely deliver the project per attached BOQ, without sacrificing the quality and integrity of the structure, while maintaining its essential function, performance, and safety. The Contractor shall seek approval of all materials and equipment to be used. Building construction shall conform with the provisions of the National Building Code of the Philippines (PD 1096), Code on Sanitation of the Philippines, Accessibility Law (BP 344), National Structural Code of the Philippines, Electrical Engineering Law (RA 7920), Mechanical Engineering Law (RA 5336), Plumbing Code (RA 1378, 1993-1994 Revisions), Fire Code (RA 9514) and other laws and regulations covering environmental concerns and local ordinances and regulations.

C. Construction

1. As a rule, contract implementation guidelines for procurement of infrastructure projects shall comply with Annex "E" CONTRACT IMPLEMENTATION GUIDELINES FOR THE PROCUREMENT OF INFRASTRUCTURE PROJECTS of R.A. 9184 and its IRR. The following provisions shall supplement these procedures:

   a) The Contractor shall commence work upon issuance of Building Permit for the project by the Building Official, DOLE and all other Government and Non-Government Permits with regards to the execution of the scope of works and other pertinent requirements. The work execution shall be in accordance with reviewed and approved documents.

   b) The Contractor shall secure Fire Safety Inspection Certificate (FSIC) issued by BFP and Occupancy Permit for the whole project and other applicable permits and clearances from the local government units and other regulating agency/ies.

   c) The Contractor shall be responsible for obtaining all necessary information as to risks, contingencies and other circumstances which may affect the works and shall prepare and submit all necessary documents specified by the Building Official to meet all regulatory approvals as specified in the contract documents.

   d) The Contractor shall submit a detailed program of works, S-Curve, PERT CPM or Master Schedule within fourteen (14) calendar days after the issuance of the Notice to Proceed for approval by the procuring entity that shall include, but not limited to:

      d.1. The order in which it intends to carry out the work including anticipated timing for each stage of detailed planning and construction;

      d.2. Periods for review of specific outputs and any other submissions and approvals;

      d.3. Sequence of timing for inspection and tests;

      d.4. General description of the design and construction methods to be adopted;

      d.5. Actual number and names of personnel to be assigned for each stage of the work;

      d.6. List of equipment required on site for each stage of the work; and

      d.7. Description of the quality control system to be utilized for the project.

   e) The Contractor and PCMC shall schedule a Kick Off meeting / Pre-Construction Conference with in Seven (7) days from receipt of NTP, before the Construction Day 1 to set construction prerequisites, deliverables, clear and approved Master Schedule of the Project signed by all parties.

   f) Annex "E" of RA 9184 guidelines shall govern approval of all variation orders.

   g) Must at all times, seek approval from PCMC regarding tapping of electrical works.

   h) To submit construction methodology for any material or equipment to be installed inside the building and shall be subjected for approval of the PCMC.

   i) To submit complete sets of as-built plan, requirement for the release of final payment.

   j) To submit detailed estimate and adjusted work schedule in any additional works, change order/variation order. Shop drawing shall be signed and sealed by the Contractor. Implementation shall be subject to verification and recommendation of Engineering Section and shall be approved by the PCMC.

   k) To comply with PCMC's standard operating procedures, policies and regulations, such as but not limited to:

      k.1. All deliveries of materials must pass through PCMC's Materials Management Division (MMD) – Receiving Unit, duly supported by a delivery receipt/sales invoice. PCMC-Engineering shall check conformity of specifications before acceptance.

      k.2. All tools and equipment to be brought-in must pass through PCMC Security Office for issuance of entry pass. Pull out of tools and equipment must be with corresponding gate pass issued by the Materials Management Division.

      k.3. Tools and materials must be delivered 100% to finish the project as per plans and specifications. All excess valuable scrap materials will become PCMC property. Disposal or Hauling of the other excess materials shall be cared of by the Contractor subject to the approval of PCMC.

      k.4. Safekeeping and safeguarding of tools, equipment and materials shall be the accountability of the Contractor.

      k.5. Avoid any act/s that will cause disruption of hospital operation. The Contractor shall be held liable for all damages incurred during construction. Restoration of damages shall be contractor's own expense.

      k.6. Entry and exit of workmen are subject for inspection by PCMC guard.

      k.7. Secure work permit at engineering section before commencement of work.

      k.8. Policies and regulations reflected on approved work permit shall be complied at all time.

V. CONSTRUCTION PHASE

The Contractor shall perform work section by section or by phasing since some areas are dependent on the completion of the other area and this is to minimize disruption of the operation of hospital.

VI. COMPLETION OF THE PROJECT

Once the project reaches an accomplishment of ninety-five (95%) of the total contract amount, PCMC will 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 PCMC's claim for liquidated damages. Certificate of completion will be issued upon completion of the project and final acceptance after one (1) year from the date of completion.

VII. ELIGIBILITY REQUIREMENTS:

A. Basic

1. The eligibility requirements shall comply with all provisions of Section 23 of Revised IRR of RA 9184.
2. The Contractor must have completed a similar project in the amount of at least fifty percent (50%) of the ABC within the last 5 years (2017-2021).
3. The Contractor must have ISO Certification.
4. Must have Certificate of Completion and Good Performance based on the Contractor's Performance Evaluation System or CPES.
   a. Copy of end-user's acceptance or official receipt(s) or certificate of completion issued for the contract. If a government contract, copy of the Contractor's Performance Evaluation Summary (CPES) Final Rating which must be at least satisfactory.
   b. Required PCAB License for the general and sub-contractor.

B. Key Personnel for the Construction of the Project

1. The Contractor shall provide the following key personnel during the construction phase; the Bidder must assign to the project professionals as shown below:

1.1. Project Engineer/Architect (1)
- a) Licensed Engineer or Architect
- b) At least 10 years of experience in construction management
- c) Good oral and written communication skills

1.2. Field Engineer/Architect (1)
- a) Licensed Engineer or Architect
- b) At least 5 years of experience in construction management
- c) Good oral and written communication skills

1.3. Construction Safety Engineer (1)
- a) Licensed Engineer/Architect
- b) DOLE accredited/trained

1.4. Electrical Engineer (1)
- a) Licensed Electrical Engineer

VIII. APPROVED BUDGET COST

A. The total approved budget cost for the Project is Ten Million Pesos (Php 10,000,000). Proposals exceeding the ABC shall be automatically rejected.

IX. PROPOSED TERMS OF PAYMENTS

A. The Contractor shall be entitled to advance payment (15%) subject to the provisions of Section 4 of Annex "E" of Revised IRR of RA 9184.

B. The Contractor may submit a statement of work accomplished (SWA) or progress billing and corresponding request for progress payment for work accomplished subject to the provision of Section 5 of Annex "E" of Revised IRR of RA 9184. The first billing must exceed twenty percent (20%) of the construction phase. The SWA should show the amounts which the contractor consider itself to be entitled to up to the end of the month to cover the cumulative value of the works it executed to date, based on the items in the Bill of Quantities.

XI. TIME FRAME

The Contractor is required to complete the Project within 750 calendar days as shown below, to start upon the Contractor's receipt and signing of Notice to Proceed.

XII. OBLIGATION OF THE CONTRACTOR

1. To comply with the requirement as set forth in the PCMC bidding documents as provided for on RA 9184 and its IRR and other applicable rules and regulations related to the project.
2. To conduct site inspection before participating the bidding to consider all conditions that may directly or indirectly affect the implementation of the project, including verification of measurement/dimensions of the plans/drawings.
3. To provide and guarantee the highest quality of workmanship. All works must comply with the standard, approved plans, scope of works and technical specifications provided for by PCMC. Non-complied or non-acceptable works must be corrected without cost to PCMC.
4. Provide the following on his own accounts/expense;
   a. All necessary permits and other documents required ahead of time before commencement of work.
   b. Suitable staging, temporary office at specified location inside the PCMC grounds for his workmen.
   c. Suitable and approved fences/barricades around the project working area to safeguard his workmen and the public against accidents.
   d. Proper PPE uniform and first aid kits for its workmen while inside PCMC premises.
   e. Record and logbook for daily attendance of its workmen and activities.
5. To provide licensed engineer that will constantly coordinate with PCMC authorized representative to decide on normal and critical condition during the construction phase. There should be a weekly meeting (or more often when necessary) for both parties to discuss the progress and other matters related to the project.

IMPORTANT NOTE: Pay item/s not stated in this TOR but included in the Bill of Quantities and/or Plans shall still be delivered by the Contractor.

CONFORME :

_____
Authorized Signatory
Signature over printed name

_____
Name of Company / Firm

DIVISION 01

(GENERAL REQUIREMENTS)

DIVISION 1 : GENERAL REQUIREMENTS

01010 : SUMMARY OF MATERIALS AND FINISHES

1.00 GENERAL REQUIREMENTS

1.01 RELATED SECTIONS

All applicable provisions of the different divisions of the Specifications for each work trade shall apply for all items cited in this Summary.

1.02 INFERRED ITEMS OF WORK

Materials and workmanship deemed necessary to complete the works but NOT specifically mentioned in the Specifications, Working Drawings, or in the other Contract Documents, shall be supplied and installed by the Contractor without extra cost to the Owner. Such materials shall be of the highest quality available, and installed in a workmanlike manner at prescribed or appropriate locations.

1.03 SPECIFICS

Materials specifically mentioned in this Summary shall be installed following efficient and sound engineering and construction practice, and especially as per manufacturer's application for installation specifications that shall govern all works alluded to in these Specifications.

1.04 ON-SITE ITEMS

Materials and finishes for on-site improvements and facilities as listed below are part of the scope of work and shall be supplied and installed by the Contractor without extra cost to the Owner.

A. Clearing and site grading works including cutting and filling of land in preparation fir construction and eventually, for landscaping. Demolition of existing structure

Booster pumps, Elevated tank, and other necessary equipment and facilities, including air-conditioning equipment, transformers, generators (as required), etc.

1.05 OFF-SITE ITEMS

Off-site improvements shall generally be under the responsibility of the Owner and not included in the Contract, with the exception of the following which shall be part of the Contractor's Work:

Permanent connections to the local utility lines for electrical, water, drainage and telephone lines including equipment, facilities, materials, fees, and/or work which utility companies or authorities may require of the applicant Owner.

Concreting of sidewalk. This work shall neatly make connections to the existing roads or curbs and shall incorporate necessary utility ways under such as required

1.06 OWNER-SUPPLIED ITEMS

Owner-supplied finishing accessories, furnishing and fixtures such as curtain rods, wall clocks, picture frames, fixed furniture etc., shall be installed by the Contractor at no cost to the Owner.

2.0 METALS

2.01 Stainless Steel (SS): Schedule 40

A. For Main Staircase handrail and Fire Exit ladder rung and handrail

2.02 Fastenings:

A. Commercial types, except where special types are shown or required.

B. Fastenings for all exterior work shall be non-ferrous, unless otherwise shown.

C. Fastenings for stainless steel and aluminum and other interior work, where exposed, shall match the fastened metal.

2.03 Metal Door Jamb: as fabricated Metal Gauge 16 to be approved by the Owner.

3.00 THERMAL AND MOISTURE CONTROL

WATERPROOFING / DAMPPROOFING:

Apply with surface preparation, methods of application and density as per manufacturer's specifications.

A. Waterproofing:

1. Capillary-type and integral waterproofing
   a. Toilets
   b. Slop Sink
2. Elastomeric Waterproofing Membrane (Mixed with white cement). To be applied on exterior walls of the building.
3. Prefabricated Waterproofing Membrane, to be applied at roof deck topping.

B. Damp-proofing : Vapor barrier, 1 layer at 6 mils (0.006") thick layer, to be applied at the slabs on fill at the building

C. Structural Sealant, to be applied at all Expansion joint termination/

D. Geotextile, to be applied at Retaining wall In between retaining wall and earth surface

4.00 DOORS AND WINDOWS

4.01 DOORS

Provide and install doors with complete locksets, hinges and accessories as per plans.

Type 1&4	12 MM Tempered Clear Frameless Tempered Glass
Type 1&2 Type 3 Type 4	GA #20 Galvanized steel hallow core door with kick plate for Solid core Tanguile K.D. Wood Door GA #18 Galvanized Steel Door with Louver
Type 5	GA #18 Galvanized Steel Door with Louver and View Window
Type 6	GA #18 Galvanized Steel Door with Louver
Type 7	GA #18 Galvanized Steel Door with View Window
Type 8	GA #18 Galvanized Steel Door with Push bar and Door Closer

4.02 WINDOWS

Windows shall be moss green shade with powder-coated aluminum sections of jambs, heads, tubing.

4.03 GLASS

A. Doors: 12mm (1/2") thick

- Tempered clear glass for aluminum-frame doors and others as indicated in the Drawings.

B. Windows W-4 and W-7 Floors: 6mm (1/4")- others Details as indicated in the Drawings.
- Aluminum Awning and Fixed Window
- Tempered Clear glass on Aluminum Frames for windows.

C. Window W-1to W-3,W-5 and W-6 at Ground Floor to 3rd Floor: 12mm (1/2") thick
- Aluminum fixed window with Tempered clear glass on aluminum frame

D. Mirrors: 6mm (1/4") thick

- Frameless clear mirror with felt paper on 6mm (1/4") thick plywood backing installed

- Wall-mounted design and dimensions as per Drawings.

4.04 GLAZING

A. Bulk Compound for glass installations:

1. Mastics - Elastic compound and non-skinning compound.
2. Putties - Wood sash putty, metal sash putty.
3. Sealants - one component, two components

B. Preformed Sealants:

1. Synthetic polymer-base sealants - resilient or non-resilient type.
2. Preformed gaskets - compression type, structural type.

4.05 CAULKING

For all joint gaps between aluminum frames and concrete.

4.06 FINISH HARDWARE

1. Door Lock and Locksets

A. H-Shape Pull bar Stainless Steel Glass Door Handle

B. Lever Handle for toilets, kitchen, faculty room, mechanical room, Electrical room

2. Deadbolt

A. Frameless glass door bottom patch fitting lock for multi-Purpose room, office, and classrooms

B. Lever Handle One way deadbolt for toilets, kitchen, faculty room, mechanical room, electrical room

3. Cabinet and Drawer Locks

4. Hinges:

A. Stainless Steel Glass Door Hinge:

- Wall mounted Double Action Hinge and pivot hinges.

B. Stainless Steel Ball Bearing Hinge

- Ball bearing full mortise hinges.

C. Door Closers with Hold-Open feature wherever required

D. Door Bumpers with magnetic door holders, wall mounted, for steel door and glass door.

E. Door Push/Pull/Kick

5.00 WOOD AND PLASTICS

ON-SITE CARPENTRY

A. Lumber: to be approved by the Owner

1. Sound and thoroughly-seasoned, warp-free, treated with pressure impregnated charge to "wood" preservative or approved equal,

   1. Sound, hard and free from defects lumber. Use one color or shade for assembly framings that are exposed. Maximum moisture content, 12% for lumber with thickness of 25mm (1") or less; 16% maximum moisture content for all others. For framings of counters, closets, cabinets.

B. Plywood; Plyboard; Medium Density Fiberboard (MDF): approved by the Owner
Note: Provide solid wood edging for all exposed sides of plywood; 12mm (1/2") thick and larger, and on all sides of detachable shelves.

1. 6mm (1/4") thick plywood. For miscellaneous backing, patching, flooring and dividing components of wood-based units such as closets and cabinets, and which are concealed or intended to be painted.
2. 6mm (1/4") thick laminated. For flush hollow-core (FHC) wooden door.
3. 6mm (1/4") thick Weatherproof Marine Plywood. For inner side wooden doors at Women's/Men's Toilets, as indicated in the Drawings.
4. 19mm (3/4") thick Class B Tanguile plywood. For base components of cabinets. For free span shelves at Rooms specified on plans.

C. Laminate: brand laminate

1. Color, as approved by the Owner
2. Ribbon-grain type on Door Panel

- End of Section -

DIVISION 01 : GENERAL REQUIREMENTS

01340 : SHOP DRAWINGS

1.00 DETAILED DRAWINGS AND INSTRUCTIONS

1.01 Supplementary Drawings and Instructions

The drawings referred to in these Specifications maybe further supplemented by additional detail drawings and instruction essential to the proper interpretation of the Drawings and the proper execution of work. The Contractor shall furnish with reasonable promptness such additional details Drawings and Instruction. All such additional detail drawings and instruction shall be consistent with the Contract Documents, true development thereof, and reasonable inferable therefrom. All such additional drawings and instruction are to be considered of equal importance as those, which originally accompany the specifications.

The work shall be executed in conformity with such detail drawings and instructions, and the Contractor shall do no work without proper drawings and instructions.

1.02 Schedule for Submission of Detail and Shop Drawings

The Contractor shall prepare a schedule subject to change from time in accordance with the progress of the work, fixing the dates at which the various details drawings will be required and their designer shall furnish them in accordance with the schedule. Under like conditions, a schedule shall be prepared, fixing the dates for submission of the shop drawings, for the beginning of manufacture and installation of materials and for the completion of the various parts of the works.

2.00 SHOP DRAWINGS

2.01 Conditions in the Preparation of Shop Drawings

The Contractor shall prepare at his own expense and submit with such promptness as to cause no delay in his own work or in that of any other contractor doing work on the same building, two copies of all shop or setting drawings, templates, patterns and models, as well as schedule required for the work of various trades, and the Architect shall pass upon them with reasonable promptness, making desired corrections.

The Contractor shall make any corrections required by the Owner, file with him two corrected copies and furnish such other copies as may be needed.

2.02 Checking Drawings of Sub-Contractors

Before submitting shop drawings for approval, the Contractor shall check drawings of all sub-contractors for accuracy. He shall see that all work contiguous with and having bearing on work indicated on shop drawings is accurately and distinctly illustrated and that work shown is in conformity with Contract requirements.

2.03 Identification

Shop drawings shall be numbered consecutively and represent:

A. All working and erection dimensions
B. Arrangements and sectional views.
C. Necessary details including complete information for making connections with other work
D. Kinds of materials and finishes

Shop drawings shall be dated and shall contain:

A. Name of project;
B. Descriptive names of equipment, materials and classified item numbers;
C. Location at which materials or equipment are to be installed kin work.

2.04 Letter of Transmittal

Submission of Shop Drawings shall be accompanied by a Letter of Transmittal in duplicate, containing: name of project, Contractor's name, number of drawings, titles and other pertinent data.

2.05 Corrections, Changes and Variations

The Contractor shall submit three sets of shop drawings to the Owner for approval. Satisfactory shop drawings will be so identified by the Owner side Architect/Engineer, dated, and one copy thereof returned to the Contractor should shop drawings be disapproved, one set of such drawings will be returned to the Contractor with necessary corrections and changes to be made as indicated.

A. The Contractor shall make required corrections and changes and re-submit shop drawings in duplicate until the Owner's approval is obtained

B. Upon receipt of approval, the Contractor shall insert the date of approval on tracings and promptly furnish the Owner with three additional prints of approved drawings

C. No work called for by shop drawings shall be executed until the Owner's approval is given.

If shop drawings show variations from Contract requirements because of standard shop practice or other reasons, the Contractor shall make mention of such variation in his letter of submittal

2.06 Responsibility for Accuracy

Approval of shop drawings will be general. It shall not relieve the Contractor of responsibility for accuracy of such drawings, nor for proper fitting and construction of work, nor for furnishing of materials or work required by the Contractor and not indicated on shop drawings. The Owner's approval of such drawings or schedule shall not relieve the Contractor from responsibility for deviations from Drawings or Specifications, unless he has in writing, called the Owner's attention to such deviations at the time of submission and secure his written approval, nor shall it relieve him from responsibility for errors of any sort in shop drawings or schedules.

2.07 Shop / Placement / Fabrication Drawings

The Contractor is put on notice that if he proceeds with the Work without securing the approved Shop/Placement and/or Fabrication Drawings from the Contract Consultant and the Area Office, any and all expenses incurred by inadequate or incorrect fabrication or installation, including time delays, will be borne exclusively by the Contractor and his sub-contractor/suppliers. The Owner and his representatives will be absolved of any liability or prior approvals.

- End of Section -

DIVISION 1 : GENERAL REQUIREMENTS

01500 : CONSTRUCTION FACILITIES

1.00 USE OF PREMISES

1.01 Limitations for Use

The Contractor shall confine his apparatus, storage of materials and operations of his workmen to limits indicated by the law, ordinances, permits or directions of the Owner and shall not unreasonably encumber the premises with his materials.

1.02 Safeguard for Structure

The Contractor shall not load or permit any part of the structure to be loaded with a weight that will endanger its safety. The Contractor shall enforce the Owner's instructions regarding signs, advertisements, fires and smoking.

2.00 TEMPORARY STRUCTURES AND FACILITIES

2.01 Temporary Office and Contractor's Building

The Contractor shall at all times provide and maintain adequate weathertight temporary offices with water, light, telephone and toilet facilities for the use of the Owner, resident engineers, inspectors, contractors and sub-contractors. The office shall be provided with wooden floors raised above the ground, windows, doors and locks, tables, closet, blackboard, tack board, benches and racks for drawings. Upon request, an enclosed private area shall be apportioned for the Owner's use.

2.02 Temporary Housing for Workers

The temporary buildings for housing men, or the erection of tents or other forms of protection, will be permitted only at such places as the Owner shall designate; and the sanitary conditions of the grounds in or about such structures shall at all times be maintained in a manner satisfactory to the Owner. Nobody shall be allowed to sleep or cook within the building line of the project under construction.

2.03 Temporary Sanitary Facilities and First Aid Station

The Contractor shall provide, construct and maintain for the duration of the contract, ample sanitary toilet accommodation and other necessary conveniences including water connections for the use of personnel and laborers, properly secluded from public observation, in such manner and at such points as shall be approved by the Owner; and their use shall be strictly enforced. The Contractor shall keep all places clean and free from flies; removing all connections and appliances connected therewith prior to the completion of the contract, and leave the premises perfectly clean.

2.04 Temporary Barricades and Guard Lights

The Contractor shall furnish and put up all temporary barricades and guard lights necessary for the protection, proper execution and completion of work. The guard lights at the top of the falsework tower, barricades, railings, etc. shall be provided and maintained by the Contractor throughout the duration of the project.

2.05 Temporary Water, Power and Telephone Facilities

The Contractor shall make all necessary arrangements with the local utility companies in order that temporary facilities for water, power and telephone are sufficiently provided until the completion of work. The Contractor shall pay all expenses incurred in connection therewith.

2.06 Temporary Signs

No signs or advertisements will be allowed for display without the Owner's approval. The Contractor may erect one painted sign as approved by the Owner, giving names and addresses of the Contractor and various sub-contractors. The Owner shall approve the size, color, lettering and location.

2.07 Temporary Roadways

The Contractor shall construct and properly maintain temporary roadways within and adjacent to the site in order to provide proper access to the building. Temporary roadways shall adequately sustain loads to be carried on them and be so constructed as not to endanger existing or newly installed underground structures.

2.08 Temporary Stairs, Ladders, Ramps and Runways

The Contractor shall furnish and maintain all equipment such as temporary stairs, ladders, ramps, scaffolds, runways, derricks, chutes and the like, as required for proper execution of work by all trades. All such apparatus, equipment and construction shall meet all requirements of Labor Law and other local laws applicable thereto.

2.09 Temporary Elevators and Hoists

The Contractor shall install and operate an adequate number of hoists and elevators. No hoists shall be constructed at such locations as will interfere with or affect construction of floor arches (or work of other contractors). They may be located at the exterior side of the structure and extend upward adjacent to the line of window openings. They shall be located at a sufficient distance from exterior walls and be so protected as to prevent damage, staining, or marring the permanent work.

2.10 Temporary Enclosures

The Contractor shall provide temporary weathertight enclosures for all exterior openings as soon as walls and roof are built so as to protect all work from weather. All exterior doors shall be equipped with self-closing hardware and padlocks. All exterior windows shall be provided with temporary sash frames securely fastened in place but removable when required. Such sash frames shall be covered in an approved manner.

2.11 Temporary or Trial Usage

Temporary or trial usage by the Owner of any mechanical device, machinery, apparatus, equipment or any work or materials supplied under Contract before final completion and written acceptance by the Owner shall not be construed as evidence of Owner's acceptance of same.

The Owner shall have the privilege of such temporary or trial usage, for such reasonable length of time. No claim for damage shall be made by the Contractor for injury to, or breaking of any parts of such work, which may be caused by weakness or inaccuracy of structural parts or by defective material or workmanship. If the Contractor so elects, he may, at his expense, place persons satisfactory to the Owner to make such trial usage.

2.12 Removal of Temporary Structures

The Contractor shall remove all temporary work from premises, erected by him and shall clean the premises as a condition for completing the work and before acceptance of work by the Owner.

3.00 PROTECTION OF WORK AND OWNER'S PROPERTY

3.01 Safeguard Measures

The Contractor shall put up and continuously maintain adequate protection of all his work from damage and shall protect the Owner's property, as well as all materials furnished and delivered to him by the Owner. He shall make good any such damage, injury or loss, except such as may be caused by agents or employees of the Owner, or due to causes considered as an Act of God.

A. The Contractor shall provide reliable and competent watchmen to guard the site and premises, from commencement of operations until building is fully operational. Provide all doorways with locks under control of the Contractor, who shall lock doors at the close of each day's work. In the event that the Owner at any time deems watchmen service inadequate or incompetent, the Contractor shall increase or change the watchmen personnel to the Owner's satisfaction.

B. Smoking on the premises shall be prohibited except in areas designated by the Owner. Fires shall not be built on the premises except by express consent of the Owner.

C. The Contractor shall provide and maintain in good working order and adequate number of fire extinguishers.

3.02 OLD MATERIALS

All old materials of value found by the Contractor upon the work area shall be carefully stored in an area designated by the Owner; the Contractor shall be responsible for the same until final acceptance of the work.

3.03 TREES AND OTHER PLANTS

Existing trees, plants, shrubs, etc. which area to remain shall be boxed and otherwise protected from damage. No trees within the site or located outside building lines shall be cut or removed without specific approval from the Owner.

4.00 PROTECTION OF ADJACENT PROPERTY AND EXISTING UTILITIES

4.01 CONTRACTOR'S SOLE RESPONSIBILITY

The Contractor shall adequately protect adjacent property as provided by law and the Contract Documents. The construction, building or work, in addition to any neighboring property or building which may be jeopardized in any manner, must be thoroughly and substantially braced against winds, floods, settling, falling, of like similar occurrences, and when necessary, covered and protected from sun and rain at the Contractor's expense. The Contractor shall solely be liable and pay for all damages occasioned in any manner by his acts or neglect, or of his agents, employees, or workmen.

4.02 EXISTING UTILITIES

The Contractor shall repair at his own expense, all existing utilities damaged due to his negligence or fault.

5.00 PROTECTION OF LIFE, WORK AND PROPERTY DURING AN EMERGENCY

In an emergency affecting the safety of life or of the work or of adjoining property, the Contractor, without special instruction or authorization from the Owner, is hereby permitted to act, at his discretion, to prevent such threatened loss of injury and he shall so act, without appeal, is so instructed or authorized. Any compensation claimed by the Contractor on amount of emergency work shall be determined by agreement or arbitration.

-End-

DIVISION 1 : GENERAL REQUIREMENTS

01750 : CONTRACTOR'S INSURANCE AND BONDS

1.00 CONTRACTOR'S LIABILITY INSURANCE

The Contractor shall secure and maintain such insurance from an insurance company approved by the Owner as will protect himself, his sub-contractor and the Owner from claims for bodily injury, death or property damage which may arise from operations under this Contract. The Contractor shall not commence work under this Contract until he has obtained all insurance required under this section and shall have filed the certificate of insurance or the certified copy of the insurance policy with the Owner. Such insurance policy shall contain a clause stating that the insurance company shall not revoke said policy without ten (10) days' written notice to the Owner of intention to cancel. The amounts of such insurance shall be as agreed upon.

2.00 CONTRACTOR'S FIRE INSURANCE

In addition to such Fire Insurance as the Contractor's elects to carry for his work protection, he shall secure and maintain in the name of the Owner policies upon such structures and materials and in such amount as shall be designated. These policies shall be secured from a company, which is satisfactory to the Owner and delivered to the Owner.

3.00 CONTRACTOR'S PERFORMANCE AND PAYMENT BONDS

The Contractor, prior to signing the Contract, shall furnish a Performance Bond equal to 30% of the Contract Amount for the faithful performance of his work and 30% Payment Bond covering payments and obligations arising from his Contract. Such bonds shall be in the form of sureties as approved by the Owner. Such bonds shall remain in effect until replaced by the Contractor's Guarantee Bond.

4.00 CONTRACTOR'S GUARANTEE BOND

The Performance and Payment Bonds will be released by the Owner after the expiration of two (2) months from the final acceptance of the work and only after the Contractor has furnished the Owner a Guarantee Bond in the amount of 20% of the Total Contract Cost. The Guarantee Bond shall be for a period of one (1) year commencing from the date of acceptance as a guarantee that all materials and workmanship installed under the Contract are of good quality.

5.00 CONTRACTOR'S GUARANTEE - WARRANTY

A. The Contractor shall, in case of work performed by his sub-contractors and where guarantees are required, secure warranties from said sub-contractors and deliver copies of it to the Owner upon completion of work.

B. The Contractor shall and thereby warrants all work performed by him directly and for which guarantee are required.

C. The Contractor shall and thereby warrants and/or guarantees for a period of one year, or for longer periods where so provided in Specifications, as evidenced by date of final certificate issued by the Owner, all materials and workmanship installed under Contract to be of good quality in every respect and to remain so for periods described herein.

D. Should any defects develop in aforesaid work, within the specified periods due to faults in material and/or workmanship, the Contractor thereby agrees to make all repairs and do all necessary work to correct defective work to the Owner's satisfaction. Such repairs and corrective works shall be done without cost to the Owner and at entire cost and expenses of the Contractor within five (5) days written notice to the Contractor by the Owner.

E. In case the Contractor fails to do the work so ordered, the Owner may have the work done and charge the cost thereof against monies retained as provided for in the Agreement and, if said retained monies shall be insufficient to pay such cost, or if no money is available, the Contractor and his sureties agree to pay to the Owner the cost of such work.

F. All the foregoing is without prejudice to the right of the Owner under the New Civil Code and other laws nor or hereafter that may be applicable.

- End of Section -

DIVISION 02

(METAL)

DIVISION 2 : METAL

02120 : STRUCTURAL STEEL

PART 1: GENERAL

1.1 SUMMARY

a. Structural steel framing and shoring system, complete with base plates, bracing, anchorage including the following:
b. Erection and connecting structural steel frame and temporary structural steel framework.
c. Baseplate grouting.

1.2 APPLICABLE PUBLICATIONS:

The publications listed below form part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only. The latest edition shall be applicable.

American Institute of Steel Construction (AISC):

a. Code responsibility for the design adequacy of any connections designed by the fabricator as a of Standard Practice for Steel Buildings and Bridges," except Paragraph 4.2.1 is modified by deletion of the following sentence: This approval constitutes the owner's acceptance of all the part of his preparation of these shop drawings."

b. Manual of Steel Construction, Allowable Stress 9th Edition, 1989.

c. "Specifications of the Design, Fabrication and Erection of Structural Steel for Buildings."

d. Specification for Structural Joints Using ASTM A325 or A490 Bolts. Design,

American Society of Testing and Materials (ASTM):

a. A6 General Requirements for Rolled Steel Plates, Shapes, Sheet Piling and Bars for Structural Use.

b. A123 Zinc (Hot-Dip Galvanized) Coatings on Products Fabricated from Rolled, Pressed, and Forged Steel Shapes, Plates, Bars and Strip.

c. A153 Zinc Coating (Hot-Dip) on Iron and Steel Hardware

d. A307 Carbon Steel A36Structural Steel

e. A53 Pipe, Externally and Internally Threaded Standard Fasteners.

f. A325 High Strength Bolts for Structural Steel Joints.

g. A441 High Strength, low Alloy Structural Manganese Vanadium Steel.

h. A490 Quenched and Tempered Alloy Steel Bolts for Structural Steel Joint.

i. A500 Grade B Cold-Formed Welded and Seamless Carbon Steel Structuring Tubing.

j. A501 Hot-Formed Welded and Seamless Carbon Steel Structural Pipe.

k. A572 High Strength Low-Alloy Columbium-Vanadium Steels of Structural Quality.

l. A588 High Strength Low-Alloy Structural Steel with 50,000 PSI Minimum Yield Point to 4- inch Thickness.

Welding Society (AWS):

a. A2.4 Welding Symbols
b. A3-0 Terms and Definitions
c. A5.1 for Mild Steel Electrodes for Flux Cored Arc Welding.
d. A5.20 Specification for Low-Alloy Steel Covered Arc-Welding Electrodes.
e. A5-5 Specification for Low-Alloy Steel Covered Arc-Welding Electrodes.
f. A5.17 Specification for Carbon Steel Electrodes and Fluxes for Submerged Arc Welding.
g. A5-23 Specification for Low-Alloy Steel Electrodes and Fluxes for Submerged Arc Welding.
h. D1.1 Structural Welding Code-Steel.
i. D1-4 Reinforcing Steel Welding Code, including Metal Inserts and Connections in Reinforced Concrete.
j. F959 Compressible-Washer-Type Direct Tension Indicators for Use with Structural Fasteners.

Federal Specifications (Fed. Spec.):

a. TT-C-490 Cleaning Method and Pretreatment of Ferrous Surfaces for Organic Coatings
b. TT-P-645 Primer Paint, Zinc Chromate, Alkyd Type

Military Specifications (Mil. Specs):

a. DOD-P-15328 Primer (wash,) Pretreatment (Formula No. 117 for Metals)
b. DOD-P21035APaint, High Zinc Dust Content, Galvanizing repair

Steel Structures Painting Council (SSPC) Publications:

a. SP3 Power tool Cleaning
b. SP6 Commercial Blast Cleaning

1.3 QUALITY ASSURANCE

a. **Fabricator/Erector:**
Must have plant, facilities and personnel qualified and sufficient to fabricate and/or erect structural metal framing as indicated on drawings. Must have minimum of 5 years' experience and to be able, upon request, to show framing of size, materials and scope like work of this contract.

b. **Material:**
Provide only structural steel certificate as conforming with specified requirements and fabricate especially to the requirements of this contract. Material which, does not conform to the requirements of this contract, may be rejected at any time prior to final acceptance.

c. **Allowable Tolerances:**
Unless otherwise specified or noted on drawing, provide structural steel work in accordance with the following minimum tolerances:

d. **Fabrication Tolerances:**
In accordance with requirements of AISC specification unless noted otherwise and as required to maintain the erection tolerances specified herein.

e. **Erection Tolerances:**
In accordance with requirements of AISC. The contractor alone shall be responsible for the correct fitting of all structural members including the elevations and alignments. Refer to the drawings for additional requirements.

f. **Connection Identification:**
Each person installing connections shall be assigned an identifying symbol or mark and all shop and field connections shall be so identified so that the Third Party Testing Lab can refer to the person making the connection

g. **Test and Inspection:**
Work is subject to special testing and inspection. The fabricator/erector shall provide the Owner's Representative Architect/Engineer access to places where material is being fabricated/erected. Notice shall be given for joints requiring inspection for proper end preparation, root opening, etc., and prior to welding.

h. **Connections Designed on the Structural Drawings:**
1. Contractor shall not deviate from these designs unless approved by the Owner's Representative Architect/Engineer.
2. Connections shown on the drawings may eliminate certain methods of erection.
3. If contractor elects a method of erection that required a change of some of the connections, it must be approved by Owner's Representative Architect/Engineer.

i. **Engineering by Contractor:**
Design and calculations shall be prepared by a Contractor's Structural Engineer, for the support of hoisting equipment, welding machines and other superimposed loads, for the stacking of materials such as metal decking, etc., and where required for temporary bracing, shoring and other safety related construction procedures. It is Contractor's responsibility to obtain and pay for such engineering services.

j. **Welder Qualifications:**
1. Each welder performing work on this project shall be qualified in accordance with the American Welding Society. AWS D1.1.
2. He shall have been qualified a minimum of six (6) months before commencement of welding on this project.
3. Copies of each welder's qualification records shall be made available to the Engineer for inspection.

k. **Inspections:**
Shop welding is to be done in ICBO approved licensed shops. Field welds shall be continuously inspected by a qualified inspector per UBC Section 306.

l. **Vendor Quality Assurance:**
The fastener supplier shall visit the project site during the bolting start-up to demonstrate proper installation procedures and verify inspection procedure with the Third Party Testing Lab. The fastener supplier must provide documentation of quality assurance including mill reports and description of bolt origin. Submit performance records from two prior projects of similar size. Records should include percentage of bolt failure during erection and rate of replacement required during inspection. Supplier quality assurance program shall also be outlined. Program must include assurance that bolts from only one heat will be included in a keg.

m. **Shop Testing by Contractor:**
The Contractor shall perform ultrasonic testing and visual inspection of all plate material and rolled sections greater than 1-½ inches in thickness and located at welded connections for discontinuities prior to fabrication. The test area is defined as a cone up to 6 inches away from the weld in the connection. These tests shall be in additional to the ultrasonic testing of all full-penetration welds which will be performed by the Third Party Testing Lab. The contractor's testing shall be certified by the Third Party Testing Lab. All costs associated with this testing shall be borne by the Contractor.

n. **Ultrasonic Testing:**
Conduct in accordance with ASTM A435 with the following modifications and supplementary requirements:
1. Supplementary Requirement S1, requiring 100 percent scanning of the test are to be included.
2. Section 5.2, Acceptance Standards, is supplemented with the following provision: "The fabricator, insofar as practical, may reposition a rejected plate so that rejected defects are not located in a test area."
3. Use adequate number of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.

1.4 SUBMITTALS

a. Shop Drawings: Submit shop drawings for review prior to commencing any fabrication of structural steel.

b. Before shop drawings are submitted, fabricator shall back check drawings to discover obvious drafting and detailing errors.

c. Show framing layout, dimensions, connections with adjoining materials and construction, finishes, welds, bolts and fasteners, anchoring and all fabrication or erection accessories required

d. Show field welds, cuts, holes and fasteners.

e. Verify all dimensions and correlate with adjoining construction and materials.

f. Indicate size, type and grade of all members.

g. Include with each detail shown on the top shop drawings a reference to the Architect's and Engineer's drawings and details, where applicable.

h. Submit fabricator's quality assurance procedures to the Owner's Representative Architect/Engineer.

i. Indicate welded connections on shop drawings using standard AWS welding symbols. Show all welded connections with details showing size, length, location and type of welds.

1.5 **Mill Reports:**
Submit certified copies of mill reports indicating heat and melt numbers of steel.

i. If test reports are not submitted or test reports cannot be identified with material proposed for use in the work, then secure and perform structural test on 5 percent of all such identified steel.

ii. Contractor shall furnish all such material for testing, pay for all such tests and submit certified copies of all test reports to the Owner's Representative Architect/Engineer.

iii. Placement Plans: Submit placement plans and details as required for the satisfactory placing, connection and anchorage of all structural members.

iv. Survey Reports: Upon request, promptly submit an accurate survey of actual elevations and location of base plates and anchor bolts and alignments as well as elevations of all steel as noted on the drawings.

v. Certification: Submit manufacturer's certified test reports on load indicator washers /or tension control bolts on at least three samples from each heat supplied to conform to tolerance range.

vi. Welding Procedures: For welded joints pre-qualified and non pre-qualified by AWS D1.1, submit detailed description of welding procedures proposed for use on structural metals. Obtain approval prior to any welding operation. Furnish joint welding procedure qualification tests as required by AWS D1.1 for non pre-qualified welded joints.

vii. Manufacturer's Certification: Required as follows

viii. Nuts and Washers: Furnish complete manufacturer's mill test reports conforming to ASTM A325, Type 1, or ASTM A490. Markings and chemistry must also comply to specification. Certification numbers must appear on product containers and correspond to certification numbers on mill test report to be accepted. Mill test report must be supplied to both purchaser and Owners Testing Lab. Filler material welding.

1.5 DELIVERY, STORAGE, HANDLING

a. Comply with the requirements of the general conditions and of ASTM A6, including the following.

b. Store materials to permit easy access for inspection and identification.

c. Keep steel members off the ground, using pallets, platforms or other supports

d. Protect steel members and packaged materials from erosion and deterioration.

e. Do not store materials on the structure in a manner that might cause distortion or damage to the members of the supporting structures. Repair or replace damaged materials or structures at no additional expense to owner.

f. Columns, beams, girders and other members, which are to receive sprayed-on fireproofing, shall be free of loose rust, heavy mill scale, oil, dirt or other foreign substances prior to application of fireproofing materials.

g. All fasteners shall be stored and protected in accordance with the current requirements of the "Specification for Structural Joints using ASTM A325 or A490 Bolts."

1.6 JOB CONDITIONS

a. **Coordination**: Coordinate exact locations of beam penetrations with mechanical and/or electrical contractor. Exact locations of all penetrations must be submitted to the Engineer for review.
b. **Temporary Bracing**: Temporary bracing and guylines shall be provided to adequately protect all persons and property and to ensure proper alignment.
c. **Temporary Floors**: All temporary flooring, planking and scaffolding necessary in connection with the erection of the structural steel or support of erection machinery shall be provided. The temporary floors or use of steel decking shall be as required by law and governing safety regulations. The reduced load capacity of members and assembly, especially the floor and roof beams and girders, due to their untraced connection prior to welding of metal deck and completion of concrete slabs is hereby noted.
d. **Holding and Protection**: In assembling and during welding, the component parts shall be held with sufficient clamps or other adequate means to keep parts straight and in close contact. In welding, precautions shall be taken to minimize "lock-up" stress and distortion due to heat. During high winds, welding shall be done only after adequate wind protection is furnished and set up.

PART 2: PRODUCTS

2.1 MATERIALS AND COMPONENTS

a. **Carbon Steel and High Strength Low-Alloy Steel**: Provide steel shapes, plates and bars of structural quality, sizes and types noted on drawings for use in welded and bolted construction. Steel manufactured by the acid Bessemer process shall not be used for structural purposes. Steel, which in the opinion of the inspector is badly corroded or physically damaged, shall not be incorporated in the work.
b. **Coating:** Provide steel unprimed where steel is to be fireproofed. Metal Shop Finish for required primer and painting of non-proofed steel.
c. **Standard Fasteners:** Low-carbon steel externally and internally threaded fasteners conforming to requirements of ASTM A307, Grade A. Provide hexagonal heads and nuts for all connections. Include lock washers under nuts or self-locking nuts.
d. **High-Strength Fasteners:** Quenched and tempered steel bolts and nuts conforming to requirements of ASTM A325 or AST A490.
   1 Provide heavy hexagonal head bolts and nuts, and hardened steel washers.
   2 Load indicator washers conforming to ASTM F959 or tension control bolts shall be used
   3 Any proposed substitutions must have documentation submitted for review and approval of the structural engineer prior to construction.
   4 Acceptable tension control bolt suppliers shall be Lejuene Bolt Company/Lakeview, Minn. And Bristol Industries/Brea, Calif.

Welded Electrodes:
For base metal conforming with ASTM A36, A53 and A500, shielded metal arc, flux-cored arc and submerged arc welding use E70XX, E7XT-X and F7X-EXXX electrodes in accordance with AWS A5.1, AWS a5.20, AWS A5.20 or AWS 23.

Steel Stud Anchors:
All steel stud anchors welded to steel beams or plates for concrete anchorage shall be "tru-weld studs," Division of Tru-Fit Screw Products Corporation, Cleveland, Ohio, "Nelson Stud," Division of Gregory Industries, Inc., Lorain, Ohio or approved equal. All stud anchors shall be automatically end-welded in shop or field with equipment recommended by manufacturer of studs.

Drilled-in-Concrete Anchors:

Refer to structural drawings.

Shop Painting:
a. Pre-Treatment: Mil. Specs DOD-P-15328 or Fed. Specs. TT-C-490, Type I, II or IV.
b. Primer: Fed. Specs TT-P-645

Galvanizing:
1. ASTM A123 or A153, as applicable, unless specified otherwise.
2. Galvanizing Repair Paint: Mil. Specs. DOD-P-21035

Other Materials:
Provide all incidental and accessory materials, tools, methods and equipment required for fabrication and erection of structural steel framing as indicated on drawings.

a. **General:**
Miscellaneous materials or accessories not listed above shall be provided as specified hereinafter under the various items of work and as indicated on the drawings or required for good construction practice.

   a. Provide additional structural steel support framing for metal deck where normal deck bearing is precluded by column flange plates or other framing members.

   b. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the contractor subject to the approval of the Engineer.

b. **FABRICATION**

   1. Fabricate all steel in accordance with requirements of AISC specifications and in accordance with details indicated on the drawings or as approved on shop drawings.

   2. Identify all steel at mill showing grade and yield points.

   3. Identify each piece with an erection mark corresponding to identifications noted on erection drawings.

c. **Cutting:**

All holes and openings must be approved by the Owner's Structural Engineer.

No flame cutting by hand for openings greater than one half the depth of the member shall be allowed, unless approved by engineer.

All flame-cut holes shall be smoothed by chipping, planning or grinding members to required AISC tolerances.

Sharp bends or kinks will not be allowed

Flame cutting by hand will not be allowed for holes at connections.

Materials shall be properly marked and matched-marked where field assembly requires. The sequence of shipments shall be such as to expedite erection and minimize the field handling of material. Milled surfaces shall be completely assembled or welded before milling. Milled surfaces to provide full bearing over the cross section.

Beams and girders shall be upward cambered were indicated on the drawings. For beams and girders without specified cambers, fabricate members so that after, any minor camber due to rolling or fabrication is upward.

Beam connections shall be as shown or noted on the drawings.

Unless noted otherwise, standard connections shall be used in accordance with AISC standards.

Steel requiring adjustment shall be provided with slotted holes, as indicated on the drawings.

Combination of bolts and welds techniques and procedures shall conform to the requirements of UBC – Standard No. 27-6.

Welding, AISC specification for the "Design, Fabrication and Erection of Structural Steel for Buildings," and AWS "Structural Welding Code," and "Filler Metal Specifications."

For stud anchor and deformed bar anchor welding, the area where the anchor is to be attached shall be made free of all foreign material such as rust, oil, grease, paint, etc.

When the mill scale is sufficiently thick to cause difficulty in obtaining proper welds, it shall be removed by grinding or sandblasting.

Use automatic end welding of headed stud shear connections in accordance with manufacturer's printed instructions.

Welding processes other than shielded metal arc, flux core arc, and submerged arc may be used provided procedure qualification tests in accordance with the American Welding Society are made for the intended application of all such processes.

Built-up sections assembled by welding shall be free from warpage and all faces shall be true alignment.

Welds not specified shall be continuous fillet welds, using not less than the minimum fillet as specified by AWS.

Welding sequences, preheat methods, and detailing of joints shall be such as to reduce the residual stresses to a minimum.

Structural Engineer may authorize suitable testing to determine magnitude of residual stresses due to welding on several initial fabricated production units. Such testing will be performed in a timely manner coordinated with the fabricator's production schedule.

Types of Welds: Required weld types are indicated by symbols on drawings; characteristics of welds in accordance with standard specifications or codes as applicable; each welder shall mark his identification symbol on his work.

Welding: Shape edges to be joined as indicated on drawings; prepare and clean edges of all oil, grease, scale and rust in accordance with AWS D1.1.

Reinforcing Steel: Welding or tack welding or reinforcing bars to other bars or plates, angles and similar shapes is prohibited, except where specifically shown on plans or approved by structural engineer, where required, use electrodes in accordance with requirements of AWS D1.4/12.1, and the structural general notes.

The toughness and notch sensitivity of the steel shall be considered in the formation of all welding procedures to prevent brittle and premature fracture during fabrication and erection.

Detailing of connections, welding sequences and preheat methods shall be such as to minimize the accumulation and concentration of through thickness strains due to weld shrinkage.

Cleaning:

Clean all surfaces of oil, grease, loose rust, loose mill scale and other foreign matter present in sufficient quantities to impair bond of spray fireproofing.

Remove all slag or flux remaining on any bean before proceeding; remove any cracks or blow holes that appear on any bead by chipping, grinding or gas gouging before proceeding.

Fabrication Tolerances:

In accordance with AISC specifications, except as required to maintain the erection tolerances specified herein. Maximum tolerances for camber of steel beams/girders shall be plus or minus ¼ inch.

Steel Stud and Deformed Bar Anchors:

All anchors shall be automatically end-welded in the shop or field with equipment recommended by the manufacturer of the studs and by qualified welders. Steel stud material, welding and inspection shall be in accordance with AWS D1.1. End-weld in such a manner as to provide complete fusion between the end of the stud and the plate. There shall be no porosity or evidence of lack of fusion between the welded end of the stud and the plate.

Tests and Inspections:

At the beginning of each day's work, a minimum of two test stud welds shall be made, the equipment to be used, to metal which is the same as the actual work pieces. The test studs shall be subjected to a 90-degree bend test by striking them with a heavy hammer. After the above test, the weld section shall not exhibit any tearing out or cracking.

PART 3: EXECUTION

SURFACE CONDITIONS

Examine the areas and conditions under which work of this section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

Shop Painting:

Shop paint structural steel, except as modified herein. Do not paint steel surfaces embedded in concrete, galvanized surfaces, bearing surfaces, or surfaces within ½ inch of the toe of the welds prior to welding except surfaces on which metal decking or shear studs are to be welded. Prior to assembly, paint surfaces this will be concealed or inaccessible after assembly. Do not apply paint in foggy or rainy weather; when the ambient temperature is below 45° F or over 95° F; or when paint may be exposed to temperatures below 40° F within 48 hours after application, unless approved otherwise.

Cleaning:

SSPC SP6, except as modified herein. SSPC SP3 or SP6 for steel surfaces exposed in spaces above ceilings, attic spaces, crawl spaces, furred spaces, and chases. In addition, maintain steel surfaces free from rust, dirt, oil, grease and other contaminants through final assembly.

Pretreatment:

Immediately after cleaning, provide the metal surfaces with one coat of Mil. Spec. DOD-P-15328 pretreatment to a dry film thickness of 0.3 to 0.5 mil. Fed. Spec. TT-C-490 pretreatment may be applied to SSPC SP 6 cleaned surfaces, in accordance with Fed. Spec. TT-C-490.

Priming:

Immediately after the pretreatment coating has dried, apply primer to a minimum dry film thickness of 2.0 mil. Repair damaged primed surfaces with an additional coat of primer.

Galvanizing:

Provide as indicated or specified. Galvanize after fabrication where practicable.

Galvanizing Repair:

ASTM A780, using galvanizing repair paint for galvanizing damaged by handling, transporting, cutting, welding or bolting. Do not heat surfaces that repair paint has been applied to.

Bearing Surfaces and Friction Type Joints:

In the shop, coat with a temporary rust preventive. Remove coating, as recommended by the coating manufacturer, immediately prior to field erection.

ERECTION

General:

Erect structural steel framing in accordance with governing codes and specifications. Conform to configurations and connections as approved on shop and erection drawings.

Bracing:

Provide temporary shoring and bracing members as necessary.

Column Base and Bearing Plates:

For attached column bases and bearing plates for beams and similar structural members, set loose column bases and bearing plates and apply grout to solid with non-shrink grout as specified.

Field Assembly:

Assemble structural framing to lines and elevations indicated within specified or noted tolerances.

Align and adjust various members of framing system prior to fastening.

Fasten splices of compression members after bringing abutting surfaces completely into contact.

Make all field connections by high strength bolting or welding, unless otherwise noted.

Tighten and leave erection bolts in place after welding. Where high strength bolts are, provide identified and marked bolts; install using procedure as hereinafter specified; mark tightened bolts.

Do not use gas cutting torches in the field, unless approved by Architect/Engineer for correcting fabrication errors in the structural framing.

Furnish shim plates or develop fills where required to obtain proper fit and alignment.

Composite Construction:

This building utilizes composite (concrete and structural steel) construction for various beams, careful sequencing of steel erection and concrete placement is recommended.

Connections:

No welding or bolting shall be done until as much of the structure as will be stiffened by the welding or bolting has been properly aligned.

Pins shall not be used to enlarge unfair holes in main material. Holes that must be enlarged shall be reamed up to a maximum of 1/16th of an inch larger to admit bolts. Burning, drifting and reaming may be used to align unfair holes, in members only after approval by the Owner's Structural Engineer.

When high-strength friction or high-strength bearing bolts are used, the installation shall be by use of direct tension indicator washers or tension control bolts as specified.

All bolts shall have threads extended not less than ¼ inch beyond nuts. Provide a minimum of washer per bolt.

Mutilate threads or use lock nuts for unfinished bolts to prevent nuts from backing off. Draw unfinished bolt heads and nuts tight against the work.

Establish required leveling and plumbing measurements on the mean operating temperature of the structure.

Make allowances for differences between temperature at time of erection and mean temperature at which the structure will be maintained when completed and in service.

The steel erector shall leave the steel clean of oil or other contaminants as outlined Part 2 of this specification.

HIGH STRENGTH BOLT INSTALLATION AND INSPECTION

General:

All high-strength bolts, nuts and washers, as well as their installation and inspection, shall conform to requirements of current edition of "Specification for Structural Joint using ASTM A325 of A490 Bolts," except that the installation of "turn-of-nut tightening" will not be accepted.

All high-strength bolts, both friction and bearing type, shall be installed in accordance with Paragraph 5D, "tightening by use of direct tension indicator," unless, noted otherwise on the drawings.

Load-indicator washers (LIW) or tension bolts (TCB) shall be used as the authorized direct tension indicator.

Load Indicator Washers (LIW): LIW shall be supplied, providing tensions at gaps specified no less than the minimum and no more than 20 percent above the minimum bolt tensions per Table 3, "Structural Joints Using ASTM A325 or A490 Bolts," (-0, +20%)

The manufacturer shall provide certified test reports of at least three load indicators from each heat supplied to confirm the tolerance range (-0, +20%.)

Hardened washers shall be used under elements turned on all high –strength bolts to galling of components

Prior to the final tightening of all high-strength bolts in multi-bolt connections, draw together all the plies of steel by partially compressing LIX protrusions during "snug tight" operation. This will show that each bolt has been partially tensioned, allowing for plat compression so that there will be no subsequent loosening of the bolts when they are finally tightened. The tensioning shall progress systematically from the most rigid past of the joint to its free edges until the protrusions of all LIW's are closed to the required gap.

The Inspection Testing Laboratory (ITL) need not be present during the entire installation and tightening operation, provided that it has done the following:

Inspected the surfaces and bolt type for conformance to plans and specifications as proof to start bolting.

Will, upon completion of all bolting, verify the minimum specified bolt tensions visually and by using the feeler gauge as "no go" inspection on a few bolts in each connection (10 percent or two bolts, whichever is greater.)

All LIW's shall be of the same surface condition, either "weathered" or "bright."

