



University of the Philippines  
**OPEN UNIVERSITY**

# **PHILIPPINE BIDDING DOCUMENTS**

for

# **COMPLETION OF THE CONVENTION HALL OF THE INTERNATIONAL CONVENTION CENTER**

**Sixth Edition  
July 2020**

# Preface

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

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

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

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

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

- a. All the documents listed in the Table of Contents are normally required for the procurement of Infrastructure Projects. However, they should be adapted as necessary to the circumstances of the particular Project.
- b. Specific details, such as the “*name of the Procuring Entity*” and “*address for bid submission*,” should be furnished in the Instructions to Bidders, Bid Data Sheet, and Special Conditions of Contract. The final documents should contain neither blank spaces nor options.
- c. This Preface and the footnotes or notes in italics included in the Invitation to Bid, BDS, General Conditions of Contract, Special Conditions of Contract, Specifications, Drawings, and Bill of Quantities are not part of the text of the final document, although they contain instructions that the Procuring Entity should strictly follow.

- d. The cover should be modified as required to identify the Bidding Documents as to the names of the Project, Contract, and Procuring Entity, in addition to date of issue.
- e. Modifications for specific Procurement Project details should be provided in the Special Conditions of Contract as amendments to the Conditions of Contract. For easy completion, whenever reference has to be made to specific clauses in the Bid Data Sheet or Special Conditions of Contract, these terms shall be printed in bold typeface on Sections I (Instructions to Bidders) and III (General Conditions of Contract), respectively.
- f. For guidelines on the use of Bidding Forms and the procurement of Foreign-Assisted Projects, these will be covered by a separate issuance of the Government Procurement Policy Board.

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

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

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

**BAC** – Bids and Awards Committee.

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

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

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

**BIR** – Bureau of Internal Revenue.

**BSP** – Bangko Sentral ng Pilipinas.

**CDA** – Cooperative Development Authority.

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

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

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

**CPI** – Consumer Price Index.

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

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

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

**GFI** – Government Financial Institution.

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

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

**GOP** – Government of the Philippines.

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

**LGUs** – Local Government Units.

**NFCC** – Net Financial Contracting Capacity.

**NGA** – National Government Agency.

**PCAB** – Philippine Contractors Accreditation Board.

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

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

**PSA** – Philippine Statistics Authority.

**SEC** – Securities and Exchange Commission.

**SLCC** – Single Largest Completed Contract.

**UN** – United Nations.



# University of the Philippines **OPEN UNIVERSITY**

## *Section I. Invitation to Bid for*

### **Completion of the Convention Hall of the International Convention Center**

The UP Open University (UPOU), through the Government of the Philippines (GOP) Revolving Fund, intends to apply the sum of Seven Million Eight Hundred Seventy-Nine Thousand One Hundred Thirty-Four Pesos and Ninety-Three Centavos (PhP7,879,134.93) being the Approved Budget for the Contract (ABC) to payments under the contract for “Completion of the Convention Hall of the International Convention Center” (IB No. 24-03-003). Bids received in excess of the ABC shall be automatically rejected at bid opening.

The UPOU now invites bids for the above Procurement Project. Completion of the Works is required in one hundred fifty (150) calendar days. Bidders should have completed a contract similar to the Project. The description of an eligible bidder is contained in the Bidding Documents, particularly, in Section II (Instructions to Bidders).

Bidding will be conducted through open competitive bidding procedures using non-discretionary “*pass/fail*” criterion as specified in the 2016 revised Implementing Rules and Regulations (IRR) of Republic Act (RA) No. 9184.

Interested bidders may obtain further information from BAC Secretariat and inspect the Bidding Documents from 8:00 AM to 5:00 PM Monday to Friday at the UPOU Headquarters, Los Baños, Laguna.

A complete set of Bidding Documents may be acquired by interested bidders from the address below and upon payment of the applicable fee for the Bidding Documents, pursuant to the latest Guidelines issued by the GPPB, in the amount of **Eight Thousand Pesos (PhP 8,000.00)** only. UPOU shall allow the bidder to present its proof of payment for the fees in person, by facsimile or through electronic means.

The UPOU will hold a **Pre-Bid Conference** on **04 April 2024, 1:30 PM** at the UPOU Headquarters, Los Banos, Laguna and/or through video conferencing or any other means, which shall be open to prospective bidders.

Bids must be duly received by the BAC Secretariat through manual submission at the office address indicated below **on or before 18 April 2024, 12:00 PM.** Late bids shall not be accepted.

All bids must be accompanied by a bid security in any of the acceptable forms and in the amount stated in **ITB** Clause 16.

Bid opening shall be on **18 April 2024, 1:30 PM** at the given address below and/or via video conferencing or any other means. Bids will be opened in the presence of the bidders’ representatives who choose to attend the activity.

The UPOU reserves the right to reject any and all bids, declare a failure of bidding, or not award the contract at any time prior to contract award in accordance with Sections 35.6 and 41 of the 2016 revised Implementing Rules and Regulations (IRR) of RA No. 9184, without thereby incurring any liability to the affected bidder or bidders.

For further information, please refer to:

**MS. ELVY A. PAMULAKLAKIN**

Head, Bids and Awards Committee (BAC) Secretariat

UPOU Headquarters, Los Baños, Laguna

Telephone No.: (049) 536-6001-06 local 210-211

Telefax No.: (049) 536-5991

Email: [bac@upou.edu.ph](mailto:bac@upou.edu.ph)

You may visit the following websites:

For downloading of Bidding Documents:

[\*https://www.upou.edu.ph/bids-and-awards-committee/\*](https://www.upou.edu.ph/bids-and-awards-committee/)

*27 March 2024*

**(SGD) Dr. PRIMO G. GARCIA**  
Chair  
Bids and Awards Committee

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

### **1. Scope of Bid**

The UPOU invites Bids for the **Completion of the Convention Hall of the International Convention Center**, with Project Identification Number IB No. 24-03-003.

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 in the amount of PhP7,879,134.93.

2.2. The source of funding is Revolving Fund.

### **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 Subcontracting is not allowed.

- 7.2. 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 Procuring Entity will hold a pre-bid conference for this Project on the specified date and time and either at its physical address, **UPOU Headquarters, Los Banos, Laguna** and/or through videoconferencing/webcasting as indicated in paragraph 6 of the **IB**.

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

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

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

- 10.1. The first envelope shall contain the eligibility and technical documents of the Bid as specified in **Section VIII. Checklist of Technical and Financial Documents**.
- 10.2. If the eligibility requirements or statements, the bids, and all other documents for submission to the BAC are in foreign language other than English, it must be accompanied by a translation in English, which shall be authenticated by the appropriate Philippine foreign service establishment, post, or the equivalent office having jurisdiction over the foreign bidder's affairs in the Philippines. For Contracting Parties to the Apostille Convention, only the translated documents shall be authenticated through an apostille pursuant to GPPB Resolution No. 13-2019 dated 23 May 2019. The English translation shall govern, for purposes of interpretation of the bid.
- 10.3. A valid PCAB License is required, and in case of joint ventures, a valid special PCAB License, and registration for the type and cost of the contract for this Project. Any additional type of Contractor license or permit shall be indicated in the **BDS**.
- 10.4. A List of Contractor's key personnel (e.g., Project Manager, Project Engineers, Materials Engineers, and Foremen) assigned to the contract to be bid, with their complete qualification and experience data shall be provided. These key personnel must meet the required minimum years of experience set in the **BDS**.
- 10.5. A List of Contractor's major equipment units, which are owned, leased, and/or under purchase agreements, supported by proof of ownership, certification of availability of equipment from the equipment lessor/vendor for the duration of the project, as the case may be, must meet the minimum requirements for the contract set in the **BDS**.

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

- 11.1. The second bid envelope shall contain the financial documents for the Bid as specified in **Section VIII. 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 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 and shall not exceed one hundred fifty (150) calendar days from the date of the opening of bids. Any bid not accompanied by an acceptable bid security shall be rejected by the Procuring Entity as non-responsive.

## **16. Sealing and Marking of Bids**

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

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

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

## **17. Deadline for Submission of Bids**

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

## **18. Opening and Preliminary Examination of Bids**

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

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

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

## **19. Detailed Evaluation and Comparison of Bids**

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

## **20. Post Qualification**

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

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

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

## *Section III. Bid Data Sheet*

ITB Clause															
5.2	For this purpose, contracts similar to the Project refer to contracts which have the same major categories of work.														
7.1	<i>No additional requirement.</i>														
10.3	<i>No further instructions.</i>														
10.4	<p>The key personnel must meet the required minimum years of experience set below:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Key Personnel</th> <th style="text-align: left;">General Experience</th> </tr> </thead> <tbody> <tr> <td>1. Resident Architect/Civil Engineer</td> <td>Min. 5 yrs</td> </tr> <tr> <td>2. Project Registered Electrical Engineer</td> <td>Min. 5 yrs</td> </tr> <tr> <td>3. Safety Officer/Engineer</td> <td>Min. 5 yrs w/ COSH Certificate</td> </tr> <tr> <td>4. General Foreman</td> <td>Min. 5 yrs</td> </tr> <tr> <td>5. Electrician</td> <td>Min. 5 yrs w/ NC2</td> </tr> </tbody> </table> <p><b>Note:</b> Personnel with multiple expertise and qualifications with at most three different positions mentioned above are allowed as long as he/she can provide the necessary documentation in support of his/her qualifications such as appropriate licenses, certificate of training, accreditation, and the like should be submitted separately for each position.</p>	Key Personnel	General Experience	1. Resident Architect/Civil Engineer	Min. 5 yrs	2. Project Registered Electrical Engineer	Min. 5 yrs	3. Safety Officer/Engineer	Min. 5 yrs w/ COSH Certificate	4. General Foreman	Min. 5 yrs	5. Electrician	Min. 5 yrs w/ NC2		
Key Personnel	General Experience														
1. Resident Architect/Civil Engineer	Min. 5 yrs														
2. Project Registered Electrical Engineer	Min. 5 yrs														
3. Safety Officer/Engineer	Min. 5 yrs w/ COSH Certificate														
4. General Foreman	Min. 5 yrs														
5. Electrician	Min. 5 yrs w/ NC2														
10.5	<p>The minimum major equipment requirements are the following:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">A. Equipment</th> <th style="text-align: left;">No. of Units</th> </tr> </thead> <tbody> <tr> <td>1. Welding Machine (min. 400amp)</td> <td>Min. 1 unit</td> </tr> <tr> <td>2. Grinder</td> <td>Min. 2 units</td> </tr> <tr> <td>3. Compressor</td> <td>Min. 2 units</td> </tr> <tr> <td>4. Insulation Resistance Tester</td> <td>Min. 1 unit</td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">B. Others</th> <th style="text-align: left;">No. of Units</th> </tr> </thead> <tbody> <tr> <td>1. PPE (Personal Protective Equipment) (hard hat, safety vest, safety shoes, safety harness, safety gloves)</td> <td>Min. 15 pcs per item except safety harness (5 pcs only)</td> </tr> </tbody> </table>	A. Equipment	No. of Units	1. Welding Machine (min. 400amp)	Min. 1 unit	2. Grinder	Min. 2 units	3. Compressor	Min. 2 units	4. Insulation Resistance Tester	Min. 1 unit	B. Others	No. of Units	1. PPE (Personal Protective Equipment) (hard hat, safety vest, safety shoes, safety harness, safety gloves)	Min. 15 pcs per item except safety harness (5 pcs only)
A. Equipment	No. of Units														
1. Welding Machine (min. 400amp)	Min. 1 unit														
2. Grinder	Min. 2 units														
3. Compressor	Min. 2 units														
4. Insulation Resistance Tester	Min. 1 unit														
B. Others	No. of Units														
1. PPE (Personal Protective Equipment) (hard hat, safety vest, safety shoes, safety harness, safety gloves)	Min. 15 pcs per item except safety harness (5 pcs only)														
12	<i>No further instructions.</i>														
15.1	<p>The bid security shall be in the form of a Bid Securing Declaration or any of the following forms and amounts:</p> <ol style="list-style-type: none"> <li>a. The amount of not less than <b>PhP 157,582.70 (2%) of ABC</b>, if bid security is in cash, cashier's/manager's check, bank draft/guarantee or irrevocable letter of credit;</li> <li>b. The amount of not less than <b>PhP 393,956.75 (5%) of ABC</b> if bid security is in Surety Bond.</li> </ol>														
19.2	Partial bids is not allowed.														

20	Valid PCAB License and Registration: Small B (minimum size range); General Building (GB1); Category C or D (minimum license category).
21	The Bidder shall submit additional contract document relevant to the project such as Contractor's Letter-Certificate to UPOU.

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

### **1. Scope of Contract**

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

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

### **2. Sectional Completion of Works**

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

### **3. Possession of Site**

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

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

### **4. The Contractor's Obligations**

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

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

## **5. Performance Security**

- 5.1. Within ten (10) calendar days from receipt of the Notice of Award from the Procuring Entity but in no case later than the signing of the contract by both parties, the successful Bidder shall furnish the performance security in any of the forms prescribed in Section 39 of the 2016 revised IRR.
- 5.2. The Contractor, by entering into the Contract with the Procuring Entity, acknowledges the right of the Procuring Entity to institute action pursuant to RA No. 3688 against any subcontractor be they an individual, firm, partnership, corporation, or association supplying the Contractor with labor, materials and/or equipment for the performance of this Contract.

## **6. Site Investigation Reports**

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

## **7. Warranty**

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

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

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

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

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

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

## **10. Dayworks**

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

## **11. Program of Work**

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

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

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

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

## **13. Advance Payment**

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

## **14. Progress Payments**

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



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

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

## *Section V. Special Conditions of Contract*

GCC Clause	
2	The <b>Intended Completion Date</b> is <b>one hundred fifty (150) calendar days</b> from the starting date; the starting date being seven (7) calendar days from the issuance of the Notice to Proceed.  <b>NOTE: The contract duration shall be reckoned from the start date and not from contract effectivity date.</b>
4.1	The UPOU shall give possession of all parts of the Site to the Contractor upon issuance of the Notice to Proceed.
6	The site inspection report shall be provided to the UPOU.
7.2	The warranty against Structural Defects/Failures, except those occasioned-on force majeure, shall cover a period of five (5) years.
10	No dayworks are applicable to the contract.
11.1	The Contractor shall submit the Schedule of Work to the Procuring Entity’s Representative within ten (10) 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 one tenth (1/10) of one percent (1%) per day of delay for the current progress billing.
13	The amount of the advance payment is fifteen percent (15%) of the total contract price subject to the requirements of the Revised IRR of RA 9184 and additional conditions, if any.
14	Materials and equipment delivered on the site but not completely put in place shall not be included for payment.
15.1	(a) The date by which operating and maintenance manuals are required is not later than thirty (30) calendar days prior to conducting the acceptance test.  (b) The date by which “as built” drawings are required is thirty (30) calendar days upon the project completion. (c) In addition, for every Progress of Work the contractor must submit an “As-Built” drawings as supporting document for the approval of Progress Payment.
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 two percent (2%) of the Contract Price or the non-issuance of the Retention Money.

# *Section VI. Specifications*

## **OUTLINE SPECIFICATIONS**

### **DIVISION 1 – GENERAL REQUIREMENTS**

**General.** It is declared and acknowledged intention and meaning to provide and secure the construction of the UPOU International Convention Center located at UP Open University (UPOU) Campus, Los Baños, Laguna, complete and ready for use. The building shall have architectural, structural, mechanical, fire protection, electrical, electronics and communications, plumbing and sanitary engineering provisions.

- 1.1 Partial Building Finishes
- 1.2 Complete Temporary Facilities
- 1.3 Complete Support Utilities (Field Office/Storage etc.)
- 1.4 Complete Supply of Health, Safety and Security
- 1.5 Supply and Installation of Project Signs, complete
- 1.6 Building Permit/Occupancy Permit
- 1.7 Contractor's Tax

### **DIVISION 4 - MASONRY WORKS**

#### **4.1 CHB Blocks**

Concrete hollow blocks shall be of standard manufactured machine-vibrated and shall have fine and even texture and well defined edges by “Allied Concrete Products, Inc.”, “Rockbuilt” or approved equal.

Minimum compressive strength of load bearing concrete hollow blocks shall be 1,100 psi (7.50 MPa) and 350 psi (2.41 MPa) for non-load bearing. Load bearing CHB shall have a unit weight of 150 pcf and non-bearing type concrete blocks shall have a unit weight not to exceed 60 pcf.

Concrete hollow blocks to be used shall conform to the requirements of ASTM Specification C-90 and PNS 16. Dimensions and tolerances shall be as individually specified on plans.

#### **4.2 Cement**

Portland cement for concrete works shall conform to the requirements of the latest edition of the Standard Specifications for Portland Cement (ASTM C150) PNS 07, Type 1 Unblended manufactured by “Lafarge Republic Inc.”, “Holcim”, “Cemex” or approved equal.

#### **4.3 Natural Stone Finishes**

##### **4.3.4 Floor**

Shall be 18-20mm thick x 50/100/120/150mm premium high quality natural granite stone slab with medium to heavy resistance to abrasion in polished/honed/flamed finish (Refer to Architectural Drawings for Layout and details) by “Stefistone”, “Joy Marble and Tiles”, “Multi-Rich” or approved equal. Submit stone swatches and samples for Architect's approval before

purchasing and installation. See Division 9 – Floor Finishes, for further specification.

## **DIVISION 8 – OPENINGS**

### **8.1 DOORS**

*Note: Dimension, fabrication and installation of Doors shall be based on the actual measurements and conditions of the site. Verify Manufacturer's standard details. Submit shop drawings and samples for Architect's approval.*

#### **A. Steel Door with Vision Glass Panel 2**

*Location: D-10b (AV/Control Rm 2/F)*

Shall be 1.3mm thick, gauge 18 base metal thickness, 45mm thick, powder-coated finish, cold rolled steel door, made of chromate-free electro galvanized steel sheet with zinc coating layer applied on base metal and honeycomb core insulation. Framing shall be fully welded, 1.6mm thick, gauge 16 x 45mm x 140mm single rebate, hollow metal frames of the same door panel material. Provide 6mm thick clear glass vision panel, complete with hardware and accessories; door finish shall be in powder-coated finish. Follow manufacturer's standard installation procedures. Submit color finish for Architect's approval.

Note: Relocation of Installed D-10b at AV/Control Rm 1 to the next opening (labor only).

#### **B. Steel Door with Bottom Louvers**

Location:

D-14a (PWD Toilet)

Shall be 1.3mm thick, gauge 18 base metal thickness, 45mm thick, powder-coated finish, cold rolled steel door with 1.2mm thick GA. 18 x 45mm x 75mm Z profile bottom louver blades, made of chromate-free electro galvanized steel sheet with zinc coating layer applied on base metal and honeycomb core insulation. Framing shall be fully-welded, 1.6mm thick, gauge 16 x 45mm x 140mm single rebate, hollow metal frames of the same door panel material, complete with hardware and accessories; door finish shall be in powder-coated finish. Follow manufacturer's standard installation procedures. Submit color finish for Architect's approval.

#### **C. Steel Door with Bottom Louvers**

Location:

D-14c (Janitor Room 1)

Shall be 1.3mm thick, gauge 18 base metal thickness, 45mm thick, powder-coated finish, cold rolled steel door with 1.2mm thick GA. 18 x 45mm x 75mm Z profile bottom louver blades, made of chromate-free electro galvanized steel sheet with zinc coating layer applied on base metal and honeycomb core insulation. Framing shall be fully-welded, 1.6mm thick, gauge 16 x 45mm x 140mm single rebate, hollow metal frames of the same door panel material, complete with hardware and accessories; door finish shall be in powder-coated finish. Follow

manufacturer's standard installation procedures. Submit color finish for Architect's approval.

**D. Steel Door**

*Location:*

*D-12a (Convention Hall Hallway to Utility Area)*

Shall be 1.3mm thick, gauge 18 base metal thickness, 45mm thick, cold rolled steel door, made of chromate free electro galvanized steel sheet with zinc coating layer applied on base metal and honeycomb core insulation. Framing shall be fully welded, 1.6mm thick, gauge 16 x 45mm x 140mm single rebate, hollow metal frames of the same door panel material; door finish shall be in powder-coated finish. Complete with hardware and accessories. Follow manufacturer's standard installation procedures. Submit sample color finish and sample section for Architect's approval.

**8.1.2 GLASS DOOR ENTRANCES**

**A. Frameless Swing Glass Door**

*Location:*

*D-1a (Main Entrance 1)*

*D-1b (Ante Room)*

Shall be 12mm thick tempered clear double swing glass door, provide patch fittings, locks on both panels and 1.2mm thick x 25mm diameters stainless steel vertical pull handle, 1760mm/1800mm high in satin finish complete with required accessories and hardware. Submit glass sample, vertical pull handle sample and hardware sample for Architect's approval. Follow manufacturer's standard installation procedures.

**B. Frameless Swing Glass Door with Decorative Frosted Sticker Film**

*Location:*

*D-5 (GAD Room)*

Shall be 12mm thick tempered clear single double swing glass door with "white" frosted sticker film applied on both sides. Provide patch fittings, locks on both panels and 1.2mm thick x 25mm diameters stainless steel vertical pull handle, 1760mm/1800mm high in satin finish, complete with required accessories and hardware. Submit glass, vertical pull handle, hardware samples and frosted sticker film sample for Architect's approval. Follow manufacturer's standard installation procedures.

**8.2 WINDOWS**

**8.2.2 Aluminum Fixed Windows**

Location: W-2 (Second Floor Audio Rooms 1 & 2)

Shall be 8mm thick reflective tempered fixed glass window on a mullion type aluminum framing in powder-coated finish complete with hardware and accessories, follow manufacturer's standard application procedure, submit powder coating swatches and glass sample for Architect's approval.

## 8.3 GLASS GLAZING

### 8.3.1 Glass Glazing for Doors and Fixed Glass Panel

- A. Glass Glazing for Frameless Swing Glass Door and Fixed Glass Panels
- Shall be 12mm thick tempered clear glass by, and submit glass samples for Architect's approval.
  - Provide decorative "white" frosted sticker film applied on both side of the glass

### 8.3.2 Glass Glazing for Windows

- A. Glass Glazing for Fixed Windows
- Shall be 8mm thick reflective tempered glass windows, submit samples for Architect's approval.

## 8.4 BUILDER'S HARDWARE

*Note: Submit hardware samples and product catalog for Architect's approval, before purchasing and installation of the material.*

### 8.4.1 Manual Flush Bolt for Steel Doors

Shall be UL listed manual flush bolt made from brass faceplate with steel component. Bolt shall be set on the inactive door of a pair with 25mm x 172mm face plate and 13mm standard threaded rod size in satin chrome finish (US26D) with 3-hour fire rating for metal doors complying to ANSI 156.16 for L14251. Submit sample for Architect's approval.

### 8.4.2 One-Way Deadbolt Lock (no locking from the inside)

Shall be UL listed deadbolt lock, made from high strength steel alloy deadbolt lock with maximum security cylinder retracted by key outside and blank plate with exposed screws inside, complying to ANSI/BHMA A156.5-2001, Grade 1 Lock in satin chrome finish. Provide patented tough nickel silver key.

### 8.4.4 Vertical Pull Handle (for Glass Doors)

1.2mm thick, 25mm diameters x 1760mm/1800mm length, stainless steel, back to back, vertical pull handle complying with ISO9001 (Architectural Hardware) in satin chrome finish.

### 8.4.5 Locksets

#### Lever Type Lockset

Grade 1, UL listed, exceeds ANSI/ BHMA certified A 156.2, entrance function high security cylindrical lock with thru-bolted mechanism, concealed mounting screws and independent heavy-duty spring cages for lever support. Provided dummy trim for double doors and patented a tough nickel silver key.

#### Standard Cylinder (for lever type lockset)

Grade 1, UL listed, exceeds ANSI/ BHMA certified A 156.2-2003 standard cylinder for lever type lockset, key operated in satin chrome finish.

#### Latches and Strikes (for lever type lockset)

Shall be Grade 1, UL listed, 3/4" Throw Anti-Friction Deadlatch with Square Corner Box Strike in satin chrome finish.

### **Standard Rim Cylinder**

Grade 1, UL listed, exceeds ANSI/ BHMA certified A 156.2 rim cylinder mounted exit device, outside trim, key operated.

#### **8.4.6 Door Closer**

Grade 1 (for Fire Exits only) and Grade 2, UL listed, ANSI standard A156.4, exposed overhead door closer mounted on top jamb with cast iron cylinder body in powder-coated finish, non-handed arms forged from heavy duty steel and rotational indicator dial for proper spring power with hold open feature. Provide UL listed self-closing, without hold open feature for fire exit doors installation.

#### **8.4.8 Door Stop 1 (steel doors)**

UL listed, meets ANSI/BHMA A156.16, casted aluminum in satin chrome finish with rubber tip door stop.

#### **8.4.11 Panic Hardware**

Shall be UL listed conforming to ANSI A156.3-2008 Grade 1, 75mm x 900mm (verify door length) fire exit device/hardware in US26D finish, provide standard lever trim with key lock at the back side of the door panel (lever trim and key lock shall be for fire exit door at ACCU Deck only), complete with fasteners, bolts and accessories. Submit product catalog and sample for Architect's approval.

#### **8.4.14 Glass Door Patch Fittings and Lock (Glass Doors)**

Shall be stainless steel in hairline finish, top patch, bottom patch and transom patch complete with bottom corner lock, floor hinge and accessories. Verify manufacturer's details, submit samples for architect's approval.

### **8.5 MIRROR**

#### **8.5.1 Facial Mirror Male and Female Toilets**

Shall be 6mm thick (for small mirrors) and 12mm thick (for full mirrors), frameless silver-coated float glass mirror with 2mm thick chamfered edges on both sides, glued to 12mm/18mm thick marine plywood backing and 25mm x 50mm TKD Tanguile framing using tile adhesive or mirror mastic with sponge tape on one side, facing wall. Provide screws with expansion shield and chrome-plated screw cap. Refer to Architectural Drawing for dimension, layout and design.

## **DIVISION 9 – FINISHES**

### **9.1 CEILING FINISHES**

#### **9.1.3 Existing Gypsum Board Ceiling Painted Finish**

Existing plasterboard/gypsum board shall be coated with high performance low VOC, odorless, ultra premium water-based acrylic coating that gives a clean matte finish to walls and ceilings with surface protector and anti-bacterial protection.

*Note: Uneven and sagging plasterboard/gypsum board installation from the previous contractor will be subject to rectification prior to painting.*

## **9.2 FLOORING FINISHES**

### **9.2.2 FF-2 Main Lobby Flooring @ Ground Floor: Polished Porcelain Tiles with Decorative Granite Stone**

Shall be 10mm thick x 600mm x 600mm double polished finish anti-stain, homogeneous porcelain tiles with heavy resistance to abrasion Class AAA, 7.5 kgs., with 18-20mm thick premium high quality natural granite stone decorative flooring (ellipse form). Final color and pattern as per Architect's approved sample. Provide 2-3 mm gap in between tile joints during installation. Tile color and design shall be approved first before installation.

### **9.2.3 FF-3 Convention Hall Vestibule/Ante Room: Matte and Polished Porcelain Tiles**

Shall be 10mm thick x 600mm x 600mm double polished finish and 10mm thick x 150mm x 600mm matte finish non-skid, anti-stain, homogeneous porcelain tiles with heavy resistance to abrasion Class AAA, 7.5 kgs. Final color and pattern as per Architect's approved sample. Provide 2-3mm gap in between tile joints during installation. Tile color and design shall be approved first before installation.

### **9.2.4 FF-4 General Flooring: Polished Finish Homogeneous Porcelain Tiles**

Shall be 10mm thick x 600mm x 600mm double polished finish anti-stain, homogeneous porcelain tiles with heavy resistance to abrasion Class AAA, 7.5 kgs. Final color and pattern as per Architect's approved sample. Provide 2-3 mm gap in between tile joints during installation. Tile color and design shall be approved first before installation.

### **9.2.5 FF-13 Natural Granite Stone Nosing 2: Interior Floor Termination**

Shall be 18-20mm thick x 50mm/100mm premium high-quality natural granite stone in polished finish with medium to heavy resistance to abrasion, final color and pattern as per Architect's approved sample.

### **9.2.6 FF-14 Natural Granite Stone Nosing 3: Interior Floor Termination and Toilet Entry Floor Nosing**

Shall be 18-20mm thick x 50mm/125mm premium high-quality natural granite stone in polished finish with medium to heavy resistance to abrasion, final color and pattern as per Architect's approved sample.

## **9.3 WALL FINISHES**

### **9.3.1 Exterior Wall Finishes for Main Building**

- A. WF-1a Existing Exterior CHB Walls and Columns Painted Finish**  
Existing CHB walls and columns shall be coated with plain semi-gloss water-based 100% acrylic paint with high alkaline resistance and excellent gloss retention, highly resistant to airborne pollutants and dust and has good exterior durability. Submit color swatches and mock-up



paint samples for Architect's approval. Final paint finish shall be on a plant-mixed procedure (by the manufacturer) before application.

### 9.3.2 Interior Wall Finishes for Main Building

**A. WF-2a Existing Interior CHB Walls and Columns Painted Finish 1**  
Existing CHB Walls and Columns shall be coated with high performance low VOC, odorless, ultra-premium water-based acrylic coating that gives a clean matte finish to walls and ceilings with surface protector and anti-bacterial protection. Submit color swatch and mock-up paint sample for Architect's approval.

**B. WF-2c Existing Wall Tiles with remaining CHB Wall Painted Finish**  
Existing drywall partitions shall be coated with high performance low VOC, odorless, ultra-premium water based acrylic coating that gives a clean matte finish to walls and ceilings with surface protector and anti-bacterial protection. Submit color swatch and mock-up paint sample for Architect's approval.

Remaining Upper Wal(Public Toilets):

Provide with 25mm thick smooth trowel cement plaster finish coated with high performance low VOC, odorless, ultra-premium water-based acrylic coating that gives a cleanable matte finish to walls and ceilings with surface protector and anti-bacterial protection for the remaining wall finish. Submit color swatch and mock-up paint sample for Architect's approval. Verify Toilet Details for the design.

## 9.4 FURNISHINGS

**A. Decorative Front Wall @ Secretariat Information Counter**  
Shall be 150mm thick/100mm thick CHB interior wall with 10mm thick 600mm x 900mm anti-stain, matte finish homogeneous porcelain tiles with 1.5mm thick x 10mm x 20mm stainless steel C-channel in hairline finish. Submit tile sample and c-channel finish for Architect's approval. Refer to Architectural Drawings for layout and details.

## 9.5 PAINTING AND COATINGS

### 9.5.1 Exterior Painting

**A. Exterior Masonry Wall, Reinforced Concrete Wall, Build-up Walls, Columns & Parapet**  
Shall be coated with fine texture semi-gloss waterbased 100% acrylic paint with high alkaline resistance and excellent gloss retention, highly resistant to airborne pollutants and dust and has good exterior durability. Painting schedule shall be:

- a. Prime surface – Flat Latex
- b. Fill hairline cracks and minor surface imperfections
- c. Spot prime puttied portions

- d. Apply 2-3 coats of Topcoat of desired sheen by brush, roller or spray.

Follow manufacturer's standard application procedures. Submit color swatch and mock-up paint sample for Architect's approval. Final paint finish shall be on a plant-mixed procedure (by the manufacturer) before application.

### **9.5.2 Interior Painting**

#### **A. Interior Masonry, Reinforced Concrete Wall & Slab (Main Building)**

Shall be coated with high performance low VOC, odorless, ultra-premium water-based acrylic coating that gives a cleanable matte finish to walls and ceilings with surface protector and anti-bacterial protection. Painting schedule shall be:

- a. Neutralizer
- b. Primer coat
- c. Full Putty/Spot Putty
- d. Apply 2-3 coats of top-coat paint

Follow manufacturer's standard application procedures. Submit color swatch and mock-up paint sample for Architect's approval.

### **9.5.4 Special Coatings**

#### **A. Metals**

Shall be coated with high performance, two component water-based acrylic epoxy paint which has a superior chemical, solvent and stain resistance, odorless and UV resistant finish. It has further excellence of brushability and easy water clean-up.

Painting schedule shall be:

- a. Primer – Red Oxide
- b. Reducer for Primer – Epoxy Reducer
- c. Topcoat

Follow manufacturer's standard application procedures. Submit color swatch and mock-up paint sample for Owner's approval upon the recommendation of the Architect.

#### **B. Steel Doors**

Shall be coated with solvent-free high ultra-violet resistant polyester powder-coating. Follow manufacturer's standard powder-coating system, surface preparation and methodology. Submit color swatch sample for Architect's approval.

#### **C. Aluminum**

Shall be coated with solvent-free high ultra-violet resistant polyester powder-coating. Follow manufacturer's standard application procedures. Color as per Architect's approved sample.

## **DIVISION 10 – SPECIALTIES**

### **10.3 COMPARTMENTS AND CUBICLE**

### **10.3.1 Toilet Cubicle Door with Partition**

Shall be 12mm thick compact laminated board doors in “Legno Finition Brown” finish with pilasters resting on polyamide adjustable foot and anchored to the divisional walls by black anodized aluminum heavy duty U-channel, corner channel and top round channel, complete with accessories nylon coated (coat hook, door knob, privacy thumb turn, gravity hinge and door indicator lock). Submit sample for Architect’s approval.

### **10.3.2 Urinal Partitions**

Shall be 12mm thick compact laminated board partition in “Legno Finition Brown” finish, anchored to the masonry or reinforced concrete walls by black anodized aluminum heavy duty nylon coated U Channel, corner channel and top round channel, complete with accessories. Submit sample for Architect’s approval.

### **10.3.3 Toilet Cubicle Ledge**

Shall be 200mm width, 12mm thick compact laminated board ledge in “Legno Finition Brown” finish complete with 25mm u-channel support and accessories. Submit sample for Architect’s approval.

## **DIVISION 26 – ELECTRICAL**

### **26.1 TRANSFORMERS**

#### **26.1.1 Step Down Transformer**

Transformer shall be 1 Unit – 200KVA, 400V/230V, 3ph, 60 Hz., Step Down complete with mounting brackets, lightning arresters, fuse cutouts and concrete poles with bill and meter deposits. Refer to Electrical Drawings for layout and schedule.

### **26.2 SWITCHBOARD AND PANEL BOARDS**

#### **26.2.1 Panel Boards and Circuit Breaker**

Shall be bolt-on type molded case circuit breaker with minimum of 22 KAIC for mains and 10 KAIC for branches. Panel board shall be gauge 18 G.I. powder coated finish oven-baked metal casing with lock and catch key handles for panel board doors. Main circuit breaker shall be air circuit breaker type, draw-out, 100% duty rated, complete with electrical and mechanical interlocks for auto transfer operation during normal and emergency modes for low voltage switchgear. Low voltage switchgear shall be free standing type, with integral copper bus bars, meterings, and branch circuit breakers, dead front covers, lifting lugs, cable bottom entry. Provide Transient Voltage Surge Suppressor (TVSS), isolated ground bus and circuit directory per panel, rating shall be in kilo ampere per phase. Use pop rivet bakelite plates for identification, emergency to be red with engraved white letters, normal shall be black with engraved white letters.

## TECHNICAL SPECIFICATIONS

### GENERAL REQUIREMENTS

1. This specification is intended to cover all labor and materials for the complete construction of all proposed projects as shown in the working drawing and described therein.
2. Materials and/or work not specifically mentioned in the specification, working drawings and other Contract Documents, but is implied and deemed necessary to complete the work shall be supplied by the Contractor, and executed in a work-manlike manner of appropriate number, location, size and the highest quality available without extra cost to the Owner.
3. The Owner reserves the right to alter and/or to omit any part of the plans, any extra charge must be submitted to the Architect and/or Engineer for approval of final acceptance.
4. The Contractor shall furnish for approval of the authorized representative with promptness, samples as specified or required work shall be in accordance with approved samples.
5. The Contractor shall guarantee the building except for works with specific guarantee for a period of one (1) year after the final acceptance by the Owner. He shall repair, replace and make good at his expense, all defects which may arise during the term of guarantee and warranty due to defective workmanship and/or inferior quality of materials.
6. All contractors submitting the proposal for this project shall first examine the site. All proposals shall take into consideration all such conditions that may affect the work under this contract. The specifications and plans shall form part as one. Anything mentioned on plans and not mentioned on the scope of work and specifications and vice versa shall be properly consulted to the Project Architect/Engineer for clarification.
7. The contractor shall coordinate his work with all parties to ensure proper phasing or comply with the approved schedule of work. The contractor shall engage under him, a registered Engineer or Architect to supervise his work. He shall remain at all times in the construction site.
8. Logbook shall be available at the site. It shall contain the daily activities in the site, including but not limited to weather condition, delivery, manpower and other matters pertaining to the condition of the project. It will also serve as the data for the contractor and the Project Inspector and shall be surrendered to the UPOU at the end of the project.
9. No alteration or additional work that will result in an additive or deductive cost change from the Contract shall be allowed without the approval of the chancellor.
10. The contractor shall submit at least three (3) options per item for approval. Complete specifications with product samples shall be submitted by the contractor to the Project Architect and end-user for evaluation. Inspection of the Project Architect/Engineer in-charge shall be required prior to installation of any item/material on the construction.
11. Existing conditions of the work site shall be documented by the contractor and photos shall be taken before commencement of work to ensure such status. Any damage to the areas due to the contractor's on-going work shall be restored at his expense.

12. The contractor shall provide a complete copy of "As built plans" of the project/unit concerned in A3 original sheets.
13. The contractor shall promptly remove from the premises all rubbish, trash, debris, and all superfluous building materials weekly. After the completion of all works, restore all areas that were damaged as affected by the construction works and leave the site clean to the satisfaction of the Project Inspector or his representative and End-user.
14. All materials removed from the unit shall be properly documented prior to turn-over to the End-user for proper safe keeping. The turn-over document shall be attached to the contractor's final billing.

### **ARCHITECTURAL WORKS**

Architectural Works shall include the following provisions complete for the construction of building requirements in accordance to Specifications, Contract Drawings and applicable Codes and Standards:

- A. Steel door and glass doors, with security and protective treatments complete with framing and hardware for intended uses as required.
- B. Ceiling, wall and floor finishes for interior and exterior applications, painting works, stone works, and accentuations as required.
- C. Toilet and bath accessories

### **ELECTRICAL WORKS**

Electrical Scope of Work shall include but not limited to the following principal items:

- A. Test, supply and install low voltage switchgear, including all necessary intelligence units and all interconnecting cables, cable support and connectors.
- B. Furnish and install all power system feeders, branch circuits and equipment inclusive of all conduits, fittings, wirings and accessories and the termination of the same.
- C. Furnish and install all wiring devices as shown on the plans.
- D. Furnish and install panel boards, bus bars, disconnect switches and protective devices as shown on plans and drawings
- E. Complete testing and commissioning of all supplied equipment and installed electrical system

If anything has been omitted of any item of work, materials, usually furnished which are necessary for the completion of the electrical works as outline herein before, then such items must be and hereby included in this section of work.

**Any item, material, labors not specifically included herein but are deemed necessary component for the execution of the works cited, such item must be included without additional time and cost component.**

*END OF SECTION*

## SECTION 03 30 00

### CAST-IN-PLACE CONCRETE

#### PART 1 GENERAL

##### 1.1 SCOPE OF WORK

The work to be undertaken under this section shall comprise the furnishing of all labor, materials, equipment, plant and other facilities and the satisfactory performance necessary to complete all cast-in-place concrete placement operations for slabs on grade, slabs on fill, structural building frame, and other concrete components indicated on the drawings and specifications conforming to the Contract Documents provisions. Unless otherwise indicated on the drawings or specified herein, all concrete work shall be done in accordance with the "SPECIFICATIONS FOR CONCRETE AND REINFORCED CONCRETE" as adopted by the National Structural Codes for Buildings, latest edition, and the current American Concrete Institute's "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI-318-89) insofar as they do not conflict, or are not inconsistent with the specified provisions herein.

##### 1.2 REFERENCES

Comply with quality assurance requirements under General Conditions of the Contract Documents and Manufacturer's instructions. Reference the following standards as applicable:

1.2.1.	American Concrete Institute, ACI 301 - 99	Specifications for Structural Concrete
1.2.2.	ACI 347	Recommended Practice for Concrete Formwork
1.2.3.	ACI 304	Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete
1.2.4.	ACI 318	Building Code Requirements for Reinforced Concrete
1.2.5.	ACI SP66	American Concrete Institute – Detailing Manual
1.2.6.	ACI 305R	Hot Weather Concreting
1.2.7.	ACI 306R	Cold Weather Concreting
1.2.8.	ACI 211.1	Selecting Proportions for Normal, Heavyweight and Mass Concrete
1.2.9.	ACI 211.2	Selecting Proportions for Structural Lightweight Concrete
1.2.10.	ACI 302.1R-96	Concrete Floor and Slab Construction
1.2.11.	CRSI –	Concrete Reinforcing Steel Institute – Manual of Practice, CRSI 63 Recommended Practice for Placing Reinforcing Bars.
1.2.12.	CRSI 65	Recommended Practice for Placing Bar Supports; Specifications and Nomenclature.
1.2.13.	ASTM A185	American Society for Testing Materials - Welded Steel Wire Fabric for Concrete Reinforcement.
1.2.14.	ASTM A615	Deformed and Plain Billet Steel for Concrete Reinforcement.
1.2.15.	ASTM C33	Concrete Aggregates.

1.2.16.	ASTM C330	Light Weight Aggregates for Structural Concrete.
1.2.17.	ASTM C94	Ready Mixed Concrete.
1.2.18.	ASTM C150	Portland Cement
1.2.19.	ASTM C260	Air-entraining Admixtures for Concrete.
1.2.20.	ASTM C309	Liquid Membrane-Forming Compounds for Curing Concrete.
1.2.21.	ASTM D2103	Polyethylene Film and Sheeting.
1.2.22.	FS TT-C-800	Curing Compounds, Concrete for New and Existing Surfaces.
1.2.23.	ASTM D1751	Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction.
1.2.24.	ASTM D1752	Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.
1.2.25.	ASTM D994	Preformed Expansion Joint Filler for Concrete (Bituminous Type).
1.2.26.	ASTM C494	Chemical Admixtures for Concrete.
1.2.27.	ASTM E1155	Test Method for Determining Floor Flatness and Levelness using the F Number
1.2.28.		American Welding Society, AWS D1.4 – Structural Welding Code for Reinforcing Steel
1.2.29.		Department of Works and Highway, DPWH; Standard Specifications, Volume II, 2004

### 1.3 SUBMITTALS

- 1.3.1 General: All submittals for approval as indicated herein shall be in accordance to the provisions under General Conditions of the Contract Documents.
- 1.3.2 Manufacturer's Installation Instructions: Indicate installation procedures and interface required with adjacent Work.
- 1.3.3 Provide mix designs as required herein and include laboratory test reports of trial strength and shrinkage tests. Furnish and deliver samples of cement and aggregates as selected by the Engineer for testing and analysis. Submit for the Engineer's approval the laboratory, ready-mix plant and concrete technologist that the Contractor intends to engage to design the concrete mixes.
- 1.3.4 Submit a delivery ticket with each batch of concrete delivered to the site in accordance with the requirements of ASTM C94.
- 1.3.5 Shop Drawings: Indicate reinforcement sizes, spacings, locations and quantities of reinforcing steel and wire fabric, bending and cutting schedules, splicing, and supporting and spacing devices. Include concrete placement schedule, method, sequence, quantities, location, and boundaries
- 1.3.6 Provide data on joint devices, expansion and control joint materials, attachment accessories, admixtures, curing and sealing materials. Submit drawings showing proposed locations of control joints in slab-on-grade, where not shown on Drawings.

### 1.4 DESIGN REQUIREMENTS

- 1.4.1 Comply with the construction notes and standard details as indicated in Structural Drawing, first page of the drawing, for the design provisions. Use high strength concrete for areas as designated in the construction notes, except, concrete works for slab on grade, curbs and as indicated on Drawings and notes.

- 1.4.2 Design and construct formwork, shoring and bracing to conform to Code requirements; resultant concrete to conform to required shape, line and dimension.
- 1.4.3 Provide expansion joints, control joints, construction joints, and isolation joints to prevent uncontrolled stress cracks in the structure and according to the latest engineering standards.

## **1.5 QUALITY ASSURANCE**

- 1.5.1 Comply with quality assurance requirements under General Conditions of the Contract Documents and Manufacturer's instructions. Perform work in accordance with ACI301 and applicable referenced documents.
- 1.5.2 The Contractor shall select a qualified concrete supplier capable of meeting project requirements as specified herein. Concrete suppliers shall hold a valid certificate of conformance for concrete production facilities Philippine Concrete Industry Association and/or American Concrete Institute, ACI-RP.
- 1.5.3 Acquire cement and aggregate from the same source for all work.
- 1.5.4 Conform to ACI 305R or ACI 306R when concreting during hot or cold weather, as appropriate.
- 1.5.5 Provide continuous on-site monitoring by a qualified inspection agency during all phases of construction. Inspection agencies shall provide written reports of all inspections. Inspections shall be in conformance with the provisions of the Contract Documents.

## **1.6 DELIVERY, STORAGE AND HANDLING**

- 1.6.1 Cement shall be stored in weather tight buildings, bins, or silos which will exclude moisture and contaminants.
- 1.6.2 Aggregate stockpiles shall be arranged and used in a manner to avoid excessive segregation and to prevent contamination with other materials or with other sizes of like aggregates. To ensure that this condition is met, any test for determining conformance to requirements for cleanliness and grading shall be performed on samples secured from the aggregates at the point of batching.
- 1.6.3 Natural or manufactured sand shall be allowed to drain until it had reached relatively uniform moisture content before it is used.
- 1.6.4 Admixture shall be stored in such a manner as to avoid contamination, evaporation, or danger. For those used in the form of suspension or non-stable solutions, agitating equipment shall be provided to assure thorough distribution of the ingredients. Liquid admixture shall be protected from freezing and from temperature changes which would adversely affect their characteristics.

## **PART 2 PRODUCTS**

### **2.1 Cement.**

Portland cement shall conform to the "SPECIFICATIONS FOR PORTLAND CEMENT" (ASTM C150 Latest Revision) for Type I Portland Cement.

### **2.2 Admixture.**

Admixture to be used in concrete, when required or permitted shall conform to the "SPECIFICATIONS FOR CHEMICALS ADMIXTURES FOR CONCRETE" (ASTM C494) for water reducing, retarding and accelerating admixture or to the SPECIFICATIONS FOR FLY ASH AND RAW OR CALCINED NATURAL



POZZOLANS FOR USE IN PORTLAND CEMENT (ASTM C618) for Pozzolanic admixtures.

**2.3 Concrete Aggregates.**

Concrete aggregates shall be well-graded, clean, hard particles of gravel, or crushed rock conforming to the "SPECIFICATIONS FOR CONCRETE AGGREGATES" (ASTM -C33 Latest Revision).

**2.4 Water.**

Mixing water for concrete shall be clean and free from injurious amounts of oil, acids, alkali, organic materials or other substances that may be deleterious to concrete or steel.

**2.5 Reinforcement.**

Shall be in accordance with Section 032000.

**2.6 Accessories.**

Shall be in accordance with Section 031500.

**PART 3 EXECUTION**

**3.1 Proportioning**

**3.1.1 General.**

Concrete for all parts of the work shall be of the specified quality capable of being placed without excessive segregation.

**3.1.2 Strength.**

The specified compressive strength of the concrete for each portion of the structure shall be as tabulated on S-1 of the Structural Drawings.

**3.1.3 Durability.**

Cast in place concrete for portions of structures to be watertight shall have a water cement ratio not exceeding 0.48. For pre-stressed concrete, it shall be demonstrated by test that the mixing water of the concrete including that contributed by the aggregates and any admixture used, will not contain a deleterious amount of chloride ion.

**3.2 Slump.** Unless otherwise permitted and specified the concrete shall be proportional to have following maximum slump:

100 mm for  $f_c' = 21$  MPa or less

75 mm for  $f_c' = 28$  MPa to 35 MPa

50 mm for  $f_c' > 35$  MPa but not more than 42 MPa

A tolerance of up to 25 mm above the indicated maximum shall be allowed for individual batches provided the average for all batches or the most recent 10 batches tested, whichever is fewer, does not exceed the maximum limit. Concrete of lower than usual slump may be used provided it is properly placed and consolidated. The slump shall be determined by the "TEST FOR SLUMP OR PORTLAND CEMENT" (ASTM C143).

**3.3 Maximum size of concrete aggregates.** The nominal size of the aggregates shall not be more than the following:

25 mm  $\varnothing$  for footing and tie beams

20 mm  $\varnothing$  for slabs, beams, and columns

**3.4 Admixtures.** If required or permitted, admixtures used shall be subject to the following limitations:

**3.4.1** The amount of calcium chloride shall not exceed 2% by weight of cement.

**3.4.2** All admixtures shall be used in accordance with the manufacturer's instructions except as otherwise specified herein.

**3.5 Selection of Proportions.**

The proportions of ingredients shall be such as to produce a mixture which will work readily into the corners and angles of the forms and around reinforcements by the methods of placing and consolidation employed on the work, but without permitting the materials to segregate in excessive free water to collect on the surface. The proportions of ingredients shall be selected to produce the proper placeability, durability, strength and other required properties. The method of measuring concrete materials shall be such that the proportions can be accurately controlled and checked at any time during the work. Measurements of materials for ready mixed concrete shall conform to the "STANDARD SPECIFICATION FOR READY MIXED CONCRETE (ASTM C194, Latest Revision) above applicable.

**3.6 Method of Determination Concrete Strength**

The Contractor shall submit design mixes from samples made in accordance with "STANDARD METHOD OF MAKING AND CURING CONCRETE COMPRESSION AND FLEXURE TEST SPECIMENS IN THE LABORATORY" (ASTM C192, Latest Revision) for each strength required, stating the proposed slump and the proportional weight of cement, saturated surface-dry aggregates and water. Samples shall be tested after 7, 14, and 28 days.

**3.7 Formworks**

**3.7.1 General.** Forms shall be used wherever necessary to confine the concrete and shape it to the required dimensions. Forms shall have sufficient strength to withstand the pressure resulting from placement and vibration of the concrete, and shall have sufficient rigidity to maintain specified tolerances. Earth cuts should not be used as forms for vertical surfaces unless required or permitted.

**3.7.2 Design and Installation of Formworks.**

- A. The design and engineering of the formworks, as well as its construction, shall be the responsibility of the Contractor.
- B. Formworks shall be designed for the loads, lateral pressure and allowable stresses outlined in the "RECOMMENDED PRACTICE FOR CONCRETE FORMWORK (ACI 347) and for design consideration, wind load, allowable stresses and other applicable requirements of the local building code.
- C. Forms shall be sufficiently tight to prevent loss of mortar from the concrete.
- D. To maintain specified tolerances, the formwork shall be cambered to compensate for anticipated deflection in the formworks prior to hardening of concrete.
- E. Temporary opening shall be provided at the base of column form and wall forms and at other points where necessary to facilitate cleaning and observation immediately before concrete is placed.
- F. Form accessories to be partially or wholly embedded in the concrete such as ties and hangers shall be of commercially manufactured type. Form ties shall be constructed so that the ends or end fastener can be removed without causing appreciable spalling at faces of concrete. After the ends or end fasteners of

form ties have been removed, the embedded portion of the ties shall terminate not less than 2 diameters or twice the minimum dimension of the tie from the form surfaces of concrete to be permanently exposed to view except that in no case shall this distance be less than 20 mm. When the formed face of concrete is not permanently exposed to view, form ties may be cut-off flush with formed surfaces.

- G. At construction joints, contact surface of the form sheathing for flush surfaces exposed to view shall overlap the hardened concrete in the previous placement by not more than 25 mm. The forms shall be held against the hardened concrete to prevent offsets or loss of mortar at the construction joint and to maintain a true surface.
- H. Formworks shall be anchored to shore or other supporting surfaces or members that upward or lateral movement of any part of the formwork system during concrete placement is prevented.
- I. All formworks shall be made of sheet metal or phenolic board and supported by steel post or equivalent.

### 3.7.3 Tolerances.

Unless otherwise specified, formwork shall be constructed so that the concrete surfaces shall conform to the following tolerance limits

<b>A.</b>	Variation from plumb In the lines and surface of columns and walls: In any 3 meters in length In any story of 6.0 m max In 12.0 meters or more	6 mm 10 mm 12 mm
<b>B.</b>	Variation from the level or from the grades indicated on the drawings: a. In slab, soffits, cladding, beam soffit and parapets: In any 3.0 length In any bay or in any 6.0 meter length 10 Max. for the entire length  b. For exposed lintels, sills, parapets, horizontal, grooves, and other conspicuous line. In any bay of 6.0 m (max) Max. for the entire length	6 mm 20 mm  6 mm 12 mm
<b>C.</b>	Variations of the linear building lines from established position in plan and related position of columns, walls and partitions: In any bay In any 6.0 meter of length Max. for the entire length	6 mm 6 25 mm
<b>D.</b>	Variation in the size and location of sleeves floors openings and	6 mm

	wall openings	
E.	Variations in cross sectional dimensions of columns, beams, and thickness of slab and walls: Minus Plus	6 mm 12 mm
F.	Footings Variation in dimension in Minus Plus Misplacement or eccentricity: Two (2) percent of the footing width in the direction of misplacement but not more than 50 mm  c. Thickness Decrease in specified thickness  Increase in specified thickness	12 mm 50 mm  5 %  No Limit
G.	Variation in Steps: a. In flight of stairs Rise Tread  b. In consecutive steps Rise Tread	$\pm 3$ mm $\pm 6$ mm  $\pm 1.5$ mm $\pm 6$ mm

### 3.7.4 Preparation of Form Surfaces

- A. All surfaces of forms and embedded materials shall be cleaned of any accumulated mortar from previous concreting and of all other foreign materials before concrete is placed in them.
- B. Before placing concrete, the surfaces of the forms shall be covered with an approved coating material that will effectively prevent absorption of moisture and prevent bond with the concrete, and will not stain the concrete surface.

### 3.7.5 Removal of forms

- A. When repair of surface defects or finishing is required at an early stage, forms shall be removed as the concrete has hardened sufficiently to resist damage from removal operation.
- B. Formwork for columns, walls, sides of beams and other parts not supporting the weight of the concrete has hardened sufficiently to resist damages from removal operations.
- C. Forms and shoring in the formwork used to support the weight of concrete in beams, slabs and other structural members shall remain in place until the concrete has reached the minimum strength specified in the structural drawings for removal of forms and shoring.

### 3.7.6 Reshoring

- A. When reshoring is permitted or required the operations shall be planned in advance and shall be subject to the approval of the Engineer/Architect while reshoring is underway, no live load shall be permitted on the new construction.

- B. In no case during reshoring shall concrete in beam, slab, column or any other structural member be subjected to combined dead and construction loads in excess of the loads permitted by the engineer for the developed concrete strength at the time of reshoring.
- C. Reshores shall be placed as same as practicable after stripping operations are complete but in no case later than the end of the working day on which stripping occurs.
- D. Reshores shall be tightened to carry their respective loads without overstressing the construction.
- E. Reshores shall remain in place until the concrete being supported have reached the specified strength.
- F. Floors supporting shores under newly placed concrete shall have their original supporting shores left in place or shall be reshored. The reshoring system shall have a capacity sufficient to resist the anticipation loads and in all cases shall have a capacity equal to at least one half of the capacity of the shoring system above. The reshores shall be located directly under a shore position above unless other locations are permitted.
- G. The reshoring shall extend over a sufficient number of stories (at least 2 floors) to distribute the weight of the newly placed concrete, forms and construction live loads in such a manner that the design super imposed loads of the floors supporting shores are not excluded.

#### **3.7.7 Removal strength.**

Formworks or re-shoring can be removed when test cylinders, field cured along with the concrete they represent have reached the required strength as specified in the construction notes. (S-1)

**3.8** Reinforcement and Placing shall be in accordance with Section 03200, Concrete Reinforcement.

**3.9 Joints and Embedded Items.** All sleeves, inserts, anchors and embedded items required for adjoining work or for its support shall be placed prior to concreting in accordance to Section 031500. Expansion joint material, waterstop and other embedded items shall be positioned accurately and supported against displacement. Voids in sleeves, inserts and anchor slots shall be filled temporarily with readily available material to prevent the entry of concrete into the voids.

#### **3.10 Production of Concrete**

**3.10.1 Ready-mixed concrete.** Except as otherwise provided in this section, ready mixed concrete shall be batched, mixed and transported in accordance with "SPECIFICATIONS FOR READY-MIXED CONCRETE" (ASTM C94). Plant equipment and facilities shall conform to the "checklist for Certification of Ready-Mixed Concrete Production Facilities" of the National Ready-Mixed Concrete Association.

**3.10.2 Site Mixed Concrete.** No hand mixing shall be allowed except in case of emergency, such as mixer breakdown during concreting operations and shall stop at the first allowed construction joints. All concrete shall be machine mixed for at least 1-½ minutes after all materials including water are in mixing drums.

The mixer shall be of an approved size and type which will guarantee a uniform distribution of material throughout the mass.

**3.10.3 Re-tampering of Concrete shall not be permitted.** Concrete shall be mixed only in quantities for immediate use. Concrete which has set shall not be retempered but shall be discarded. When concrete arrives at the project with a slump below that suitable for placing, as indicated by specifications, water may be added only if neither maximum permissible water-cement ratio nor the maximum slump is exceeded. The water shall be incorporated by additional mixing equal to at least half of the total mixing required. An addition of water above that permitted by the limitation on water-cement ratio shall be accompanied by a quantity of cement sufficient to maintain the proper water-cement ratio. Such addition shall be authorized by the Engineer/Architect.

### **3.11 Placing**

#### **3.11.1 Preparation before placing.**

Hardened concrete and foreign materials shall be removed from the inner surfaces of the conveying equipment. Semi-porous subgrades shall be sprinkled sufficiently to eliminate suction or porous subgrade shall be sealed in an approved manner.

#### **3.11.2 Conveying**

Concrete shall be handled from the mixers to the place of final deposit as rapidly as practicable by methods which will prevent segregation or loss of ingredients and in “a manner which will assure that the required quality of the concrete is maintained. Conveying equipment shall be approved and shall be of the size and design such that detachable setting concrete shall not occur before adjacent concrete is placed. Conveying equipment shall be cleaned at the end of each operation or work day. Conveying equipment and operations shall conform to the following additional requirements.

- A. Truck mixer, agitators, and non-agitating units and their manner of operation shall conform to the applicable requirements of SPECIFICATIONS FOR READY-MIXED CONCRETE” (ASTM C94).
- B. Chutes shall be metal or metal-lined and shall have a slope not exceeding 1 vertical to 2 horizontal and not less than 1 vertical to 3 horizontal. Chutes more than 6.0 m long and chutes not meeting the slope requirement may be used provided they are discharged into hoppers before distribution.
- C. Pumping or pneumatic conveying equipment shall be of suitable kind with adequate pumping capacity. Pneumatic placement shall be controlled so that segregation is not apparent in the discharge of concrete. The loss of slump in pumping or pneumatic conveying equipment shall not exceed 50 mm. Concrete shall not be conveyed through pipe made of aluminum or aluminum Alloy.

#### **3.11.3 Depositing**

Concrete shall be deposited continuously, or in layers of such thickness that no concrete will be deposited on concrete which has hardened sufficiently to cause

the formation of seams or planes of weakness within the section. If a section cannot be placed continuously, construction joints shall be located as approved by the Structural Engineer. Placing shall be carried on at such a rate that the concrete which is being integrated with fresh concrete is still plastic. Concrete which has partially hardened or has been contaminated by foreign materials shall not be deposited. Temporary spreaders in forms shall be removed when the concrete placing has reached an elevation rendering their service unnecessary. They may be embedded in the concrete only if made of metal or concrete and if prior approval has been obtained. Placing of concrete in supported elements shall not be started until the concrete previously placed in columns and walls is no longer plastic and has been in place at least two hours. Concrete shall be deposited as nearly as practicable in its final position to avoid segregation due to re-handling or flowing. Concrete shall not be subjected to any procedure which will cause segregation. All concrete shall be consolidated by vibration, spading, rodding or forking so that the concrete is thoroughly worked around the reinforcement, around embedded items, and into corners of forms, eliminating all air or stone pockets which may cause honeycombing, pitting or planes of weakness. Unless adequate protection is provided and approval of the Engineer/Architect is obtained, concrete shall not be placed during rain.

#### **3.11.4 Bonding**

The hardened concrete of construction joints and of joints between footings and walls or columns, between walls or columns and beams or flows they supported, joint in unexposed walls and all others not mentioned below shall be dampened (but not saturated) immediately prior to placing of fresh concrete. The hardened concrete of joints in exposed work; joints in the beams, girders, joints, and slabs; and joints in works designed to contain liquid shall be dampened (but not saturated) and then thoroughly covered with a coat of cement grout of similar proportions to the mortar in the concrete. The grout shall be as thick as possible in vertical surfaces and least 12 mm thick in horizontal surfaces. The fresh concrete shall be placed before the grout has attained its initial sets. Joint receiving adhesive shall have been prepared and adhesive applied in accordance with the Manufacturer's recommendations prior to placing of fresh concrete.

### **3.12 Repair of Surface Defects**

**3.12.1 General.** Surface defects, including holes, unless otherwise specified by the contract documents shall be repaired immediately after forms are removed.

**3.12.2 Repair of Defective Areas.** All honeycombed and defective concrete shall be removed down to sound concrete. If chipping is necessary the edges shall be perpendicular to the surface or slightly undercut. No feather edges shall be permitted. The area to be patched and an area at least 150 mm wide surrounding it shall be dampened to prevent absorption of water from the patching mortar. A bonding grout shall be prepared using a mix of approximately 1 part cement to 1 part fine sand passing a No 30 mess, mixed to the consistency of thick cream and then brushed into the surface. The patching mixture shall be made of the same materials and of approximately the same proportions as used for concrete, except that the coarse aggregate shall be omitted and the mortar shall consist of not more than 1 part cement to 2 1/2 parts and by sand loose volume. White portland cement shall be substituted for a part of the gray portland cement

in exposed concrete in order to produce a color matching the color of the surrounding concrete, as determined by trial patch. The quantity of mixing water shall be no more than necessary for handling in advance and allowed to withstand frequent manipulation with a trowel, without addition of water, until it has reached even consistency. After surface water has evaporated from the area to be patched, the bond coat shall be brushed onto the surface. When the bond coated begins to lose the water sheen, the provided patching mortar shall be applied. The mortar shall be thoroughly consolidated into place and stuck off so as to leave the patch slightly higher than the surrounding surface. To permit initial shrinkage, it shall be left undisturbed for at least 1 hour before being finally finished. The patched area shall be kept damp for 7 days. Metal toll shall not be used in finishing a patch in a formed wall which will be exposed.

*END OF SECTION*

## **SECTION 03 53 00**

### **CONCRETE TOPPING**

#### **PART 1 GENERAL**

##### **1.1 RELATED DOCUMENTS**

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

##### **1.2 SUMMARY**

**1.2.1** Section includes concrete floor toppings. Extent of concrete floor toppings is shown on Drawings and in schedules.

**1.2.2** Types of concrete floor toppings include:

- a. Standard aggregate toppings.
- b. Repair of concrete surfaces as necessary to receive finished materials.
- c. Repair of holes less than 4 inches diameter and cracks in concrete slabs.

##### **1.3 REFERENCES**

**1.3.1** Comply with requirements of Section 03 30 00 "Cast-in-Place Concrete" and as herein specified.

##### **1.4 SUBMITTALS**

**1.4.1** Furnish data, samples, laboratory test reports, and materials certificates as specified in Section 03 30 00 "Cast-In-Place Concrete."

#### **PART 2 PRODUCTS**

##### **2.1 CEMENT AND AGGREGATES**

**2.1.1** Portland Cement: ASTM C 150, Type I or III.

**2.1.2** Normal Weight Aggregate: ASTM C 33 and as follows:

Fine aggregate, consisting of sand or crushed stone screenings, clean, hard, free from deleterious matter. Grade by weight to pass sieves as follows:

- a. 3/8 inch: 100 percent.



- b. No. 4: 95-100 percent.
- c. No. 8: 80-90 percent.
- d. No. 16: 50-75 percent.
- e. No. 30: 30-50 percent.
- f. No. 50: 10-20 percent.
- g. No. 100: 2-5 percent.

**2.1.3** Manufacturer: Subject to compliance with requirements, provide factory pre-mixed topping mix with at least ten (10) years of experience in the industry:

**2.1.4** Furnish selected aggregates to match the Owner's finish sample.

## **2.2 TOPPING MIX**

**2.2.1** Standard Topping: Design mix to produce topping material with the following characteristics:

- a. Compressive Strength: 3500 psi at 28 days.
- b. Slump: 8 inches maximum at point of placement for concrete containing high range water reducing admixture (superplasticizer) and 3 inches maximum for other concrete.
- c. Maximum W/C Ratio: 0.51

## **2.3 MIXING**

**2.3.1** Provide a batch type mechanical mixer for mixing topping material at the Project site. Equip a batch mixer with a suitable charging hopper, water storage tank, and a water measuring device. Use only mixers that are capable of mixing aggregates, cement, and water into a uniform mix within specified time, and of discharging mix without segregation.

**2.3.2** Mix each batch of 2 cu. yds. or less for at least 1-1/2 minutes after ingredients are in the mixer. Increase mixing time 15 seconds for each additional cup. yd. or fraction thereof.

**2.3.3** Ready-mixed topping may be used when acceptable to Owner. When acceptable,

## **PART 3 EXECUTION**

### **3.1 CONDITION OF SURFACES**

**3.1.1** Topping Applied to Fresh Concrete: Do not begin placement of topping until water ceases to rise to surface, and water and laitance have been removed from base slab surface.

**3.1.2** Topping Applied to Hardened Concrete: Remove dirt, loose material, oil, grease, paint, or other contaminants, leaving a clean surface.

**3.1.3** When the base slab surface is unacceptable for good bonding, roughen the surface by chipping or scarifying before cleaning. Prior to placing the topping mixture, thoroughly dampen the slab surface but do not leave standing water. Over a dampened surface, apply specified bonding compound (rewettable or non-re-wettable) or epoxy adhesive. Place topping mix after the rewettable bonding compound has dried or while the non-re-wettable bonding compound or epoxy adhesive is still tacky.

**3.1.4** For reinforced toppings, provide necessary supports, and maintain the position of reinforcing mesh as shown on Drawings.

**3.1.5** Joints: Mark locations of joints in base slab so that joints in top course will be placed directly over them.

### **3.2 PLACING AND FINISHING**

- 3.2.1** Float Finish: Spread topping mixture evenly over prepared base to the required elevation and strike off. Use highway straightedge, bull float, or darby to level the surface. After the topping has stiffened sufficiently to permit the operation, and water sheen has disappeared, float the surface at least twice to a uniform sandy texture. Re-straighten where necessary with the highway straight edge. The surface shall achieve an F(F) 20/F(L) 17 tolerance when tested in accordance with ASTM E 1155. Uniformly slope surface to drains.
- 3.2.2** Where joints are required, construct to match and coincide with joints in the base slab. Provide other joints as shown.
- 3.2.3** Trowel Finish: After floating, consolidate concrete surface by final hand trowelling operations, free of trowel marks, uniform in texture and appearance, and with a surface plane tolerance not exceeding 1/8 inch in 10 feet when tested with a 10 foot straight edge.
- 3.2.4** Fill air holes, pits, and other blemishes with cement grout of same materials as used for topping. Spread grout over surface and work into openings with a steel straight edge.

### **3.3 CURING PROTECTION**

Cure and protect topping applications and finishes.

### **3.4 PERFORMANCE**

Failure of concrete topping to bond to substrate (as evidenced by a hollow sound when tapped), or disintegration or other failure of topping to perform as a floor finish, will be considered failure of materials and workmanship. Repair or replace toppings in areas of such failures, as directed.

*END OF SECTION*

## **SECTION 03 60 00**

### **GROUTING**

#### **PART 1 GENERAL**

##### **1.1 RELATED DOCUMENTS**

- 1.1.1** Drawings and general provisions of the Subcontract apply to this Section.
- 1.1.2** Review these documents for coordination with additional requirements and information that applies to work under this Section.

##### **1.2 REFERENCES**

- 1.2.1** General:
- a. The following documents form part of the Specifications to the extent stated. Where differences exist between codes and standards, the one affording the greatest protection shall apply.
  - b. Unless otherwise noted, the referenced standard edition is the current one at the time of commencement of the Work.
  - c. Refer to Division 01 Section "General Requirements" for the list of applicable regulatory requirements.
- 1.2.2** ASTM International:

- a. ASTM C33 Concrete Aggregates
- b. ASTM C40 Organic Impurities in Fine Aggregates for Concrete
- c. ASTM C88 Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
- d. ASTM C117 Material Finer Than 75µm Sieve in Mineral Aggregates by Washing
- e. ASTM C136 Sieve Analysis of Fine and Coarse Aggregates
- f. ASTM C150 Portland Cement
- g. ASTM C289 Potential Reactivity of Aggregates (Chemical Method)
- h. ASTM C494 Chemical Admixtures for Concrete
- i. ASTM C881 Epoxy-Resin-Base Bonding Systems for Concrete
- j. ASTM D2419 Sand Equivalent Value of Soils and Fine Aggregate
- k. ASTM E329 Inspection and Testing Agencies for Concrete, Steel, Bituminous Materials as Used in Construction

### 1.3 SUBMITTALS

- 1.3.1 Submit under provisions of Division 01 Section "General Requirements."
- 1.3.2 Manufacturer's data shall be provided for [bonding compounds] [pressure grout] [retardants].
- 1.3.3 Test reports, accompanied by a manufacturer's statement that previously tested material is of similar type, quality, and manufacture as that which is proposed for use on this projects, shall be submitted for:
  - a. Cement.
  - b. Aggregates.
  - c. Retardants.
  - d. Bonding compounds.
- 1.3.4 The subcontractor's testing laboratory shall provide evidence of the most recent inspection of its facilities by the Cement and Concrete Reference Laboratory of the National Bureau of Standards and evidence of correction of deficiencies noted in the inspection report before materials specified in this section are delivered to the job site.

### 1.4 QUALITY ASSURANCE

Conformance with the specified requirements will be demonstrated by testing performed by an independent testing laboratory.

## PART 2 PRODUCTS

### 2.1 MATERIALS

- 2.1.1 **Cement:** Portland cement shall be ASTM C150 Type II or Type V, containing less than 0.6 percent alkali.
- 2.1.2 **Aggregate:**
  - a. General: Aggregate shall be non-reactive and shall be washed before use. When sources of aggregate are changed, test reports shall be provided for the material from the new source prior to commencing grout work.
  - b. Fine Aggregate: Fine aggregate shall be sand or crushed stone conforming to ASTM C33 as modified herein. When tested in accordance with ASTM C136, gradation shall be such that 100 percent by weight passes a standard No. 8 sieve and not less than 45 percent by weight pass a standard No. 40 sieve. Variation from the specified gradation in individual tests will be

accepted if the average of three consecutive tests is within the following variation:

Standard Sieve	Permissible variation in individual test
No. 30 or coarser	2 percent by weight
No. 50 or finer	0.5 percent by weight

**2.1.3 Admixtures:**

- a. General: Admixtures shall be compatible with the grout and shall comply with the manufacturer's recommendations. Admixtures shall be added to the grout mix separately.
- b. Water Reducing Retarder: Water reducing retarder shall comply with ASTM C494, Type D.
- c. Lubricant

**2.1.4 Water:**

Water for washing aggregate, for mixing and for curing shall be potable, shall not contain more than 1000 mg/l of chlorides as Cl, nor more than 1300 mg/l of sulfates as SO<sub>4</sub>, and shall not contain impurities which may change the setting time by more than 25 percent or a reduction of more than 5 percent of the compressive strength of the grout at 14 days when compared to the results for grout made with distilled water.

**2.2 GROUTING**

**2.2.1 Cement Grout:**

Cement grout shall be a mixture of one part cement, two parts sand proportioned by volume admixtures for pressure grouting and sufficient water to form a workable mix.

**2.2.2 Epoxy Grout for Crack Repair and Dowel Anchorage:**

- a. Except for applications involving pressure grouting or crack injection, epoxy shall be a high modulus, moisture insensitive, two component, 100 percent solids, thermosetting modified polyamide epoxy compound. The material shall conform to ASTM C881 Type I, Grade 3 which is capable of not sagging in horizontal or overhead anchoring applications.
- b. Epoxy for applications involving pressure grouting or crack injection, shall be a high modulus, moisture insensitive, two component, injection grade, 100 percent solids blend of epoxy resin compounds. The material shall conform to ASTM C881 Type I, Grade 1 which is capable of achieving complete penetration of hairline and larger cracks.

**2.2.3 Polymer Concrete for Resurfacing and Patching:**

Polymer concrete shall consist of a liquid binder and dry aggregate mixed together to make a flowable mortar. The liquid binder shall be a chemical and oil resistant, stress relieved, low modulus, moisture insensitive, two component epoxy resin compound. The binder material shall conform to ASTM C881 Type 3, Grade 1 with a consistency similar to light weight oil for proper mixing with the aggregate. The aggregate shall be oven dry, kept in sealed packages until the time of mixing and be of size and consistency compatible with recommendations of the manufacturer of the liquid binder for the intended application.

**2.2.5 Adhesive Resin for Dowel Anchorage:**

ICC approved, structural epoxy; prepackaged in cartridges for manually or pneumatically operated caulk guns and automatically mixed at nozzle. Subject to compliance with the current ICC evaluation report.

## **2.3 PRESSURE GROUTING EQUIPMENT**

Pressure grouting equipment shall include a mixer and holdover agitator tanks designed to place grout at pressures up to 50 psi (0.345 MPa). Gauges indicating grouting pressure shall be provided and the mixer shall be equipped with a meter capable of indicating to within 1/10 cubic foot (0.003 m<sup>3</sup>) the volume of grout placed.

## **PART 3 EXECUTION**

### **3.1 GENERAL**

Bonding compounds for use with grout is specified in [Division 03 Section "Concrete"] [Division 03 Section Cast-in-Place Concrete]. Primer, if required for polymer concrete, is to be provided and installed per the manufacturer's recommendations.

### **3.2 CEMENT GROUT**

- 3.2.1** Cement grout is to be used for filling nonbearing portions of equipment pads and pressure grouting.
- 3.2.2** Except for the specialized requirements for pressure grouting, grout is to be mixed and placed in the same manner as cast-in-place concrete. Grout is to be mixed for at least one minute and diluted grout to agitate until placed.

### **3.3 NON SHRINK GROUT**

- 3.3.1** Non-shrink, non metallic aggregate grout is to be used under equipment, bearing plates and column base plates. Non-shrinkable, metallic aggregate grout is to be used under rotating equipment where high strength and fatigue are of concern, to grout anchor bolts and to grout reinforcing steel. Grout is to be placed and cured in accordance with the manufacturer's recommendations.
- 3.3.2** Holes required for grouting shall be blown clean with compressed air and are to be free of dust or standing water. Horizontal holes for grouting are to be drilled at a slight downward angle and with the inserted dowel or bolt bent to match.

### **3.4 EPOXY GROUT**

- 3.4.1** Epoxy grout shall be used for repairing cracks by pressure grouting or gravity, repairing structural concrete and may be used for setting dowels or bolts in holes. Concrete is to be primed in accordance with the grout manufacturer's recommendations.
- 3.4.2** The use of epoxy grout must comply with the following restrictions:
  - a. Limited to areas where exposure, on an intermittent or continuous basis, to acid, chlorine gas or to machine or diesel oils, is extremely unlikely.
  - b. Limited to applications where exposure to fire or to concrete temperatures above the product heat deflection temperature or 120 deg F (40 deg C)(whichever is less) is extremely unlikely. Overhead applications are not allowed.
  - c. Holes for the anchors shall be drilled (not cored), shall be blown clean with compressed air and shall be free of dust or standing water.
  - d. The anchor type, size and embedment depth shall be as shown on the drawings and the anchor must be installed in accordance with the manufacturer's recommendations.

- e. The anchor must not be loaded until after the full curing period has elapsed.

### **3.5 PRESSURED GROUTING**

Prior to grouting, cracks and holes to be grouted shall be washed clean. Washing is not required for grouting soil voids. Once started, grouting shall be continuous until completed. In case of a mechanical failure or other stoppage of the work, the grout equipment shall be washed out sufficiently to ensure that fresh only grout is pumped when the work is restarted.

### **3.6 FIELD OF QUALITY CONTROL**

#### **3.6.1 The Testing Laboratory will:**

- a. Special Inspect installation of anchors in accordance with applicable ICC Evaluation Report, where special inspection is indicated on Contract Documents or where Subcontractor's design engineer has used ICC anchor capacities that require Special Inspection.
- b. Develop and utilize an effective method of field marking anchor and dowel test locations and results.

**3.6.2** Testing of grout mixes for conformance to manufacturer's specified strength: Testing laboratory shall take four test samples of each day's grout mix and test grout mix samples at 7 and 28 days. Test reports shall be submitted to the Architect/Engineer for evaluation and approval.

**3.6.3** Test 25 percent of reinforcing steel dowels installed with adhesive resin on a given day in tension using pullout procedure. Test to 80% of specified yield strength of the dowel or 150% of the ICC rated static capacity whichever is the lesser with special inspection. Dowels specifically noted on the drawings as "No test required" do not require tension testing.

**3.6.4** If the failure rate of dowels exceeds 10 percent, testing will be increased to 100 percent of that day's installation of similar anchors or dowels. Testing will be reduced to 25 percent of that day's installation when the failure rate is reduced to 10 percent or less. Failed dowels will be replaced at no additional cost to the Owner. Subcontractor will reimburse Owner for the cost of additional testing.

*END OF SECTION*

## **SECTION 04 22 00**

### **CONCRETE UNIT MASONRY**

#### **PART 1 GENERAL**

##### **1.1 SCOPE OF WORK**

This section shall include all management, labor, materials, tools, equipment and services required to furnish and install concrete masonry units as specified herein and shown in Drawings required to perform all works in accordance to the General Conditions of the Contract Documents.

## 1.2 REFERENCES

Comply with quality assurance requirements under General Conditions of the Contract Documents and Manufacturer's instructions. Reference the following standards as Applicable:

- 1.2.1 American Concrete Institute (ACI)/American Society of Civil Engineers (ASCE)/The Masonry Society (TMS)
  - A. ACI 117 – Standard Specifications for Tolerance for Concrete Construction and Materials.
  - B. ACI 530.1/ASCE 6/TMS 315 - Specification for Masonry Structures.
- 1.2.2 American Concrete Institute (ACI)
  - A. ACI 315 – Details and Detailing of Concrete Reinforcement.
- 1.2.3 American Society for Testing and Materials (ASTM)
  - A. ASTM C 90– Specification for Load bearing Concrete Masonry Units.
  - B. ASTM C 140 – Test Methods for Sampling and Testing Concrete Masonry Units and Related Units.

## 1.3 SUBMITTALS

- 1.3.1 **General:** All submittals for approval as indicated herein shall be in accordance with the provisions under General Conditions of the Contract Documents.
- 1.3.2 **Product Data:** For each type of concrete masonry unit and accessory including certifications that each complies with specified requirements.
- 1.3.3 **Shop Drawings:**
  - A. For concrete masonry units, showing sizes, profiles, coursing, bond pattern, special shape locations, joint locations and embedded items.
  - B. For cast stone trim in the form of cutting and setting drawings, showing sizes, profiles and locations of each stone trim unit required.
  - C. For joint reinforcement and steel reinforcing. Detail fabrication, bending and placement of unit masonry reinforcing bars. Comply with ACI 315 showing reinforcing bar schedules, stirrup spacing, and diagrams of bent bars and arrangement of masonry reinforcing.
  - D. Shop Drawings and/or manufacturer's catalog cuts of dovetail slots and other devices, if any, required for anchoring masonry to steel or other materials, including instructions for their proper use.
- 1.3.4 **Samples:**

Samples for approval for each different type and shape of exposed masonry unit required, showing full range of exposed color, texture and dimensions to be expected in the finished Work. When required by 2.01 B.6, prefaced or ground face, submit concrete masonry unit samples for color selection or verification. Two sample sections of cast stone sills and coping, if any, showing color and texture of finish. Samples of accessories embedded in masonry.
- 1.3.5 **Quality Control Reports:**

Submit copies of reports verifying compressive strength requirements of completed masonry, if required by the Engineer, within 7 calendar days of the date of each completed test.

## 1.4 QUALITY ASSURANCE

- 1.4.1 Comply with quality assurance requirements under General Conditions of the Contract Documents and Manufacturer's instructions.

**1.4.2** Manufacturer Qualification shall be at least five (5) years of production experience, whose published literature clearly indicates general compliance of products with requirements of this section.

**1.4.3** Single Source Responsibility

Obtain exposed masonry units of uniform texture and color from a single manufacturer for each type of product required.

**1.4.4** Mock-ups

Where shown on the Contract Drawings, before masonry Work commences, construct a panel approximately 6 foot long by 4 foot high of each type of exposed concrete masonry unit, as directed by the Engineer, for approval. Use mortar of type and color to be used in the Work.

- A. Protect mock-ups from the elements with a weather-resistant membrane.
- B. Retain mock-ups during construction as standards for judging completed masonry Work. When directed by the Engineer, demolish mock-ups and remove them from Authority property.
- C. Prepare a list of materials used to construct mock-ups, for information only, for Engineers. Include manufacturer and product names, generic materials, suppliers, colors, identifying lot or batch numbers and design mixes.
- D. Where masonry is shown on the Contract Drawings to match existing, construct mock-up panels adjacent to and parallel to existing surfaces to be matched.

**1.5 DELIVERY, STORAGE AND HANDLING**

**1.5.1** Comply with product delivery requirements under General Conditions of the Contract Documents and Manufacturer's instructions.

**1.5.2** All materials shall be delivered, stored and handled so as to prevent the inclusion of foreign materials and damage of materials by water exposure and breakage. In stock piling concrete hollow blocks, measures shall be adopted to prevent the hollow blocks from resting directly on soil surface. These measures may include provision of pallets or beds of sand about 2" thick. Packaged materials shall be delivered and stored in original packages until ready for use. Packages or materials showing evidence of water exposure or other form of damage shall be rejected. All materials shall be of the respective qualities specified herein and packaged materials shall carry the manufacturer's labels thereon to permit identification.

**1.6 WARRANTY**

Special written warranty for each material specified herein shall be submitted by Manufacturer/Contractor without reducing or otherwise limiting any other rights to correction which the Owner may have under the Contract Documents. Failures are defined to include faulty workmanship or faulty materials.

**1.7 PROJECT CONDITIONS**

Comply with field examination requirements under General Conditions of the Contract Documents and Manufacturer's instructions.



**PART 2 PRODUCTS**

- 2.1 Specifications for the following materials are stated under section REINFORCED CONCRETE, and shall apply to this Masonry and Cement Work section as if written out in full.
- 2.2 Aggregates of different kinds and sizes shall be placed in different stock piles and positive means taken to prevent inclusion of foreign matter.
- 2.3 All cementitious materials must be kept dry until ready to be used; must be kept off the ground under cover, and away from sweating walls and other damp surfaces.
- 2.4 Cementitious materials that have hardened or partially set prior to actual use shall be removed from the site.
- 2.5 **Unit Masonry** - Concrete hollow block units shall be steam cured-weigh-batched units made. Concrete hollow block units shall be true to size, without cracks, chips, spawns, splits or other defects, which impair their strength or durability. They shall have three holes. All nonbearing type concrete blocks shall have a unit weight not to exceed 60 pcf, for load bearing type concrete blocks, a minimum compressive strength of 7.58 MPA (1,100 psi) shall be developed.

**2.6 Steel Reinforcement**

The minimum steel reinforcement for concrete hollow block walls shall conform to the schedule as given hereunder or as indicated in the construction notes.

	Minimum Vertical Reinforcement	Horizontal Reinforcement
4" CHB	10mm @ 0.4m	10mm @ 400mm
6" CHB	12mm @ 0.4m	10mm @ 400mm

All cores where vertical or horizontal reinforcements are placed shall be filled with mortar and shall thoroughly be worked inside the core to fill up voids.

- 2.7 **Tie Wires** : Ga. #16 G.I
- 2.8 **Concrete Lintels**  
Lintels for openings shall be the height and thickness of existing hollow blocks or as detailed in the drawings. The minimum reinforcement shall be that shown in the drawings.
- 2.9 **Mortars**  
Mortar mix shall be 1 part Portland Cement and 3parts white sand. All materials for mortar shall be measured by volume. Sand and cement shall be mixed dry and then water added to bring to proper consistency for use. No mortar that has stood for more than 3/4 of an hour shall be used. Retempering of mortar shall not be permitted. Discard mortar which has begun to stiffen.