Tension Control Bolts (TCB):

TCB shall be supplied providing shearing of the bolt tip at no less than the minimum and no more than 20 percent above the minimum bolt tension per Table 3, "Structural Joints Using ASTM A325 or A490 Bolts," (-0 , + 20%.) To ensure quality control, test a minimum of three bolts for each grade, diameter and type for each heat, tests shall be performed at weekly intervals on three bolts for each grade, diameter and type taken from the supply of bolts on the floor actually being installed at the time. Tighten each bolt in the SWBTC until the torque-off spline has sheared, and observe the tensions values obtained. The values obtained on the SWBTC shall be no less than the minimum and no more than 20 percent above the minimum bolt tension per Table 3 (-0, +20%.)

Prior to the final tightening of all high-strength bolts in a multi-bolt joint, draw together all the plies of steel to a "snug-tight" condition by partially tightening the bolts without shearing the torque-off spline. After a "snug-tight" condition has been accomplished, tension the bolts until the torque-off spline shears, progressing systematically from the most rigid part of the joint to its free edge.

The ITL need not be present during the entire installation and tightening operation, provided the ITL has:

Prior to the start of bolting, inspected all surfaces and bolt types for conformance with plans and specifications.

Performed the quality control bolt tests specified above.

Visually inspected 100 percent of the high-strength bolts for proper installed tension. Except as noted below, it will be assumed that properly installed bolt tensions have been achieved if the spline has twisted off.

Other Inspections:

In both LIW and TCB installation, the ITL shall further examine large, multibolt, multirow connections for possible loss of bolt tensions due to fit-up problems.

In the case of a dispute regarding final installed bolt tensions in a specific joint, a calibrated torque wrench shall be used to verify the installation as outlined in Section 6 (D) 4 of "Structural Joints Using ASTM A325 or A490 Bolts."

CUTTING

Do not field cut or alter structural member without the written approval of the Structural Engineer.

Do not use gas cutting torches for correcting fabrication errors in structural framing.

Finish Gas-cut sections equal to a sheared performance.

ERECTION TOLERANCES AND SURVEY

Plumb, level and align individual pieces in accordance with the requirements of the "AISC Code of Standard Practice for Steel Buildings and Bridges."

Field Survey: Make an accurate survey of alignments and elevations of all steel members as noted on the drawings.

Should locations vary beyond the allowable tolerances, notify Architect/Engineer and take necessary corrective measures and modify details and/or procedures as required and approved.

Permanent benchmarks shall be established by a registered Professional Engineer by Contractor in accordance with the requirements of contract documents.

- End of Section -

DIVISION 03

(WOODS AND PLASTICS)

DIVISION 3 : WOODS AND PLASTICS

03180 : GLUED LAMINATED CONSTRUCTION

PART 1 – GENERAL

1.1 SCOPE

a. Furnish materials and equipment and perform labor required to complete plastic laminate finish

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

1.2 SUBMITTALS

a. Submit to the Owner samples of materials to be used and secure approval prior to installation.

PART 2 - PRODUCT

2.1 PLASTIC LAMINATE

Laminate: shall be laminated composite material

a. Color as approved by the Owner. Use on counter sidings of tables in the tables in faculty room, classroom and multi-purpose room as indicated on plans.

2.2 COMPACT BOARD LAMINATE

Compact Board Laminate: shall be high quality and moisture proof and heat-resistant

a. Color as approved by the Owner. Use on countertops of reception and table in the office as indicated on plans.

PART 3 - EXECUTION

3.1 PREPARATION

a. Smooth thoroughly and clean all woodwork to receive the plastic finish.

b. Fill carefully all cracks, nail holes and other defects with first quality putty.

3.2 INSTALLATION

a. Use only the type of adhesive recommended by the manufacturer or supplier and apply strictly in accordance with instructions.

b. Apply the adhesive in a thin layer and while tacky, spread evenly with a finisher trowel.

c. Immediately press the laminate finish onto the surface with the adhesive and roll the laminate panel in all directions to assume contact with the adhesive.

d. Keep the plastic laminate pressed onto the surface.

3.3 CLEANING

Clean all laminates after complete installation with a cleaner recommended by the manufacturer.

3.4 PROTECTION

Protect all laminate from damage with the use of heavy building paper until ready for service.

- End of Section -

DIVISION 03 : WOODS AND PLASTICS

03220 : MILLWORKS

PART 1 - GENERAL

1.1 SCOPE

Furnish materials and equipment and perform labor required for the following: Doorjambs and other related woodworks as indicated in the drawings and/or specified herein.

See drawings for sizes, details and location of work required.

1.2 STORAGE AND PROTECTION

a. Stack millwork to ensure against deformation and maintain proper ventilation.

b. Protect millwork against dampness during and after delivery.

PART 2 – PRODUCTS

2.1 LUMBER

Lumber shall be sawn containing not more than 12% moisture, free from imperfections impairing its strength and finish. Trademark is required each piece of lumber.

S4S, sound, hard and free from defects lumber. Use one color or shade for assembly framings that are exposed. Maximum moisture content, 12% for lumber with thickness of 25mm (1") or less; 15% maximum moisture content for all others.

2.2 PLYWOOD

For interior plywood, use Class B Plywood whose specie and thickness shall conform to schedule and drawings.

2.2 PLYBOARD

For counter carcass framing, use ¾" thk. Plyboard.

2.3 ROUGH HARDWARE AND METAL FASTENERS

Plates, straps, nails, bolts, hangers and miscellaneous fasteners shall be of sizes and types to rigidly secure the member in place. – Woods and Plastics Fastenings.

PART 3 - EXECUTION

3.1 WORKMANSHIP

a. Make all finish and millwork to detail; clean and sharply defined.

b. Set panels to allow for free movement in case of swelling or shrinkage. Make joints tight and in a manner to conceal shrinkage. Secure trim with fine finishing nails, screws or glue where required.

3.2 FINISH

a. Mill, fabricate and erect interior finish as indicated on the drawings. Machine sand at the mill and manual smooth at the job site.

b. Separate with 6mm stone-cut joints all interior trims set against concrete, masonry or wood.

c. Make window and door trims single length.

d. Miter moldings at corner, cope at angles.

e. Make all exposed nails countersunk. Do scribbling, mitering and joining accurately and neatly to conform to details.

3.3 HARDWARE

a. Accurately fit and install required finish hardware items.

b. If surface-applied hardware is fitted and applied before painting, remove all such items, except butts and reinstall after painting work is completed.

- End of Section -

DIVISION 04

(THERMAL AND MOISTURE CONTROL)

DIVISION 4 : THERMAL AND MOISTURE CONTROL

04105 : BITUMINOUS MEMBRANE WATERPROOFING

PART 1: GENERAL

SCOPE

Furnish materials and equipment and perform labor required to complete.
See drawings and details for location and extent of requirements.
Submit to Owner samples of materials to be used and secure approval.

PART 2: PRODUCTS

MATERIALS: Refer to Summary of Materials and Finishes

PART 3: EXECUTION

Deliver waterproofing materials to the site in original sealed containers or packages bearing the manufacturer's name and brand designation, specification number, type and class.
Store and protect waterproofing materials from damage, weather, moisture and extreme- with extraordinary care.
Clean, free from holes and projections, smooth and dry all surfaces to receive waterproofing materials. The Contractor shall perform the necessary surface preparation. Immediately before application of waterproofing, clean surfaces and secure approval. No application of waterproofing is permitted in wet weather.
All work under this Section shall be performed only by a qualified Contractor trained and approved by the Manufacturer. Apply all waterproofing strictly in accordance to Manufacturer's Specifications.
Flood test all applicable waterproofed areas prior to acceptance of the job. Plug all drains, build temporary dams at openings so that water will be one inch-deep at the high point of the waterproofed area. Maintain the water for at least 24 hours. Remedy at once any evidence of leakage.
The Contractor shall guarantee all waterproofing work to be free from defects in and in workmanship and free of leaks for a period of five years from the date of final acceptance. Any defect shall be repaired at the Contractor's expense.
Where curing of waterproofing is required, cure strictly in accordance to the Manufacturer's specifications. Allow foot traffic only after complete curing.

-End of section-

DIVISION 05

(DOORS AND WINDOWS)

DIVISION 5 : DOORS AND WINDOWS

05710 : DOOR HARDWARE

PART 1 - GENERAL

1.1 SCOPE

Furnish materials and equipment and perform labor required to complete door hardware.

1.2 SAMPLES

Submit samples of locksets, deadbolts, hinges, door pulls, door stops, door closers and other door accessories for Owner's approval.

1.3 DELIVERY AND STORAGE

Hardware shall be delivered to the job site in their original containers and accessories (keys, screws, templates, instructions) and shall bear model number and manufacturer's name.

PART 2 - PRODUCTS

DOOR LOCK AND LEVERSETS APPROVED BY OWNER.

PART 3 - EXECUTION

3.1 INSTALLATION AND PROTECTION OF HARDWARE

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

Door closers: unless otherwise indicated, install door closers on the interior side (room side) of doors opening to a hallway or corridor

b. HARDWARE PROTECTION

After installation, protect hardware from paint, stains and discoloration until acceptance of work. All hardware shall be checked and adjusted such that they operate properly or else shall be replaced by Contractor. Keys shall be identified and labeled and submitted to the Owner.

c. APPLICATION OF BUTT HINGES

c.1 Top hinges shall be installed with the center of the hinge not more than 20 cm below the top of the door.

c.2 Bottom hinges shall be installed with the center of the hinge not more than 20 cm above the finished floor.

c.3 Two intermediate hinges shall be installed equidistant between the top and bottom hinges.

c.2 Door closing devices shall be installed and adjusted in strict accordance with the templates and printed instructions supplied by the manufacturer of the devices. Insofar as practicable, doors opening to or from halls and corridors shall have the closer mounted on the room side of the door.

c.5 Submittal requirements. Prior to procurement, the contractor shall submit brochures/catalogs and schedule of application for door locks, door closets, butt hinges, door stop, mortise extension bolt, cabinet concealed hinges, drawer slide and door pull

d. PACKAGING AND MARKING

Items of hardware shall be delivered to the jobsite in their original individual containers, with the necessary appurtenances including screws, keys, and instructions. Each individual container shall be marked with the manufacturer's name and catalog number.

e. SUBMITTAL REQUIREMENTS

Prior to procurement, the contractor shall submit brochures/catalogs and schedule of application for door locks, door closets, butt hinges, door stop, mortise extension bolt, cabinet concealed hinges, drawer slide and door pull.

- End of Section -

DIVISION 5 : DOORS AND WINDOWS

05810 : GLASS AND GLAZING

PART 1 - GENERAL

1.1 SCOPE

a. Glass shall be provided in locations as indicated and the corresponding type specified on architectural drawings. All standard procedure on glass and glazing work must be implemented to ensure correct fitting and glazing in order to preserve the physical strength of the glass when used as intended on any building exterior and interior application.

b. Glazing rabbets shall be rigid, true, plumb, square, properly primed, clean, dry, and dust-free before glazing work is started. Protective coating shall be removed from metal rabbets with an approved solvent. Glazing work shall not be performed during damp or rainy weather. Sashes shall be glazed in a closed position and shall not be operated until the glazing compound has set. Glazing materials shall be mixed uniformly without the addition of thinners or other materials, and shall be used while still fresh.

1.2 DESCRIPTION

a. The Contractor shall be responsible for the correct size and grades of glass to be used, improperly set glass, which does not meet the requirements of its grade and size will not be accepted. Such glass shall be replaced to the satisfaction of the Appointed Architect.

b. The size of glass indicated is approximate only and the actual size shall be determined by measuring the frames to receive the glass. Glazing rabbets shall be rigid true, plumb, square, properly primed, clean, dry and dust-free, before glazing work is started.

c. Each piece of glass shall have the manufacturer's label showing the type, thickness and quality of the glass. Labels shall be removed until glazing work has been approved. Putty and glazing compound shall be delivered to the site in unopened containers, plainly labefed with the manufacturer's name and brand.

1.3 SAMPLES

Prior to procurement of materials, brochures, catalogs cuts and sample of glasses, glazing sealant and accessories shall be submitted for approval.

1.4 PROTECTION

Protect material from loss, injury, staining and breakage. The Contractor at his own expense shall replace lost and damaged materials.

1.5 DELIVERY AND STORAGE

Materials shall be delivered to the site in an undamaged condition and stored out of contact with the ground. Upon arrival at the jobsite the glass shall be checked by the Contractor for damage. Glass found damaged, which, in the opinion of the Construction Architect/Engineer, may affect appearance or aesthetic of the glass curtain-wall system, shall not be used in the work. Glazing sealants shall be delivered to the site in unopened containers, labeled plainly with the manufacturer's names and brands.

PART 2 - PRODUCTS

2.1 MATERIALS

Each glass shall have the manufacturer's label showing the type, thickness, and quality of glass. Labels shall not be removed until the glazing work has been approved

a. Doors

a.1 Frameless Doors

- 12mm (1/2") thick tempered bronze tinted glass, as indicated on drawings. See drawings for location and extent of work required.

a.2 Framed Doors

- 6mm (1/4") thick tempered clear glass on powder-coated aluminum frame view window. See drawings for location and extent of work required.

b. Mirrors

- 6mm (1/4") thick clear mirror with felt paper on 6mm (1/4") thick plywood backing installed, wall-mounted design and dimensions. See drawings for location and extent of work required.

c. Observation Framed Windows

- 6mm (1/4") thick clear tempered glass. See drawings for location and extent of work required.

d. Fire rated glass

- Wired glass or fire rated glass shall have 60 minutes fire rating and be a type investigated and approved by a nationally recognized testing agency. Proof of such conformance and approval shall be in the form of a label attached to the glass attesting that identical glass has successfully passed fire tests for door assemblies as specified in ASTM Methods E 15.

2.2 GLAZING

a. Glazing materials

- Components to be used shall comply with all pertinent codes and regulations including recommendations specified on approved standards. For reference, glazing codes and recommendations are based on Japanese Industrial Standard (JIS). The use of non-skinning compounds, non-resilient type preformed sealers, and preformed impregnated type gaskets will not be permitted. When flexible vinyl gasket channels are used, the material shall conform to Commercial Standard CS230. Materials used with aluminum frames shall be aluminum colored, non-staining, and do not require painting. Other materials which will be exposed to view and unpainted shall be gray or neutral color. Glazing materials shall be as specified herein and as recommended by the glass the manufacturer as approved.

a.1. Glazing sealant - single or two-component silicone rubber or two-component polysulfide type.

a.2. Glazing or zipper gasket - flexible chloroprene rubber, extruded in a profile to fit the frame profile and glass thickness to provide full water and air tightness. Type of gasket, sizes, and shapes shall be suitable for use for which they are intended are as follows:

a.2.1. U-profile glazing channel shall be fitted onto circumference of a glass like a picture frame then frames are assembled onto the channel plate. Glazing channel is not recommended for the bottom side of double-Glazing Glass or Wired Glass, which has to be provided with drain holes.

a.2.2. Retrofit type glazing beads shall be strung and installed on both sides of glass, which has been fitted into a frame to firmly fix the glass in position.

a.2.3. Retro-fit glazing beads shall be strung and fitted into one side of a glass beforehand, and the other strung beads are inserted into the other side on the site after glass has been installed into the frame.

b. Glazing accessories

- Accessories required to supplement the installation shall be provided on the items to be glazed and provide a complete work. These include glazing points, clips, shims, angles, and beads, setting blocks, edge spacer, back up material, primer and masking tapes. Ferrous metal accessories, which will be exposed in the finished work, shall have a finish that will not corrode or stain while in service.

b.1. Glazing clips - shall be of zinc-coated steel of nonferrous metal, and shall be of types, sizes, and shapes suitable for the use for which they are intended.

b.2. Setting block - shall be chloroprene rubber, trade name-Neoprene, etc., and 90 hardness. Blocks shall be used to correctly position a glass in vertical direction, and to prevent direct contact between glass edge and sash.

b.3. Edge spacer - shall be chloroprene rubber, but this lesser hardness and used to prevent dislocation or breakage of a glass by the impact of opening and closing of movable windows.

b.4. Back up material - shall be foamed polyethylene, or chloroprene rubber. This shall keep the glass in a correct position in horizontal (front and rear) direction and prevent direct contact between glass surface and sash and adjust sealing depth.

b.5. Primer - shall be clear and based from chlorinated rubber or as recommended by the glass manufacturer.

b.6. Masking tape - shall be adhesive paper type and used to prevent contamination of glass or sash during application of primer or filling of sealant, and to maintain neat edge line of sealant. The following care must be taken in choosing masking tape to be use.

b.6.1. Masking tape should not affect adhesiveness of primer or sealant.

b.6.2. Adhesive used on masking tape should not contaminate glass or sash or should not exfoliate such paint coats when masking tape is removed.

b.6.3. Masking tape must have appropriate thickness and hardness to allow folding back when used on the portions having complex configurations.

PART 3 – EXECUTION

3.1 GENERAL

Work instruction on glass fitting and installation should strictly follow a standard precautionary measure to avoid damage or breakage on glass and to secure total work safety. Glazing and fitting methods shall depend on the type of frame and the glass to be used. Glazing on conventional frame section such as aluminum shall be glazing bead, glazing channel or sealant as caulking materials while glazing on concrete or metal channel support shall be sealant or glazing gaskets.

3.2 INSTALLATION

a. Glass shall be accurately cut to fit opening and with equal bearing on the entire width of pane.

b. Glass shall be set in hollow metal door in felt channel, inserts, or bedded in putty to prevent any rattle.

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

e. Use resilient sealants.

f. Use stops in sizes permitting "good grip" on the glass.

g. Install glass only in openings that are rigid, plumb and square.

h. Allow sufficient clearance at edges of glass to compensate for its expansion or for some settlement of the building. Clearance should be 6mm (1/4") from some edge to frame and 3mm (1/8") for face.

f. The glazing Contractor shall perform removal of putty or glazing compound and smears from glass during the material's normal work life. Failure to do so may result in damage to the glass.

g. Glazing work shall not be performed during very damp or rainy weather. Sashes shall be glazed in closed position and shall not be operated until the glazing compound has set.

3.3 PROTECTION

Materials shall be protected from loss, injury, staining and breakage. Upon completion of the work and after inspection, all glass surface shall be thoroughly cleaned removing all paint spots and labels. At time of acceptance of the work, all glass putty and other setting materials shall be cleaned, whole and in perfect condition.

3.4 CLEANING

Upon completion of the building, cracked, broken or imperfect glass, or glass which has been set improperly shall be replaced. Glass surfaces shall be thoroughly cleaned, with labels, paint spots, putty, and other defacements removed, and shall be clean at the time the work is accepted.

- End of Section -

DIVISION 05 : DOORS AND WINDOWS

05110 : METAL DOORS AND FRAMES

PART 1 – GENERAL

1.1 SCOPE

a. Furnish materials and equipment and perform labor required to complete steel doors and frames as indicated in the drawings or as specified herein.

b. See drawings and details for sizes, location and extent of work required.

1.2 SUBMITTALS

a. Submit for the approval of the Owner, shop drawings of fabricated items showing sizes of all members and method of joining and anchoring.

b. Submit sample corner sections of metal doors and metal buck or jambs.

c. Prior to start of fabrication work, the Contractor shall submit to the Owner for approval of shop drawings construction and assembly details. Details of anchorage, fastening for all louver blades, erection, proposed location and method of jointing and splicing of the unit to be installed shall be clearly shown. No work shall be started until these shop drawings have been approved.

1.3 DELIVERY, STORAGE AND PROTECTION

All painted doors, frames, and other steel works delivered to the site shall be stored and handled in a manner as to protect them from damage during the construction period. Installation shall commence only when all flooring finishes have been completed.

1.4 INSTALLATION

Frames shall be plumbed, leveled, and rigidly secured in place. Temporary spreaders shall be installed until the wall at the frame is completed and the frame is securely anchored in its final position. Wall anchors on doorframes shall be installed approximately at the hinge and strike levels. Doors shall be installed in conjunction with the application of hardware.

1.5 WORKMANSHIP

The finished items shall be rigid, neat in appearance, and free from defects, warp, or buckle. Molded members shall be sharp in detail, straight and true. Corner joints shall be coped or mitered, well formed, and in true alignment. Exposed welded joints shall be dressed smoothly.

PART 2 – PRODUCTS

2.1 STANDARD STEEL DOORS AND FRAMES

a. Door Frames : Gauge 18 cold-rolled pickled and annealed steel

b. Door Jamb : Gauge 16

c. Hinge Plate : Gauge 10 or heavier

d. Plates for lock and closer: Gauge 12 or heavier

2.2 STEEL LOUVER DOOR WITH AUTOMOTIVE LACQUER PAINT FINISH FOR ANCILLARY STRUCTURES

a. Full z section metal louvers on Ga. 16 jamb shall be of Ga. 18 steel blades with 50mm x 100mm tubular frame. Mill-fabricated and shall be the manufacturer's standard and stock type or modified.

b. Metal louver blades shall be given two (2) coats of epoxy paint primer prior to delivery.

2.3 BRANDS/MANUFACTURER

Brand to be approved by the Owner.

PART 3 – EXECUTIONS

3.1 FABRICATION OF STANDARD STEEL DOOR

a. Flush type: flush type doors shall be 44mm (1-3/4") thick. Reinforcement of doors from steel sections extending full height of doors and spaced not over 200mm (8") on center vertically.

b. Tops and bottoms of doors shall have continuous stiffener channels welded to side plates.

c. Insulate each space between reinforcements with fiberboard or cork (honeycomb insulation) to deaden metallic sound. Edges at topsides shall be reinforced and finished flush.

d. Door clearances shall not exceed the following: 3 mm at jambs and heads; 6 mm at meeting stiles of pair of doors, and 20 mm at bottom measured from finished floor line.

3.2 FABRICATION AND INSTALLATION OF STEEL LOUVER DOORS

a. Louvers shall be of the fixed type, of shapes and sizes as indicated in the Architectural Drawings. Blades shall be accurately fitted and firmly secured to the frames or mullions by welded construction. Unless indicated, blades shall be positioned at 45° angle with return bends at lower and upper edges. Edges of louver blades shall be folded or bended. Joints or connections shall be watertight.

b. Frames and mullions shall be gage 18 tubular galvanized steel, with automotive paint finish. Corners shall be mitered, reinforced welded. Joints shall be factory-

made, except where required. Frames and mullions shall be of the longest length where practicable.

c. Metal louvers and frames shall be installed in the prepared plastered concrete openings to avoid possible damage to the units in the process of work of the other trades. Unit shall be set plumb and true, properly aligned and securely anchored.

d. Anchor screws shall be the type and size standard with the manufacturer and approved by the Architect. Anchors shall be spaced in a manner to ensure rigidity and strength to support the units.

3.3 FABRICATION OF STEEL FRAMES

a. PRESSED STEEL FRAMES for doors and other openings shall be of the combination, buck, frame, and trim type; sizes, and details as shown and shall include tubular mullions and transom bars used in conjunction with the frames. Frames shall be gauge 14, knock down-type or welded-unit-type, and of continuous channel.

b. WELDED UNIT TYPE FRAMES shall have headers and jambs secured at the corners either by internal welding of faces or by welded splice plates and shall be further secured at the rabbet either by welding or by mechanical interlock. The headers and jambs, as an alternate, shall be secured at the corners by external welding of faces and grounded smoothly. Faces of frames at junction of head and jamb shall present neat line joints. Mullions and transom bars shall be member with heads or jambs, as applicable, and shall be butt-welded thereto.

c. ANCHORS - Frames shall be provided with a minimum of three wall anchors per jamb as required for the adjoining wall construction, including ceiling strut anchors as required by the drawings, and anchors for attachment of frame to the floor. Anchors shall be of not less than 18-gauge steel.

3.4 STEEL WORK PAINTING FINISHES

All Steel doors and frames shall be provided with anti-corrosive primer and oven-baked finish with acrylic enamel paint or powder coated as indicated. Color shall be as indicated on drawings.

- End of Section -

DIVISION 5 : DOORS AND WINDOWS

05120 : ALUMINUM DOORS AND FRAMES

PART 1 – GENERAL

1.1 SCOPE

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

1.2 SUBMITTALS

Shop drawings shall be submitted for approval before delivery of doors. A schedule showing the location of each door shall be included with shop drawings. Drawings shall indicate elevations of each door type, details and method of anchorage to opening, details of construction, method of assembling sections, location and installation of hardware, size, shape, and thickness of materials, joints, and connections.

PART 2 – PRODUCTS

2.1 ALUMINUM DOORS AND FRAMES, HINGED TYPE

a. General

Glazed aluminum stile-and-rail doors shall be of the size and design indicated. Adjacent glass enclosures, sidelights, and transoms, where indicated, shall be of the same style and design as the doors. Aluminum frames shall be furnished with the doors, enclosures, sidelights, and transoms.
- Aluminum extrusions: ASTM Specification 6063 – T5
- Fastening devices: Cadmium or zinc plated
- Anchor bolts, pressed or rolled anchor accessories: galvanized

b. Metal

Sections for doors shall be manufactured from 6063-T5 extruded aluminum alloy conforming to ASTM Specification B 221. The nominal wall thickness of aluminum for doors shall be not less than 2 mm except that the molding shall be not less than 0.6 mm. Screws, nuts, washers, rivets, and other miscellaneous fastening devices shall be of hardened aluminum, stainless steel, or other corrosion-resistant material.

c. Hardware

Shall conform to section 08710: Door Hardware and shall be furnished and installed by the door manufacturer.

Reinforcements for hardware shall be provided, concealed, and shall be secured in place in accordance with the hardware manufacturer's approved recommendation.

d. Protection from dissimilar materials

In addition to the clear coating, aluminum surfaces that will be in contact with masonry, concrete, wood, or steel shall be back-painted before erection with alkali-resistant paint.

e. Frames

Shall be extruded tube or open channel shapes and shall be manufactured from 6063-T5 aluminum alloy not less than 2 mm thick for frames 44 mm by 100 mm, and not less than 1 mm thick for frames 44 mm by 112 mm. Frames shall be securely anchored to adjoining construction. Wall anchors shall be located near bottom and top of frame and at intermediate points not over 91 cm on centers. Frames to receive fixed glass shall have removable glass stops and beads.

f. Doors

Shall be fabricated either from extruded aluminum hollow seamless tubes or from a combination of open-shape members interlocked or welded together. Top and bottom rails shall be welded to the stiles. Joints shall be milled to a hairline watertight fit, reinforced, and welded. Welding shall be done on concealed surfaces and in such a manner as not to create blemishes on exposed surfaces. Exposed screws or bolts will be permitted only at inconspicuous locations and shall have heads counter-sunk. Door shall have extruded aluminum snap-in glass stops with vinyl insert, unless otherwise indicated. Glass is specified in Section 08810: Glass and Glazing.

g. Weatherstripping

Shall be as specified on Section 08720: Weatherstripping and Seals.

h. Finish

Aluminum surfaces shall be provided with a powder-coat finish and an anodic-oxide coating (as approved). The coating shall be white color. Coating shall have a minimum film thickness of 0.010 mm with a minimum coating weight of 17 milligrams per square inch when tested in accordance with ASTM Test Method B 137. Coating shall be sealed with hot water.

PART 3 – EXECUTIONS

3.1 ALUMINUM DOORS AND FRAMES, HINGED TYPE

Frames shall be set accurately in position, plumb, square, and level and in alignment, and shall be securely anchored in accordance with manufacturer's directions and approved shop drawings. Doors shall be hung accurately with proper clearances. Final adjustment shall be made for proper and easy operation of the door after glazing.

3.2 FABRICATION
a. Factory prefabricate all frames in accordance to the designs and dimensions indicated in the drawings.
b. Cut, join and fit rails and stiles to hairline joints securely reinforced and jointed by means of concealed fastening wherever possible.

3.3 INSTALLATION
a. Set and anchor as shown in details and in approved shop drawings. Set frames plumb and square and brace where necessary to prevent distortion.
b. Wedge clear of masonry all frames set in prepared openings 4.5 mm to 6.0 mm to allow for caulking.

3.4 ADJUSTMENTS
a. Adjust all frames and attach hardware before glazing.

- End of Section-

DIVISION 05 : DOORS AND WINDOWS

05210 : WOOD DOORS

PART 1- GENERAL

1.1 SCOPE

a. Furnish materials and equipment and perform labor required to complete pane doors, louver doors, flush doors, sliding doors and other wood doors.

b. See drawings and details for sizes, location, extent and other requirements.

1.2 SAMPLES

a. Prior to fabrication of flush, panel and frames, shop drawings shall be submitted indicating materials used, sizes, fastening devices, and finish for approval.

b. Submit sample corner sections of wood doors and jambs for approval of the Owner.

1.3 PROTECTION

Protect doors adequately from scratches and other stains with heavy building paper. Doors shall also be protected from damage and dampness. Wood doors shall not be brought into the building until all plastering works has been completed and dry.

1.4 DELIVERY AND STORAGE

a. Factory seal doors and accessories in minimum of 6 mill polyethylene bags or cardboard packages, which shall remain unbroken during delivery and storage.

b. Label package for door opening where used.

PART 2 - PRODUCTS

2.1 Extent and location of each type of flush wood door is indicated on the drawings and in schedules.

2.2 MATERIALS

Type 1 Single Leaf Hollow Core Flush Type Door

2.3 FABRICATION

a. Assemble joints in doors with water-resistant glue; keep doors under pressure until glue has thoroughly set.

b. Sand smooth finished door. Provide doors with doors with joints and clean-cut moldings.

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

d. Flush Doors Hollow Core: Provide doors with cross banding and edgings. Make face veneer first-quality selected ribbon grain plywood as directed in the drawings or as specified herein. Provide lock blocks of size required for hardware used.

PART 3 – EXECUTION

3.1 INSTALLATION

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

b. Flush, panel and sliding doors shall be leveled, hung plumbed, and fitted accurately allowing 2-mm clearance at the jambs and heads for painter's finish and possible swelling or shrinkage.

c. Provide not more than 3mm (1/8") clearance at lock and hanging stiles and not more than 6mm (1/4") at bottom.

d. Round all corners to 1mm (1/16") radius. Bevel slightly all rail edges.

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

- End of Section -

DIVISION 05 : DOORS AND WINDOWS

05280 : FIRE DOORS

PART 1 – GENERAL

1.1 SCOPE
a. Furnish materials and equipment and perform labor required to complete fire rate doors with frames, panic hardware and accessories.
b. See drawings and details for sizes, location and extent of work required.

1.2 SUBMITTALS
Shop drawings, brochure or catalog cuts of the operable wall partition intended to be used including the type of finish and color shall be submitted for approval before delivery. Shop drawings shall show details of tracks, rollers, fittings, and other attachments.

1.3 DELIVERY, STORAGE AND PROTECTION
Metal doors and frames shall be delivered, stored, handled, and installed so as not to be damaged or deformed. Abraded, scarred, or rusty areas shall be cleaned and painted immediately upon detection. Doors and frames stored at the site before erection shall be stacked on platforms or pallets and covered with tarpaulins or other suitable covering to provide weather tight enclosure while affording proper air circulation.

1.4 INSTALLATION
Frames shall be plumbed, leveled, and rigidly secured in place. Temporary spreaders shall be installed until the wall at the frame is completed and the frame is securely anchored in its final position. Wall anchors on doorframes shall be installed approximately at the hinge and strike levels. Doors shall be installed in conjunction with the application of hardware.

1.5 FIELD MEASUREMENTS
The contractor shall verify all measurements at the building site; and shall be responsible for fittings and attachment of items connected with the door installation.

PART 2 – PRODUCTS

2.1 FIRE RATE METAL DOORS, FRAMES, HARDWARE, AND ACCESSORIES
a. Label
Fire doors, frames, hardware, and accessories shall bear the identifying label of the "Underwriters' Laboratories, Inc." In lieu of such label, the contractor may submit a written certificate from a nationally recognized testing agency - adequately equipped and competent to perform services equivalent to the inspection and certificate programs of the "Underwriters' Laboratories, Inc.," indicating that the units conform to the requirements of the "Underwriters' Laboratories, Inc."
b. Oversize Doors
For fire rated door exceeding the sizes for which label service is offered by "Underwriter's Laboratories, Inc." The Contractor shall furnish a certificate of inspection in accordance with the requirement of National Fire Protection Association (NFPA) Standards no. 80 and no. 80A.
c. Installation, hardware, and operational characteristics shall conform to NFPA Standards no. 80, no. 80A, and no. 101.
d. Brands/Manufacturers
To be approved by the Owner

- End of Section -

DIVISION 05 : DOORS AND WINDOWS

0520 : ALUMINUM WINDOWS

PART 1- GENERAL

1.1 SCOPE

Furnish materials and equipment and perform labor required to complete aluminum interior-framed windows; fixed windows, awning windows and sliding windows.

See drawings and schedules for sizes, details and location of required work.

1.2 SHOP DRAWINGS AND SAMPLES

a. Submit shop drawings and secure Owner's approval.

b. Submit sample corner sections, hinges, tracks, handles and all other accessories.

PART 2 - PRODUCTS

2.1 ALUMINUM WINDOWS

2.1.1 Materials

a. Aluminum interior-framed windows; fixed windows, awning windows and sliding windows: fixed hardware mounted on aluminum jambs. Provide neat fixation to one another using concealed hardware connectors and stiffeners at mullions.

b. Aluminum extrusions: ASTM Specification 6063-15

c. Fastening Devices: Cadmium or Zinc plated

d. Anchor bolts, pressed or rolled anchor accessories: Galvanized

2.1.2 Types of windows require is indicated on the drawings and schedules.

2.2 ACCESSORIES

a. Provide for neat fixation to one another using concealed hardware connectors and stiffeners at mullions.

b. Fastening devices: cadmium or zinc plated

c. Anchor bolts, pressed or rolled anchor accessories: galvanized

d. Casement handles – Powder coated, U.S. Patent # 4,930,820 USA by TRUTH (white color)

PART 3 - EXECUTION

3.1 FABRICATION

a. Factory prefabricate all frames in accordance to the designs and dimensions indicated in the drawings.

b. Cut, join and fit rails and stiles to hairline joints securely reinforced and jointed by means of concealed fastening wherever possible.

c. Protective Coating: Clean all surfaces and apply a protective coating of clear, water-white methacrylate-type lacquer, resistant to alkaline, mortar and plaster immediately after fabrication and may not be removed even after completion of installation.

3.2 INSTALLATION

a. Set and anchor as shown in details and in approved shop drawings.

b. Set frames plumb and square and brace where necessary to prevent distortion. Windows shall not be forced and shall be securely anchored into the supporting construction.
c. Wedge clear of masonry all frames set in prepared openings 4.5mm (3/16") to 6mm (1/4") to allow for caulking.

3.3 ADJUSTMENTS

a. Adjust all frames and attach hardware before glazing.

b. Secure all windows to be watertight and all hardware operating free & easy.

c. Surfaces, stains and discoloration shall be cleaned and restored or the window shall be replaced.

3.4 INSTALLATION OF HARDWARE

Install hardware to fit details as shown in the drawings and as per manufacturer's specification. Supply all necessary templates and instructions required.

- End of Section -

DIVISION 5 : DOORS AND WINDOWS

05720 : WEATHERSTRIPPING AND SEALS

PART 1 - GENERAL

1.1 SCOPE

Furnish materials and equipment and perform labor required to complete weathers tripping in the form of rubber, vinyl strip and caulking.

1.2 SUBMITTALS

Submit samples of weather strip elements for approval by the Appointed Architect.

PART 2 – PRODUCTS

2.1 WOOL PILE TYPE, SILICONE TREATED WEATHERSTRIPPING

For aluminum doors/windows provide continuous wool pile type, silicone treated weather stripping or a type recommended by the doors/windows manufacturer with the approval of the Architect on stiles and rails of exterior doors/windows. Attach weather stripping to aluminum holders and fit into slots, which are integral with doors/windows and frame stops. Provide weather stripping easy to replace without special tools, and adjustable at meeting rails of pairs of doors/windows. Installation shall allow doors/windows to swing freely and close positively.

PART 3 – EXECUTION

3.1 INSTALLATION

a. Install on all exterior doors/ windows to render them watertight.
b. Install on all interior doors to silence doors.

PART 4 - MEASUREMENT AND RATES

4.1 GENERAL

The quantity shall be computed from the drawings and measurement and payment shall only be against the pay items contained in the Bill of Quantities.

The rates shall be full compensation for all plant, materials, labor, equipment, transport, temporary works, establishment charges, overhead and profit required to complete the work described in this Specification.

- End of Section -

DIVISION 06

(FINISHES)

DIVISION 06 : FINISHES

06900 : PAINTS AND COATINGS

PART 1- GENERAL

1.1 SCOPE

Furnish all materials and equipment and perform labor required to complete all painting and varnishing work.

See drawings for location, quantity and extent of surfaces to receive paint and varnish.

1.2 SUBMITTALS

Submit sample panels in the selected color or shade on 300 x 600 mm plywood panels for Owner's approval.

1.3 DELIVERY AND STORAGE

Materials shall be delivered in their original containers bearing manufacturer's name and brand.

PART 2 – PRODUCT

2.1 PAINTS AND COATINGS

Use one brand of paint all throughout. All exposed finish hardware, lighting fixtures and accessories, plumbing fixtures and accessories, glasses and the like shall be adequately protected that these are not stained with paint and other painting materials prior to painting works.

All other surfaces, which stains and are in danger of paint marks should be taped and covered with kraft paper or equal.

2.2 BRANDS/MANUFACTURERS:

a. Brand to be approved by the Owner.

EXTERIOR:

Surface must be dry and clean, light sanded.

a. Epoxy Finish Coat (sprayed on)

a.1 To be applied for all interior metal surfaces miscellaneous metals

a.2 Brand to be approved by the Owner.

(a) Primer Coat: Epoxy Zinc Chromate

(b) Top Coat: Two coats of Epoxy Enamel

b. Semi-gloss Paint (Acrylic Solvent Type):

b.1 To be applied at building exterior concrete masonry surfaces: columns, beams and for exterior base strip.

b.2 Brand to be approved by the Owner.

(a) Prime Coat: Acrytex Primer
(b) Top Coat: Acrytex Semi-gloss Topcoat

Mixes:

(1) Apply one coat CONCRETE SEALER and two coats SEMI- GLOSS TOPCOAT paint.
(2) Fill up cracks and crevices and putty minor cracks and surface imperfections with ACRYTEX CAST prior to application of finish coats.

c. Semi-gloss Textured Paint: Masonry surfaces shall be treated with MASONRY NEUTRALIZER.

c.1 To be applied at building exterior masonry walls.

c.2 Brand to be approved by the Owner.

(a) Prime Coat
(b) Top Coat

Mixes :

(1) Apply one coat ACRYTEX PRIMER, one coat (spray) ACRYTEX CAST, press with roller; then apply two coats of ACRYTEX SEMI-GLOSS TOPCOAT.
(2) Putty surface cracks and crevices with ACRYTEX CAST after first coat dries.

INTERIOR

Surface must be dry and clean, light sanded.

a. Semi-Gloss Paint (Latex Type).

a.1 To be applied on walls as indicated in the drawings.

a.2 Brand to be approved by the Owner.

(a) Prime Coat: Flat Latex

(b) Top Coat: Permacoat Semi-gloss Latex

Mixes :

(1) Apply MASONRY PUTTY on surfaces to putty all surface defects after the first coat of FLAT LATEX paint dries.

(2) Then apply two (2) coats of SEMI-GLOSS LATEX paint.

b. Lacquer Enamel Paint:

b.1 To be applied at: For all cabinet surfaces (interior and exterior sides), and as indicated on Drawings.

b.2 Brand to be approved by the Owner.

(a) Prime Coat: Lacquer Spot Primer

(b) Top Coat: Automotive Lacquer

Mixes:

(a) Apply fula-tite wood dough or LACQUER SPOT PUTTY to holes and cracks then apply one (1) coat of LACQUER PRIMER SURFACER White.

(b) Sand smoothly surface and apply one (1) coat of LACQUER SPOT PUTTY White to entire primer surfaces.

(c) Repeat application of one (1) coat LACQUER PRIMER SURFACER White. Apply topcoat of AUTOMOTIVE LACQUER by airbrush.

c. Technicolor/ Multicolor Paint: Masonry surfaces shall be treated with MASONRY NEUTRALIZER.

c.1 To be applied on walls at Main Waiting Areas and others as specified on the drawings.

c.2 Brand to be approved by the Owner.

(a) Prime Coat: Permacoat Latex

(b) Top Coat

Mixes:

(1) Minor cracks as well as surface imperfections should be puttied Acrytex after first coat of Permacoat Latex dries up.

(2) Apply second coat of Permacoat Latex.

(3) Apply topcoat.

d. Masonry surfaces shall be treated with MASONRY NEUTRALIZER.

d.1 To be applied on walls areas specified on plans.

d.2 Brand to be approved by the Owner.

(a) Prime Coat: Permacoat Latex

(a) Undercoat

(b) Top Coat: Base and Toner Mixture

Mixes :

(1) Prime Concrete Surfaces with Permacoat Latex

(2) After Primer Application, apply undercoat by brush or roller to fully cover the surface. (1 coat)

(3) Apply topcoat of Base and Toner Mixture. (1 coat)

(4) (Optional) Apply borders after application of undercoat but before application of base and toner mixture.

e. Anti-Microbial Paints: Masonry surfaces shall be treated with MASONRY NEUTRALIZER.

e.1 To be applied on walls as indicated in the drawings.

e.2 Apply as per manufacturer's instructions.

e.3 Brand to be approved by the Owner.

f. Varnish-Stained Semi-Gloss Finish: Fill open grains of wood with NATURAL WOOD PASTE FILLER.

f.1 To be applied as indicated on drawings.

f.2 Brand to be approved by the Owner.

Clear Gloss Lacquer

g. Varnish Application:

g.1 To be applied on furnitures specified on plans.

g.2 Brand to be approved by the Owner.

Clear Gloss Lacquer

Mixes:

(a) Apply oil wood stain

(b) Apply 2-3 coats of Sanding sealer. Recoating interval at 30 minutes with scuff sanding in between coats.

(c) Apply 2-3 coats of Clear Gloss Lacquer. Recoating interval at 30 minutes with scuff sanding in between coats except for the last layer.

(d) Dilution during application of the Lacquer varnishes is necessary and may be achieved by using Lacquer thinner with a 10% by volume addition of Lacquer to prevent moisture blushing.

PART 3 - EXECUTION

3.1 PREPARATION OF SUBSTRATE

Substrate shall be clean, dry and free from deleterious materials.

a. For Old or Previously Painted Concrete and Masonry Surfaces

a.1 Scrape off loose, scaling and peeling old paints. Sand the whole surfaces including those where old paint still adheres very well.

a.2 For areas with extreme chalking problems, steel brush, blow air from a compressor or wipe with a clean rag pre-wetted with water. Let dry, then apply one (1) coat of concrete sealer. Dry for at least 4 hours before applying subsequent coats.

a.3 For areas affected by molds and mildew, wash the whole surface with water or with hypochlorite washing solution. Scrub using a stiff nylon brush, then rinse with water. Apply fungicidal washing compound. Leave overnight.

a.4 For areas with mapping problems, properly prepare the surface then apply concrete sealer. Dry for at least 4 hours.

h. For Previously Painted Metal (Ferrous) Surface

b.1 All areas to be painted must be dry and free from all dirt, dust, oil, grease, wax and other contaminants.

b.2 If the existing paint is sound and shows normal chalking, sand lightly and wipe surface dust- free.

b.3 If the existing paint is cracked, alligatored, peeling or in a general poor condition, remove rust by scraping, wire brushing or sanding.

b.4 Treat surface with rust converter. Allow to stand overnight, then wipe off white residue with a clean rag soaked in solvent.

b.5 Allow one (1) coat of Primer. Allow drying overnight before finishing with one or two coats of recommended topcoat."

c. For New Concrete and Masonry Painting

c.1 Surface to be painted must be allowed to dry for 14 to 28 days before neutralization.

c.2 Surface should be clean and dry, free from oil, grease, dust, dirt, contaminants and all loose grit or mortar.

c.3 Treat with Masonry Neutralizer.

c.4 Apply liberally by brush and let dry overnight.

c.5 Rinse with water to remove white crystals that form on the surface. Let dry.

d. For New Wood Painting

d.1 Surface must be clean and dry, free from dust, dirt and other foreign matter; sand rough edges remaining, countersink nail heads for putty application.

d.2 Dust off surface completely and wipe with a clean rag.

e. For New Metal Painting

e.1 Clean the surface thoroughly, free from dirt, dust, grease, oil, wax, solder flux, and other contaminants by wiping with mineral spirits or paint thinner.

3.2 PAINTING

a. Mix paint with proper consistency. Stir paint thoroughly to keep pigment in even suspension when paint is being applied.

b. Unless otherwise indicated, apply paint in three coats (priming, body and finish) and allow each coat to dry thoroughly before next coat is applied (at least 48 hours between application of coats). Let the Owner inspect each coat before proceeding work.

c. If at three coats the surface has not been satisfactorily finished, the Contractor shall apply the necessary number of coats to obtain desired evenness at no extra cost to the Project Proponent and/or Owner.

d. Touch up knots, pitch streaks, etc. where finish calls for interior enamel. Use approved sealer for exterior surfaces.

e. Sand smooth surfaces to be finished with enamel or varnish. Use fine sandpaper between coats to produce even, smooth surface.

f. Do not paint exterior surfaces while still damp or during rainy or damp weather.

- End of Section-

DIVISION 6 : FINISHES

06610 : RESILIENT SHEET FLOORING

PART 1- GENERAL

1.1 SCOPE

a. Furnish all materials and equipment and perform labor required to complete all resilient sheet flooring with integral cove base (height as indicated on plans).

b. See drawings for details of Materials and Finishes.

1.2 DELIVERY AND STORAGE

a. Deliver sheet flooring full width roll, completely enclosed in factory wrap, clearly marked with the manufacturer's number, type and color, production run number and manufacture date.

b. Deliver other materials in original sealed packages or containers; labeled for identification with the manufacturer's name and brand.

c. Store materials in weather tight and dry storage facility.

d. Store sheet flooring on end.

e. Protect from damage from handling, weather and construction operation before, during and after installation.

1.3 MAINTENANCE TILE STOCK

As an additional requirement during turnover and prior to Final Turnover, the Contractor will endorse to the Owner one (1) roll of each type/size/color and exact brand of vinyl sheets used within the Project with the end in view of providing stock which will flawlessly blend with the completed work in the event that the replacement of pieces should become necessary.

1.4 SUBMITTALS

a. Manufacturers illustrated product literature and specifications.

a.1 Description of products provided.

a.2 Sheet flooring manufacturers' recommendations for adhesives, underlayment, and primers.

a.3 Application and installation instructions.

b. Material Sample

b.1 Sheet material: 300 mm (12 inches) square for each type, pattern and color.

b.2 Edge strips: 150 mm (6 inches) long each type.

b.3 Adhesive, underlayment and primer: Pint container, each type.

b.4 Cap strip and fillet strip for integral base.

PART 2 - PRODUCT

2.1. VINYL SHEETS

a. FLEXIBLE HOMOGENEOUS FLOORING / PUR TREATED VINYL SHEETS

- Brand to be approved by the Owner.
- 85% Vinyl sheets
- Shall be Antistatic, Anti-Bacterial and Fungicidal
- Areas indicated on plans shall be designed and schemed for approval
- Use adhesive as per manufacturer's recommendation.

b. CONDUCTIVE FLOORING VINYL SHEETS

- Shall be Static Conductive, flexible homogeneous vinyl floor covering with an electrical resistance (carbon coated PVC pellets)
- Shall be Anti-Bacterial and Fungicidal
- Areas indicated on plans shall be designed and schemed for approval
- Use adhesive as per manufacturer's recommendation.

c. DISSIPATIVE FLOORING / ANTI STATIC VINYL SHEETS

- Brand to be approved by the Owner.
- Shall be Antistatic, Anti-Bacterial and Fungicidal
- Areas indicated on plans shall be designed and schemed for approval
- Use adhesive as per manufacturer's recommendation

d. SAFETY FLOORING / SLIP RESISTANT VINYL SHEETS

- Brand to be approved by the Owner.
- Shall be Slip resistant, treated surface to resist soiling and staining
- Shall be Anti-Bacterial and Fungicidal
- Areas indicated on plans shall be designed and schemed for approval
- Use adhesive as per manufacturer's recommendation.

2.2. ADHESIVES

Water resistant type recommended by the sheet-flooring manufacturer for the conditions of use.

2.3. BASE CAP STRIP AND COVE STRIP

a. Extruded vinyl compatible with the sheet flooring.

b. Cap strip "J" shape with feathered edge flange approximately 25 mm (one inch) wide; top designed to receive sheet flooring with 13 mm (1/2 inch) flange lapping top of flooring.

c. Cove strip 70 mm (2-3/4 inch) radius.

2.4. LEVELING COMPOUND (For Concrete Floors)

Provide cementitious products with latex or polyvinyl acetate resins in the mix.

2.5. PRIMER (For Concrete Subfloors)

As recommended by the adhesive or sheet flooring manufacturer.

2.6. EDGE STRIPS

a. Extruded aluminum, mill finish, mechanically cleaned.

b. 28 mm (1-1/8 inch) wide, 6 mm (1/4 inch) thick, bevel one edge to 3 mm (1/8 inch) thick.

c. Drill and counter sink edge strips for flat head screws. Space holes near ends and approximately 225 mm (9 inches) on center in between.

2.7. SEALANT

- Compatible with sheet flooring.

PART 3 - EXECUTION

3.1 PROJECT CONDITIONS

a. Maintain temperature of sheet flooring above 36 °C (65 °F), for 48 hours before installation.

b. Maintain temperature of rooms where sheet flooring work occurs above 36 °C (65 °F), for 48 hours, before installation and during installation.

c. After installation, maintain temperature at or above 36 °C (65 °F).

d. Building is permanently enclosed.

e. Wet construction in or near areas to receive sheet flooring is complete, dry and cured.

3.2 SUBFLOOR PREPARATION

a. The subfloor must be absolutely hard, level, dry, smooth, and structurally sound.

b. The subfloor must be free of cracks and other irregularities and must not be contaminated with paint, plaster, oil, grease or any other substance, which could affect adhesion.

c. Cracks must be filled with appropriate material.

d. Determine adhesion and dryness of the floor by bond and moisture tests as recommended by RFCI Technical Manual, Recommended Installation Practice for Homogenous Sheet Flooring, Fully Adhered.

e. Prime concrete subfloor if priming is recommended by adhesive manufacturer.

3.3 INSTALLATION

a. Follow sheet-flooring manufacturer's instructions for installation for obtaining the specified results.

b. Install sheet in full coverage adhesives

b.1. Air pockets or loose edges will not be accepted.

b.2. Trim sheet materials to touch in the length of intersection at pipes and vertical projections; seal joints at pipe with waterproof cement or sealant.

c. Keep joints to a minimum; avoid small filler pieces or strips.

d. Follow manufacturer's recommendations for seams at butt joints. Do not leave any open joints that would be readily visible from a standing position.

e. Follow manufacturer's recommendations regarding pattern match, if applicable.

f. Installation of Edge Strips:

f.1 Locate edge strips under center lines of doors unless otherwise indicated.

f.2 Set aluminum strips in adhesive, anchor with lead anchors and stainless-steel screws.

g. Integral Cove Base Installation:

g.1. Set preformed fillet strip to receive base.

g.2. Install the base with adhesive, terminate expose edge with the cap strip.

g.3. Form internal and external corners to the geometric shape generated by the cove at either straight or radius corners.

g.4. Solvent weld joints as specified for the flooring. Seal cap strip to wall with an adhesive type sealant.

Unless otherwise specified or shown where sheet flooring is scheduled, provide integral base at intersection of floor and vertical surfaces. Provide sheet flooring and base scheduled for room on floors and walls under and behind areas where casework, laboratory and pharmacy furniture and other equipment occur, except where mounted in wall recesses.

3.4 CLEANING

a. Clean small adhesive marks during application of sheet flooring and base before adhesive sets, excessive adhesive smearing will not be accepted.

b. Keep traffic off sheet flooring for 24 hours after installation.

c. Clean and polish materials per flooring manufacturer's written recommendations.

d. Where construction traffic is anticipated, cover sheet flooring with reinforced craft paper properly secured and maintained until the Resident Engineer authorizes removal.

e. Where protective materials are removed and immediately prior to acceptance, repair any damage, re-clean sheet flooring, lightly re-apply polish and buff floor.

- End of Section -

DIVISION 6 : FINISHES

06310 : HOMOGENEOUS GRANITE TILES

PART 1- GENERAL

1.1 SCOPE

a. Furnish all materials and equipment and perform labor required to complete all ceramic tile works.

b. See drawings for details of Materials and Finishes.

1.2 DELIVERY AND STORAGE

Materials shall be delivered in their original containers bearing manufacturer's name and brand. Tiles shall be protected against wear and dampness.

1.3 MAINTENANCE TILE STOCK

As an additional requirement during turnover and prior to Final Turnover, the Contractor will endorse to the Owner 30 pcs. of each type/size/color and exact brand of tiles used within the Project with the end in view of providing stock which will flawlessly blend with the completed work in the event that the replacement of pieces should become necessary.

1.4 SUBMITTALS

Submit to the Architect sample of materials for approval prior to installation.

PART 2 - PRODUCT

2.1 GENERAL

The work shall not be started until the roughing-in for plumbing and electrical work has been completed and tested. The work of all other trades in the area where tile work is to be done shall be protected from damage in a skillfully manner and as directed.

2.2 HOMOGENEOUS GRANITE TILE FINISH

2.2.1 Finish shall be clean, plumb and true to line.
2.2.2 For floor and wall areas requiring the finish.
2.2.3 Use Tile Grout and adhesive.
2.2.4 Color same as the tile.
2.2.5 Use tile adhesive for installation. Submit actual samples for approval.

a. 600 x 600 mm - Non-Slip Tiles
- Color: for Owner's approval
- Vitrified Slip Resistance Glazed Ceramic

c. 600 x 600 mm - Polished Tiles
- Color: for Owner's approval
- Vitrified Slip Resistance Glazed Ceramic

d. 300 x 300 mm - Non-Slip Tiles
- Color: for Owner's approval
- Vitrified Slip Resistance Glazed Ceramic

2.2 MORTAR AND PLASTER WORKS

a. Use ADHESIVE MORTAR for laying vitrified ceramic tiles with DISPERSION COMPOUND as an additive to ADHESIVE MORTAR.

b. Use GROUT pre-mixed dry well filler for floor and wall tile joints either glazed or unglazed tiles. Color should be the same as the tiles, as approved by Owner.

PART 3 - EXECUTION

3.1 APPLICATION OF WALL PLASTER

Tiles shall be installed over an even, plumb and firm substrate that is clean and free from deleterious substances.

3.2 FLOOR TILES INSTALLATION WITH TILE ADHESIVE

a. Before spreading the setting bed, establish lines of borders and center the work in both directions to permit the pattern to be laid with a minimum of cut tiles.
b. Keep tile joint parallel and straight over the entire area by using straight edges.
c. Lay tiles from centerline outward and make adjustment at walls. Keep the gap between tiles with 2.0mm-3.0mm.