**PART 3 EXECUTION**

**3.1 Masonry Units**

- 3.1.1 Lay all units plumb, true to line, level and accurately spaced.
- 3.1.2 Set in place anchors, wall plugs and accessories to masonry as erection progresses.

**3.1.3** Bed solidly each course on Portland cement mortar with vertical joints breaking halfway over the course below.

**3.1.4** Remove all loose mortar and thoroughly wet exposed joints not less than one hour before laying new work.

## **3.2 Plastering**

**3.2.1** All works shall be plumb, true and accurately done. Use screeds at convenient intervals to assure even and flat finish.

**3.2.2** Scratch coat shall be applied evenly floated to true plumb and correct planes.

**3.2.3** Not less than 24 hours after the application of scratch coat, the second of finish coat consisting of 1 part Portland cement and 2 parts sand shall be floated, red and finished to a combined finish total of approximately 3/4" for both 2 coats.

**3.2.4** All exterior plastering works shall be done with a waterproofing ingredient, mixed with scratch and finish coats in strict accordance with the directions of the manufacturer of the waterproofing compound.

**3.2.5** Each preceding coat shall be wetted before applying the next coat.

**3.2.6** Plaster works shall not be started until all trades have completed their work. If this is not possible, the plasterer shall repair the broken and defective plaster and shall be done so that the finished surface presents an unbroken appearance.

*END OF SECTION*

## **SECTION 04 43 00**

### **STONE MASONRY**

#### **PART 1 GENERAL**

##### **1.1 SCOPE OF WORK**

This section shall include all management, labor, engineering, courier, printing, reproduction, materials, tools, equipment and services required to manufacture, assemble, deliver (including all import and export documents), and install all items necessary for the proper execution and completion of said items of work, as indicated in the General and Special Conditions of the Contract documents, the Drawings, as specified herein, and /or as required by job conditions to provide the complete installation for steel doors and frames.

##### **1.2 REFERENCES**

Comply with quality assurance requirements under General Conditions of the Contract Documents. The following standards form part of these specifications to the extent referenced:

**1.2.1** ASTM: American Society for Testing and Materials.

- a. C615 Standard Specification for Granite Dimension Stone.
- b. C97 Standard Test Methods for Absorption and Bulk Specific Gravity of dimension Stone.
- c. C99 Standard Test Method for Modules of Rupture of Dimension Stone.
- d. C170 Standard Test Method for Compressive Strength of Dimension Stone.
- e. C880 Standard Test Method for Flexural Strength of Dimension Stone.

- 1.2.2 Marble Institute of America (MIA): Membership, Products, and Services Directory.
  - a. Dimension Stone Design Manual
  - b. Dimension Stones of the World - Volumes I and II (includes color plates, ASTM test data and other technical information).
- 1.2.3 National Building Granite Quarries Association (NBGCQA) - Specifications for Architectural Granite.

### **1.3 SUBMITTALS**

- 1.3.1 General: All submittals for approval as indicated herein shall be in accordance to the provisions under General Conditions of the Contract Documents.
- 1.3.2 Submit sample materials and swatches requirements for the stone finishes.
- 1.3.3 All samples submitted shall be of the production type and shall represent in all aspects the minimum quality of work to be furnished by the manufacturer, No work represented by the samples shall be started until the samples are approved and downgrading of quality from what was demonstrated by the samples may be cause for rejection of the work.
- 1.3.4 Submit certificates for compliance to standards applicable to material quality as specified herein.

*Note: All Sample Material shall be submitted prior to purchasing and installing of materials for review and approval of the Architect.*

### **1.4 QUALITY ASSURANCE**

- 1.4.1 Comply with quality assurance requirements under General Conditions of the Contract Documents and Manufacturer's instructions.
- 1.4.2 Size of product: The inspector shall verify the physical size of natural stone material and thickness as specified.

### **1.5 DELIVERY, STORAGE AND HANDLING**

- 1.5.1 Carefully pack and load finished natural stone for shipment using reasonable and customary precautions against damage in transit. Do not use material which may cause staining or discoloration for blocking or packing.
- 1.5.2 Store natural stone on timber or platforms at least 2" above the ground, and take care to prevent staining during storage. If storage is required for a prolonged period, place polyethylene or other suitable plastic film between wood and finished surfaces of completely dry stone. Keep finished natural stone countertops covered during storage.

### **1.6 WARRANTY**

Special written warranty for each material specified herein shall be submitted by Manufacturer/Contractor without reducing or otherwise limiting any other rights to correction which the Owner may have under the Contract Documents. Failures are defined to include faulty workmanship or faulty materials.

## **PART 2 PRODUCTS**

- 2.1 Acceptable Manufacturer** shall have at least 10 years reliable and reputable manufacturing experience.
- 2.2 Floor Terminations**
- 2.2.1 (FF-13) Natural Granite Stone Nosing 2:** Interior Floor Termination Shall be 18-20mm thick x 50mm/100mm premium high quality natural granite stone in polished finish with medium to heavy resistance to abrasion, final color and pattern as per Architect's approved sample.
- 2.2.2 (FF-14) Natural Granite Stone Nosing 3:** Interior Floor Termination and Toilet Entry Floor Nosing  
Shall be 18-20mm thick x 50mm/150mm premium high quality natural granite stone in polished finish with medium to heavy resistance to abrasion, final color and pattern as per Architect's approved sample.
- 2.3 Decorative Granite Stone @ Main Lobby Flooring**  
18-20mm thick premium high quality natural granite stone decorative flooring (ellipse form). Final color and pattern as per Architect's approved sample. Granite color and design shall be approved first before installation.

### **PART 3 EXECUTION**

- 3.1 Manufacturer's Instruction**  
Comply with manufacturer's product technical data, installation procedures and standards as per project.
- 3.2 INSTALLATION**
- 3.2.1** Provide competent stone setters. Set stone in accordance with approved shop drawings.
- a. Install backer material and primer where required. Follow the sealant manufacturer's instructions.
  - b. Tool sealants ensure maximum adhesion to the contact surfaces.
- 3.3 CLEANING**
- 3.3.1** Clean the natural stone, removing dirt, excess mortar, weld splatter, stains, and other site incident defacements.
- 3.3.2** Use stiff bristle fiber brushes. Do not use wire brushes or acid-type cleaning agents and other solutions, which may cause discoloration.
- 3.4 PROTECTION**
- 3.4.1** Do not use lumber that may stain or deface the natural stone. If required, use only galvanized or non-rusting nails.
- 3.4.2** Protect natural stone from damage during the remainder of the construction period. Use suitable strong, impervious film or fabric securely held in place.

*END OF SECTION*

## SECTION 08 11 00

### METAL DOORS, WINDOWS AND FRAMES

#### PART 1 GENERAL

##### 1.1 SCOPE OF WORK

This section shall include all management, labor, engineering, courier, printing, reproduction, materials, tools, equipment and services required to manufacture, assemble, deliver (including all import and export documents), and install all items necessary for the proper execution and completion of said items of work, as indicated in the General and Special Conditions of the Contract documents, the Drawings, as specified herein, and/or as required by job conditions to provide the complete installation for steel doors and frames.

##### 1.2 REFERENCES

Comply with quality assurance requirements under General Conditions of the Contract Documents. The following standards form part of these specifications to the extent Referenced:

- 1.2.1 ANSI A250.4-2001 – Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Hardware Reinforcing.
- 1.2.2 ANSI/NPFA 80-1999 – Standard for Fire Doors and Fire Windows
- 1.2.3 ANSI/NPFA 252-1999 – Standard Methods of Fire Tests of Door Assemblies
- 1.2.4 ANSI/UL 10B-2001 – Fire Test of Door Assemblies 9th edition
- 1.2.5 ANSI/UL 10C-2001 – Positive Pressure Fire test of Door Assemblies 1st edition
- 1.2.6 NAAMM Manufacturing of Hollow Metal Technical standards
- 1.2.7 USGBC – U.S. Green Building Council
- 1.2.8 LEED – Leadership in Energy and Environmental Design
- 1.2.9 GBCI – Green Building Certification Institute
- 1.2.10 EU Directives [WEEE & Ro HS]
- 1.2.11 PSA – Product Standards Agency
- 1.2.12 Steel Door Institute (SDI) – SDI-118 Basic Fire Door Requirements

##### 1.3 TESTING AND PERFORMANCE

###### 1.3.1 Physical Endurance for Steel Doors and Hardware Reinforcing

- a. Cycle Test Acceptance Criteria: ANSI A 250.4-2001 doors specified with Ga#16 and thicker face sheets shall be tested to 4,000,000 cycles. Door specified with Ga#18 thick face sheets shall be tested to 1,000,000 cycles level (A).
- b. Test Reports or Certificates of compliance shall include a description of the test specimen; procedures used in testing and indicate compliance with the contract document specified acceptance criteria.

###### 1.3.2 Labeled Fire-Rated Doors and Frame Product

- a. Doors, frames, transom frames and sidelight assemblies provided for openings requiring fire protection, temperature rise and/or smoke and draft control shall be listed and/or classified and bear the label of a testing agency having a factory inspection service. The product shall be tested in accordance with (ANSI/NFPA 252 or ANSI/UL-10C or

UBC 7-2; Part 1) and constructed as listed or classified for labeling. Fire, temperature rise and/or smoke and draft control rating shall be determined and scheduled by the Architect.

- b. If any door or frame product specified by the Architect to be fire-rated cannot qualify for labeling because of design, over sizing, hardware or any other reason, the Architect shall be advised in the submittal documents. If hardware, glazing, or other options affect the fire-rating and are unknown at the time of submittal document preparation, the Architect shall be advised.
- c. Provide frames with an intumescent strip to prevent penetration of life treating hot smoke and hot gasses by expanding at 250°F and filling the gaps around the perimeter of the door once heated.
  - Intumescent strip is chemically inert, high stable, expandable graphite strip, unaffected by carbon dioxide and ozone. Self-adhesive acrylic adhesive is applied to one side which is insoluble in water and moisture resistant. Intumescent strips must be painted to match the finish color of Frame.
  - The frame is provided with recessed strips to protect, conceal the seal and reduce maintenance risk leading to effective and longer use.
- d. Use only hardware and accessories that are UL-listed for fire safety.

### **1.3.3 Environmental Safe**

Provide doors and frames that is ecology friendly by restricting the use of certain hazardous substances pertaining to copper, mercury, cadmium, hexavalent and bromine type flame retarding materials.

## **1.4 SUBMITTALS**

- 1.4.1** General: All submittals for approval as indicated herein shall be in accordance with the provisions under General Conditions of the Contract Documents.
- 1.4.2** Submit shop drawings, brochures and installation instructions. Clearly show details of each frame type, elevation of each door and window type, conditions and opening with various wall thickness and materials, typical and special details of door construction, methods of assembling sections, location, reinforcements, and installation requirements for hardware, size, shape and thickness of materials.
- 1.4.3** A sample of door showing edges, top and or bottom construction, insulation, hinge reinforcement and face stiffening shall be submitted.
- 1.4.4** A sample of typical frame showing welded corner joint, welded hinge reinforcement shall likewise be submitted.
- 1.4.5** All samples submitted shall be of the production type and shall represent in all aspects the minimum quality of work to be furnished by the manufacturer, No work represented by the samples shall be started until the samples are approved and any downgrading of quality from what was demonstrated by the samples may be cause for rejection of the work.
- 1.4.6** Submit test reports and certificates for compliance to standards applicable to material quality as specified herein.

*Note: All Shop Drawings and Sample Sections shall be submitted prior to purchasing and installing of materials for review and approval of the Architect.*

**1.5 QUALITY ASSURANCE**

- 1.5.1 Comply with quality assurance requirements under General Conditions of the Contract Documents and Manufacturer’s instructions.
- 1.5.2 Quality Marketing: for fire rated doors, provide certifications indicating product data or attach a UL symbol to the door and frame.
- 1.5.3 Gauge of Components: The inspector shall verify that the steel thickness is specified.
- 1.5.4 Size of product: The inspector shall verify that the physical size of the doors and frames are as specified.

**1.6 DELIVERY, STORAGE AND HANDLING**

- 1.6.1 Comply with product delivery requirements under General Conditions of the Contract Documents and Manufacturer’s instructions.
- 1.6.2 Correct site storage and protection are essential to proper performance of doors and frame products. The requirements for proper storage are the responsibility of the General Contract. However, it is important to recognize that these are not the responsibility of the hollow metal manufacturer. For this reason the requirements for storage and protection of hollow metal doors and frame products should be included in the Section of the specification where installation work is specified.
- 1.6.3 The Contractor is responsible for receiving hollow metal door and frame product shall remove wraps of covers upon delivery at the building site and shall ensure that any scratches or disfigurement caused by shipping or handling are promptly cleaned and touched up with Manufacturer’s recommended material.
- 1.6.4 The Contractor is responsible for receiving door and frame product shall ensure that materials are properly stored on planks or in a dry location. Doors and frame products shall be stored in a vertical position, spaced by blocking. Materials shall be covered to protect them from damage but in such a manner as to permit air Circulation.

**1.7 WARRANTY**

Special written warranty for each material specified herein shall be submitted by Manufacturer/Contractor without reducing or otherwise limiting any other rights to correction which the Owner may have under the Contract Documents. Failures are defined to include faulty workmanship or faulty materials.

**PART 2 PRODUCTS**

**2.1 Acceptable Manufacturer**

shall have at least 10 years reliable and reputable manufacturing experience.

**2.2 Materials**

**2.2.1 Chromate – free Steel**

- A. Electro galvanized steel sheet chromate-free coated with a special coating zinc coating layer applied on the base metal.
- B. Hot-Dip Galvanized Steel Sheet Chromate-free coated with a special coating film on hot dip galvanizing applied on the base metal.

### 2.3 Steel Door

Sizes and details as shown in drawings, dimension, fabrication and installation of Doors shall be based on the actual measurements and conditions of the site.

*Location:*

*D-12a (Convention Hall Hallway to Utility Area)*

- 2.3.1 Door Face Sheet:** 1.3mm thick, gauge 18 minimum thickness and shall be manufactured from cold-rolled steel conforming to ASTM A 1011/A 1011M CS type B. Steel shall be free of scale, pitting, coil breaks or surface blemishes, buckles, waves or other defects.
- 2.3.2 Hollow Metal Panels:** Shall be 45mm nominal thickness, shall be made of the same material specified on the door face sheet. Provide honeycomb core insulation.
- 2.3.3 Hollow Metal Frames:** Shall be manufactured from cold rolled steel conforming to ASTM A1008/A 1008/M CS type B, or hot-rolled, pickled and oiled (HRPO) steel conforming to ASTM A 1011/A 1011M CS type B. Profiles shall be 1.6mm gauge 16 minimum thickness x 45mm x 140mm (framing size). Frame product shall be 1.7mm minimum thickness for single door openings exceeding to 1,219mm in width and pairs with either door exceeding 1,219mm in Width.
- 2.3.4 Steel Door Finish:** shall be in powder-coated finish
- 2.3.5 Hardware:** Provide eUL listed steel door hardware complete with ball bearing hinges, lever type locksets, deadbolt, door closer, door stop and flush bolt (for double doors). See Section 087000 Hardware of the Technical Specification for further details.

### 2.4 Steel Door with Vision Glass Panel 2

Sizes and details as shown in drawings, dimension, fabrication and installation of Doors shall be based on the actual measurements and conditions of the site.

*Location: D-10b (AV/Control Rm 2/F)*

- 2.4.1 Door Face Sheet:** 1.3mm thick, gauge 18 minimum thickness and shall be manufactured from cold-rolled steel conforming to ASTM A 1011/A 1011M CS type B. Steel shall be free of scale, pitting, coil breaks or surface blemishes, buckles, waves or other defects.
- 2.4.2 Hollow Metal Panels:** Shall be 45mm nominal thickness, shall be made of the same material specified on the door face sheet. Provide honeycomb core insulation.
- 2.4.3 Hollow Metal Frames:** Shall be manufactured from cold rolled steel conforming to ASTM A1008/A 1008/M CS type B, or hot-rolled, pickled and oiled (HRPO) steel conforming to ASTM A 1011/A 1011M CS type B. Profiles shall be 1.6mm gauge 16 minimum thickness x 45mm x 140mm (framing size). Frame product shall be 1.7mm minimum thickness for single door openings exceeding to 1,219mm in width and pairs with either door exceeding 1,219mm in width.
- 2.4.4 Vision Glass Panel:** Shall be 6mm thick annealed glass panel
- 2.4.5 Steel Door Finish:** Shall be in powder-coated finish.



- 2.4.6 Hardware:** Provide UL listed steel door hardware complete with ball bearing hinges, level type lockset, door closer and door stop. See Section 087000 Hardware of the Technical Specification for further details.

*Note: Relocation of Installed D-10b at AV/Control Rm 1 to the next opening (labor only).*

## **2.7 Steel Door with Bottom Louvers**

Sizes and details as shown in drawings, dimension, fabrication and installation of Doors shall be based on the actual measurements and conditions of the site.

*Location:*

*D-14a (PWD Toilet @ Ground Floor)*

*D-14c (Janitor Room 1)*

- 2.7.1 Door Face sheet:** 1.3mm thick, gauge 18 minimum thickness and shall be manufactured from cold-rolled steel conforming to ASTM A 1011/A 1011M CS type B. Steel shall be free of scale, pitting, coil breaks or surface blemishes, buckles, waves or other defects.
- 2.7.2 Hollow Metal Panels:** Shall be 45mm nominal thickness, shall be made of the same material specified on the door face sheet. Provide honeycomb core insulation.
- 2.7.3 Steel Bottom Louvers:** Shall be 1.3mm thick Gauge 18 x 50mm x 75mm Z profile bottom louver blades (see drawings for design and details).
- 2.7.4 Hollow Metal Frames:** Shall be manufactured from cold rolled steel conforming to ASTM A1008/A 1008/M CS type B, or hot-rolled, pickled and oiled (HRPO) steel conforming to ASTM A 1011/A 1011M CS type B. Profiles shall be 1.6mm gauge 16 minimum thickness x 45mm x 140mm (framing size). Frame product shall be 1.7mm minimum thickness for single door openings exceeding to 1,219mm in width and pairs with either door exceeding 1,219mm in Width.
- 2.7.5 Steel Door Finish:** Shall be in powder-coated finish
- 2.7.6 Hardware:** Provide UL listed steel door hardware complete with ball bearing hinges, lever type locksets, door closer (for toilets only), door stop and flush bolt (for double doors only). See Section 087000 Hardware of the Technical Specification for further details.

## **PART 3 EXECUTION**

### **3.1 Hollow Metal Doors Construction**

- 3.1.1** Doors shall be the types, sizes and construction, in accordance with the contract documents, and shall meet the performance requirements, prior to shipment mark each door with an identification number as shown on approved submittal drawings.
- 3.1.2** Door face sheets shall be joined at their vertical edges by a continuous weld extending the full height of the door, with no seams on their faces or vertical edges.
- 3.1.3** Minimum nominal door thickness shall be 1-3/4 in (44mm). Doors shall be neat in appearance and free from warpage or buckle. Edge bends shall be true and straight and of minimum radius for the thickness of metal used.

- 3.1.4 Doors shall be stiffened by continuous vertically formed steel sections which, upon assembly, shall span the full thickness of the interior space between door faces. These stiffeners shall be 0.026in (0.6mm) minimum thickness, spaced so that the vertical interior webs shall be no more than 6 in. (152mm) apart and securely fastened to both face sheets by spot welds spaced a maximum of 5 in. (127mm) o.c. vertically. Spaces between stiffeners shall be filled with UL approved 12mm impregnated honeycomb core insulation.
- 3.1.5 The top and bottom edges shall be closed with a continuous steel channel, not less than 0.053 in. (1.3mm) thickness, welded to both face sheets.
- 3.1.6 Exterior doors, or where otherwise scheduled by the Architect, shall be closed flush at the top edge. Where required for the attachment for weather-stripping, a flush steel closure channel shall have exterior doors to permit the escape of entrapped Moisture.
- 3.1.7 Edge profiles shall be provided on both vertical edge of doors as follows, unless hardware dictates otherwise;
  - a. Single acting doors – beveled 1/8in. (3.1mm) in 2 in. (50.8mm) profile.
  - b. Double acting doors – rounded on 2-1/8 in. (54mm) radius.
- 3.1.8 Hardware Reinforcement and Preparations
  - a. Doors shall be mortised, reinforced, drilled and tapped at the factory for template hardware only, in accordance with the approved hardware schedule and templates provided by the hardware supplier. Where surface mounted hardware, anchor hinges, thrust pivot reinforced hinges, or non-template hardware apply, doors shall be reinforced, with drilling and tapping done by others in the field.
  - b. Minimum steel thickness for hardware reinforcements shall be as follows:
 

Full	mortise	hinges	and	
pivots.....				0.0167 in. (4.2mm)
Lock	fronts, strikes,	concealed	holders,	or surface
closers.....				mounted
.....				0.093 in. (2.3mm)
Internal	reinforcements	for other	surface	applied
hardware.....				hardware.....
.....				0.067 in. (1.7mm)
  - c. In cases where electrically or electronically operated hardware is required, and indicated on the approved hardware schedule, conduit, hardware enclosures and/or junction boxes within the door shall be provided. Access plates, where required, shall be the same material and thickness as the door face sheets and shall be fastened with not less than four #3-32 machine screws at a spacing not to exceed 12 in. (305mm) in the center. Access plate screws shall be corrosion resistant. Fire doors that are normally held open shall be equipped with a device to automatically close the door in the event of fire.
- 3.1.9 Glazing Moldings and Stops
  - a. Where specified or scheduled, doors shall be provided with steel holdings to secure glazing materials furnished and installed in

the field by others, in accordance with glazing sizes and thickness shown in the contract documents.

- b. Fix glass molding shall be welded to the secure side.
- c. Removable glass stops shall be channel shaped, not less than 0.0032 in. (0.8mm) thickness, with tight fitting butt or mitered corners and secured with #6 minimum, corrosion resistant countersunk sheet metal screws.
- d. Metal surfaces to which glazing stops are applied, and the inside of the glazing stops shall be treated for maximum paint adhesion and painted with a rust inhibitive primer prior to installation in the door. Glazing stops fabricated from zinc-coated steel conforming to ASTM A 653/A 653M, A40 (ZF180) or G60 (Z180) for exterior openings need not be primed on the side.
- e. Fire rated doors shall be prepared for listed glazing as required in accordance with the door manufacturer's fire rating procedure.

**3.1.10** Where specified in the contract documents, doors shall be provided with louvers.

- a. Louvers for non-wire rated doors shall be welded inverted V type, Y type, Z type, face pierced construction or louver inserts are permitted.
- b. Inverted V, Y and Z vanes shall be not less than 0.042 in. (1.0mm) thickness.
- c. Fire-rated doors shall be prepared for listed, automatic closing, fusible link and fire door louvers.
- d. Louvers for exterior doors shall be provided with insect and/or bird screens where shown on the contract documents.

## **3.2 Hollow Metal Frames Construction**

**3.2.1** Frame products shall have integral stops and be welded units of the sizes and types shown on approved submittal drawings. Frame products shall be constructed in accordance with the contract documents and meet the performance criteria. Knock down frames are not acceptable. Frame products shall be constructed in accordance with NAAMM HMMA 820 with regard to joint designs and welding techniques. Prior to shipment mark frame product with an identification number as shown on approved submittal drawings.

**3.2.2** Finished work shall be neat in appearance, square and free of defects, warps and buckles. Pressed steel members shall be straight and of uniform profile throughout their lengths.

**3.2.3** Jamb, header, mullion and sill profiles shall be in accordance with the frame schedule and as shown on the approved submittal drawings.

**3.2.4** Corner joints shall have all contact edges closed tight with faces mitered and stops either butted or mitered.

- a. **Welding**  
Perimeter face joints (flush or indented) shall be continuously welded internally or externally. Flush face joints shall be smooth with seamless faces. Rabbets and soffits shall be continuously welded internally. The use of gussets or splice plates as a substitute for welding shall not be acceptable. Internal flush face joints shall be continuously welded and finished smooth with seamless faces.

Members at internal indented intersections shall be securely welded to concealed reinforcements and have hairline faces seams.

- 3.2.5** Minimum height of stops shall be 0.625 in. (15.8mm)
- 3.2.6** Cut-off, where specified shall be capped at heights as shown on the approved submittal drawings and jamb joints below cut-off stops shall be welded, filled and ground smooth so that there are no visible seams.
- 3.2.7** Each door opening shall be prepared for single stud, resilient door silencers, three (3) per strike jamb for single door openings, two (2) per head for pairs, except on gasket or weather stripped frame product. Silencers shall be supplied and installed by others.
- 3.2.8** When shipping limitations or site access dictate, or when advised by the contractor responsible for coordination or installation, frame products for large openings shall be fabricated in sections designated for assembly in the field by others. Alignment plates or angles shall be installed at each joint. Such components shall be the same material and thickness as the frame. Field joints shall be made according to approved submittal drawings and shall be field welded by others.
- 3.2.9** Hardware Reinforcements and Preparations
  - a. Frame products shall be mortised, reinforced, drilled and tapped at the factory for template hardware only, in accordance with the approved hardware schedule and templates provided by the hardware supplier. Where surface mounted hardware, anchor hinges, thrust pivots, pivot reinforced hinges, or non-templated hardware apply, frame products shall be reinforced with drilling and tapping done by others in the field.
  - b. Minimum steel thickness of hardware reinforcing shall be as follows:
    - Full mortise hinges and Pivots.....0.167 in. x 1.25 in. x 10 in. length (4.2mm x 31.7mm x 254mm)
    - Strikes.....0.0093 in. (2.3mm) or 0.053in. (1.3mm) unitized reinforcement with extruded tapped holes that provide an equivalent number of threads as 0.093 in. (2.3mm)
    - Flush bolts, closers, hold open arms and other surface applied hardware.....0.093 in. (2.3mm)
- 3.2.10** In cases where electrically or electronically operated hardware is required, and indicated on the approved hardware schedule, conduit, hardware enclosure and/or junction boxes shall be provided. Access plates, where required shall be the same material and thickness as the frame product and shall be fastened with not less than four #8-32 machine screws of #6 sheet metal screw at a spacing not to exceed 12 in. (305mm) in the center.
- 3.2.11** Grout guards fabricated in frame product shall be provided with a temporary steel spreader welded to the feet of the jambs or mullions to serve as bracing during shipping and handling and which shall not be used for installation.
- 3.2.12** Removable Glazing Stops
  - a. Where specified, frame product shall be provided with removable stops to secure glazing material or in-fill panels. Glazing materials shall be furnished and installed in the field by

others, in accordance with glazing sizes and thickness shown in the contract documents.

- b. Removable steel channel glazing stops shall be butted at corners and secured to the frame section using #16 minimum, corrosion resistant countersunk sheet metal screws.
- c. The frame section underneath the glazing stops and the inside of the glazing stops shall be treated for maximum paint adhesion and painted with a rust inhibitive primer prior to installation in the opening. Glazing stops fabricated from zinc-coated steel conforming to ASTM A 653/A 653M, A40 (ZF120) for interior frames, A60 (ZF180) or G60 (Z180) for exterior openings need not be primed on the inside.

### **3.3 Hardware Locations**

**3.3.1** The location of hardware on doors and frame products shall be listed below. All dimensions, except the hinge locations are referenced from the floor.

- a. Hinges – use 125mm x 100mm, 3.4mm thick ball bearing butt hinge. Top 298mm from underside of frame rabbet at door opening at door opening to center line top of hinge. Bottom 330mm from floor to center line bottom of hinge. Intermediate centered between top and bottom hinges
- b. Locks and Latches – 1000mm to centerline of knob of lever shaft, 70mm backset minimum.
- c. Deadlocks – 1000mm to centerline of cylinder, 70mm backset minimum
- d. Exit Hardware – 1000mm to centerline of cross or as shown on hardware Template.
- e. Door Pulls – 1200mm to center grip
- f. Push/pull bars – 1200mm to centerline of bar
- g. Push Plates – 1200mm to centerline of plate
- h. Roller latches – 1150mm to centerline of latch

### **3.4 Finish**

**3.4.1** After fabrication, all tool marks and surface imperfections shall be filled and sanded as required to make face sheets, vertical edges and weld joints free from irregularities and dressed smooth.

**3.4.2** After appropriate metal preparation, exposed surfaces of doors and frames shall receive a factory applied rust inhibitive primer.

**3.4.3** Primer must be fully cured prior to shipment.

**3.4.5** Final finish shall be coated with semi-gloss polyurethane paint finish; submit color swatches and samples for Architect's approval.

### **3.5 Manufacturer's Instruction**

Comply with manufacturer's product technical data, installation procedures and standards as per project.

### **3.6 Field Examination**

Manufacturer and Installer shall conduct actual measurement to verify or supplement dimensions provided and shall be accountable for the accurate fit of work required and

shall verify site conditions to be acceptable for product installation in accordance with manufacturer's instruction.

### **3.7 Site Storage and Protection of Metals**

*Note: Correct site storage and protection are essential to proper performance of doors and frame products. The requirements for proper storage are the responsibility of the General Contractor. However it is important to recognize that these are not the responsibility of the hollow metal manufacturer. For this reason the requirements for storage and protection of hollow metal doors and frame products should be included in the section of the specification where installation work is specified.*

- 3.7.1** The contractor responsible for receiving hollow metal door and frame products shall remove wraps or covers upon delivery at the building site and shall ensure that any scratches or disfigurement caused by shipping or handling are promptly cleaned and touched up with a rust inhibitive "Direct to Metal" (DTM) primer.
- 3.7.2** The contractor responsible for receiving hollow metal door and frame product shall ensure that materials are properly stored on planks or dunnage in a dry location. Doors and frame products shall be stored in a vertical position, spaced by blocking. Materials shall be covered to protect them from damage but in such a manner as to permit air circulation.

### **3.8 Installation**

*Note: Correct installation is essential to the proper performance of doors and frame products.*

The requirements for proper installation are given in the following Sections. However it is important to recognize that installation is not the responsibility of the hollow metal manufacturer. For this reason the requirements for installation should be included in the Section of the specifications where installation work is specified. It shall be the responsibility of the general contractor, using experienced personnel, to perform the work outlined below.

- 3.8.1** Prior to installation, the area of floor on which the frame product is to be installed, and within the path of the door swing, shall be checked for flatness.
- 3.8.2** Prior to installation, remove temporary spreaders. Doors and frame products shall be checked for correct size, swing fire rating and opening number.
- 3.8.3** During the setting of the frame, the product checked and corrected as necessary for opening width, opening height, squareness, alignment, twist and plumbness. Installation tolerance shall be maintained within the following limits.
  - A. Opening Width – measured from rabbet to rabbet at top, middle and bottom of frame + 1/16 in. (1.5mm ), - 1/32 in. (0.8mm )
  - B. Opening Height – measured vertically between the frame head rabbet and top of floor or bottom of frame minus jamb extensions at each jamb and across the head: + 1/16 in. (1.5mm ), - 1/32 in. ( 0.8mm ).
  - C. Squareness measure at rabbet on a line from jamb, perpendicular to frame head; not to exceed 1/16 in. ( 1.5mm ).
  - D. Alignment measured at jambs on a horizontal line parallel to the plane of the face; not to exceed 1/16 in. (1.5mm).
  - E. Twist measured at the opposite face corners of jambs or parallel lines perpendicular to the plane of the door rabbet; not to exceed 1/16 in. (1.5mm).
  - F. Plumbness at the jambs on a perpendicular line from the head to the floor; not to exceed 1/16 in. (1.5mm). The above tolerance provides a

reasonable guideline for proper installation of hollow metal frame products. However, it should be noted that the cumulative effect of the installation tolerances at or near their maximum levels could result in sufficient misalignment to prevent the door from functioning properly. Installers should be careful not to create a tolerance build-up.

- 3.8.4** Grout guards and junction boxes are intended to protect hardware mortises and tapped holes from masonry grout of 4 in. (101mm) maximum slump consistency which is hand troweled in place. If a lighter consistency grout (greater than 4 in. (101mm) slump when tested in accordance with ASTM 143/C 143M) is to be used, special precautions must be taken in the field by the installer to protect the Aforementioned.
- 3.8.5** Frame products are not intended or designed to act as forms for grout or concrete. Grouting or hollow metal sections shall be done in “lifts” or precautions shall be otherwise taken by the contractor to ensure that frames are not deformed or damaged by the hydraulic forces that occur during this process.
- 3.8.6** Hollow metal surfaces shall be kept free from grout, tar and/or other bonding materials or sealers. Grout tar and/or bonding materials or sealers shall be promptly cleaned off frame product and doors.
- 3.8.7** The installer shall finish and touch-up marks caused by spreader removal.
- 3.8.8** Exposed hollow metal surfaces which have been scratched or otherwise marred during installation, cleaning and/or field welding, shall promptly be finished smooth, cleaned, treated for maximum paint adhesion and touched up with a rust inhibitive primer comparable to and compatible with the shop applied primer and finish paint.
- 3.8.9** Labeled fire door and frame products shall be installed in accordance with the terms of their listings, ANSI/NFPA 80, or the local Authority having jurisdiction.
- 3.8.10** Proper door edge clearances must be maintained except for special conditions otherwise noted. Where necessary, metal hinge shims, furnished by installer, are permitted to maintain clearances.
- 3.8.11** Hardware shall be applied in accordance with hardware manufacturer’s templates and instructions. Refer to 08700, Hardware.
- 3.8.12** Finish paint in accordance with Section 09900, Paints and Coating.
- 3.8.13** Install glazing materials. Refer to 08810, Glass.

### **3.9 Clearance**

- 3.9.1** Edge clearance for swinging hollow metal doors shall be minimum of 1/32 in. (0.8mm) in order to provide for the functional operation of the assembly and shall not exceed the following:
  - A. Between doors and frame product at head and jambs – 3/16 in. (4.7mm)
  - B. Between edges of pairs of doors – 3/16 in. (4.7mm)
- 3.9.2** Floor clearance for swinging hollow metal doors shall not exceed the following:
  - A. At the bottom of the door where threshold is used – 3/8 in. (9.5mm) from bottom of door to the top of threshold.
  - B. At the bottom of the door where no threshold is used – ¾ in. (19.0mm) above floor.
  - C. Between bottom of door and nominal surface of floor coverings at fire-rated openings, as provided in ANSI/NFPA 80-1/2 in. (12.7mm).

*END OF SECTION*

## SECTION 08 42 26

### ALL GLASS ENTRANCES

#### PART 1 GENERAL

##### 1.1 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

##### 1.2 SUMMARY

###### 1.2.1 Section Includes:

- Swinging all-glass entrance doors
- Swinging all-glass entrance doors with fixed panels
- Glass Wall Partition

##### 1.3 SUBMITTALS

###### 1.3.1 Product Data: For each type of product.

- Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for the all-glass system.

###### 1.3.2 Shop Drawings: For all-glass entrances.

- Include plans, elevations, and sections.
- Include details of fittings and glazing, including isometric drawings of rail fittings.
- Door hardware locations, mounting heights, and installation requirements.

###### 1.3.3 Samples for Verification: For each type of exposed finish indicated, prepared on

Samples of size indicated below.

- Glass: 6 inches (150 mm) square, showing exposed-edge finish.
- Door Hardware: For exposed door hardware of each type, in specified finish, full size.

###### 1.3.4 Fabrication Sample: Continuous rail fitting made from 12-inch (300-mm) lengths of full-size components and showing details of the following:

- Joinery.
- Anchorage.
- Glazing.

###### 1.3.5 Entrance Door Hardware Schedule: Prepared by or under supervision of supplier, detailing fabrication and assembly of entrance door hardware, as well as procedures and diagrams. Coordinate final entrance door hardware schedule with doors sidelights, transoms, and related work to ensure proper size, thickness, hand, function, and finish of entrance door hardware.

###### 1.3.6 Delegated-Design Submittal: For all-glass systems indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

##### 1.4 INFORMATIONAL SUBMITTALS

###### 1.4.1 Qualification Data: For Installer.



**1.4.2** Product Test Reports: For all-glass systems, for tests performed by a qualified testing agency.

**1.4.3** Sample Warranty: For special warranty.

## **1.5 CLOSEOUT SUBMITTALS**

Maintenance Data: For all-glass systems to include in maintenance manuals.

## **1.6 QUALITY ASSURANCE**

**1.6.1** Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.

**1.6.2** Product Options: Information on Drawings and in Specifications establishes requirements for aesthetic effects and performance characteristics of assemblies. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction.

- Do not change intended aesthetic effects, as judged solely by the Architect, except with the Architect's approval. If changes are proposed, submit comprehensive explanatory data to the Architect for review.

## **1.7 MOCKUPS**

**1.7.1** Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.

- Build mockup of typical all-glass system as shown on Drawings.
- Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless the Architect specifically approves such deviations in writing.
- Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

## **1.8 WARRANTY**

**1.8.1** Special Warranty: Manufacturer agrees to repair or replace components of all-glass systems that do not comply with requirements or that fail in materials or workmanship within specified warranty period.

- Failures include, but are not limited to, the following:
  - a. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
  - b. Failure of operating components.

**1.8.2** Warranty Period: Two years from date of Substantial Completion.

- Concealed Closers 10 years from date of Substantial Completion.

## **PART 2 PRODUCTS**

### **2.1 PERFORMANCE REQUIREMENTS**

**2.1.1** General Performance: Comply with performance requirements specified, as determined by testing of all-glass entrances representing those indicated for this Project without failure due to defective manufacture, fabrication, installation, or other defects in construction.

**2.1.2** Structural Loads:

Deflection Limits: Deflection normal to glazing plane is limited to 1 inch (25 mm).

**2.1.3** Seismic Performance: All-glass entrances shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

**2.1.4** Thermal Movements: Allow for thermal movements resulting from ambient and surface temperature changes.

- Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

## **2.2 MANUFACTURERS**

Shall have at least 10 years reliable and reputable manufacturing experience.

## **2.3 Aluminum Alloy for top and bottom frames**

Shall conform to ASTM B221; Alloy 6063-T5 for extrusions, ASTM B209, Alloy and Temper best suited for the purpose for aluminum sheets and strips. Minimum thickness of aluminum frames shall be not less than 2mm thick.

## **2.4 GLASS DOOR ENTRANCES**

### **A. Frameless Swing Glass Door**

*Location:*

*D-1a (Entrance 1)*

*D-1b (Ante Room)*

Shall be 12mm thick tempered clear double swing glass door, provide patch fittings, locks on both panels and 1.2mm thick x 25mm diameters stainless steel vertical pull handle, 1760mm/1800mm high in satin finish complete with required accessories and hardware. Submit glass sample, vertical pull handle sample and hardware sample for Architect's approval. Follow manufacturer's standard installation procedures.

### **B. Frameless Swing Glass Door with Decorative Frosted Sticker Film**

*Location:*

*D-5 (GAD Room)*

Shall be 12mm thick tempered clear single double swing glass door with "white" frosted sticker film applied on both sides. Provide patch fittings, locks on both panels and 1.2mm thick x 25mm diameters stainless steel vertical pull handle, 1760mm/1800mm high in satin finish, complete with required accessories and hardware. Submit glass, vertical pull handle, hardware samples and frosted sticker film sample for Architect's approval. Follow manufacturer's standard installation procedures.

## **2.5 ENTRANCE DOOR HARDWARE**

**2.5.1** General: Heavy-duty entrance door hardware units in sizes, quantities, and types recommended by the manufacturer for all-glass entrance systems indicated. For exposed parts, match metal and finish of rail fittings.

**2.5.2** Concealed Floor Closers and Top Pivots: Center hung; BHMA A156.4, Grade 1; including cases, bottom arms, top walking beam pivots, plates, and accessories required for complete installation.

- Swing: Single acting.
  - a. Positive Dead Stop: Coordinated with hold-open angle if any, or at angle selected.
- Hold Open: Selective.

- Opening-Force Requirements:
  - a. Egress Doors: Not more than 15 lbf (67 N) to release the latch and not more than 30 lbf (133 N) to set the door in motion and not more than 15 lbf (67 N) to open the door to its minimum required width.

**2.5.3 Push-Pull Set:**

Refer to Section 087000 "Hardware" for specifications

**2.6 FABRICATION**

- 2.6.1** Provide holes and cutouts in glass to receive hardware, fittings, and accessory fittings before tempering glass. Do not cut, drill, or make other alterations to glass after tempering.
- Fully tempered glass using horizontal (roller-hearth) process, and fabricated so that when glass is installed, roll-wave distortion is parallel with bottom edge of door or lite.
- 2.6.2** Factory assembled components and factory installed hardware and fittings to the greatest extent possible.

**PART 3 EXECUTION**

**3.1 EXAMINATION**

- 3.1.1** Examine areas and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- 3.1.2** Proceed with installation only after unsatisfactory conditions have been corrected.

**3.2 INSTALLATION**

- 3.2.1** Install all-glass systems and associated components according to manufacturer's written instructions.
- 3.2.2** Set units level, plumb, and true to line, with uniform joints.
- 3.2.3** Maintain uniform clearances between adjacent components.
- 3.2.4** Lubricate hardware and other moving parts according to manufacturer's written instructions.
- 3.2.5** Set, seal, and grout floor closer cases as required to suit hardware and substrate indicated.

**3.3 ADJUSTING AND CLEANING**

- 3.3.1** Adjust all-glass entrance doors and hardware to produce smooth operation and tight fit at contact points and weather stripping.
- For all-glass entrance doors accessible to people with disabilities, adjust closers to provide a three-second closer sweep period for doors to move from a 70-degree open position to 3 inches (75 mm) from the latch measured to the leading door edge.
- 3.3.2** Remove excess sealant and glazing compounds and dirt from surfaces.

*END OF SECTION*

## SECTION 08 51 13

### ALUMINUM FRAMED WINDOWS

#### PART 1 GENERAL

##### 1.1 SCOPE OF WORK

This section shall include all management, labor, materials, tools, equipment and services required to furnish and install all items and components forming any portion of the aluminum windows and frames including hardware provisions glass and glazing, etc. and all work to install same in place as specified herein and shown in Drawings required to perform all works in accordance to the General Conditions of the Contract Documents.

##### 1.2 SUBMITTALS

**1.2.1 General:** All submittals for approval as indicated herein shall be in accordance to the provisions under General Conditions of the Contract Documents.

**1.2.2 Shop Drawings:** Submit shop drawings, brochures and installation instructions. Clearly show details of each frame type, elevations of each window frame type, conditions of openings with various wall thickness and materials, typical and special details of window frames construction, methods of assembling sections, location reinforcement and installation requirements for hardware; size, shape and thickness of materials.