3.3 WALL TILE ON TILE ADHESIVE

a. Before application of plaster, dampen the surface of the scratch coat evenly to obtain uniform suction.

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

c. Apply the tile adhesive over an area no greater than to be covered with tile while the coat is still plastic.

d. Completely immerse wall tile in clean water and soak it at least ½ hour. After removal, stack tile on edge long enough to drain off excess water. Re-soak and drain individual tiles that dry along the edges. Allow no free moisture to remain on the back of tile during setting.

e. Lay tile fields in rectangular block areas not exceeding tile area. Cut the setting bed through its entire depth along the edges of each block area after placement and before subsequent blocks are installed.

f. Within one (1) hour after installation of tile, remove strings from string-set and wet the faces of face-mounted tile and remove the paper and glue. Avoid using excess water. Adjust any tile that is out of alignment.

3.4 GROUTING

a. Grout newly installed tiles after 24 hours of setting and curing. Prior to grouting, tiles and grout spaces shall be clean.
b. Using a rubber-faced float, spread the grout over the tiled surface, applying just enough pressure to fill the spaces between tiles.
c. After 5 minutes, apply a wet sponge until grout is flush with tile surface. Tool the filled joints with the sponge. Wipe remaining residue with a clean dry cloth.
d. Grouted areas may be opened to foot traffic after at least 24 hours of setting and curing. Apply grout sealers on the tile grouts after 24 hours to protect grout from discoloration.

3.5 CLEANING

Sponge and wash thoroughly with water after the grout have stiffened. Then clean by rubbing damp cloths or sponges and polish with clean dry cloth.

- End of Section -

DIVISION 06 : FINISHES

06270 : DRYWALL ACCESSORIES

PART 1- GENERAL

1.1 SCOPE

Furnish all materials, labor and equipment necessary to complete the installation of gypsum wallboard for walling and ceiling.

1.2 SUBMITTALS

a. Brochures or catalog cuts of gypsum wallboard, framing and furring members, shall be submitted prior to procurement.

b. Installation instructions.

c. Complete shop drawings.

1.3 STORAGE AND HANDLING OF MATERIALS

Storage and handling of materials shall be provided during fabrication, shipments, storage and erection. Jobsite storage shall be in a clean, dry area out of direct contact with the ground, under cover and sloped for drainage, protected from abuse by traffic and from contamination by corrosive or staining materials. Stored materials and unfinished work shall be secured against wind damage.

1.4 LOCATION

Refer to Architectural Drawings.

PART 2 - PRODUCT

2.1 ADHESIVES

For joint and fastener concealment shall be of the types recommended in writing by the wallboard manufacturer and as approved for the following uses:

a. Embedding compound for first and second coats.

b. Finishing compound for final coat.

2.2 BACKING BOARD

Shall be of the grade and form required for the installation.

2.3 CEILING METAL FRAMING ASSEMBLIES – shall be powder coated.

a. Hangers shall be pre-punched, hot-dipped galvanized steel 1.0 mm thick.

b. Suspension rod shall be hot-dipped galvanized steel 6.0 mm diameter.

c. Carrying channel clip shall be spring steel clip 0.6 mm thick.

d. Furring channel joiner and furring clip shall be galvanized steel, gauge 24 thick.

e. Furring member shall have double cradling, galvanized steel 5.0 m long; 0.40 m thick, configuration and size as shown hereinafter.

f. Carrying channel and wall angle shall be 5 meters long, gauge 19 and 2.4 or 3.0 meters long, gauge 24 thickness respectively, configuration and sizes as shown hereinafter.

2.4 WALL AND PARTITION METAL ASSEMBLIES – shall be powder coated, and are as follows:

a. Track, top and bottom shall be galvanized steel gauge 22 or 24 and 2.4 or 3.0 m long.

b. Stud shall be galvanized steel, gauge 22 or 24 and 2.4 or 3.0 m.

2.5 FASTENERS

a. Bolts and Nuts shall be as recommended by the framing manufacturer, steel and zinc-coated.

b. Expansion Shields shall be of type and class applicable.

c. Powder-driven fasteners may be used only when approved in writing.

d. Screws for wallboard attachment shall be shouldered flat-head design for use with special power-driven tools.

e. Toggle bolts shall be of the type and class best suited for the purpose.

f. Gypsum wallboard shall have taper-edged, and of the grade and form hereinafter specified. Wallboard shall be supplied in 48-inch width and in such lengths as will result in a minimum of joints.

g. Regular wallboard shall be 12 mm thick, unless otherwise indicated.

h. Fire-retardant wallboard shall be 5/8-inch thick.

PART 3 - EXECUTION

3.1 CEILING FRAMING SYSTEMS

Framing for furred ceilings shall be installed at the locations indicated and shall conform to the following:

a. Suspended Ceilings

Ceiling framing shall consist of 38 mm steel main runner channels suspended plumb from structural slab or frame by hanger wires or straps, spaced at not less than 1.20 m on centers.

a.1. Hanger wires shall be wrapped around the reinforcing bars, of the supporting concrete-slab construction with twists before concrete is placed or shall be shaped into a 100 mm diameter loop and embedded at least 50 mm in the concrete, or shall be attached to approved inserts.

a.2. Hanger wires shall be looped around bottom chord of open-web steel joists and shall receive three full turns around itself, or around structural steel members or to attached beam clamps and shall receive three full turns around itself.

a.3. Hanger strap shall be hung plumb and connected with 3/8 inch galvanized bolts and nuts to anchors made of hanger strap set in the concrete, or shall be looped around structural framing and connected to itself with 3/8 inch galvanized bolts and nuts.

a.4. Hanger wire shall be saddle-tied to main runner channels and shall receive three full turns around itself.

a.5. Hanger strap shall be looped under main runner channels to form stirrups and through-bolted to channels using 3/8 inch galvanized bolts and nuts.

a.6. Main runner channels shall be located within 150 mm of parallel walls and shall be cut short of abutting wall 12 mm plus or minus 6 mm.

a.7. Where channels are spliced, the ends shall be overlapped not less than 12 inches with flanges of channels interlocked and securely tied near each end of the splice with two loops of 1 mm tie wire or the ends may be joined by approved standard main runner couplings.

a.8. Splices shall be staggered.

b. Attached Ceilings

Framing is not required for ceilings attached to structural members, except for framing openings as specified. Furring as hereinafter specified shall be attached directly to structural members.

3.2 FURRING

Steel channels or steel studs shall be provided where steel furring is indicated for screw attachment of gypsum wallboard.

a. Walls

a.1. Furring channels shall be spaced 0.40 m on centers. Furring shall be secured to masonry or concrete with concrete nails, toggle bolts, or screw with expansion shields at not more than 0.60 m centers.

a.2. Fasteners shall be staggered in alternate flanges of channel with one fastener located within 0.15 m of each end.

a.3. Furring shall be set plumb or level and rigid using shims of galvanized steel wherever necessary to assure a finished wall surface in a true, even plane.

a.4. Wallboard abutting dissimilar wall or ceiling materials shall have edges finished with casing beads aligned to provide a finished joint.

b. Ceilings

b.1 Hat-shaped furring' members shall be spaced .40 m on centers and securely attached across suspended runner channels or structural framing members with wire clips or double-strand of 1.0 mm tie wire saddle-tied at each crossing.

b.2 Ends of wire ties shall receive three full twists. Furring shall be spliced with 0.20 m nested laps securely tied near each end of lap, with two loops of 1.0 mm tie wire.

b.3 Splices shall be staggered. Furring channels shall be located within 50 mm of walls.

b.4 Where wallboard abuts dissimilar wall materials, perimeter of ceilings shall be finished with an edge bead trim strip applied to wall and accurately aligned with the finished ceiling.

b.5 Wallboard edges adjoining walls shall be laid on the horizontal leg of the trim strip against a continuous bead of approve type sealant.

3.3 STEEL FRAMING

Non-load-bearing walls and partitions shall be framed with 64 mm and 92 mm steel studs and runners installed as indicated and as hereinafter specified. Studs shall be spaced not more than 0.60 m on centers and end studs in adjoining walls shall be interconnected with screws spaced at not more than 0.60 m centers.

a. Floor and ceiling runners shall be accurately aligned and securely attached to floors and to structural ceilings or roof deck except where partition-ceiling runners are applied directly to finish material of continuous ceilings. Attachment shall be by expansion shields, machine bolts, or other approved method, at not more than 0.60 m centers and to furred ceilings by wallboard screws at each furring member. Furring will be provided at ceiling runners oriented parallel to the direction of furring members. Runners shall extend beyond open-end partitions for 0.30 m. Upon installation of end studs, runner extensions shall be bent and nested with the stud and attached thereto with two wallboard screws. Runner shall be in the longest possible lengths with butt joints between lengths.

b. Studs shall be positioned plumb in ceiling and floor runners and securely attached with not less than one wallboard screw on each side of the stud ends. Stud shall be installed in continuous lengths with no splicing in lengths up to 5 m for 92 mm studs, 3.5 m for 75 mm studs, and 9 feet for 64 mm studs.

c. Special framing for beams, columns, soffits, and other special items shall be sized and built to the shapes or forms indicated by rigidly securing each intersection with wallboard screws.

3.4 FRAMED OPENINGS

a. Ceiling Openings

a.1. Support members shall be provided at ceiling openings such as required for access panels, recessed light fixtures, and for air supply or exhaust.

a.2. Support members of not less than 38 mm main runner channels and suspension wires or straps shall be located to provide at least the minimum support specified herein for furring and wallboard attachment.

a.3. Intermediate structural members, although not a part of the structural system, shall be provided for attachment or suspension of support members.

3.5 APPLICATION

Wallboard shall be applied with the separate boards in moderate contact but not forced into place. At internal and external corners the cut edges of the boards shall be concealed by the overlapping covered edges of the abutting boards. The boards shall be so staggered that the corners of any boards will not meet a common point except in vertical corners.

a. Ceilings

Wallboard shall be applied to the ceilings with the long dimension of the wallboard, at right angles to the furring members. Wallboard may be applied with the long dimension parallel to furring members that are spaced 16 inches on centers when attachment members are provided at end joints.

b. Walls

b.1 Single-ply horizontal application

The long dimension of the panels shall be placed at right angles to the furring or framing members. End joints, where required, shall be made over furring or framing members.

b.2 Single-ply vertical application

The long dimension of the panels shall be placed parallel to the furring or framing members. The panels shall be of the length required to reach from the ceiling line to the floor line in one continuous length. Joints shall be made over framing or furring members.

b.3 Control Joints

Shall be formed of casing bead trim installed back-to-back over separate framing or furring members. A spacing of 3 mm shall be maintained between opposite beads. Control joints shall be located as indicated.

3.6 ATTACHMENT

If the paper surface is broken in nailing or screwing, another nail or screw shall be driven approximately 50 mm from the faulty nailing or screwing. Attachment of wallboard to steel furring and steel framing shall be screw fasteners only. Nailing or screw attachment shall proceed from central portion of wallboard toward end and edges.

3.7 JOINT AND FASTENER CONCEALMENT

Areas to be treated shall be inspected by the contractor to ascertain that wallboard fits tightly against supporting framework, and these areas shall be heated to not less than 55 degrees F. for 24 hours prior to commencing treatment, during treatment, and until adhesive compounds have dried. Application shall be by machine or hand tool. A minimum drying time of 24 hours shall be allowed between adhesive coats. Additional drying time may be necessary in poorly ventilated areas.

a. Embedding Compound

a.1 Shall be applied to wallboard joints and fastener heads in a thin uniform layer.

a.2 Compound shall be spread not less than 75 mm wide at joints, and reinforcing tape shall be centered on the joint and embedded in the compound.

a.3 A thin layer of compound shall be spread over the tape.

a.4 After this treatment has dried, a second coat of embedding compound shall be applied to wallboard joints and fastener heads.

a.5 Compound shall be spread in a thin uniform coat and not less than 150 mm wide at joints. Treated areas shall be sanded to eliminate ridges and high points.

b. Finishing Compound

After embedding compound has dried, a coat of finishing compound shall be applied to joints and fastener heads. Finishing compound applied at joints shall be feathered out to not less than 12 inches wide. After compound has dried, the treated areas shall be sanded as necessary to obtain uniformly smooth surfaces. Care shall be taken not to scuff the paper surface of the wallboard.

3.8 CORNER TREATMENT

a. Internal Corners

Shall be treated in the manner specified herein before for joints, except that the reinforcing tape shall be folded lengthwise through the middle and fitted neatly into the corner.

b. External corners

Shall have corner bead fitted neatly over the corner and secured with the same type fasteners used for applying wallboard. The fastener shall be spaced approximately 150 mm on centers and driven through the wallboard into the framing member. After the corner-piece has been secured in place, the corner shall be treated with joint compound and reinforcing tape in the manner herein before specified for joints. The joint compound shall be feathered out from 200 mm to 250 mm, on each side of corner.

- End of Section -

DIVISION 6 : FINISHES

06250 : GYPSUM WALLBOARD / DRYWALL SYSTEM

PART 1- GENERAL

1.1 SCOPE

Furnish all materials, labor and equipment necessary to complete the installation and finishing of gypsum wallboard or drywall system.

1.2 SUBMITTALS

a. Submit catalog information for each type of gypsum boards, fastener, joint treatment material, adhesive, framing and furring members and other accessories. Clearly mark data which type or item will be provided.

b. Installation instructions.

c. Submit Detail drawing and/or shop drawings showing installation and assembly to enable checking of the conformity with the contract requirements.

d. Submit samples of standard color of Gypsum Board.

1.3 STORAGE AND HANDLING OF MATERIALS

Storage and handling of materials shall be provided during fabrication, shipments, storage and erection.

Handling: Neatly stack gypsum board flat to prevent sagging or damage to the edges, ends, and surfaces.

Storage: Jobsite storage shall be in a clean, dry area out of direct contact with the ground, under cover and sloped for drainage, protected from abuse by traffic and from contamination by corrosive or staining materials. Stored materials and unfinished work shall be secured against wind damage. Provide adequate ventilation to prevent condensation.

PART 2 - PRODUCT

2.1 GYPSUM BOARD

- Non-Asbestos, 12 and 16 mm thick x 1.22 m x 2.44 m (4' x 8') per piece (for wall), 12 mm thick x 1.22m x 1.22 m (4' x 4') per piece (for ceiling), regular and water resistant type, tapered edges, approved by the Contracting Officer. Installation shall only be done by approved, qualified and trained installer recommended by the manufacturer.

a. Gypsum Wallboard

- Regular, fire-rated types, 12 mm thick, to be installed at interior walls (inner side of the room)

b. Mold and Water-Resistant Gypsum Backing Board

- regular and fire-rated types, 12mm typical thickness.

- to be installed on ceiling of all Toilets and kitchen.

c. Joint Treatment: ASTM C-475 and ASTM C-840, 3-coat system.

c.1 Joint Tape

- Cross-fibered paper tape with nominal longitudinal stretch and high tensile strength.

c.2 Setting Type Joint Compound

- Factory pre-packaged, chemical hardening powder products formulated for uses as indicated.

c.2.1 For use as topping and taping compounds, use formulation for each which develops greatest bond strength and crack resistance and is compatible with other joint compounds applied over it.

c.2.2 For pre-filling gypsum board joints, use formulation recommended by gypsum board manufacturer for this purpose.

c.3 Drying-Type Joint Compound

- Factory pre-packaged vinyl- based products complying with the following requirements for formulation and intended use.

c.3.1 Ready-Mix Formulation: Factory-premixed product.

c.3.2 Taping compound formulated for embedding tape and for first coat over fasteners and flanges of corner beads and edge trim.

c.3.3 Topping compound formulated for second and third coats.

c.3.4 All-purpose compound specifically formulated and manufactured for use as both taping and finishing compound, and compatible with tape, substrate and fasteners.

d. Galvanized Steel Framing Component for Suspended and Furring Channel. ASTM C 754.

d.1 Concrete Inserts

- Metal dowels designed for embedment in concrete, fabricated from corrosion-resistant materials, and the hanger rod to be screwed to sustain without failure, a load equal to 3 times that imposed by ceiling construction.

d.2 Hanger Rods

- 6.3 mm dia. mild steel, galvanize finish, threaded on both ends with nuts.

d.3 Carrying Channels

- G.I. Gage #18; 10 mm x 37 mm x 2.44 m to 5.9 m

d.4 W-furring Channel

- G.I. Gage #26; 18 mm x 45 mm x 2.44 m to 5.9 m

d.5 Wall Angle

- G.I. Gage #26; 18 mm x 45 mm x 2.44 m to 5.9 m

2.2 TRIM ACCESSORIES

a. Material: Metal Trim

b. Types

- Cornerbead, edge trim and control joints and recessed joints in gypsum board systems are to be limited to vertical applications. The use of horizontal joints for aesthetic treatments in clinical or treatment areas is to be minimized for reduction of infection control risk.

2.3 STEEL FRAMING FOR WALLS AND PARTITIONS

a. Steel Studs and Runners

- ASTM C-645, 20 gauge steel studs, 3-16mm typical depth.

b. Furring Channels

- ASTM C-645, 20 gauge

c. Auxiliary Framing Components

- Furring brackets, resilient furring channels, z-furring members and non-corrosive fasteners.

2.3 AUXILIARY MATERIALS

a. Gypsum Board screws

b. Gypsum Board nails

c. Fastening Adhesives
d. Concealed Acoustic sealant

e. Mineral Fiber sound attenuation blankets

f. Mineral fiber sound insulation.

g. Polystyrene aggregated finish for ceilings.

h. Nonwoven polymeric sheet air infiltration barrier.

i. Fasteners, Type S steel drill screws with corrosion-resistant finish.

PART 3 - EXECUTION

3.1 PREPARATION

a. Examine substrates to which drywall construction attaches or abuts, preset hollow metal frames, cast-in anchors, and structural framing for compliance with requirements for installation tolerances and other conditions affecting performance of drywall construction. Do not proceed with installation until unsatisfactory conditions have been corrected.

b. Ceiling Anchorage

Coordinates installation of ceiling suspension system with installation of overhead structural systems to ensure that insets and other structural anchorage provisions have been installed to receive anchors in a manner that will develop their full strength and at spacing required to support ceiling.

b.1 Furnish concrete inserts and other devices indicated, to other trades for installation well in advance of time needed for coordination with other construction.

3.2 INSTALLATION OF GALVANIZED STEEL FRAMING

a. Steel Framing Installation Standard

Install Galvanized Steel Framing to comply with ASTM C 754 and with ASTM C 840 requirements that apply to framing installation.

b. Installation of supplementary framing, blocking and bracing at terminations in the work for support of fixtures, equipment services, heavy trim, furnishings and similar construction to comply with details indicated and with recommendations of gypsum board manufacturer.

c. Isolate Steel Framing of building structure to prevent transfer of loading imposed by structural movement, at locations indicated below to comply with details shown on the drawings.

c.1 Where edges of suspension ceiling perimeter or penetration of structural elements.

d. Do not bridge building expansion and control joints with steel framing or furring members; independently frame both sides of joints with framing or furring members or as indicated.

3.3 INSTALLATION OF STEEL FRAMING FOR SUSPENDED AND FURRED CEILINGS

a. Secure hangers to structural support by support by connecting directly to structure where possible, otherwise connect to cast in concrete inserts or other anchorage devices or fasteners as indicated.

a.1 Do not attach hangers to underside of concrete slabs with power-actuated fasteners.

b. Do not connect or suspend steel framing from ducts, pipes or conduits.

c. Keep hangers and braces 50 mm clear of ducts, pipes and conduits.

d. Sway brace suspended steel framing with hangers used for support.

e. Install suspended steel framing components in sizes and spacing indicated but not less than required by reference steel framing installation standard.

e.1 Hanger rods; 120 cm on center

e.2 Carrying channels (main runner); 120 cm on center

e.3 Furring channels (furring members); 60 cm on center

f. Installation Tolerances; Install steel framing components for suspended ceiling so that cross furring members of grid are level to within 3.1 cm in 3.65 m as measured both lengthwise on each member and transversely between parallel members.

g. Clip furring members to main runners and to other structural support as indicated.

h. For exterior soffits provide cross-bracing and additional framing indicated or required to resistant wind uplift.

3.4 INSTALLATION OF STEEL FRAMING FOR WALLS AND PARTITION

a. Installation Tolerances

Install each steel furring member so that fastening surface do not vary more than 3.1 cm plane of faces of adjacent framing.

b. Extend Steel Furring full height to structural support or substrates above suspended ceiling, expect where partitions are indicated to terminate at suspended ceilings. Continue framing over frames for doors and openings and frame around ducts penetrating partitions above ceiling to provide support for gypsum board.

c. Terminate partition framing at suspended ceilings where indicated.

d. Install steel furring in sizes and at spacing indicated but not less than that required by referenced steel framing installation standard.

3.5 APPLICATION AND FINISHING OF GYPSUM BOARD

a. Gypsum Board Application and Finishing: Install and finish gypsum board to comply with ASTM C 840.

b. Install Gypsum Boards in a manner, which minimizes the member of end-butt or avoids them entirely where possible.

c. Install exposed gypsum board with face side out. Do not install imperfect damages or damp boards. But boards together for a light contact at edges and ends with not more than 1.6 mm open space between boards. Do not force into place.

d. Locate either edge or end joint over supports, except in horizontal applications where intermediate supports or gypsum board back blocking is provided behind and joints. Position boards so that like edge abuts, tapered edges against tapered ends. Do not place tapered edges against cut edges or ends. Stagger vertical joints over different studs on opposite sides of partitions.

e. Attach gypsum board to steel furring so that leading edge or end of each board is attached to open (unsupported) edge of stud flange first.

f. Attach gypsum board to supplementary framing and blocking provided for additional support at opening and cut outs.

g. Space fasteners in gypsum board in accordance with referenced gypsum board application and finishing standard and manufacturer's recommendations.

3.6 METHODS OF APPLICATION

a. General: Apply a joint treatment at gypsum board joints (both directions); penetrations; fastener heads, surface defects and elsewhere as required to prepare works for decoration.

b. Prefill open joints, using setting-type joint compound.

c. Apply joint tape at joints between gypsum boards, except where trim accessories are indicated.

d. Finish interior gypsum board by applying the following joint compounds in 3 coats (not including prefill of opening in bases), and sand between coats and after last coat.

d.1 Embedding and First Coat: Setting-Type Joint Compound.

d.2 Fill (second) Coat: Ready Mix drying-type all purpose or topping compound.

d.3 Finish (third) Coat: Ready Mix drying-type all purpose or topping compound.

e. Finish exterior gypsum soffit board by using setting type joint compounds to prefill joints, embed tape to apply first, full (second) and finish (third) coats; smooth each coat before joint compound hardens to minimize need for standing; sand between coat and after finish coat.

3.7 PROTECTION

Provide final protection and maintain conditions, in a manner suitable to installer, which ensures, gypsum board constructions being without damage or deterioration at time of substantial completion.

- End of Section -

DIVISION 6 : FINISHES

06220 : PORTLAND CEMENT PLASTER

PART 1- GENERAL

1.1 SCOPE

a. Furnish all materials and equipment and perform labor required to complete all plain cement plaster finish.

b. See drawings for details of Materials and Finishes.

1.2 DELIVERY AND STORAGE

Materials shall be delivered in their original containers bearing manufacturer's name and brand. Cement and lime shall be stored off the ground under watertight cover, and away from sweating walls and damp surfaces, until ready for use. Damaged or deteriorated materials shall be removed from the premises.

PART 2 - PRODUCT

2.1 PLAIN CEMENT PLASTER FINISH (SMOOTH)

a. Consisting of the scratch and finish coats, both consisting of one (1) part Portland cement and two (2) parts of clean, washed sand, measured by volume.

b. For all interior or exterior wall surfaces as called for in the Drawings and where plastering is essential to complete the work.

2.2 PLAIN CEMENT PLASTER FINISH (WITH DEEP OPEN GROOVE)

a. For Fire wall and others specified in the plan

PART 3 - EXECUTION

3.1 PLAIN CEMENT PLASTER FINISH

a. Provide all walls indicated with three coats of cement plaster (scratch coat and finish coat). Mix each coat in the proportion of one part Portland cement to three parts sand by volume.

b. Apply the scratch coat with sufficient material and pressure to ensure a good bond and then scratch to a rough surface. Dampen with water before applying brown coat. Apply brown coat one day after applying a scratch coat with a thickness of 10mm and level to flat even surface.

c. When stiff enough, trowel with wooden float and cross-hatch or broom lightly and evenly to secure a good mechanical bond for the finish coat. Wet the surface and keep from drying out at least three (3) days.

d. Apply finish coat seven (7) days after the application of brown coat. Provide thickness of 3mm (1/8"). Keep the finish coat not saturated for a period of seven (7) days.

3.2 CEMENT FINISH OF CONCRETE FLOORS ON FILL OR ON GROUND

a. Concrete floor without specific finish, and whenever so shown on plans as cement finish shall be given a wearing surface of 1:2 cement mortar 1 cm thick, apply immediately after the concrete has been placed before it has been set. The mortar shall be spread and troweled well to a smooth, even surface with sufficient slope for drainage where necessary. Straight V-grooves shall be placed where indicated on plans, in accordance with pattern shown, and the whole surface cured as specified. The construction joints of the concrete floors on fill shall coincide with the V-grooves to avoid formation of slightly construction cracks later.

b. Surfaces of concrete floor slabs and similar concrete surfaces exposed after removal of forms shall be kept moist for a period of at least seven (7) days by thoroughly wetting said surfaces 3 times a day. They shall be protected from falling debris and from the strong rays of the sun to avoid unsightly surface cracks caused by premature drying and hardening.

3.3 PATCHING

Upon completion of the building and when directed, all loose, cracked, damaged, or defective plastering shall be cut out and re-patch in a satisfactory and approved manner. All point-patching of plastered surfaces, and plaster work abutting or adjoining any other finish work, shall be done in a neat and workmanlike manner. Plaster droppings or splattering shall be removed from all surfaces. Exposed plastered surfaces shall be left in a clean unblemished condition ready to receive paint or other finish. Protective coverings shall be removed from floors, other surfaces, and all rubbish and debris shall be removed from the building. Finished plaster work which is defective and damaged or containing discoloration shall not be accepted and shall be removed and replaced with proper materials conforming to the requirement of the Specification and satisfactory to the Contracting Officer. The Contractor shall do all patching and troweling following the installation of plumbing, wiring and other necessary procedures.

- End of Section -

DIVISION 6 : FINISHES

06320 : GRANITE TILES

PART 1- GENERAL

1.1 SCOPE

a. Furnish all materials and equipment and perform labor required to complete all porcelain/granite tile works.

b. See drawings for details of Materials and Finishes.

1.2 DELIVERY AND STORAGE

Materials shall be delivered in their original containers bearing manufacturer's name and brand. Tiles shall be protected against wear and dampness.

1.3 MAINTENANCE TILE STOCK

As an additional requirement during turnover and prior to Final Turnover, the Contractor will endorse to the Owner 30 pcs. of each type/size/color and exact brand of tiles used within the Project with the end in view of providing stock which will flawlessly blend with the completed work in the event that the replacement of pieces should become necessary.

1.4 SUBMITTALS

Submit to the Owner sample of materials for approval prior to installation.

PART 2 - PRODUCT

2.1 GENERAL

The work shall not be started until the roughing-in for plumbing and electrical work has been completed and tested. The work of all other trades in the area where tile work is to be done shall be protected from damage in a skillfully manner and as directed.

2.2 CERAMIC TILE FINISH

2.2.1 Finish shall be clean, plumb and true to line.
2.2.2 For floor and baseboard areas requiring the finish.
2.2.3 Use Tile Grout and adhesive
2.2.4 Color same as the tile as approved by the Owner.
2.2.5 Use tile adhesive for installation. Submit actual samples for approval.

a. 600 x 600 mm -Polished Porcelain Granite Floor Tiles
-Color: as per Owner's approval
-Slip Resistance

b. 600 x 600 mm -Granite Floor Tiles
-Color: as per Owner's Approval
-Slip Resistance

2.3 MORTAR AND PLASTER WORKS

a. Use ADHESIVE MORTAR for laying porcelain granite tiles with DISPERSION COMPOUND as an additive to ADHESIVE MORTAR.

b. Use GROUT pre-mixed dry well filler for floor and wall tile joints. Color should be the same as the tiles, as approved by the Owner.

PART 3 - EXECUTION

3.1 APPLICATION OF WALL PLASTER

Tiles shall be installed over an even, plumb and firm substrate that is clean and free from deleterious substances.

3.2 FLOOR TILES INSTALLATION WITH TILE ADHESIVE

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

b. Keep tile joint parallel and straight over the entire area by using straight edges.

c. Lay tiles from centerline outward and make adjustment at walls. Keep the gap between tiles with 1.0mm-2.0mm.

3.3 GROUTING

a. Grout newly installed tiles after 24 hours of setting and curing. Prior to grouting, tiles and grout spaces shall be clean.

b. Using a rubber-faced float, spread the grout over the tiled surface, applying just enough pressure to fill the spaces between tiles.

c. After 5 minutes, apply a wet sponge until grout is flush with tile surface. Tool the filled joints with the sponge. Wipe remaining residue with a clean dry cloth.

d. Grouted areas may be opened to foot traffic after at least 24 hours of setting and curing. Apply grout sealers on the tile grouts after 24 hours to protect grout from discoloration.

3.4 CLEANING

Sponge and wash thoroughly with water after the grout have stiffened. Then clean by rubbing damp cloths or sponges and polish with clean dry cloth.

- End of Section -

DIVISION 07

(SPECIALTIES)

DIVISION 07 : SPECIALTIES

07800 : TOILET AND BATH ACCESSORIES

PART 1 - GENERAL

1.1 SCOPE

a. Furnish materials and equipment and perform labor required to complete toilet and bath accessories. See drawings and details for sizes, location, extent and other requirements.

1.2 SUBMITTALS

a. Submit in accordance with Section 01300, SAMPLES AND SHOP DRAWINGS.

b. Shop Drawings:

b.1. Paper towel dispenser and combination dispenser and disposal units.

b.2. Metal framed mirrors, showing shelf where required, fillers, and design and installation of units when installed on ceramic tile wainscots and offset surfaces.

b.3. Shower Curtain rods, showing required length for each location.

b.4. Grab bars, showing design and each different type of anchorage.

c. Samples:

c.1. One of each type of accessory specified.

c.2. After approval, samples may be used in the work.

d. Manufacturer's Literature and Data:

d.1. All accessories specified.

d.2. Show type of material, gages or metal thickness in inches, finishes, and when required, capacity of accessories.

d.3. Show working operations of spindle for toilet tissue dispensers.

e. Manufacturer's Certificates:

e.1. Anodized finish as specified.

1.3 QUALITY ASSURANCE

a. Each product shall meet, as a minimum, the requirements specified, and shall be a standard commercial product of a manufacturer regularly presently manufacturing items of type specified.

b. Each accessory type shall be the same and be made by the same manufacturer.

c. Each accessory shall be assembled to the greatest extent possible before delivery to the site.

d. Include additional features, which are not specifically prohibited by this specification, but which are a part of the manufacturer's standard commercial product.

e. Each mirror shall bear manufacturer's label identifying type, thickness and quality.

1.4 PACKAGING AND DELIVERY

a. Pack accessories individually to protect finish.

b. Deliver accessories to the project only when installation work in rooms is ready to receive them.

c. Deliver inserts and rough-in frames to site at appropriate time for building-in.

PART 2 - PRODUCTS

2.1 TOILET ACCESSORIES

a. Glass Mirrors: Of size noted on Room Elevations.

a.1. Glass: Unless noted otherwise on drawings, provide 1/4 inch (6 mm) polished plate glass, blue label, No. 1 quality, conforming to Commercial Standard CS 27.

a.2. Sealer: Mirror shall be hermetically sealed with a uniform coating of electro-plated copper protected by a coat of mineral oxide oil base paint.

a.3. Frame: 1/2-inch x 1/2-inch (13 mm x 13 mm) type 304 stainless steel channel frame, Frame shall have neatly mitered corners and a galvanized steel back plate. Surface mounted.

b. Towel Dispenser Combination Units: 22-gauge, type 304 stainless steel with No. 4 satin finish for 400 C-fold, 700 multi-fold, or 1,000 single fold paper towels, welded construction, seamless corners, burr-free edges. One-inch (25 mm) flange with 1/4-inch (6 mm) return. Doors shall have double-panel construction with full-length continuous hinges and tumbler locks. Towel dispenser shall have rolled edge.

c. Tissue Dispensers: Shelf-type, double-roll dispenser with shelf and ashtray, raised apron at rear. Rolled front edge and return bend on sides. Spring clip shall secure ashtray.

d. Grab Bars: Supply and install heavy-duty grab bars in toilet compartments where shown on the drawings. Mount with vandal resistant-stainless steel set screws with concealed mounting plate for mounting walls. Bars shall be as follows:

d.1. Straight, 1-1/2-inch OD, 18 gauge.

d.2. Type 304 stainless steel, satin finish

d.3. Side bar minimum 42 inches (1066 mm).

d.4. Back bar minimum 36 inches (914 mm).

d.5. Combination minimum 36 inches x 54 inches (914 mm x 1372 mm)

d.6. Capable of withstanding [300][500] pound ([140][225] kg) vertical loads.

e. Towel Dispensers: Surface-mounted chrome finished towel dispenser, 500 multi-fold or 300 C-fold capacity, 11 x 15-1/4 x 4 inches (280 x 384 x 102 mm).

f. Exposed Screws: One-way drive only.

2.3 FABRICATION

a. Shop Finishes: Metal shall be polished chrome or stainless steel.

2.4 LOCATION

Refer to Architectural plans and drawings.

PART 3 - EXECUTION

3.1 EXAMINATION

Verification of Conditions: Verify that interior finishes in affected rooms have been applied and approved prior to installing equipment. Verify that necessary mounting materials are present in such quantity as to provide complete individual installations.

3.2 INSTALLATION

Glass Mirrors: Cover edges of mirror with masking or friction tape prior to insertion in frame. Optional frame and attachment method may be a continuous clip member at top and bottom, fastened to wall, engaging fins on back of frame.

- End of Section -

DIVISION 7 : SPECIALTIES

07260 : WALLGUARDS AND CORNER GUARDS

PART 1 - GENERAL

1.1 SCOPE

This section specifies wall guards (crash rails or bumper guards), handrail/wall guard combinations, corner guards and door/door frame protectors.

1.2 DELIVERY AND STORAGE

a. Deliver materials to the site in original sealed packages or containers marked with the name and brand, or trademark of the manufacturer.

b. Protect from damage from handling and construction operations before, during and after installation.

c. Store in a dry environment of approximately 21° C (70 degrees F) for at least 48 hours prior to installation.

1.3 SUBMITTALS

a. Submit in accordance with Section 01300, SAMPLES AND SHOP DRAWINGS.

b. Shop Drawings: show design and installation details.

c. Manufacturer's Literature and Data:

c.1. Handrail/Wall Guard Combinations

c.2. Wall Guards

c.3. Corner Guards

d. Test Report: Showing that resilient material complies with specified fire and safety code requirements.

PART 2 - PRODUCTS

2.1 MATERIALS

a. Stainless Steel: ASTM A167, Type 302 or 304.

b. Aluminum Extruded: ASTM B221, Alloy 6063, Temper T5 or T6. Aluminum alloy used for colored anodizing coating shall be as required to produce specified color.

c. Resilient Material: Extruded and injection molded acrylic vinyl or extruded polyvinyl chloride meeting following requirements:

c.1. Minimum impact resistance of 1197 ps (25 ft lbs per sq.ft) when tested in accordance with ASTM D256 (Izod impact, ft.lbs. per inch notch).

c.2. Class 1 fire rating when tested in accordance with ASTM E84, having a maximum flame spread of 25 and a smoke developed rating of 450 or less.

c.3. Rated self-extinguishing when tested in accordance with ASTM D635.

c.4. Material shall be labeled and tested by Underwriters Laboratories or other approved independent testing laboratory.

c.5. Integral color with all colored components matched in accordance with SAE J 1545 to within plus or minus 1.0 on the CIE LCH scales.

c.6. Same finish on exposed surfaces.

2.2 CORNER GUARDS

a. Resilient, Shock-Absorbing Corner Guards

a.1 Snap-on corner guard formed from resilient material, minimum 2 mm (0.078-inch) thick, free floating on a continuous 1.6 mm (0.063-inch) thick extruded aluminum retainer. Provide appropriate mounting hardware, cushions and base plates as required.

a.2 Provide factory fabricated end closure caps at top and bottom of surface mounted corner guards.

a.3 Flush mounted corner guards installed on any fire rated wall shall maintain the fire rating of the wall. Provide fire test of proposed corner guard system to verify compliance.

a.3.1 Where insulating materials are an integral part of the corner guard system, the insulating materials shall be provided by the manufacturer of the corner guard system.

a.3.2 All exposed metal in fire rated assemblies shall have a paintable finish.

a.4 Stainless Steel Corner Guards: Fabricate of 1.6 mm (0.0625-inch) thick stainless steel. Form guards of dimensions and to contour shown.

2.3 WALL GUARDS AND HANDRAILS

a. Resilient Wall Guards and Handrails:

a.1 Handrail/Wall Guard Combination: Snap-on covers of resilient material, minimum 2 mm (0.078-inch) thick, shall be free-floated on a continuous, extruded aluminum retainer, minimum 1.8 mm (0.072-inch) thick, anchored to wall at maximum 760 mm (30 inches) on center.

a.2 Wall Guards (Crash Rails): Snap-on covers of resilient material, minimum 2.8 mm (0.110-inch) thick, shall be free-floated over 50 mm (two-inch) wide aluminum retainer clips, minimum 2.3 mm (0.090-inch) thick, anchored to wall at maximum 600 mm (24 inches) on center, supporting a continuous aluminum retainer, minimum 1.6 mm (0.062-inch) thick; or, shall be free-floated over a continuous extruded aluminum retainer, minimum 2.3 (0.090-inch) thick anchored to wall at maximum 600 mm (24 inches) on center.

a.3 Provide handrails and wall guards (crash rails) with prefabricated and closure caps, inside and outside corners, concealed splices, cushions, mounting hardware and other accessories as required. End caps and corners shall be field adjustable to assure close alignment with handrails and wall guards (crash rails). Screw or bolt closure caps to aluminum retainer.

b. Aluminum Wall Guards: Extruded aluminum, closed tubular bumper assembly mounted on wall brackets as shown.

b.1 Provide wall bumper with factory fabricated end closure caps, and inside and outside corner assemblies, concealed splice plates, and other accessories standard with the manufacturer.

b.2 Fabricate tubular wall guards from material with a nominal wall thickness of 6 mm (0.250-inch), form grooves for and provide two strips of continuous polyvinyl chloride cushion bumper inserts.

b.3 Fabricate adjustable wall brackets from aluminum having a nominal wall thickness of 5 mm (0.20-inch). Fasten bumper to brackets with 6 mm (1/4-inch) diameter aluminum or stainless-steel bolts with locknuts.

c. Stainless Steel Wall Guards: Construct wall guard, including brackets, of minimum 4.75 mm (0.1875-inch) thick stainless steel to design shown.

2.4 FASTENERS AND ANCHORS

a. Provide fasteners and anchors as required for each specific type of installation.

b. Where type, size, spacing or method of fastening is not shown or specified, submit shop drawings showing proposed installation details.

2.5 FINISH

a. In accordance with NAAMM AMP 500 series.

b. Aluminum

b.1 Exposed aluminum: Chemically etched medium matte with integrally colored anodic coating, Class II Architectural 0.4 mil thick.

b.2 Concealed aluminum: Mill finish as fabricated, uniform in color and free from surface blemishes.

c. Stainless Steel: NAAMM finish Number 4.

d. Resilient Material: Embossed texture and color in accordance with SAE J 1545 and as specified in INTERIOR/EXTERIOR FINISHES, MATERIALS, and FINISH SCHEDULES.

PART 3 - EXECUTION

3.1 RESILIENT CORNER GUARDS

Install corner guards on walls in accordance with manufacturer's instructions.

3.2 STAINLESS STEEL CORNER GUARDS

a. Mount guards on external corners of interior walls, partitions and columns

b. Where corner guards are installed on walls, partitions or columns finished with plaster or ceramic tile, anchor corner guards. Provide continuous 16 gage perforated, galvanized Z-shape steel anchors welded to back edges of corner guards and wired to metal studs. Expansion bolted to concrete or masonry with four 9.5 mm (3/8-inch) diameter bolts, spaced 400 mm (16 inches) on centers. Coat back surfaces of corner guards, where shown, with a non-flammable, sound deadening material. Corner guards shall overlap finish plaster surfaces.

b.1 Where corner guards are installed on exposed structural glazed facing tile units or masonry wall, partitions or columns. Anchor corner guards with four nominal 1.3 mm (0.0516-inch) thick, adjustable galvanized steel anchors, spaced as shown.

b.2 Where corner guards are installed on gypsum board, clean surface and anchor guards with a neoprene solvent-type contact adhesive specifically manufactured for use on gypsum board construction. Remove excess adhesive from around edge of guard and allow curing undisturbed for 24 hours.

3.3 RESILIENT HANDRAIL AND RESILIENT WALL GUARDS (CRASH RAIL)

Secure guards to walls with mounting cushions or brackets and fasteners in accordance with manufacturer's details and instructions.

3.4 WALL GUARD COMBINATIONS

Secure guards to walls with mounting cushions or brackets and fasteners in accordance with manufacturer's details and instructions.

3.5 ALUMINUM WALL GUARDS

Secure brackets to walls with fasteners, spaced in accordance with manufacturer's installation instructions.

3.6 STAINLESS STEEL WALL GUARDS

Space brackets at not more than three feet on centers and anchor to the wall in accordance with manufacturer's installation instructions.

PART 4 - MEASUREMENT AND RATES

4.1 GENERAL

The quantity shall be computed from the drawings and measurement and payment shall only be against the pay items contained in the Bill of Quantities.

The rates shall be full compensation for all plant, materials, labor, equipment, transport, temporary works, establishment charges, overhead and profit required to complete the work described in this Specification.

- End of Section -

DIVISION 08

(FURNISHING EQUIPMENT)

DIVISION 08 : FURNISHINGS

08100 : LOCATION SPECIIFED IN THE PLANS

PART 1 - GENERAL

1.1 SCOPE

a. This section specifies office, reception, multi-purpose room, faculty room, classroom and other location Specified in plan

b. See drawings and details for sizes, location, extent and other requirements.

1.2 DELIVERY AND STORAGE

a. Deliver materials to the site in original sealed packages or containers marked with the name and brand, or trademark of the manufacturer.

b. Protect from damage from handling and construction operations before, during and after installation.

c. Store in a dry environment of approximately 21° C (70 degrees F) for at least 48 hours prior to installation.

1.3 SUBMITTALS

a. Submit in accordance with Section 01300, SAMPLES AND SHOP DRAWINGS.

b. Shop Drawings:

b.1. Tables and chairs for multi-purpose Room
b.2. Tables and chairs and arm chair for classroom
b.3. Reception chair, and office chair
b.4. Other Location Specified in the Plan

c. Samples:

c.1. One of each type of accessory specified.

c.2. After approval, samples may be used in the work.

d. Manufacturer's Literature and Data:

d.1. All accessories specified.

d.2. Show type of material, gauges or metal thickness in inches, finishes, and when required, capacity of accessories.

d.3. Show working operations of spindle for toilet tissue dispensers.

PART 2 - PRODUCTS

2.1 TECHNICAL SPECIFICATIONS

1. To be approved by the Project Architect

2.2 QUALITY ASSURANCE

a. Each product shall meet, as a minimum, the requirements specified, and shall be a standard commercial product of a manufacturer regularly presently manufacturing items of type specified.

b. Each accessory type shall be the same and be made by the same manufacturer.

c. Each accessory shall be assembled to the greatest extent possible before delivery to the site.

d. Include additional features, which are not specifically prohibited by this specification, but which are a part of the manufacturer's standard commercial product.

e. Each mirror shall bear manufacturer's label identifying type, thickness and quality.

2.3 PACKAGING AND DELIVERY

a. Pack accessories individually to protect finish.

b. Deliver accessories to the project only when installation work in rooms is ready to receive them.

c. Deliver inserts and rough-in frames to site at appropriate time for building-in.

2.4 LOCATION

Refer to Architectural plans and drawings.

2.5 BRANDS/MANUFACTURERS

To be approved by the Project Architect

PART 3 - EXECUTION

3.1 EXAMINATION

Verification of Conditions: Verify that interior finishes in affected rooms have been applied and approved prior to installing equipment. Verify that necessary mounting materials are present in such quantity as to provide complete individual installations.

3.2 PROTECTION OF WORK

Cover all equipment, devices and apparatus to protect against dirt, water, chemical or mechanical damage, both before and after installation. Any equipment, devices or apparatus damaged prior to practical completion of the work shall be restored to its original condition, or replaced

- End -

DIVISION 09

(PLUMBING)

DIVISION 9 : PLUMBING

09400 : PLUMBING SYSTEM

PART 1 – GENERAL

1.1 GENERAL DESCRIPTION

The work to be done under this Division of the specifications shall be the supply of labor and materials, the complete system fabrication, including all materials incidental to the proper completion of the Plumbing Works specified herein and indicated in the drawings, except those portions of the work which are expressly stated to be done by others. All works shall be in accordance with the governing Codes and Regulations.

1.2 DRAWINGS SPECIFICATIONS

a. The contract drawings and specifications are complementary to each other and any labor and 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 shall be included.

b. All dimensions, location of fixtures, equipment, floor and roof drains, risers and pipe chase shall be verified on the architectural drawings and manufacturer's catalogue. Final position of equipment shall be approved first by the Architect and noted by the Construction Manager prior to final installation.

1.3 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 Construction Manager, Architect, the Engineer and the Owner.

1.4 SITE INVESTIGATION

The Contractor is required to visit the site and to ascertain himself as to the local conditions and facilities that may affect his work. He will be deemed to have done this before preparing his proposal and any subsequent claims on the ground of inadequate or inaccurate information will not be entertained.

1.5 SHOP DRAWING

The Contractor shall submit to the Construction Manager/Architect and the Engineer, for approval, four (4) copies of all shop drawings including all details and connection not shown on the drawings or deviation thereof but required for the work. The Contractor shall certify that the drawings have been checked for dimensions, materials, erection details and conform to the intent of the drawings and specifications.

1.6 **RECORD DRAWINGS**

2 The Contractor shall during the progress of work, keep a record of the actual installation from that shown on the contract drawings.

3 Upon completion of the work, the Contractor shall submit four (4) copies of the as-built drawings indicating the work as actually and finally installed.

1.7 **GUARANTEE**

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

1.8 **PERMITS**

The contractor shall be responsible for securing all the required construction and operation permits and pay all necessary fees thereof. Copies of all the permits, together with certificate of inspections shall be submitted to the Owner.

1.9 **CODES AND STANDARDS**

The work under this contract is to be installed with reference to the latest requirement of the following:

a. Philippine National Building Code

b. Regulation of Local Waterworks and Sewerage Authority

c. Uniform Plumbing Code (UPC)

d. Uniform Plumbing Code of the Philippines (UPCP)

e. American Society for Testing and Materials (ASTM)

f. American National Standard Institute (ANSI)

g. American Water Works Association (AWWA)

h. American Society of Plumbing Engineers (ASPE)

i. National Fire Protection Association (NFPA)

j. Underwriter's Laboratories (UL)

k. Factory Mutual (FM)

l. National Electrical Manufacturer's Association (NEMA)

1.1 PART 2 - MATERIALS

2.1 **QUALITY ASSURANCE**

All materials shall be used shall be new and shall conform with the reference codes and standards. Use of materials shall further be governed by other requirements, imposed on other sections of these specifications. Materials shall be subject to test necessary their fitness if so requires.

2.2 **ALTERNATE MATERIALS**

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

2.3 **IDENTIFICATION OF MATERIALS**

Each length of pipe, fittings, traps, fixtures and device used in the plumbing system shall be cast, stamped or indelibly marked on its manufacture trademark or name, the weight, type and classes or product when so required by the standard mentioned above.

2.4 **POLYVINYL CHLORIDE PIPING**

1. Type - Polyvinyl chloride (PVC), ASTM D - 2729
2. Minimum wall thickness - Series 1000, "Crown Pipes".
3. Joints - Bell and spigot
4. Fittings - Polyvinyl chloride
5. Pipe sealant - PVC cement
6. Application - Sanitary & vent piping, downspout and interior storm drainage piping.

2.5 **CONCRETE PIPING**

A. Type - Concrete pipes, ASTM C- 76

B. Minimum wall thickness - Plain concrete for 250 mm O/ and smaller pipes; Reinforced concrete for 300 mm O/ and bigger pipes, class IV.

C. Joints - Male and female groove

D. Pipe sealant - Cement grout

E. Application - Exterior storm drain piping

2.6 **WATER PIPING** – PPR PIPES PN-20 BY "Wexan".

FOR STEEL PIPE (submersible pumps discharge pipe).

i) Type - ERW, ASTM A - 120 or A – 53

ii) Minimum wall thickness - Schedule 40

iii) Joints - Threaded joints for pipe sizes 50 mm and smaller; Welded or flanged joints for pipe sizes 65 mm and bigger.

iv) Fittings - Malleable iron ASTM A-197 for threaded fittings and steel ASTM A-126 for flanged fittings.

v) Valves - Bronze, ASTM B- 62, 1035 KPA for 50 mm and smaller; all iron, bronze fitted, 1035 KPA for 65 mm and bigger.

vi) Application - Domestic cold water piping and hot water piping.

2.7 **DRAINS**

Cast iron body and bronze strainer top.

2.8 **PIPE SUPPORT**

a. Pipe support shall be fabricated with flat bar, round bar and angular bar of appropriate size.

b. Anchorage of pipe support on concrete slab or beam shall be expansion shields or it shall be directly fasten to structural steel member a shown on details or as required.

2.9 **PIPE SLEEVES**

2 Pipe sleeve shall be galvanized iron pipe, Sch. 40.

3 Sleeve shall have a minimum clearance of 25 mm around the pipe insulation, if any, and caulked with oakum and mastic sealant.

1.2 PART 3 - EQUIPMENT

1. QUALITY ASSURANCE

All equipment to be used shall be new and shall conform with the reference codes and standards. The manufacturer shall provide representatives for start - up supervision.

2. OPERATION & MAINTENANCE MANUAL
The manufacturer shall provide four (4) copies of operation & maintenance manuals, including spare parts list to the Owner.

(a) PART 4 – INSTALLATION

1.1 WORKMANSHIP

a. The work throughout shall be executed in the best and most thorough manner to the satisfaction of the Construction Manager/Architect and the Engineers, who will jointly interpret the meaning of the drawings and specifications and shall have power to reject any work and materials which in their judgment, are not in full accordance therewith.

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

c. All equipment shall be installed in accordance with the manufacturer's standard. Certificate of compliance by the manufacturer's representative shall be submitted to the Construction Manager.

1.2 EXCAVATING, PIPE LAYING AND BACKFILLING

a. Excavating

Trenches for all underground pipe lines shall be excavated to the required depths and grades.

Bell holes shall be provided so that the pipe shall rest on well-tamped solid ground for its entire length.

Where rock is encountered, excavation shall extend to depth 150 mm below the pipe bottom, and before pipe is laid, the space between the bottoms of pipe shall be filled with approved filling materials.

b. Pipe Laying

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.

Pipe shall not pass through columns, footings, beam of ribs, except where noted on the drawings.

Slopes of all sewage and storm drainage piping shall be maintained at 1% minimum unless otherwise noted or required.

c. Backfilling

After pipe lines have been tested, inspected and approved by the Construction Manager/Architect and prior to backfilling, all forms and bracing shall be removed and the excavation shall be cleaned from trash and debris.

Materials for backfilling shall consist of approved materials and shall be free of debris or big rocks.

Backfill shall be placed in horizontal layers, properly moistened and compacted to an optimum density that will prevent excessive settlement and shrinkage.

1.3 WATER PIPING

a. All piping shall be installed parallel to building line unless otherwise noted.

b. The piping shall be extended to all fixtures, outlets and equipment from the valve installed in each branch.

c. The piping system shall be installed with a fall toward a main shut-off valve and drains. Ends of pipes to fixtures shall be capped with pipe extension of 30 cm long.

d. All pipes embedded underground shall have at least two (2) coat of tar or carboline.

e. All hot water piping shall be insulated except those embedded in concrete or otherwise noted.

f. All water pipe connections to equipment shall be provided with gate valves and unions or flanges to provide easy access and maintenance.

g. Provide dielectric union for joining pipes of different materials.

1.4 CLEANOUTS AND TRAPS

a. Cleanouts - Cleanout shall be of the same size as the pipe. For pipes 100 mm and larger, use 100 mm cleanout. For outside the building cleanouts use Bronze metal cover.

b. Trap - 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.

1.5 FLOOR, WALL AND CEILING PLATES

Provide chromium plated metal plates of the same materials as the pipe for all exposed piping passes through floors, walls and ceilings.

1.6 SUPPORT, SLEEVES AND HANGER

a. Fixture Support

All fixtures and equipment shall be supported and fastened in a safe and satisfactory manner and should follow the standard details specified in the plans.

b. Pipe Sleeves

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.

c. Pipe Hangers, Supports & Inserts

Horizontal runs of pipe shall be hung with adjustable pipe hangers spaced not over 2.0 meters apart, except bell and spigot pipes which shall have hangers spaced not over 1.5 meters apart and located near the bell.

Trapeze hangers may be used in lieu of separate hangers on pipes running parallel to and close to each other.

Inserts shall be securely anchored and the anchor shall be properly slushed with mortar. Inserts shall be completely concealed when the fixtures are installed.

Vertical pipe riser shall be supported at every floor unless additional supports are required.

Provide isolation for pipe and hanger of different materials.

Provide auxiliary structural steel members required for supporting and anchoring of pipes and accessories.

1.7 CLEANING AND PAINTING

a. All Exposed Metal Surfaces

All exposed metal surfaces shall be rid of grease, dirt or other foreign materials.

All equipment, pipes, valves and fittings shall be cleaned of grease and sludge which may have accumulated. Any discoloration or other damage to the parts of the building, its finish or furnishings due to the Plumbing system installations shall be repaired by the Contractor.

b. Painting

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.

Pipe hangers supports and all other iron work in concealed spaces shall be thoroughly cleaned and painted with one coat of asphalt varnished.

All pipings shall be painted with one basecoat and two coats of enamel finish paints after cleaning. Color code shall be submitted to the Construction Manager, Engineer and Architect for approval prior to painting. Directional markers shall be spaced no more than 5.0M apart.

1.8 TESTING AND DISINFECTION

(1) Testing

Water line - Upon completion of the roughing in and before setting fixtures, the entire water piping system shall be tested at a hydrostatic pressure one and one half times the expected pressure in the system when in operation or 1034 KPA minimum, for at least 8 hours.

Others - Apply the water to the system either in its entirety or in sections after rough piping has been installed. If applied to the entire system, all openings in the piping shall be tightly closed, except the highest opening, and the system filled with water to point of overflow. Keep the water in the system or in the portion under test for at least twenty-four (24) hours during which time there shall be no drop greater than 100 mm.