**1.2.3 Schedules:** Submit Window Schedule retaining type of window and frame to be installed in each opening.

**1.2.4 Brochures/ shop drawings:** Manufacturer's Descriptive data including materials, construction of sections, finishing system, etc.

**1.2.5 Calculation:** Submit Structural Calculations for complete work assembly and Glass Parameters Calculations.

*Note: All Shop Drawings and Sample Sections shall be submitted prior to purchasing and installing of materials for review and approval of the Architect.*

##### 1.3 QUALITY ASSURANCE

**1.3.1** Comply with quality assurance requirements under General Conditions of the Contract Documents and Manufacturer's instructions.

**1.3.2** Facilities shall be provided by the Contractor as needed for the proper inspection of all specified work.

**1.3.3** Improper workmanship, as determined by the Architect shall be corrected and replaced at no additional cost to the Owner.

**1.3.4** Before specified material or system is installed, the manufacturer, or his authorized agent, shall inform the Architect, in writing, that he has familiarized himself with the contract documents, environmental conditions, and intended occupancy for this specific project and that his material or system is appropriate to the conditions to be encountered therein.

**1.3.5** Before specified material or system is installed, the manufacturer shall inform the Architect, in writing, that he is familiar with the quality of workmanship of the installer and approved him as the installer of his material or System for his specific project

#### **1.4 DELIVERY, STORAGE AND HANDLING**

Comply with product delivery requirements under General Conditions of the contract Documents and Manufacturer's instructions.

#### **1.5 WARRANTY**

**1.5.1** Special written warranty for each material specified herein shall be submitted by Manufacturer/Contractor without reducing or otherwise limiting any other rights to correction which the Owner may have under the Contract Documents. Failures are defined to include faulty workmanship or faulty materials.

**1.5.2** Repair of defective Work: Restore all defective or damaged work to initial conditions. Defective or damaged items and/or components which cannot be repaired or restored to initial shall be removed and replaced at no additional cost to the Owner.

#### **1.6 PROJECT CONDITIONS**

**1.6.1** Comply with field examination requirements under General Conditions of the Contract Documents and Manufacturer's instructions.

**1.6.2** The installer shall protect any existing work subject to damage during installation of specified work.

**1.6.3** Finished work that is readily subject to damage by subsequent work or environmental conditions shall be protected by the installer immediately following the installation thereof.

**1.6.4** Field measurements: Fabricator of Custom work shall make measurements in field to verify or supplement dimensions indicated and be responsible for accurate fit of specified work.

**1.6.5** Examine work-in-place on which specified work is in any way dependent. Report in writing to the Architect any defect, which may influence satisfactory completion and performance of specified work. The absence of such notification shall be construed as acceptance of work-in-place.

### **PART 2 PRODUCTS**

**2.1 Reference Manufacturers** shall have ten (10) years of long-term operation, are technically proficient and experienced in this trade and have accomplished works similar to the project specifications.

**2.2 Aluminum** shall be of commercial quantity and of proper alloy for window construction, free from defects impairing strength and/or durability. Detached hardware and hinges having component parts (screws, nuts, washers, bolts, rivets, clips, etc.) which are exposed shall be of aluminum or non-magnetic stainless steel compatible with aluminum and of sufficient tensile strength of not less than 22,000 psi to perform the functions for which they are used. Plated or coated materials not compatible with aluminum are not permitted unless properly insulated from the aluminum. Alloy shall be 6063-T5 for all extrusions. Billets should be prepared for virgin ingots. No recycled metals are allowed. For external extrusions, the minimum coating should be 25 microns and the interior sections should have 13 microns. Minimum thickness of aluminum framing shall be 2 mm thick submit sample for Architect's approval.

**2.3 Provision for hardware:** Hardware shall be as recommended by the manufacturer, and approved by the Architect.

- 2.3.1 Glass shall be free from bubbles, smoke vanes, air holes, scratches, and other defects and cut to fit the rebates with due allowance made for expansion. For glass, material and thickness refer to window schedule and Section 08810, Glass and Glazing.
- 2.3.2 Structural glazed awning and casement windows.
- 2.3.3 Window Grade and Class: Comply with AAMA Grade and Performance Class C20:

**2.4 Frames:**

- 2.4.1 Anchors: Provide appropriate type of anchors as required for secure attachments.
- 2.4.2 Caulking and sealant: All joints shall be securely fixed and sealed with approved weather sealant.
- 2.4.3 Weather Stripping: All weather strips shall be silicone or EPDM Gasket. No vinyl gaskets will be accepted.
- 2.4.4 Hardware: As per fabricator’s recommendation on the type of hardware device and locking system to be used.  
Lock: Multi Point Lock.  
Hinges: Concealed

**2.5 Dimensional Tolerances**

<b>DIMENSION</b>	<b>TOLERANCE</b>
Inside Width of Frame	2 to 3mm maximum
Inside Height of Frame	2 to 3mm maximum
Depth of Frame	2mm minimum
Diagonal Distance	2mm minimum

**2.6 Aluminum Fixed Windows**

*Location: W-2 (Second Floor Audio Rooms 1 & 2)*

Shall be 8mm thick reflective tempered fixed glass window on a mullion type aluminum framing in powder-coated finish complete with hardware and accessories, follow manufacturer’s standard application procedure, submit powder coating swatches and glass sample for Architect’s approval.

**2.7 Finishes**

Shall be on a powder-coated finish; submit sample swatches for Architect’s approval.

**PART 3 EXECUTION**

- 3.1 Comply with Manufacturer’s Standard installation procedures.
- 3.2 Fabricate accurately with neat mitered corner joints, smooth surfaces free from warp, wave, buckle, or other defects.
- 3.3 The framing members must be square and true and properly designed to resist any load they will have to support; they shall be of tubular shape mullion type with a wall thickness of 2mm minimum (refer to drawings for design & details) except for glazing

beads, stops, and add-ons. Any framing member should not deflect more than 1/175 of its span, with a maximum of 20mm at any point. Glazing stop or any other fitting should be designed to resist any load transmitted to the glazing.

- 3.4** Provide rebate dimensions according to the glazing type, size, and tolerances and to accommodate the glazing materials. The rebate will be protected against corrosion. The sill member will have adequate weep system in order to:
- A. Prevent the accumulation of moisture in the rebate for prolonged periods;
  - B. Squeeze the moisture vapor pressure between the air outside and air inside the rebate. Situated in the bottom of the rebate there should be at least two (2) weep holes with additional ones every 50cm. over 1 meter. They will be oblong shaped; their smallest dimensions will be 5mm, their surface at least 50 sq.mm.
- 3.5** Field Test for Water Resistance: Conduct Field Test on 100% of installed window units on the site for water resistance in accordance with AAMA 501.2. Windows not meeting requirements shall be corrected at no cost to the Owner.
- 3.6** Cleaning: Frame should be wiped with a soft cloth, sponge, or brush and cleaned with a mild solution of detergent every six (6) months. In the industrial, marine, or other aggressive atmosphere, the period should be reduced to three (3) months. Harsh cleaning materials such as steel wool or abrasive scouring powders should be avoided and strong acid or alkali cleaners should not be used.
- 3.7** Clean Aluminum promptly after installation. Avoid damage to finishes. Remove excess glazing and sealant compounds, dirt and other substances. Lubricate hardware and other moving parts. Clean glass of pre-glazed units promptly after installation of windows.
- 3.8** Protect all glazing works as per Manufacturer's recommended protective cover instruction until final acceptance of the Owner.

*END OF SECTION*

## **SECTION 08 70 00**

### **HARDWARE**

#### **PART 1 GENERAL**

##### **1.1 SCOPE OF WORK**

This section shall include all management, labor, engineering, courier, printing, reproduction, materials, tools, equipment and services required to manufacture, assemble, deliver (including all import and export documents), and install all items necessary for the proper execution and completion of said items of work, as indicated in the General and Special Conditions of the Contract Documents, the Drawings, as specified herein, and /or as required by job conditions to provide the complete installation of hardware.

##### **1.2 REFERENCES**

Comply with quality assurance requirements under General Conditions of the Contract Documents. The following standards form part of these specifications to the extent referenced:

**1.2.1** American National Standards Institute/ Builders Hardware Manufacturers Association, ANSI/BHMA:

- A. A156.1-2000, Butts and Hinges.

- B. A156.2-1995, Bored and Preassembled Locks and Latches.
- C. A156.3-2001, Exit Devices.
- D. A156.4-2000, Door Controls – Closers.
- E. A156.5-2001, Auxiliary Locks and Associated Products.
- F. A156.6-2001, Architectural Door Trim.
- G. A156.8-2000, Door Controls – Overhead Stops and Holders.
- H. A156.12-1999, Interconnected Locks.
- I. A156.13-2002, Mortise Locks and Latches, Series 1000.
- J. A156.14-2002, Sliding Door Hardware.
- K. A156.16-2002, Auxiliary Hardware.
- L. A156.18-2000, Recommended Practices for Materials and Finishes.
- M. A156.21-2001, Thresholds.
- N. A156.22-2003, Door Gasketing and Edge Seal Systems.
- O. ASTM F883-09, Standard Performance Specification for Padlocks.
- P. Underwriters Laboratories, UL.

### 1.3 SUBMITTALS

- 1.3.1 **General:** All submittals for approval as indicated herein shall be in accordance to the provisions under General Conditions of the Contract Documents.
- 1.3.2 **Hardware Schedule:** Submit a detailed hardware schedule indicating the following:
  - A. Door and frame types, sizes, door swings.
  - B. Type, Style, function, size and finish of each hardware item.
  - C. Mounting heights, fastenings and other pertinent information.
  - D. Name and manufacturer of each item.
  - E. Location of all hardware items cross-referenced to door numbers indicated on floor plans and in door and frame schedule.
  - F. Explanation of all abbreviations, symbols and codes contained in schedule.
- 1.3.3 **Product Data:** Manufacturer’s data sheets on each product to be used, including:
  - A. Manufacturer’s maintenance instructions.
  - B. Complete parts lists.
  - C. Manufacturer’s installation and operation instruction for all operable hardware.
  - D. Keying Schedule.
- 1.3.4 **Submit test reports and certificates** for compliance to standards applicable to material quality as specified herein.
- 1.3.5 **Shop Drawings:** Manufacturer’s approved shop drawings are required detailing the application of each product specified.
- 1.3.6 **Samples:** For each finished product specified, provide sample materials representing actual product, parts, finishes and patterns prior procurement.
- 1.3.7 After completion of all construction work, certify on a form acceptable to the Owner, that all items of finish hardware have been adjusted and are working properly; and that all hardware on fire rated/labeled doors and special doors conforms to the requirements of Underwriters Laboratories and standards applicable.



## **1.4 QUALITY ASSURANCE**

- 1.4.1** Comply with quality assurance requirements under General Conditions of the Contract Documents and manufacturer's instructions.
- 1.4.2** Provide certifications indicating product data or attaché UL symbol to the door and Frame.
- 1.4.3** Manufacturer Qualifications: All equipment specified in this section will be provided by a single manufacturer with a minimum of ten (10) years-experience manufacturing door hardware.
- 1.4.4** Installer Qualifications: All products listed in this section are to be installed by a single installer with a minimum of five (5) years demonstrated experience in installing products of the same type and scope as specified in accordance to manufacturer's standard requirements.
- 1.4.5** Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
  - A. Finish areas designated by the Architect.
  - B. Do not proceed with remaining work until workmanship, color and sheen are approved by the Architect.
  - C. Refinish mock-up area as required to produce acceptable work.

## **1.5 DELIVERY, STORAGE AND HANDLING**

- 1.5.1** Comply with product delivery requirements under General Conditions of the Contract Documents and Manufacturer's instructions.
- 1.5.2** Deliver hardware required for shop application in ample time so as not to impede the progress of the work.
- 1.5.3** Deliver finished hardware with all items in individual packages, legibly marked and adequately labeled indicating the part of the work for which it is intended. Include, with each item of hardware the following:
  - A. Screws, bolts and fastenings necessary for installation.
  - B. Installation instructions.
  - C. Special tools required for installation.
- 1.5.4** Provide a locked storage room with adequate shelving and bin space to properly receive and stock hardware prior to installation as designated by the Architect.
- 1.5.5** Protect door trims, handles, push plates and pulls with adhesive release paper, of type that is easily removed without marring finish.
- 1.5.6** For security reasons, forward all keys by hand to the authorized individual only, as designed by the Owner.

## **1.6 WARRANTY**

Special written warranty for each material specified herein shall be submitted by Manufacturer/ Contractor without reducing or otherwise limiting any other rights to correction which the Owner may have under the Contract Documents. Failures are defined to include faulty workmanship or faulty materials.

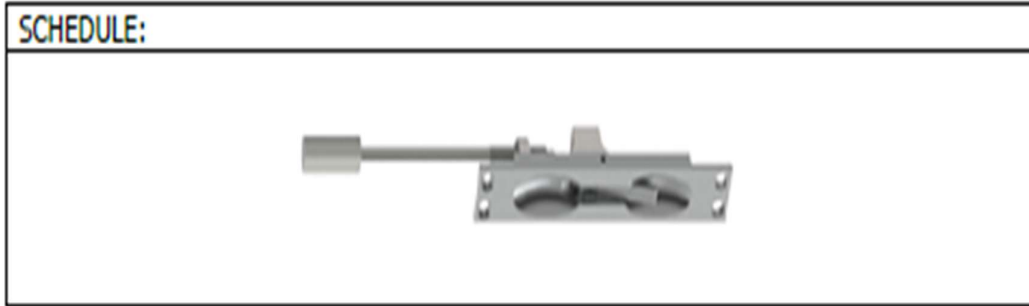
## **PART 2 PRODUCTS**

- 2.1** Verify hardware with Manufacturer's Standard material requirements and designation in Door Hardware Schedule as shown in Drawings. Notify the Architect should conflict arise.

## 2.2 Schedule of Hardware Specifications

### 2.2.1 Manual Flush Bolt for Steel Doors

Shall be UL listed manual flush bolt made from brass faceplate with steel component. Bolt shall be set on the inactive door of a pair with 25mm x 172mm face plate and 13mm standard threaded rod size in satin chrome finish (US26D) with 3-hour fire rating for metal doors complying to ANSI 156.16 for L14251. Submit sample for Architect's approval.



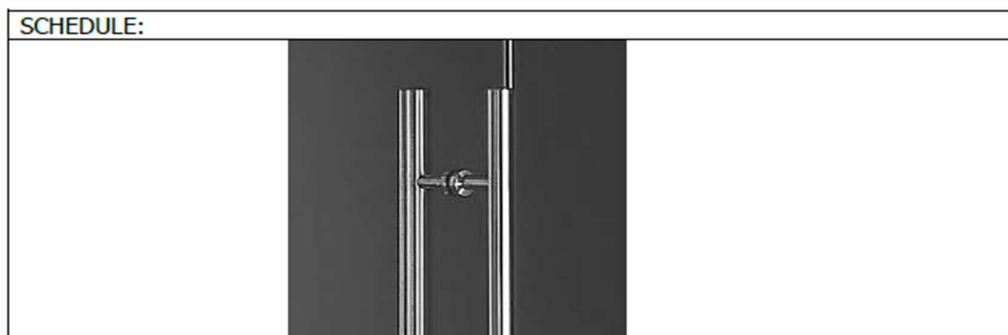
### 2.2.2 One-Way Deadbolt Lock (no locking from the inside)

Shall be UL listed deadbolt lock, made from high-strength steel alloy deadbolt lock with maximum security cylinder retracted by key outside and blank plate with exposed screws inside, complying to ANSI/BHMA A156.5-2001, Grade 1 Lock in satin chrome finish. Provide patented tough nickel silver key.



### 2.2.3 Vertical Pull Handle (for Glass Doors)

1.2mm thick, 25mm diameters x 1760mm/1800mm length, stainless steel, back to back, vertical pull handle complying with ISO9001 (Architectural Hardware) in satin chrome finish.



## 2.2.4 Locksets

### Lever Type Lockset

Grade 1, UL listed, exceeds ANSI/ BHMA certified A 156.2, entrance function high security cylindrical lock with thru-bolted mechanism, concealed mounting screws and independent heavy-duty spring cages for lever support. Provide dummy trim for double doors and patented tough nickel silver key.

### Standard Cylinder (for lever type lockset)

Grade 1, UL listed, exceeds ANSI/ BHMA certified A 156.2-2003 standard cylinder for lever type lockset, key operated in satin chrome finish.

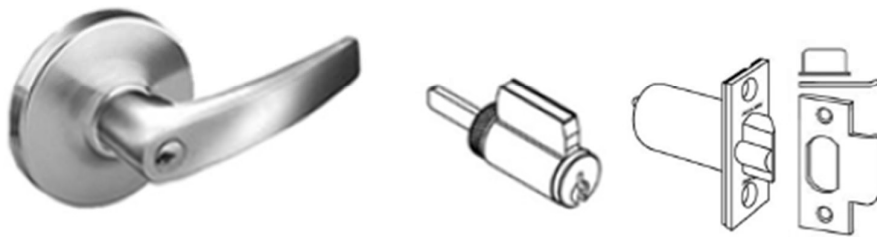
### Latches and Strikes (for lever type lockset)

Shall be Grade 1, UL listed, 3/4" Throw Anti-Friction Deadlatch with Square Corner Box Strike in satin chrome finish.

### Standard Rim Cylinder

Grade 1, UL listed, exceeds ANSI/ BHMA certified A 156.2 rim cylinder mounted exit device, outside trim, key operated.

#### SCHEDULE:



## 2.2.5 Door Closer

Grade 1 (for Fire Exits only), UL listed, ANSI standard A156.4, exposed overhead door closer mounted on top jamb with cast iron cylinder body in powder-coated finish, non-handed arms forged from heavy duty steel and rotational indicator dial for proper spring power with hold open feature. Provide UL listed self-closing, without hold open feature for fire exit doors installation.

#### SCHEDULE:



**2.2.6 Concealed Door Closer**

Grade 1, UL listed, ANSI standard A156.4, high strength concealed closer made from combination of cast iron bodied closers “oversized” hardened steel pistons and forged steel arms, complete with closing and latching speed hold open points adjusted.



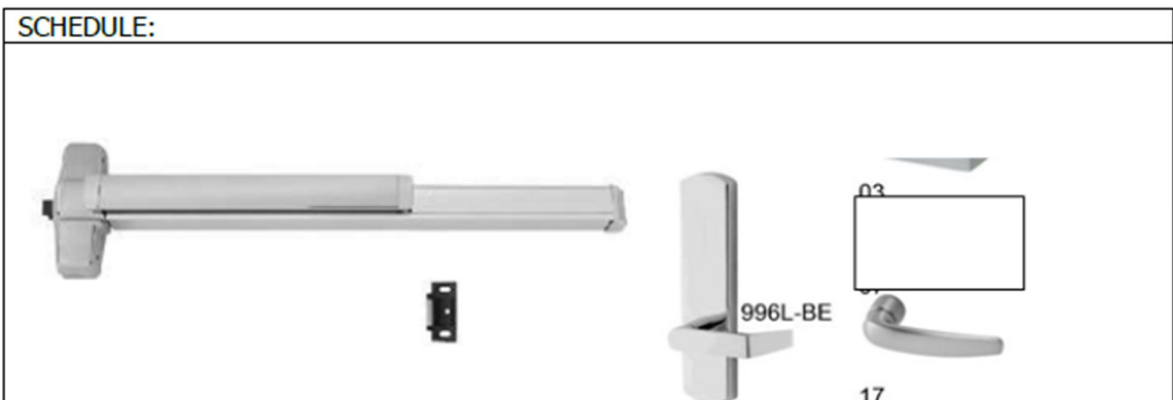
**2.2.7 Door Stop 1 (steel doors)**

UL listed, meets ANSI/BHMA A156.16, casted aluminum in satin chrome finish with rubber tip door stop.



**2.2.8 Panic Hardware**

Shall be UL listed conforming to ANSI A156.3-2008 Grade 1, 75mm x 900mm (verify door length) fire exit device/hardware in US26D finish, provide standard lever trim with key lock at the back side of the door panel (lever trim and key lock shall be for fire exit door at ACCU Deck only), complete with fasteners, bolts and accessories. Submit product catalog and sample for Architect’s approval.



**2.2.9 Glass Door Patch Fittings and Lock (Glass Doors)**

Shall be stainless steel in hairline finish, top patch, bottom patch and transom patch complete with bottom corner lock, floor hinge and accessories. Verify manufacturer's details, submit sample for architect's approval.

**PART 3 EXECUTION**

**3.1 Manufacturer's Instruction**

Comply with manufacturer's product technical data, installation procedures and standards as per project requirement.

**3.2 Field Examination**

**3.2.1** Manufacturer and Installer shall conduct actual measurement to verify or supplement dimensions provided and shall be accountable for the accurate fit of work and shall verify site conditions to be acceptable for product installation in accordance with manufacturer's instructions.

**3.2.2** Do not begin installation until substrates have been properly prepared.

**3.2.3** If substrate preparation is the responsibility of another installer, notify the Architect of unsatisfactory preparation before proceeding.

**3.3 Preparation**

**3.3.1** Clean surfaces thoroughly prior to installation.

**3.3.2** Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

**3.4 Installation**

**3.4.1** Provide metal door and frame manufacturers with complete instructions and templates for preparation of their work to receive hardware.

**3.4.2** Install all items according to hardware manufacturer's instructions and recommendations. Mount at heights and centers according to manufacturer's instruction and standards.

**3.4.3** Install hardware completely to ensure proper fit only finishing of door surfaces is complete.

**3.4.4** Drill and countersink units which are prepared for anchorage of fasteners. Space fasteners and anchors to manufacturer's recommendations. Use only fasteners supplied by hardware manufacturers.

**3.4.5** Protect doors and frames from damage due to installation of hardware.

**3.5 Instruction**

**3.5.1** Instruct authorized Owner's personnel of the following:

A. Proper care, cleaning and general maintenance of hardware.

B. Operation of key control system. Make periodic checks during the warranty period to ensure functional efficiency of the system.

**3.6 Protection**

**3.6.1** Protect installed products until completion of project.

**3.6.2** Touch-up, repair or replace damaged products before Substantial Completion.

*END OF SECTION*

## SECTION 08 81 00

### GLASS GLAZING

#### PART 1 GENERAL

##### 1.1 SCOPE OF WORK

This section shall include all labor, materials, appliances, tools, equipment, facilities, transportation and services necessary for and incidental to performing operations in connections with furnishing, delivery and installing the glass panels as shown and specified.

##### 1.2 SUBMITTALS

- 1.2.1 General: All submittals for approval as indicated herein shall be in accordance with the provisions under General Conditions of the Contract Documents.
- 1.2.2 Shop Drawings: Show complete details of setting methods of materials for each type of glazing material specified.
- 1.2.3 Samples: Two (2) 300mm square, factory labeled.
- 1.2.4 Manufacturer's Data: Include glass manufacturer's recommendations for setting and sealing materials and for installation of each type of glazing specified.
- 1.2.5 Calculations: Submit structural calculations. The manufacturer shall recommend the thickness of the glass, based on their computation.

*Note: All Shop Drawings and Sample Sections shall be submitted prior to purchasing and installing of materials for review and approval of the Architect.*

##### 1.3 QUALITY ASSURANCE

- 1.3.1 Conform to the following standards:
  - A. Glazing Manual of the Flat Glass Marketing Association (FGMA)
  - B. Federal Standard 16 CFR 1201: Federal Safety Standard for Architectural Glass
  - C. ANSI Z97.1 Physical Properties
- 1.3.2 Labeling:

Labels showing the glass manufacturer's identity, type of glass, thickness and quality will be required on each piece of glass. Labels shall remain on glass until it has been set and inspected. When glass is not cut to size by the Manufacturer, and is furnished unlabeled as "stock to cut", Contractor shall submit an affidavit, or other satisfactory evidence, stating quality thickness, type and manufacturer of glass furnished. Putty and glazing compounds shall arrive at Project Site in labeled containers that have not been opened.
- 1.3.3 Qualification of Installers:

Provide at least one person who shall be thoroughly trained and experienced in the skills required, who shall be completely familiar with the referenced standards and the requirements of his work, and who shall personally direct all installation performed under this Section of the specification.
- 1.3.4 Reference Manufacturer:

Shall be at least ten (10) years of production experience, whose published literature clearly indicates general compliance of products with requirements of this section.

#### **1.4 WARRANTY**

Special written warranty for each material specified herein shall be submitted by Manufacturer/ Contractor without reducing or otherwise limiting any other rights to correction which the Owner may have under the Contract Documents. Failures are defined to include faulty workmanship or faulty materials.

#### **1.5 DELIVERY, STORAGE AND HANDLING**

**1.5.1** Comply with product delivery requirements under General Conditions of the Contract Documents and Manufacturer's instructions.

**1.5.2** Store under cover and protect from damage.

**1.5.3** Safety Glazing material shall bear safety glazing material labels.

**1.5.4** Protection and Damaged Work: Protect specified work and adjacent work and materials against damage during progress of the work. Glass damaged due to improper handling or setting shall be replaced at no extra cost to the Owner.

#### **1.6 PROJECT CONDITIONS**

**1.6.1** Comply with field examination requirements under General Conditions of the Contract Documents and Manufacturer's instructions.

**1.6.2** Examine work-in-place of which glazing is in any way dependent. Verify actual dimensions before fabrication and installation. Coordinate with the work of other trades. Report in writing to the Architect any defects, which may influence satisfactory completion and performance of the work. Absence of such notification shall be construed as acceptance of work-in-place. Exterior glazing shall not be installed in damp weather or when ambient temperature is below 4.40 deg. Celsius (40°F).

### **PART 2 PRODUCTS**

**2.1** Refer to drawings for sizes and thickness of panels, area of application, tint and texture. Dimension, fabrication and installation of Glass Panels shall be based on the actual measurements and conditions of the site.

**2.2** 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.

**2.3** 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.

**2.4** 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.

## **2.5 Glass Glazing for Doors and Fixed Glass Panel**

### **2.5.1 Glass Glazing for Frameless Swing Glass Door and Fixed Glass Panels**

- Shall be 12mm thick tempered clear glass by, and submit glass sample for Architect's approval.
- Provide decorative "white" frosted sticker film applied on both sides of the glass panels on areas needed as per design drawings.

## **2.6 Glass Glazing for Windows**

### **2.6.1 Glass Glazing for Fixed Windows**

Shall be 8mm thick reflective tempered glass windows, submit samples for Architect's approval.

## **2.7 Glazing Sealant**

Shall be one component, neutral cure, high tensile-strength elastomeric silicone sealant and adhesive for structural bonding glass, metal and building components.

## **2.8 Glazing accessories**

As required to supplement the installation shall be provided on the items to be glazed and provide a complete work. These include glazing points, clips, shim, 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.

## **2.9 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.

## **2.10 Norton Tape**

Shall be 6mm thick x 13mm x 50 LF Norton Thermal Bond high density structural glazing spacer tape double sided adhesive.

## **PART 3 EXECUTION**

**3.1** Install glass in accordance with manufacturer's recommended instructions.

**3.2** The contractor shall secure an adequate storage space for his materials, tools, and equipment. Where aluminum is to be installed in contact with masonry or other similar materials, aluminum shall be back-painted with one coat of heavy bonded bituminous paint. All preservations to be applied shall be required quality or correct consistency and of sufficient thickness.

**3.3** Verify surfaces and adjacent work prior installation and setting of glass. Determine the sizes to provide the required edge clearances by measuring the actual to receive the glass. Grind smooth all edges of glass that will be exposed to a finished work. Leave labels in place until the installation is approved. Secure fix movable items or keep in a closed and locked position until glazing compounds have thoroughly set.



- 3.4 Items to be glazed shall be either shop or field glazed using glass of the quality and thickness specified or indicated. Handle and install glazing materials in accordance with the manufacturer's instructions. Use beads or stops, which are furnished with items to be glazed to secure the glass in place.
- 3.5 Determine actual sizes of glass required by measuring frames to receive glass at Project Site, or from guaranteed dimensions provided by frame supplier. Dimensions for glass and glass holding surrounds shall be coordinated to provide the following minimum clearances.
- 3.6 Make edge cuts clean. Do not nip, seam, swipe, stone or strike edges. Do not knock-off flares. Do not bump, drag, or brush the edges of lites against frames or other hard objects.
- 3.7 Set glass in rebates using manufacturer's standard glazing fittings and as specified herein. Place setting blocks at quarter points of glass panels. Seal exterior side of each glass lite with sealant type specified.
- 3.8 No attempt shall be made to change the size of tempered or laminated glass units after they leave the factory. Glass panels shall be clean cut. Nipping to remove flares or to reduce oversized dimensions of any type of glass will not be permitted.
- 3.9 Apply a thin layer of putty to rebate and set glass of putty pressing until an even bed is secured; place spring wire or angle glazing clips and run face putty, remove excess putty from the other side flush with the edge of rebate.
- 3.10 Putty shall be neatly run in straight line paralleled with inside of glazing rebates, corners shall be carefully made and all excess putty shall be removed and surface left clean.
- 3.11 The contractor shall carry out a water-tightness test upon completion of all installation works under the Supervision of the Architect. The windows shall be hosed under direction of and in a manner approved by the Architect for a period of not less than ten (10) minutes closed from the exterior of the building. Test shall be made by applying a water spray to all joints and surfaces exposed to the weather, after all caulking and sealing has been completed.
- 3.12 The water infiltration testing shall be made immediately after the setting or curing period prescribed for the sealants used.
- 3.13 Absolute water tightness shall be achieved in the interior of the building in any case. Should any form of leakage occur, the Contractor shall be responsible for rectifying the same at his own expense and retested to the satisfaction of the Architect.
- 3.14 The Contractor shall provide all necessary labor and materials required to carry out water testing of these frames prior to acceptance.
- 3.15 The Contractor shall carry out such modifications, as are necessary, including additional sample frames if required, to these frames to satisfy the Architect that the details for fabrication and installation of all frames will produce a watertight result.
- 3.16 Attach crossed streamers away from the glass face. Do not apply markers to the glass surface.
- 3.17 Replace damaged glass which is broken, chipped, cracked, abraded or damaged during construction.

*END OF SECTION*

## SECTION 08 83 00

### MIRRORS

#### PART 1 GENERAL

##### 1.1 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specifications, apply to this section.

##### 1.2 SUBMITTALS

**1.2.1** Product Data: For each type of product indicated.

Mirrors include description of materials and process used to produce each type of silvered flat glass mirror specified that indicates sources of glass, glass coating components, edge sealer and quality-control provisions.

**1.2.2** Shop Drawings: Include mirror elevations, edge details, mirror hardware and attachments to other work.

**1.2.3** Samples of the required materials.

##### 1.3 INFORMATIONAL SUBMITTALS

**1.3.1** Qualification Data: for required installer.

**1.3.2** Product certificates: For each type of mirror and mirror mastic from the manufacturer.

**1.3.3** Preconstruction Test Reports: From mirror manufacturer indicating that mirror was tested for compatibility and adhesion with mirror backing paint and substrates on which mirrors are installed.

**1.3.4** Warranty: Sample of special warranty.

##### 1.4 QUALITY ASSURANCE

**1.4.1** Installer Qualifications: A qualified installer who employs glass installers for this project who are certified under National Glass Association's Certified Glass Installer Program.

**1.4.2** Source Limitation for Mirror Accessories: Obtain mirror glazing accessories from a single source.

**1.4.3** Preconstruction Mirror Compatibility Test: Submit mirror mastic products to mirror manufacturers for testing to determine compatibility of mastic with mirror backing paint and substrates on which mirrors are installed.

##### 1.5 DELIVERY, STORAGE AND HANDLING

**1.5.1** Protect mirrors according to mirror manufacturer's written instructions and as needed to prevent damage to mirrors from moisture, condensation, temperature changes, direct exposure to sun, or other uses.

**1.5.2** Comply with mirror manufacturer's written instructions for shipping, storing and handling mirrors as needed to prevent deterioration of silvering, damage to edges and abrasion of glass surfaces and applied coatings.

##### 1.6 PROJECT CONDITIONS

Environmental Limitations: Do not install mirrors until ambient temperature and humidity conditions are maintained at levels indicated for final occupancy.

## **1.7 WARRANTY**

- 1.7.1** Special Warranty: Manufacturer's standard form which mirror manufacturer agrees to replace mirrors that deteriorate within specified warranty period. Deterioration of mirrors is defined as defects developed from normal use that are not attributed to mirror breakage or to maintaining and cleaning mirrors contrary to manufacturer's written instructions. Defects include discoloration, black spots and clouding of silver film.

## **PART 2 PRODUCTS**

### **2.1 MATERIALS**

#### **2.1.1 Facial Mirror Male and Female Toilets**

Shall be 6mm thick (for small mirrors) and 12mm thick (for full mirrors), frameless silver-coated float glass mirror with 2mm thick chamfered edges on both sides, glued to 12mm/18mm thick marine plywood backing and 25mm x 50mm TKD Tanguile framing using tile adhesive or mirror mastic with sponge tape on one side, facing wall. Provide screws with expansion shield and chrome-plated screw cap. Refer to Architectural Drawing for dimension, layout and design.

### **2.2 MISCELLANEOUS MATERIALS**

- 2.2.1** Edge Sealer: Coating compatible with glass coating and approved by mirror manufacturer for use in protecting against silver deterioration and mirror glass edges.
- 2.2.2** Mirror Mastic: An adhesive setting compound, asbestos-free, produced specifically for setting mirrors and certified by both mirror manufacturer and mastic manufacturer as compatible with glass coating and substrate on which mirror will be installed.
- 2.2.3** Film backing for Safety Mirrors: Film backing and pressure-sensitive adhesive; both compatible with mirror backing paint as certified by mirror manufacturer.

### **2.3 MIRROR HARDWARE**

- 2.3.1** Shall be 22mm x 29mm x 14.5mm thick glass support made from zinc alloy in stainless steel finish complete screw, gasket and plastic wall anchor for 6 and 12mm thick glass and mirror with backing. Submit sample for Architect's approval.

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- 3.1.1** Examine substrates, over which mirrors are to be mounted, with installer present, for compliance with installation tolerances, substrate preparation and other conditions affecting performance of the work.
- 3.1.2** Verify compatibility with and stability of substrates, including compatibility of mirror mastic with existing finishes or primers.
- 3.1.3** Proceed with installation only after unsatisfactory conditions have been corrected and surfaces are dry.

### **3.2 PREPARATION**

- 3.2.1 Comply with mastic manufacturer's written installation instructions for preparation of substrates, including coating substrates with mastic manufacturer's special bond coating where applicable.

### **3.3 INSTALLATION**

- 3.3.1 General: Install mirrors to comply with mirror manufacturer's written instructions. Mount mirrors accurately in place in a manner that avoids distorting reflected images.
- 3.3.2 Provide a minimum air space of 1/8 inch (3 mm) between back of mirrors and mounting surface for air circulation between back mirrors and face of mounting surface.
- 3.3.3 Wall-Mounted Mirrors: Install mirrors with mastic and mirror hardware. Attach mirror hardware securely to mounting surfaces with mechanical fasteners installed with anchors or inserts as applicable. Install fasteners so heads do not impose point loads on the backs of mirrors.

### **3.4 CLEANING AND PROTECTION**

- 3.4.1 Protect mirrors from breakage and contaminating substances resulting from construction operations.
- 3.4.2 Do not permit edges of mirrors to be exposed to standing water.
- 3.4.3 Maintain environmental conditions that will prevent mirrors from being exposed to moisture from condensation or other sources for continuous periods of time.
- 3.4.4 Wash exposed surface of mirrors not more than four days before the date scheduled for inspections that establish the date of Substantial Completion. Wash mirrors as recommended in writing by the mirror manufacturer.

*END OF SECTION*

## **SECTION 09 24 00**

### **PLASTERING**

#### **PART 1 GENERAL**

##### **1.1 SCOPE OF WORK**

This section shall include all management, labor, materials, tools, equipment and services required to furnish and install plastering as specified herein and shown in Drawings required to perform all works in accordance to the General Conditions of the Contract Documents. All masonry unit work or concrete work not specifically specified with a finish, exposed to view shall be cement plastered. Plastering work shall be coordinated properly with the work of other trades. The work of other trades shall be protected properly from damage during plastering operations. Floors and finished work shall be properly protected with a covering of polyethylene sheets or heavy kraft waterproof paper, with lapped and sealed joints. Scaffolding shall be amply strong, well braced, tied securely and inspected regularly. Overloading of scaffolding will not be permitted.

##### **1.2 REFERENCES**

Comply with quality assurance requirements under General Conditions of the Contract Documents and Manufacturer's instructions. Reference the following standards as applicable:

- 1.2.1 ASTM C 926-98a Standard Specification for Application of Portland Cement-Based Plaster
- 1.2.2 ASTM C 932-02 Standard Specifications for Surface-Applied Bonding Compounds for Exterior Plastering
- 1.2.3 ASTM C 1063-03 Standard Specification for Installation of Lathing and Furring to receive Interior and Exterior Portland Cement-based Plaster.

### **1.3 SUBMITTALS**

All submittals for approval as indicated herein shall be in accordance to the provisions under General Conditions of the Contract Documents.

### **1.4 QUALITY ASSURANCE**

Comply with quality assurance requirements under General Conditions of the Contract Documents and Manufacturer's instructions.

### **1.5 DELIVERY, STORAGE AND HANDLING**

- 1.5.1 Comply with product delivery requirements under General Conditions of the Contract Documents and Manufacturer's instructions.
- 1.5.2 Manufactured materials shall be delivered in the original packages and containers bearing the name and brand of the manufacturer. 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.

### **1.6 WARRANTY**

Special written warranty for each material specified herein shall be submitted by Manufacturer/Contractor without reducing or otherwise limiting any other rights to correction which the Owner may have under the Contract Documents. Failures are defined to include faulty workmanship or faulty materials.

### **1.7 PROJECT CONDITIONS**

Comply with field examination requirements under General Conditions of the Contract Documents and Manufacturer's instructions.

## **PART 2 PRODUCTS**

- 2.1 Portland Cement: Shall conform to PNS 07-1992, type 1.
- 2.2 Sand: Shall be clean natural sand or manufactured sand passing a 3mm screen and retained in a No. 100 mesh sieve.
- 2.3 Water: For mixing shall be potable.
- 2.4 Lime: Shall be hydrated lime with the requirement that the free (Unhydrated) calcium oxide (CaO) and magnesium oxide (MgO) in the hydrated product shall not exceed 8 percent by weight calculated on the "as received" basis.

## **PART 3 EXECUTION**

### **3.1 Preparation**

- 3.1.1** Mixing of plaster: Except where hand mixing of small patches is approved, mechanical mixers of an approved type shall be used for the mixing of plaster. Materials shall be accurately measured in a device that will maintain the specified proportions within a plus or minus tolerance not in excess of 5 percent by volume. Caked or lumped materials shall not be used. Mechanical mixers, mixing boxes, and tools shall be cleaned after mixing each batch and kept freely of plaster from previous mixes. Plaster shall be thoroughly mixed with the proper amount of water, until uniform in color and consistency. Re-tempering will not be permitted, and all plaster that has begun to stiffen shall be discarded.
- 3.1.2** Proportioning of plaster: Portland cement plaster shall be a two-coat application. Each coat shall be proportioned as follows:
- One (1) part Portland Cement
  - Three (3) parts Sand; and
  - One-fifth (1/5) part Lime Putty
- 3.1.3** Application of plaster: Base coats shall be applied with sufficient pressure and the plaster shall be sufficiently plastic to provide good bonds on masonry or concrete base. Plaster work shall be finished level, plumb, square and true, within a tolerance of 3mm in 3m, without eaves, cracks, blisters, pits, grazing, discoloration, projections or other imperfections. Plasterwork shall have no visible junction marks where one day's work adjoins another. Finished work shall be covered and protected in an approved manner to prevent damage.
- 3.1.4** Portland Cement Plaster: Shall be applied in two coats double-up method on masonry or concrete to a thickness of not less than 12mm. Base coats shall be applied with sufficient pressure and excessive evaporation during hot or drying weather conditions. Care shall be taken to prevent staining the finished plaster.
- 3.1.5** Patching and pointing: 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.

*END OF SECTION*

## **SECTION 09 30 00**

### **TILES**

#### **PART 1 GENERAL**

##### **1.1 SCOPE OF WORK**

This section shall include all management, labor, materials, tools, equipment and services required to furnish and install tile works as specified herein and shown in Drawings required to perform all works in accordance to the General Conditions of the contract Documents. 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 skillful manner and as directed.

##### **1.2 REFERENCES**

Comply with quality assurance requirements under General Conditions of the Contract Documents and Manufacturer's instructions. Reference the following standards as applicable:

**1.2.1** American National Standards Specifications (ANSI), Standards for Tile Installation:

- A. ANSI 108
- B. ANSI 118
- C. ANSI 136.1
- D. ANSI A 137.1

**1.2.2** American Society for the Testing of Materials (ASTM), ASTM C 270, Standard Specification of Mortar for Unit Masonry

##### **1.3 SUBMITTALS**

**1.3.1** General: All submittals for approval as indicated herein shall be in accordance to the provisions under General Conditions of the Contract Documents.

**1.3.2** Manufacturer's literature: Product data sheets, brochures, catalogs for all tile materials used for the work.

**1.3.3** Certifications: Prior to delivery, submit certificates to the Architect attesting to compliance with the applicable Specifications herein.

**1.3.4** Manufacturer's grout color charts. Sample of grout: Cured sample, 2 x 2 inches of selected colors.

**1.3.5** Tile samples of the actual tile to be provided shall be submitted for approval before tile work has started. The finish work shall match the approved samples in sizes, color pattern, finish and texture.

##### **1.4 QUALITY ASSURANCE**

**1.4.1** Comply with quality assurance requirements under General Conditions of the Contract Documents and Manufacturer's instructions.

**1.4.2** Source Limitations: Obtain all tiles of same type and color or finish tile from one source or producer. Materials shall be of the same production run and of consistent quality in appearance and physical properties for each contiguous area.

**1.4.3** Setting materials such as mortar, adhesive and grout components shall be of uniform quality from a single manufacturer as well as finish treatments for nosing, stone thresholds and metal strips.

**1.5 MOCK – UPS**

Build mock-ups to verify selection made under sample submittal and to demonstrate aesthetic effects. When completed and approved by the Architect, the mock-up shall be incorporated into the finished Work and become the Standard of quality for the remainder of the Project.

**1.6 DELIVERY, STORAGE AND HANDLING**

**1.6.1** Comply with product delivery requirements under General Conditions of the Contract Documents and Manufacturer’s instructions.