Where a portion of the piping system is to be concealed before completion, this portion shall be tested separately in a manner similar to that described for the entire system.

(2) Disinfection

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

Chlorinating materials shall be liquid chlorine or hypochlorite and shall be introduced into to the waterlines in a manner approved by the Construction Manager /Architect and the Engineer.

The chlorine dosage shall be such as to provide no less than fifty (50) parts per million of available chlorine, following a contact period of not less than sixteen (16) hours, the heavily chlorinated water shall be flushed from the system with clean water until the residual chlorine content is no greater two tenth ppm.

1.9 PLUMBING FIXTURE AND TRIM

a. Flush Valve Water Closet

"Clarisse" 1.6 GPF Elongated Flush valve toilet with seat cover, model no. 2.01.3131 with Sloan GEM #111 with top spud

b. Urinals

"Eco Commodore" model no. 2.01.6601 with Sloan GEM #186 with top spud, outlet flange and bracket with screw

c. *Under-the-counter* Lavatory

"Melissa" model no. 2.01 1008 with U.S. P-TRAP 1 ¼ U.S. Angle valve/flexible hose

d. Soap Holder

"Symphony" model no. 2.01.9131

e. Toilet Paper Holder

"Symphony" model no. 2.01.9132

f. Single Hole Lavatory Faucet

"Tratto" model no. 7301.101.02, cast brass body zinc die cast handle full aerator pop-up drain

g. Exposed Bath and Shower Fitting

"Tratto" model no. 7306.601.02 cast brass body zinc die cast handle spray station flexible hose with hand-held spray

h. Metma 4" x 4" - For toilet drain slop sink kitchen floor drains and on M 200 DMB areas with floor drain as indicated on the plans brass plated floor drains.

END OF SECTION

DIVISION 10

(FIRE PROTECTION)

DIVISION 10 : FIRE PROTECTION

15967 : FIRE PROTECTION (EXTINGUISHING SYSTEM)

1.0 CLEAN AGENT FIRE EXTINGUISHING SYSTEMS

1.1. General

Gas Flooding Systems shall be installed in accordance to the latest edition of NFPA Standard on Clean Agent Fire Extinguishing Systems. Extinguishing agent shall be FM200 unless otherwise specified and shall be approved for use by the Relevant Authority. The systems shall be installed to operate automatically by means of a dual-circuit smoke detection system and manually by break-glass actuating stations. Each protected risk shall have an independent supply. The agent shall be stored in storage containers in locations shown on the drawings and connected to the discharge nozzles either directly or by fixed steel pipework.

1.2. Agent Supply

Agent supply will be of single types:

Modular systems for smaller zones.

Discharge time shall not exceed 10 seconds. An adjustable time delay up to 60 sec. shall be incorporated to allow for occupant evacuation upon actuation of the system before agent discharge. The actual setting of the delay time shall be determined during commissioning.

The Fire Extinguishing System shall be interfaced with the general fire alarm system, the process control systems, and ventilation/air conditioning systems as necessary.

1.3. Storage Containers

The containers shall be designed for holding the specified agent at ambient temperatures. The design pressure shall be suitable for the maximum pressure developed at 55°C or at controlled temperature limit. Containers shall be distinctly and permanently marked with the type and quantity of agent contained therein, together with the degree of super-pressurization. Containers shall also incorporate pressure gauges, accurately indicating the internal pressure. Where more than one container is required for a system, the quantity of agent in each container shall be identical. Each container shall be connected to the pipework or manifold by means of a flexible pipe connector. When Mani-folded, containers shall be adequately mounted and suitably supported in a rack designed for convenient individual servicing or content weighing. Automatic means shall be provided to prevent agent loss from the manifold if the system is operated when any containers are removed for maintenance. "Duo-mission" check valves or equal shall be fitted for this purpose.

1.4. Automatic Operation

Fire Detection and Actuation System

Fire detection and automatic system operation shall be by approved smoke detectors, wired in a dual circuit in each protected room, ceiling space and floor space. On

detection of fire/smoke in a risk, only the gas flooding agent in that particular risk shall be released.

On activation of the 1st detection circuit, the following events shall occur:

a) the 'Evacuate Area' signs and sounders in the risk shall be activated;

b) the alarm indicators at the gas flooding agent control panel and the Main Fire Alarm Indicator Panels shall be lit;

c) the alarm signal shall be transmitted to the Brigade via the Main Fire Alarm Panel

On activation of the 2nd detection circuit, the following events shall occur:
The evacuation alarm shall be activated;
a) The ventilating/air conditioning system shall be shut down;
b) The FM200 agent shall be discharged into the risk after the pre-set time delay.

1.5. Acceptance Test

A discharge test shall be conducted. Adequate quantity of agent to produce the desired concentration shall be provided.

2.0. PORTABLE FIRE EXTINGUISHERS

2.1. General

Provide fire extinguishers as indicated on the drawings. The extinguishers shall comply fully with latest edition of Standard for Use & Maintenance of Portable Fire Extinguishers & Specification for Portable Fire Extinguishers.

2.2. Installation

Extinguishers shall be installed at a height 1 meter above floor level. Each extinguisher shall be housed in glass fronted lockable cabinet with a key set in a 50mm by 50mm glass window on the cabinet. Mounting of extinguisher cabinet shall be done with proper bracket support. Submit sample for approval before installation.

2.3. Weight and Pressure Requirements

Ensure that the weight and pressure of all extinguishers are at the correct rating before start and end of Maintenance Period. Refill to required specifications where necessary. Submit copy of checklist witnessed by owner's representative during these periods.

3.0. ACCEPTABLE BRANDS

a. FM200
b. Viking
c. Kilfire

-End-

DIVISION 11

(ELECTRICAL)

DIVISION 11 : ELECTRICAL

1600 : GENERAL

PART 1 - GENERAL

1.1 SCOPE OF WORK

Work in this section shall cover the requirements for a complete electrical installation, including the furnishing of all labor, materials, equipment, tools, transportation, storage, incidentals and superintendence necessary to accomplish the electrical installation. The work includes, but not necessarily limited to, the installation of interior lighting and power system and such other work not mentioned in the plans or specifications but necessary to complete the Electrical system.

WORKS INCLUDED:

a. Furnish and install complete service entrance wires, conduits and circuit breakers.
b. Furnish and install complete feeder wires and conduits.
c. Furnish and install all panel boards, kilowatt-hour meters, and automatic and manual transfer switches.
d. Furnish and install complete wires and conduits for power outlet and lighting branch circuits.
e. Furnish and install all motor circuit breaker with enclosures.
f. Furnish and install complete wires and conduit for fire alarm system.
g. Furnish and install fire alarm control panel (FACP), all manual station and bell.
h. Application of power service at Meralco and assists the owner in preparing the necessary documents.
i. Securing wiring permits and certificate of electrical inspection (C.E.I.) at City/Municipal Electricians Office.
j. Furnish and installation of standby generator set.
k. Megger, Operational and balancing test for all circuits.

WORKS EXCLUDED:

Payment of any Meralco deposits.

1.2 QUALITY ASSURANCE

REFERENCE STANDARDS. Electrical equipment, materials and procedures shall conform to the applicable requirements of the latest edition of the following: Underwriter's Laboratories, (UL), National Fire Protection Association (NFPA), National Electrical Manufacturer's Association (NEMA) and other related publications.

WORKMANSHIP. All equipment and materials shall be installed in a neat and workmanlike manner.

QUALIFICATION OF INSTALLERS.

All leadmen should be at least registered master or licensed electricians and the overall installation shall be supervised by a Professional Electrical Engineer, who has been thoroughly trained and experienced in the skills required, and who is completely familiar with the methods of installation, must be present at all time during the installation. He shall direct all work performed under this section.

1.3 COMPLIANCE TO APPLICABLE CODES AND REGULATIONS.

Installation procedures, materials and equipment shall comply with the following as applicable:

a. Philippine Electrical Code.
b. National Electrical Safety Code, latest edition.
c. Power Company Regulations.
d. National Fire Protection Association
e. Bureau of Labour Standards.
f. Local laws and ordinances

REPAIRS TO DAMAGE EXISTING WORK.

Any damage to building, piping, or equipment caused by this work shall be repaired by skilled mechanics of the trades involved, at no additional cost to the Owner.

SUBMITTAL.

The contractor shall submit for approval one sample of each fixture, wires and wiring devices. For circuit breakers, boxes and panel boards, catalogues or brochures may be submitted.

RECORD DRAWINGS

The Contractor shall keep a careful record of all the changes made in the actual installation, which differs from that shown on the Contract Drawings. Upon completion, the Contractor shall, in a neat and accurate manner, finalize "AS BUILT" drawings on tracing paper. These drawings shall be submitted to the Construction Manager for approval. After approval, they shall become the property of the Owner. The print copies shall be duly signed and sealed by the Supervising Professional Electrical Engineer.

PART 2 - MATERIALS

2.1 LIGHTING FIXTURES AND LAMPS. The Contractor shall provide and install all lighting fixtures of the size and type as indicated on the drawings. All fixtures shall be wired and installed completely, including all lamps and/or tubes, transformers, ballasts, supports, brackets, canopies, globes and other parts and devices necessary for complete installation and operation. Brand shall be Philips, G.E or approved equal.

2.2 EMERGENCY LIGHTING FIXTURES. Emergency lighting should have built-in battery and shall be set in the staircases, passageways, elevator lobbies, entrances and in the areas indicated in contract drawings. Built-in battery supply time shall not be less than 90 minutes. Brand shall be Akari or approved equal.

2.3 FLUORESCENT FIXTURE UNIT shall be complete. The tube shall be accessible without removing the fixture. Fixture shall be direct connected to 220 volts system as shown.

Fluorescent fixture unit shall be built to the specification adopted by the certified ballasts manufacturer's approved by the Electrical Testing Laboratory with lowest sound rating with UL label. Ballasts shall be 220V rapid start high power factor series type "P" (0.95) p.f. Capacitive "A" sound rating. Ballasts manufactured by MAGNETEK are acceptable.

Fluorescent tubes shall be standard day light rapid start of wattage and quantity shown, manufactured by Philips, G.E or approved equal.

Fluorescent fixture housing shall be US gauge 22 sheet steel. Non-reflecting surfaces shall be powder coated finished.

2.4 WIRES AND CABLES for lighting and power requirements shall be approved by the Owner. Sizes of wires shall be as indicated, and shall pass the stringent quality requirements set by the Department of International Trade and Industry of U.S. and the Philippine standards, Underwriter's Laboratories, and the A.S.T.M..

All wires shall be copper, soft-drawn and annealed, shall be of ninety-nine (99%) conductivity, shall be smooth and true and of a cylindrical form and shall be within one percent (+/-1%) of the actual size called for.

Wires or cables for lighting and power systems shall be nylon jacketed, plastic insulated for 600 volt working pressure, type THHN/THWN unless otherwise noted on plans or specified below. All wires shall be stranded copper.

Control leads for motors or lighting shall be type THHN/THWN for lighting and power systems. No wire smaller than 3.5sq mm or as indicated shall be used, except for control leads.

Fire-rated cables shall be used for the firemen's lift (service elevator), fire pump and jockey pump feeders, including the fire detection and alarm system and can be used for cable insulation shall be fire-resistant 600 volts rated, halogen-free and low-smoke generation. Fire resistance of cables shall be type-tested at 3-hours at 950 degree Celsius.

2.5 CONDUIT for interior systems shall be Rigid Poly Vinyl Chloride (PVC) and Intermediate Metal Conduit (IMC).

No conduit shall be used in any system smaller than 15mm dia. electric trade sized, nor shall have more than four (4) ninety degree bends in any one run. If necessary, pull boxes shall be provided as directed.

No wire shall be pulled into any conduit until the conduit system is complete in all details; in the case of concealed work, until all rough plastering or masonry has been completed; in the case of exposed work, until the conduit has been completed in every detail. Schedule 40 PVC is acceptable in installations embedded in concrete wall partitions or concrete slab.

The ends of all conduits shall be tightly plugged to exclude plaster, dust and moisture while the building is in the process of construction. All conduits shall be reamed to remove all burrs.

All pipes and fittings on exposed work shall be secured by means of metal clips spaced at maximum of 1.5m which shall be held in place by means of a bolt. When running over concrete-surfaces, the bolt shall be held in place by dyna expansion shield. All pipes on exposed work shall run at right angles to and parallel with the surrounding walls and shall conform to the form of the ceiling, no diagonal runs shall be allowed and all ends and offsets shall be avoided as far as possible. Where necessary, conduit fittings shall be used. Piping, in all cases shall be run perfect straight and true, satisfactory to the Construction Manager/Electrical Engineer.

2.5 OUTLET BOXES AND FITTINGS

All outlets of whatever kind for all systems shall be provided with a suitable fitting which shall be either a box or other device specially designed to receive the type of fittings to be mounted thereon. The Contractor shall consult the Construction Manager/Engineer as to the nature of the various fittings to be used before installing his outlet fittings, to the nature of appliance to be a finished design. In the case of fixtures, their outlet fittings shall be provided with suitable fixture supports of a size and kind required by the fixture to be hung. Fixture studs in general shall be 10mm. At all outlets on concealed conduit work, provide galvanized pressed steel outlet boxes gauge No. 16 class A of standard make.

2.6 WALL SWITCHES shall be rated at 15 amperes, 250 volts, one-way. The type of switch shall be tumbler operation and the color, plating and appearance of wall plates shall be submitted prior to the purchase of wall switches and face plates.

2.7 JUNCTION AND PULL BOXES, of code gauge 16 steel, shall be provided for facilitating the pulling of wires and cables. Pull boxes in finished places shall be located installed with the permission and to the satisfaction of the Construction Manager/Architect/Engineer.

Pull boxes shall be fabricated with hinged-type, demountable and lockable covers. Knockouts shall be maintained for straight pull installation along two opposite side of the box only.

Pull boxes for straight pulls shall have the length of the box not less than forty-eight times the outside diameter, over sheath, of the largest shielded or lead covered conductor or entering the box. The length shall not be less than thirty-two times the outside diameter of the largest non-shielded conductor or cable.

2.8 WALL RECEPTACLES

Receptacle outlets shall be Universal for flush mounting duplex rated at 15 amp. 250 volts, parallel slots with grounding slot. Type and color of receptacle outlet plates shall be as selected by the Owner and appropriate samples of outlets and plates shall be submitted prior to purchase of devices.

2.9 CIRCUIT BREAKERS AND DISCONNECT SWITCHES shall consist of a quick-make, quick break type entirely trip-free operating mechanism, with contacts arc interrupter, and thermal-magnetic trip unit for each pole, all enclosed in a molded-phenolic case. The thermal magnetic trip unit shall provide time-delayed overload protection and instantaneous short circuit protection, and in case of overload or short circuit in any one pole. Circuit breaker shall be trip indicating, with the tripped position of breaker handle midway between "ON" and "OFF" positions. Circuit breakers shall be Schneider brand or

approved equal. All circuit breakers rated above 225 amperes shall have interchangeable trip units.

All protective devices shall meet NEMA and Underwriter's Laboratories, Inc., specifications.

Disconnecting switches shall be non-fusible and of sizes indicated on plans and be normal duty type, except as noted otherwise. Enclosures shall be NEMA-1 for indoor use and stainless steel, corrosion-proof NEMA-4X for outdoor use.

2.10 PANELS AND CABINETS

Standard panels and cabinets, as far as possible, shall be dead front construction furnished with trims for flush mounting as required. Cabinets shall be minimum code gage no. 14 steel with gutters at least 4-inch wide and wider if necessary. The trim for all panels shall be finished in light gray enamel (ANSI #61) or powder coated over a rust inhibitor. Manufacturer's shop drawings in triplicate shall be submitted. Only one brand of circuit breaker and fabricator shall be used for the entire requirements of project. Combinations of brand will be rejected.

220V lighting panels shall be equipped with 20A circuit breakers in the branch circuits and a three-pole circuit breaker in the main unless noted otherwise on plans. As indicated on plans the panels shall be assembled in two or more selection if over 24 two-pole circuits or 16 three pole circuits.

Distribution panels shall be of same type as lighting panels except equipped with two-pole and three-pole circuit breakers frame up of sizes called for on plans. Ground bus terminals shall be standard features to the panel, using compression type lugs for grounding wire connection with the ground bus. Bus bars shall 99.99% pure copper with regular cross sections. All bus bar connections shall be silver-plated. Ground bus shall be sized at 50% of the phase buses. Bars must be braced enough to withstand the expected fault current as indicated in the load schedules.

2.11 MOTORS

Provide proper size circuit breaker for all motors 15 meters away from the source panel board. Use motor nameplate data for selection of circuit breaker or rating shown on plans.

Provide an enclosure for circuit breaker motor protection NEMA 1 for general use and the equivalent of NEMA 3R for exterior or wet or damp locations.

2.12 GROUNDING AND BONDING EQUIPMENT.

Shall be in accordance with Article 250 N. E. C. as amended by the office of the Building Official (DPWH) or as shown on plans.

2.13 GROUNDING CONDUCTORS.

Size per Table 250.66 and Table 250.122, N. E. C. or as shown on the plan.

PART 3 - LOCATION OF WIRING AND OUTLETS

Outlets and wiring location shall be the responsibility of the Contractor to study all pertinent drawings and obtain precise information as to the exact location of all outlets, apparatus, appliances, and wiring to be installed. It shall be understood that any outlet *may be relocated on a distance not exceeding one meter from the location* shown on the drawings. Contractor shall make any necessary adjustment of his work to fit conditions for recessed fixtures and for outlets occurring in tiles, blocks, granite, marble, wood panelling, or other special finish materials in order that all boxes may register flush with finish and shall be centered properly. In centering outlets, due allowance shall be made for overhead piping, ducts, window, and door trim, variations in thickness of plastering, etc., as erected, regardless of conditions which may be otherwise shown on small scale drawings. Outlets incorrectly located shall be properly relocated at the Contractor's expense. Local switches near doors shall be located at the stride side of the door.

The center of wall outlets, socket-outlets, switches, telephone outlets, pilot lights, indicating lights and clock outlets shall be installed at heights above finished floor as indicated on the drawings. Where mounting heights are indicated on the Electrical Drawings, they shall be verified with Architect's drawings before installation.

PART 4 - INSTALLATION

4.1 CONDUIT INSTALLATION

Conduit installation shall be made with rigid poly vinyl chloride (PVC), conduit installed underground shall be encased in 75mm concrete.

Exposed conduit shall be Intermediate metal conduit (IMC) installed parallel with or at right to the building walls and ceilings and shall be supported by clamp and struts, U-bolt and hangers or bracket. Fastenings shall be by dyna bolts on concrete masonry; by machine screws, welded threaded studs, or spring tension clamps on steel work. Threaded studs driven in by a powder charge and provided with lock washers and nuts may be used in lieu of expansion bolts or machine or wood screws. Threaded C-clamps may be used on rigid steel conduit only. The load applied to fasteners shall not exceed 1/4 of the proof test load. Fasteners attached to concrete ceilings shall be vibration and shock resistant. Holes cut to a depth of more than 15mm in reinforced concrete beams or to a depth of more than 20mm in concrete joints shall not cut the main reinforcing bars. Holes not used shall be filled. In partitions of light steel construction, sheet-metal screws shall be used. In suspending-ceiling construction, conduit shall be run above the ceiling and only lighting system branch circuit raceways shall be fastened to the ceiling supports. Spring steel fasteners may be used for lighting branch circuit raceway supports in suspended ceilings in dry locations. Conduits shall be fastened to all sheet metal boxes and cabinets with two lock nuts where required by the National Electrical Code, where insulated bushings are used and where bushings cannot be brought into firm contact with the box. Locknuts shall be the type with sharp edges for digging into the wall of metal enclosures. Bushings shall be installed on the ends of all conduits and shall be of the insulating type where required by the National Electrical Code. (Exposed risers in wire shafts of multi-story buildings shall be supported by clamp and strut bar or approved fastener at each floor level and at intervals not to exceed 1.5 meters. Fittings for IMC conduit shall be of the same brand.)

Conduit installed in concrete floor slabs shall be located so as not to affect the structural integrity of the slabs. Conduit shall be installed within the middle one-third of the concrete slab except where necessary to not disturb the reinforcement. Outside diameter of conduit shall not exceed one-third of the slab thickness and conduits shall be

spaced not closer than three diameters except at cabinet locations. Curved portions of bends shall not be visible above the finish slab. Slab thickness shall be increased as necessary to provide a minimum one inch cover over conduit. Where embedded conduits cross expansion joints, suitable watertight expansion fittings and bonding jumpers shall be provided. Conduit larger than one inch trade size shall be parallel with or at right angles to the main reinforcement; when at right angles to the reinforcement, the conduit shall be close to one of the supports of the slab.

Conduits installed in contact with earth shall be Rigid PVC. PVC conduits shall be encased in 75mm concrete if run underground.

Changes in direction or runs shall be made with symmetrical bends or cast-metal fittings. Field made bends and of offset shall be made with a hickey or conduit-bending machine. Crushed or deformed raceways shall not be installed. Trapped raceways in damp or wet locations shall be avoided. Plaster dirt or trash shall be prevented from lodging in raceways, boxes, fittings and equipment during construction. Clogged raceways shall be freed on all obstructions.

4.2 BOXES, OUTLETS AND SUPPORT

Boxes shall be in the wiring or raceway systems wherever required for pulling of wires, making and mounting of devices or fixtures. Boxes shall be sheet steel. Each box shall have the volume required by the National Electrical Code for the number of conductors enclosed in the box. Boxes for mounting lighting fixtures shall be not less than 4 inches except that smaller boxes may be installed as required by fixture configuration as approved. Boxes installed for concealed wiring shall be provided with suitable extension rings or plaster covers, as required. Boxes for use in masonry block or tile walls shall be square cornered tile type, or standard boxes having square-cornered tile-type covers. Cast metal boxes installed in wet locations and boxes installed flush with the outside of exterior surfaces shall be gasketed. Separate boxes shall be provided for flush or recessed fixture when required by the fixture terminal operating temperature and fixtures shall be readily removable for access to the boxes unless ceiling access panels are provided. Boxes and pendants for surface-mounted fixtures or suspended ceilings shall be supported independently of the ceiling supports, or adequate provisions shall be made for distributing the load over the ceiling support members in an approved manner. Boxes and supports shall be fastened to wood with wood screws or screw-type nails of equal holding strength, with bolts and expansion shields on concrete or brick, with toggle bolts on hollow masonry units, and with machine screws or welded studs on steel work. Threaded studs driven in by powder charge and provided with lock washers and nuts, or nail-type nylon anchors may be used in lieu of wood screws, expansion shields, or machine screws. In open overhead spaces, cast boxes threaded to raceways need not be separately supported except where used for fixture support; cast metal boxes having thread less connectors and sheet metal boxes shall be supported directly from the building structure or by bar hangers. Where bar hangers are used, the bar shall be attached to raceway, which shall be supported with an approved type fastener not more than 20mm from the box. Penetration into reinforced concrete members shall avoid cutting any reinforcing steel.

Boxes of not less than the minimum size required by the Philippine Electrical Code shall be constructed of code gauge galvanized sheet steel. Boxes shall be furnished with screw-fastened covers. Where several feeders through a common pull box, the feeders

shall be tagged to indicate clearly the electrical characteristics, circuit number, and panel designation.

Conduit stubbed up through concrete floors for connections to free standing equipment shall be provided with a short elbow and an adjustable brass tap or coupling brass or bronze threaded for plugs, set flush with the finished floor. Wiring shall be extended in rigid threaded conduit to equipment, except that where required, flexible conduit may be used 150mm above the floor. Screw driver-operated threaded flush plugs shall be installed in conduit from which no equipment connections are made.

4.3 DEVICE PLATES OF THE ONE-PIECE TYPE be provided for all outlets and fittings to suit the devices installed. Plates on unfinished walls and on fittings shall be of modern type. Plates on finished walls shall be of same finish. Screws shall be of metal with countersunk heads, in a color to match the finish of the plate. Plate shall be installed with all four edges in continuous contact with finished wall surfaces without the use of mats or similar devices. Plaster filling will not be permitted. Plates shall be installed with an alignment tolerance of 1mm. The use of sectional type device plates will not be permitted. Plates installed in wet locations shall be gasketed

4.4 RECEPTACLES.

Single and duplex receptacles shall be rated 2-pole, 3-wire grounding type, 15 amperes, and 250 volts. Body shall be ivory moulded phenolic compound supported on a metal mounting strap. Receptacles shall be side and back-wired with screw type terminals. Exposed metal parts shall be corrosion resistant. The ground pole shall be connected to the mounting strap. Special purpose receptacles shall be rated as indicated.

4.5 TOGGLE SWITCHES shall be totally enclosed with bodies of moulded compound and a mounting strap. Handles shall be ivory. Wiring terminals shall be of the screw type, back or side wired. Switches shall be rated quiet type. AC only, 15 ampere, 250 volt. Switches shall be single poles unless otherwise indicated.

4.6 PANELBOARDS.

Lighting and appliance branch-circuit panel boards shall be circuit equipped, Type I, Class I. Circuit breakers shall be the rating, class painted.

4.7 GROUNDING AND BONDING.

All exposed non-current-carrying metallic parts of electrical equipment, metallic raceway systems, grounding conductor and neutral conductor of wiring systems shall be made at the main service equipment and shall be connected to grounding rods driven on the exterior of the building or to the point of entrance of the metallic water service. Connections to flanged pipes shall be made to the street side of the flanged connection. No connections shall be made to water pipes coated with insulating materials.

4.8 RECESSED FLUORESCENT FIXTURES.

Fixtures shall be installed in suspended ceiling opening as indicated. These fixtures shall have adjustable fittings to permit alignment with ceiling panels. Fixtures installed in fire-resistive type of suspended ceiling construction shall be provided with fireproofing boxes having materials of the same fire rating as the ceiling panels, in conformance with the Building Materials List of Underwriter's Laboratories, Inc.

4.9 FLEXIBLE CONNECTIONS of the short length shall be provided for equipment subject to vibration, noise transmission, or movement and for all motors. Liquid-tight flexible connections shall be provided as required.

4.10 EQUIPMENT CONNECTIONS.

All wiring for the connection of motors and control equipment shall be furnished and installed under this section of the specification, except as otherwise specifically noted or specified. Automatic-control wiring, signalling, and protective devices are not included in this section, but shall be furnished and installed under other sections of the specifications. Control wiring not shown on the electrical drawings shall be furnished.

PART 5 - TESTS

All wiring shall be tested for circuit continuity to assure that the wiring system is free of short circuit, accidental grounding or other defects prior to normal system operation by using megger test. Tests shall be performed after all wiring is completed, and again after fixtures and equipment are connected and ready for use.

After the Contractor has assured himself that the wiring systems are free of faults, the Contractor shall then energize the systems from their normal power sources and confirm that all systems are operational as required by the contract documents, prior to final inspection.

-End-

Technical Specifications

One 1 Lot Supply of Labor and Materials for the Construction of Three (3) Storey Eskwelahang Munti

CONFORME:

Authorized Signatory
Signature over printed name

Contact No:

Name of Company/Firm

Company's Official Email Address
(Where notices will be sent)

Company's Official Contact No.

Republic of the Philippines
PHILIPPINE CHILDREN'S MEDICAL CENTER
Bids and Awards Committee
Quezon Avenue, Quezon City 1100
924-6601 to 25 Website: www.pcmc.gov.ph email: hiss@pcmc.gov.ph

SECTION VII

Drawings

One (1) Lot Supply of Labor and Materials for the Construction of Three (3) Storey Eskwelahang Munti

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IB-2022-139

DRAWINGS

Name of Project: One (1) Lot Supply of Labor and Materials for the Construction of Three (3) Storey Eskwelahang Munti

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A-204	Rear Elevation
A-301	Longitudinal Section
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A-401	Door Schedule
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A-503	G-2F Male Toilet: Blow Up Plan Reflected Ceiling Plan
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A-509	3F Female Toilet: Blow up Plan; Reflected Ceiling Plan
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DRAWINGS

Name of Project: One (1) Lot Supply of Labor and Materials for the Construction of Three (3) Storey Eskwelahang Munti

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S-113	Roof Beam Elevation Details Beam Section Details
S-114	Roof Beam Elevation Details Beam Section Details
S-115	Third Floor Beam Plan Layout Beam Elevation Details
S-116	Staicase Details
S-117	Staicase Beam Elevation Details Beam Section Detail

DRAWINGS

Name of Project: One (1) Lot Supply of Labor and Materials for the Construction of Three (3) Storey Eskwelahang Munti

SHEET NO.	SHEETS CONTENTS
S-201	Ground Floor Slab Plan Layout Bent-up Reinforcement
S-202	Second Floor Bent-up Reinforcement Slab Plan Layout
S-203	Third Floor Slab Plan Layout Bent-Up Reinforcement
S-204	Column Elevation Detail
A-301	Column Schedule
A-302	Column Schedule Details
S-303	Column Elevation Detail
S-304	Column Elevation Detail
S-305	Column Elevation Detail
S-306	Column Elevation Detail
S-307	Column Elevation Detail
S-308	Column Elevation Detail
S-309	Column Elevation Detail
S-310	Column Elevation Detail
E-101	Schedule of Loads
E-102	Ground Floor Lighting Layout
E-103	Second Floor Lighting Layout
E-104	Third Floor Lighting Layout
E-201	Ground Floor Power Layout
E-202	Second Floor Power Layout
E-203	Third Floor Power Layout
E-301	Ground Floor Auxiliary Layout
E-302	Second Floor Auxiliary Layout
E-303	Third Floor Auxiliary Layout
P-101	Ground Floor Sanitary Layout

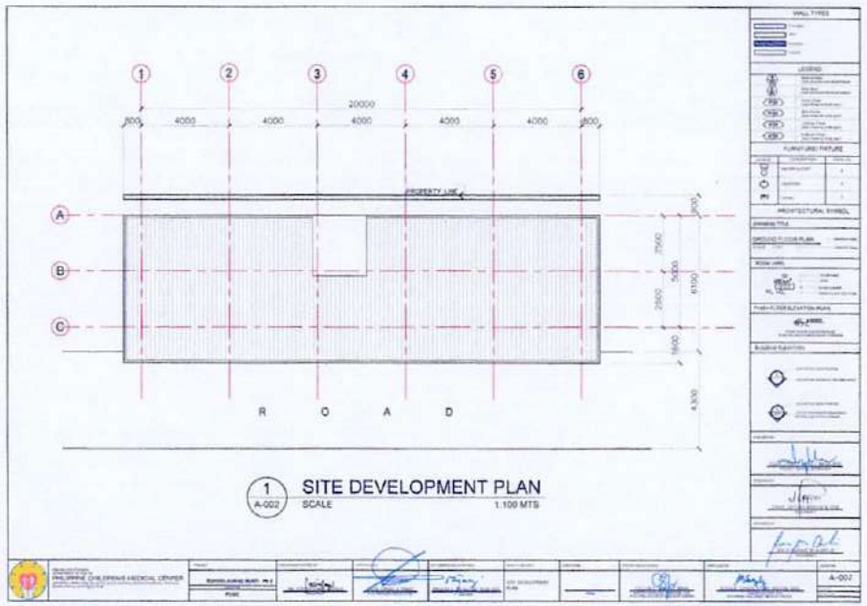
DRAWINGS

Name of Project: One (1) Lot Supply of Labor and Materials for the Construction of Three (3) Storey Eskwelahang Munti

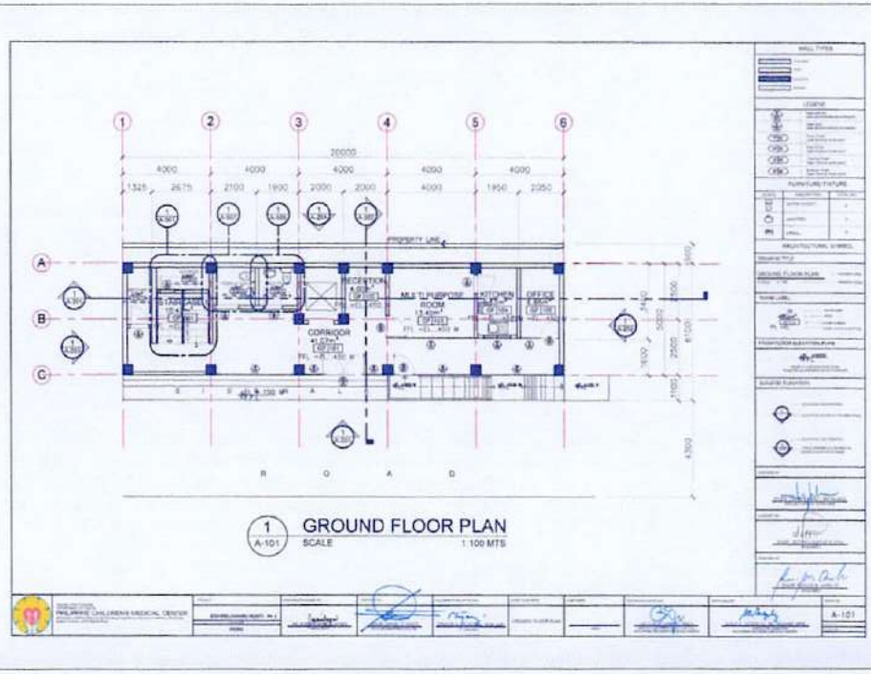
SHEET NO.	SHEETS CONTENTS
P-102	Second Floor Sanitary Layout
P-103	Third Floor Sanitary Layout
P-201	Ground Floor Waterline Layout
P-202	Second Floor Waterline Layout
P-203	Third Floor Waterline Layout
P-301	Ground Floor Storm Drainage Layout
P-302	Second Floor Storm Drainage Layout
P-303	Third Floor Storm Drainage Layout
P-304	Roof Plan Storm Drainage Layout
M-101	Ground Floor Mechanical Layout
M-102	Second Floor Mechanical Layout
M-103	Third Floor Mechanical Layout
M-201	Ground Floor Fire Protection Layout
M-202	Second Floor Fire Protection Layout
M-203	Third Floor Fire Protection Layout

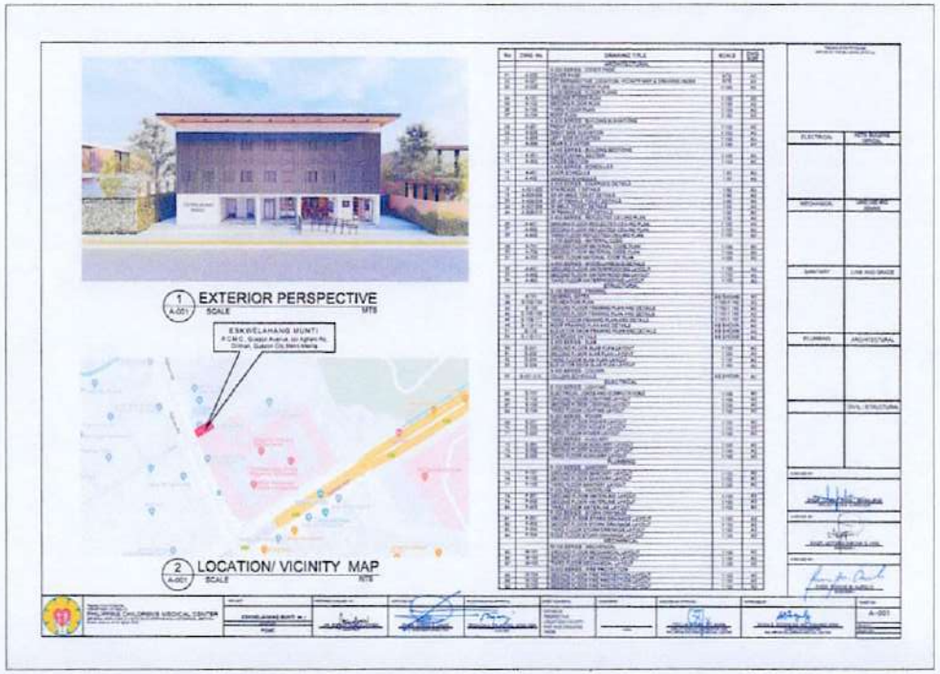
Signature over printed name of Bidder's Authorized Representative

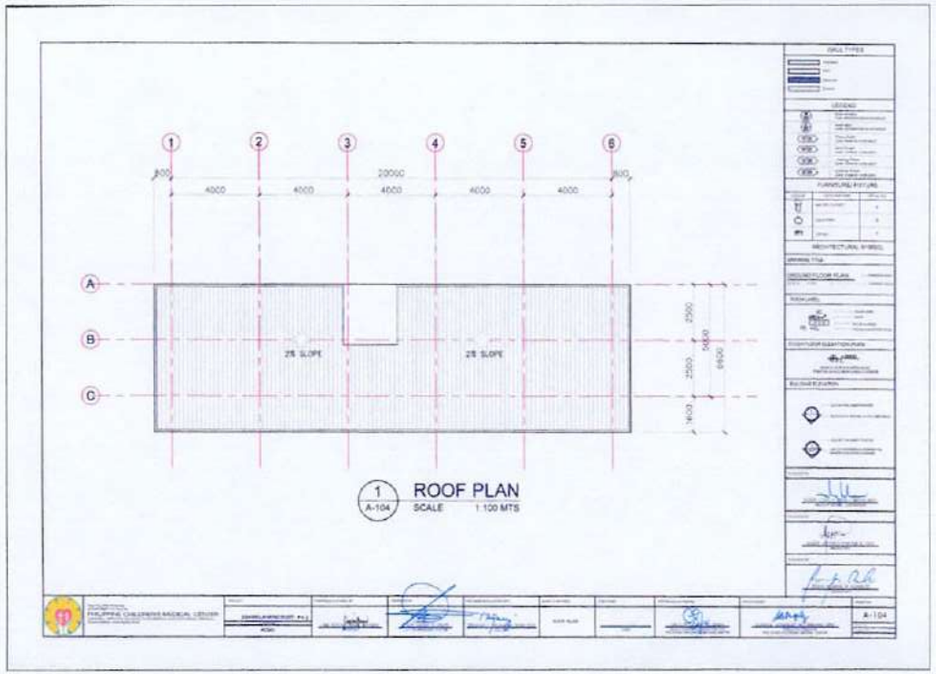
Name of Company


1
2
3
4
5
6
20000
4000
4000
4000
4000
4000
800
800
PROPERTY LINE
A
B
C
R O A D
WALL TYPES
LEGEND
FURNITURE/FIXTURE
ARCHITECTURAL SYMBOL
GROUND FLOOR PLAN
ROOM LIST
FIRST FLOOR ELEVATION PLAN
SECTION ELEVATION PLAN
1
A-002
SITE DEVELOPMENT PLAN
SCALE
1:100 MTS
PHILIPPINE CHILDREN'S MEDICAL CENTER
A-002

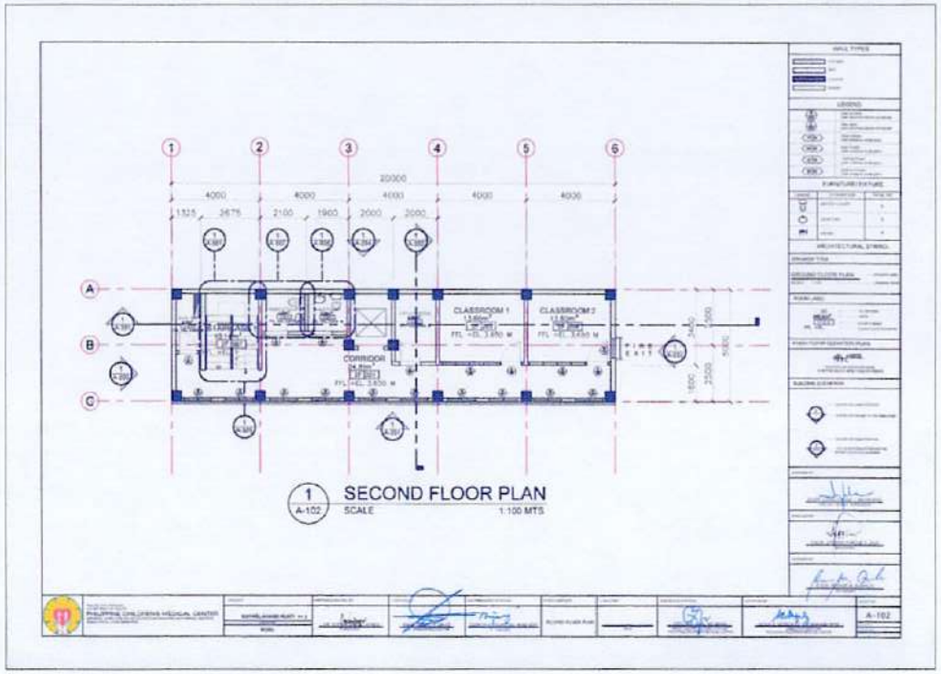

ESKWELAHANG MUNTI
ESKWELAHANG MUNTI- PHASE 1
PHILIPPINE CHILDREN'S MEDICAL HOSPITAL
QUEZON AVENUE, COR ACHAM RD, DILIMAN, QUEZON CITY, METRO MANILA


1
2
3
4
5
6
20000
4000
4000
4000
4000
4000
1325
2675
2100
1900
2000
2000
4000
1950
2050
PROPERTY LINE
A
B
C
CORRIDOR
RECEPTION AREA
MULTIPURPOSE ROOM
KITCHEN
DRESS ROOM
R O A D
WALL TYPES
LEGEND
FURNITURE/FIXTURE
ARCHITECTURAL SYMBOL
GROUND FLOOR PLAN
ROOM LIST
FIRST FLOOR ELEVATION PLAN
SECTION ELEVATION PLAN
1
A-101
GROUND FLOOR PLAN
SCALE
1:100 MTS
PHILIPPINE CHILDREN'S MEDICAL CENTER
A-101

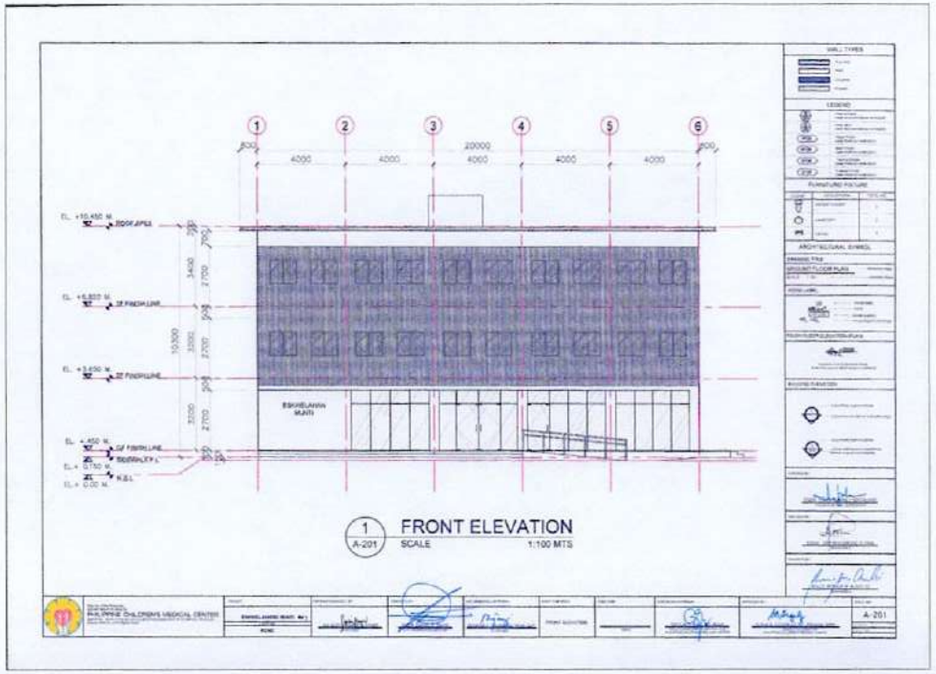

1
A-001
EXTERIOR PERSPECTIVE
SCALE
MTS
ESKWELAHANG MUNTI
2
A-001
LOCATION/ VICINITY MAP
SCALE
NTS
PHILIPPINE CHILDREN'S MEDICAL CENTER



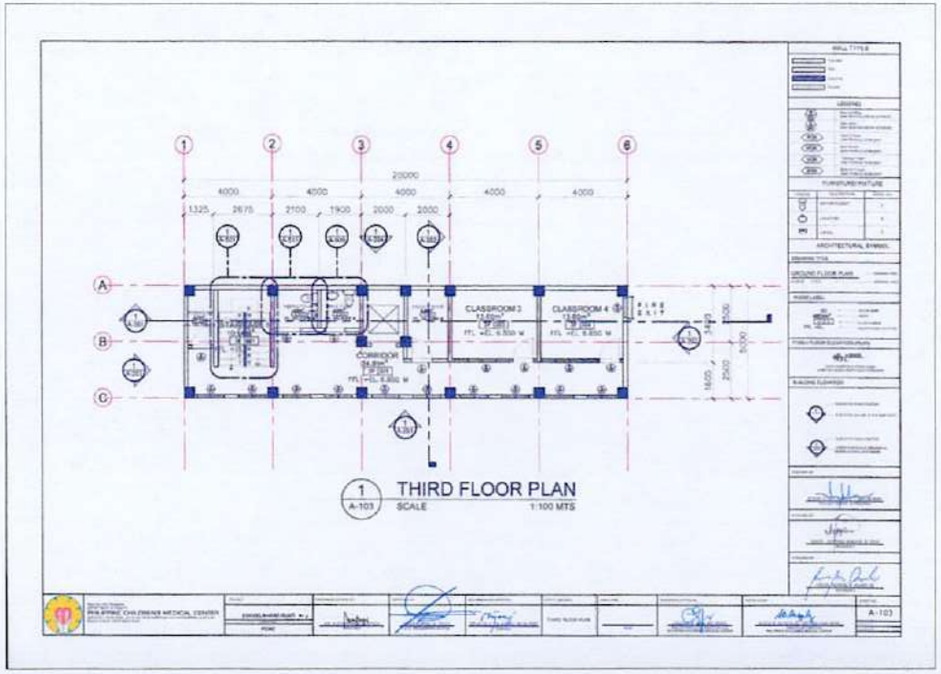
1 A-104 ROOF PLAN
SCALE 1:100 MTS



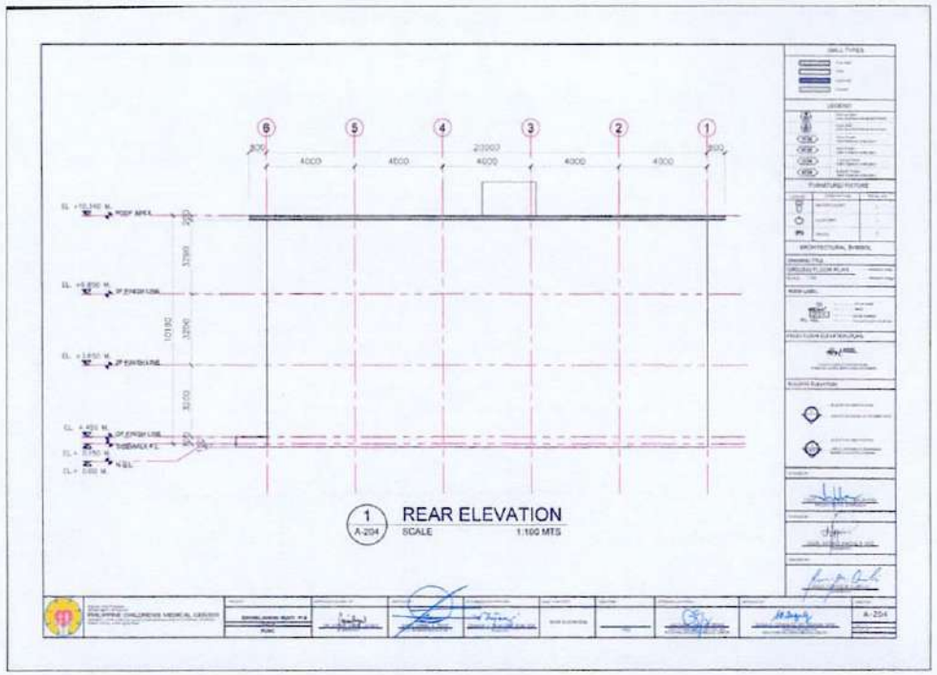
1 A-102 SECOND FLOOR PLAN
SCALE 1:100 MTS

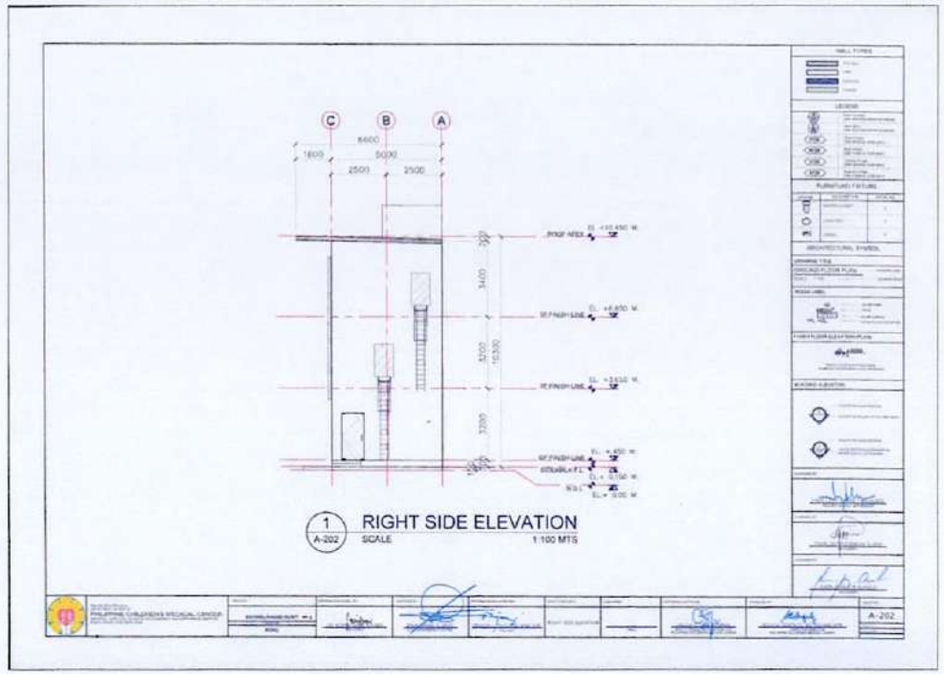


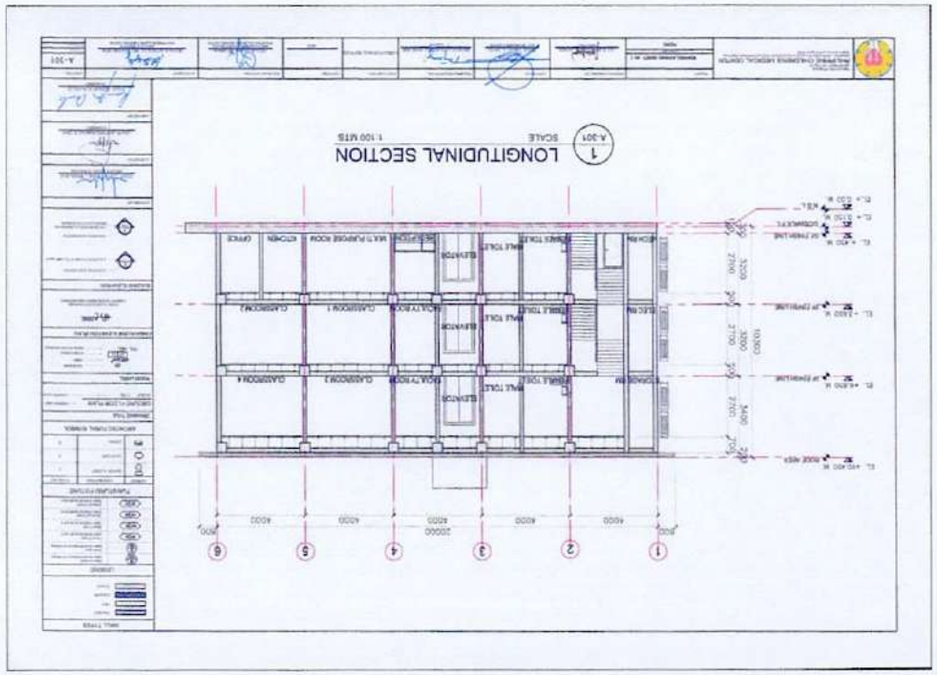
1 A-201 FRONT ELEVATION
SCALE 1:100 MTS

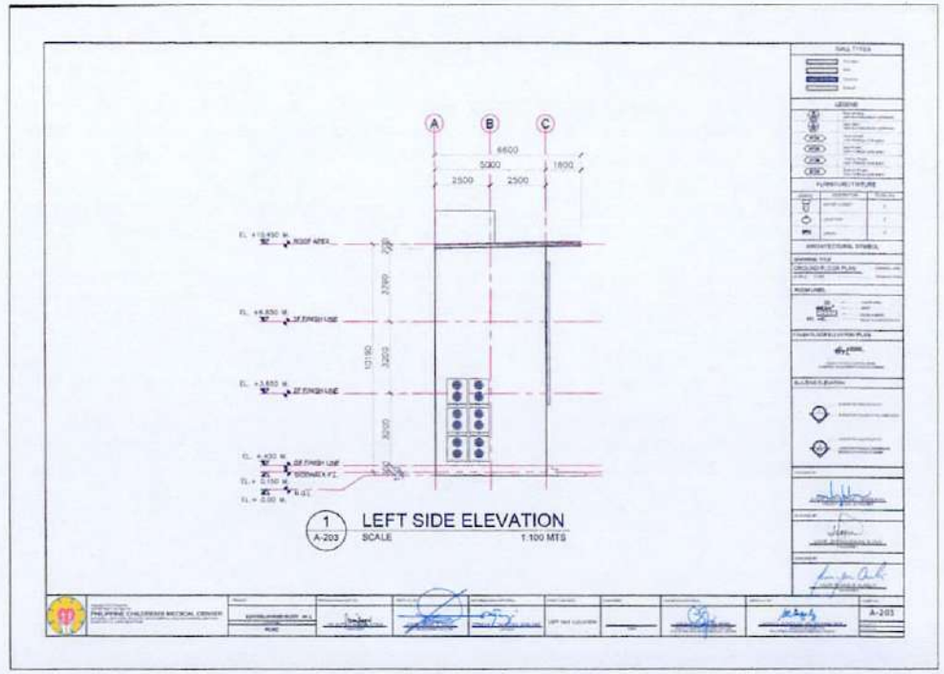


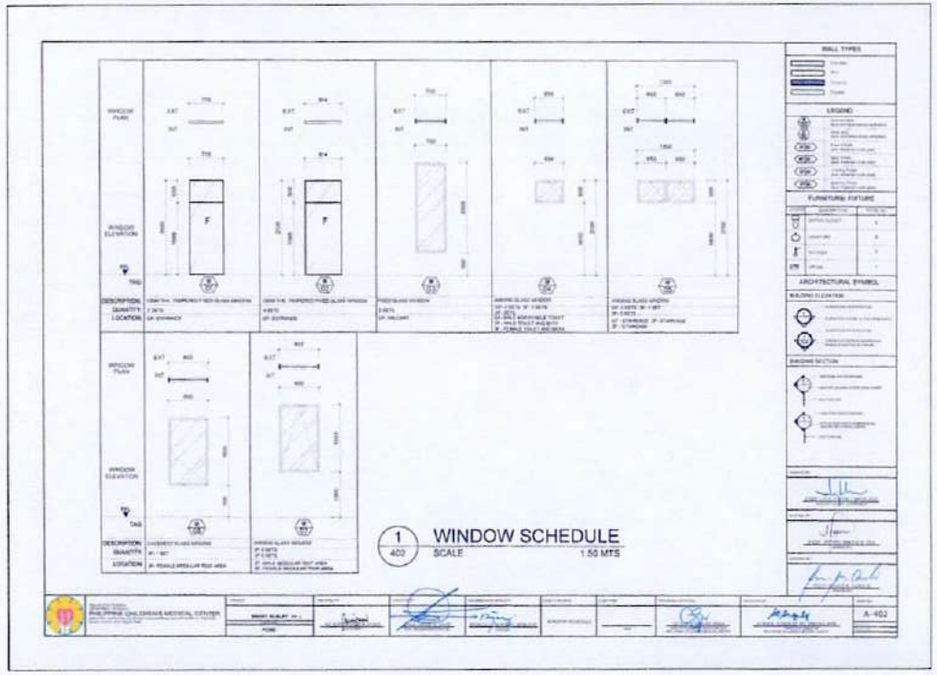
1 A-103 THIRD FLOOR PLAN
SCALE 1:100 MTS