**1.6.2** Manufactured materials shall be delivered in the original unbroken packages or containers that are labeled plainly with the manufacturer’s name and brands. Containers for tiles shall be grade sealed.

**1.6.3** Store all materials off ground to prevent contamination by mud, dust, or materials likely to cause staining or other defects. Cover material to protect from elements and neglect.

**1.7 WARRANTY**

Special written warranty for each material specified herein shall be submitted by Manufacturer/ Contractor without reducing or otherwise limiting any other rights to correction which the Owner may have under the Contract Documents. Failures are defined to include faulty workmanship or faulty materials.

**1.8 PROJECT CONDITIONS**

**1.8.1** Comply with field examination requirements under General Conditions of the Contract Documents and Manufactures instructions.

**1.8.2** Verify dimensions of concrete substrate by accurate field measurement. Confirm concrete has been in place for at least 28 days prior to commencing tile installation. Do not begin work until deficiencies in the substrate are corrected. Commencement of tile installation indicates Contractor’s acceptance of substrate.

**1.8.3** Do not install until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated in referenced standards and Manufacturer’s instructions.

**1.9 EXTRA MATERIALS**

**1.9.1** Comply with requirements under General Conditions of the Contract Documents and Manufacturer’s instructions.

**1.9.2** Furnish extra materials that match products installed and that are packaged with protective covering for storage with quantity of full size units for tile and trims units equal to two (2) percent of amount installed, for each type, composition, color, pattern and size indicated.

**1.10 PERFORMANCE REQUIREMENTS**

Materials are to be from an accredited company with accomplished projects similar to the quality of material as specified herein. The Contractor shall submit tile samples to the Architect for approval prior to any installation. Design including texture and pattern



shall be kept minimal with neutral color assignment as per Architect's approved sample. Submit material test reports and certificates acquired by Manufacturer from reputable testing and accreditation agency.

## **PART 2 PRODUCTS**

**2.1 Portland Cement** shall be gray color for mortar setting bed and scratch coat. This shall conform to the requirements of PNS 07-type 1.

**2.2 Tile Grout** for grouting shall be high performance, waterproof, cement-based tile adhesive conforming to PNS 53 with early high-strength Characteristics. Color of grout shall match tile material as per Architect's approved sample.

**2.3 Hydrated Lime** shall be the same quality as that used for masonry work.

**2.4 Sand for Mortar** setting beds shall conform to the requirements of ASTM Specification C44.

**2.5 Sand for Plaster** scratch coats and pointing mortar shall conform to the requirements of ASTM Specification C35.

**2.6 Water** shall be clean and free from injurious amount of oil, acids, alkali, organic materials or other substances that may be deleterious to concrete or steel.

### **2.7 Floor and Pavement tiles**

#### **2.7.2 FF-2 Main Lobby Flooring @ Ground Floor: Polished Porcelain Tiles with Decorative Granite Stone**

Shall be 10mm thick x 600mm x 600mm double polished finish anti-stain, homogeneous porcelain tiles with heavy resistance to abrasion Class AAA, 7.5 kgs., with 18-20mm thick premium high quality natural granite stone decorative flooring (ellipse form). Final color and pattern as per Architect's approved sample. Provide 2-3 mm gap in between tile joint during installation. Tile color and design shall be approved first before installation.

#### **2.7.3 FF-3 Convention Hall Vestibule/Ante Room: Matte and Polished Porcelain Tiles**

Shall be 10mm thick x 600mm x 600mm double polished finish and 10mm thick x 150mm x 600mm matte finish non-skid, anti-stain, homogeneous porcelain tiles with heavy resistance to abrasion Class AAA, 7.5 kgs. Final color and pattern as per Architect's approved sample. Provide 2-3mm gap in between tile joints during installation. Tile color and design shall be approved first before installation.

#### **2.7.4 FF-4 General Flooring: Polished Finish Homogeneous Porcelain Tiles**

Shall be 10mm thick x 600mm x 600mm double polished finish anti-stain, homogeneous porcelain tiles with heavy resistance to abrasion Class AAA, 7.5 kgs. Final color and pattern as per Architect's approved sample. Provide 2-3 mm gap in between tile joints during installation. Tile color and design shall be approved first before installation.

### **2.8 Wall Finishes**

#### **2.8.1 WF-1a Front Facade**

Shall be 150mm thick CHB exterior wall with 25mm thick smooth trowel cement plaster finish coated with plain semi-gloss water-based 100% acrylic paint with high alkaline resistance and excellent gloss retention, highly resistant to airborne pollutants and dust and has good exterior durability by “Boysen Wallguard - Dirt Resisting Latex #5715” or approved equal. Submit color swatch and mock-up paint sample for Architect’s approval. Final paint finish shall be on a plant-mixed procedure (by the manufacturer) before application.

**2.8.2 WF-2a Interior CHB Walls and Columns**

Shall be 150mm thick/100mm thick CHB interior wall with 25mm thick smooth trowel cement plaster finish coated with high performance low VOC, odorless, ultra-premium water-based acrylic coating that gives a cleanable matte finish to walls and ceilings with surface protector and anti-bacterial protection by “Boysen Virtuoso Silk Touch” or approved equal. Submit color swatch and mock-up paint sample for Architect’s approval

**2.8.3 Interior Toilet Wall Finish 2 (Public Toilets): Concrete Hollow Blocks with Homogeneous Porcelain Tiles**

Shall be 150mm thick/100mm thick CHB interior wall with 10mm thick 300mm x 600mm anti-stain, matte finish homogeneous porcelain tiles by “Felpport International Marketing” or approved equal @ 2000mm height with 18-20mm thick x 50mm premium high quality natural granite top and bottom (baseboard) tile trim. Final color and pattern as per Architect's approved sample. Provide 2-3 mm gap in between tile joints during installation.

**2.8.3.1 WF-2c Remaining Upper Wall:**

Provide with 25mm thick smooth trowel cement plaster finish coated with high performance low VOC, odorless, ultra-premium water-based acrylic coating that gives a cleanable matte finish to walls and ceilings with surface protector and anti-bacterial protection for the remaining wall finish. Submit color swatch and mock-up paint sample for Architect’s approval. Verify Toilet Details for the design.

For Urinal plumbing wall ledges provide 18-20mm thick x 200mm width premium high quality natural granite, medium to heavy resistance to abrasion. Verify Toilet Details for provisions and location of plumbing wall.

**2.8.4 Interior Decorative Back Wall @ Secretariat Information Counter**

Shall be 150mm thick/100mm thick CHB interior wall with 10mm thick 600mm x 900mm anti-stain, matte finish homogenous porcelain tiles with 1.5mm thick x 10mm x 20mm stainless steel C-channel in hairline finish. Submit tile sample and c-channel finish for Architect’s approval. Refer to Architectural Drawings for layout and details.

**PART 3 EXECUTION**

**3.1** Comply with Manufacturer’s standard installation procedures and applicable codes. Verify design and layout as approved from shop drawings submitted by Contractor in accordance to Drawings.

**3.2** Examine surfaces to receive tile, before tile installation begins. Do not proceed with installation until adjoining work is satisfactorily protected. Correct the following conditions before proceeding with tile work.

**3.2.1** Defects or conditions adversely affecting quality, execution and permanence of tile installation.

**3.2.2** Maximum deviation of surfaces to receive tile:

- A. Subfloor surface: ¼ inch in 10 feet
- B. Vertical surface: ¼ inch in 8 feet

**3.3** Condition of surfaces to receive tile shall be firm, dry, clean, and free of oily or waxy films. Grounds, anchors, lugs, hangers, recess frames, bucks, electrical and mechanical work in or behind tile to be installed prior to proceeding with tile installation.

### **3.4 Preparation**

**3.4.1** Mortar materials shall be measured in approved containers, which will insure that the specified proportions of materials will be controlled and accurately maintained during the progress of the work. Measuring materials with shovels, “shovel count”, will not be permitted. Unless specified otherwise, mortar shall be mixed in proportions by volume, in approved mixing machines or mortar boxes. The quantity of water shall be controlled accurately and uniformly. The aggregates shall be introduced and mixed in such a manner that the materials will be distributed uniformly throughout the mass. A sufficient amount of water shall be added gradually and the mass further mixed in such a manner that the materials will be distributed uniformly throughout the mass. A sufficient amount of water shall be added gradually and the mass further mixed until a mortar of the plasticity necessary for purposes intended is obtained. Mortar boxes, pans, floor slabs and mixer’s drums shall be kept clean and free from debris or dried mortar. Mortar shall be used before the initial setting of the cement has started to set will not be permitted. All mortar setting beds shall be mixed by volume in the proportion of 1 part Portland cement, 4 parts dry sand and ½ part lime.

### **3.5 Installation**

**3.5.1** Application of the flooring – Surfaces to receive the tile shall be clean, free of duct, dirt, oil, grease, and other deleterious substances. Floor tile operations in spaces receiving a wall tile shall not be started until wall tile installation has been completed. Before a tile is applied with a dry set mortar bed, the structural floor shall be tested for levelness or uniformity of the slope by flooding it with water. Areas where the water ponds shall be filled, leveled, and re-tested before the setting bed is applied.

- A. Mortar setting beds shall be a minimum thickness of 20mm for floors, and 44mm for shower areas. The structural concrete slab shall be soaked thoroughly with clean fresh water on the day before the setting bed is to be applied. Immediately preceding the application of the setting bed, the structural slab shall again be wetted thoroughly, but no free water shall be permitted to remain on the surface. A skim coat of neat Portland cement mortar shall then be applied not less than 1.59mm thick. The mortar shall be spread until its surface is true and even and thoroughly compacted, either level or sloped uniformly for drainage, as the case required. A setting bed, as large as can be covered with tiles before the

mortar has reached its initial set, shall be placed in the operation; but in the event that more setting mortar has been placed than can be covered, the unfinished portion shall be removed and cut back to a clean beveled edge.

- B. Application of tile flooring of Portland cement mortar. Tiles shall be soaked in water at least 12 hours before it shall be used. No free water shall remain on the tiles at the time of setting. A skim coat of neat Portland cement mortar, 0.79mm to 1.59mm thick shall be trowelled at or brushed over the setting bed and/ or the back of the tile, or a thin layer of Portland cement, 0.79mm to 1.59mm thick may be hand dusted uniformly over the setting bed and worked lightly with a trowel or brush until thoroughly damp. The tile shall then be pressed firmly upon the setting bed, and beaten into the mortar until true and even with the plane of the finished floor line. Beating and leveling shall be completed within one hour after placing the tile sheets. Borders and defined lines shall be laid before the field or body of the floor. Where floor drains are provided, the floors shall be sloping to drain properly to the drains. Intersection sand returns shall be formed accurately. Cutting of tiles where necessary, shall be done along the outer edges of the floors. As far as practicable, no tiles of less than half size shall be used. Tiles shall fit closely and neatly at all plumbing fixtures and around electrical outlets, pipes and fittings so those cover plates or escutcheons will overlap the tiles properly. Tiles shall be secured firmly in place and loose tiles or tiles sounding hollow shall be removed and replaced. All lines shall be kept straight, parallel, and true and even planes. The inner edge of borders shall be kept straight and where practicable, shall form right angles at all returns.

### **3.5.2 Application of Wall Tiles**

- A. Interior masonry shall be clean, thoroughly dry sound, and sufficiently rough to provide a strong mechanical bond. Surfaces shall be evenly dampened immediately prior to the application of the scratch coat.
- B. Scratch coats shall be applied to masonry, as backing for wall tiles, not less than twenty four (24) hours or more than forty eight (48) hours before starting the tile setting. Scratch coats shall be applied with sufficient pressure to insure a proper base for the setting bed. While the mortar is still plastic, the scratch coat shall be cut with trowel at all internal vertical angles for the depth of the coat and the full height of the tile bed, and shall be cross scratched on 25mm centers for the extent of the tile bed.
- C. Mortar setting bed. Immediately preceding the application of the mortar setting bed, the scratch coat shall be moistened thoroughly but not saturated. Temporary screeds shall be applied to the scratch coat with mortar to provide a true and plumb surface the proper distance back from the finished wall line. The setting bed shall be applied, rodded, and floated flush with the screeds over an area no greater than will be covered with tiles while the bed remains plastic. The thickness of the setting bed shall not exceed 20mm and the mortar shall not be re-tempered. The setting bed shall be cut with a trowel at all internal corners, as specified for the scratch coat.

- D. Application of Tiles on Walls, Wainscoat and other Surfaces  
Absorbent-mounted tiles shall be dampened by placing sheets on a wetted cloth, in a shallow pan before setting. A skim coat of neat Portland cement mortar, mixed with water to the consistency of pasty, thick cream, shall be applied 0.79mm to 1.59mm thick to the mortar setting bed. The tiles shall then be pressed firmly upon the setting bed and tamped until flush and in the plane of the other tiles. The tiles shall be applied before the mortar bed has taken its initial set. Tiles shall fit closely at plumbing fixtures and around electrical outlets, pipes, and fittings so that the plates or escutcheons will properly overlap the tiles. Tiles shall be secured firmly in place, and loose tiles, or tiles sounding hollow, shall be removed and replaced. Wainscot shall be within one half tile of the heights indicated without cutting of the tiles. The sheets shall then be pressed firmly upon the setting bed, and beaten into the mortar until true and even with the plane of the finished floor line. Beating and leveling shall be completed within 45 minutes after placing tiles or sheets.

### **3.5.3 Grouting and Pointing**

The tiles shall be wetted, if they have become dry, before applying grout. Joints of 3mm or less in width shall be routed with a neat white Portland cement grout of the consistency of thick cream. Other joints shall be pointed with mortar consisting of white Portland cement and two parts pointing sand. The grout or mortar for joints floors, walls and other vertical surfaces shall contain white Portland cement. Grout and pointing mortar shall be forced into joints by using trowel, squeegee, brush, or finger application. Before the grout or mortar sets, the joints of cushion-edge tiles shall be struck or tooled to the depth of the cushion, filling all skips or gaps, and the joints of a square-edge tile shall be filled completely flush with their surface. Dark cement shall not show through grouted white joints. Care shall be taken to avoid scratching glazed finishes. All surplus mortar or grout shall be removed before it has set or hardened.

### **3.5.4 Cleaning and Curing**

Floors shall be covered with waterproofed paper with all joints lapped at least 100mm and the laps tape-sealed or held down with planks or other weights and allowed to damp-cure for at least 72 hours before foot traffic is permitted thereon. All completed tile work shall be thoroughly sponged and washed diagonally across joints, and finally polished with clean dry cloths. Acid cleaning unglazed tiles, when necessary, shall not be done within ten days after setting tiles. All metal shall be covered with approved grease and the tile wet with clean water before the tile is cleaned with a 10 percent muriatic-acid solution. After acid cleaning, the tile shall be flushed with clean water, and grease coating on metal removed. Acid cleaners shall not be used on unglazed tiles.

### **3.5.5 Protection**

Finished tile floors shall be covered with clean building paper before foot traffic is permitted on them. Board walkways shall be placed on floors that are to be continuously used as passageways by workers.

*END OF SECTION*

## **SECTION 09 90 00**

### **PAINTS AND COATINGS**

#### **PART 1 GENERAL**

##### **1.1 SCOPE OF WORK**

This section shall include all management, labor, materials, tools, equipment and services required to furnish and install paints and coatings as specified herein and shown in Drawings required to perform all works in accordance to the General conditions of the Contract Documents.

##### **1.2 REFERENCES**

Comply with quality assurance requirements under General conditions of the Contract Documents and Manufacturer's instructions. Reference the following standards as applicable:

- 1.2.1** ASTM D16-10 Standard Terminology for Paint, Related Coatings, Materials, and Applications
- 1.2.2** ASTM D3730-03 – Standard Guide for Testing High-Performance Interior Architectural Wall Coatings
- 1.2.3** ASTM D3960-05 – Standard Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings
- 1.2.4** ASTM D154 – 85(2009) Standard Guide for Testing Varnishes
- 1.2.5** ASTM D1652-04 Standard Test Method for Epoxy Content of Epoxy Resins
- 1.2.6** ASTM D3451-06 Standard Guide for Testing Coating Powders and Powder Coatings
- 1.2.7** U.S. Environmental Protection Agency (EPA) Reference Test Method 24, (Determination of Volatile Matter Content, Water Content, Density Volume Solids, and Weight Solids of Surface Coatings), Code of Federal Regulations Title 40, Part 60, Appendix A.

##### **1.3 SUBMITTALS**

- 1.3.1** General: All submittals for approval as indicated herein shall be in accordance to the provisions under General Conditions of the Contract Documents.
- 1.3.2** Submit brochures or catalogs for the paint system to be used on the different surfaces to be applied for approval.
- 1.3.3** Material List: An inclusive list of required coating materials. Indicated each material and cross reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
- 1.3.4** Manufacturer's Information: Manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material.
- 1.3.5** Selection Samples: For each finished product specified, two complete sets of color chips representing the manufacturer's full range of available colors and patterns.
- 1.3.6** Verification Samples: For each finish product specified, two samples, minimum size 150 mm square, representing actual product, color, and patterns.

#### **1.4 QUALITY ASSURANCE**

- 1.4.1** Comply with quality assurance requirements under General Conditions of the Contract Documents and Manufacturer's instructions.
- 1.4.2** Engage a reputable firm or manufacturer of paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful service performance. Installer shall be trained by the same paint manufacturer or shall have significant experience with the application as specified herein.
- 1.4.3** Obtain block fillers and primers for each coating system from the same manufacturer as the finish coats.
- 1.4.4** Mock-up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
  - A. Finish areas designated by the Architect.
  - B. Do not proceed with remaining work until workmanship, color, and sheen approved by the Architect.
  - C. Refinish mock-up area as required to produce acceptable work.

#### **1.5 DELIVERY, STORAGE AND HANDLING**

- 1.5.1** Comply with product delivery requirements under General Conditions of the Contract Documents and Manufacturer's instructions.
- 1.5.2** Paints and paint materials shall be delivered in sealed containers that plainly show the designated name, specification number, batch number, color, date of manufacture, manufacturer's directions and name of manufacturer. Storage of paints and paint materials and the mixing of paints shall be restricted to the locations directed.
- 1.5.3** Store materials in a dry, clean, well-ventilated area designated by the Architect for the storage of paint materials and tools. The storage space floor shall be adequately protected from damage and from paint. Paint shall be kept covered at all times and safeguarded to prevent fire.
- 1.5.4** Protect floors and all adjacent surfaces from paint smears, spatters, and dropping use drop-cloths to protect floors. Cover fixtures and remove hardware not to be painted. Mask off areas where necessary.
- 1.5.5** For safety precautions, the Contractor shall provide an appointed storage room with an ABC fire extinguisher throughout the duration of painting work. Foregoing fire extinguisher shall not be one required elsewhere in these specifications.

#### **1.6 WARRANTY**

Special written warranty for each material specified herein shall be submitted by Manufacturer/ Contractor without reducing or otherwise limiting any other rights to correction which the Owner may have under the Contract Documents. Failures are defined to include faulty workmanship or faulty materials.

#### **1.7 PROJECT CONDITIONS**

- 1.7.1** Comply with field examination requirements under General Conditions of the Contract Documents and Manufacturer's instructions.
- 1.7.2** Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by the manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

## 1.8 PERFORMANCE REQUIREMENTS

**1.8.1** General: Standard coating terms defined in ASTM D 16 apply to this Section.

- A. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85-degree meter.
- B. Eggshell refers to low-sheen finish with a gloss range between 5 and 20 when measured at a 60-degree meter.
- C. Satin refers to low-sheen finish with a gloss range between 15 and 35 when measured at a 60-degree meter.
- D. Semi-gloss refers to medium-sheen finish with a gloss range between 30 and 65 when measured at a 60-degree meter.
- E. High gloss refers to a high-sheen finish with a gloss range more than 65 when measured at a 60-degree meter.

**1.8.2** The VOC concentrations of the product shall not exceed those listed below as determined by the U.S. Environmental Protection Agency (EPA) Reference Test Method 24 reference standard. Calculation of VOC to exclude water and tinting color added at the point sale.

Interior Coatings:

Coating Type	VOC weight in grams/liter of product minus water
Non-flat	150
Flat	50

Exterior Coatings:

Coating Type	VOC weight in grams/liter of product minus water
Non-flat	200
Flat	100

**1.8.3** Aromatic Compounds: The product must contain no more than 1.0% by weight of the sum total of aromatic compounds.

## PART 2 PRODUCTS

**2.1 General:** Comply with Manufacturer's standard material requirements in conformity to the specifications herein.

**2.1.1** Material Compatibility: Provide block fillers, primers, and finish-coat materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by manufacturer instructions based on testing and field experience.

**2.1.2** All paints, thinners, linseed oils, and varnishes to be used shall be high quality painting systems, except as specified otherwise. All paints shall contain an effective amount of fungicide and mildew-proofing agent that shall prevent the paint from showing a mold growth or shall be inherently fungistatic by the nature of their constituents and shall be non-toxic to the person.

**2.1.3** Acceptable Colors and Finishes: All color and finish selections shall be as specified herein and as approved by the Architect. Use neutral shades and minimal patterns as required.

**2.2 Exterior Masonry Wall, Reinforced Concrete Wall, Build-up Walls, Columns & Parapet**



Shall be coated with fine texture semi-gloss water-based 100% acrylic paint with high alkaline resistance and excellent gloss retention, highly resistant to airborne pollutants and dust and has good exterior durability. Painting schedule shall be:

- a. Prime surface – Flat Latex
- b. Fill hairline cracks and minor surface imperfections
- c. Spot prime puttied portions
- d. Apply 2-3 coats of Topcoat of desired sheen by brush, roller or spray.

Follow manufacturer's standard application procedures. Submit color swatch and mock-up paint sample for Architect's approval. Final paint finish shall be on a plant-mixed procedure (by the manufacturer) before application.

### **2.3 Interior Masonry, Reinforced Concrete Wall & Slab and Ceiling (Main Building)**

Shall be coated with high performance low VOC, odorless, ultra-premium water-based acrylic coating that gives a clean matte finish to walls and ceilings with surface protector and anti-bacterial protection. Painting schedule shall be:

- a. Allow new masonry to dry for 14 to 28 days under normal weather conditions. Surface to be painted should be clean and dry, free from oil, grease, dust, dirt, contaminants, and all loose grit and mortar.
- b. Treat new masonry with a solution of 1 part liquid acidic substance that is to be mixed with water to neutralize lime activity in new masonry surfaces, diluted in 16 parts water, applying liberally by brush or roller.
- c. Let it stand overnight before rinsing with water or rough sanding to remove white crystals that form on the surface. Let dry before painting.
- d. Primer coat – 100% acrylic latex paint that's non-toxic, non-flammable, low-odor and has outstanding color retention. It contains the best fungicide to prevent mold and mildew growth.
- e. Full Putty/Spot Putty – a water based product especially prepared for filling minor surface unevenness
- f. Apply 2-3 coats of 100% acrylic water-based paint that is low odor, low VOC, lead free, and has outstanding color retention.

### **2.4 Metals**

Shall be coated with high performance, two component water-based acrylic epoxy paint which has a superior chemical, solvent and stain resistance, odorless and UV resistant finish. It has further excellence of brushability and easy water clean-up. Painting schedule shall be:

- a. Primer – Red Oxide
- b. Reducer for Primer – Epoxy Reducer
- c. Topcoat

Follow manufacturer's standard application procedures. Submit color swatch and mock-up paint sample for Owner's approval upon the recommendation of the Architect.

### **2.5 Steel Doors**

Shall be coated with solvent-free high ultra-violet resistant polyester powder-coating. Follow manufacturer's standard application procedures. Color as per Architect's approved sample.

**2.6 Aluminum**

Shall be coated with solvent-free high ultra-violet resistant polyester powder-coating. Follow manufacturer's standard application procedures. Color as per Architect's approved sample.

**2.7 Masonry Neutralizer:** Shall be acid-base concrete surface neutralizer.

**2.8 Patching Compound Powder for sealing concrete and plaster:** Shall be White Decalite type.

**2.9 Sandpaper:** Shall be waterproof type.

**2.10 Trisodium Phosphate:** Shall be used for removal of dirt, fungus, grease and oil shall be from concrete and plaster.

**PART 3 EXECUTION**

**3.1** Comply with Manufacturer's instructions and standard installation requirements for each type of material.

**3.2** Examination:

**3.2.1** Do not begin installation until substrates have been properly prepared.

**3.2.2** If substrate preparation is the responsibility of another installer, notify the Architect of unsatisfactory preparation before proceeding.

**3.2.3** Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.

**3.2.4** Notify the Architect about anticipated problems when using the materials specified over substrates primed by others.

**3.2.5** If a potential incompatibility of primers applied by others exists, obtain the following from the primer Applicator before proceeding:

A. Confirmation of primer's suitability for expected service conditions.

B. Confirmation of primer's ability to be top coated with materials specified.

**3.3** Material Preparation: Carefully mix and prepare coating materials according to manufacturer's written instructions.

**3.3.1** Maintain containers used in mixing and applying coatings in a clean condition, free of foreign materials and residue.

**3.3.2** Stir materials before applying to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into the material. Remove film and, if necessary, strain coating material before using.

**3.3.3** Use only the type of thinners approved by the manufacturer and only within recommended limits.

**3.4** Workmanship shall be first class in every respect. Paint enamel and varnish finish shall be applied carefully with good clean brushes or approved rollers, or approved spraying equipment, except that the initial coat to be provided on any new or previously unpainted surface shall be painted brush. The work shall be so conducted as to avoid

damage to other surfaces and public or private property in the area; any damage thereto shall be made good by the Contractor at his expense.

- 3.5** Installation: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.
- 3.5.1** Sufficient time shall be allowed between coats to ensure thorough drying, and each coat shall be in proper condition before the next coat is applied. Sanding and dusting, as required, to product finishes which are free from visible defects when viewed from a distance of 1.50m shall be performed. Varnish shall be sanded between coats.
- 3.5.2** Finish coat shall be smooth and free from runs, sags, or other defects. Each coat of paint shall be of sufficient thickness to cover completely the previous coat or surface. Exterior paint shall not be applied during rainy weather; the temperature shall be above 7°C and not over 35°C. Interior paint may be applied at any time provided the surfaces to be painted are dry and the temperature can be kept above 7°C during the application of ordinary paints, and between 18°C and 35°C during the application of enamels and varnishes.
- 3.5.3** Surfaces to be painted shall be thoroughly cleaned and except for cement-emulsion filler, shall be dry when the paint is applied. Interior areas shall be broom-cleaned and dust-free before and during the application of any painting materials.
- 3.5.4** Paint colors and finishes not specified shall be as approved. Surfaces which will be inaccessible after erection shall be treated and primed prior to erection, using two coats of the designated primer. Such inaccessible surfaces are defined as those surfaces that are concealed after erection or installation.
- 3.5.5** Surfaces of steel to be embedded in concrete shall not be painted. Succeeding coats of the same type and/ or color of paint shall vary sufficiently from the color of the preceding coat to permit ready identification. Damaged painting shall be retouched before the succeeding coat is applied. Finish surfaces shall be smooth, even, and free from defects. The number of paint coats specified shall be in addition to the shop priming coats.
- 3.5.6** Wood surfaces shall be free from dust and in an approved condition to receive the paint or varnish. The use of water on unpainted wood shall be avoided. Knots and resinous wood shall be treated with an application of knot sealer, prior to application of paint. Puttying of cracks and nail holes shall be done after the priming the coat has been applied and has dried properly. Sand-papering, when required, shall be done after the undercoats are dry.
- 3.5.7** Concrete and plaster shall be repaired before painting. Dirt, fungus, grease, and oil shall be removed prior to application of paint by washing the surfaces with a solution composed of from 2 to 8 ounces of tri-sodium phosphate per gallon of hot water and then rinsing thoroughly with fresh water. Efflorescence shall be removed from concrete and masonry surfaces by scraping, wire brushing, and washing with a 5 to 10 percent, by weight, solution of muriatic acid and then washing thoroughly with fresh water, removing all traces of the acid. The tri-sodium phosphate and muriatic acid solution shall be within the ranges specified and shall be of strengths to perform their functions properly. Glaze and all loose particles and scales are removed by wire brushing.
- 3.5.8** Puttying of concrete and plaster surfaces shall be done after the priming coat has been applied and has dried properly. Sand-papering will be required prior to the second coat of paint to provide an even and smooth surface.

- 3.5.9 Metal surfaces to be painted: as mentioned in other sections of these specifications including zinc-coated surfaces and unprimed steel and iron surfaces, immediately after being cleaned, shall be given one coat of pretreatment coating. Primer paint shall be applied over the pretreatment coating when practicable after the coating has dried. Powder coated installation needs no priming as per Manufacturer's instructions.
- 3.5.10 Wood, cement board or gypsum surfaces, interior and exterior painted surfaces except otherwise specified shall be given required finish as per Manufacturer's instructions. Prior to painting application, all nail holes and grains shall be puttied to even surfaces.
- 3.5.11 Pipe hangers, structural supports, pipe and pipe fittings, conduits and conduit fittings, and miscellaneous steel and iron work shall be painted as specified in accordance with ASME standards. Equipment shall be finished in accordance with the specification for the particular end item. Factory finished surfaces that are damaged during installation shall be restored to their original condition.
- 3.5.12 Other surfaces for which the type of paint has not been specified herein before shall be painted as specified for surfaces having similar conditions or exposure.

### **3.6 Cleaning**

- 3.6.1 After completing painting, clean glass and paint splattered surfaces. Remove splattered paint by washing and scraping without scratching or damaging adjacent finished surfaces.
- 3.6.2 Wash cured lining using detergents and rinse thoroughly.

### **3.7 Protection**

- 3.7.1 Protect work of other trades, whether being painted or not, against damage from painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by the Architect.
- 3.7.2 Provide "Wet Paint" signs to protect newly painted finishes. After completing painting operations, remove temporary protective wrappings provided by others to protect their work.
- 3.7.3 After work of other trades is complete, touch up and restore damaged or defaced painted surfaces.

*END OF SECTION*

## **SECTION 10 21 00**

### **COMPARTMENT AND CUBICLES**

#### **PART 1 GENERAL**

##### **1.1 SCOPE OF WORK**

This section shall include all management, labor, materials, tools, equipment and services required to manufacture, assemble, deliver (including all import and export documents), and install all items necessary for the proper execution and completion of toilet compartment and cubicles, as indicated in the General and Special Conditions of the Contract Documents, the drawings, as specified herein, and /or as required by job conditions.

## **1.2 REFERENCES**

Comply with quality assurance requirements under General Conditions of the Contract Documents and Manufacturer's instructions. The following standards form part of these specifications to the extent referenced:

- 1.2.1** National Building Code, NBC and BP 344 Accessibility Code
- 1.2.2** ASTM-E84 Standard Test Method for Surface Burning Characteristics of Building Materials
- 1.2.3** National Fire Protection Association, NFPA
- 1.2.4** ASTM B580 – 79 (2009) Standard Specification for Anodic Oxide Coatings on Aluminum
- 1.2.5** ANSI/ ASME A112.19.2M – American National Standard for Vitreous Porcelain Plumbing Fixtures

## **1.3 SUBMITTALS**

- 1.3.1** General: All submittals for approval as indicated herein shall be in accordance to the provisions under General Conditions of the Contract Documents.
- 1.3.2** Submit manufacturer's data sheet to include, literature indicating typical panel, pilaster, door, hardware and fastening; storage and handling requirements; installation and maintenance methods.
- 1.3.3** Furnish shop drawings with dimensioned plans indicating the following:
  - A. Detailed layout of toilet partitions to include height of doors, pilasters, separation partitions, and other components.
  - B. Locations and sizes of openings in the compartment for toilet and bath accessories to be installed in partitions.
  - C. Floor and Ceiling clearances.
  - D. Details indicating anchoring components and bolt layouts. Indicate components required for installation, but not supplied by compartment and cubicle manufacturers.
- 1.3.4** Submit sample material for each finished product specified, one complete set of color guides representing the manufacturer's full range of available colors, textures and patterns for initial selections and two samples representing actual product, color, texture and pattern for verification prior approval.
- 1.3.5** Manufacturer's Certificates indicating that products meet or exceed specified requirements.

## **1.4 QUALITY ASSURANCE**

- 1.4.1** Comply with quality assurance requirements under General Conditions of the Contract Documents and Manufacturer's instructions.
- 1.4.2** Manufacturer's Qualification  
All primary products specified in this section will be supplied by a single manufacturer with a minimum of ten (10) years-experience.
- 1.4.3** Installer Qualification  
All products listed in this section are to be mounted by a single installer with a minimum of one (1) year demonstrated experience in installing products of the same type and scope as specified.
- 1.4.4** Single Source Responsibility  
Provide products of the same manufacturer for each type of accessory unit and for units exposed to view in the same areas, unless otherwise acceptable to the Architect.

**1.4.5** Minimum smoke index of 40 and/or flame spread of 15 or less based on NFPA Standards.

**1.5 DELIVERY, STORAGE AND HANDLING**

Deliver partitions, hardware, and head rail in manufacturer's original protective shipping containers or packaging with labels intact and legible. Handle products carefully according to the manufacturer's instructions. Store compartment components until installation in unopened cartons laid flat, with adequate support to ensure flatness and to prevent damage to prefinished surfaces.

**1.6 WARRANTY**

Special written warranty for each material specified herein shall be submitted by Manufacturer/Contractor without reducing or otherwise limiting any other rights to correction which the Owner may have under the Contract Documents. Failures are defined to include faulty workmanship or faulty materials.

**1.7 COORDINATION WITH OTHER TRADES**

All installation, deliveries and other related works shall be coordinated with other trades to avoid interference in the construction.

**1.8 PROJECT CONDITIONS**

**1.8.1** Comply with field examination requirements under General Conditions of the Contract Documents and Manufacturer's instructions.

**1.8.2** Field measurements shall be taken prior to preparation of shop drawings and fabrication of toilet partitions to ensure proper fitting of work. Adjustments and enough time shall be allocated for such undertaking and right scheduling shall be made to avoid any delay of work.

**1.8.3** Do not install products under environmental conditions outside manufacturer's absolute limits. Do not deliver materials or begin installation until the building is enclosed, with complete protection from outside weather.

**PART 2 PRODUCTS**

**2.1 Floor Mounted Toilet Cubicle**

**2.1.1** Pilaster, Doors and Ledges shall be 12mm thick solid compact laminate board in "Legno Finline – Brown " finish, made of phenolic resin impregnated black core, bonded under heat and pressure with edges finished smooth without metal trimmings. Panels shall have an integral, decorative surface made of melamine impregnated sheets resistant to chemicals and scratches. Intermediate panels shall be one continuous panel without any joint. Doors must close onto rubber strips. Color and finish shall be selected from the manufacturer's full color palette, as approved by the Owner and Architect. Exposed surface, which exhibit pitting, seam marks, roller marks, stain, discolorations, telegraphing of core material or other imperfections on finished units shall not be accepted.

**2.1.2** Channels, Rails and Brackets shall be heavy-duty extruded aluminum alloy 6063, channel with black anodized finish at the top rail.

**2.1.3** Pilaster Anchor shall be polyamide adjustable foot metal standard with flanged top and bottom to screw fix to panel, adjustable with nylon flange to floor mounting and integral to door frame. Fixing of pilaster to the wall shall be done with black anodized heavy duty channel.

- 2.1.4 Hinges shall be three (3) black nylon coated units per door to match the aluminum section in size, stand-open, gravity rise and fall type.
- 2.1.5 Coat Hook, door knob, privacy thumb turn shall be of the manufacturer's standard design, and system. Accessories shall be coated with black nylon resistant to heat, chemicals and bacteria.

## **2.2 Wall Mounted Urinal Partition**

- 2.2.1 Pilaster shall be 12mm thick solid compact laminated board in "Legno Finition – Brown" finish, made of phenolic resin impregnated black core, bonded under heat and pressure with edges finished smooth without metal trimmings. Panels shall have an integral, decorative surface made of melamine-impregnated sheets resistant to chemicals and scratches. Color and finish shall be selected from the manufacturer's full color palette as approved by the Owner and Architect. Exposed surfaces, which exhibit pitting, seam marks, roller marks, stain, discolorations, telegraphing of core material or other imperfections, on finished units shall not be accepted.
- 2.2.2 Channels shall be heavy-duty extruded aluminum alloy 6063, channel with black anodized finish.

## **2.3 Toilet Cubicle Ledge**

Shall be 200mm width, 12mm thick compact laminated board ledge in "Legno Finition Brown" finish complete with 25mm u-channel support and accessories. Submit sample for Architect's approval.

# **PART 3 EXECUTION**

## **3.1 Manufacturer's Instructions**

Comply with manufacturer's product technical data, installation procedures and standards as per project requirement.

## **3.2 Fabrication**

- 3.2.1 General: All doors, panels, screens, and pilasters shall be furnished and fabricated to match and fit in partition system, floor anchored or wall mounted of same construction and finish, unless otherwise indicated. Units shall be provided with cutouts, drilled holes and internal reinforcements to fit partition-mounted hardware and accessories. The standard total height of all toilet compartments and privacy screens shall be 1800mm.
- 3.2.2 Doors: Unless otherwise indicated, standard width opening of door for toilet the partition shall be 600mm wide and 900mm wide for toilets with handicap provisions.

## **3.3 Hardware and Fixing**

- 3.3.1 All edges of doors and pilasters shall be chamfered and finished without any metal trimming.
- 3.3.2 All pilasters shall rest on a Nylon Coated adjustable foot "N-001 Adjustable Leg" and anchored to the division walls by satin anodized U-channel with a clearance of 150mm height.
- 3.3.3 Fixing of pilaster to the wall shall be done with black anodized Heavy Duty Channel.

- 3.3.4 Door Indicated Lock - Shall be nylon coated red/green color indicator for toilet doors.
- 3.3.5 Door Knob and Coat Hook – Shall be nylon coated N-003 Coat Hook and N-002 Door Knob
- 3.3.6 Urinal Bracket – Shall be nylon coated N-006 Urinal Bracket
- 3.3.7 Top Round Channel – Shall be nylon coated A-001 Top Round Channel and A-002 U Channel support stainless steel.
- 3.3.8 Hinge – Shall be nylon coated “N-005 Gravity Hinge”

### **3.4 Installation**

- 3.4.1 General: Installation process shall comply with the manufacturer’s recommended procedures and methods. All partitions shall be rigid, straight, plumb and level when installed. Pilasters shall be fixed to the wall by square aluminum channels with stainless screw inserts. Aluminum channels shall be located so that holes for wall anchorages occur in masonry on tile joints. All panels shall be secured in position with the manufacturer’s recommended anchoring devices. All partitions shall be level with each other, and tightened with the proper devices. All doors shall be level with the pilasters when in closed position.
- 3.4.2 Floor Supported Partitions: Pilasters shall be supported with adjustable legs, with having not more than 25mm penetration into the structural floor, unless otherwise recommended by the manufacturer. All adjustable legs shall be fixed to the floor with stainless steel screws.
- 3.4.3 Screens: All privacy screens shall be attached to the wall with proper anchoring devices to suit supporting structure, as recommended by the manufacturer. All units shall provide support and resist lateral impact.

### **3.5 Adjustment and Cleaning**

- 3.5.1 All hardware shall be adjusted and lubricated for proper operation. Hinges shall be set for swing-in doors to hold approximately 30 degrees from closed position when unlatched. Gravity hinges shall be used for swing-outdoors (and entrance swing doors) to return to fully closed position.
- 3.5.2 Exposed surface of the partition system shall be made clean using materials and methods recommended by the manufacturer. Protection shall be provided to prevent damage during the remainder of the construction period

*END OF SECTION*

## **SECTION 26 12 00**

### **STEP DOWN TRANSFORMER**

#### **PART 1 GENERAL**

##### **1.1 GENERAL REQUIREMENTS**

Provide step down transformer complete with accessories, auxiliary equipment and associated work as provide in Electrical General Requirements with additions and modifications specified herein:

- 1.1.1 Underground Service



Underground service into buildings shall terminate at a point 1.50 meters outside the building and projections thereof, except that service conductors shall be continuous to the interior terminating point indicated. Connections of the underground service to the service switch, panel board or load center are included in the Underground Electrical Service. Ends of the underground conduit shall be protected by threaded metal caps until connections are made. Underground service from 1.50 meters outside the building to the underground terminal pole shall be provided under this section and shall have materials and installation as specified in Section 02585, Underground Electrical Service.

**1.1.2 Electrical Characteristics**

Electrical Characteristics for this project shall be as indicated. Final connections to the existing power distribution system shall be made by the Contractor as directed by the Contracting Officer.

**1.1.3 Connections to Existing Electrical System**

Notify the Contracting Officer in writing at least 14 days prior to the date the connections are required; approval shall be received before any service is interrupted. Furnish all material required to make connections into existing systems, and perform all excavating, backfilling, and other incidental labor as required.

**1.2 REFERENCES**

Comply with quality assurance requirements under General Conditions of the Contract Documents and Manufacturer's instructions. Reference the following standards as applicable:

The transformers devices in this specification are designed and manufactured according to latest revision of the following standards:

**1.2.1** American National Standards Institute, Inc. (ANSI): C57.12.00, C57.12.22, C57.12.26, C57.12.28, C57.12.29, C57.12.70, C57.12.80, C57.12.90, C57.12.91

**1.2.2** Institute of Electrical and Electronic Engineers (IEEE)

**1.2.3** American Society of Testing and Materials (ASTM)

**1.2.4** National Electrical Code (NEC)

**1.2.5** The service conditions shall be as specified in Usual Service Conditions section of C57.12.00.

**1.2.6** National Electrical Manufacturers Association (NEMA) Publications:

A. LA 1-76 (R1980) – Surge Arresters

B. TR 1-80 – Transformers, Regulators and Reactors

**1.2.7** Underwriter's Laboratory (UL) Publications:

A. UL 6-81 – Rigid Metallic Conduit

B. UL 83-80 (1983) – Thermoplastic-Insulated Wires and Cables

C. UL 510-82 – Insulating Tape

**1.3 SUBMITTALS**

**1.3.1** General: All submittals for approval as indicated herein shall be in accordance to the provisions under General Conditions of the Contract Documents.