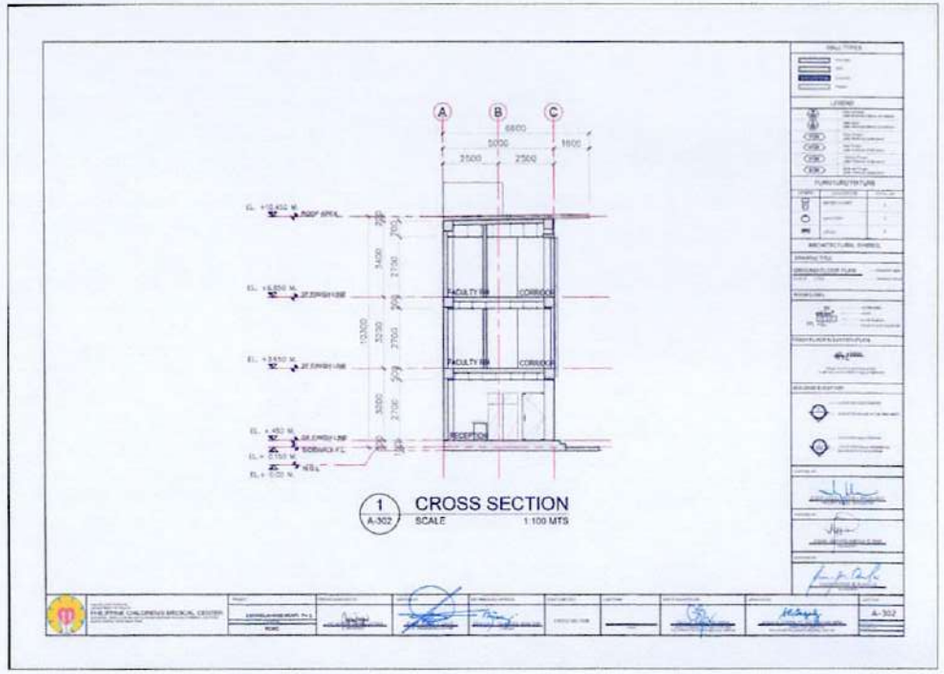

REAR ELEVATION
SCALE 1:100 MTS

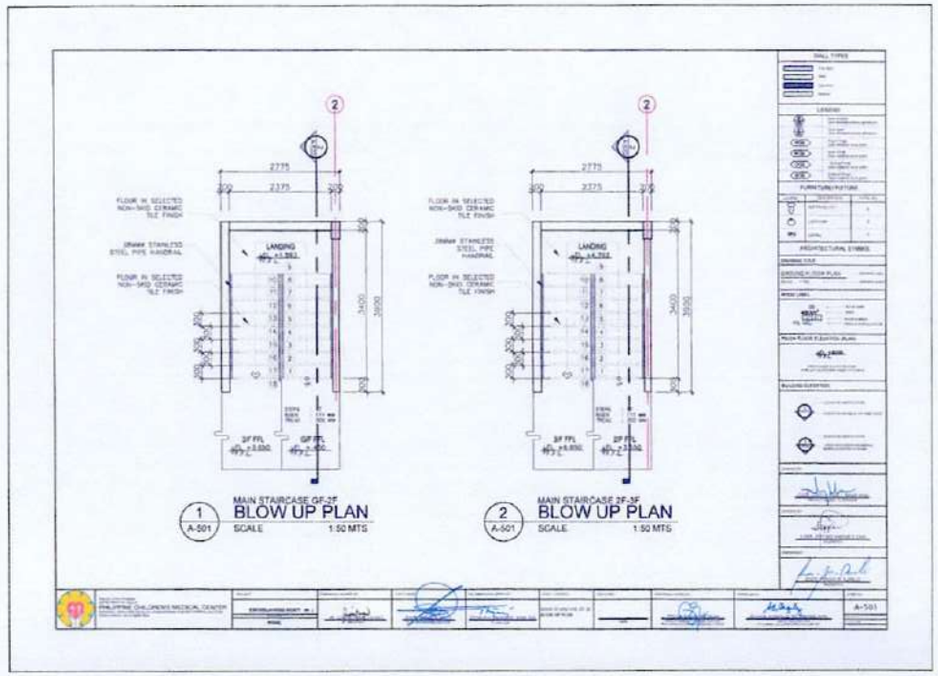

RIGHT SIDE ELEVATION
SCALE 1:100 MTS

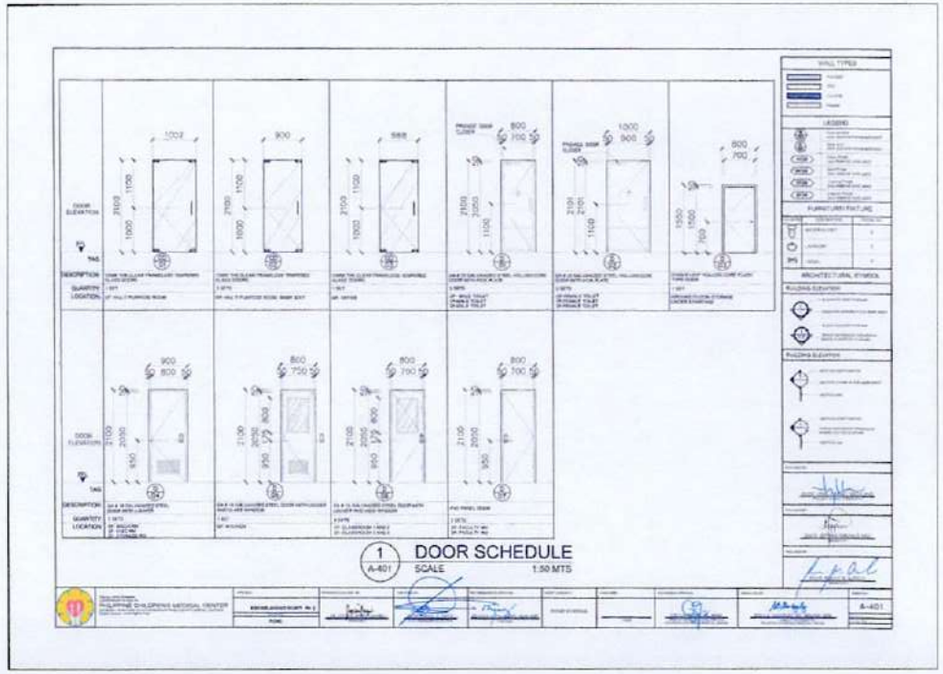

LONGITUDINAL SECTION
SCALE 1:100 MTS

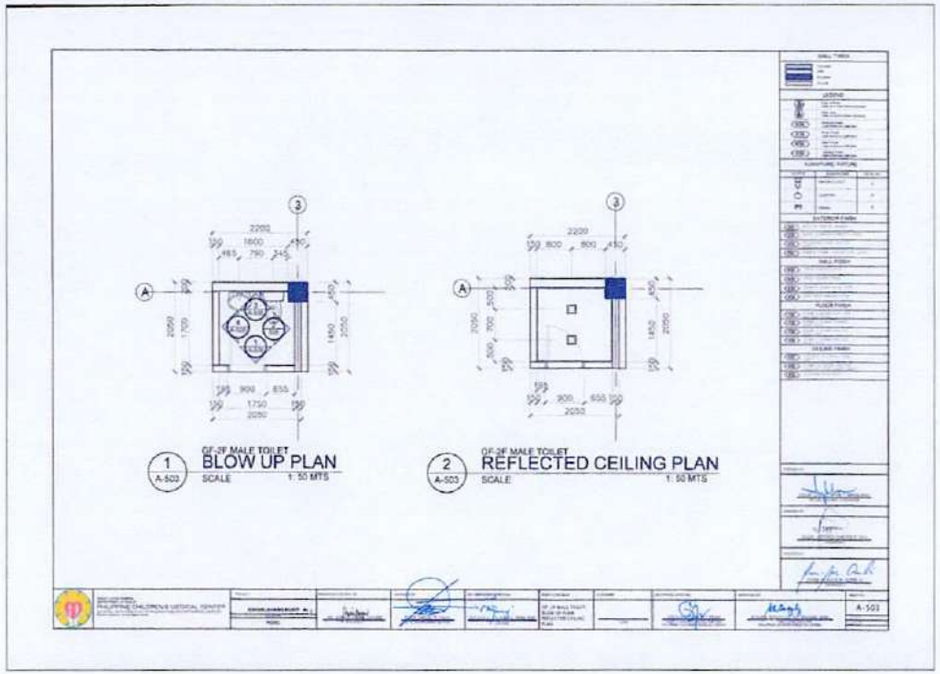

LEFT SIDE ELEVATION
SCALE 1:100 MTS

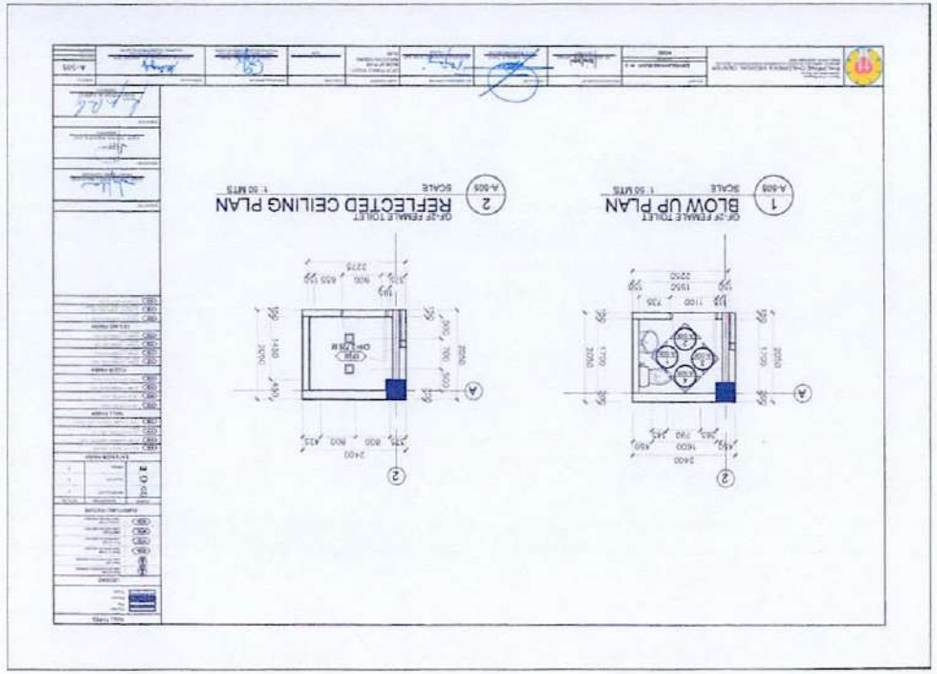

1
402
WINDOW SCHEDULE
SCALE 1:50 MTS
A-402

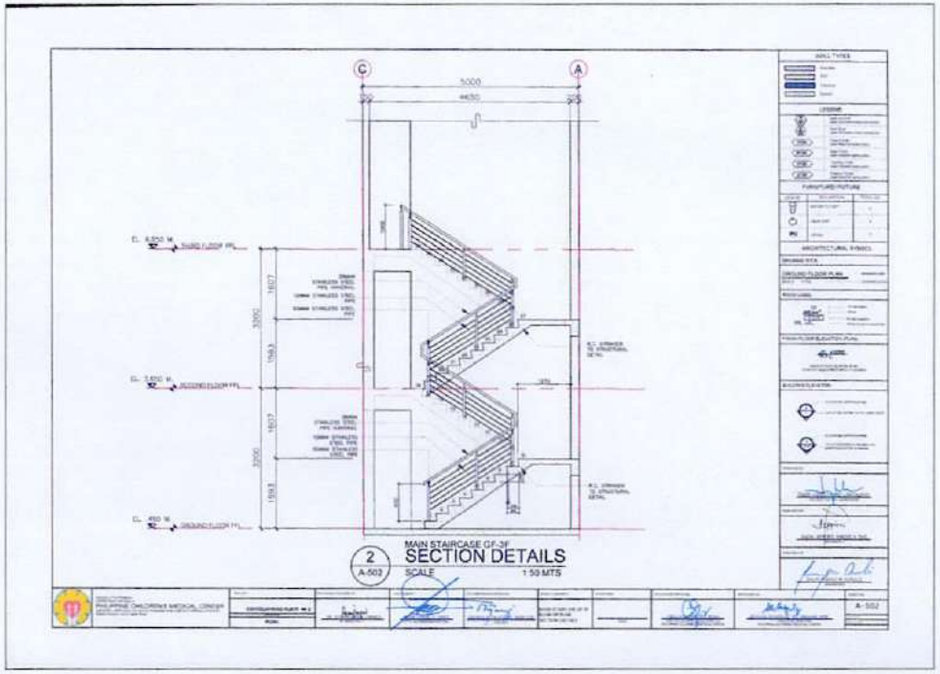

A
B
C
6800
5000
1800
2500
2500
FACULTY RM
CORRIDOR
RECEPTION
1
A-302
CROSS SECTION
SCALE 1:100 MTS
A-302

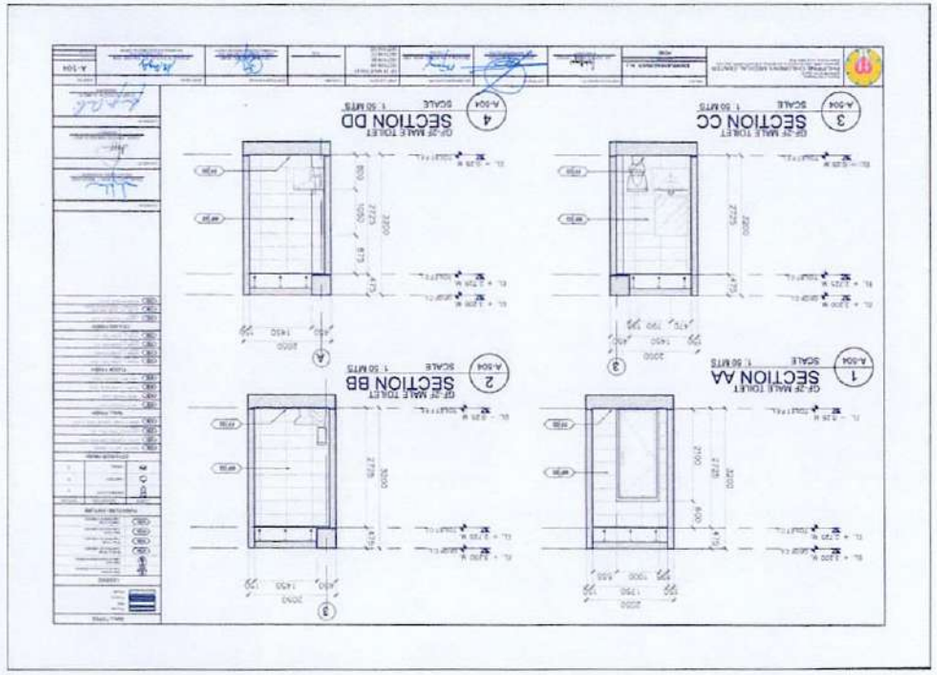

2
2775
2375
LANDING
3F FFL
GF FFL
1
A-501
MAIN STAIRCASE GF-2F
BLOW UP PLAN
SCALE 1:50 MTS
2
A-501
MAIN STAIRCASE 2F-3F
BLOW UP PLAN
SCALE 1:50 MTS
A-501


1
A-401
DOOR SCHEDULE
SCALE 1:50 MTS
A-401


GF-2F MALE TOILET
BLOW UP PLAN
SCALE 1: 50 MTS
GF-2F MALE TOILET
REFLECTED CEILING PLAN
SCALE 1: 50 MTS


GF-2F FEMALE TOILET
BLOW UP PLAN
SCALE 1: 50 MTS
GF-2F FEMALE TOILET
REFLECTED CEILING PLAN
SCALE 1: 50 MTS


MAIN STAIRCASE GF-3F
SECTION DETAILS
SCALE 1:50 MTS

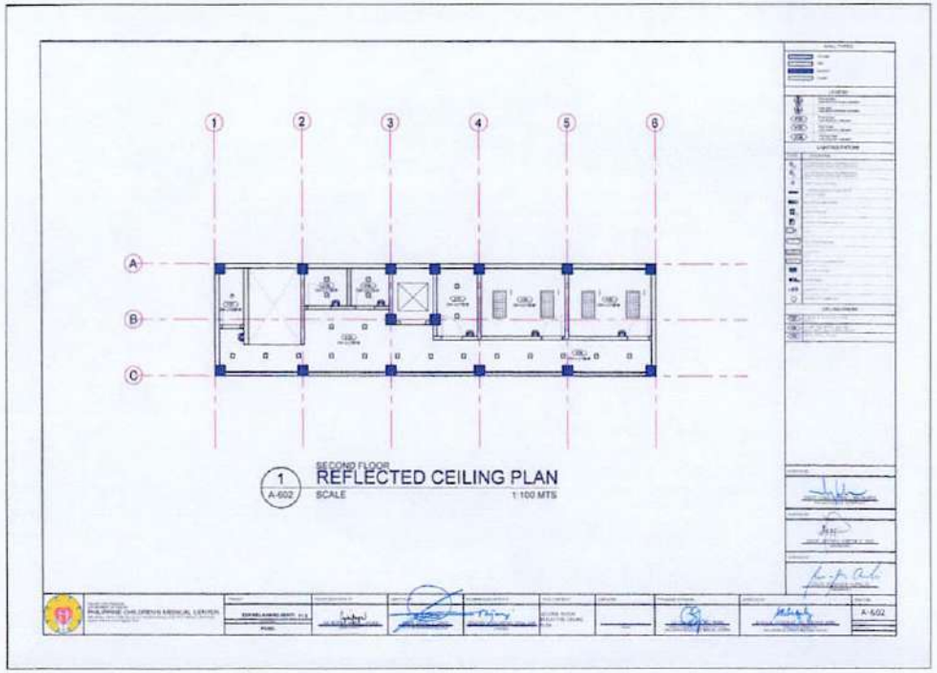

GF-2F MALE TOILET
SECTION AA
SCALE 1: 50 MTS
GF-2F MALE TOILET
SECTION BB
SCALE 1: 50 MTS
GF-2F MALE TOILET
SECTION CC
SCALE 1: 50 MTS
GF-2F MALE TOILET
SECTION DD
SCALE 1: 50 MTS

3F MALE TOILET
BLOW UP PLAN
SCALE 1: 50 MTS
3F MALE TOILET
REFLECTED CEILING PLAN
SCALE 1: 50 MTS

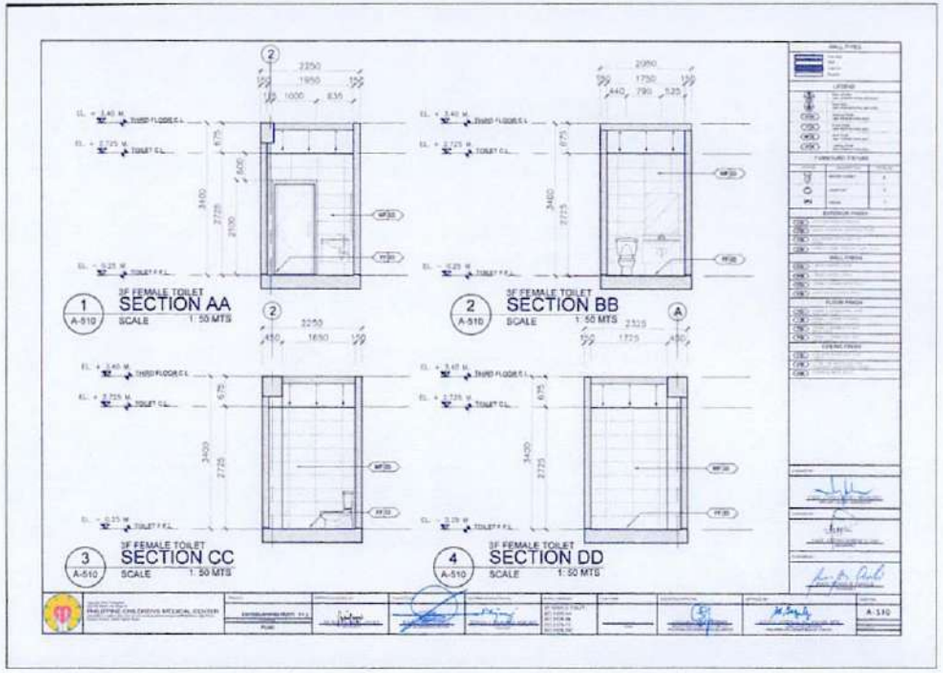
3F FEMALE TOILET
BLOW UP PLAN
SCALE 1: 50 MTS
3F FEMALE TOILET
REFLECTED CEILING PLAN
SCALE 1: 50 MTS

GF OF FEMALE TOILET
SECTION AA
SCALE 1: 50 MTS
GF OF FEMALE TOILET
SECTION CC
SCALE 1: 50 MTS
GF OF FEMALE TOILET
SECTION BB
SCALE 1: 50 MTS
GF OF FEMALE TOILET
SECTION DD
SCALE 1: 50 MTS

3F MALE TOILET
SECTION AA
SCALE 1: 50 MTS
3F MALE TOILET
SECTION BB
SCALE 1: 50 MTS
3F MALE TOILET
SECTION CC
SCALE 1: 50 MTS
3F MALE TOILET
SECTION DD
SCALE 1: 50 MTS



1 A-602 SECOND FLOOR REFLECTED CEILING PLAN
SCALE 1:100 MTS

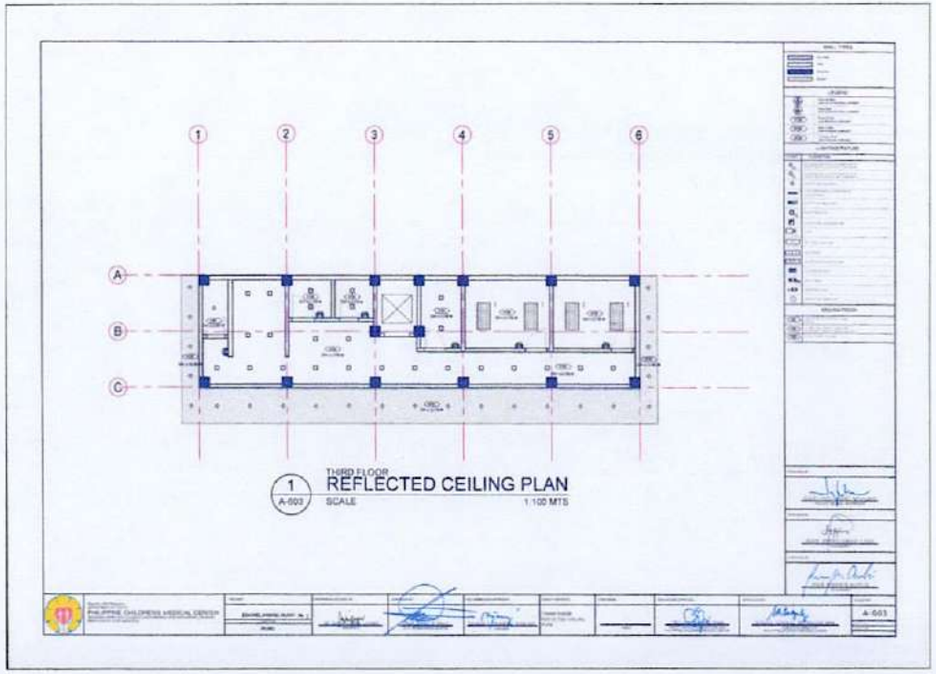


1 A-510 3F FEMALE TOILET SECTION AA
SCALE 1:50 MTS

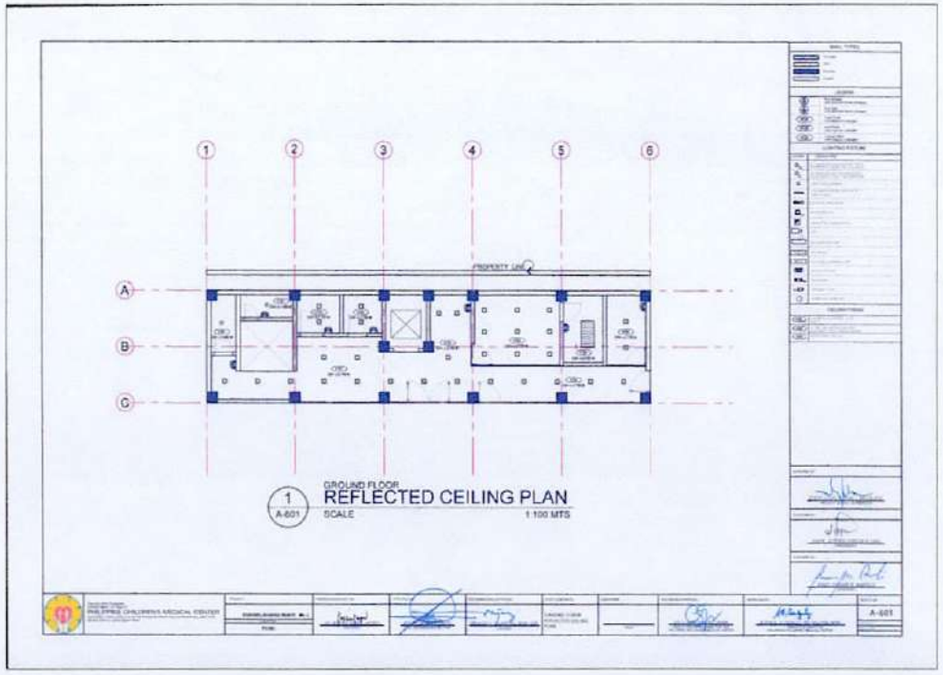
2 A-510 3F FEMALE TOILET SECTION BB
SCALE 1:50 MTS

3 A-510 3F FEMALE TOILET SECTION CC
SCALE 1:50 MTS

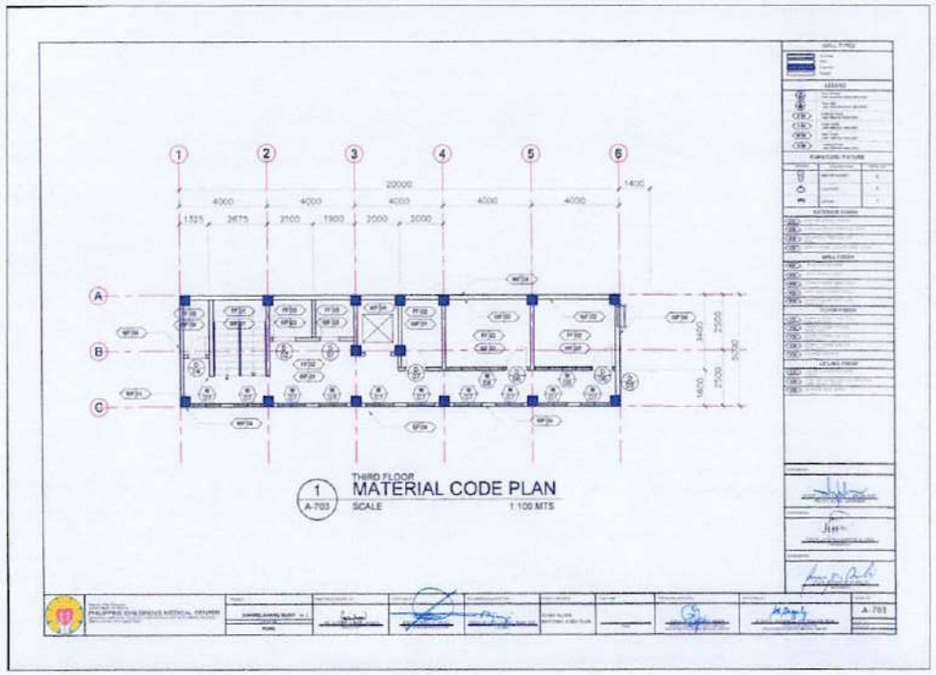
4 A-510 3F FEMALE TOILET SECTION DD
SCALE 1:50 MTS

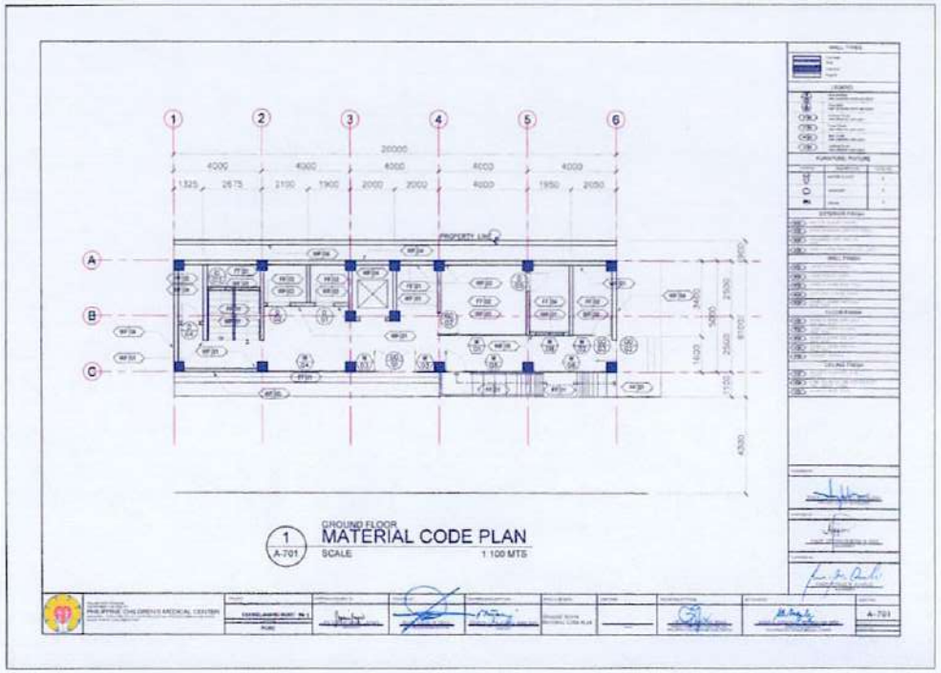


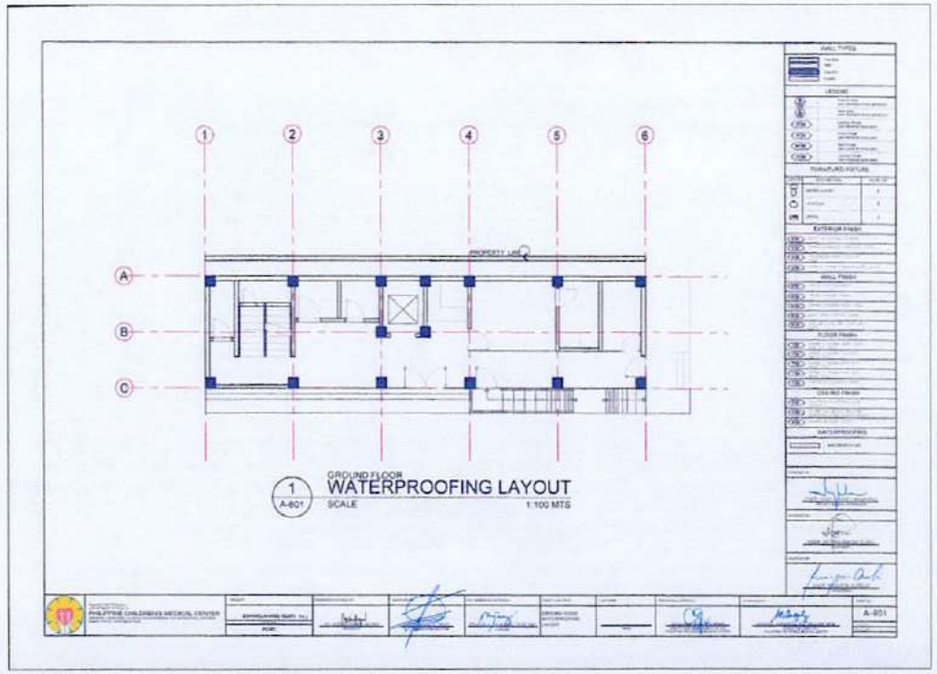
1 A-603 THIRD FLOOR REFLECTED CEILING PLAN
SCALE 1:100 MTS

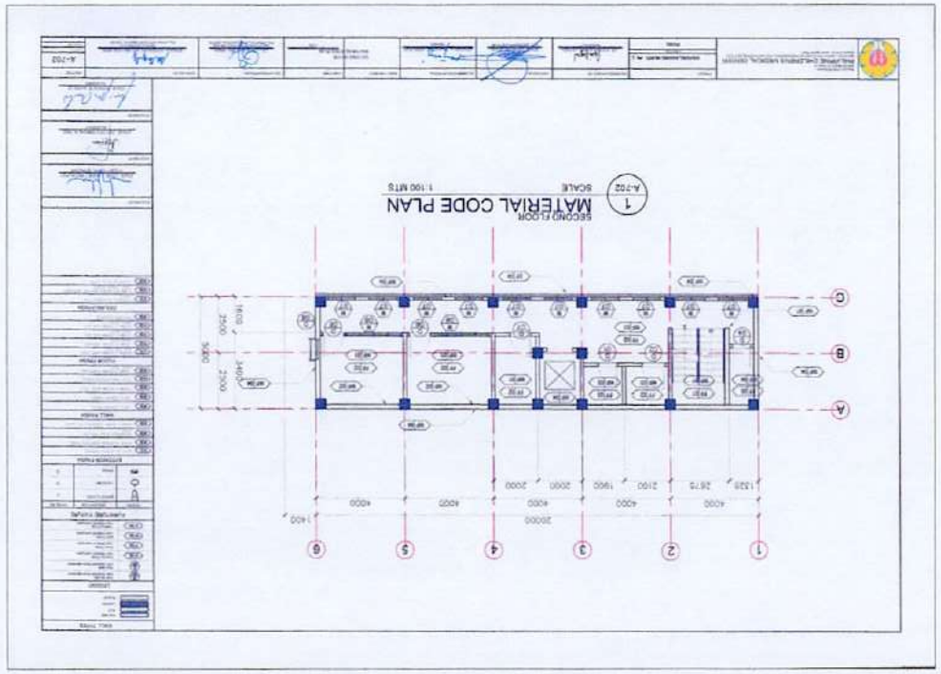


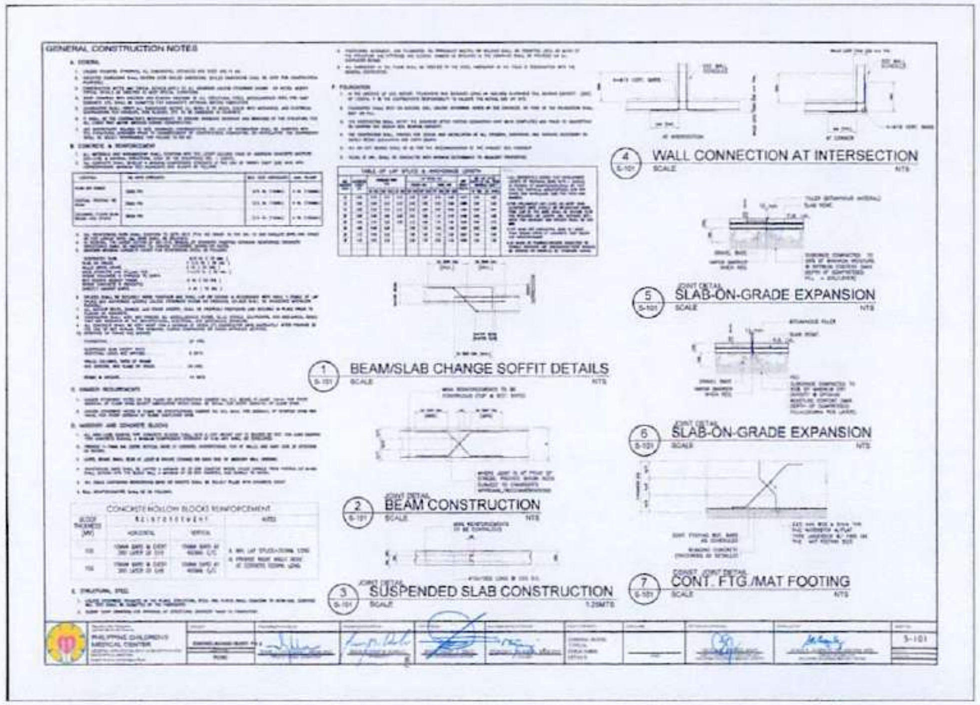
1 A-601 GROUND FLOOR REFLECTED CEILING PLAN
SCALE 1:100 MTS

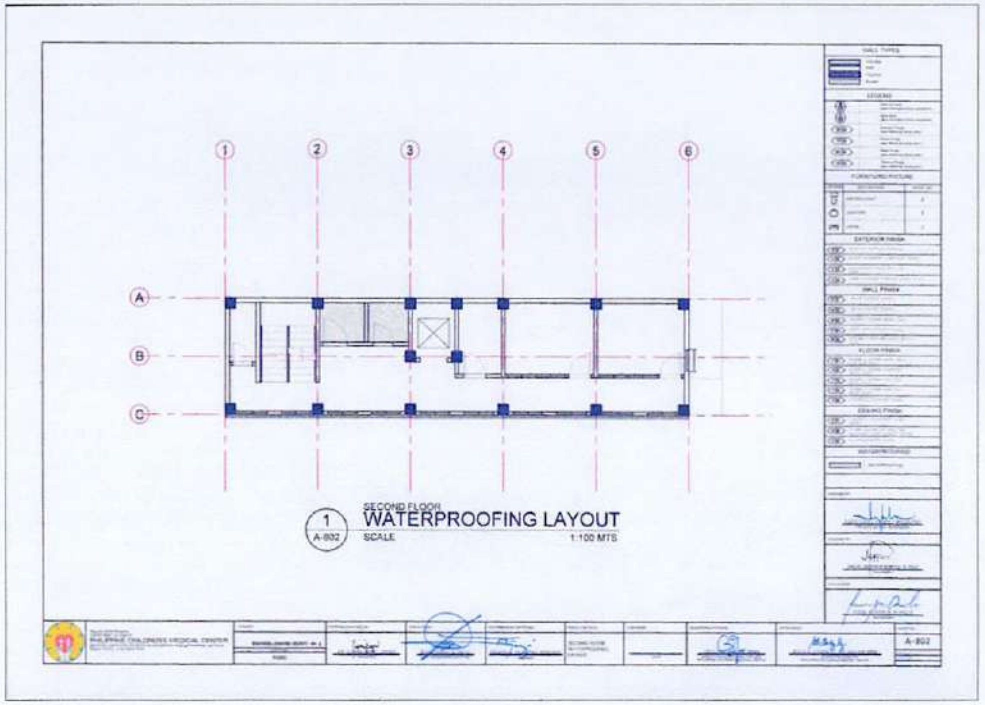

THIRD FLOOR
MATERIAL CODE PLAN
SCALE 1:100 MTS
A-703

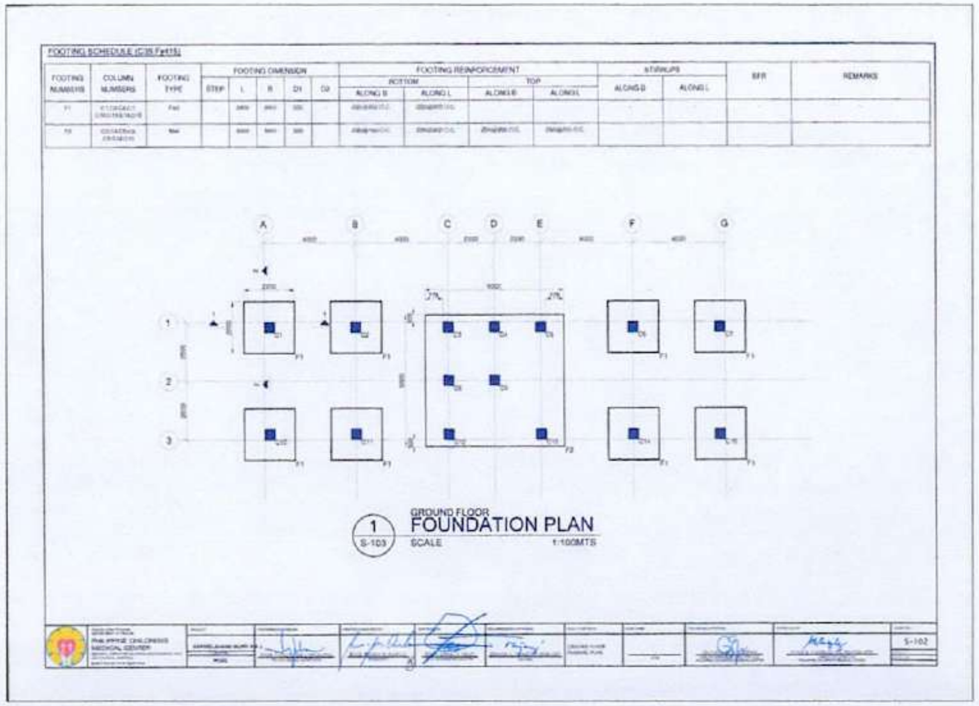

GROUND FLOOR
MATERIAL CODE PLAN
SCALE 1:100 MTS
A-701

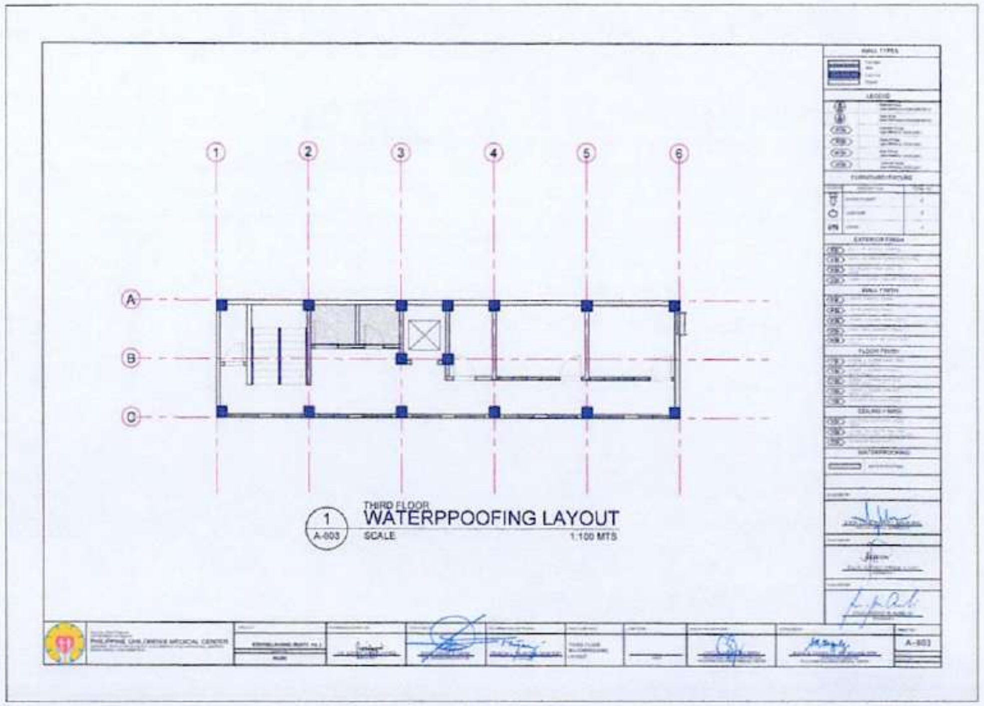

GROUND FLOOR
WATERPROOFING LAYOUT
SCALE 1:100 MTS
A-801

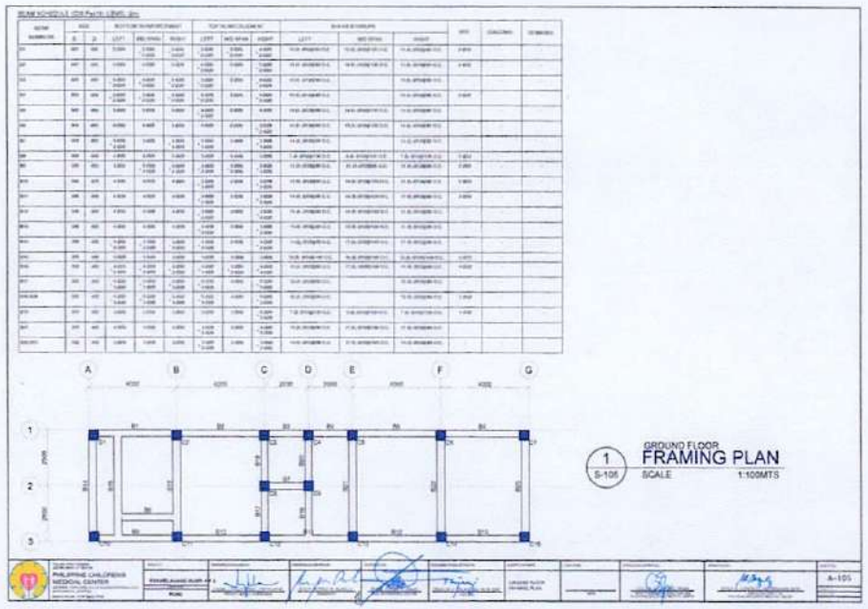

SECOND FLOOR
MATERIAL CODE PLAN
SCALE 1:100 MTS
A-702


GENERAL CONSTRUCTION NOTES
WALL CONNECTION AT INTERSECTION
SLAB-ON-GRADE EXPANSION
SLAB-ON-GRADE EXPANSION
BEAM/SLAB CHANGE SOFFIT DETAILS
BEAM CONSTRUCTION
SUSPENDED SLAB CONSTRUCTION
CONT. FTG./MAT FOOTING
PHILIPPINE CHILDREN'S MEDICAL CENTER
S-101

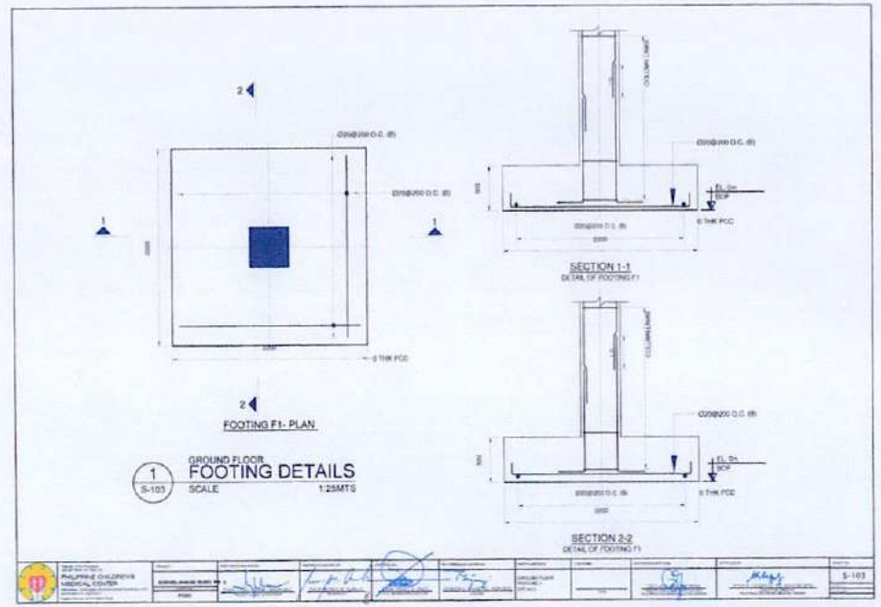

SECOND FLOOR
WATERPROOFING LAYOUT
SCALE
1:100 MTS
A-802


FOOTING SCHEDULE (C35 Fy415)
GROUND FLOOR
FOUNDATION PLAN
SCALE
1:100MTS
S-103


THIRD FLOOR
WATERPPOOFING LAYOUT
SCALE
1:100 MTS
A-803



GROUND FLOOR
FRAMING PLAN
SCALE 1:100MTS

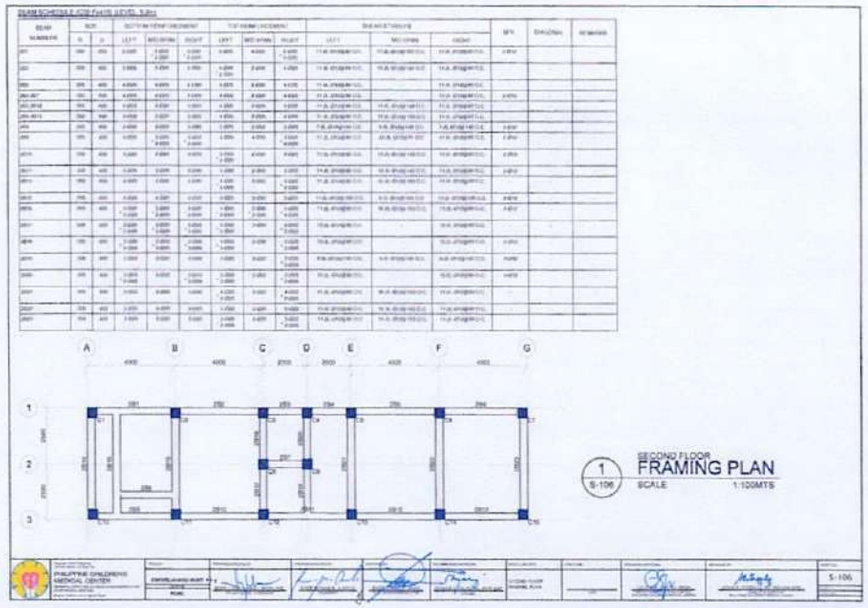


FOOTING F1- PLAN

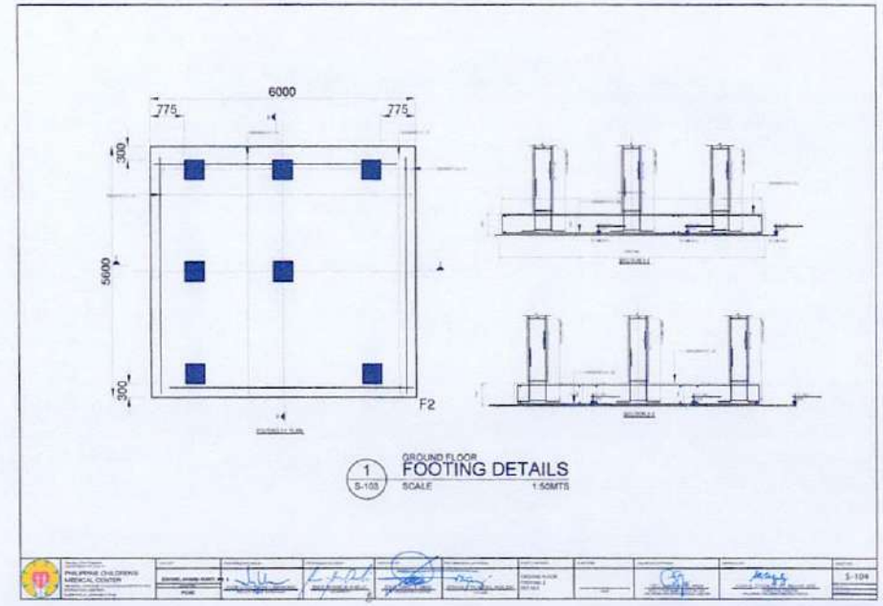
GROUND FLOOR
FOOTING DETAILS
SCALE 1:25MTS

SECTION 1-1
DETAIL OF FOOTING F1

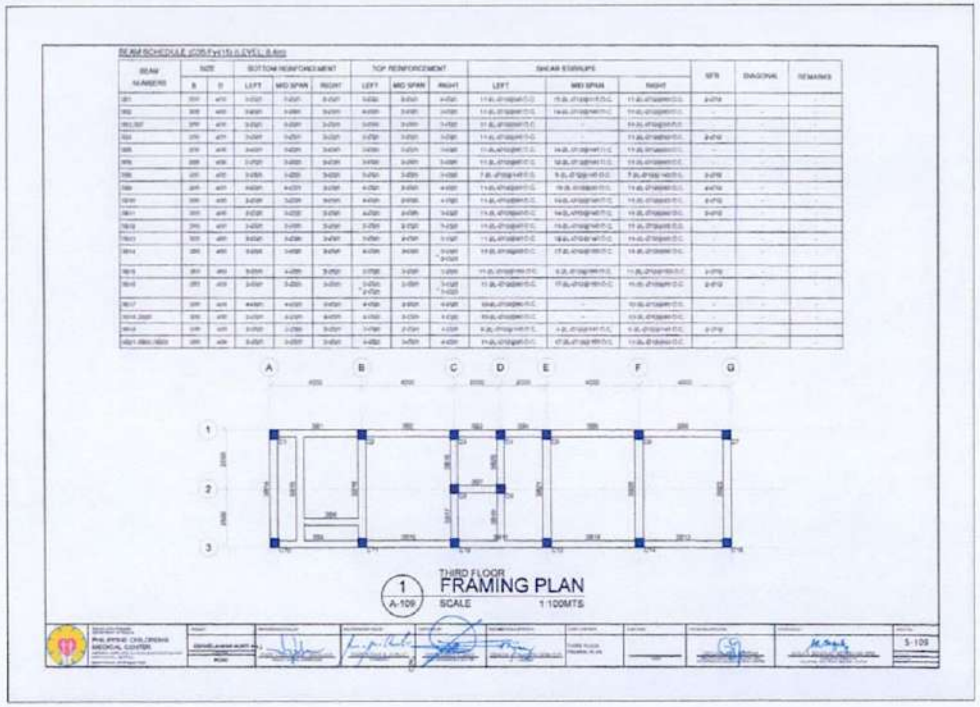
SECTION 2-2
DETAIL OF FOOTING F1

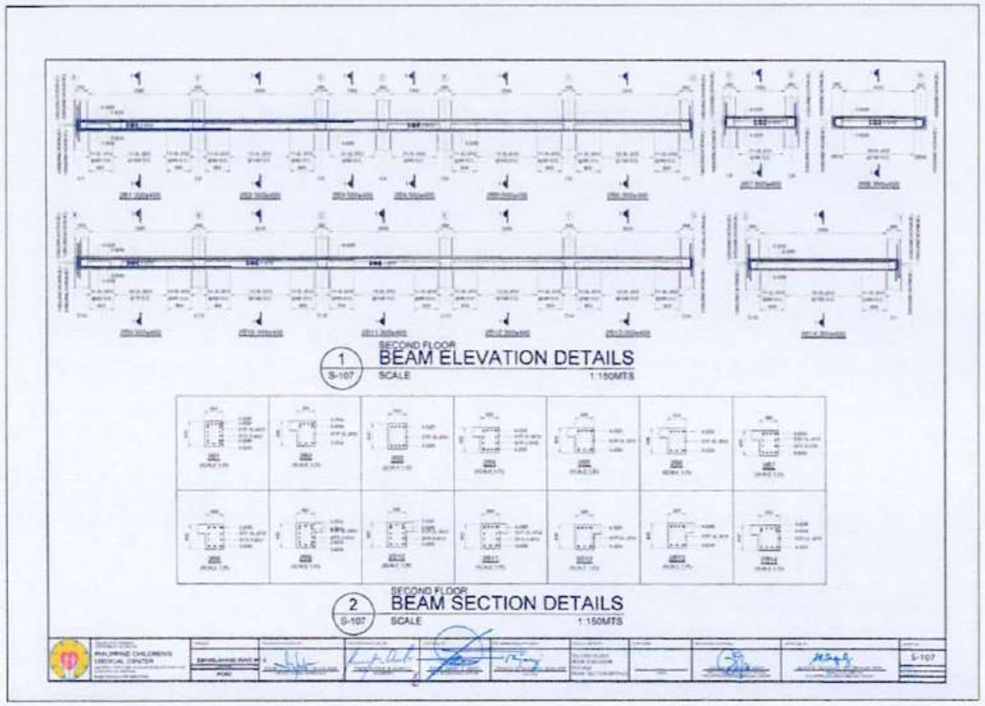


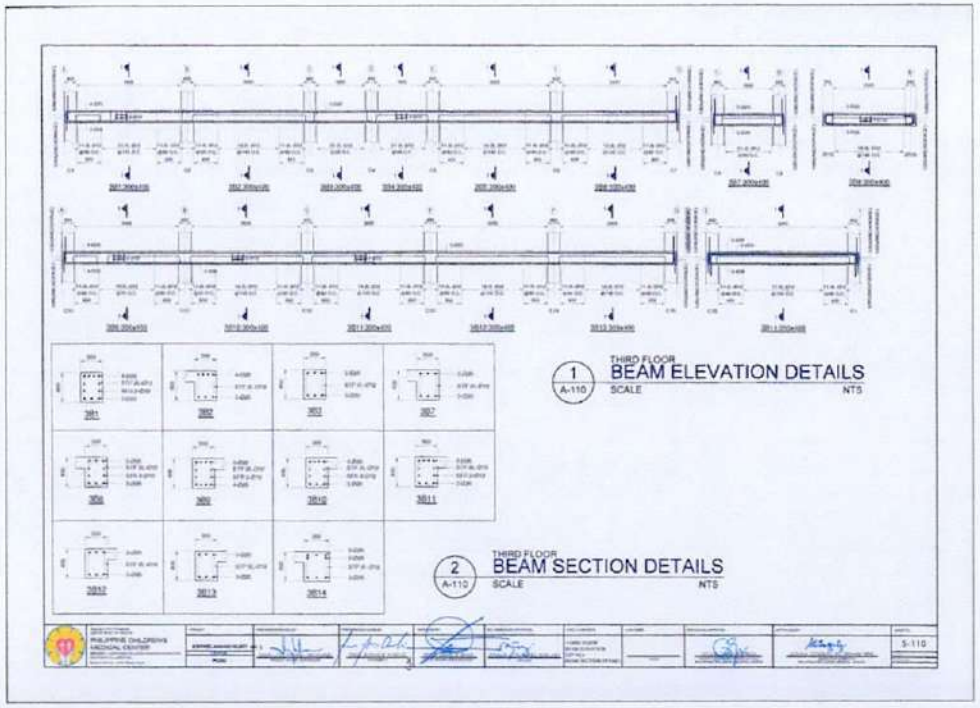
SECOND FLOOR
FRAMING PLAN
SCALE 1:100MTS

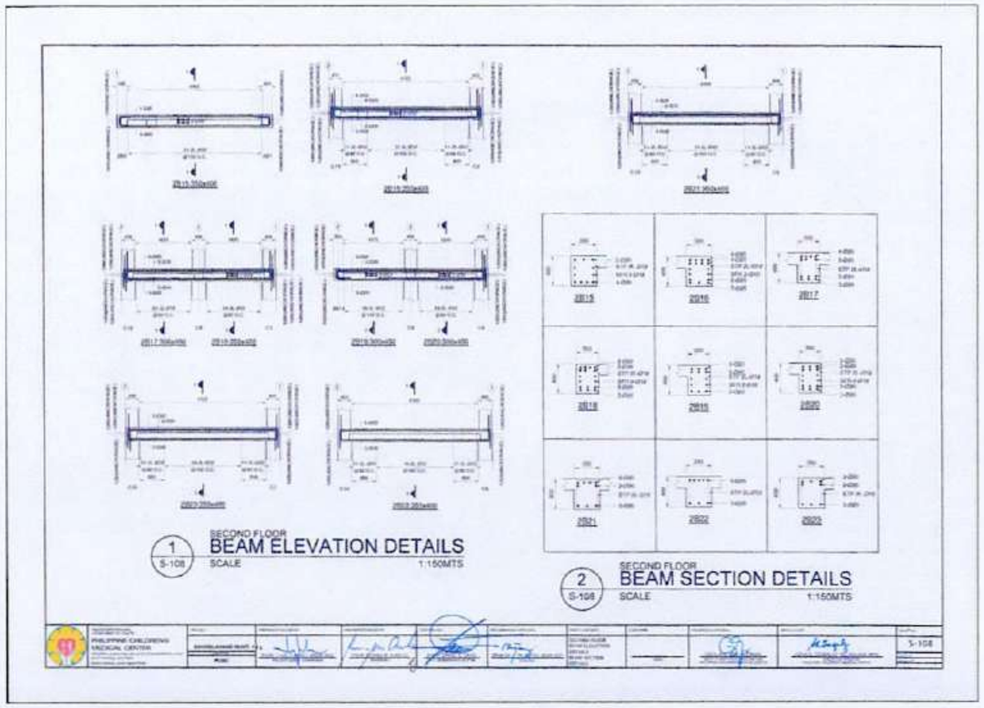


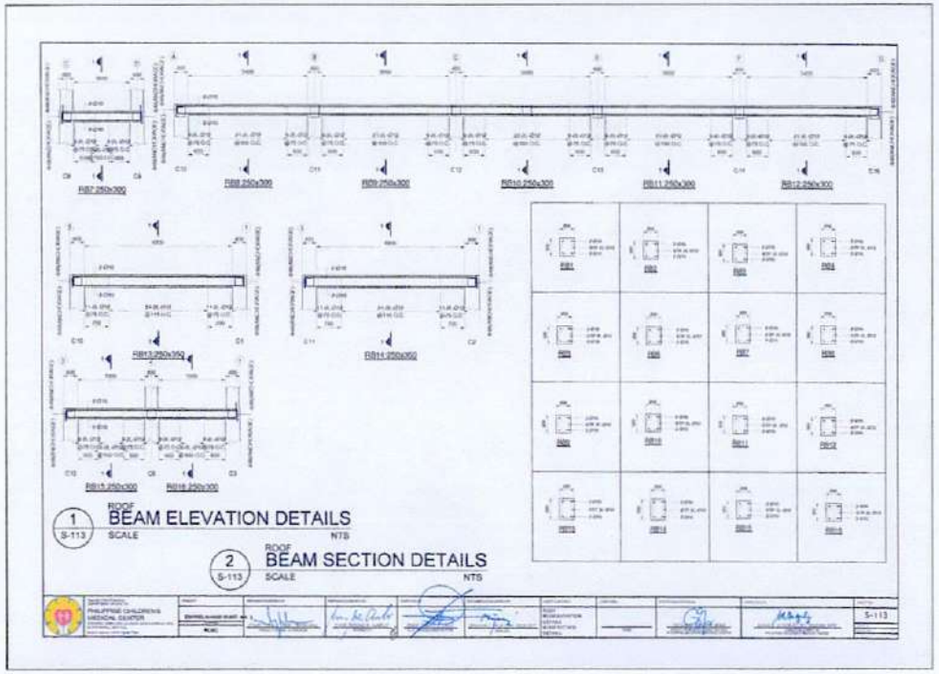
GROUND FLOOR
FOOTING DETAILS
SCALE 1:50MTS

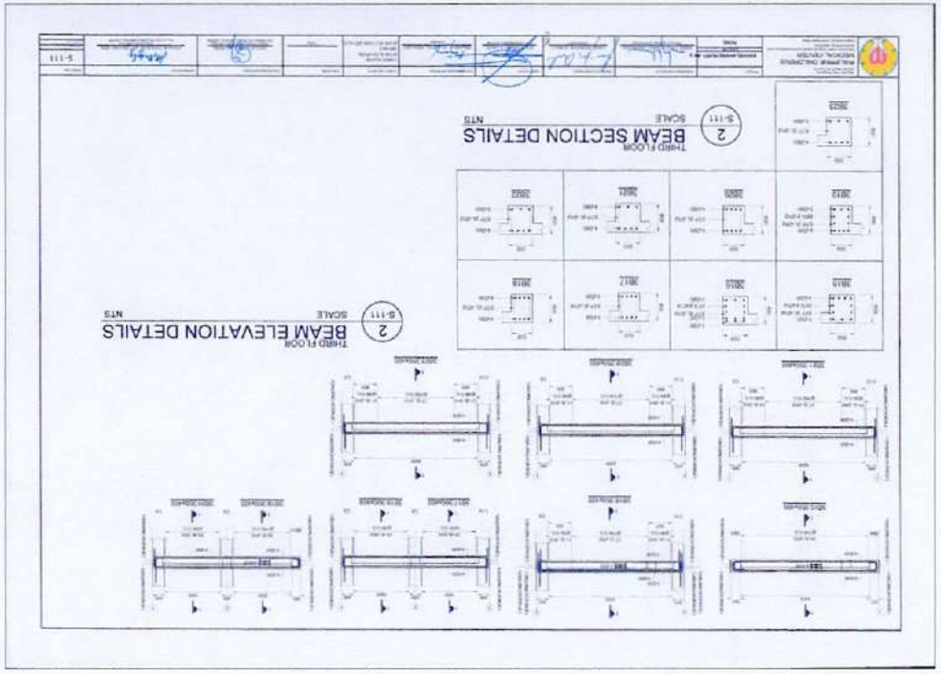

THIRD FLOOR
FRAMING PLAN
SCALE 1:100MTS
PHILIPPINE CHILDREN'S MEDICAL CENTER
S-109

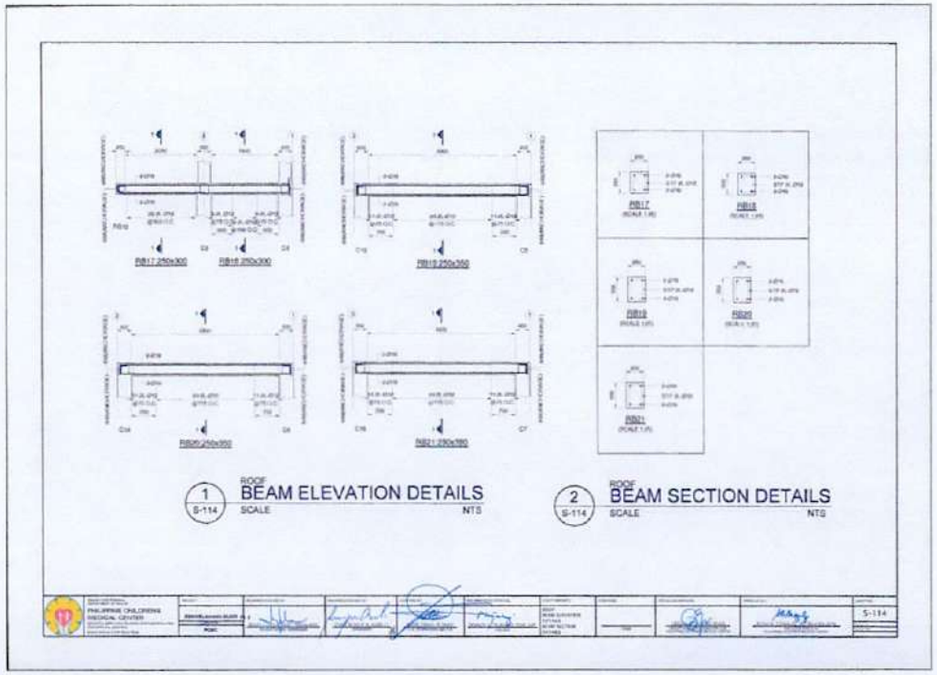

SECOND FLOOR
BEAM ELEVATION DETAILS
SCALE 1:150MTS
SECOND FLOOR
BEAM SECTION DETAILS
SCALE 1:150MTS
PHILIPPINE CHILDREN'S MEDICAL CENTER
S-107

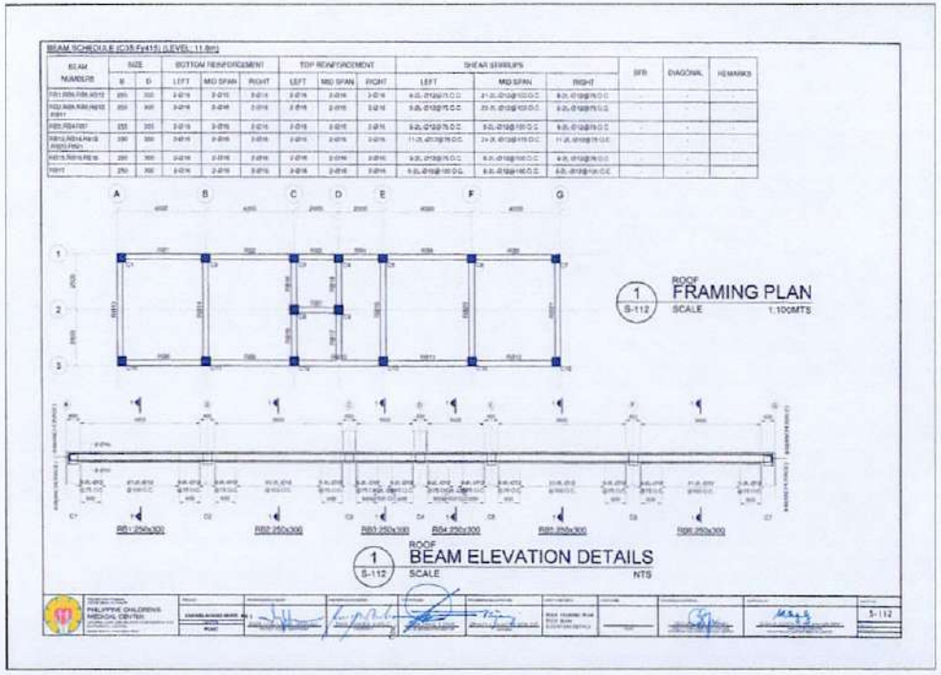

THIRD FLOOR
BEAM ELEVATION DETAILS
SCALE NTS
THIRD FLOOR
BEAM SECTION DETAILS
SCALE NTS
PHILIPPINE CHILDREN'S MEDICAL CENTER
S-110


SECOND FLOOR
BEAM ELEVATION DETAILS
SCALE 1:150MTS
SECOND FLOOR
BEAM SECTION DETAILS
SCALE 1:150MTS
PHILIPPINE CHILDREN'S MEDICAL CENTER
S-108


ROOF
BEAM ELEVATION DETAILS
SCALE NTS
1
S-113
ROOF
BEAM SECTION DETAILS
SCALE NTS
2
S-113

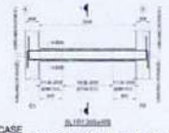

THIRD FLOOR
BEAM ELEVATION DETAILS
SCALE NTS
2
S-111
THIRD FLOOR
BEAM SECTION DETAILS
SCALE NTS
2
S-111


ROOF
BEAM ELEVATION DETAILS
SCALE NTS
1
S-114
ROOF
BEAM SECTION DETAILS
SCALE NTS
2
S-114

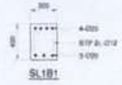

BEAM SCHEDULE (C35,Fy415) (LEVEL: 11.6m)
ROOF
FRAMING PLAN
SCALE 1:100MTS
1
S-112
ROOF
BEAM ELEVATION DETAILS
SCALE NTS
1
S-112

BEAM SCHEDULE (C35 Fy415) (LEVEL: 3.6m)

BEAM NUMBERS	SIZE		BOTTOM REINFORCEMENT			TOP REINFORCEMENT			SHEAR STIRRUPS			SFR	DIAGONAL	REMARKS
	B	D	LEFT	MID SPAN	RIGHT	LEFT	MID SPAN	RIGHT	LEFT	MID SPAN	RIGHT			
SL1B1	300	400	3-20D	3-20D	3-20D	4-20D	3-20D	4-20D	11-2L-D10@50 O.C.	12-2L-D10@140 O.C.	11-2L-D10@50 O.C.			



SL1B1 300x400



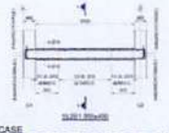
SL1B1

1 S-117 STAIRCASE
BEAM SECTION DETAILS
SCALE NTS

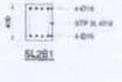
2 S-117 STAIRCASE
BEAM ELEVATION DETAILS
SCALE NTS

BEAM SCHEDULE (C35 Fy415) (LEVEL: 6.8m)

BEAM NUMBERS	SIZE		BOTTOM REINFORCEMENT			TOP REINFORCEMENT			SHEAR STIRRUPS			SFR	DIAGONAL	REMARKS
	B	D	LEFT	MID SPAN	RIGHT	LEFT	MID SPAN	RIGHT	LEFT	MID SPAN	RIGHT			
SL2B1	300	400	4-20D	4-20D	4-20D	4-20D	4-20D	4-20D	11-2L-D10@50 O.C.	10-2L-D10@140 O.C.	11-2L-D10@50 O.C.			



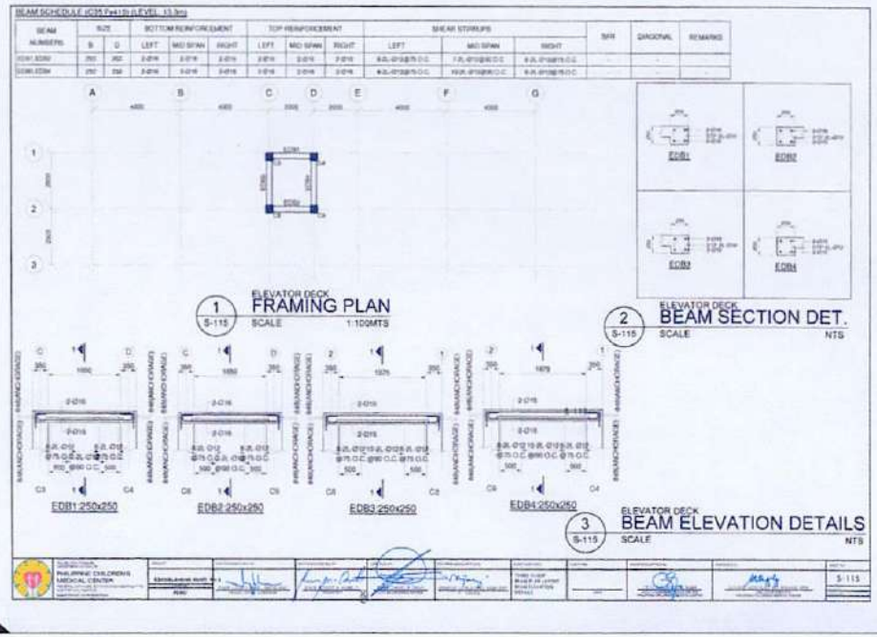
SL2B1 300x400



SL2B1

3 S-117 STAIRCASE
BEAM SECTION DETAILS
SCALE NTS

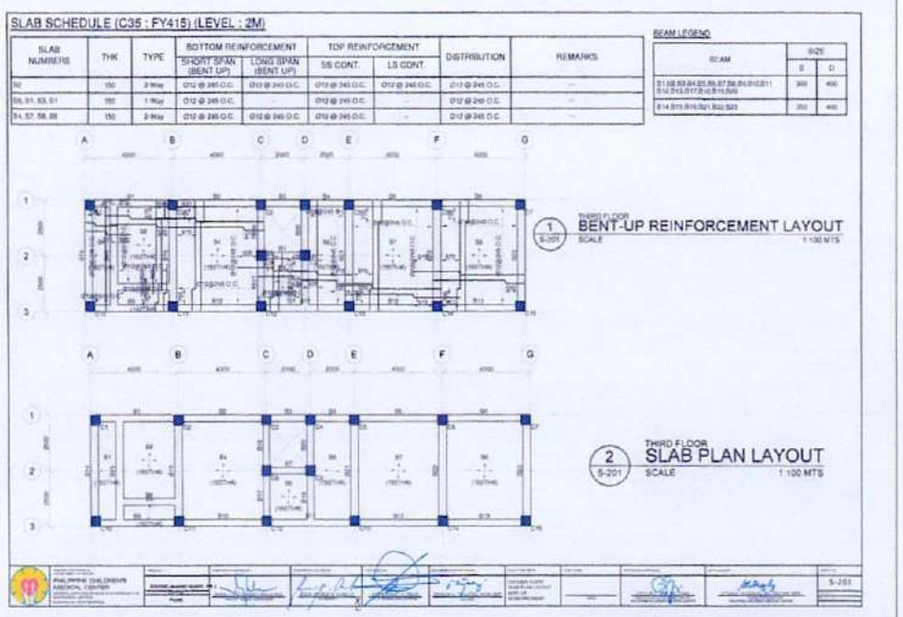
4 S-117 STAIRCASE
BEAM ELEVATION DETAILS
SCALE NTS



1 S-115 ELEVATOR DECK
FRAMING PLAN
SCALE 1:100MTS

2 S-115 ELEVATOR DECK
BEAM SECTION DET.
SCALE NTS

3 S-115 ELEVATOR DECK
BEAM ELEVATION DETAILS
SCALE NTS



SLAB SCHEDULE (C35 : FY415) (LEVEL : 2M)

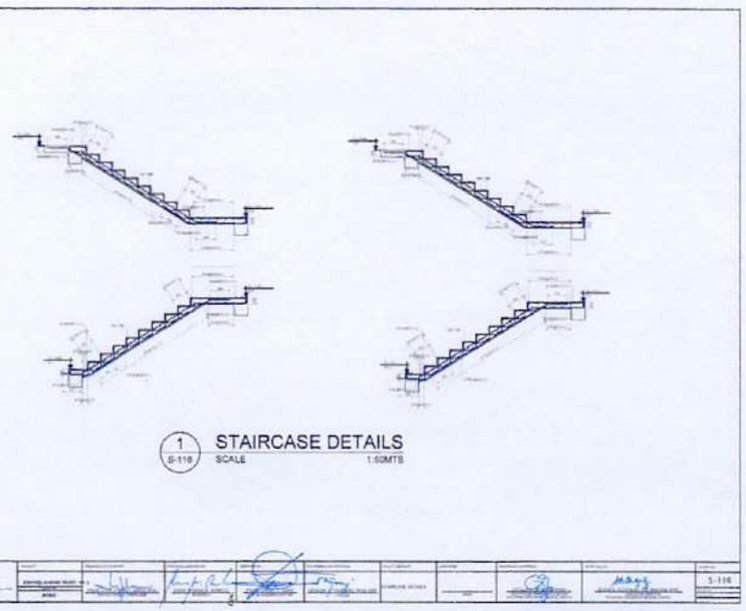
SLAB NUMBERS	THK	TYPE	BOTTOM REINFORCEMENT		TOP REINFORCEMENT		DISTRIBUTION	REMARKS
			SHORT SPAN (BENT UP)	LONG SPAN (BENT UP)	SS CONT.	LS CONT.		
S2	150	2-Way	D12 @ 245 O.C.	D12 @ 245 O.C.	D12 @ 245 O.C.	D12 @ 245 O.C.	D12 @ 245 O.C.	-
S5, S1, S3, S1	150	1-Way	D12 @ 245 O.C.	-	D12 @ 245 O.C.	-	D12 @ 245 O.C.	-
S4, S7, S8, S9	150	2-Way	D12 @ 245 O.C.	D12 @ 245 O.C.	D12 @ 245 O.C.	-	D12 @ 245 O.C.	-

BEAM LEGEND

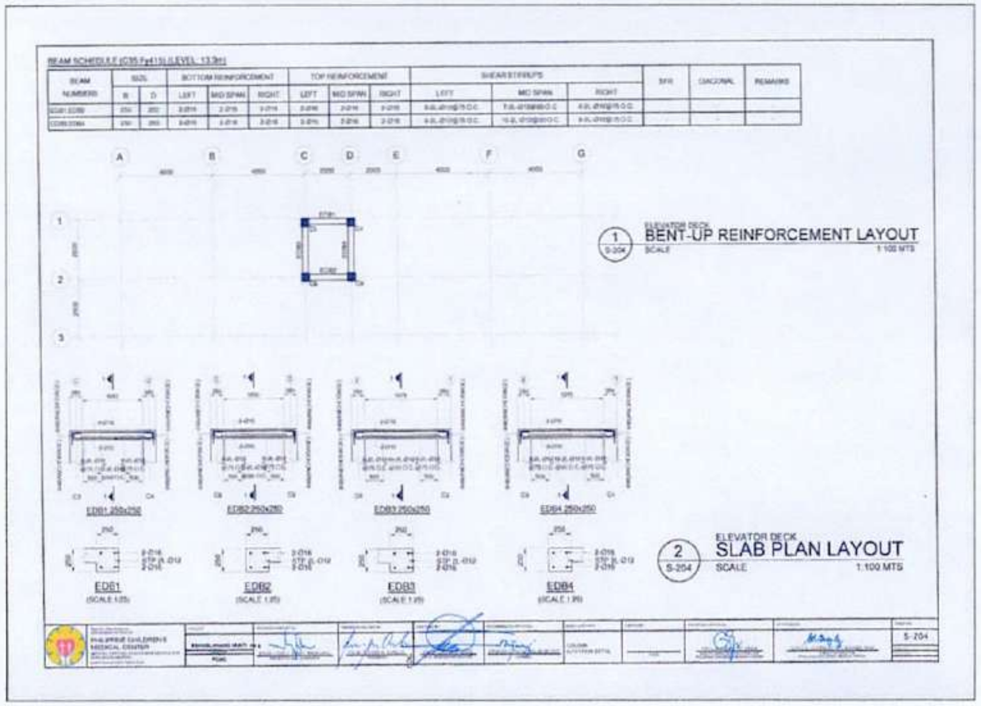
BEAM	SIZE	
	B	D
B1,B2,B3,B4,B5,B6,B7,B8,B9,B10,B11, B12,B13,B17,B18,B19,B20	300	400
B14,B15,B16,B21,B22,B23	250	400

1 S-201 THIRD FLOOR
BENT-UP REINFORCEMENT LAYOUT
SCALE 1:100 MTS

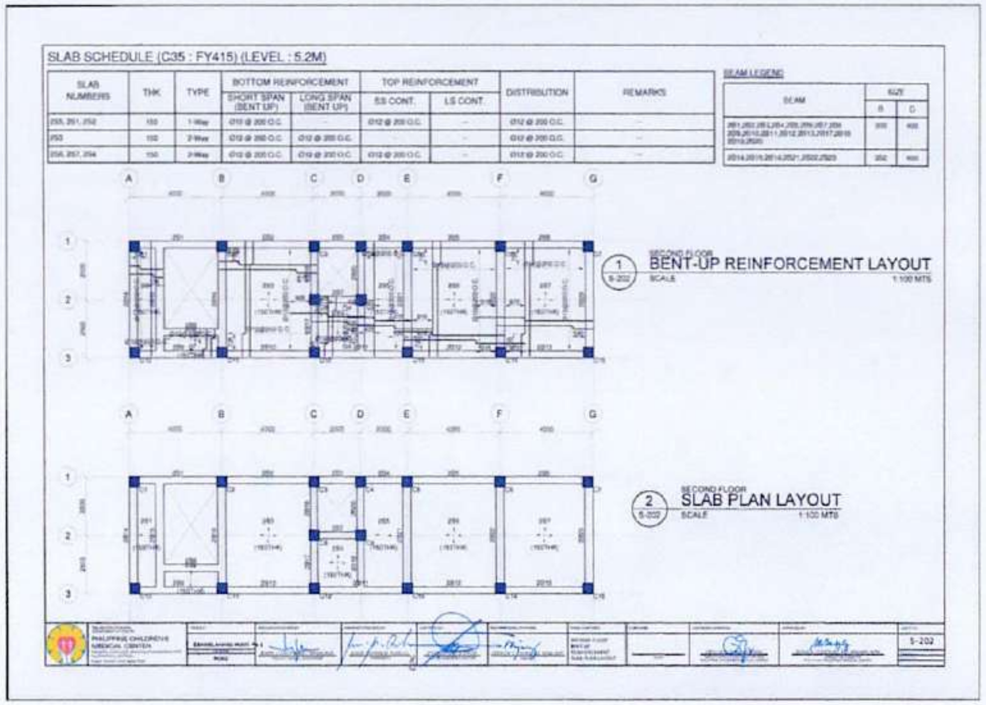
2 S-201 THIRD FLOOR
SLAB PLAN LAYOUT
SCALE 1:100 MTS



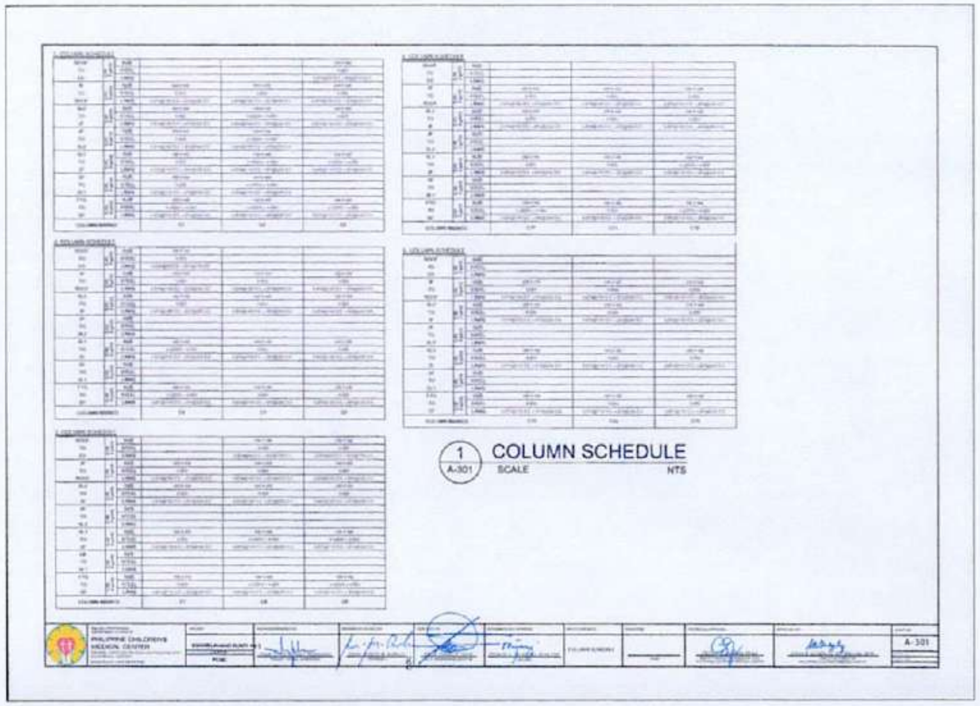
1 S-116 STAIRCASE DETAILS
SCALE 1:50MTS



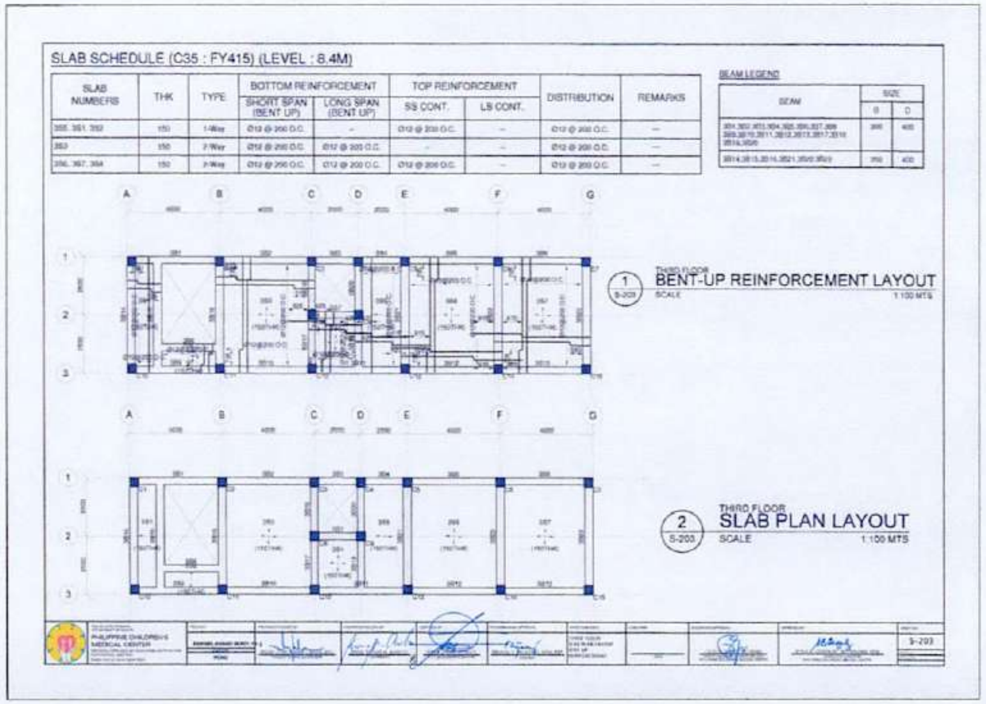
ELEVATOR DECK
BENT-UP REINFORCEMENT LAYOUT
SCALE 1:100 MTS
ELEVATOR DECK
SLAB PLAN LAYOUT
SCALE 1:100 MTS
EDB1
EDB2
EDB3
EDB4
PHILIPPINE CHILDREN'S MEDICAL CENTER
S-204



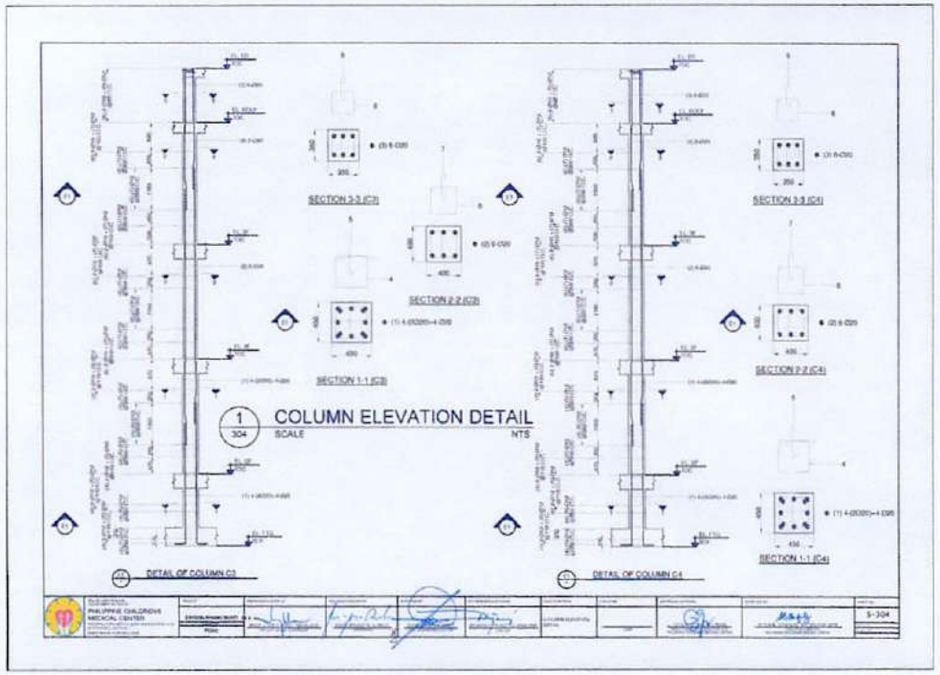
SLAB SCHEDULE (C35 : FY415) (LEVEL : 5.2M)
SLAB NUMBERS
THK
TYPE
BOTTOM REINFORCEMENT
SHORT SPAN (BENT UP)
LONG SPAN (BENT UP)
TOP REINFORCEMENT
SS CONT.
LS CONT.
DISTRIBUTION
REMARKS
SECOND FLOOR
BENT-UP REINFORCEMENT LAYOUT
SCALE 1:100 MTS
SECOND FLOOR
SLAB PLAN LAYOUT
SCALE 1:100 MTS
PHILIPPINE CHILDREN'S MEDICAL CENTER
S-202

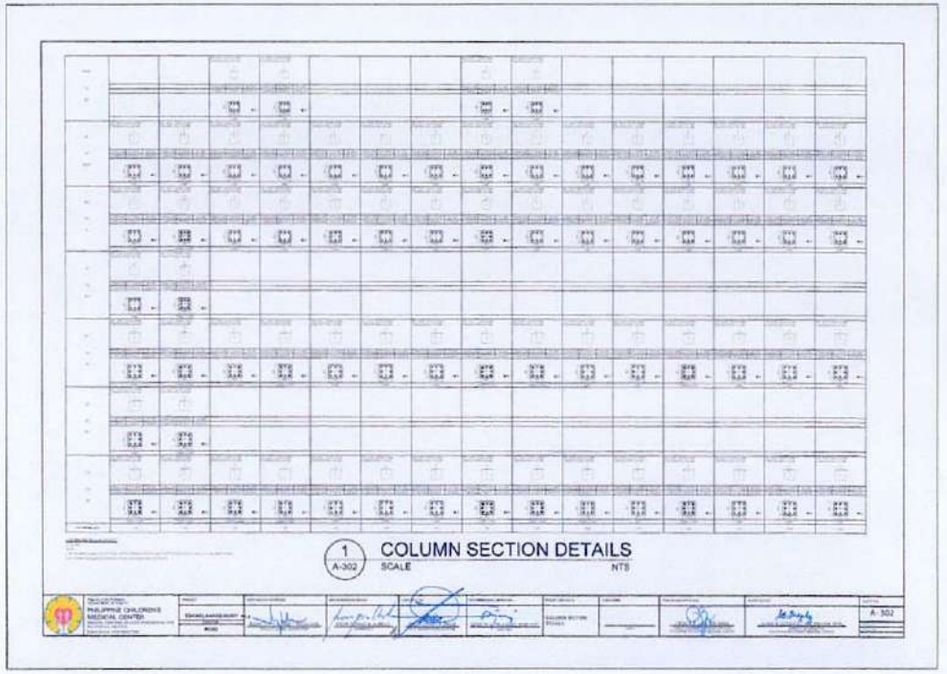


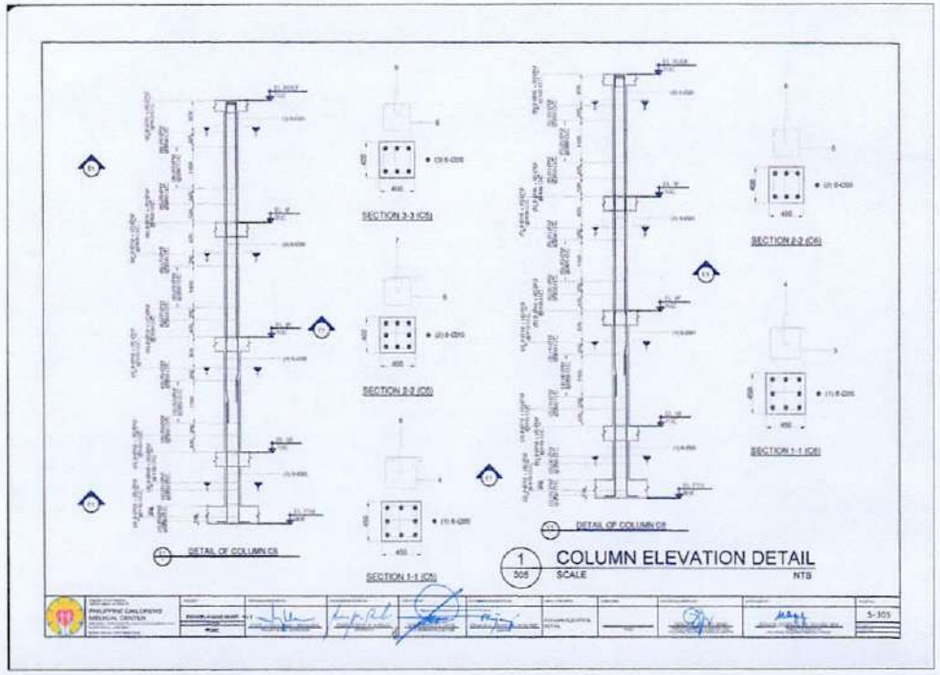
COLUMN SCHEDULE
SCALE NTS
PHILIPPINE CHILDREN'S MEDICAL CENTER
A-301

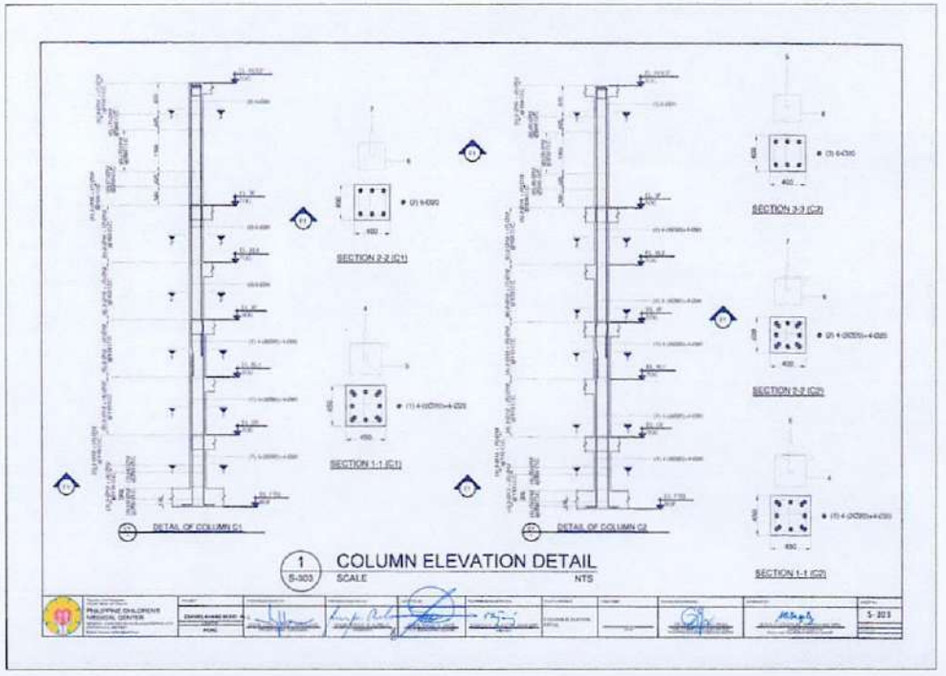


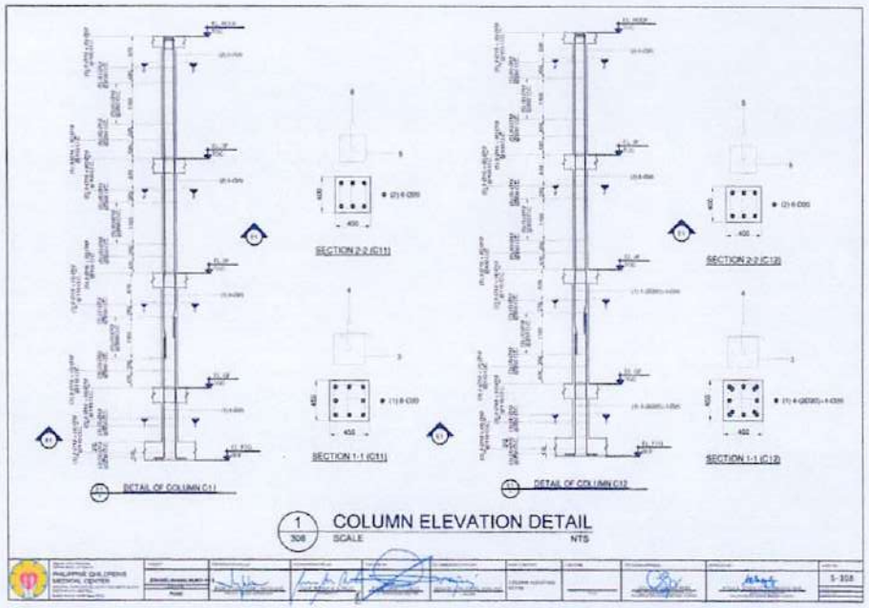
SLAB SCHEDULE (C35 : FY415) (LEVEL : 8.4M)
SLAB NUMBERS
THK
TYPE
BOTTOM REINFORCEMENT
SHORT SPAN (BENT UP)
LONG SPAN (BENT UP)
TOP REINFORCEMENT
SS CONT.
LS CONT.
DISTRIBUTION
REMARKS
BEAM LEGEND
THIRD FLOOR
BENT-UP REINFORCEMENT LAYOUT
SCALE 1:100 MTS
THIRD FLOOR
SLAB PLAN LAYOUT
SCALE 1:100 MTS
PHILIPPINE CHILDREN'S MEDICAL CENTER
S-203


SECTION 3-3 (C3)
SECTION 2-2 (C3)
SECTION 1-1 (C3)
SECTION 3-3 (C4)
SECTION 2-2 (C4)
SECTION 1-1 (C4)
DETAIL OF COLUMN C3
DETAIL OF COLUMN C4
1
304
COLUMN ELEVATION DETAIL
SCALE
NTS

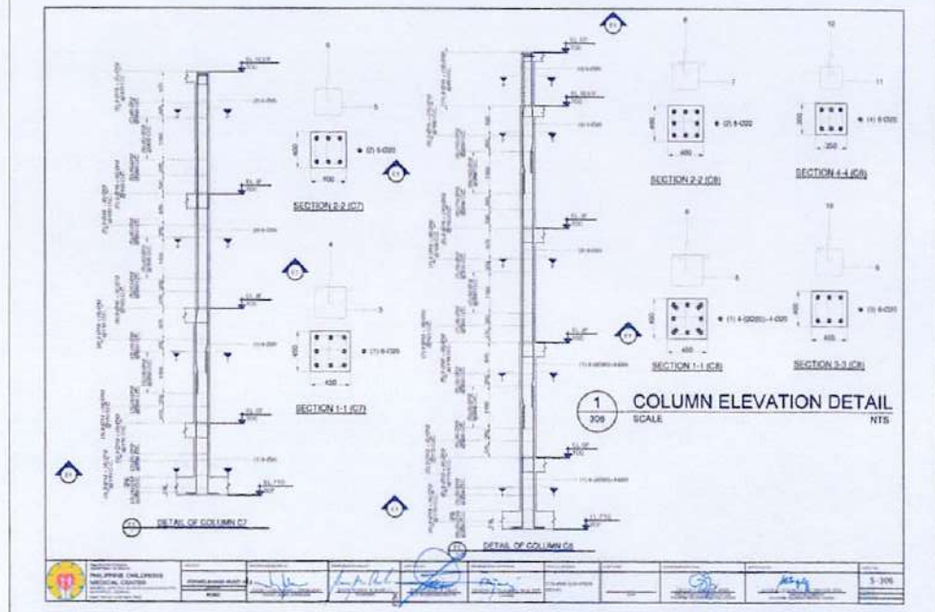

1
A-302
COLUMN SECTION DETAILS
SCALE
NTS


SECTION 3-3 (C5)
SECTION 2-2 (C5)
SECTION 1-1 (C5)
SECTION 2-2 (C6)
SECTION 1-1 (C6)
DETAIL OF COLUMN C5
DETAIL OF COLUMN C6
1
305
COLUMN ELEVATION DETAIL
SCALE
NTS

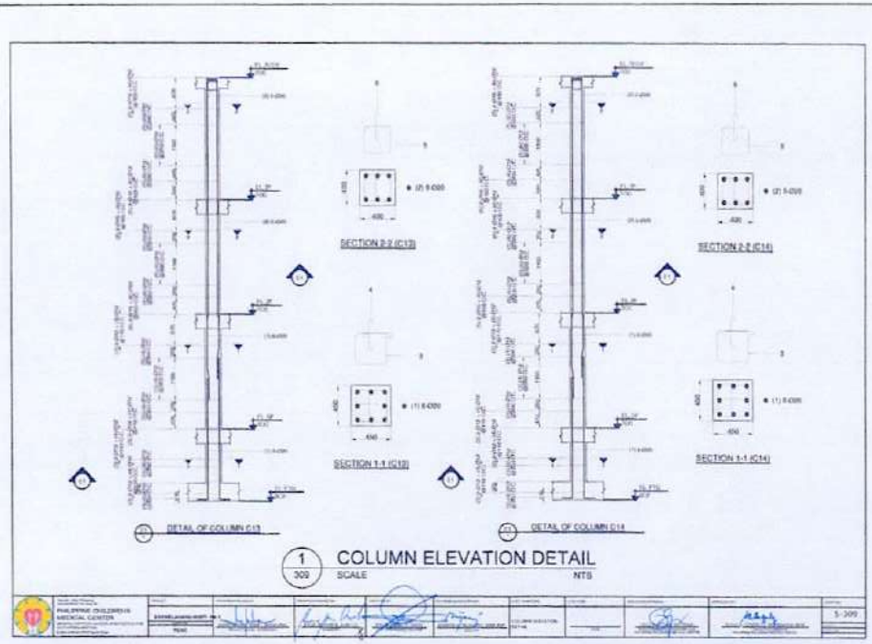

SECTION 2-2 (C1)
SECTION 1-1 (C1)
SECTION 3-3 (C2)
SECTION 2-2 (C2)
SECTION 1-1 (C2)
DETAIL OF COLUMN C1
DETAIL OF COLUMN C2
1
S-303
COLUMN ELEVATION DETAIL
SCALE
NTS



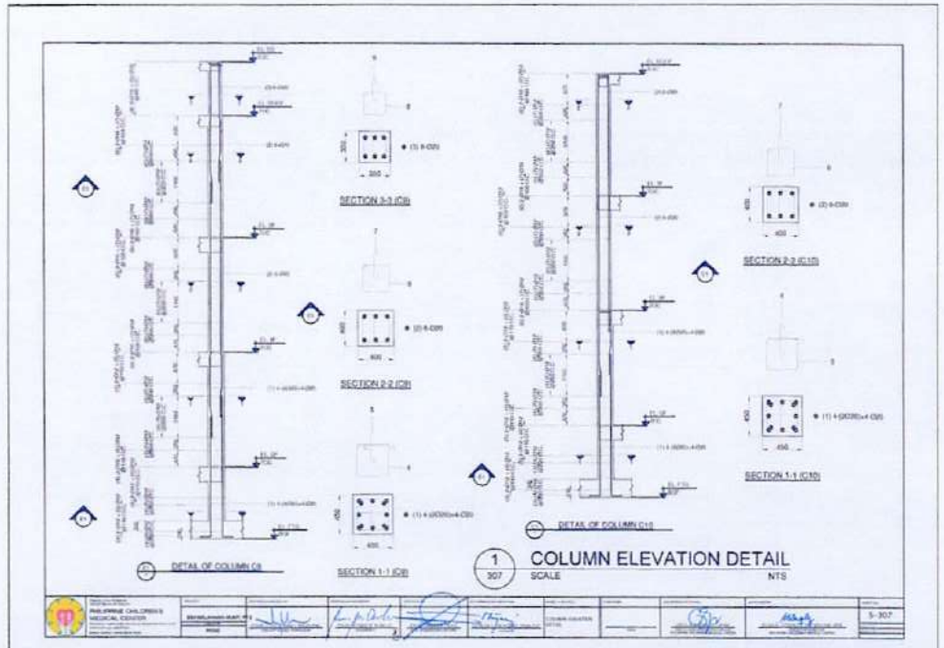
1 / 308 COLUMN ELEVATION DETAIL
SCALE NTS



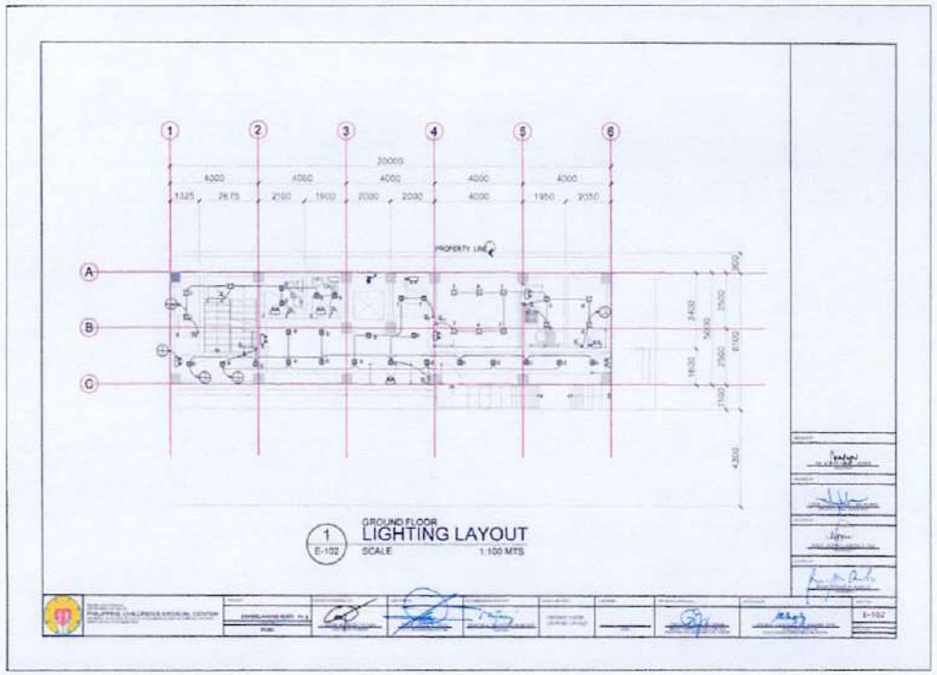
1 / 306 COLUMN ELEVATION DETAIL
SCALE NTS