**1.3.2** Catalog Information for:

A. Cutouts

B. Transformers

C. Hardware

D. Surge Arresters

- E. Terminators
  - F. Guy Anchors
- 1.3.3** Shop Drawings
- 1.3.4** Certification of Competency and Qualification  
Submit cable splicer's Certificate of Competency. Splicer's experience during the past three (3) years shall include performance in splicing and terminating cables of the type and classification being provided under this contract.
- 1.3.5** Manufacturer's Certification
- A. Transformer Tests: Certify that the routine tests per NEMA TR 1 have been made on each transformer.
  - B. Aluminum / Copper splices, connectors, lugs and fittings.
- 1.3.6** Manufacturer's Directions
- A. Aluminum / Copper connection make-up directions
  - B. Cable Terminators
  - C. Manufacturer's directions for use of ground megger with proposed method indicated.
- 1.3.7** A set of manufacturer's erection drawings and information shall be supplied by the Contractor, for the use of the inspector on the job site.

## **PART 2 PRODUCTS**

### **2.1 Transformer:** Transformer shall conform to ANSI C 57.12.00 GENERAL REQUIREMENTS

FOR Liquid-Immersed Distribution, Power Regulating Transformers. Transformer shall be 1 Unit – 200KVA, 400V/230V, 3ph, 60 Hz., Step Down complete with mounting brackets, lightning arresters, fuse cutouts and concrete poles with bill and meter deposits. Refer to Electrical Drawings for layout and schedule.

### **2.2 Standard Features:**

- Wound and rectangular core-oil construction
- Robust steel tank and cabinet assembly
- Welded and bolted cover with manhole opening for internal access
- Panel radiator for additional heat dissipation
- Removable hood and sill for easy insulation
- 180 degrees opening for HV and LV doors with padlocking provision and lifting handles for easy removal
- Hook rest to hold the doors in open position
- Three-point door latching with stainless penta head bolt for secured door latching
- Bushing wells
- Externally clamp porcelain/epoxy LV bushings
- External operated no-load tap changer
- Tap ground pads
- Base down lugs for permanent anchor to pad
- Stainless steel nameplate
- Filling plug/oil level plug
- Pressure relief valve
- Drain valve with oil sampler

### **2.3 Insulation:** Oil Immersed Self Cooled (OISC)

**2.4 Fluid:** Di-electric Fluid or Soya-based FR3

**2.5 Winding Materials:** Copper-copper (Cu-Cu); Copper-Aluminum (Cu-Al)

**2.6 Core Materials:** Silicon Steel (SiFe); Amorphous Metal

**2.7 Frequency:** 60Hz

**2.8 Connection:** Delta-Wye, Wye-Wye, Wye-Delta

**2.9 Application:** Loop Feed or Radial Feed

**2.10 Electrical Tapes:** Tapes shall be UL listed for electrical insulation and other purposes in wire and cable splices, terminations, repairs and miscellaneous purposes. Electrical tapes shall comply with UL 510.

**2.11 Caulking Compound:** Compound for the sealing of conduit risers shall be of putty like consistency workable with the hands at temperature as low as 1.67°C, shall not slump at a temperature of 148.89°C, and shall not harden materially when exposed to air. The compound shall readily calk or adhere to clean surfaces of the materials with which it is designed to be used. The compound shall have no injurious effects upon the hands of workmen or upon the materials.

## **PART 3 EXECUTION**

### **3.1 Installation**

- 3.1.1** Install transformer as shown on Project Drawings and in accordance with manufacturer's Instruction/Installation Manual.
- 3.1.2** Provide concrete pad with sufficient structural support and in accordance with local codes and standards. Concrete pad requirements should be coordinated with the transformer manufacturer.
- 3.1.3** Grounding should be per Project Drawings and in accordance with local codes and standards and in compliance with the NEC.

### **3.2 Adjustment and Cleaning**

- 3.2.1** Remove debris from the job site and wipe dust and dirt from all components.
- 3.2.2** Repaint marred and scratched surfaces with touch up paint to match original finish.

### **3.3 Warranty**

Equipment manufacturer warrants that all goods supplied are free of non-conformities in workmanship and materials for one year from date of initial operation, but not more than eighteen months from date of shipment.

*END OF SECTION*

## SECTION 26 24 16

### PANELBOARDS

#### PART 1 GENERAL

##### 1.1 DESCRIPTION

- A. Provide panelboards in accordance with the Contract Documents.
- B. Panelboards include both branch panelboards and distribution panels.

##### 1.2 QUALITY ASSURANCE

- A. Panelboards shall be the same manufacturer as the switchboards.
- B. Provide sizes rated overcurrent protection devices where required by results of short circuit study.

##### 1.3 STANDARDS

- A. Panelboards
  - 1. PS
  - 2. PEC
  - 3. IEC
  - 4. NEMA PB-1
  - 5. UL 50 and 67
- B. Circuit Breakers:
  - 1. PS
  - 2. PEC
  - 3. IEC
  - 4. NEMA AB-1
  - 5. UL 489

##### 1.4 SUBMITTALS

- A. General:
  - 1. Manufacturers product data sheets, electrical ratings, coordination of tripping curves between main & branches circuit breaker, and installation instructions.
  - 2. Support locations and types.
- B. Branch Panelboards:
  - 1. Detailed description and layout of each panelboard, showing physical dimensions, circuit breaker ratings and layout, identification nameplate, and cable lugs.
- C. Distribution Panels:
  - 1. Dimensioned layout and elevation drawings showing physical overcurrent protection housekeeping pads
  - 2. Detailed description of each distribution panel, showing overcurrent protection device ratings and layout, identification nameplate, and cable lugs, and fuse clip sizes.
- D. Seismic restraint calculations.
- E. Manufacturer Certification of Busbar Current Density.

## **1.5 IDENTIFICATION**

- A. Provide an identification nameplate for each panelboard, each main, and each feeder overcurrent protection device. The nameplate should include voltage and source of power for each panel.
- B. Provide a typewritten directory card indicating load served by type and location for each branch circuit in each branch panelboard. Mount directory in frame on inside of branch panelboard door.
- C. Panelboard series connected ratings shall be displayed and current ratings of overcurrent protection devices shall be displayed on the device.

## **PART 2 PRODUCTS**

### **2.1 ACCEPTABLE MANUFACTURERS**

Shall have at least 15 years reliable and reputable manufacturing experience.

### **2.2 RATINGS**

- A. Panelboards shall be of the ratings and configurations of 22 KAIC mains, and 10 KAIC branches. Panel board shall be gauge 18 G.I. powder-coated finish oven-baked metal casing with lock and catch key handles for panel board doors.
- B. Panelboards and overcurrent protection devices shall have a minimum short circuit rating as specified herein or greater where indicated on the Electrical Drawings.
- C. Branch Panelboards:
  - 1. Branch panelboards are identified with the prefix LP as shown on the Drawings.
  - 2. Maximum allowable physical dimensions: 50cm wide by 15 cm deep.
  - 3. Branch panelboards (LP): 10,000 RMS symmetrical amperes minimum interrupting capacity, unless noted otherwise.
- D. Distribution Panels:
  - 1. Distribution panels are identified with the prefix DP as shown on the Drawings.
  - 2. Maximum allowable physical dimensions: 50 cm wide by 20 cm deep.
  - 3. Distribution panel (DP): 25,000 RMS symmetrical amperes minimum interrupting capacity, unless noted otherwise.

### **2.3 CONSTRUCTION**

- A. Enclosures shall be corrosion resistant galvanized (zinc finished) sheet steel. Fronts shall be cold rolled steel, finish coated with ANSI 61 gray enamel over a rust inhibitor. Panels locks shall be keyed alike. Recessed flush mounted panels shall have overlapping front.
- B. Panelboards to be installed indoor should be NEMA 2 (IP-31) while outdoor type panelboards shall be NEMA 3R (IP-65).
- C. Doors for branch panelboards shall be one piece bolt on front with a lockable hinged door over the overcurrent protection devices.
- D. Space for future devices shall include all necessary bus, supports and connections.

### **2.4 PLUG-IN UNITS**

- A. Plug in units shall be circuit breaker type. Plug-in units shall be mechanically interlocked to prevent installation or removal while the switch is in the ON

position and shall be equipped with an interlock to prevent the cover from being opened while the switch is in the ON position and to prevent accidental closing of the switch while the cover is open. Handles shall be capable of being padlocked in both the ON and OFF positions.

- B. The plug in unit enclosure shall make positive ground connection to the bus duct housing before the stabs make contact with the bust bars. Provide grounding lug in plug in unit bonded to grounding system.
- C. The plug-in unit shall have an ampere rating as indicated in the drawing; 42,000 RMS symmetrical amperes minimum interrupting capacity, and shall be compatible with the existing Feeder (Riser) busduct.

## **2.5 OVERCURRENT PROTECTION DEVICES**

- A. Overcurrent protection types:
  - 1. Branch panelboards (LP): Molded case circuit breakers.
  - 2. Distribution panels (DP): Molded case circuit breakers.
- B. Molded case circuit breakers:
  - 1. Completely sealed enclosure. Bolt-on type Toggle type operating handle. Trip ampere rating and ON/OFF indication clearly visible.
  - 2. Thermal-magnetic trip-free, trip-indicating, quick-make, quick-break, with inverse time characteristic. Single-handle and common tripping on multiple breakers. External handle shall be suitable for locking in the OFF position.
  - 3. Silver alloy contacts with auxiliary arc-quenching devices.
  - 4. Breakers for lighting circuits shall be SWD rated.
  - 5. Provide main breakers in panelboards served from transformers unless a separate transformer secondary protection is provided.
  - 6. Shunt trip breakers shall be supplied with 220V AC coils.
- C. Ground Fault Interrupters  
Ground fault interrupter branch circuit breakers shall be as indicated on the Drawings. Circuit breakers shall be circuit interrupting which will operate manually for normal switching functions and automatically under overload, short circuit, and 0.005 amp line-to-ground fault conditions. The operating mechanism shall be entirely tripfree so that contact cannot be held close against an abnormal overcurrent, short circuit, or ground fault condition. The device shall be bolt-on type with insulated case construction and shall be interchangeable with standard single pole breakers utilized in the panelboard.

## **PART 3 EXECUTION**

### **3.1 INSTALLATION**

- A. Mount panels 1.8 meters above finished floor to top unless otherwise noted.
- B. Connect feed-through panels to the main feeder by insulated parallel gutter taps.
- C. Where panelboards are mounted recessed flush in wall, maintain fire integrity of wall. Provide one empty 20 mm IMC conduit stubbed up into the nearest accessible ceiling location for every three spare or space positions.
- D. Neatly arrange wiring and tie together in each gutter with nylon tie wraps at minimum 10 cm intervals.
- E. Provide plugs on open knockouts.
- F. Provide filler plates for unused spaces in panelboards.
- G. Provide cabinet lock with key. All panelboards shall be keyed alike.

### **3.2 TOUCH UP AND CLEANING**

- A. Back Boxes shall be clean, dry, and free of construction debris and fireproofing overspray prior to installation of panelboard interior.
- B. Vacuum backboxes clean of debris after installation and wiring of branch circuits.
- C. Repair and touch up paint damaged surfaces.

### **3.3 FIELD QUALITY CONTROL**

- A. Measure steady state load current at each panelboard feeder. Should the difference at any panelboard between phases exceed 10 percent, rearrange circuits in the panelboard to balance the phase loads within 10 percent. However, proper phasing for multi-wire branch circuits should be maintained.
- B. Inspect for physical damage, proper alignment, anchorage and grounding. Check proper installation and tightness of connection for circuit breakers, fusible switches and fuses.

*END OF SECTION*

## **SECTION 31 11 00**

### **SITE CLEARING**

#### **PART 1 GENERAL**

##### **1.1 SCOPE OF WORK**

This item shall consist of clearing, grubbing, removing and disposing all vegetable and debris as designated on the contract except those objects that are designated to remain in place or are to be removed in consonance with the General Conditions of the Contract Document and as specified herein. The work shall also include the preservation from injury or defacement of all objects designated to remain.

##### **1.2 MATERIAL OWNERSHIP**

Except for stripped topsoil or other materials indicated to remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

##### **1.3 CONSTRUCTION REQUIREMENTS**

**1.3.1** The Engineer/Architect will establish the limits of work and designate all trees, shrubs, plants and other things remaining. The Contractor shall preserve all objects designated to remain. Paint required for cut or scarred surface of trees or shrubs selected for retention, if applicable, shall be an approved asphalt base paint prepared especially for tree surgery.

**1.3.2** Streets, walks or other adjacent occupied or used facilities should not be closed or obstructed without permission from Owner and Authorities having jurisdiction. Interference with adjoining roads, streets, walks and other adjacent occupied or used facilities during site-clearing operations should be reduced. If such obstruction cannot be avoided, provide for alternate routes as approved by Authorities having jurisdiction.

**1.3.3** In case of local utility service present in the project site, advise the Owner and local service provider before site clearing.

- 1.3.4** Owner shall notify the Contractor of the known existence of hazardous material in the site. Such discovery of any hazardous material shall be reported immediately to the Owner. Contractor is responsible for approvals, removals, disposal and certification as required is responsible for approvals, removals, disposal and certification as required by law.

## **PART 2 PRODUCTS**

Refer to Structural/Civil Works Plans, notes and details as indicated.

## **PART 3 EXECUTION**

### **3.1 PREPARATION**

- 3.1.1** Refers to Structural/Civil Works Plans before preparation and execution
- 3.1.2** Protect and maintain benchmarks and survey control points from disturbance during construction.
- 3.1.3** Locate and clearly flag trees and vegetation to remain or to be relocated, if applicable.

### **3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL**

- 3.2.1** Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- 3.2.2** Inspect, repair and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
- 3.2.3** Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

### **3.3 UTILITIES**

Consult local/private utility to coordinate the protection and relocation of existing power and telecommunication service poles as encountered during site cleaning and grading. Utilities shall be disconnected at the points directed. Where such disconnection will interrupt the utility services to an area not included in the contract, arrangements for such interruption shall be made with the Engineer/architect at least twenty-four (24) hours in advance of the interruption.

### **3.4 PROTECTION OF TREES**

- 3.4.1** Erect and maintain temporary fencing around tree protection zones before starting site clearing as applicable. Remove the fence when construction is complete.
- 3.4.2** Do not excavate within tree protection zones, unless otherwise indicated.
- 3.4.3** Protect existing trees and other vegetation indicated to remain in place against unnecessary cutting, breaking or skinning of roots, skinning or bruising of bark, smothering of trees by stockpiling construction materials or excavated materials within the drip line, excess foot or vehicular traffic, or parking of vehicles within drip line.
- 3.4.4** Repair or replace trees and vegetation indicated to remain that are damaged by construction operations, in a manner approved by the Architect.



### **3.5 CLEARING AND GRUBBING**

- 3.5.1** Remove obstructions, wood, metal, trees, shrubs, grass, vegetation and other deleterious material to permit installation of new construction. Removal includes digging out stumps and obstructions and grubbing roots.
- 3.5.2** Removal of undisturbed stumps and roots and non-perishable solid objects with a minimum of 900mm (36 inches) below sub-grade or slope of embankments will not be required.
- 3.5.3** In areas outside of the grading limits of cut and embankment areas, stumps and non-perishable solid objects shall be cut off not more than 150mm (6 inches) above the ground line or low water level.
- 3.5.4** In areas to be rounded at the top of cut slopes, stumps shall be cut off flush with or below the surface of the final slope line.
- 3.5.5** Grubbing of pits, channel changes and ditches will be required only to the depth necessitated by the proposed excavation within such areas.
- 3.5.6** Place fill material in horizontal layers not exceeding a loose depth of 8 inches, and compact each layer to a density equal to adjacent original ground. Refer to Geotechnical Report for Governing Specifications.
- 3.5.7** Except in areas to be excavated, stump holes and other holes from which obstruction are removed shall be backfilled with suitable material and compacted to the required density. Place and compact satisfactory soil materials in 6-inch thick layers to density of surrounding original ground.
- 3.5.8** Perishable materials may be disposed-off by methods and at locations approved by the Engineer/Architect, on or off the Project Site. If the disposal is by burying, the debris shall be placed with the material so disturbed so as to avoid nesting. The top layer of material buried shall be covered with at least 300mm (12 inches) of earth or other approved material and shall be graded, shaped and compacted to present a pleasing appearance. If the disposal location is off the Project Site the Contractor shall make all necessary arrangements with property owners in writing for obtaining suitable disposal locations which are outside the limits of view from the Project Site. The cost involved shall be included in the unit bid price. A copy of such agreement shall be furnished to the Engineer/Architect. The disposal areas shall be seeded, fertilized, and mulched at the Contractor's expense.
- 3.5.9** Woody material may be disposed-off by chipping. The wood chips may be used for mulch, slope erosion control, or may be uniformly spread over selected areas as directed by the Engineer / Architect. Wood chips not designated for use under other sections shall be spread over the designated areas in layers not to exceed 75mm (3 inches) loose thickness. Diseased trees shall be buried or disposed off as directed by the Engineer / Architect.
- 3.5.10** All merchantable timber in the cleaning area that has not been removed from the right of way prior to the beginning of construction shall become the property of the Owner, unless otherwise provided.
- 3.5.11** Low hanging branches and unsound or unsightly branches on trees or shrubs designated to remain shall be trimmed as directed. Branches of trees extending over the road bed shall be trimmed to give a clear height of 6m (20 ft) above the road bed surface. All trimming shall be done by skilled workmen and in accordance with good tree surgery practices.
- 3.5.12** Timber cut inside the area staked for cleaning shall be felled within the area to be cleared.

**3.5.13** Individual trees or stumps designated by the Engineer/Architect for removal and located in areas other than those established for clearing, grubbing and roadside clean-up shall be removed and disposed off as specified herein except trees removed shall be cut as nearly flush with the ground as practicable without removing stumps.

**3.7 DUST CONTROL**

The amount of dust resulting from the salvage and removal operations shall be controlled to prevent the spread of dust occupied portions of the building and to avoid creation of a nuisance in the surrounding area.

**3.8 USE OF EXPLOSIVES**

The use of explosives will not be permitted.

**3.9 BURNING**

The use of burning at the Project Site for the disposal of refuse and debris will not be permitted.

**3.10 DEMOLITION**

All obstruction shall be demolished as specified by the Engineer. All existing structures which need to be demolished and visible through ocular inspection shall be conducted at the expense of the Contractor following safe procedures approved by the Engineer/Architect/ Underground structures which are pre-determined through available plans or record shall likewise be conducted at the expense of the Contractor.

**3.10.1** Remove existing above-and-below-grade improvements as indicated and as necessary to facilitate new construction.

**3.10.2** All concrete pavement, base course, sidewalks, curbs, gutters, etc., designated for removal shall be:

- A. Broken into pieces and used for riprap on the Project Site, or;
- B. Broken into pieces, the size of which shall not exceed 300mm (12 inches) in any dimension and stockpiled at designated locations on the Project Site for use by the Proponent or otherwise disposed off as directed.

**3.11 DISPOSAL OF EXCESS MATERIALS**

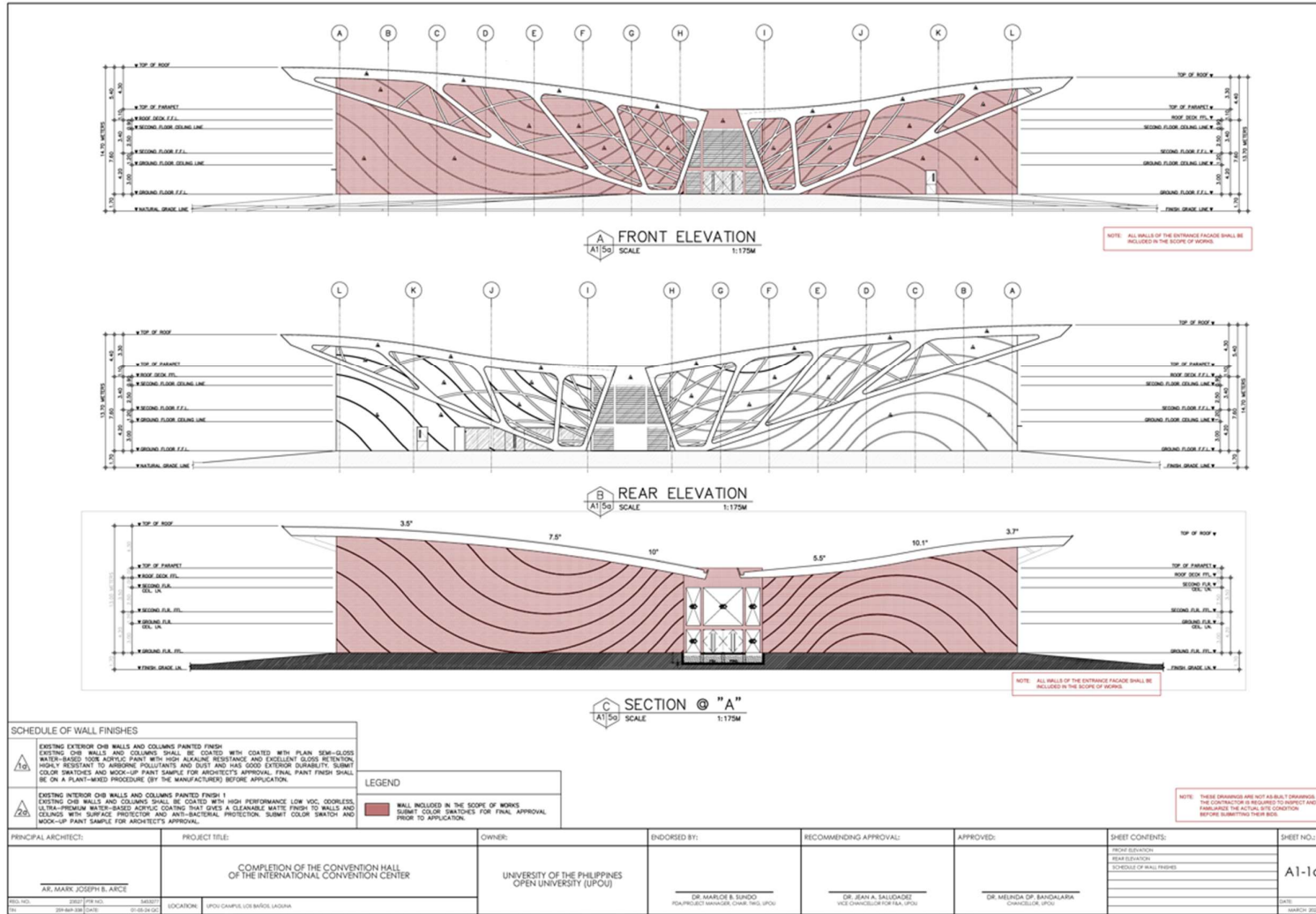
**3.11.1** Any excess material resulting from the finish grading and demolition operations, not required or unsuitable for fill or backfill shall be disposed of by the Contractor at his expense.

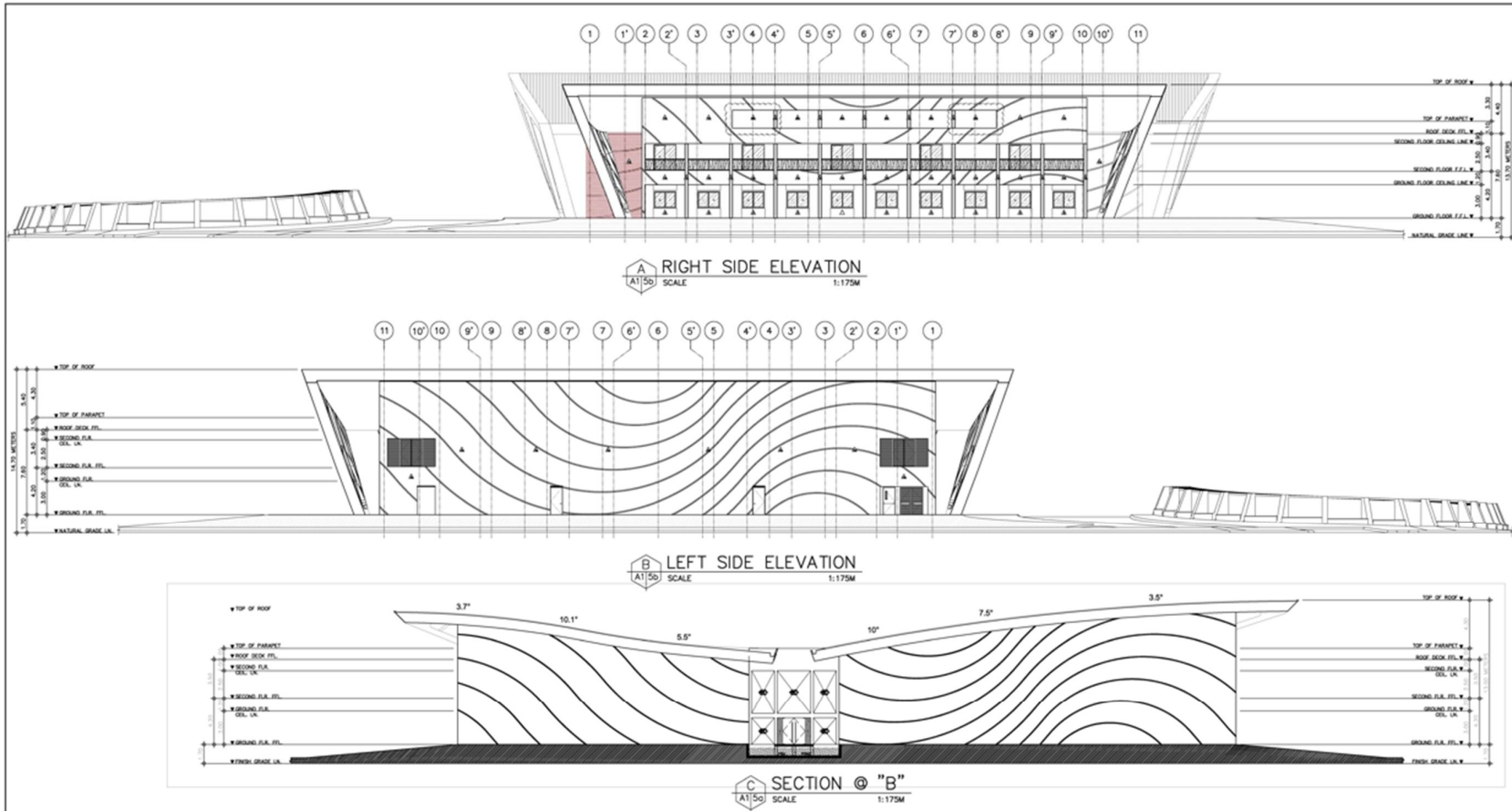
**3.11.2** Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.

**3.11.3** Burning waste material on site is not permitted.

*END OF SECTION*

# Section VII. Drawings





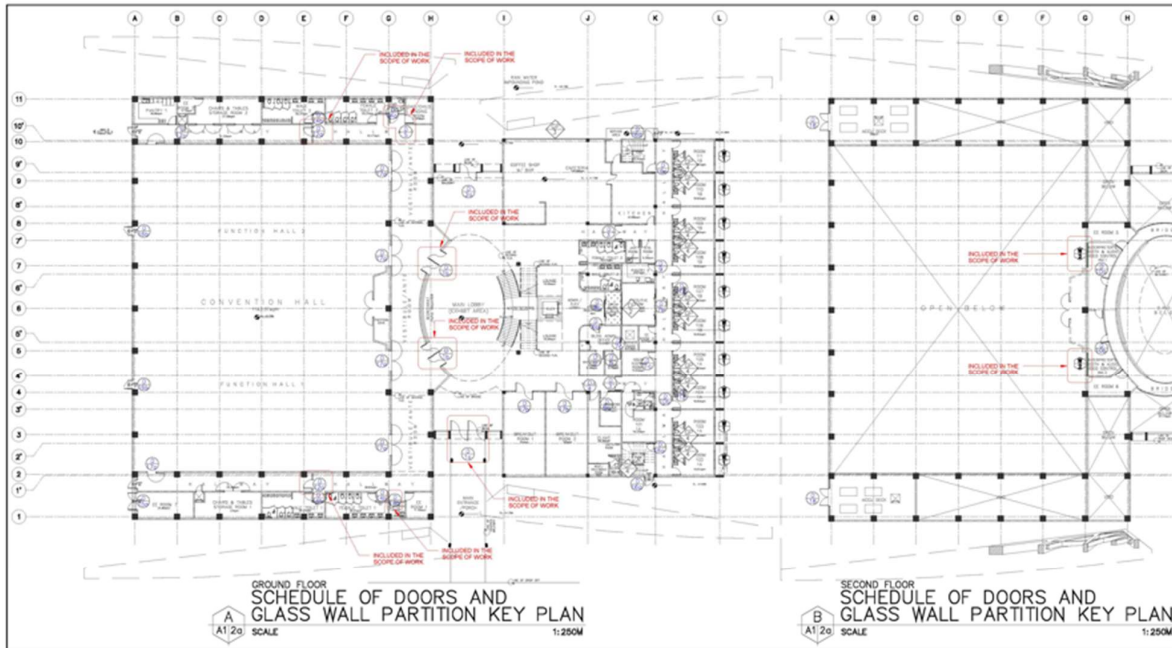
**SCHEDULE OF WALL FINISHES**

<p>EXISTING EXTERIOR CHB WALLS AND COLUMNS PAINTED FINISH</p> <p>EXISTING CHB WALLS AND COLUMNS SHALL BE COATED WITH COATED WITH PLAIN SEMI-GLOSS WATER-BASED 100% ACRYLIC PAINT WITH HIGH ALKALINE RESISTANCE AND EXCELLENT GLOSS RETENTION. HIGHLY RESISTANT TO AIRBORNE POLLUTANTS AND DUST AND HAS GOOD EXTERIOR DURABILITY. SUBMIT COLOR SWATCHES AND MOCK-UP PAINT SAMPLE FOR ARCHITECT'S APPROVAL. FINAL PAINT FINISH SHALL BE ON A PLANT-MIXED PROCEDURE (BY THE MANUFACTURER) BEFORE APPLICATION.</p>	<p><b>LEGEND</b></p> <p>WALL INCLUDED IN THE SCOPE OF WORKS SUBMIT COLOR SWATCHES FOR FINAL APPROVAL PRIOR TO APPLICATION.</p>
<p>EXISTING INTERIOR CHB WALLS AND COLUMNS PAINTED FINISH 1</p> <p>EXISTING CHB WALLS AND COLUMNS SHALL BE COATED WITH HIGH PERFORMANCE LOW VOC, ODORLESS, ULTRA-PREMIUM WATER-BASED ACRYLIC COATING THAT GIVES A CLEANABLE MATTE FINISH TO WALLS AND CEILING WITH SURFACE PROTECTOR AND ANTI-BACTERIAL PROTECTION. SUBMIT COLOR SWATCH AND MOCK-UP PAINT SAMPLE FOR ARCHITECT'S APPROVAL.</p>	

NOTE: THESE DRAWINGS ARE NOT AS-BUILT DRAWINGS. THE CONTRACTOR IS REQUIRED TO INSPECT AND FAMILIARIZE THE ACTUAL SITE CONDITION BEFORE SUBMITTING THEIR BIDS.

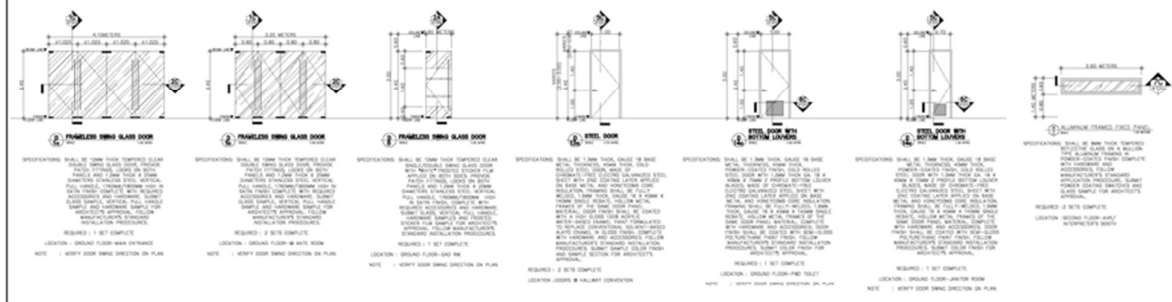
PRINCIPAL ARCHITECT:	PROJECT TITLE:	OWNER:	ENDORSED BY:	RECOMMENDING APPROVAL:	APPROVED:	SHEET CONTENTS:	SHEET NO.:
AR, MARK JOSEPH B. ARCE	COMPLETION OF THE CONVENTION HALL OF THE INTERNATIONAL CONVENTION CENTER	UNIVERSITY OF THE PHILIPPINES OPEN UNIVERSITY (UPOU)	DR. MARCOS B. SINDO PROJECT MANAGER, CHAIR, TMOU	DR. JEAN A. SALLADAZ VICE CHANCELLOR FOR IEA, UPOU	DR. MELINDA DP. BANDALARA CHANCELLOR, UPOU	RIGHT SIDE ELEVATION LEFT SIDE ELEVATION SCHEDULE OF WALL FINISHES	A1-1b
PROJ. NO. 2017-010 DATE 02-05-2018	LOCATION UPOU CAMPUS, LOS BAÑOS, LAOAG						DATE: _____ DRAWN BY: _____

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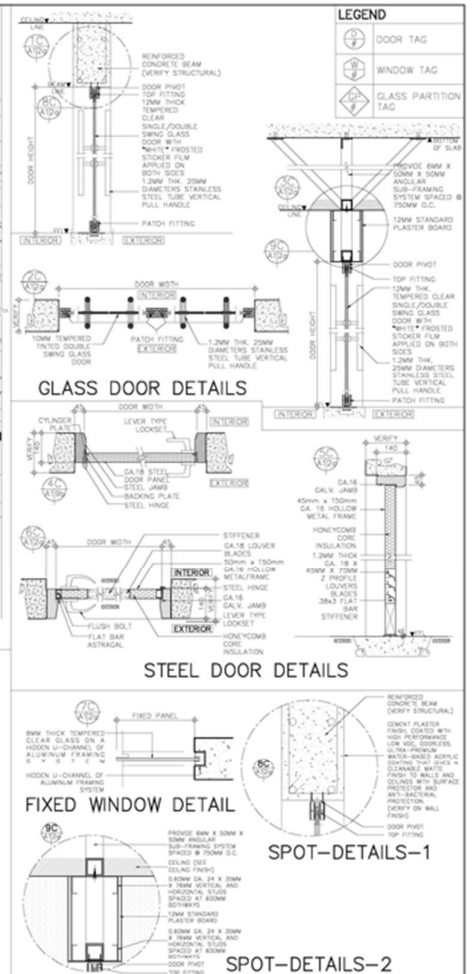


**GROUND FLOOR SCHEDULE OF DOORS AND GLASS WALL PARTITION KEY PLAN**  
 SCALE: A1/20 1:2500

**SECOND FLOOR SCHEDULE OF DOORS AND GLASS WALL PARTITION KEY PLAN**  
 SCALE: B1/20 1:2500



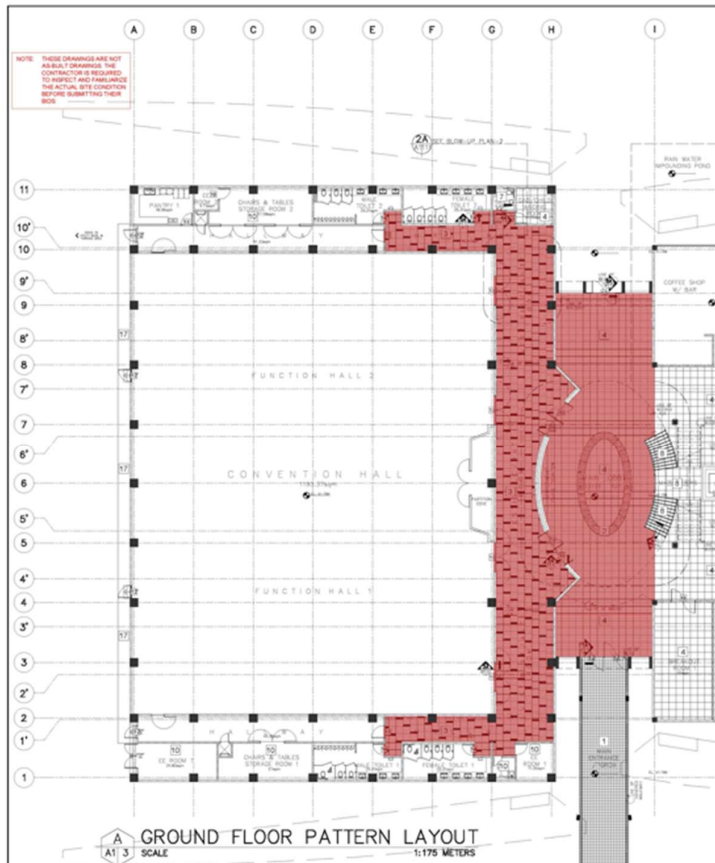
**DOOR SCHEDULES AS SHOWN**



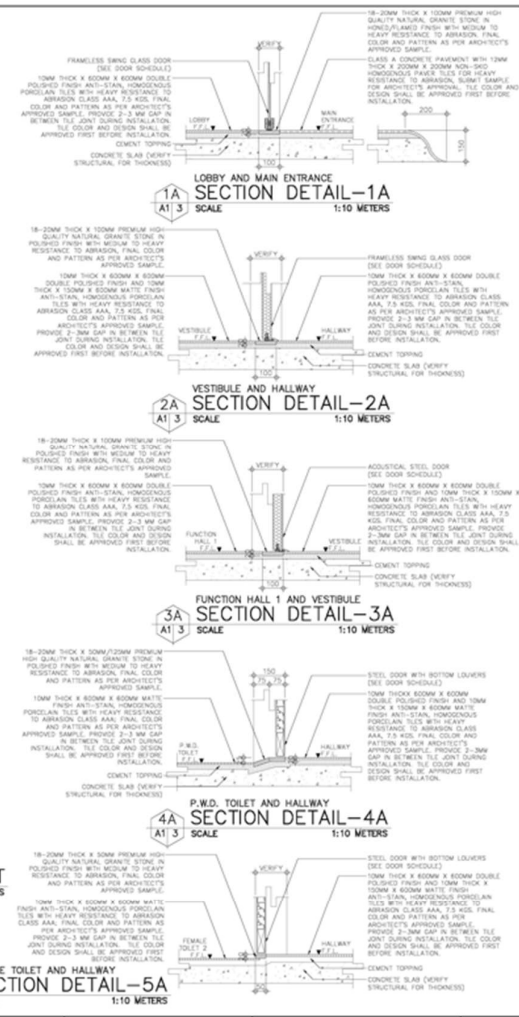
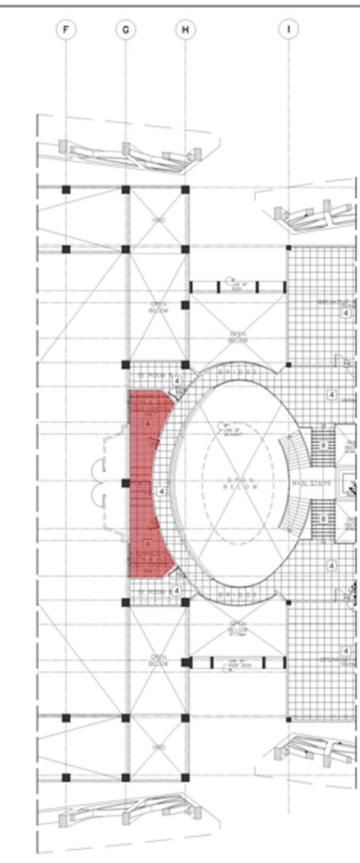
**NOTE: DIMENSION, FABRICATION, AND INSTALLATION OF DOORS SHOULD BE BASED ON THE ACTUAL MEASUREMENTS AND CONDITIONS OF THE SITE. VERIFY ARCHITECTURAL DETAILS AND MANUFACTURER'S STANDARD DETAILS, SUBMIT SHOP DRAWINGS & SAMPLES FOR ARCHITECT'S APPROVAL.**

PRINCIPAL ARCHITECT: <b>DR. MARK JOSEPH B. ARCE</b>	PROJECT TITLE: <b>COMPLETION OF THE CONVENTION HALL OF THE INTERNATIONAL CONVENTION CENTER</b>	OWNER: <b>UNIVERSITY OF THE PHILIPPINES OPEN UNIVERSITY (UPOU)</b>	ENDORSED BY: <b>DR. MARLOE B. SINDO</b> PROJECT MANAGER, CIVIL, TRNG, UPOU	RECOMMENDING APPROVAL: <b>DR. JEAN A. SALUADAO</b> VICE CHAIRMAN FOR FA, UPOU	APPROVED: <b>DR. MELINDA OP. BANDALARA</b> CHAIRMAN UPOU	SHEET CONTENTS: 001. THE SCHEDULE OF DOORS, WINDOWS AND WINDOW PARTITION 002. THE SCHEDULE OF DOORS, WINDOWS AND WINDOW PARTITION 003. THE SCHEDULE OF DOORS, WINDOWS AND WINDOW PARTITION 004. THE SCHEDULE OF DOORS, WINDOWS AND WINDOW PARTITION	SHEET NO.: <b>A1-2a</b>
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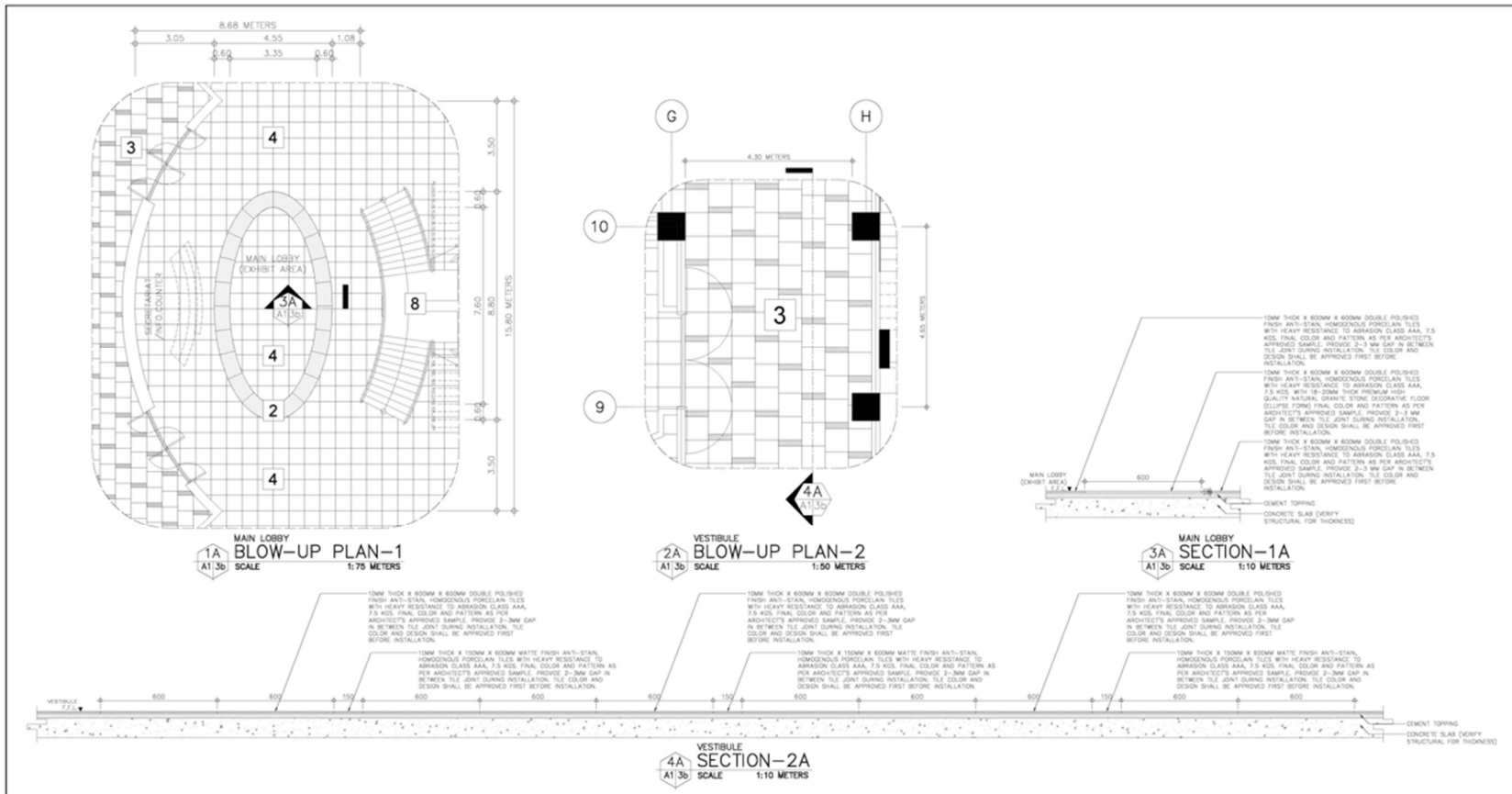




SCHEDULE OF FLOOR FINISHES	
2	<b>MAIN LOBBY FLOORING</b> SHALL BE 10MM THICK X 600MM X 600MM DOUBLE POLISHED FINISH ANTI-STAIN, HOMOGENEOUS PORCELAIN TILES WITH HEAVY RESISTANCE TO ABRASION CLASS AAA, 7.5 KGS. FINAL COLOR AND PATTERN AS PER ARCHITECT'S APPROVED SAMPLE. PROVIDE 2-3 MM GAP IN BETWEEN TILE JOINT DURING INSTALLATION. TILE COLOR AND DESIGN SHALL BE APPROVED FIRST BEFORE INSTALLATION.
3	<b>CONVENTION HALL VESTIBULE/ANTE ROOM MATTE AND POLISHED PORCELAIN TILES</b> SHALL BE 10MM THICK X 600MM X 600MM DOUBLE POLISHED FINISH ANTI-STAIN, HOMOGENEOUS PORCELAIN TILES WITH HEAVY RESISTANCE TO ABRASION CLASS AAA, 7.5 KGS. FINAL COLOR AND PATTERN AS PER ARCHITECT'S APPROVED SAMPLE. PROVIDE 2-3 MM GAP IN BETWEEN TILE JOINT DURING INSTALLATION. TILE COLOR AND DESIGN SHALL BE APPROVED FIRST BEFORE INSTALLATION.
4	<b>GENERAL FLOORING, POLISHED FINISH HOMOGENEOUS PORCELAIN TILES</b> SHALL BE 10MM THICK X 600MM X 600MM DOUBLE POLISHED FINISH ANTI-STAIN, HOMOGENEOUS PORCELAIN TILES WITH HEAVY RESISTANCE TO ABRASION CLASS AAA, 7.5 KGS. FINAL COLOR AND PATTERN AS PER ARCHITECT'S APPROVED SAMPLE. PROVIDE 2-3 MM GAP IN BETWEEN TILE JOINT DURING INSTALLATION. TILE COLOR AND DESIGN SHALL BE APPROVED FIRST BEFORE INSTALLATION.
13	<b>NATURAL GRANITE STONE NOSING 2. INTERIOR FLOOR TERMINATION</b> SHALL BE 18-20MM THICK X 100MM PREMIUM HIGH-QUALITY NATURAL GRANITE STONE IN POLISHED FINISH WITH MEDIUM TO HEAVY RESISTANCE TO ABRASION, FINAL COLOR AND PATTERN AS PER ARCHITECT'S APPROVED SAMPLE.
14	<b>NATURAL GRANITE STONE NOSING 3. INTERIOR FLOOR TERMINATION AND TOILET ENTRY FLOOR NOSING</b> SHALL BE 18-20MM THICK X 100MM PREMIUM HIGH-QUALITY NATURAL GRANITE STONE IN POLISHED FINISH WITH MEDIUM TO HEAVY RESISTANCE TO ABRASION, FINAL COLOR AND PATTERN AS PER ARCHITECT'S APPROVED SAMPLE. PROVIDE 2-3MM GAP IN BETWEEN TILE JOINT DURING INSTALLATION.



PRINCIPAL ARCHITECT:	PROJECT TITLE:	OWNER:	ENDORSED BY:	RECOMMENDING APPROVAL:	APPROVED:	SHEET CONTENTS:	SHEET NO.:
AR. MARK JOSEPH B. ARCE	COMPLETION OF THE CONVENTION HALL OF THE INTERNATIONAL CONVENTION CENTER	UNIVERSITY OF THE PHILIPPINES OPEN UNIVERSITY (UPOU)	DR. MARLON B. SINDO PROJECT MANAGER, CIVIL ENG. UPOU	DR. JEAN A. SALCEDO VICE CHAIRMAN FOR IAA, UPOU	DR. MELINDA D. BANDALARA CONSULTANT, IAA	GROUND FLOOR PATTERN LAYOUT SCHEDULE OF FLOOR FINISHES SECTION FINISHES	A1-3a
REG. NO. 23877 P/R NCL ISSUED DATE 22-08-2018 (DATE)	LOCATION: UPVH CAMPUS, LOS BAÑOS, LAGUNA						DATE: MAR 2018



**A MAIN LOBBY & VESTIBULE FLOOR PATTERN AND SECTION DETAILS**  
AS SHOWN

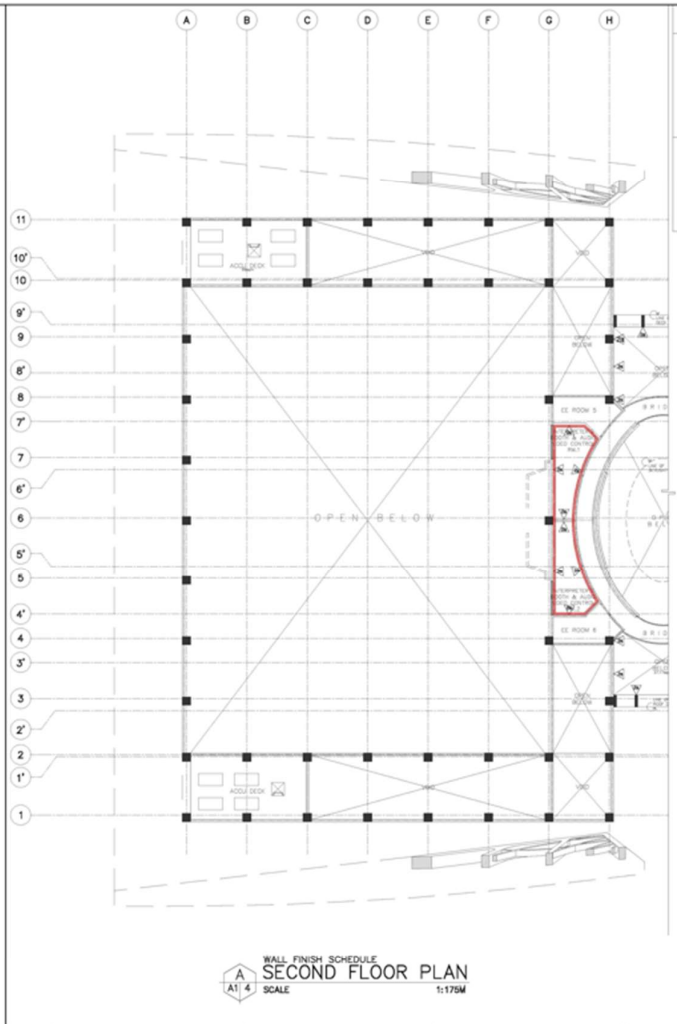
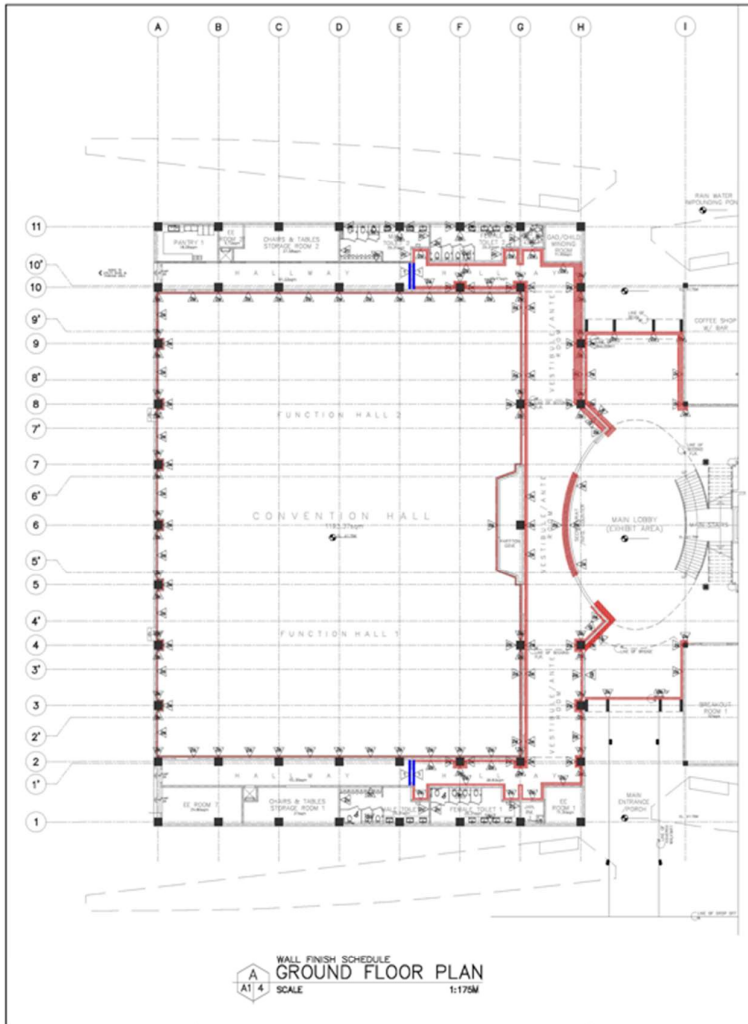
**NOTE:**  
FINAL COLOR AND PATTERN AS PER ARCHITECT'S APPROVED SAMPLE. PROVIDE 2-3MM GAP IN BETWEEN TILE JOINT DURING INSTALLATION.

**SCHEDULE OF FLOOR FINISHES**

<b>2</b>	SHALL BE 10MM THICK X 600MM X 600MM DOUBLE POLISHED FINISH ANTI-STAIN, HOMOGENEOUS PORCELAIN TILES WITH HEAVY RESISTANCE TO ABRASION CLASS AAA, 7.5 KGS WITH 18-20MM THICK PREMIUM HIGH QUALITY NATURAL GRANITE STONE DECORATIVE FLOOR (ELLIPSE FORM) FINAL COLOR AND PATTERN AS PER ARCHITECT'S APPROVED SAMPLE. PROVIDE 2-3MM GAP IN BETWEEN TILE JOINT DURING INSTALLATION. TILE COLOR AND DESIGN SHALL BE APPROVED FIRST BEFORE INSTALLATION.	<b>8</b>	SHALL BE 18-20MM THICK PREMIUM HIGH QUALITY NATURAL GRANITE STONE IN POLISHED FINISH WITH HEAVY RESISTANCE TO ABRASION, PROVIDE 18-20MM THICK X 50MM PREMIUM HIGH QUALITY HONED FINISH GRANITE NOSING WITH MEDIUM TO HEAVY RESISTANCE TO ABRASION. FINAL COLOR AND PATTERN AS PER ARCHITECT'S APPROVED SAMPLE. PROVIDE 2-3MM GAP IN BETWEEN TILE JOINT DURING INSTALLATION. TILE COLOR AND DESIGN SHALL BE APPROVED FIRST BEFORE INSTALLATION.
<b>3</b>	SHALL BE 10MM THICK X 600MM X 600MM DOUBLE POLISHED FINISH AND 10MM THICK X 100MM X 600MM MATTE FINISH ANTI-STAIN, HOMOGENEOUS PORCELAIN TILES WITH HEAVY RESISTANCE TO ABRASION CLASS AAA, 7.5 KGS. FINAL COLOR AND PATTERN AS PER ARCHITECT'S APPROVED SAMPLE. PROVIDE 2-3MM GAP IN BETWEEN TILE JOINT DURING INSTALLATION. TILE COLOR AND DESIGN SHALL BE APPROVED FIRST BEFORE INSTALLATION.	<b>13</b>	SHALL BE 18-20MM THICK X 300MM/200MM PREMIUM HIGH QUALITY NATURAL GRANITE STONE IN POLISHED FINISH WITH MEDIUM TO HEAVY RESISTANCE TO ABRASION. FINAL COLOR AND PATTERN AS PER ARCHITECT'S APPROVED SAMPLE.
<b>4</b>	SHALL BE 10MM THICK X 600MM X 600MM DOUBLE POLISHED FINISH ANTI-STAIN, HOMOGENEOUS PORCELAIN TILES WITH HEAVY RESISTANCE TO ABRASION CLASS AAA, 7.5 KGS. FINAL COLOR AND PATTERN AS PER ARCHITECT'S APPROVED SAMPLE. PROVIDE 2-3MM GAP IN BETWEEN TILE JOINT DURING INSTALLATION. TILE COLOR AND DESIGN SHALL BE APPROVED FIRST BEFORE INSTALLATION.		

<b>PRINCIPAL ARCHITECT:</b> AR. MAIX JOSEPH B. ARCE	<b>PROJECT TITLE:</b> COMPLETION OF THE CONVENTION HALL OF THE INTERNATIONAL CONVENTION CENTER	<b>OWNER:</b> UNIVERSITY OF THE PHILIPPINES OPEN UNIVERSITY (UPOU)	<b>ENDORSED BY:</b> DR. MARLOE B. SUNOD PROFESSOR/PROJECT MANAGER, UPOU	<b>RECOMMENDING APPROVAL:</b> DR. JEAN A. SALLUDADE VICE CHANCELLOR FOR FA, UPOU	<b>APPROVED:</b> DR. MELINDA DP. BANDALARA CONSTRUCTION UPOU	<b>SHEET CONTENTS:</b> -AMBULATORY & VESTIBULE FLOOR PATTERN -AND SECTION DETAILS -BLOWUP PLAN 1 -BLOWUP PLAN 2 -SECTION 1A -SECTION 2A -SCHEDULE OF FLOOR FINISHES	<b>SHEET NO.:</b> A1-3b
<b>PROJ. NO.:</b> 2007/PR/001	<b>DATE:</b> 05/04/24	<b>LOCATION:</b> UPON CAMPUS, LOS BARROS, LAGUNA					<b>DRAWN:</b> MARCH 2024

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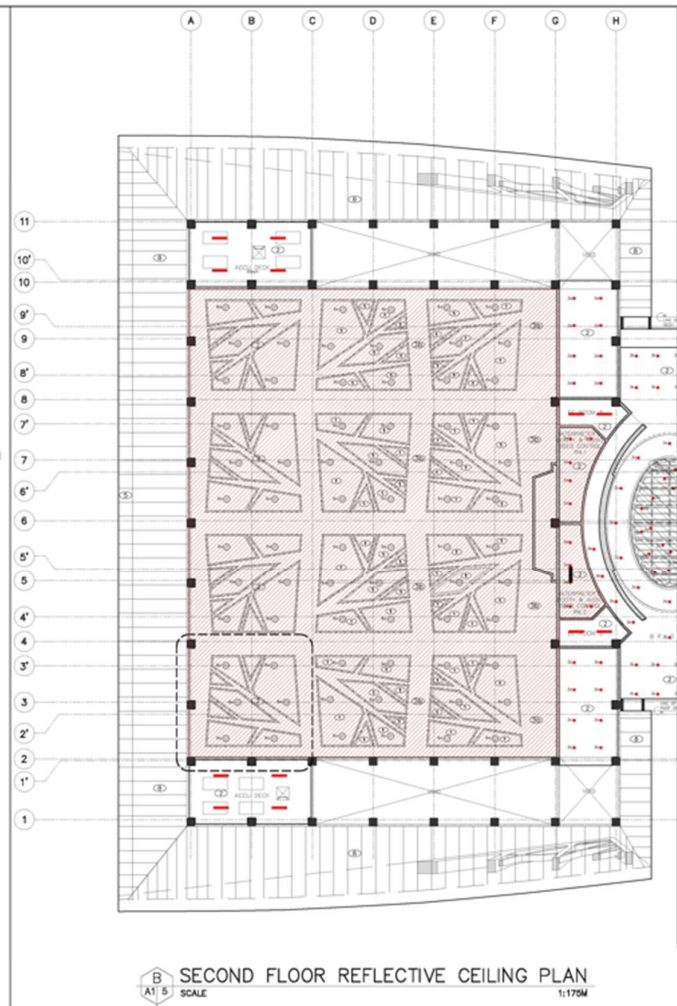
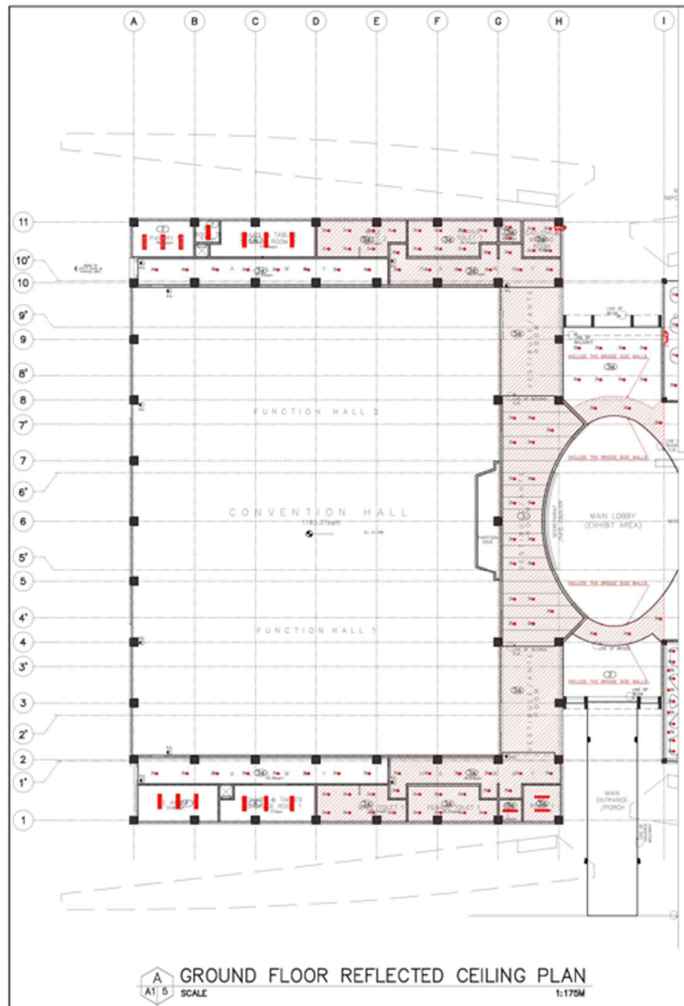
**SCHEDULE OF WALL FINISHES**

**INTERIOR WALL FINISH 1: CONCRETE HOLLOW BLOCKS**  
 SHALL BE 100MM THICK CHS INTERIOR WALL WITH 20MM THICK SMOOTH TROWEL CEMENT PLASTER FINISH COATED WITH HIGH PERFORMANCE LOW VOC COORLESS, ULTRA-PREMIUM WATER-BASED ACRYLIC COATING THAT GIVES A CLEANABLE MATTE FINISH TO WALLS AND CEILING WITH SURFACE PROTECTION AND ANTI-BACTERIAL PROTECTION. SUBMIT COLOR SWATCH AND MOCK-UP PAINT SAMPLE FOR ARCHITECT'S APPROVAL.

**EXISTING INTERIOR CHS WALLS AND COLUMNS PAINTED FINISH 1**  
 EXISTING CHS WALLS AND COLUMNS SHALL BE COATED WITH HIGH PERFORMANCE LOW VOC COORLESS, ULTRA-PREMIUM WATER-BASED ACRYLIC COATING THAT GIVES A CLEANABLE MATTE FINISH TO WALLS AND CEILING WITH SURFACE PROTECTION AND ANTI-BACTERIAL PROTECTION. SUBMIT COLOR SWATCH AND MOCK-UP PAINT SAMPLE FOR ARCHITECT'S APPROVAL.

PRINCIPAL ARCHITECT: <b>MR. MARK JOSEPH B. ARCE</b>	PROJECT TITLE: <b>COMPLETION OF THE CONVENTION HALL OF THE INTERNATIONAL CONVENTION CENTER</b>	OWNER: <b>UNIVERSITY OF THE PHILIPPINES OPEN UNIVERSITY (UPOU)</b>	ENDORSED BY: <b>DR. MARLON B. SINDO POA PROJECT MANAGER, CHAIR, TAG, UPOU</b>	RECOMMENDING APPROVAL: <b>DR. JEAN A. SALUDAZEZ VICE CHANCELLOR FOR TAA, UPOU</b>	APPROVED: <b>DR. MELINDA OP. SANDALARA CHANCELLOR, UPOU</b>	SHEET CONTENTS: GROUND FLOOR WALL FINISH SCHEDULE SCHEDULE OF WALL FINISH	SHEET NO.: <b>A1-4</b>
REV. NO. 0001 / REV. DATE 04/20/2024	LOCATION: UPOU CAMPUS, LOS BARRIOS, LASUNA						DATE: MAR 20 2024





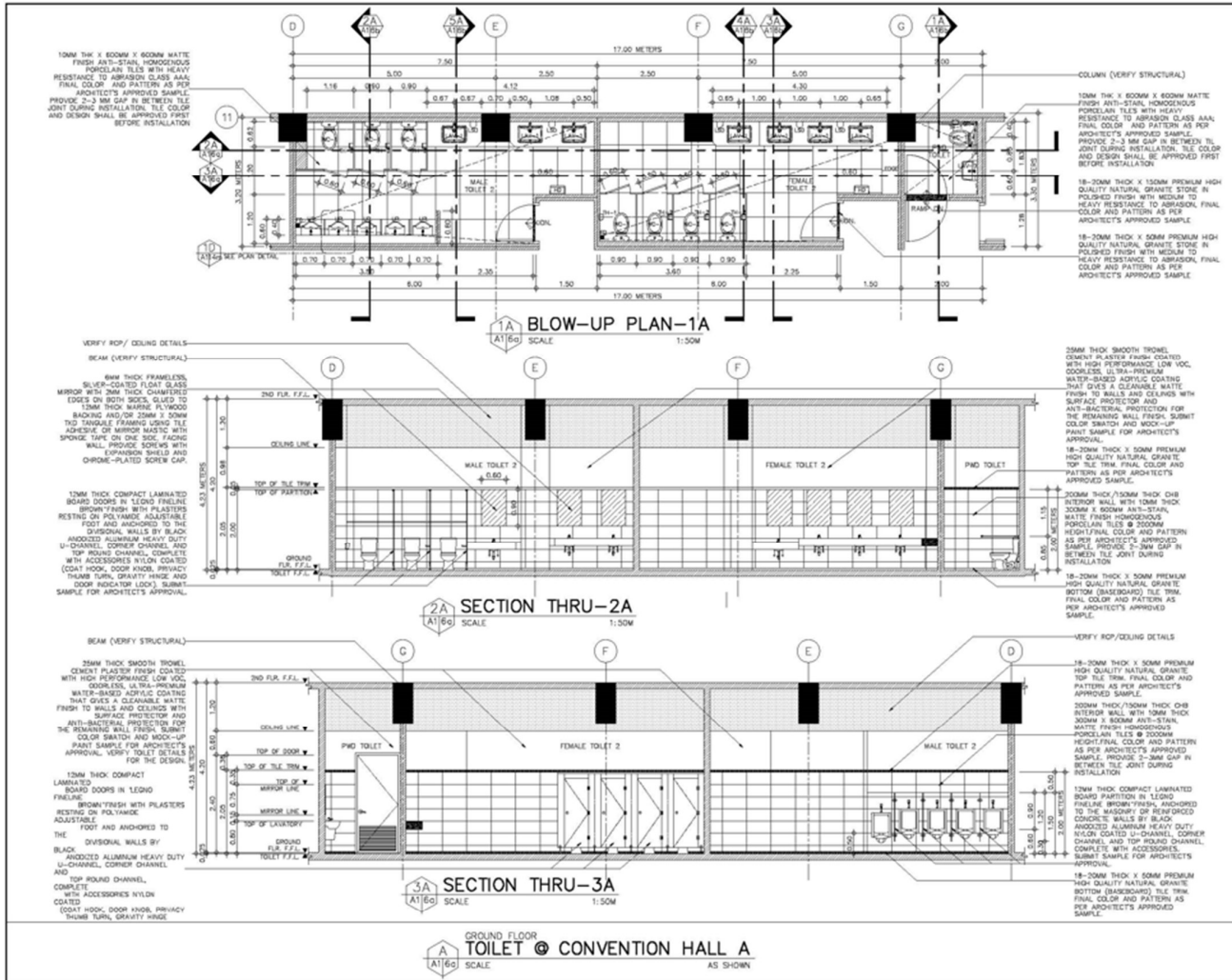
**CEILING FINISHES**

**(30) EXISTING GYPSONUM BOARD CEILING PAINTED FINISH 1**  
 UNIFORM AND SMOOTH PLASTERBOARD/GYPSONUM BOARD INSTALLATION FROM PROVIDER. CONTRACTOR WILL BE SUBJECT TO RECTIFICATION FROM TO FINISHING.

**(30) EXISTING GYPSONUM BOARD CEILING PAINTED FINISH 2**  
 UNIFORM AND SMOOTH PLASTERBOARD/GYPSONUM BOARD INSTALLATION FROM PROVIDER. CONTRACTOR WILL BE SUBJECT TO RECTIFICATION FROM TO FINISHING.

**NOTES**  
 ALL LIGHTS AND LIGHTING FIXTURES SHALL BE CE, RPHS AND ALL APPROVED BRAND. SUBMIT CERTIFICATIONS FOR ARCHITECT'S APPROVAL. SEE TECHNICAL SPECIFICATIONS.  
 -SECTION 35000 LUMINAIRES AND ACCESSORIES FOR FURTHER SPECIFICATIONS.

PRINCIPAL ARCHITECT: AR. MARK JOSEPH B. ARCE	PROJECT TITLE: COMPLETION OF THE CONVENTION HALL OF THE INTERNATIONAL CONVENTION CENTER	OWNER: UNIVERSITY OF THE PHILIPPINES OPEN UNIVERSITY (UPOU)	ENDORSED BY: DR. MARILDE B. SUNDI PLANNING MANAGER, CHME, UPOU	RECOMMENDING APPROVAL: DR. JEAN A. SALUDADZ VICE CHANCELLOR FOR I&A, UPOU	APPROVED: DR. MELINDA OP. BANDALARA CHANCELLOR, UPOU	SHEET CONTENTS: GROUND FLOOR REFLECTIVE CEILING PLAN SECOND FLOOR REFLECTIVE CEILING PLAN	SHEET NO.: A1-5
REG. NO. 2207 PR. REG. NO. 145207 DATE 09-04-2018	LOCATION: UPV-CAMPUS, LOS BAKOS, LAGUNA						DATE: MARCH 2024



**SCOPE OF WORK:**  
**SPECIFICATIONS:**

8. AROUND MIRROR MALE AND FEMALE TOILETS SHALL BE 25MM THK FRAMELESS SILVER-COATED FLOAT GLASS MIRROR WITH 2MM THICK CHAMFERED EDGES ON BOTH SIDES, GLED TO 25MM THICK MIRROR PLUGGED ENDING AND/OR 25MM X 25MM THK SQUARE FRAMING USING TILE ADHESIVE OF MIRROR BOSTS WITH BRIDGE TIPS ON ONE SIDE. FACING WALL PROVIDE SCREWS WITH EXPANSION SHIELD AND TOP ROUND CHANNEL, COMPLETE WITH ACCESSORIES NYLON COATED (COAT HOOK, DOOR KNOB, PRIVACY THUMB TURN, GRABTY HINSE AND DOOR INDICATOR LOCK). SUBMIT SAMPLE FOR ARCHITECT'S APPROVAL.

15. TOILET CUBICLE DOOR WITH PARTITION SHALL BE 12MM THICK COMPACT LAMINATED BOARD DOORS IN LEGNO FINLINE BROWN/TAN WITH PLASTERERS RESTING ON POLYIMANE ADJUSTABLE FOOT AND ANCHORED TO THE DIVISIONAL WALLS BY BLACK ANODIZED ALUMINUM HEAVY DUTY U-CHANNEL, CORNER CHANNEL AND TOP ROUND CHANNEL, COMPLETE WITH ACCESSORIES NYLON COATED (COAT HOOK, DOOR KNOB, PRIVACY THUMB TURN, GRABTY HINSE AND DOOR INDICATOR LOCK). SUBMIT SAMPLE FOR ARCHITECT'S APPROVAL.

17. LAMINA PARTITIONS SHALL BE 12MM THICK COMPACT LAMINATED BOARD PARTITION IN LEGNO FINLINE BROWN/TAN, ANCHORED TO THE MASONRY OF REINFORCED CONCRETE WALLS BY BLACK ANODIZED ALUMINUM HEAVY DUTY NYLON COATED U-CHANNEL, CORNER CHANNEL AND TOP ROUND CHANNEL, COMPLETE WITH ACCESSORIES NYLON COATED (COAT HOOK, DOOR KNOB, PRIVACY THUMB TURN, GRABTY HINSE AND DOOR INDICATOR LOCK). SUBMIT SAMPLE FOR ARCHITECT'S APPROVAL.

18. TOILET CUBICLE LEGGE SHALL BE 200MM WIDE, 12MM THICK COMPACT LAMINATED BOARD LEGGE IN LEGNO FINLINE BROWN/TAN COMPLETE WITH 25MM U-CHANNEL SUPPORT AND ACCESSORIES. SUBMIT SAMPLE FOR ARCHITECT'S APPROVAL.

NOTES: MOUNTING STARTS FROM TOILET FINISH FLOOR LINE FLOOR GRAB WAY VARY DEPENDING ON SANITARY ENGINEERING LAYOUT.

25MM THICK SMOOTH TRIMMEL CEMENT PLASTER FINISH COATED WITH HIGH PERFORMANCE LOW VOC, COLORLESS, ULTRA-PREMIUM WATER-BASED ACRYLIC COATING THAT GIVES A CLEANABLE MATTE FINISH TO WALLS AND CEILING WITH SURFACE PROTECTOR AND ANTI-BACTERIAL PROTECTION FOR THE REMAINING WALL FINISH. SUBMIT COLOR SWATCH AND MOCK-UP PAINT SAMPLE FOR ARCHITECT'S APPROVAL.

18-30MM THICK X 30MM PREMIUM HIGH QUALITY NATURAL GRANITE TOP TILE. FINAL COLOR AND PATTERN AS PER ARCHITECT'S APPROVED SAMPLE.

300MM THICK / 150MM THICK CHB INTERIOR WALL WITH 10MM THICK 300MM X 800MM ANTI-STAIN, MATTE FINISH HOMOGENEOUS PORCELAIN TILES @ 3000MM HEIGHT. FINAL COLOR AND PATTERN AS PER ARCHITECT'S APPROVED SAMPLE. PROVIDE 3-3MM GAP IN BETWEEN TILE JOINT DURING INSTALLATION.

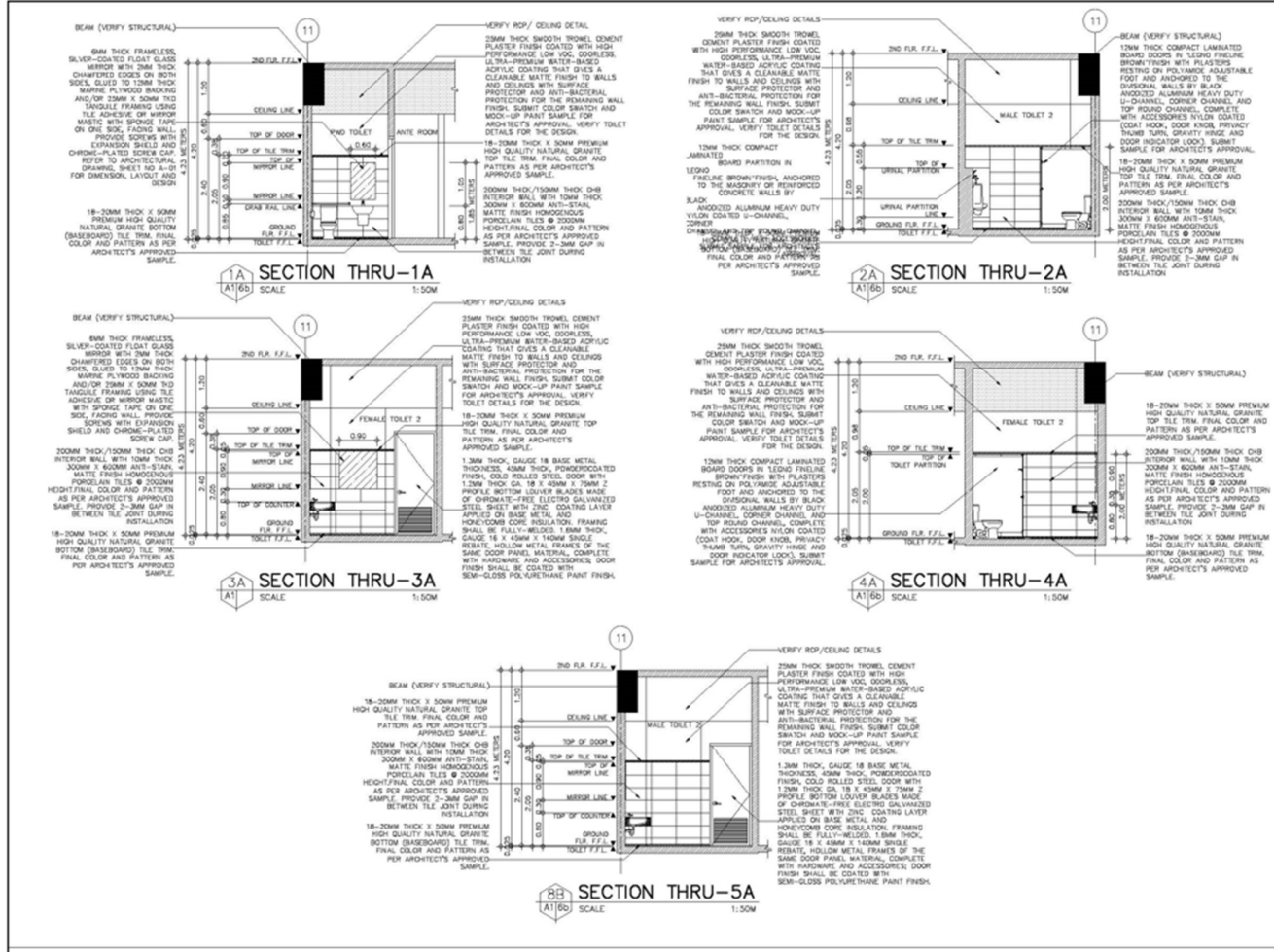
18-30MM THICK X 30MM PREMIUM HIGH QUALITY NATURAL GRANITE TOP TILE. FINAL COLOR AND PATTERN AS PER ARCHITECT'S APPROVED SAMPLE.

18-30MM THICK X 30MM PREMIUM HIGH QUALITY NATURAL GRANITE BOTTOM (BASEBOARD) TILE TRIM. FINAL COLOR AND PATTERN AS PER ARCHITECT'S APPROVED SAMPLE.

12MM THICK COMPACT LAMINATED BOARD PARTITION IN LEGNO FINLINE BROWN/TAN, ANCHORED TO THE MASONRY OF REINFORCED CONCRETE WALLS BY BLACK ANODIZED ALUMINUM HEAVY DUTY NYLON COATED U-CHANNEL, CORNER CHANNEL AND TOP ROUND CHANNEL, COMPLETE WITH ACCESSORIES NYLON COATED (COAT HOOK, DOOR KNOB, PRIVACY THUMB TURN, GRABTY HINSE AND DOOR INDICATOR LOCK). SUBMIT SAMPLE FOR ARCHITECT'S APPROVAL.

18-30MM THICK X 30MM PREMIUM HIGH QUALITY NATURAL GRANITE BOTTOM (BASEBOARD) TILE TRIM. FINAL COLOR AND PATTERN AS PER ARCHITECT'S APPROVED SAMPLE.

PRINCIPAL ARCHITECT:	PROJECT TITLE:	OWNER:	ENDORSED BY:	RECOMMENDING APPROVAL:	APPROVED:	SHEET CONTENTS:	SHEET NO.:
AR. MARK JOSEPH B. ARCE	COMPLETION OF THE CONVENTION HALL OF THE INTERNATIONAL CONVENTION CENTER	UNIVERSITY OF THE PHILIPPINES OPEN UNIVERSITY (UPOU)	DR. MARLOE B. SUNDO MANPOWER MANAGER, CHAIR, TAGO UPOU	DR. JEAN A. SALLADAZ VICE CHAIRMAN FOR TAGO UPOU	DR. MELINDA CP. BANDALARA CHAIRMAN, UPOU	CONVENTION HALL TOILET A DETAIL PLAN CONVENTION HALL TOILET A DETAIL SECTION	A1-6a
REV. NO. 0007 PPR NO. 040077 DATE 09-04-2024	LOCATION: IPON CAMPUS, LOS BAÑOS, LAGUNA						DATE: MARCH 2024



**SCOPE OF WORK:**

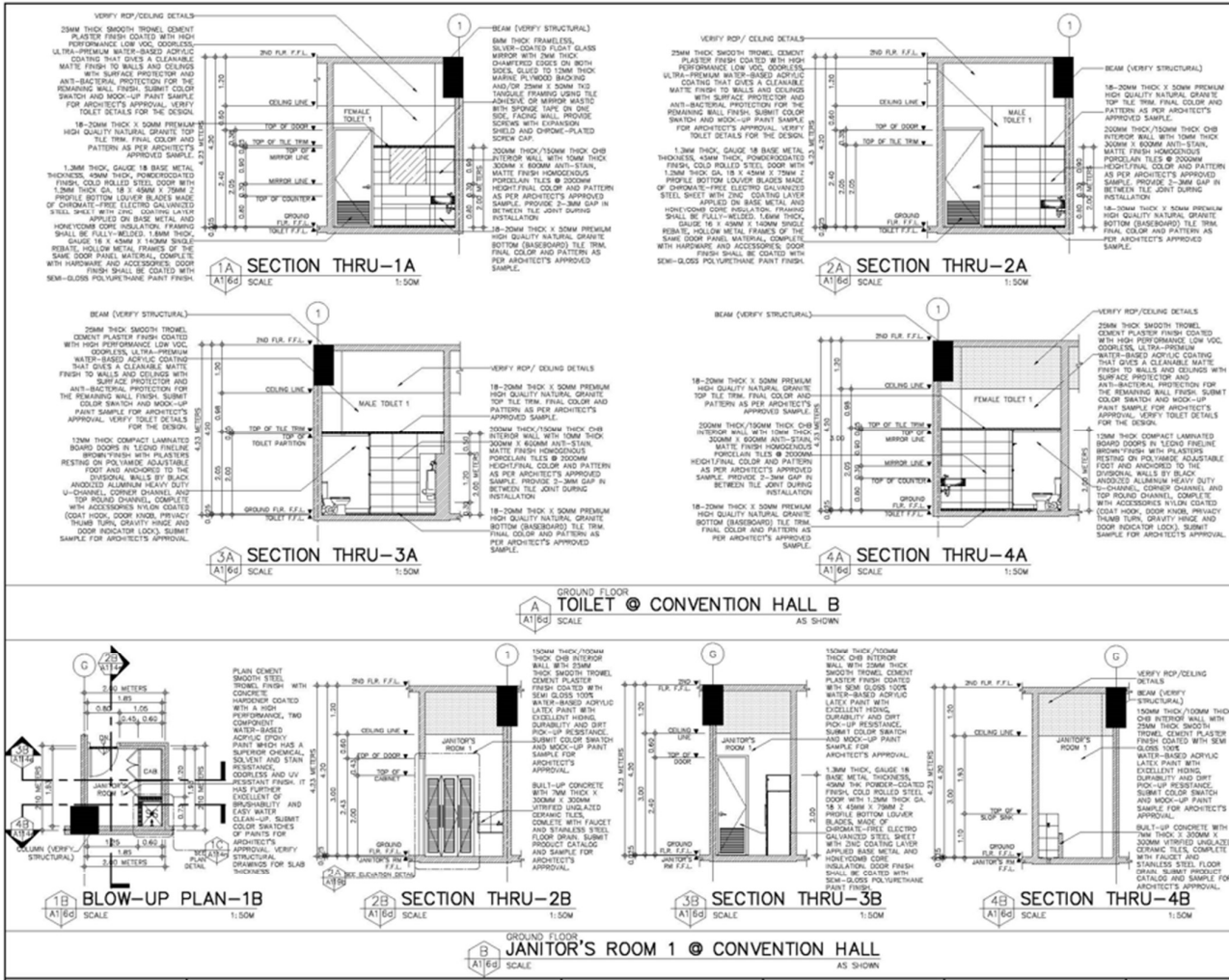
- SPECIFICATIONS:**
- 14. WALL, MIRROR WALL AND FEMALE TOILETS SHALL BE 8MM THICK FRAMELESS SILVER-COATED FLOAT GLASS MIRROR WITH 2MM BEAD BUSHES IN 2MM BEAD CHANNEL TO 2MM HIGH BEAD PLYWOOD BACKING AND FOR 25MM X 50MM 3RD TANGULAR FRAMING USING TILE ADHESIVE OR MIRROR MASTIC WITH SPONGE TAPE ON ONE SIDE, FRAMING WALL PROVIDE SCREWS WITH EXPANSION SHEILD AND CHROME-PLATED SCREW CAP REFER TO ARCHITECTURAL DRAWING, SHEET NO. A-10 FOR DIMENSION LAYOUT AND DESIGN.
  - 14. TOILET CURBED DOOR WITH PARTITION SHALL BE 10MM THICK COMPACT LAMINATED BOARD DOORS IN LEGS FINISH BROWN FINISH WITH PLASTERS RESTING ON POLYURETHANE ADJUSTABLE FOOT AND ANCHORED TO THE DIVISIONAL WALLS BY BLACK ANODIZED ALUMINUM HEAVY DUTY U-CHANNEL, CORNER CHANNEL, AND TOP ROUND CHANNEL, COMPLETE WITH ACCESSORIES NUTLON COATED COAT HOOK, DOOR KNOB, PRIVACY THUMB TURN, GRAVITY HINGE AND TOP ROUND CHANNEL, COMPLETE. SUBMIT SAMPLE FOR ARCHITECT'S APPROVAL.
  - 14. TOILET CURBED DOOR WITH PARTITION SHALL BE 10MM THICK COMPACT LAMINATED BOARD DOORS IN LEGS FINISH BROWN FINISH WITH PLASTERS RESTING ON POLYURETHANE ADJUSTABLE FOOT AND ANCHORED TO THE DIVISIONAL WALLS BY BLACK ANODIZED ALUMINUM HEAVY DUTY U-CHANNEL, CORNER CHANNEL, AND TOP ROUND CHANNEL, COMPLETE WITH ACCESSORIES NUTLON COATED COAT HOOK, DOOR KNOB, PRIVACY THUMB TURN, GRAVITY HINGE AND TOP ROUND CHANNEL, COMPLETE. SUBMIT SAMPLE FOR ARCHITECT'S APPROVAL.
  - 14. TOILET CURBED DOOR WITH PARTITION SHALL BE 10MM THICK COMPACT LAMINATED BOARD DOORS IN LEGS FINISH BROWN FINISH WITH PLASTERS RESTING ON POLYURETHANE ADJUSTABLE FOOT AND ANCHORED TO THE DIVISIONAL WALLS BY BLACK ANODIZED ALUMINUM HEAVY DUTY U-CHANNEL, CORNER CHANNEL, AND TOP ROUND CHANNEL, COMPLETE WITH ACCESSORIES NUTLON COATED COAT HOOK, DOOR KNOB, PRIVACY THUMB TURN, GRAVITY HINGE AND TOP ROUND CHANNEL, COMPLETE. SUBMIT SAMPLE FOR ARCHITECT'S APPROVAL.