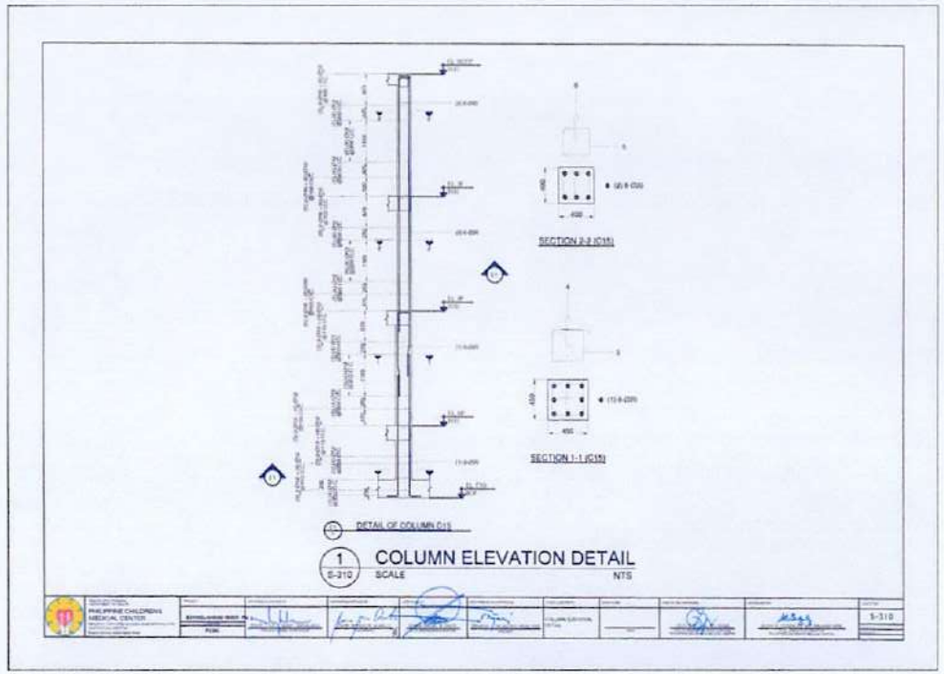


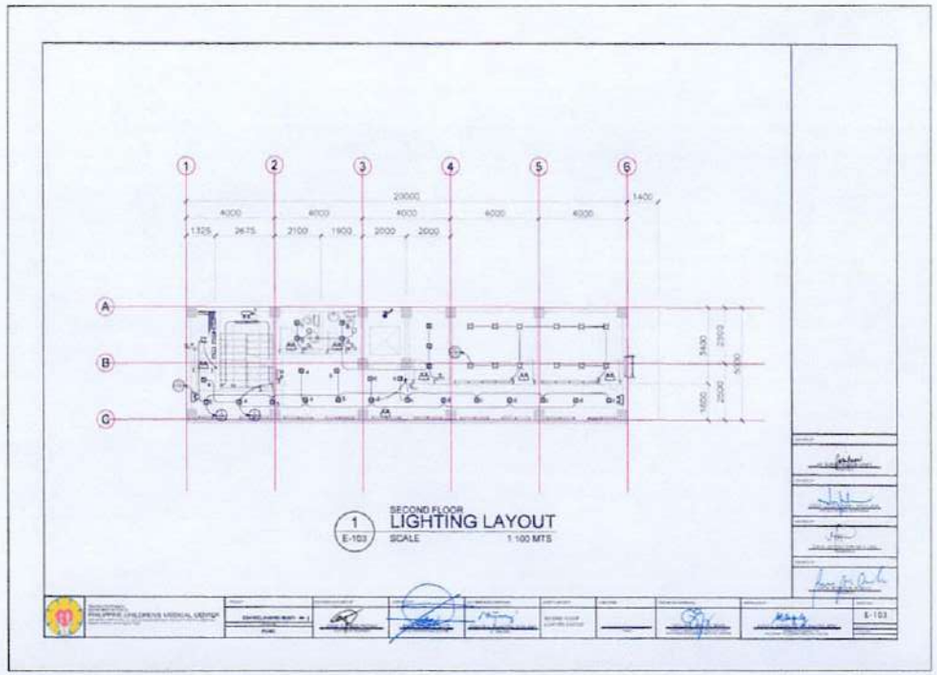
1 / 309 COLUMN ELEVATION DETAIL
SCALE NTS

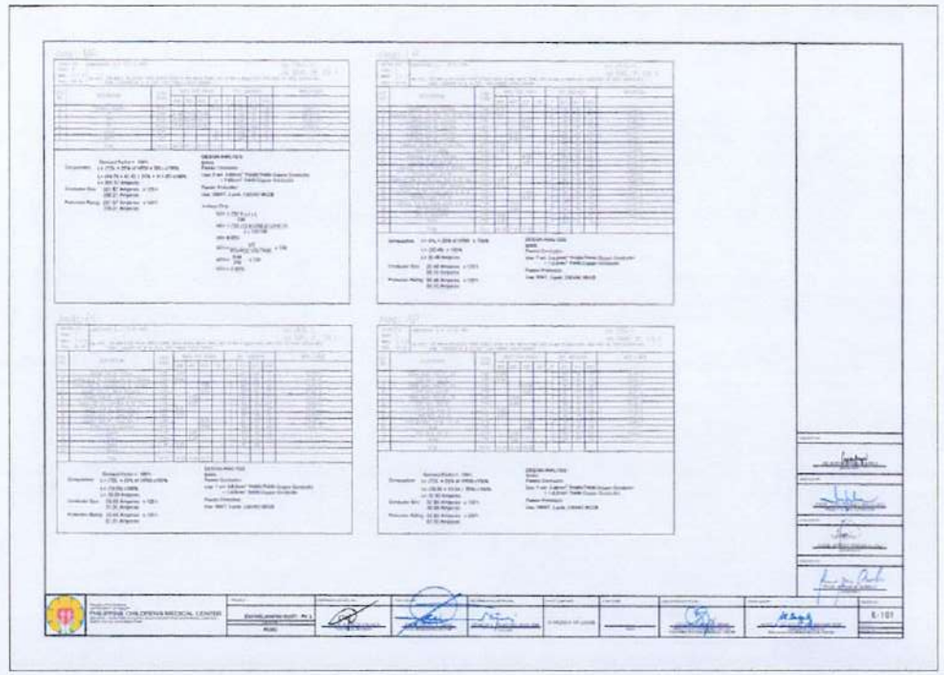


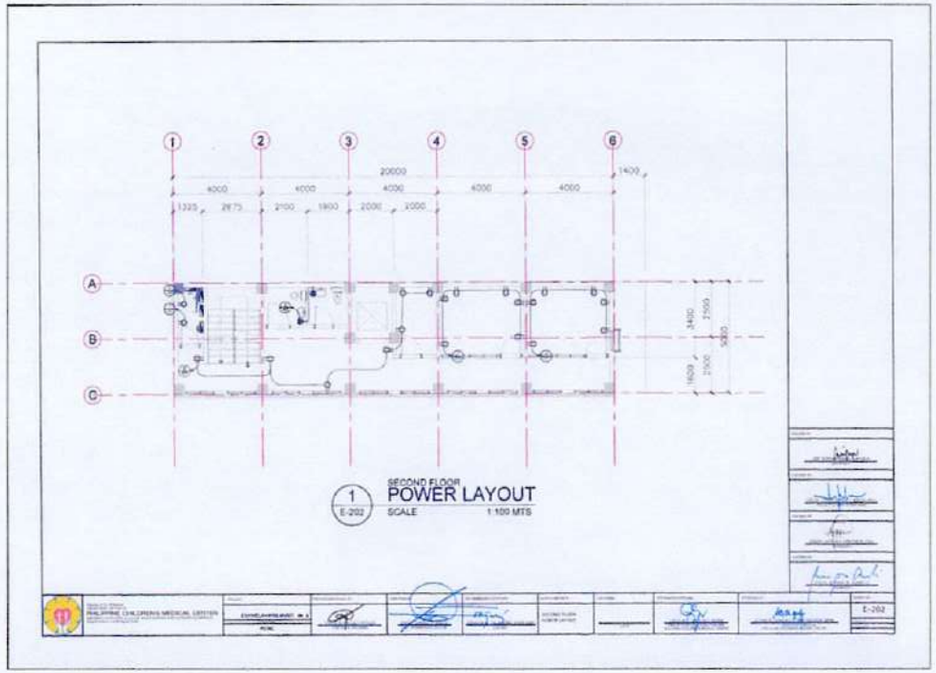
1 / 307 COLUMN ELEVATION DETAIL
SCALE NTS

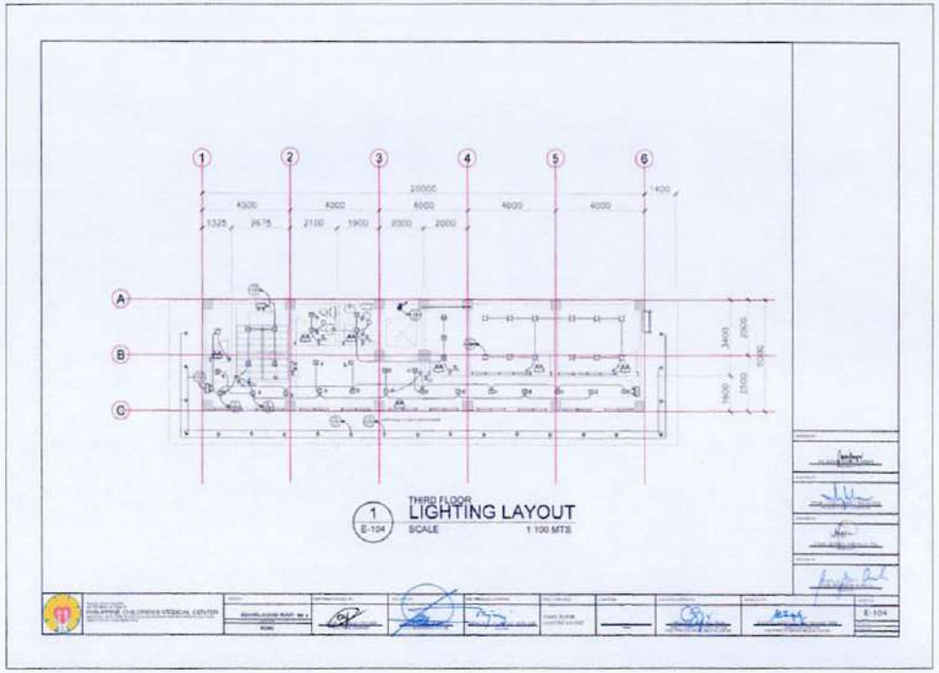

1
2
3
4
5
6
A
B
C
20000
4000
1325
2675
2100
1900
2000
PROPERTY LINE
GROUND FLOOR
LIGHTING LAYOUT
SCALE 1:100 MTS
E-102

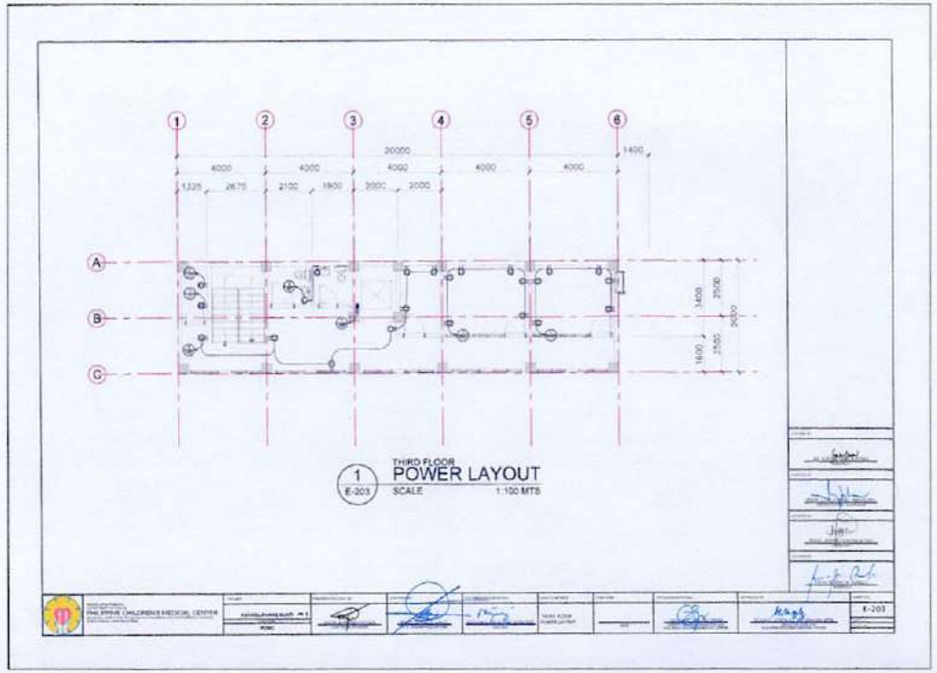

SECTION 2-2 (C15)
SECTION 1-1 (C15)
DETAIL OF COLUMN C15
COLUMN ELEVATION DETAIL
SCALE NTS
S-310

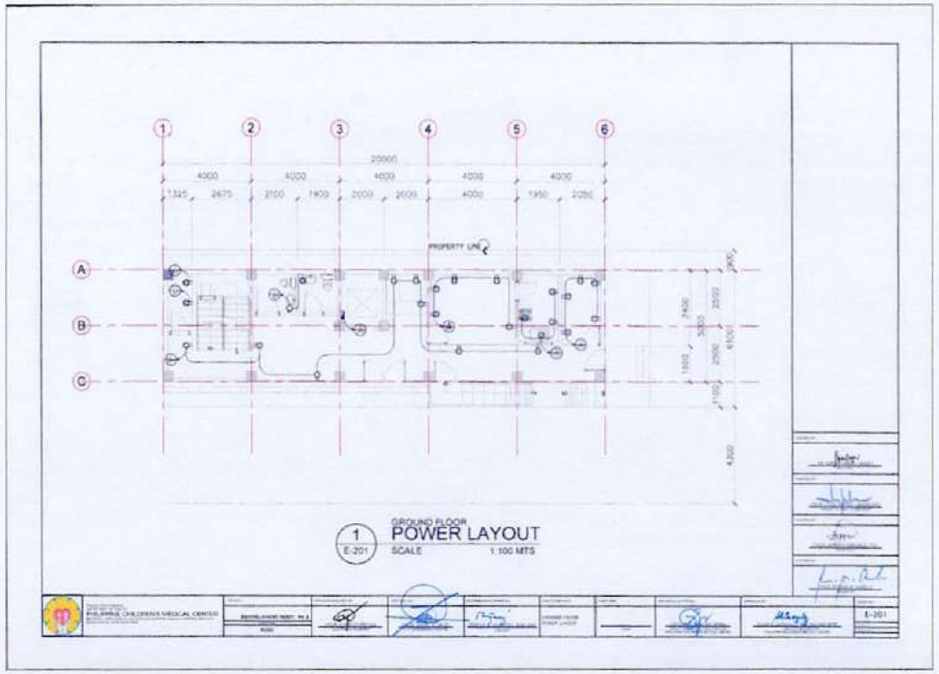

1
2
3
4
5
6
A
B
C
20000
4000
1325
2675
2100
1900
2000
SECOND FLOOR
LIGHTING LAYOUT
SCALE 1:100 MTS
E-103

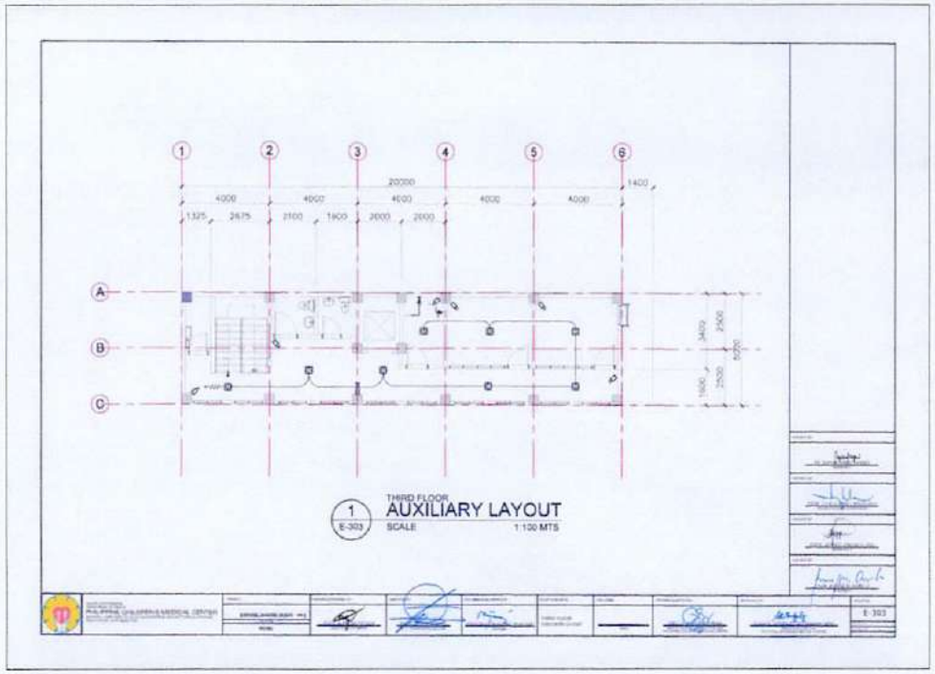

E-101


1 2 3 4 5 6
A B C
20000
4000 4000 4000 4000 4000
1400
1325 2675 2100 1900 2000 2000
SECOND FLOOR
1 E-202
POWER LAYOUT
SCALE 1:100 MTS
E-202

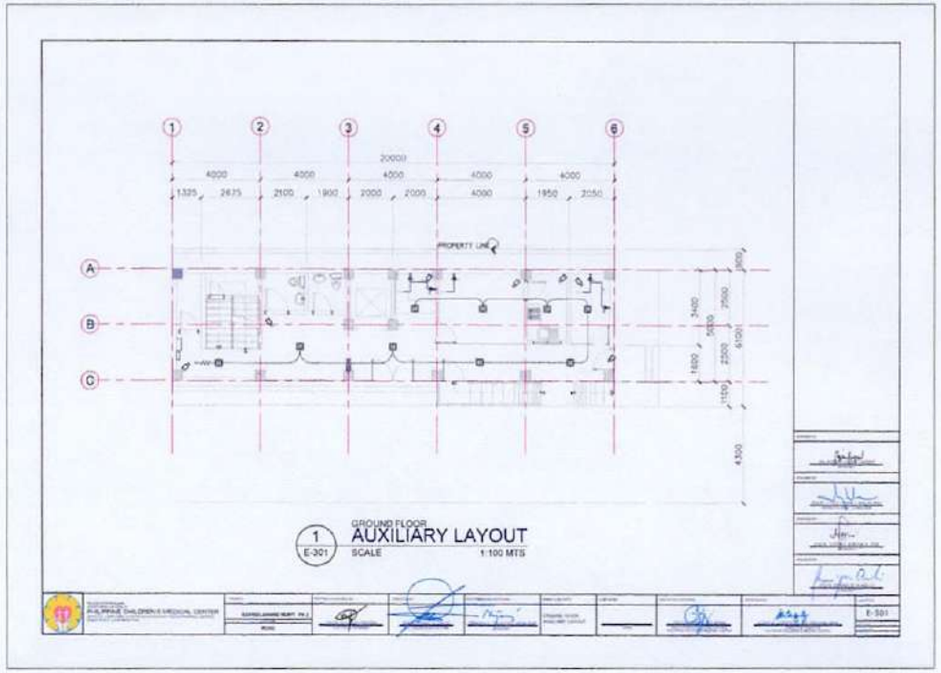

1 2 3 4 5 6
A B C
20000
4000 4000 4000 4000 4000
1400
1325 2675 2100 1900 2000 2000
THIRD FLOOR
1 E-104
LIGHTING LAYOUT
SCALE 1:100 MTS
E-104


1 2 3 4 5 6
A B C
20000
4000 4000 4000 4000 4000
1400
1325 2675 2100 1900 2000 2000
THIRD FLOOR
1 E-203
POWER LAYOUT
SCALE 1:100 MTS
E-203

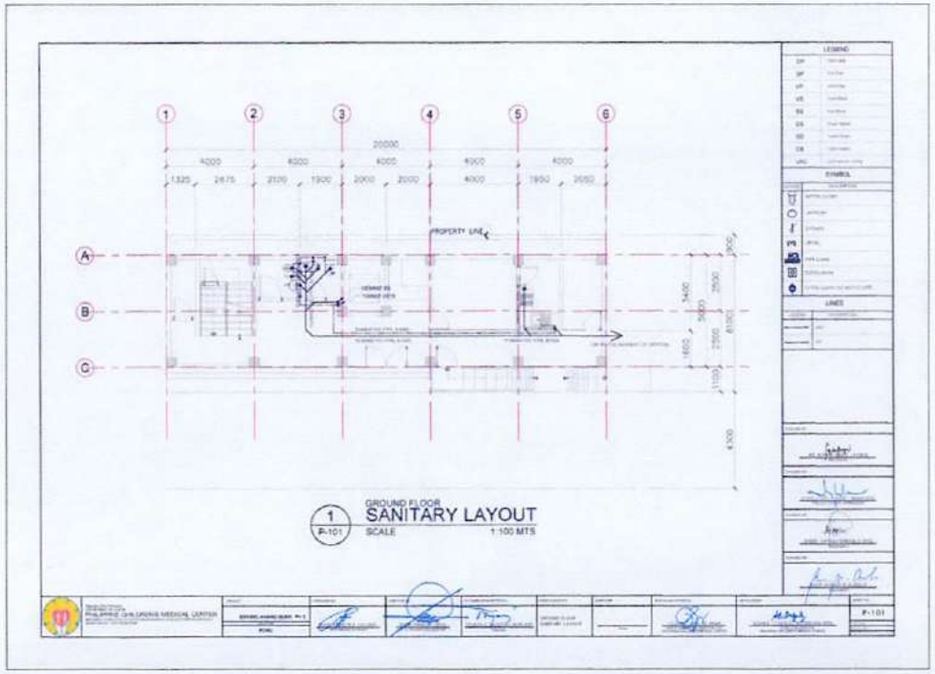

1 2 3 4 5 6
A B C
20000
4000 4000 4000 4000 4000 4000
1325 2675 2100 1900 2000 2000 4000 1950 2050
PROPERTY LINE
GROUND FLOOR
1 E-201
POWER LAYOUT
SCALE 1:100 MTS
E-201



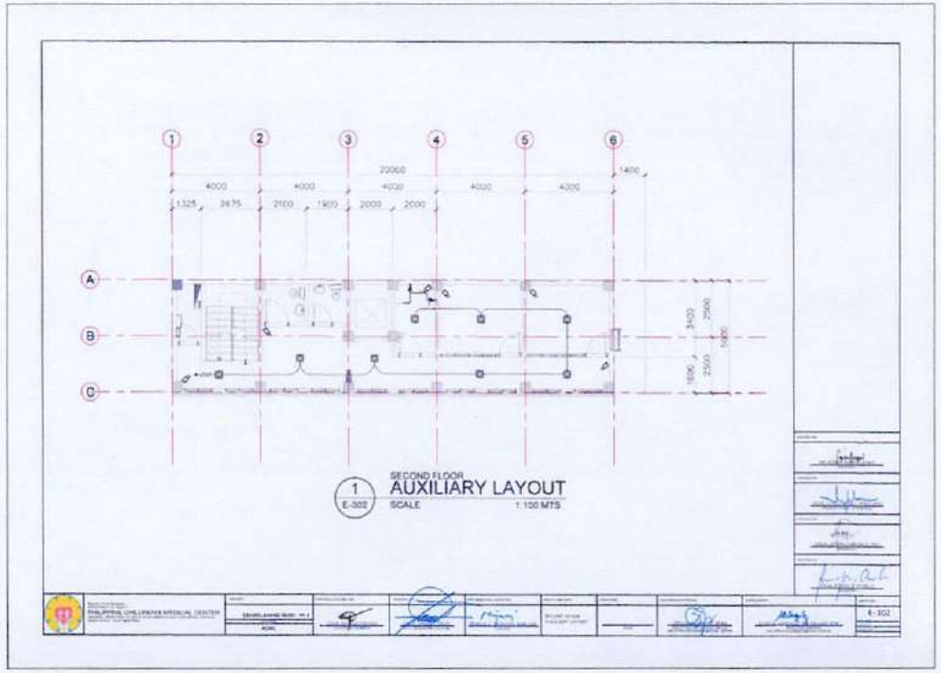
1 E-303 THIRD FLOOR AUXILIARY LAYOUT SCALE 1:100 MTS



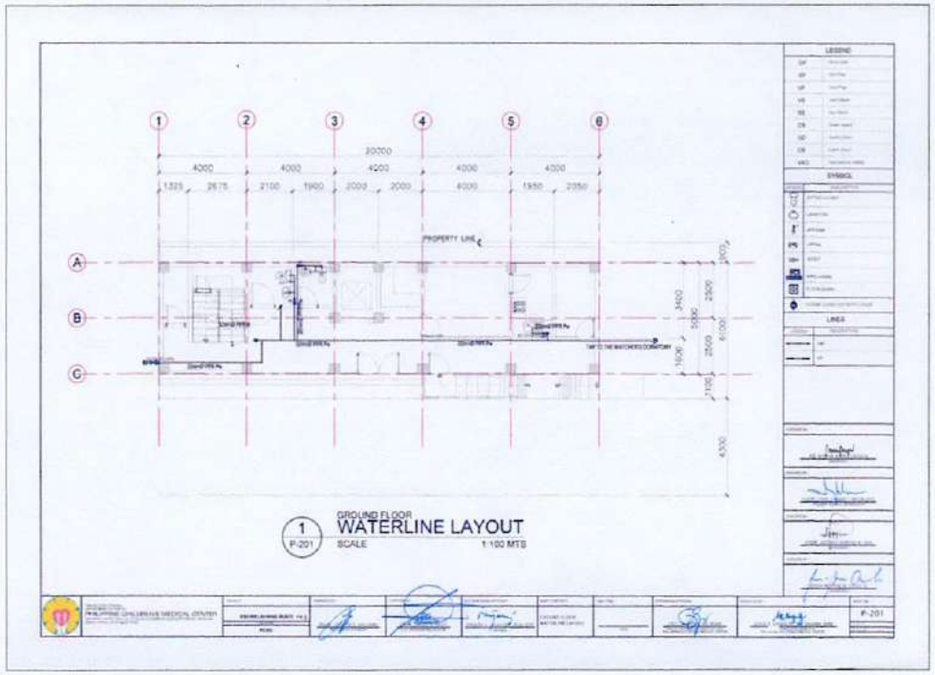
1 E-301 GROUND FLOOR AUXILIARY LAYOUT SCALE 1:100 MTS

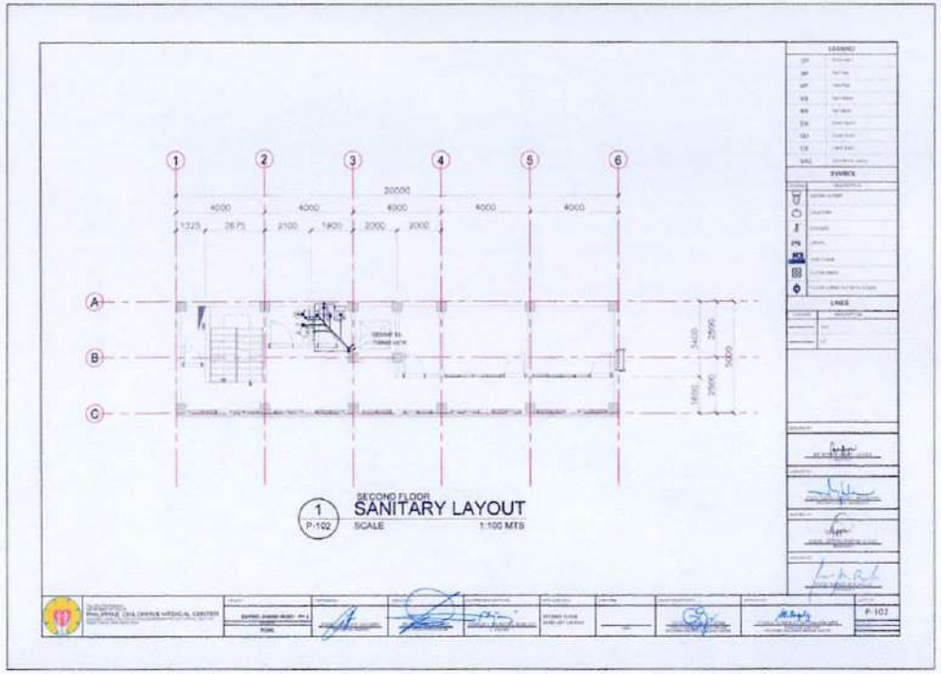


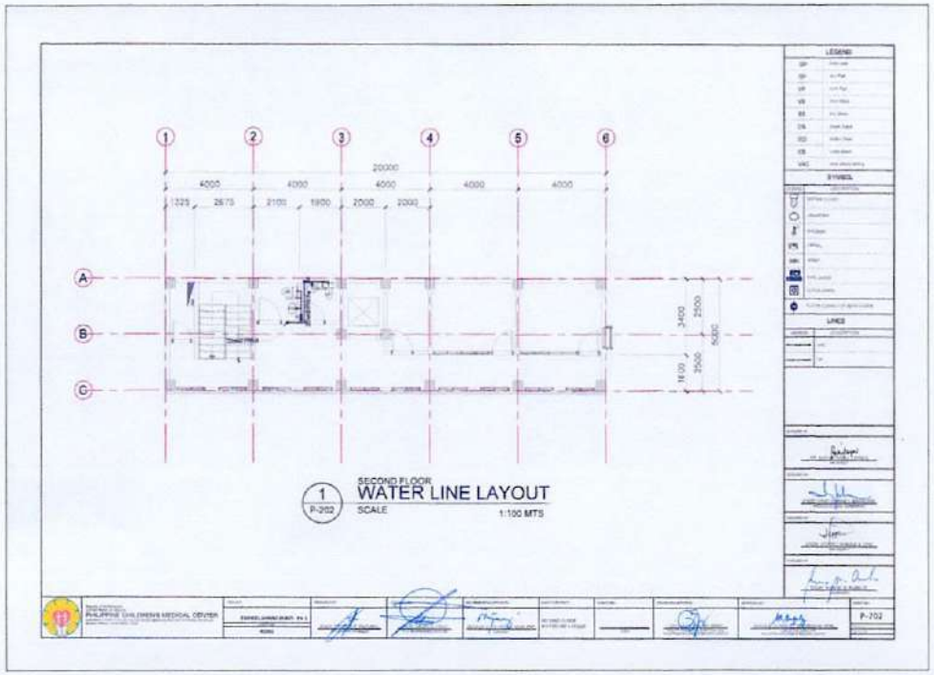
1 P-101 GROUND FLOOR SANITARY LAYOUT SCALE 1:100 MTS

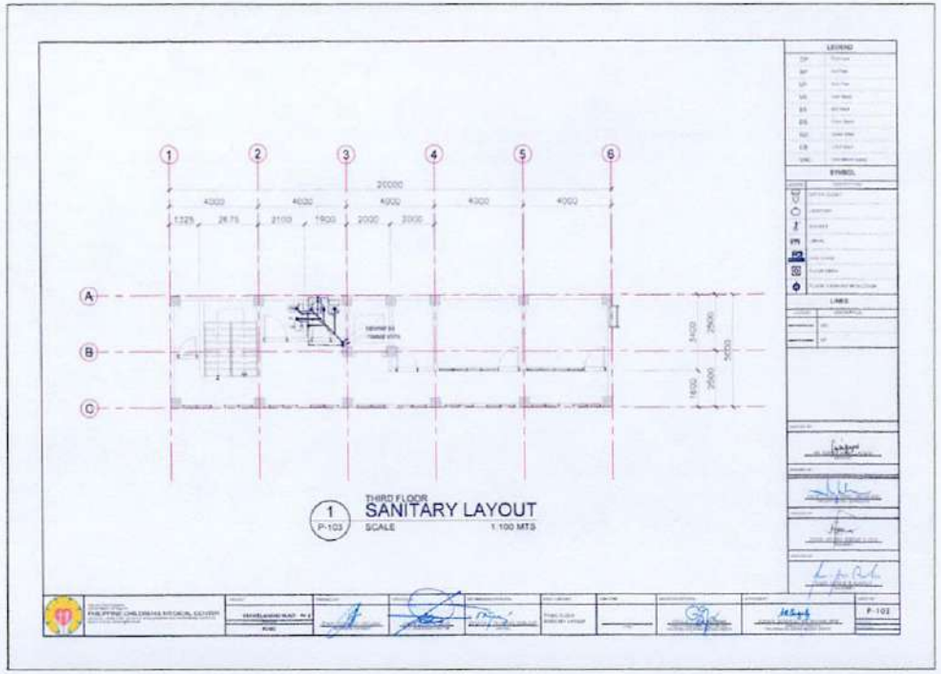


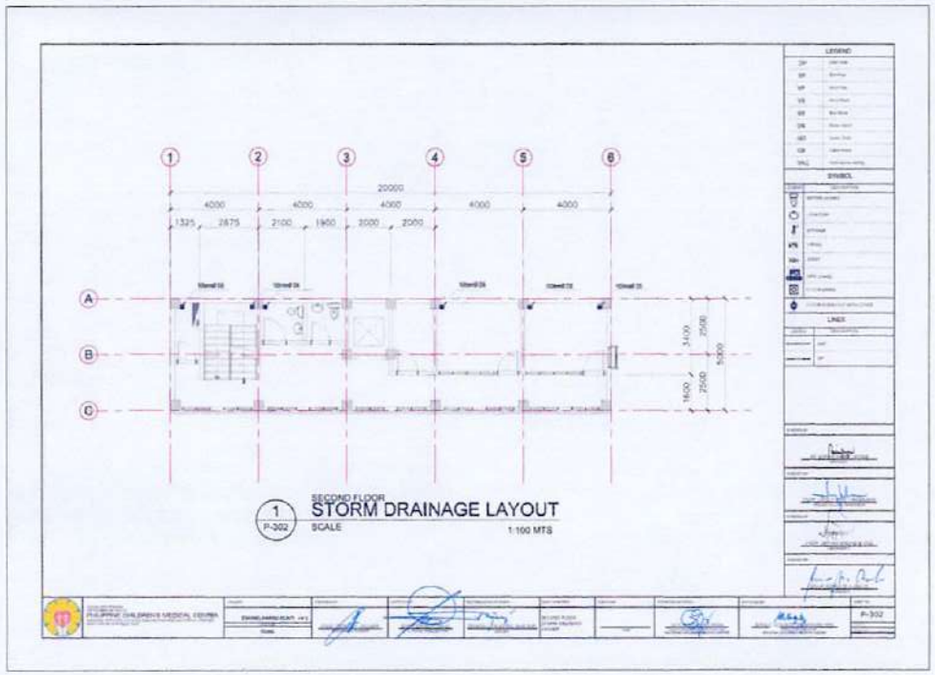
1 E-302 SECOND FLOOR AUXILIARY LAYOUT SCALE 1:100 MTS

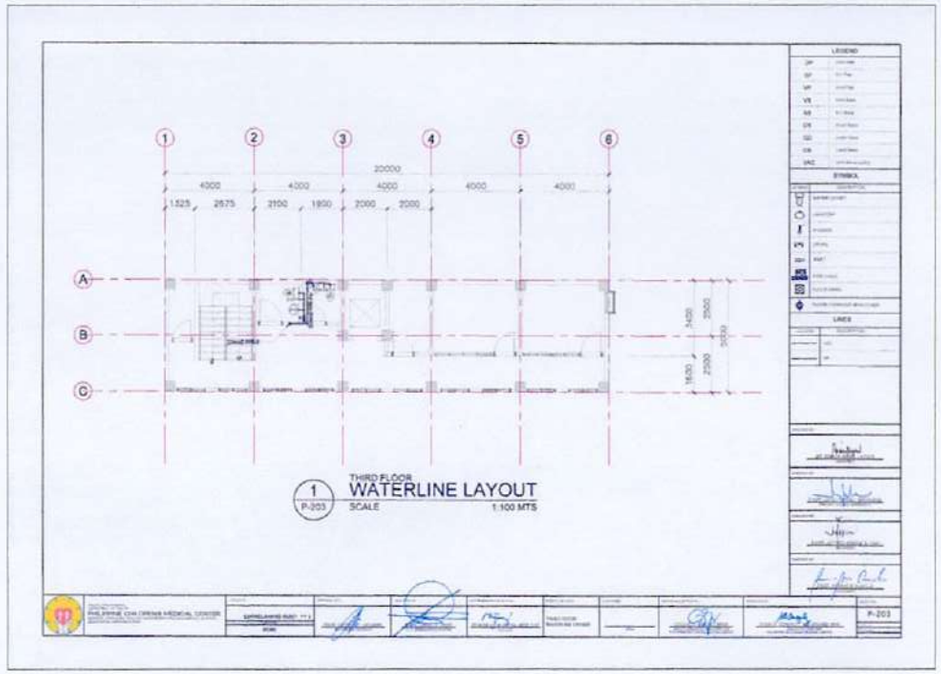

1 2 3 4 5 6
20000
4000 4000 4200 4000 4000
1325 2675 2100 1900 2000 2000 4000 1950 2050
A
B
C
PROPERTY LINE
1 P-201
GROUND FLOOR
WATERLINE LAYOUT
SCALE 1:100 MTS

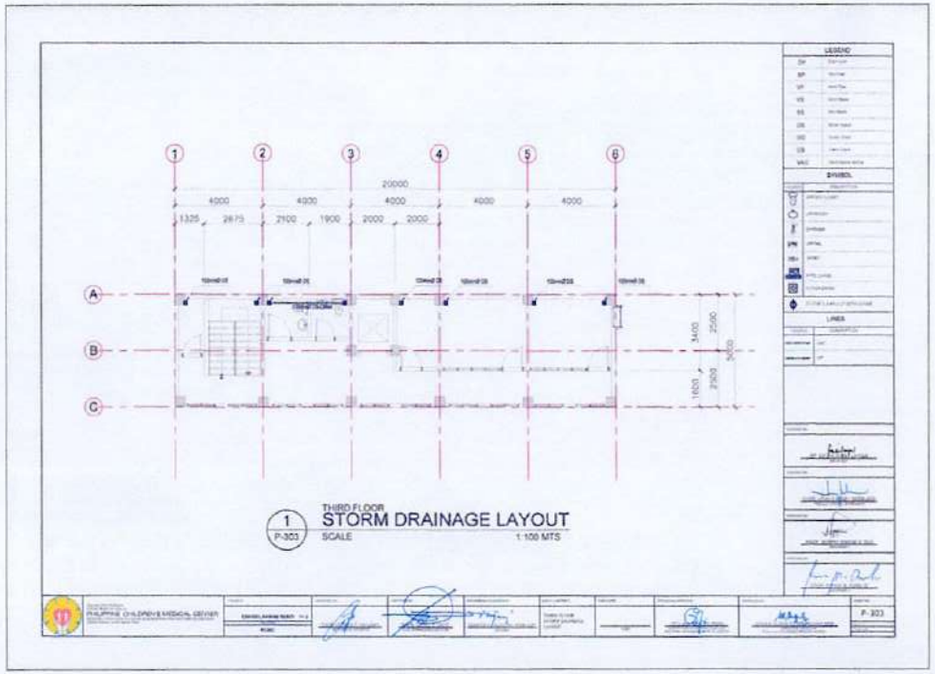

1 2 3 4 5 6
20000
4000 4000 4000 4000 4000
1325 2675 2100 1900 2000 2000
A
B
C
1 P-102
SECOND FLOOR
SANITARY LAYOUT
SCALE 1:100 MTS

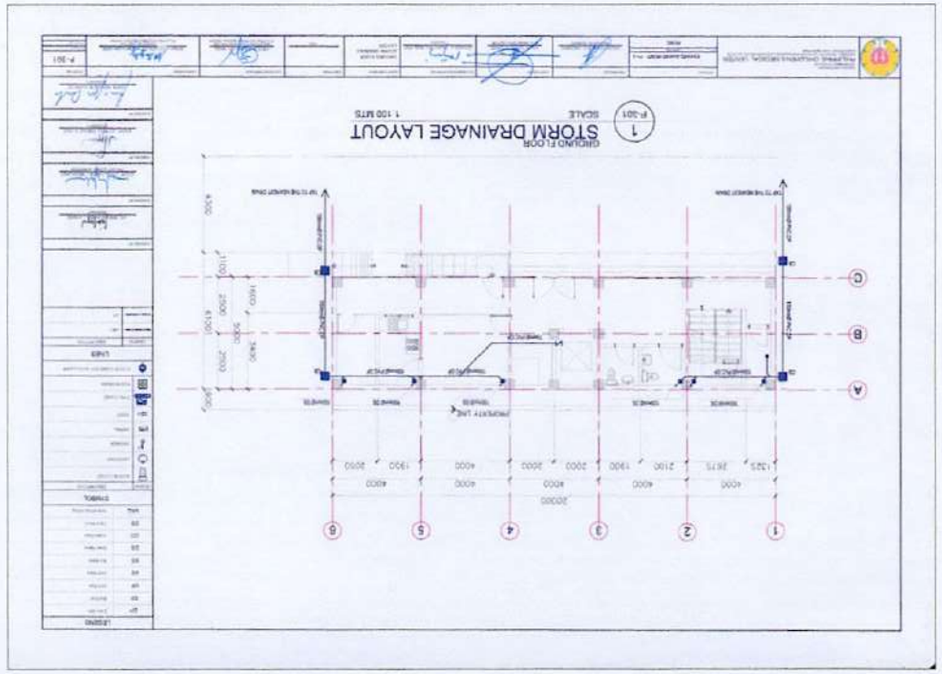

1 2 3 4 5 6
20000
4000 4000 4000 4000 4000
1325 2675 2100 1900 2000 2000
A
B
C
1 P-202
SECOND FLOOR
WATER LINE LAYOUT
SCALE 1:100 MTS

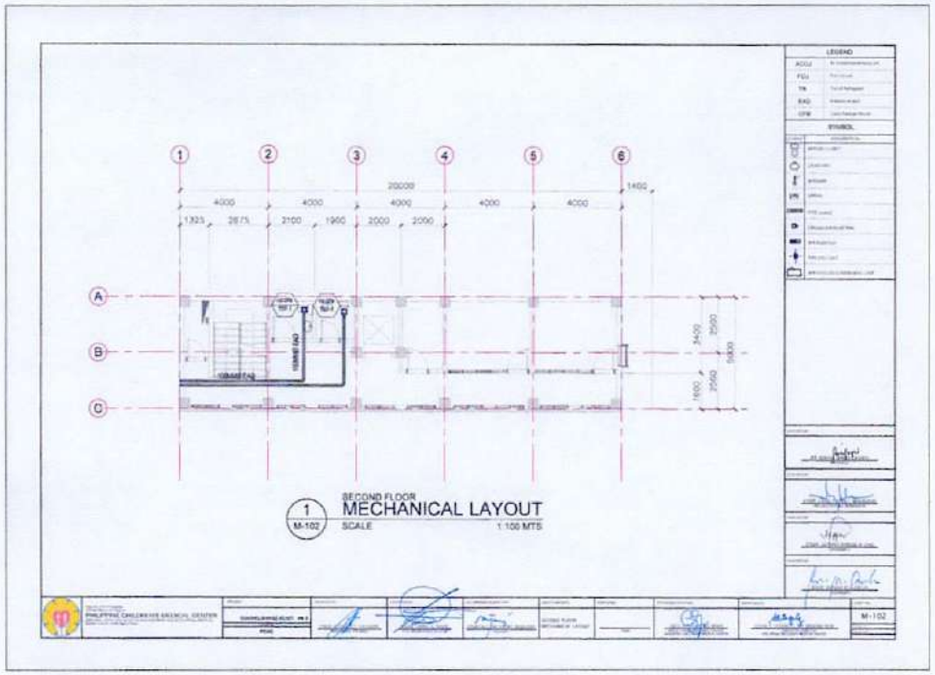

1 2 3 4 5 6
20000
4000 4000 4000 4000 4000
1325 2675 2100 1900 2000 2000
A
B
C
1 P-103
THIRD FLOOR
SANITARY LAYOUT
SCALE 1:100 MTS

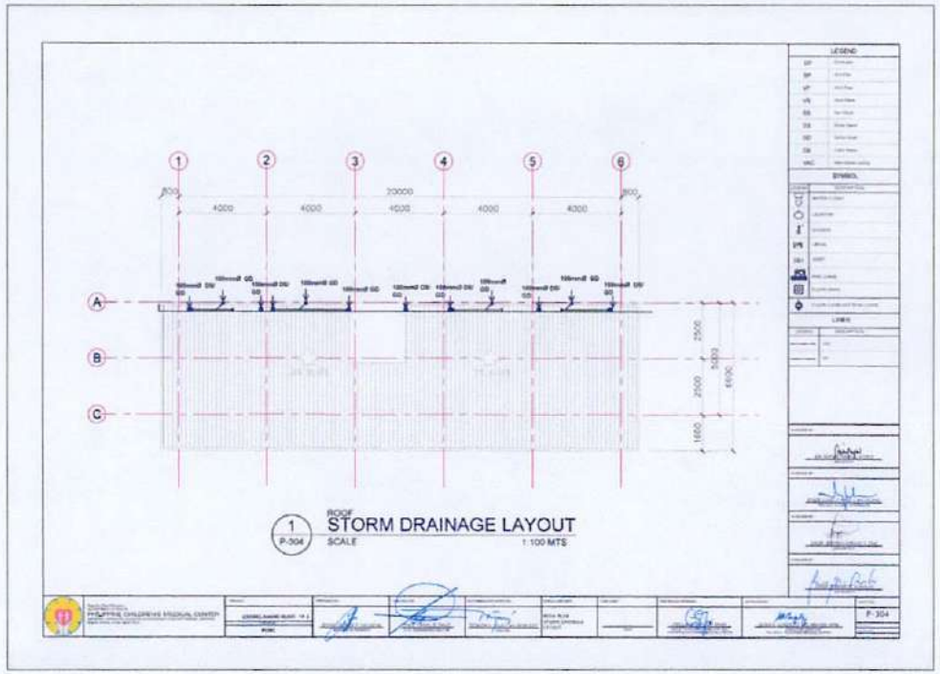

SECOND FLOOR
STORM DRAINAGE LAYOUT
SCALE 1:100 MTS
P-302

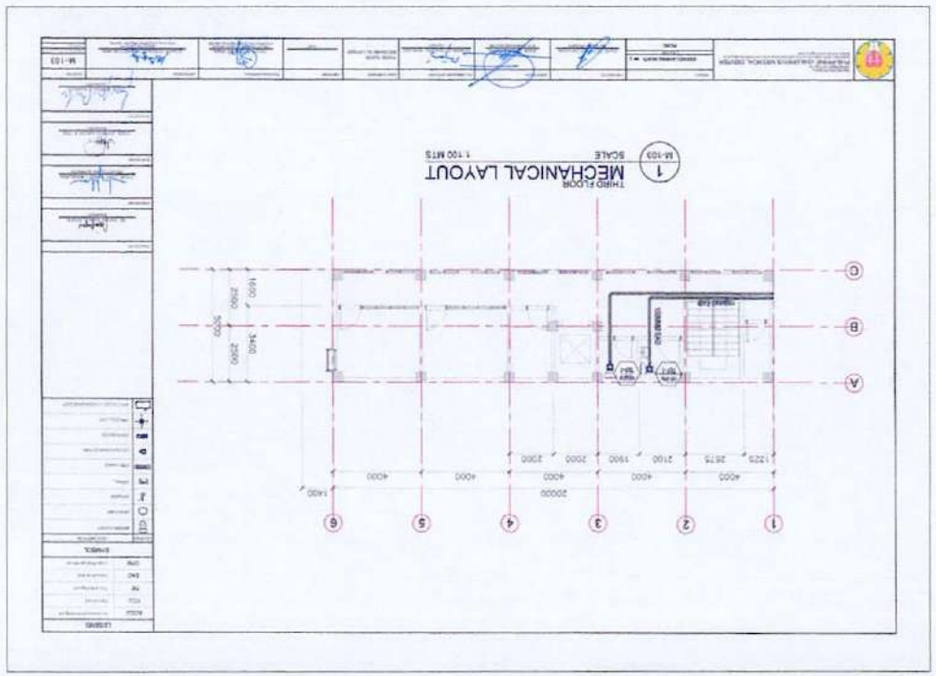

THIRD FLOOR
WATERLINE LAYOUT
SCALE 1:100 MTS
P-303

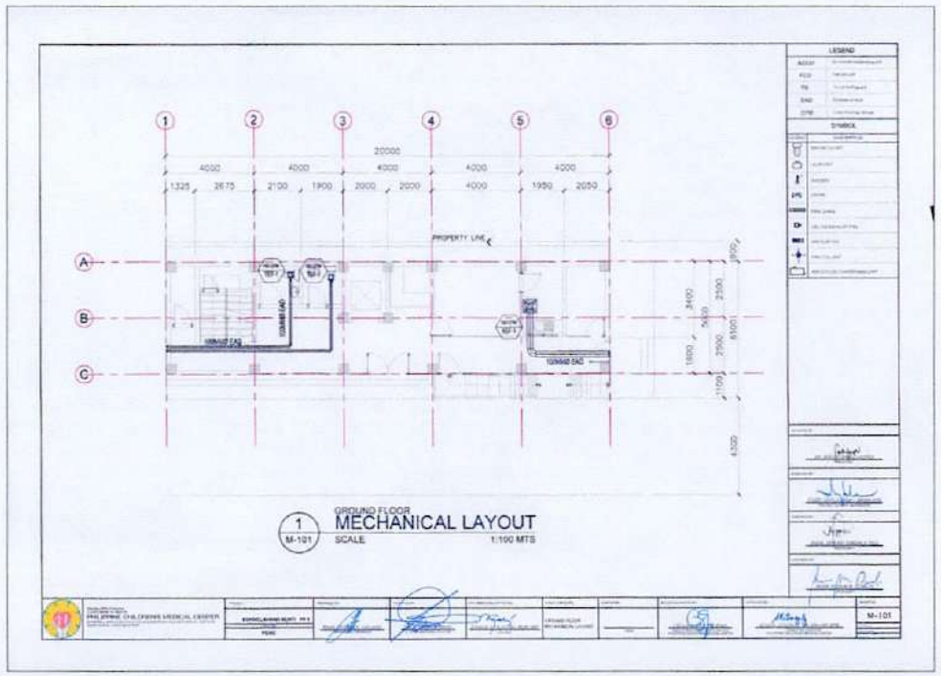

THIRD FLOOR
STORM DRAINAGE LAYOUT
SCALE 1:100 MTS
P-303


GROUND FLOOR
STORM DRAINAGE LAYOUT
SCALE 1:100 MTS
P-301


SECOND FLOOR
MECHANICAL LAYOUT
SCALE 1:100 MTS
M-102


ROOF
STORM DRAINAGE LAYOUT
SCALE 1:100 MTS
P-304


THIRD FLOOR
MECHANICAL LAYOUT
SCALE 1:100 MTS


GROUND FLOOR
MECHANICAL LAYOUT
SCALE 1:100 MTS
M-101

GROUND FLOOR
FIRE PROTECTION LAYOUT
1:100 MTS
SCALE
1
M-201

SECOND FLOOR
FIRE PROTECTION LAYOUT
1:100 MTS
SCALE
1
M-202

THIRD FLOOR
FIRE PROTECTION LAYOUT
1:100 MTS
SCALE
1
M-203

Republic of the Philippines
PHILIPPINE CHILDREN'S MEDICAL CENTER
Bids and Awards Committee
Quezon Avenue, Quezon City 1100
588-9900 loc 361 Website: www.pcmc.gov.ph email: bac@pcmc.gov.ph

SECTION VIII

Bill of Quantities

One (1) Lot Supply of Labor and Materials for the Construction of Three (3) Storey Eskwelahang Munti

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IB-2022-139

COST ESTIMATE FORM

Project : One (1) Lot Supply of Labor and Materials for the Construction of Three (3) Storey Eskwelahang Munti

Location : Philippine Children's Medical Center, Agham Road corner Quezon Avenue Quezon City
Owner : Philippine Children's Medical Center
Bidder :
Date :

Item No.		Description	Qty	Unit	REMARKS	Materials		Labor		Total Direct Cost	Mark-Up		VAT	Total Indirect Cost	Total Cost	Unit Cost
MAIN	SUB					Unit Cost	Total Amount	Unit Cost	Total Amount		OCM	Profit				
A.		GENERAL REQUIREMENTS														
		Mobilization / Demobilization	1.00	lot												
		Permits (all necessary permits)	1.00	lot												
		Temporary Facilities	1.00	lot												
		Site Operating Expenses	1.00	lot												
		Construction, Safety, Health and Security	1.00	lot												
		Site Management and Supervision Staff	1.00	lot	NOT INCLUDED											
		Materials and quality assurance test	1.00	lot												
		SUBTOTAL (GENERAL REQUIREMENTS)														
B.		CIVIL WORKS														
	B.101.1	EARTHWORKS	1.00	lot												
		Excavation Works	144.64	cu.m												
		Backfilling and compaction works	103.92	cu.m												
		Hauling and Disposal of excavated Materials	144.64	cu.m												
		Manual Trimming	100.00	cu.m												
		Gravel Bedding	107.23	cu.m												
	B.101.2	SOIL TREATMENT	1.00	lot												
		Soil Poisoning	100.00	sq.m												
		SUBTOTAL (CIVIL WORKS)														
C.		ARCHITECTURAL WORKS														
	C.1	GROUND FLOOR														
	C.101	MASONRY WORKS														
	C.101.1	WALLS (INTERIOR/ EXTERIOR)	158.17	sq.m												
		4" CHB	58.96	sq.m												
		6" CHB	99.21	sq.m												
	C.102	FINISHING WORKS														
	C.102.1	FLOOR FINISHES	112.05	sq.m												
		(FF-01) 600mm X 600mm Dark Gray Non-slip Tiles	79.68	sq.m												
		(FF-02) 600mm X 600mm Polished White Tiles	17.71	sq.m												
		(FF-03) 600mm X 600mm Beige Non-slip Tiles	6.44	sq.m												
		(FF-04) 300mm X 300mm White Non-slip Tiles	5.46	sq.m												
		(FF-05) Polished Concrete	2.76	sq.m												
	C.102.2	WALL FINISHES	705.83	sq.m												
		(WF-01) White Painted Finish	146.25	sq.m												
		(WF-02) Beige Painted Finish	35.90	sq.m												
		(WF-03) 300mm x 600mm Beige Tiles	41.12	sq.m												
		(WF-04) Light Gray Painted Finish	147.72	sq.m												
		(WF-05) 300mm x 600mm Porcelain Beige Tiles	18.50	sq.m												
		Plaster Finish, 16mm thk	316.34	sq.m												
	C.102.3	CEILING FINISHES	76.42	sq.m												
		(CF-01) Concrete Plastered Slab Soffit	5.14	sq.m												
		(CF-02) 6mm thk Water and Fire Resistant Fiber Cement Board	71.28	sq.m												
	C.103	INSTALLATION OF DOORS AND WINDOWS														
	C.103.1	DOORS INCLUDING JAMBS, DOOR HARDWARE AND FINISHES	1.00	lot												
		(GD-01) 1002mm x 2100mm, 12mm thk Clear Frameless Tempered Glass Door	1.00	set												
		(GD-02) 900mm x 2100mm, 12mm thk Clear Frameless Tempered Glass Door	3.00	set												
		(GD-03) 888mm x 2100mm, 12mm thk Clear Frameless Tempered Glass Door	1.00	set												

Signature over printed name
Authorized Representative
Position :
Name of Bidder :

Item No.		Description	Qty	Unit	REMARKS	Materials		Labor		Total Direct Cost	Mark-Up		VAT	Total Indirect Cost	Total Cost	Unit Cost
MAIN	SUB					Unit Cost	Total Amount	Unit Cost	Total Amount		OCM	Profit				
		(D-01) 800mm x 2100mm, GA#20 Galvanized Steel Hollow Core Door with Kick Plate	1.00	set												
		(D-02) 1000mm x 2100mm, GA#20 Galvanized Steel Hollow Core Door with Kick Plate	1.00	set												
		(D-03) 800mm x 1550mm, Single Leaf Hollow Core Flush Type Door	1.00	set												
		(D-04) 1000mm x 2100mm, GA#18 Galvanized Steel Door with Louver	1.00	sets												
		(D-05) 800mm x 2100mm, GA#18 Galvanized Steel Door with Louver and Glass Window	1.00	set												
	C.103.2	WINDOWS INCLUDING FRAMES AND WINDOW HARDWARE	1.00	lot												
		(W-01) 995mm x 2700mm, 12mm thk. Tempered Fixed Glass Window	4.00	sets												
		(W-02) 888mm x 2100mm, 12mm thk. Tempered Fixed Glass Window	1.00	set												
		(W-03) 780mm x 2700mm, 12mm thk. Tempered Fixed Glass Window	2.00	sets												
		(W-04) 888mm x 2700mm, 12mm thk. Tempered Fixed Glass Window	4.00	sets												
		(W-05) 852mm x 2700mm, 12mm thk. Tempered Fixed Glass Window	3.00	sets												
		(W-06) 831mm x 2700mm, 12mm thk. Tempered Fixed Glass Window	4.00	sets												
		(W-09) 650mm x 500mm, Awning Glass Window	2.00	sets												
	C.104	STAIRCASE WORKS														
	C.104.1	MAIN STAIRCASE (GRND TO 3RD FLR)	70.00	l.m.												
		50mmØ Stainless Steel Pipe	14.00	l.m.												
		Non-skid Metal Nosing	56.00	l.m.												
	C.2	2ND FLOOR														
	C.201	MASONRY WORKS														
	C.201.1	WALLS (INTERIOR/ EXTERIOR)	187.82	sq.m												
		4" CHB	53.53	sq.m												
		6" CHB	134.29	sq.m												
	C.202	FINISHING WORKS														
	C.202.1	FLOOR FINISHES	80.54	sq.m												
		(FF-01) 600mm X 600mm Dark Gray Non-slip Tiles	8.13	sq.m	NOT INCLUDED											
		(FF-02) 600mm X 600mm Polished White Tiles	63.13	sq.m	NOT INCLUDED											
		(FF-03) 600mm X 600mm Beige Non-slip Tiles	6.47	sq.m	NOT INCLUDED											
		(FF-05) Polished Concrete	2.81	sq.m	NOT INCLUDED											
	C.202.2	WALL FINISHES	866.46	sq.m												
		(WF-01) White Painted Finish	237.99	sq.m	NOT INCLUDED											
		(WF-02) Beige Painted Finish	20.92	sq.m	NOT INCLUDED											
		(WF-03) 300mm x 600mm Beige Tiles	40.32	sq.m	NOT INCLUDED											
		(WF-04) Light Gray Painted Finish	191.59	sq.m	NOT INCLUDED											
		Plaster Finish, 16mm thk	375.64	sq.m												
	C.202.3	CEILING FINISHES	71.36	sq.m												
		(CF-01) Concrete Plastered Slab Soffit	2.81	sq.m	NOT INCLUDED											
		(CF-02) 12mm thk Water and Fire Resistant Fiber Cement Board	68.55	sq.m	NOT INCLUDED											
	C.203	INSTALLATION OF DOORS AND WINDOWS														
	C.203.1	DOORS INCLUDING JAMBS, DOOR HARDWARE AND FINISHES	1.00	lot												
		(D-01) 800mm x 2100mm, GA#20 Galvanized Steel Hollow Core Door with Kick Plate	1.00	set	NOT INCLUDED											
		(D-02) 1000mm x 2100mm, GA#20 Galvanized Steel Hollow Core Door with Kick Plate	1.00	set	NOT INCLUDED											
		(D-04) 1000mm x 2100mm, GA#18 Galvanized Steel Door with Louver	1.00	set	NOT INCLUDED											
		(D-06) 800mm x 2100mm, GA#18 Galvanized Steel Door with Louver and View Window	2.00	sets	NOT INCLUDED											
		(D-07) 800mm x 2100mm, PVC Panel Door	1.00	set	NOT INCLUDED											
		(D-08) 800mm x 2100mm, GA#18 Galvanized Steel Door with Push Bar and Door Closer	1.00	set	NOT INCLUDED											
	C.203.2	WINDOWS INCLUDING FRAMES AND WINDOW HARDWARE	1.00	lot												
		(W-07) 1250mm x 1100mm, Casement Glass Window	10.00	sets	NOT INCLUDED											
		(W-08) 2450mm x 1100mm, Sliding and Fixed Glass Window	2.00	sets	NOT INCLUDED											
	C.205	WATERPROOFING WORKS														
	C.205.1	Capillary Type and Integral Waterproofing	8.19	sq.m												
		For Toilet and Slop sink	8.19	sq.m	NOT INCLUDED											

Signature over printed name
Authorized Representative
Position : _____
Name of Bidder : _____

Item No.		Description	Qty	Unit	REMARKS	Materials		Labor		Total Direct Cost	Mark-Up		VAT	Total Indirect Cost	Total Cost	Unit Cost
MAIN	SUB					Unit Cost	Total Amount	Unit Cost	Total Amount		OCM	Profit				
	C.3	3RD FLOOR														
	C.301	MASONRY WORKS														
	C.301.1	WALLS (INTERIOR/ EXTERIOR)	203.62	sq.m												
		4" CHB	61.82	sq.m												
		6" CHB	141.80	sq.m												
	C.302	FINISHING WORKS														
	C.302.1	FLOOR FINISHES	72.43	sq.m												
		(FF-02) 600mm X 600mm Polished White Tiles	63.21	sq.m	NOT INCLUDED											
		(FF-03) 600mm X 600mm Beige Non-slip Tiles	6.45	sq.m	NOT INCLUDED											
		(FF-05) Polished Concrete	2.77	sq.m	NOT INCLUDED											
	C.302.2	WALL FINISHES	886.59	sq.m												
		(WF-01) White Painted Finish	183.22	sq.m	NOT INCLUDED											
		(WF-02) Beige Painted Finish	85.84	sq.m	NOT INCLUDED											
		(WF-03) 300mm x 600mm Beige Tiles	41.08	sq.m	NOT INCLUDED											
		(WF-04) Light Gray Painted Finish	169.21	sq.m	NOT INCLUDED											
		Plaster Finish, 16mm thk	407.24	sq.m												
	C.302.3	CEILING FINISHES	130.10	sq.m												
		(CF-01) Concrete Plastered Slab Soffit	7.00	sq.m	NOT INCLUDED											
		(CF-02) 12mm thk Water and Fire Resistant Fiber Cement Board	76.75	sq.m	NOT INCLUDED											
		(CF-03) Aluminum Wood Slats	46.35	sq.m	NOT INCLUDED											
	C.302.4	EXTERIOR FINISHES	21.60	lm												
		(EF-02) Black Aluminum Composite Panel	21.60	lm	NOT INCLUDED											
	C.303	INSTALLATION OF DOORS AND WINDOWS														
	C.303.1	DOORS INCLUDING JAMBS, DOOR HARDWARE AND FINISHES	1.00	lot												
		(D-01) 800mm x 2100mm, GA#20 Galvanized Steel Hollow Core Door with Kick Plate	1.00	set	NOT INCLUDED											
		(D-02) 1000mm x 2100mm, GA#20 Galvanized Steel Hollow Core Door with Kick Plate	1.00	set	NOT INCLUDED											
		(D-04) 1000mm x 2100mm, GA#18 Galvanized Steel Door with Louver	1.00	set	NOT INCLUDED											
		(D-06) 800mm x 2100mm, GA#18 Galvanized Steel Door with Louver and View Window	2.00	set	NOT INCLUDED											
		(D-07) 800mm x 2100mm, PVC Panel Door	1.00	set	NOT INCLUDED											
		(D-08) 800mm x 2100mm, GA#18 Galvanized Steel Door with Push Bar and Door Closer	1.00	set	NOT INCLUDED											
	C.303.2	WINDOWS INCLUDING FRAMES AND WINDOW HARDWARE	1.00	lot												
		(W-07) 1250mm x 1100mm, Casement Glass Window	10.00	sets	NOT INCLUDED											
		(W-08) 2450mm x 1100mm, Sliding and Fixed Glass Window	2.00	sets	NOT INCLUDED											
		(W-10) 825mm x 500mm, Fixed Glass Window	8.00	sets	NOT INCLUDED											
		(W-11) 888mm x 500mm, Fixed Glass Window	12.00	sets	NOT INCLUDED											
	C.304	WATERPROOFING WORKS														
	C.304.1	Capillary Type and Integral Waterproofing	14.00	sq.m												
		For Toilet and Slop sink and elevator deck	14.00	sq.m	NOT INCLUDED											
	C.305	ROOFING WORKS														
	C.305.1	Roofing	140.00	sq.m												
		Longspan Gauge 24	140.00	sq.m												
	C.4	ELEVATOR DECK														
	C.401	MASONRY WORKS														
	C.401.1	WALLS (INTERIOR/ EXTERIOR)	12.36	sq.m												
		6" CHB	12.36	sq.m												
	C.402	FINISHING WORKS														
	C.402.1	WALL FINISHES	29.18	sq.m												
		(WF-04) Light Gray Painted Finish	29.18	sq.m	NOT INCLUDED											
		Plaster Finish, 16mm thk	24.72	sq.m												
		SUBTOTAL (ARCHITECTURAL WORKS)														
D.		STRUCTURAL WORKS														
	D.1	GROUND FLOOR														
	D.101	CONCRETING WORKS														
	D.101.1	FOOTING	36.16	cu.m												

Signature over printed name
Authorized Representative
Position : _____
Name of Bidder : _____

Item No.		Description	Qty	Unit	REMARKS	Materials		Labor		Total Direct Cost	Mark-Up		VAT	Total Indirect Cost	Total Cost	Unit Cost
MAIN	SUB					Unit Cost	Total Amount	Unit Cost	Total Amount		OCM	Profit				
		Column Footing	36.16	cu.m												
	D.101.2	COLUMN	14.28	cu.m												
		Column	14.28	cu.m												
	D.101.3	BEAM	9.34	cu.m												
		Footing Tie Beam	8.94	cu.m												
		Stair Beam	0.40	cu.m												
	D.101.3	SLABS	13.15	cu.m												
		Slab on Grade	13.15	cu.m												
	D.101.4	Stair Works	2.38	cu.m												
		Stair	2.38	cu.m												
	D.102	**REBAR WORKS**														
	D.102.1	FOOTING	1.00	lot												
		20mmØ Def. bar	209.00	pcs												
		Ga. 16 Tie Wire	30.92	kg												
	D.102.2	COLUMN	1.00	lot												
		12mmØ Def. bar	338.95	pcs												
		16mmØ Def. bar	280.31	pcs												
		20mmØ Def. bar	192.71	pcs												
		Ga. 16 Tie Wire	40.92	kg												
	D.102.3	BEAM	1.00	lot												
		Footing Tie Beam														
		12mmØ Def. bar	194.17	pcs												
		20mmØ Def. bar	193.83	pcs												
		25mmØ Def. bar	4.14	pcs												
		Ga. 16 Tie Wire	39.98	kg												
		Stair Beam														
		12mmØ Def. bar	8.30	pcs												
		20mmØ Def. bar	6.15	pcs												
		Ga. 16 Tie Wire	1.35	kg												
	D.102.3	SLABS	1.00	lot												
		Slab on Grade														
		12mmØ Def. bar	138.33	pcs												
		Ga. 16 Tie Wire	7.37	kg												
	D.102.4	Stair Works	1.00	lot												
		12mmØ Def. bar	298.00	pcs												
		Ga. 16 Tie Wire	16.00	kg												
	D.103	**FORMWORKS**														
	D.103.1	COLUMN	1.00	lot												
		1/4" Thk Plywood	55.00	sheets												
		2" x 2" x 12' Coco Lumber	1030.00	pcs												
		2" x 3" x 12' Coco Lumber	90.00	pcs												
		4" CWN	56.06	kg												
	D.103.2	BEAM	1.00	lot												
		Footing Tie Beam														
		1/4" Thk Plywood	26.00	sheets												
		2" x 2" x 12' Coco Lumber	313.00	pcs												
		2" x 3" x 12' Coco Lumber	130.00	pcs												
		4" CWN	94.54	kg												
	D.103.3	Stair Works	1.00	lot												
		1/2" Thk Plywood	5.00	sheets												
		2" x 2" x 12' Coco Lumber	23.00	pcs												
	D.2	**2ND FLOOR**														
	D.201	**CONCRETING WORKS**														
	D.201.1	COLUMN	7.68	cu.m												
		Column	7.68	cu.m												
	D.201.2	BEAM	9.35	cu.m												
		Beams & Girders	8.94	cu.m												
		Stair Beam	0.41	cu.m												

Signature over printed name
Authorized Representative
Position : _____
Name of Bidder : _____

Item No.		Description	Qty	Unit	REMARKS	Materials		Labor		Total Direct Cost	Mark-Up		VAT	Total Indirect Cost	Total Cost	Unit Cost
MAIN	SUB					Unit Cost	Total Amount	Unit Cost	Total Amount		OCM	Profit				
	D.201.3	SLABS	9.51	cu.m												
		Suspended Slab	9.51	cu.m												
	D.201.4	Stair Works	2.38	cu.m												
		Stair	2.38	cu.m												
	D.202	REBAR WORKS														
	D.202.1	COLUMN	1.00	lot												
		12mmØ Def. bar	208.59	pcs												
		16mmØ Def. bar	172.50	pcs												
		20mmØ Def. bar	118.59	pcs												
		Ga. 16 Tie Wire	25.18	kg												
	D.202.2	BEAM	1.00	lot												
		Beams & Girders														
		12mmØ Def. bar	200.48	pcs												
		20mmØ Def. bar	167.99	pcs												
		Ga. 16 Tie Wire	35.54	kg												
		Stair Beam														
		12mmØ Def. bar	8.30	pcs												
		16mmØ Def. bar	6.23	pcs												
		Ga. 16 Tie Wire	1.03	kg												
	D.202.3	SLABS	1.00	lot												
		Suspended Slab														
		12mmØ Def. bar	198.24	pcs												
		Ga. 16 Tie Wire	10.56	kg												
	D.203	FORMWORKS														
	D.203.1	SLABS	1.00	lot												
		Suspended Slab														
		1/2" Thk Plywood	22.00	sheets												
		2" x 2" x 12' Coco Lumber	100.00	pcs												
		2" x 3" x 12' Coco Lumber	186.00	pcs												
	D.3	3RD FLOOR														
	D.301	CONCRETING WORKS														
	D.301.1	COLUMN	8.16	cu.m												
		Column	8.16	cu.m												
	D.301.2	BEAM	14.28	cu.m												
		Beams & Girders	9.13	cu.m												
		Roof Beams & Girders	5.15	cu.m												
	D.301.3	SLABS	9.52	cu.m												
		Suspended Slab	9.52	cu.m												
	D.302	REBAR WORKS														
	D.302.1	COLUMN	1.00	lot												
		12mmØ Def. bar	221.62	pcs												
		16mmØ Def. bar	183.28	pcs												
		20mmØ Def. bar	126.00	pcs												
		Ga. 16 Tie Wire	26.75	kg												
	D.302.2	BEAM	1.00	lot												
		Beams & Girders														
		12mmØ Def. bar	196.45	pcs												
		20mmØ Def. bar	143.91	pcs												
		Ga. 16 Tie Wire	31.76	kg												
		Roof Beams & Girders														
		12mmØ Def. bar	148.72	pcs												
		16mmØ Def. bar	57.90	pcs												
		Ga. 16 Tie Wire	13.41	kg												
	D.302.3	SLABS	1.00	lot												
		Suspended Slab														
		12mmØ Def. bar	204.55	pcs												
		Ga. 16 Tie Wire	10.90	kg												
	D.303	ROOF FRAMING SYSTEM	1.00	lot												

Signature over printed name
Authorized Representative
Position : _____
Name of Bidder : _____

Item No.		Description	Qty	Unit	REMARKS	Materials		Labor		Total Direct Cost	Mark-Up		VAT	Total Indirect Cost	Total Cost	Unit Cost
MAIN	SUB					Unit Cost	Total Amount	Unit Cost	Total Amount		OCM	Profit				
		C-Purlin, 2"x4"x1.6mm	34.00	pcs												
		Sagrod, 6mmØ	6.00	pcs												
		Angle Bar, 50mmx50mmx6mm, 6m	30.00	pcs												
		Gutter	10.00	pcs												
		Flashing	16.00	pcs												
		Fascia Board, 4'x8'	5.00	sheets												
		Tekscrew, 1"	500.00	pcs												
		Welding Rod	20.00	kg												
	D.4	**ELEVATOR DECK LEVEL**														
	D.401	**CONCRETING WORKS**														
	D.401.1	COLUMN	0.74	cu.m												
		Column	0.74	cu.m												
	D.401.2	BEAM	0.45	cu.m												
		Beams & Girders	0.45	cu.m												
	D.401.3	SLABS	0.56	cu.m												
		Suspended Slab	0.56	cu.m												
	D.402	**REBAR WORKS**														
	D.402.1	COLUMN	1.00	lot												
		12mmØ Def. bar	97.77	pcs												
		16mmØ Def. bar	80.86	pcs												
		20mmØ Def. bar	55.59	pcs												
		Ga. 16 Tie Wire	11.80	kg												
	D.402.2	BEAM	1.00	lot												
		Beams & Girders														
		16mmØ Def. bar	9.23	pcs												
		20mmØ Def. bar	4.09	pcs												
		Ga. 16 Tie Wire	0.88	kg												
	D.402.3	SLABS	1.00	lot												
		Suspended Slab														
		12mmØ Def. bar	10.81	pcs												
		Ga. 16 Tie Wire	0.58	kg												
		SUBTOTAL (STRUCTURAL WORKS)														
E.		**ELECTRICAL WORKS**														
	E.1	**GROUND FLOOR**														
	E.101	**LIGHTING SYSTEM**														
	E.101.1	ROUGH-INS, SLABING, RECTIFICATION, GUIDE WIRING	1.00	lot												
		1/2 PVC Pipe	90.00	pcs												
		1/2 PVC Adapter W/ Locknut	138.00	pcs												
		Utility Box	23.00	pcs												
		Junction box	40.00	pcs												
		Junction box Cover	40.00	pcs												
		1/2 Straight Connector	40.00	pcs												
		1/2 Flexible metallic tube	2.00	roll												
		1/2 Mica tube	2.00	roll												
	E.101.2	CABLE PULLING / WIRING	858.00	m												
		3.5 mm2 THHN Wire (Red)	224.00	m												
		3.5 mm2 THHN Wire (Yellow)	219.00	m												
		3.5 mm2 THHN Wire (Blue)	143.00	m												
		3.5 mm2 THHN Wire (Green)	272.00	m												
	E.101.3	LIGHTING FIXTURES AND WIRING DEVICES	1.00	lot												
		Standard Pin Light(13 watts)	39.00	pcs												
		Twin Emergency Lamps, 2 - 10W w/ 2Hr. Duration UL listed	10.00	pcs												
		1 - Gang Outlet(Universal)	10.00	pcs												
		1 - Gang Switch	7.00	pcs												
		2 - Gang Switch	4.00	pcs												
		1- Gang 3 way switch	1.00	pcs												
		LED Exit light	1.00	pcs												
	E.101.4	CONSUMABLES	1.00	lot												

Signature over printed name
Authorized Representative
Position : _____
Name of Bidder : _____

Item No.		Description	Qty	Unit	REMARKS	Materials		Labor		Total Direct Cost	Mark-Up		VAT	Total Indirect Cost	Total Cost	Unit Cost
MAIN	SUB					Unit Cost	Total Amount	Unit Cost	Total Amount		OCM	Profit				
		Electrical Tape/ Rubber Tape	5.00	pcs												
		Butane Gas	2.00	pcs												
		Solvent Cement	1.00	pc												
		Masking Tape	3.00	pcs												
		Newspaper/any Paper	5.00	kgs												
		G.I. Wires	2.00	kgs												
		Cable Lube	1.00	pcs												
	E.102	POWER SYSTEM														
	E.102.1	ROUGH-INS, SLABING, RECTIFICATION, GUIDE WIRING	1.00	lot												
		1/2 PVC Pipe	50.00	pcs												
		1/2 PVC Adapter W/ Locknut	55.00	pcs												
		3/4 PVC Pipe	2.00	pcs												
		3/4 PVC Connector	4.00	pcs												
		2 1/2 IMC Pipe W/ Coupling	40.00	lgt												
		2 1/2 IMC Elbow	4.00	pcs												
		2 1/2 IMC Locknut & Bushing	2.00	pcs												
		Utility Box	26.00	pcs												
		Square Box 4x4	2.00	pcs												
	E.102.2	CABLE PULLING / WIRING	1355.00	m												
		3.5 mm2 THHN Wire (Red)	170.00	m												
		3.5 mm2 THHN Wire (Yellow)	145.00	m												
		3.5 mm2 THHN Wire (Blue)	100.00	m												
		3.5 mm2 THHN Wire (Green)	100.00	m												
		60 mm2 THHN Wire (Red)	240.00	m												
		60 mm2 THHN Wire (Yellow)	240.00	m												
		60 mm2 THHN Wire (Blue)	240.00	m												
		60 mm2 THHN Wire (Green)	120.00	m												
	E.102.3	DEVICES	1.00	lot												
		2 - Gang Convenience Outlet w/ grounding	21.00	pcs												
		Hand dryer outlet	2.00	pcs												
	E.102.4	CONSUMABLES	1.00	lot												
		Electrical Tape/ Rubber Tape	5.00	pcs												
		Butane Gas	2.00	pcs												
		Solvent Cement	1.00	pcs												
		G.I. Wires	1.00	kgs												
	E.102.5	PANELS	1.00	lot												
		NEMA 3R- 30A, 1P	3.00	assy												
		NEMA 3R - 100A, 3 P	1.00	assy												
	E.103	AUXILIARY WORKS														
	E.103.1	ROUGH-INS, SLABING, RECTIFICATION, GUIDE WIRING	1.00	lot												
		1/2 PVC Pipe	10.00	lgt												
		1/2 PVC Adapter W/ Locknut	12.00	pcs												
		3/4 PVC Pipe	60.00	lgt												
		3/4 PVC Adapter W/ Locknut	72.00	pcs												
		Junction Box	17.00	pcs												
		Utility Box	8.00	pcs												
		4-11/16 Square box	2.00	pcs												
		Junction Box Cover	17.00	pcs												
		4-11/16 Square box Cover	2.00	pcs												
		3/4 Straight Connector	17.00	pcs												
		3/4 Flexible metallic tube	1.00	roll												
		3/4 Mica tube	1.00	roll												
		3/8 Threaded Round Bar 3m	2.00	lgt												
		1" x 1" Angle Bar 3m	1.00	lgt												
		U-Bolt 3/4 w/ nut and washer	6.00	pcs												
		3/8 Expansion Bolt	6.00	pcs												
	E.103.2	CABLE PULLING / WIRING	195.00	m												
		Twisted Pair (1.25mm2 TF Wire)	45.00	m												

Signature over printed name
Authorized Representative
Position : _____
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Item No.		Description	Qty	Unit	REMARKS	Materials		Labor		Total Direct Cost	Mark-Up		VAT	Total Indirect Cost	Total Cost	Unit Cost
MAIN	SUB					Unit Cost	Total Amount	Unit Cost	Total Amount		OCM	Profit				
		UTP CABLE CAT 6	150.00	m												
	E.103.3	DEVICES	1.00	lot												
		Bullet type CCTV Camera,720P resolution	7.00	pcs												
		Manual Pull	1.00	pc												
		Bell	1.00	pc												
		Smoke Detector (Conventional Type)	8.00	pcs												
		Heat Detector (Conventional Type)	1.00	pcs												
		Telephone Outlet	5.00	pcs												
		Speaker 5W	4.00	pcs												
	E.103.4	CONSUMABLES	1.00	lot												
		Electrical Tape/ Rubber Tape	5.00	pcs												
		Butane Gas	2.00	pcs												
		Solvent Cement	1.00	pcs												
		Masking Tape	1.00	pcs												
		Newspaper/any Paper	1.00	kgs												
		G.I. Wires	2.00	kgs												
		Cable Lube	1.00	pcs												
	E.2	2ND FLOOR														
	E.201	LIGHTING SYSTEM														
	E.201.1	ROUGH-INS, SLABING, RECTIFICATION, GUIDE WIRING	1.00	lot												
		1/2 PVC Pipe	100.00	pcs												
		1/2 PVC Adapter W/ Locknut	123.00	pcs												
		Utility Box	22.00	pcs												
		Junction box	41.00	pcs												
		Junction box Cover	41.00	pcs												
		1/2 Straight Connector	41.00	pcs												
		1/2 Flexible metallic tube	2.00	roll												
		1/2 Mica tube	2.00	roll												
	E.201.2	CABLE PULLING / WIRING	795.00	m												
		3.5 mm2 THHN Wire (Red)	349.00	m	NOT INCLUDED											
		3.5 mm2 THHN Wire (Yellow)	142.00	m	NOT INCLUDED											
		3.5 mm2 THHN Wire (Blue)	204.00	m	NOT INCLUDED											
		3.5 mm2 THHN Wire (Green)	100.00	m	NOT INCLUDED											
	E.201.3	LIGHTING FIXTURES AND WIRING DEVICES	1.00	lot												
		Standard Pin Light(13 watts)	39.00	pcs	NOT INCLUDED											
		Twin Emergency Lamps, 2 - 10W w/ 2Hr. Duration UL listed	10.00	pcs	NOT INCLUDED											
		1 - Gang Outlet(Universal)	10.00	pcs	NOT INCLUDED											
		1 - Gang Switch	5.00	pcs	NOT INCLUDED											
		2 - Gang Switch	4.00	pcs	NOT INCLUDED											
		1- Gang 3 way switch	2.00	pcs	NOT INCLUDED											
		LED Exit light	1.00	pcs	NOT INCLUDED											
	E.201.4	CONSUMABLES	1.00	lot												
		Electrical Tape/ Rubber Tape	5.00	pcs												
		Butane Gas	2.00	pcs												
		Solvent Cement	1.00	pcs												
		Masking Tape	1.00	pcs												
		Newspaper/any Paper	2.00	kgs												
		G.I. Wires	2.00	kgs												
		Cable Lube	1.00	pcs												
	E.202	POWER SYSTEM														
	E.202.1	ROUGH-INS, SLABING, RECTIFICATION, GUIDE WIRING	1.00	lot												
		1/2 PVC Pipe	30.00	pcs												
		1/2 PVC Adapter W/ Locknut	55.00	pcs												
		3/4 PVC Pipe	2.00	pcs												
		3/4 PVC Connector	4.00	pcs												
		1 1/4 IMC Pipe W/ Coupling	2.00	lgt												
		1 1/4 IMC Elbow	1.00	pcs												
		1 1/4 IMC Locknut & Bushing	2.00	pcs												

Signature over printed name
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Position : _____
Name of Bidder : _____

Item No.		Description	Qty	Unit	REMARKS	Materials		Labor		Total Direct Cost	Mark-Up		VAT	Total Indirect Cost	Total Cost	Unit Cost
MAIN	SUB					Unit Cost	Total Amount	Unit Cost	Total Amount		OCM	Profit				
		Utility Box	21.00	pcs												
		Square Box 4x4	2.00	pcs												
	E.202.2	CABLE PULLING / WIRING	254.00	m												
		3.5 mm2 THHN Wire (Red)	70.00	m	NOT INCLUDED											
		3.5 mm2 THHN Wire (Yellow)	75.00	m	NOT INCLUDED											
		3.5 mm2 THHN Wire (Blue)	29.00	m	NOT INCLUDED											
		3.5 mm2 THHN Wire (Green)	40.00	m	NOT INCLUDED											
		30 mm2 THHN Wire (Red)	10.00	m	NOT INCLUDED											
		30 mm2 THHN Wire (Yellow)	10.00	m	NOT INCLUDED											
		30 mm2 THHN Wire (Blue)	10.00	m	NOT INCLUDED											
		14 mm2 THHN Wire (Green)	10.00	m	NOT INCLUDED											
	E.202.3	DEVICES	1.00	lot												
		2 - Gang Convenience Outlet w/ grounding	19.00	pcs	NOT INCLUDED											
		Hand dryer outlet	2.00	pcs	NOT INCLUDED											
	E.202.4	CONSUMABLES	1.00	lot												
		Electrical Tape/ Rubber Tape	5.00	pcs												
		Butane Gas	2.00	pcs												
		Solvent Cement	1.00	pcs												
		Masking Tape	1.00	pcs												
		Newspaper/any Paper	2.00	kgs												
		G.I. Wires	2.00	kgs												
	E.202.5	PANELS	1.00	lot												
		NEMA 3R- 30A, 1P	1.00	assy	NOT INCLUDED											
		MPB														
		Main: 250AT/250AF , 3pole, 400V														
		Branches:	1.00	assy	NOT INCLUDED											
		1-100AT / 100AF, 3P, 230V														
		3 - 50AT / 100AF, 3P, 230V														
		2 - 50AT / 100AF, 3P, 230V / SPARE														
		PP														
		Main: 50AT/50AF , 3pole, 400V														
		Branches:	1.00	assy	NOT INCLUDED											
		10 - 30AT / 50AF, 2P, 230V														
		3 - 30AT / 50AF, 2P, 230V / SPARE														
		1 - SPACE														
		AP														
		Main: 50AT/50AF , 3pole, 400V														
		Branches:	1.00	assy	NOT INCLUDED											
		7 - 30AT / 50AF, 2P, 230V														
		3 - 30AT / 50AF, 2P, 230V / SPARE														
		LP														
		Main: 50AT/50AF , 3pole, 400V														
		Branches:	1.00	assy	NOT INCLUDED											
		19 - 30AT / 50AF, 2P, 230V														
		1 - 30AT / 50AF, 2P, 230V / SPARE														
	E.203	**AUXILIARY WORKS**														
	E.203.1	ROUGH-INS, SLABING, RECTIFICATION, GUIDE WIRING	1.00	lot												
		1/2 PVC Pipe	3.00	lgt												
		1/2 PVC Adapter W/ Locknut	5.00	pcs												
		3/4 PVC Pipe	47.00	lgt												
		3/4 PVC Adapter W/ Locknut	57.00	pcs												
		Junction Box	15.00	pcs												
		Utility Box	3.00	pcs												
		4-11/16 Square box	2.00	pcs												
		Junction Box Cover	15.00	pcs												
		4-11/16 Square box Cover	2.00	pcs												
		3/4 Straight Connector	15.00	pcs												
		3/4 Flexible metallic tube	1.00	roll												

Signature over printed name
Authorized Representative
Position : _____
Name of Bidder : _____

Item No.		Description	Qty	Unit	REMARKS	Materials		Labor		Total Direct Cost	Mark-Up		VAT	Total Indirect Cost	Total Cost	Unit Cost
MAIN	SUB					Unit Cost	Total Amount	Unit Cost	Total Amount		OCM	Profit				
		3/4 Mica tube	1.00	roll												
		3/8 Threaded Round Bar 3m	2.00	lgt												
		1" x 1" Angle Bar 3m	2.00	lgt												
		U-Bolt 3/4 w/ nut and washer	6.00	pcs												
		3/8 Expansion Bolt	6.00	pcs												
	E.203.2	CABLE PULLING / WIRING	150.00	m												
		Twisted Pair (1.25mm2 TF Wire)	45.00	m	NOT INCLUDED											
		UTP CABLE CAT 6	105.00	m	NOT INCLUDED											
	E.203.3	DEVICES	1.00	lot												
		Bullet type CCTV Camera,720P resolution	6.00	pcs	NOT INCLUDED											
		Manual Pull	1.00	pcs	NOT INCLUDED											
		Bell	1.00	pcs	NOT INCLUDED											
		Smoke Detector (Conventional Type)	8.00	pcs	NOT INCLUDED											
		Telephone Outlet	2.00	pcs	NOT INCLUDED											
		Speaker 5W	4.00	pcs	NOT INCLUDED											
	E.203.4	CONSUMABLES	1.00	lot												
		Electrical Tape/ Rubber Tape	5.00	pcs												
		Butane Gas	2.00	pcs												
		Solvent Cement	1.00	pcs												
		Masking Tape	1.00	pcs												
		Newspaper/any Paper	1.00	kgs												
		G.I. Wires	2.00	kgs												
		Cable Lube	1.00	pcs												
	E.3	3RD FLOOR														
	E.301	LIGHTING SYSTEM														
	E.301.1	ROUGH-INS, SLABING, RECTIFICATION, GUIDE WIRING	1.00	lot												
		1/2 PVC Pipe	120.00	pcs												
		1/2 PVC Adapter W/ Locknut	164.00	pcs												
		Utility Box	22.00	pcs												
		Junction box	62.00	pcs												
		Junction box Cover	62.00	pcs												
		1/2 Straight Connector	62.00	pcs												
		1/2 Flexible metallic tube	3.00	roll												
		1/2 Mica tube	3.00	roll												
	E.301.2	CABLE PULLING / WIRING	945.00	m												
		3.5 mm2 THHN Wire (Red)	349.00	m	NOT INCLUDED											
		3.5 mm2 THHN Wire (Yellow)	192.00	m	NOT INCLUDED											
		3.5 mm2 THHN Wire (Blue)	254.00	m	NOT INCLUDED											
		3.5 mm2 THHN Wire (Green)	150.00	m	NOT INCLUDED											
	E.301.3	LIGHTING FIXTURES AND WIRING DEVICES	1.00	lot												
		Flourescent Lamp	2.00	pcs	NOT INCLUDED											
		Standard Pin Light(13 watts)	43.00	pcs	NOT INCLUDED											
		Elevator Lights	3.00	pcs	NOT INCLUDED											
		Downlight 10W Cool white	21.00	pcs	NOT INCLUDED											
		Twin Emergency Lamps, 2 - 10W w/ 2Hr. Duration UL listed	12.00	pcs	NOT INCLUDED											
		1 - Gang Outlet(Universal)	12.00	pcs	NOT INCLUDED											
		1 - Gang Switch	5.00	pcs	NOT INCLUDED											
		2 - Gang Switch	2.00	pcs	NOT INCLUDED											
		3 - Gang Switch	1.00	pcs	NOT INCLUDED											
		1- Gang 3 way switch	2.00	pcs	NOT INCLUDED											
		LED Exit light	1.00	pcs	NOT INCLUDED											
	E.301.4	CONSUMABLES	1.00	lot												
		Electrical Tape/ Rubber Tape	5.00	pcs												
		Butane Gas	2.00	pcs												
		Solvent Cement	1.00	pc												
		Masking Tape	1.00	pc												
		Newspaper/any Paper	2.00	kgs												
		G.I. Wires	2.00	kgs												

Signature over printed name
Authorized Representative
Position : _____
Name of Bidder : _____

Item No.		Description	Qty	Unit	REMARKS	Materials		Labor		Total Direct Cost	Mark-Up		VAT	Total Indirect Cost	Total Cost	Unit Cost
MAIN	SUB					Unit Cost	Total Amount	Unit Cost	Total Amount		OCM	Profit				
		Cable Lube	1.00	pcs												
	E.302	POWER SYSTEM														
	E.302.1	ROUGH-INS, SLABING, RECTIFICATION, GUIDE WIRING	1.00	lot												
		1/2 PVC Pipe	30.00	pcs												
		1/2 PVC Adapter W/ Locknut	55.00	pcs												
		3/4 PVC Pipe	2.00	pcs												
		3/4 PVC Connector	4.00	pcs												
		Utility Box	21.00	pcs												
		Square Box 4x4	2.00	pcs												
	E.302.2	CABLE PULLING / WIRING	673.00	m												
		3.5 mm2 THHN Wire (Red)	46.00	m	NOT INCLUDED											
		3.5 mm2 THHN Wire (Yellow)	280.00	m	NOT INCLUDED											
		3.5 mm2 THHN Wire (Blue)	247.00	m	NOT INCLUDED											
		3.5 mm2 THHN Wire (Green)	100.00	m	NOT INCLUDED											
	E.302.3	DEVICES	1.00	lot												
		2 - Gang Convenience Outlet w/ grounding	19.00	pcs	NOT INCLUDED											
		Hand dryer outlet	2.00	pcs	NOT INCLUDED											
	E.302.4	CONSUMABLES	1.00	lot												
		Electrical Tape/ Rubber Tape	5.00	pcs												
		Butane Gas	2.00	pcs												
		Solvent Cement	1.00	pc												
		Masking Tape	1.00	pcs												
		Newspaper/any Paper	2.00	kgs												
		G.I. Wires	2.00	kgs												
	E.302.5	PANELS	1.00	lot												
		NEMA 3R- 30A, 1P	1.00	assy	NOT INCLUDED											
	E.303	AUXILIARY WORKS														
	E.303.1	ROUGH-INS, SLABING, RECTIFICATION, GUIDE WIRING	1.00	lot												
		1/2 PVC Pipe	3.00	lgt												
		1/2 PVC Adapter W/ Locknut	5.00	pcs												
		3/4 PVC Pipe	47.00	lgt												
		3/4 PVC Adapter W/ Locknut	57.00	pcs												
		Junction Box	15.00	pcs												
		Utility Box	3.00	pcs												
		4-11/16 Square box	2.00	pcs												
		Junction Box Cover	15.00	pcs												
		4-11/16 Square box Cover	2.00	pcs												
		3/4 Straight Connector	15.00	pcs												
		3/4 Flexible metallic tube	1.00	roll												
		3/4 Mica tube	1.00	roll												
		3/8 Threaded Round Bar 3m	2.00	lgt												
		1" x 1" Angle Bar 3m	2.00	lgt												
		U-Bolt 3/4 w/ nut and washer	6.00	pcs												
		3/8 Expansion Bolt	6.00	pcs												
	E.303.2	CABLE PULLING / WIRING	150.00	m												
		Twisted Pair (1.25mm2 TF Wire)	45.00	m	NOT INCLUDED											
		UTP CABLE CAT 6	105.00	m	NOT INCLUDED											
	E.303.3	DEVICES	1.00	lot												
		Bullet type CCTV Camera,720P resolution	6.00	pcs	NOT INCLUDED											
		Manual Pull	1.00	pcs	NOT INCLUDED											
		Bell	1.00	pcs	NOT INCLUDED											
		Smoke Detector (Conventional Type)	8.00	pcs	NOT INCLUDED											
		Telephone Outlet	2.00	pcs	NOT INCLUDED											
		Speaker 5W	4.00	pcs	NOT INCLUDED											
	E.303.4	CONSUMABLES	1.00	lot												
		Electrical Tape/ Rubber Tape	5.00	pcs												
		Butane Gas	2.00	pcs												
		Solvent Cement	1.00	pcs												

Signature over printed name
Authorized Representative
Position : _____
Name of Bidder : _____

Item No.		Description	Qty	Unit	REMARKS	Materials		Labor		Total Direct Cost	Mark-Up		VAT	Total Indirect Cost	Total Cost	Unit Cost
MAIN	SUB					Unit Cost	Total Amount	Unit Cost	Total Amount		OCM	Profit				
		Masking Tape	1.00	pcs												
		Newspaper/any Paper	1.00	kgs												
		G.I. Wires	5.00	kgs												
		Cable Lube	1.00	pcs												
		SUBTOTAL (ELECTRICAL WORKS)														
F.		**MECHANICAL WORKS**														
	F.1	**GROUND, 2ND & 3RD FLOOR**														
	F.101	**AC UNITS INSTALLATION**														
	F.101.1	AC UNITS INSTALLATION	1.00	lot												
		2HP Ceiling Cassette Type: Split type, inverter AC unit w/ branch duct and grille	3.00	set	NOT INCLUDED											
		1.5HP Ceiling Cassette Type: Split type, inverter AC unit	2.00	set	NOT INCLUDED											
		1HP Wall mounted Type: Split type, inverter AC unit	1.00	set	NOT INCLUDED											
		100CFM Ceiling Mounted Exhaust Fan	7.00	set	NOT INCLUDED											
		Portable Air Purifier, Hepa 13	6.00	set	NOT INCLUDED											
		Supply Air Grille 200x200mm, double deflection w/ plenum	3.00	set	NOT INCLUDED											
		100MM End-cap	7.00	pcs	NOT INCLUDED											
		100MM Flex.Duct w/ insulation	6.00	pcs	NOT INCLUDED											
		100MM PVC Pipe S-1000	21.00	pcs	NOT INCLUDED											
		100MM Flexible Duct x 3mtrs	5.00	pcs	NOT INCLUDED											
	F.101.2	ELEVATOR SUPPLY AND INSTALLATION	1.00	lot												
		Elevator, 630kg / 8 Pax	1.00	lot	NOT INCLUDED											
		SUBTOTAL (MECHANICAL WORKS)														
G.		**PLUMBING/ SANITARY WORKS**														
	G.1	**GRND, 2ND, 3RD FLOOR**														
	G.101	**SANITARY WORKS**														
	G.101.1	SANITARY, PVC S-1000	1.00	lot												
		PVC pipe 150mm x 3m	12.00	pcs.												
		PVC pipe 100mm x 3m	16.00	pcs.												
		PVC pipe 75mm x 3m	5.00	pcs.												
		PVC pipe 50mm x 3m	30.00	pcs.												
		PVC wye 150x100mm	4.00	pcs.												
		PVC wye 150x75mm	5.00	pcs.												
		PVC wye 100mm	6.00	pcs.												
		PVC wye 100x75mm	1.00	pcs.												
		PVC wye 100x50mm	8.00	pcs.												
		PVC wye 75x50mm	3.00	pcs.												
		PVC tee 100x50mm	6.00	pcs.												
		PVC tee 50mm	30.00	pcs.												
		PVC elbow 150mm x 45 deg	2.00	pcs.												
		PVC elbow 100mm x 90 deg	2.00	pcs.												
		PVC elbow 100mm x 45 deg	25.00	pcs.												
		PVC elbow 75mm x 90 deg	4.00	pcs.												
		PVC elbow 75mm x 45 deg	2.00	pcs.												
		PVC elbow 50mm x 90 deg	53.00	pcs.												
		PVC elbow 50mm x 45 deg	9.00	pcs.												
		PVC reducer 150x100mm	1.00	pcs.												
		PVC reducer 150x75mm	5.00	pcs.												
		PVC clean-out 100mm	2.00	pcs.												
		PVC p-trap 50mm	6.00	pcs.												
	G.102	**STORM DRAINAGE WORKS**														
	G.102.1	STORM DRAINAGE, PVC S-1000	1.00	lot												
		PVC pipe 150mm x 3m	15.00	pcs.												
		PVC pipe 100mm x 3m	32.00	pcs.												
		PVC pipe 75mm x 3m	4.00	pcs.												
		PVC pipe 50mm x 3m	3.00	pcs.												
		PVC wye 150x100mm	4.00	pcs.												
		PVC wye 100x50mm	3.00	pcs.												

Signature over printed name
Authorized Representative
Position : _____
Name of Bidder : _____

Item No.		Description	Qty	Unit	REMARKS	Materials		Labor		Total Direct Cost	Mark-Up		VAT	Total Indirect Cost	Total Cost	Unit Cost
MAIN	SUB					Unit Cost	Total Amount	Unit Cost	Total Amount		OCM	Profit				
		PVC wye 100mm	10.00	pcs.												
		PVC elbow 150mm x 45 deg	2.00	pcs.												
		PVC elbow 100mm x 90 deg	2.00	pcs.												
		PVC elbow 100mm x 45 deg	35.00	pcs.												
		PVC elbow 50mm x 45 deg	3.00	pcs.												
		PVC reducer 150x100mm	2.00	pcs.												
		PVC clean-out 100mm	5.00	pcs.												
		P-trap 50mm	3.00	pcs.												
	G.103	WATERLINE WORKS														
	G.103.1	WATERLINE, PPR PN-20	1.00	lot												
		PPR pipe 32mm x 4m	10.00	pcs.												
		PPR pipe 25mm x 4m	5.00	pcs.												
		PPR pipe 20mm x 4m	5.00	pcs.												
		PPR tee equal 32mm	1.00	pcs.												
		PPR tee equal 20mm	3.00	pcs.												
		PPR tee reducer 32x20mm	3.00	pcs.												
		PPR tee reducer 32x25mm	2.00	pcs.												
		PPR tee reducer 25x20mm	8.00	pcs.												
		PPR coupling reducer 25x20mm	14.00	pcs.												
		PPR F. Tee 1/2"	13.00	pcs.												
		PPR F. Elbow 1/2"	1.00	pcs.												
		PPR elbow 32mm x 90 deg	1.00	pcs.												
		PPR elbow 20mm x 90 deg	31.00	pcs.												
		PPR end cap 25mm	13.00	pcs.												
		PPR end cap 32mm	2.00	pcs.												
		PPR cap plug 20mm	5.00	pcs.												
		PPR coupling 32mm	6.00	pcs.												
		PPR gate valve 1"	1.00	pcs.												
		PPR gate valve 1/2"	11.00	pcs.												
	G.104	PLUMBING FIXTURES & ACCESSORIES														
	G.104.1	PLUMBING FIXTURES AND ACCESSORIES	1.00	lot												
		Water Closet with accs. (Ground floor only)	2.00	set												
		Lavatory with accs. (Ground floor only)	2.00	set												
		Floor drain	3.00	set												
		Bidet Set (Ground floor only)	2.00	set												
		Faucet with accs. (Ground floor only)	2.00	set												
		Hose Bibb set with lock	1.00	set												
		Floor clean out with plate cover	7.00	set												
		Catch Basin	6.00	set												
		Gutter drain	12.00	set												
		.75Hp Elevator pit pump	1.00	set	NOT INCLUDED											
		Industrial Exhaust Fan for Elevator	1.00	set	NOT INCLUDED											
		Pipe supports and consumables	1.00	lot												
		Testing & Commissioning	1.00	lot												
		SUBTOTAL (PLUMBING/ SANITARY WORKS)														
H.		FIRE PROTECTION WORKS														
	H.1	GRND, 2ND, 3RD FLOOR														
	H.101	FIRE PROTECTION INSTALLATION														
	H.101.1	ROUGH-INS AND SUPPLIES	1.00	lot												
		Fire Dept Connection- Siamese Twin 75x65x65mm	1.00	set												
		Check Valve 75mm	1.00	pcs												
		Fire Hose Valve comp. accs	3.00	set												
		Fire Hose Cabinet w/ accs.	3.00	set												
		10Lbs Fire Extinguisher	6.00	pcs												
		B.I Pipe 75mm x 6m	4.00	pcs												
		B.I Pipe 65mm x 6m	1.00	pcs												
		B.I Pipe 40mm x 6m	9.00	pcs												
		B.I Tee 75mm	1.00	pcs												

Signature over printed name
Authorized Representative
Position : _____
Name of Bidder : _____

Item No.		Description	Qty	Unit	REMARKS	Materials		Labor		Total Direct Cost	Mark-Up		VAT	Total Indirect Cost	Total Cost	Unit Cost
MAIN	SUB					Unit Cost	Total Amount	Unit Cost	Total Amount		OCM	Profit				
		B.I elbow 75mm x 90	3.00	pcs												
		B.I elbow 40mm x 90	15.00	pcs												
		Threadolet 65mm	3.00	pcs												
		Threadolet 40mm	3.00	pcs												
		Slip-on Flange	4.00	pcs												
		Blind Flange	2.00	pcs												
		Consumables	1.00	lot												
		Testing & Commissioning	1.00	lot												
		SUBTOTAL (FIRE PROTECTION WORKS)														
		GRAND TOTAL														

Signature over printed name
Authorized Representative
Position : _____
Name of Bidder : _____

Republic of the Philippines
DEPARTMENT OF HEALTH
PHILIPPINE CHILDREN'S MEDICAL CENTER
Bids and Awards Committee
Quezon Avenue, Quezon City 1100
website: **www.pcmc.gov.ph** email: **bac@pcmc.gov.ph**
Trunkline: 588-9900 local 361/355 Telefax No.: 924-0870

SECTION IX

Checklist of Technical and Financial Documents

One (1) Lot Supply of Labor and Materials for the Construction of Three (3) Storey Eskwelahang Munti

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IB-2022-139

Checklist of Technical and Financial Documents

The Bidder shall submit the following **TECHNICAL COMPONENT ENVELOPE (ARRANGED, NUMBERED AND TABBED)** ***[Strictly NO using of staple wire and thick materials for tabs]*** as enumerated below:

Use of indelible ink color blue shall be used by the authorized signatory in signing the required forms.

I. TECHNICAL COMPONENT ENVELOPE

Class "A" Documents

Legal Documents

☐ (a) Valid PhilGEPS Registration Certificate (Platinum Membership) (all pages) in accordance with Section 8.5.2 of the IRR

Note: For the purpose of updating the Certificate of Registration and Membership, all Class "A" eligibility documents mentioned in this section supporting the veracity, authenticity and validity of the Certificate shall remain current and updated. The failure by the prospective bidder to update its Certificate with the current and updated Class "A" eligibility documents shall result in the automatic suspension of the validity of its Certificate until such time that all of the expired Class "A" eligibility documents has been updated (per GPPB Resolution No. 15-2021).

Technical Documents

☐ (b) Statement of the prospective bidder of all its ongoing government and private contracts, including contracts awarded but not yet started, if any, whether similar or not similar in nature and complexity to the contract to be bid. *(Use of Form No. DOBA-PCMC-SCF3b is required)*

and

☐ (c) Statement of the bidder's Single Largest Completed Contract (SLCC) similar to the contract to be bid (**Refer to Bid Data Sheet ITB Clause 5.2**), except under conditions provided under the rules (*use of Form No.* ***DOBA-PCMC-SCF3a*** *is required*)

☐ (d) Special PCAB License in case of Joint Ventures;
and registration for the type and cost of the contract to be bid
(**Refer to Bid Data Sheet ITB Clause 10.3**); **and**

☐ (e) Original copy of Bid Security. If in the form of a Surety Bond, submit also a certification issued by the Insurance Commission (**Refer to Bid Data Sheet ITB Clause 15.1**);

or

Original copy of Notarized Bid Securing Declaration; **and**

☐ (f) Project Requirements, which shall include the following:

a. Organizational Chart for the contract to be bid *(Use of the Form No.* ***DOBA-PCMC-SQF24*** *as the guide*)

b. List of contractor's key personnel (*e.g.*, Project Manager, Project Engineers, Materials Engineers, and Foremen), to be assigned to the contract to be bid, with their complete qualification and experience data;

Supporting documents shall be the following:

i. Statement of the Qualifications of the Key Personnel Proposed to be assigned to the contract (*use of the Form No.* ***DOBA-PCMC-SQF17*** *is required*)
ii. Contractor's letter - Certificate to the Procuring Entity (*use of the Form No.* ***DOBA-PCMC-CCF23*** *is required)*
iii. Key Personnel's Certificate of Employment *use of the Form No.* (***DOBA-PCMC-KCF18*** *is required*)
iv. Bio-Data of each of the key personnel *(use of the Form No.* ***DOBA-PCMC-BPF16*** *is required*)

c. 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 (*use of Form No.* ***DOBA-PCMC-LEF20*** *is required);* **and**

☐ (g) Original duly signed Omnibus Sworn Statement (OSS).
and if applicable, Original Notarized Secretary's Certificate in case of a corporation, partnership, or cooperative; or Original Special Power of Attorney of all members of the joint venture giving full power and authority to its officer to sign the OSS and do acts to represent the Bidder.

Financial Documents

☐ (h) The prospective bidder's computation of the Net Financial Contracting Capacity (NFCC) (*Use of Form No. DOBA–PCMC–NFF4 is required****);***

Class "B" Documents

☐ (i) If applicable, duly signed joint venture agreement (JVA) in accordance with RA No. 4566 and its IRR in case the joint venture is already in existence;

or

duly notarized statements from all the potential joint venture partners stating that they will enter into and abide by the provisions of the JVA in the instance that the bid is successful.

I. FINANCIAL COMPONENT ENVELOPE

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

Other documentary requirements under RA No. 9184

☐ (k) Original of duly signed Bid Prices in the Bill of Quantities; **and**

☐ (l) Duly accomplished Detailed Estimates Form, including a summary sheet indicating the unit prices of construction materials, labor rates, and equipment rentals used in coming up with the Bid;

Note: Bidder shall return to PCMC the issued USB Flash Drive containing the following :

1. ***Soft copy of their accomplished Bill of Quantities and Detailed Price Schedule (in excel format).*** Any discrepancies between the submitted hard copy and soft copy of the Bill of Quantities and Detailed Estimates, the hard copy will prevail.

2. **SCANNED copy** (in **PDF Format**) **of ALL** the required documents under Section VIII. Checklist of Technical and Financial Documents

and

☐ (m) Cash Flow by Quarter and payments schedule (*use of Form No. **DOBA-PCMC-CFF27** as the guide*)

CONFORME:

_____	_____
Authorized Signatory Signature over printed name	Contact No:

_____	_____	_____
Name of Company/Firm Contact No.	Company's Official Email Address (where notices will be sent)	Company's Official