NOTE: FINISHING DETAILS FROM TOILET FINISH FLOOR LINE FLOOR DRAIN MAY VARY DEPENDING ON SANITARY ENGINEERING LAYOUT.

**GROUND FLOOR TOILET @ CONVENTION HALL A AS SHOWN**

PRINCIPAL ARCHITECT:	PROJECT TITLE:	OWNER:	ENDORSED BY:	RECOMMENDING APPROVAL:	APPROVED:	SHEET CONTENTS:	SHEET NO.:
DR. MARK JOSEPH B. ARCE	COMPLETION OF THE CONVENTION HALL OF THE INTERNATIONAL CONVENTION CENTER	UNIVERSITY OF THE PHILIPPINES OPEN UNIVERSITY (UPOU)	DR. MARCELO B. SURENO HEAD PROJECT MANAGER, CONVENT HALL UPOU	DR. JEAN A. SALCEDO VICE CHAIRMAN, UPOU	DR. MELINDA D. BANCALARA CHAIRMAN, UPOU	CONVENT HALL TOILET @ GROUND SECTION	A1-6b
REV. NO.	DATE	LOCATION	DESCRIPTION	DATE	DATE	DATE	DATE
001	08/20/24	UPOU CAMPUS, LOS BAÑOS, JARAJAN					MARCH 2024





**SCOPE OF WORK:**  
**SPECIFICATIONS:**

1. MAJOR PARTITIONS SHALL BE 10MM THICK COMPACT LAMINATED BOARD DOORS IN LEGED FINISH, ANCHORED TO POLYMER ADJUSTABLE FOOT AND ANCHORED TO THE DIVISIONAL WALLS BY BLACK ANCHORED ALUMINUM HEAVY DUTY U-CHANNEL, CORNER CHANNEL AND TOP ROUNDED CHANNEL, COMPLETE WITH ACCESSORIES IN ACCORDANCE WITH 20MM U-CHANNEL, SUPPORT AND ACCESSORIES, SUBMIT SAMPLE FOR ARCHITECT'S APPROVAL.

2. TOILET CURBIE DOOR WITH PARTITION SHALL BE 10MM THICK COMPACT LAMINATED BOARD DOORS IN LEGED FINISH, ANCHORED TO POLYMER ADJUSTABLE FOOT AND ANCHORED TO THE DIVISIONAL WALLS BY BLACK ANCHORED ALUMINUM HEAVY DUTY U-CHANNEL, CORNER CHANNEL AND TOP ROUNDED CHANNEL, COMPLETE WITH ACCESSORIES IN ACCORDANCE WITH 20MM U-CHANNEL, SUPPORT AND ACCESSORIES, SUBMIT SAMPLE FOR ARCHITECT'S APPROVAL.

3. TOILET CURBIE DOOR SHALL BE 20MM WITH 10MM THICK COMPACT LAMINATED BOARD DOORS IN LEGED FINISH, ANCHORED TO POLYMER ADJUSTABLE FOOT AND ANCHORED TO THE DIVISIONAL WALLS BY BLACK ANCHORED ALUMINUM HEAVY DUTY U-CHANNEL, CORNER CHANNEL AND TOP ROUNDED CHANNEL, COMPLETE WITH ACCESSORIES IN ACCORDANCE WITH 20MM U-CHANNEL, SUPPORT AND ACCESSORIES, SUBMIT SAMPLE FOR ARCHITECT'S APPROVAL.

4. TOILET CURBIE DOOR SHALL BE 20MM WITH 10MM THICK COMPACT LAMINATED BOARD DOORS IN LEGED FINISH, ANCHORED TO POLYMER ADJUSTABLE FOOT AND ANCHORED TO THE DIVISIONAL WALLS BY BLACK ANCHORED ALUMINUM HEAVY DUTY U-CHANNEL, CORNER CHANNEL AND TOP ROUNDED CHANNEL, COMPLETE WITH ACCESSORIES IN ACCORDANCE WITH 20MM U-CHANNEL, SUPPORT AND ACCESSORIES, SUBMIT SAMPLE FOR ARCHITECT'S APPROVAL.

5. TOILET CURBIE DOOR SHALL BE 20MM WITH 10MM THICK COMPACT LAMINATED BOARD DOORS IN LEGED FINISH, ANCHORED TO POLYMER ADJUSTABLE FOOT AND ANCHORED TO THE DIVISIONAL WALLS BY BLACK ANCHORED ALUMINUM HEAVY DUTY U-CHANNEL, CORNER CHANNEL AND TOP ROUNDED CHANNEL, COMPLETE WITH ACCESSORIES IN ACCORDANCE WITH 20MM U-CHANNEL, SUPPORT AND ACCESSORIES, SUBMIT SAMPLE FOR ARCHITECT'S APPROVAL.

NOTE: MATERIALS STARTS FROM TOILET FINISH FLOOR LINE. FLOOR FINISH MAY VARY DEPENDING ON SANITARY ENGINEERING LAYOUT.

PRINCIPAL ARCHITECT:	PROJECT TITLE:	OWNER:	ENDORSED BY:	RECOMMENDING APPROVAL:	APPROVED:	SHEET CONTENTS:	SHEET NO.:
AR. MARK JOSEPH B. ARCE	COMPLETION OF THE CONVENTION HALL OF THE INTERNATIONAL CONVENTION CENTER	UNIVERSITY OF THE PHILIPPINES OPEN UNIVERSITY (UPOU)	DR. MARK O. SUREDO REGISTERED MECHANICAL ENGINEER	DR. JEAN A. SALLADAR REGISTERED MECHANICAL ENGINEER	DR. MELINDA D.P. BANCALARA ARCHITECT	CONVENTION HALL TOILET & JANITOR'S ROOM JANITOR'S ROOM 1 JANITOR'S ROOM 2	A1-6d
REV. NO.	DATE	LOCATION	PROJECT NO.	DATE	DATE	DATE	DATE
001	01-08-2024	UPOU CAMPUS, LOS BAÑOS, LAGUNA	001	01-08-2024	01-08-2024	01-08-2024	01-08-2024



## Section VIII. Bill of Quantities

DETAILED CONSTRUCTION ESTIMATE WORKSHEET (DCEW)

Project :	COMPLETION OF THE CONVENTION HALL OF THE INTERNATIONAL CONVENTION CENTER	Prepared / Estimated by:		Submitted by:	Date:
Location :	UPOU Headquarters, Maahas, Los Baños, Laguna	Certified Correct:		Name w/ Signature & Designation	
Subject :	BILL OF MATERIALS AND COST ESTIMATES (DETAILED CONSTRUCTION ESTIMATE WORKSHEET)			Address of Bidder:	
				Estimated Project Cost:	0.00
				Name & Signature of General Manager	
				No. of Days to Complete:	150 CALENDAR DAYS

ITEM NO.	ITEM OF WORK	UNIT	QTY.	DIRECT COST				SUB-TOTAL DIRECT COST	UNIT COST (PHP)
				MATERIALS		LABOR			
				PER UNIT	MAT'L .COST	PER UNIT	LABOR COST		
<b>I.</b>	<b>GENERAL REQUIREMENTS</b>								
	<b>A. Construction Aid</b>								
	1. Temporary Office, Sheds, Storage etc.	lot	1.00		0.00		0.00	0.00	0.00
	2. Temporary Power and Water Supply	lot	1.00		0.00	-	-	0.00	0.00
	3. Temporary Fence and Barricades	lot	1.00		0.00		0.00	0.00	0.00
	4. Health and Safety expenses, PPE, etc.	lot	1.00		0.00	-	-	0.00	0.00
	5. Tools and equipment including scaffoldings (rental only)	lot	1.00	-	-		0.00	0.00	0.00
<b>II.</b>	<b>CONVENTION HALL</b>								
	<b>A. Masonry Works</b>								
	1. Dismantling and Restoration of Walls								
	a. Restoration of door opening at AV/Control Rm 1	cu.m.	2.88		0.00		0.00	0.00	0.00
	b. Dismantling of CHB wall partition bet. the AV/Control Rm 1 and restoration of affected masonry walls	cu.m.	10.03		0.00		0.00	0.00	0.00
	2. Installation of CHB Wall Partition (for D-12a)	cu.m.	0.87		0.00		0.00	0.00	0.00
	3. Chipping of existing tiles and walls along the hallway of the Convention Hall (for the installation of D-12a)	cu.m.	0.49		0.00		0.00	0.00	0.00
	<b>B. Doors and Windows</b>								
	Complete Supply and Installation of Doors & Jambs complete with door knobs/locksets, handles, hinges, patch fittings, U-Channel Hinges & accessories as per Plan, Drawing Details and Specifications								
	1. D-1a 4100mm x 2400mm, 12mm thk tempered clear double swing glass door (Loc: Entrance 1)	set	1.00		0.00		0.00	0.00	0.00
	2. D-1b 3200mm x 2400mm, 12mm thk tempered clear double swing glass door (Loc: Ante Room)	sets	2.00		0.00		0.00	0.00	0.00
	3. D-5 900mm x 2400mm, 12mm thk tempered clear single/double with "white" frosted sticker film applied on both sides. Complete wall opening masonry to finish. (Loc: GAD Room)	set	1.00		0.00		0.00	0.00	0.00
	4. Relocation of Installed D-10b at AV/Control Rm 1 to the next opening (labor only)	set	1.00		0.00		0.00	0.00	0.00
	5. D-12a 1000mm x 2400mm Steel Door. 45mm THK, GALV Panel with Honeycomb insulation on GALV Single Rabbet Jamb in accordance to NAAMM/HMMA 861-06 (Location: Convention Hall Hallway to Utility Area)	sets	2.00		0.00		0.00	0.00	0.00
	6. D-14a 1000mm x 2400mm x 1.3mm thk, gauge 18 base metal thickness, 45mm thk, powder coated finish. Complete wall opening masonry to finish. (Loc: PWD Toilet)	set	1.00		0.00		0.00	0.00	0.00

ITEM NO.	ITEM OF WORK	UNIT	QTY.	DIRECT COST				SUB-TOTAL DIRECT COST	UNIT COST (PHP)
				MATERIALS		LABOR			
				PER UNIT	MATL. COST	PER UNIT	LABOR COST		
7.	D-14c 700mm x 2400mm x 1.3mm thk, gauge 18 base metal thickness, 45mm thk, cold rolled steel door. Complete wall opening masonry to finish.(Loc: Janitor Room 1)	set	1.00		0.00		0.00	0.00	0.00
Complete Supply and Installation of Windows complete with hardware & accessories as per Plan, Drawing Details and Specifications									
1.	W-2 - 2850mm x 600mm x 8mm thk. tempered reflective glass on a Mullion type aluminum framing in powder-coated finish complete with hardware and accessories (Loc: Second Floor Audio Rooms 1 & 2)	sets	2.00		0.00		0.00	0.00	0.00
Builder's Hardware (for installed Doors)									
	1. Manual Flush Bolt	pcs	10.00		0.00		0.00	0.00	0.00
	2. One-Way Deadbolt Lock	pcs	8.00		0.00		0.00	0.00	0.00
	3. Vertical Pull Handle for Convention Hall Entrance Vestibule Doors	pcs	8.00		0.00		0.00	0.00	0.00
	4. Locksets								
	a. Lever Type Lockset (wood & steel doors)	pcs	8.00		0.00		0.00	0.00	0.00
	b. Standard Cylinder (for lever type lockset)	pcs	6.00		0.00		0.00	0.00	0.00
	5. Door Closer	pcs	15.00		0.00		0.00	0.00	0.00
	6. Door Stop 1 (steel doors/wood doors)	pcs	16.00		0.00		0.00	0.00	0.00
	7. Panic Hardware	pcs	6.00		0.00		0.00	0.00	0.00
C. Finishes									
Complete Supply and Installation of Ceiling Finishes as per Plan, Drawing Details and Specifications									
1.	CF-3a Existing plasterboard/gypsum board shall be coated with high performance low VOC, odorless, ultra-premium water-based acrylic coating that gives a cleanable matte finish to walls and ceilings with surface protector and anti- bacterial protection.	sq.m.	631.26		0.00		0.00	0.00	0.00
2.	CF-3b Existing plasterboard/gypsum board shall be coated with high performance low VOC, odorless, ultra-premium water-based acrylic coating that gives a cleanable matte finish to walls and ceilings with surface protector and anti- bacterial protection. (Location: Convention Hall)	sq.m.	1,217.88		0.00		0.00	0.00	0.00

ITEM NO.	ITEM OF WORK	UNIT	QTY.	DIRECT COST				SUB-TOTAL DIRECT COST	UNIT COST (PHP)
				MATERIALS		LABOR			
				PER UNIT	MATL. COST	PER UNIT	LABOR COST		
Complete Supply and Installation of Floor Finishes as per Plan, Drawing Details and Specifications									
1.	FF-2 10mm thk x 600mm x 600mm double polished finish anti-stain, homogenous porcelain tiles with heavy resistance to abrasion class AAA, 7.5 kgs. With 18-20mm thk premium high quality natural granite stone decorative floor (Ellipse Form)	sq.m.	11.80		0.00		0.00	0.00	
2.	FF-3 10mm thk x 600mm x 600mm double polished finished and 10mm thick 150mm x 600mm matte finish anti stain homogenous porcelain tiles with heavy resistance to abrasion (ante room)	sq.m.	190.11		0.00		0.00	0.00	
3.	FF-4 10mm thk x 600mm x 600mm double polished finished anti stain homogenous porcelain tiles with heavy resistance to abrasion (lobby and AVR)	sq.m.	208.28		0.00		0.00	0.00	
4.	FF-13 18-20mm thk x 50mm/100mm premium high quality natural granite stone in polished finish with medium to heavy resistance to abrasion	sq.m.	1.89		0.00		0.00	0.00	
5.	FF-14 18-20mm thk x 50mm/125mm premium high quality natural granite stone in polished finish with medium to heavy resistance to abrasion	sq.m.	0.46		0.00		0.00	0.00	
Complete Supply and Installation of Wall Finishes complete up to plastering and painting works if needed as per Plan, Drawing Details and Specifications									
1.	WF-1a Existing Exterior CHB walls and columns shall be coated with plain semi-gloss water-based 100% acrylic paint with high alkaline resistance and excellent gloss retention, highly resistant to airborne pollutants, dust and good exterior durability (front facade)	sq.m.	953.94		0.00		0.00	0.00	
2.	WF-2a Existing Interior CHB Walls and Columns shall be coated with high performance low voc, odorless, ultra-premium water-based acrylic coating that gives a cleanable matte finish to walls and ceilings with surface protector and anti-bacterial protection	sq.m.	1,906.12		0.00		0.00	0.00	
3.	WF-2c Existing remaining upper CHB wall shall be coated with high performance low VOC, odorless, ultra-premium water-based acrylic coating that gives a cleanable matte finish to walls and ceilings with surface protector and anti-bacterial protection. Submit color swatch and mock-up paint sample for Architect's approval. Location: Public Toilets.	sq.m.	95.70		0.00		0.00	0.00	
D. Specialties									
1. Complete Supply and Installation of Compartments and Cubicle as per Plan, Drawing Details and Specifications									
a. Toilet Cubicle Door with Partition									
	a.1. 3250mm x 1200mm x 1800mm; 3 partition & 3 doors	set	1.00		0.00		0.00	0.00	
	a.2. 3600mm x 1200mm x 1800mm; 4 partition & 4 doors	set	1.00		0.00		0.00	0.00	
	a.3. 4200mm x 1200mm x 1800mm; 4 partition & 4 doors	set	1.00		0.00		0.00	0.00	
	a.4. 3600mm x 1200mm x 1800mm; 4 partition & 3 doors	set	1.00		0.00		0.00	0.00	
b. Urinal Partitions									
	b.1. 400mm x 1200mm x 12mm thk urinal partition	sets	8.00		0.00		0.00	0.00	



ITEM NO.	ITEM OF WORK	UNIT	QTY.	DIRECT COST				SUB-TOTAL DIRECT COST	UNIT COST (PHP)
				MATERIALS		LABOR			
				PER UNIT	MAT'L COST	PER UNIT	LABOR COST		
	c. Toilet Cubicle Ledge								
	c.1. Toilet Cubicle Ledge 0.20m x 0.90m	sets	11.00		0.00		0.00	0.00	
	c.2. Toilet Cubicle Ledge 0.20m x 1.16m	set	1.00		0.00		0.00	0.00	
	2. Mirrors								
	Facial @ Mirror Male and Female Toilets - 6mm thick frameless, silver-coated float glass mirror with 2mm thick chamfered edges on both sides, glued to 12mm thick marine plywood backing and/or 25mm x 50mm TKD Tanguile framing using tile adhesive or mirror mastic with sponge tape on one side, facing wall. Provide screws with expansion shield and chrome-plated screw cap								
	a. 600mm x 900mm x 6mm thk frameless silver-coated float glass	sets	15.00		0.00		0.00	0.00	
	b. 900mm x 900mm x 6mm thk frameless silver-coated float glass	sets	2.00		0.00		0.00	0.00	
	E. Furnishing								
	1. Complete Supply and Installation of Information Counter complete with Fittings and Accessories as per Plan, Drawing Details and Specifications								
	Decorative Front Wall; Shall be 150mm thick/100mm thick CHB interior wall with 10mm thick 600mm x 900mm anti-stain, matte finish homogenous porcelain tiles with 1.5mm thick x 10mm x 20mm stainless steel C-channel in hairline finish. (Location: Main Lobby)	set	1.00		0.00		0.00	0.00	
	F. Electrical Works								
	1. Supply and install Low-Voltage Switchgears, Panelboard and Circuit Breakers complete with all necessary accessories, testing and commissioning as shown on drawings and in accordance with the specifications to make the system operational.								
	a. LVSG, 400V, ATS type in NEMA-1, free standing	assy.	1.00		0.00		0.00	0.00	
	b. Panel "PMC"	assy.	1.00		0.00		0.00	0.00	
	c. Panel "FPP"	assy.	1.00		0.00		0.00	0.00	
	2. Complete Supply and Installation of Step Down, Dry Type Transformer complete with accessories as per Plan, Drawing Details and Specifications								
	a. 200KVA, 400V,3P - 230V,3P, Step Down, Dry Type Transformer NEMA 1, 60Hz.	assy.	1.00		0.00		0.00	0.00	
	b. Complete Testing and Commissioning	lot	1.00		0.00		0.00	0.00	
	<b>INITIAL GRAND TOTAL</b>				<b>0.00</b>		<b>0.00</b>	<b>0.00</b>	

**SUMMARY OF BREAKDOWN OF TOTAL LUMP SUM BID PRICE**

Project : COMPLETION OF THE CONVENTION HALL OF THE INTERNATIONAL CONVENTION CENTER

<b>A. ESTIMATED DIRECT COST</b>						
A.1.	Materials and Equipment Cost ( exclusive of VAT )	P		0.00		
A.2.	Labor Cost and Equipment Rental ( exclusive of VAT )	P		0.00		
SUB - TOTAL ( EDC )						0.00
A.3.	Mobilization and Demobilization ( 1 % of EDC )	P				0.00
TOTAL A				P		0.00
<b>B. INDIRECT COST</b>						
B.1.	Mark-up					
B.1.1.	Overhead expenses, unforeseen contingencies miscellaneous expenses [(A) * OCM%]	P				
B.1.2.	Contractor's profit [(A) * P%]	P				
SUB-TOTAL (B.1.)				P		0.00
B.2.	Taxes					
B.2.1.	12% VAT of [(A) + (B.1)]	P		0.00		
B.2.2.	Municipal Tax ( per Municipal Tax of Los Baños )	P				
SUB-TOTAL (B.2.)				P		0.00
TOTAL B				P		0.00
<b>TOTAL APPROVED BUDGET FOR CONSTRUCTION</b>				P		0.00
( Amount in words )						

Submitted by:

(Name of Bidder)

(Date)

Legend:

-should be filled-up

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

## **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;

#### 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 (UPOU BAC Form No. 1); **and**
- (c) Statement of the bidder’s Single Largest Completed Contract (SLCC) similar to the contract to be bid, except under conditions provided under the rules. The SLCC should be at least 50% of the ABC. (UPOU BAC Form No. 2);  
 “The prospective bidder must have completed an SLCC that is similar to the contract to be bid, and whose value, adjusted to current prices using the PSA consumer price indices, must be at least fifty (50%) of the ABC to be bid: *Provided however*, That contractors under Small A and Small B categories without similar experience on the contract to be bid may be allowed to bid if the cost of such contract is not more than the Allowable Range of Contract Cost (ARCC) of their registration based on the guidelines as prescribed by the PCAB.”**and**
- (d) Special PCAB License in case of Joint Ventures;  
**and** registration for the type and cost of the contract to be bid; **and**
- (e) Original copy of Bid Security. If in the form of a Surety Bond, submit also a certification issued by the Insurance Commission;  
**or**  
 Original copy of Notarized Bid Securing Declaration (UPOU BAC Form No. 3); **and**
- (f) Project Requirements, which shall include the following:
  - a. Organizational chart for the contract to be bid;
  - b. Key personnel Letter Certificate to UPOU to be assigned to the contract to be bid, with their complete qualification (Bio-Data) and experience data (COE):

<b><u>Key Personnel</u></b>	<b><u>General Experience</u></b>
1. Resident Architect/Civil Engineer	Min. 5 yrs
2. Project Registered Electrical Engineer	Min. 5 yrs
3. Safety Officer/Engineer	Min. 5 yrs w/ COSH Certificate
4. General Foreman	Min. 5 yrs
5. Electrician	Min. 5 yrs w/ NC2

**Notes:** Personnel with multiple expertise and qualifications with at most three different positions mentioned above are allowed as long as he/she can

- provide the necessary documentation in support of his/her qualifications such as appropriate licenses, certificate of training, accreditation, and the like should be submitted separately for each position.
- c. List of contractor's major equipment units, which are owned, leased, and/or under purchase agreements, supported by proof of ownership or certification of availability of equipment from the equipment lessor/vendor for the duration of the project, as the case may be; **and**

<b>A. Equipment</b>	<b>No. of Units</b>
1. Welding Machine (min. 400amp)	Min. 1 unit
2. Grinder	Min. 2 units
3. Compressor	Min. 2 units
4. Insulation Resistance Tester	Min. 1 unit
<b>B. Others</b>	<b>No. of Units</b>
1. PPE (Personal Protective Equipment) (hard hat, safety vest, safety shoes, safety harness, safety gloves)	Min. 15 pcs per item except safety harness (5 pcs only)

- (g) Original duly signed Omnibus Sworn Statement (OSS) (UPOU BAC Form No. 4); **and** if applicable, Original Notarized Secretary's Certificate (UPOU BAC Form No. 5) in case of a corporation, partnership, or cooperative; or Original Special Power of Attorney (UPOU BAC Form No. 6) 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 Net Financial Contracting Capacity (NFCC) (UPOU BAC Form No. 7).

**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 (UPOU BAC Form No. 8).

**or**

duly notarized statements from all the potential joint venture partners stating that they will enter into and abide by the provisions of the JVA in the instance that the bid is successful.

**II. FINANCIAL COMPONENT ENVELOPE**

- (j) Original of duly signed and accomplished Bid Form (UPOU BAC Form No. 9); **and**

Other documentary requirements under RA No. 9184

- (k) Duly signed Detailed Construction Estimates Worksheet (DCEW); **and**  
 (l) Duly signed Summary of Breakdown of Total Lump Sum Bid Prices; **and**  
 (m) Cash Flow by Quarter and Payments Schedule.

Notes:

The prescribed documents in the checklist are mandatory to be submitted in the Bid.

**STATEMENT OF ALL ONGOING GOVERNMENT & PRIVATE CONTRACTS INCLUDING CONTRACTS AWARDED BUT NOT YET STARTED**

Business Name : \_\_\_\_\_

Business Address : \_\_\_\_\_

Name of Contract	Date of Contract	Duration of Contract	a. Owner's Name b. Address c. Telephone Nos.	Nature of Work	Contractor's Role		a. Total Contract Value at Award b. Total Contract Value at Completion c. Date of Completion	% of Accomplishment		Value of Outstanding Works
					Description	%		Planned	Actual	
<u>Government</u>										
<u>Private</u>										
										Total Cost

- Note: This statement shall be supported with:
1. Project Owner's Certificate of Final Acceptance issued by the Owner other than the Contractor or the Constructors Performance Evaluation System (CPES) Final Rating, which must be at least satisfactory.
  2. Notice of Award and/or Notice to Proceed

Submitted by : \_\_\_\_\_  
 (Printed Name & Signature)

Designation : \_\_\_\_\_

Date : \_\_\_\_\_



## Bid Securing Declaration Form

REPUBLIC OF THE PHILIPPINES)  
CITY OF \_\_\_\_\_ ) S.S.

### **BID SECURING DECLARATION** **Project Identification: IB No. 24-03-003**

To: *[Insert name and address of the Procuring Entity]*

I/We, the undersigned, declare that:

1. I/We understand that, according to your conditions, bids must be supported by a Bid Security, which may be in the form of a Bid Securing Declaration.
2. I/We accept that: (a) I/we will be automatically disqualified from bidding for any procurement contract with any procuring entity for a period of two (2) years upon receipt of your Blacklisting Order; and, (b) I/we will pay the applicable fine provided under Section 6 of the Guidelines on the Use of Bid Securing Declaration, within fifteen (15) days from receipt of the written demand by the procuring entity for the commission of acts resulting to the enforcement of the bid securing declaration under Sections 23.1(b), 34.2, 40.1 and 69.1, except 69.1(f), of the IRR of RA No. 9184; without prejudice to other legal action the government may undertake.
3. I/We understand that this Bid Securing Declaration shall cease to be valid on the following circumstances:
  - a. Upon expiration of the bid validity period, or any extension thereof pursuant to your request;
  - b. I am/we are declared ineligible or post-disqualified upon receipt of your notice to such effect, and (i) I/we failed to timely file a request for reconsideration or (ii) I/we filed a waiver to avail of said right; and
  - c. I am/we are declared the bidder with the Lowest Calculated Responsive Bid, and I/we have furnished the performance security and signed the Contract.

IN WITNESS WHEREOF, I/We have hereunto set my/our hand/s this \_\_\_\_ day of *[month]*  
*[year]* at *[place of execution]*.

*[Insert NAME OF BIDDER OR ITS AUTHORIZED  
REPRESENTATIVE]*

*[Insert signatory's legal capacity]*  
Affiant

***[Jurat]***

*[Format shall be based on the latest Rules on Notarial Practice]*

## Omnibus Sworn Statement (Revised)

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REPUBLIC OF THE PHILIPPINES )  
CITY/MUNICIPALITY OF \_\_\_\_\_ ) S.S.

### AFFIDAVIT

I, [Name of Affiant], of legal age, [Civil Status], [Nationality], and residing at [Address of Affiant], after having been duly sworn in accordance with law, do hereby depose and state that:

1. *[Select one, delete the other:]*

*[If a sole proprietorship:]* I am the sole proprietor or authorized representative of [Name of Bidder] with office address at [address of Bidder];

*[If a partnership, corporation, cooperative, or joint venture:]* I am the duly authorized and designated representative of [Name of Bidder] with office address at [address of Bidder];

2. *[Select one, delete the other:]*

*[If a sole proprietorship:]* As the owner and sole proprietor, or authorized representative of [Name of Bidder], I have full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for [Name of the Project] of the [Name of the Procuring Entity], as shown in the attached duly notarized Special Power of Attorney;

*[If a partnership, corporation, cooperative, or joint venture:]* I am granted full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for [Name of the Project] of the [Name of the Procuring Entity], as shown in the attached [state title of attached document showing proof of authorization (e.g., duly notarized Secretary's Certificate, Board/Partnership Resolution, or Special Power of Attorney, whichever is applicable)];

3. [Name of Bidder] is not "blacklisted" or barred from bidding by the Government of the Philippines or any of its agencies, offices, corporations, or Local Government Units, foreign government/foreign or international financing institution whose blacklisting rules have been recognized by the Government Procurement Policy Board, by itself or by relation, membership, association, affiliation, or controlling interest with another blacklisted person or entity as defined and provided for in the Uniform Guidelines on Blacklisting;
4. Each of the documents submitted in satisfaction of the bidding requirements is an authentic copy of the original, complete, and all statements and information provided therein are true and correct;
5. [Name of Bidder] is authorizing the Head of the Procuring Entity or its duly authorized representative(s) to verify all the documents submitted;



6. *[Select one, delete the rest:]*

*[If a sole proprietorship:]* The owner or sole proprietor is not related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree; *[If a partnership or cooperative:]* None of the officers and members of *[Name of Bidder]* is related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

*[If a corporation or joint venture:]* None of the officers, directors, and controlling stockholders of *[Name of Bidder]* is related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

7. *[Name of Bidder]* complies with existing labor laws and standards; and

8. *[Name of Bidder]* is aware of and has undertaken the responsibilities as a Bidder in compliance with the Philippine Bidding Documents, which includes:

- a. Carefully examining all of the Bidding Documents;
- b. Acknowledging all conditions, local or otherwise, affecting the implementation of the Contract;
- c. Making an estimate of the facilities available and needed for the contract to be bid, if any; and
- d. Inquiring or securing Supplemental/Bid Bulletin(s) issued for the *[Name of the Project]*.

9. *[Name of Bidder]* did not give or pay directly or indirectly, any commission, amount, fee, or any form of consideration, pecuniary or otherwise, to any person or official, personnel or representative of the government in relation to any procurement project or activity.

10. In case advance payment was made or given, failure to perform or deliver any of the obligations and undertakings in the contract shall be sufficient grounds to constitute criminal liability for Swindling (Estafa) or the commission of fraud with unfaithfulness or abuse of confidence through misappropriating or converting any payment received by a person or entity under an obligation involving the duty to deliver certain goods or services, to the prejudice of the public and the government of the Philippines pursuant to Article 315 of Act No. 3815 s. 1930, as amended, or the Revised Penal Code.

**IN WITNESS WHEREOF**, I have hereunto set my hand this \_\_ day of \_\_, 20\_\_ at \_\_\_\_\_, Philippines.

*[Insert NAME OF BIDDER OR ITS AUTHORIZED REPRESENTATIVE]*

*[Insert signatory's legal capacity]*

Affiant

***[Jurat]***

*[Format shall be based on the latest Rules on Notarial Practice]*

**SECRETARY'S CERTIFICATE**

I, \_\_\_\_\_, a duly elected and qualified Corporate Secretary of \_\_\_\_\_, a corporation duly organized and existing under and by virtue of the law of the \_\_\_\_\_, DO HEREBY CERTIFY, that:

I am familiar with the facts herein certified and duly authorized to certify the same;

At the regular meeting of the Board of Directors of the said Corporation duly convened and held on \_\_\_\_\_ at which meeting a quorum was present and acting throughout, the following resolutions were approved, and the same have not been annulled, revoked and amended in any way whatever and are in full force and effect on the date hereof:

RESOLVED, that \_\_\_\_\_ be, as it hereby is, authorized to participate in the bidding for "**Completion of the Convention Hall of the International Convention Center**", **Project Identification IB No. 24-03-003** by the **UP Open University** and that if awarded the project shall enter into a contract with the **UP Open University**; and in connection therewith hereby appoint \_\_\_\_\_, acting as duly authorized and designated representatives of \_\_\_\_\_, are granted full power and authority to do, execute and perform any and all acts necessary and/or to represent \_\_\_\_\_ in the bidding as fully and effectively as the \_\_\_\_\_ might do if personally present with full power of substitution and revocation and hereby satisfying and confirming all that my said representative shall lawfully do or cause to be done by virtue hereof;

RESOLVED FURTHER THAT, the \_\_\_\_\_ hereby authorizes its President to:

- (1) execute a waiver of jurisdiction whereby the \_\_\_\_\_ hereby submits itself to the jurisdiction of the Philippine government and hereby waives its right to question the jurisdiction of the Philippine courts;
- (2) execute a waiver that the \_\_\_\_\_ shall not seek and obtain writ of injunctions or prohibition or restraining order against the AFP or any other agency in connection with this project to prevent and restrain the bidding procedures related thereto, the negotiating of and award of a contract to a successful bidder, and the carrying out of the awarded contract.

WITNESS the signature of the undersigned as such officer of the said \_\_\_\_\_ this \_\_\_\_\_.

\_\_\_\_\_  
(Corporate Secretary)

**ACKNOWLEDGMENT**

SUBSCRIBED AND SWORN to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_ affiant exhibited to me his/her Government Issued ID No. \_\_\_\_\_ issued on \_\_\_\_\_ at \_\_\_\_\_, Philippines.

Notary Public  
Until 31 December 20\_\_  
PTR No. \_\_\_\_\_  
Issued at: \_\_\_\_\_  
Issued on: \_\_\_\_\_  
TIN No. \_\_\_\_\_

Doc. No. \_\_\_\_\_  
Page No. \_\_\_\_\_  
Book No. \_\_\_\_\_  
Series of \_\_\_\_\_.

**SPECIAL POWER OF ATTORNEY**

I, \_\_\_\_\_, President of \_\_\_\_\_, a corporation incorporated under the laws of \_\_\_\_\_ with its registered office at \_\_\_\_\_, by virtue of Board Resolution No. \_\_\_\_\_ dated \_\_\_\_\_, has made, constituted and appointed \_\_\_\_\_ true and lawful attorney, for it and its name, place and stead, to do, execute and perform any and all acts necessary and/or represent \_\_\_\_\_ in the bidding of \_\_\_\_\_ as fully and effectively as corporation might do if personally present with full power of substitution and revocation and hereby confirming all that said representative shall lawfully do or cause to be done by virtue hereof.

IN WITNESS WHEREOF, I have hereunto set my hand this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_ at \_\_\_\_\_.

\_\_\_\_\_  
Affiant

Signed in the Presence of:

\_\_\_\_\_

**ACKNOWLEDGMENT**

REPUBLIC OF THE PHILIPPINES)  
QUEZON CITY )SS.

BEFORE ME, a Notary Public for and in Quezon City, Philippines, this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, personally appeared:

<u>NAME</u>	<u>Government Issued ID NO.</u>	<u>ISSUED AT/ON</u>
_____	_____	_____
_____	_____	_____

known to me and known to be the same person who executed the foregoing instrument consisting of \_\_\_\_\_ ( ) pages, including the page whereon the acknowledgments is written and acknowledged before me that the same is his free and voluntary act and deed and that of the Corporation he represents.

WITNESS MY HAND AND NOTARIAL SEAL, at the place and on the date first above written.

Notary Public  
Until 31 December 20\_\_\_\_  
PTR No. \_\_\_\_\_  
Issued at: \_\_\_\_\_  
Issued on: \_\_\_\_\_  
TIN No. \_\_\_\_\_

Doc. No. \_\_\_\_\_  
Page No. \_\_\_\_\_  
Book No. \_\_\_\_\_  
Series of \_\_\_\_\_

## NET FINANCIAL CONTRACTING CAPACITY

The computation of a prospective bidder's Net Financial Contracting Capacity (NFCC) must be at least equal to the ABC to be bid (PhP7,879,134.93), calculated as follows:

ABC: PhP7,879,134.93	Year 20__
Current Assets	
Minus: Current Liabilities	
Sub Total	
Multiplied by value of K	
Sub Total	
Minus: Value of outstanding services under ongoing contracts including awarded contracts yet to be started coinciding with the contract to be bid	
NFCC	

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

NFCC = PhP \_\_\_\_\_

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

Submitted by:

\_\_\_\_\_  
Name of Supplier / Distributor / Manufacturer

\_\_\_\_\_  
Signature of Authorized Representative

Date : \_\_\_\_\_

*NOTE:*

1. If Partnership or Joint Venture, each Partner or Member Firm of Joint Venture shall submit the above requirements.

**JOINT VENTURE AGREEMENT**

KNOW ALL MEN BY THESE PRESENTS:

That this JOINT VENTURE AGREEMENT is entered into by and between \_\_\_\_\_, of legal age, \_\_\_\_\_ owner/proprietor of \_\_\_\_\_ (civil status) and a resident of \_\_\_\_\_.

- and -

\_\_\_\_\_, of legal age, \_\_\_\_\_, owner/proprietor of \_\_\_\_\_ (civil status) \_\_\_\_\_ a resident of \_\_\_\_\_.

THAT both parties agree to join together their manpower, equipment, and what is need to facilitate the Joint Venture to participate in the Eligibility, Bidding and Undertaking of the here-under stated project to be conducted by the UP Open University.

NAME OF PROJECT

CONTRACT AMOUNT

That both parties agree to be jointly and severally liable for the entire assignment.

That both parties agree that \_\_\_\_\_ and/or \_\_\_\_\_ shall be the Official Representative of the Joint Venture, and is granted full power and authority to do, execute and perform any and all acts necessary and/or to represent the Joint Venture in the bidding as fully and effectively and the Joint Venture may do and if personally present with full power of substitution and revocation.

THAT this Joint Venture Agreement shall remain in effect only for the above stated Project until terminated by both parties.

Done this \_\_\_\_\_ day of \_\_\_\_\_, in the year of our Lord \_\_\_\_\_.

**ACKNOWLEDGMENT**

SUBSCRIBED AND SWORN to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_ affiant exhibited to me his/her Government Issued ID No. \_\_\_\_\_ issued on \_\_\_\_\_ at \_\_\_\_\_, Philippines.

Notary Public  
Until 31 December 20\_\_\_\_  
PTR No. \_\_\_\_\_  
Issued at: \_\_\_\_\_  
Issued on: \_\_\_\_\_  
TIN No. \_\_\_\_\_

Doc. No. \_\_\_\_\_  
Page No. \_\_\_\_\_  
Book No. \_\_\_\_\_  
Series of \_\_\_\_\_.

## BID FORM

Date : \_\_\_\_\_  
Project Identification No. : \_\_\_\_\_

To: *[name and address of Procuring Entity]*

Having examined the Philippine Bidding Documents (PBDs) including the Supplemental or Bid Bulletin Numbers *[insert numbers]*, the receipt of which is hereby duly acknowledged, we, the undersigned, declare that:

- a. We have no reservation to the PBDs, including the Supplemental or Bid Bulletins, for the Procurement Project: *[insert name of contract]*;
- b. We offer to execute the Works for this Contract in accordance with the PBDs;
- c. The total price of our Bid in words and figures, excluding any discounts offered below is: *[insert information]*;
- d. The discounts offered and the methodology for their application are: *[insert information]*;
- e. The total bid price includes the cost of all taxes, such as, but not limited to: *[specify the applicable taxes, e.g. (i) value added tax (VAT), (ii) income tax, (iii) local taxes, and (iv) other fiscal levies and duties]*, which are itemized herein and reflected in the detailed estimates,
- f. Our Bid shall be valid within a period stated in the PBDs, and it shall remain binding upon us at any time before the expiration of that period;
- g. If our Bid is accepted, we commit to obtain a Performance Security in the amount of *[insert percentage amount]* percent of the Contract Price for the due performance of the Contract, or a Performance Securing Declaration in lieu of the the allowable forms of Performance Security, subject to the terms and conditions of issued GPPB guidelines<sup>12</sup> for this purpose;
- h. We are not participating, as Bidders, in more than one Bid in this bidding process, other than alternative offers in accordance with the Bidding Documents;
- i. We understand that this Bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal Contract is prepared and executed; and
- j. We understand that you are not bound to accept the Lowest Calculated Bid or any other Bid that you may receive.
- k. We likewise certify/confirm that the undersigned, is the duly authorized representative of the bidder, and granted full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for the *[Name of Project]* of the *[Name of the Procuring Entity]*.

1. We acknowledge that failure to sign each and every page of this Bid Form, including the Bill of Quantities, shall be a ground for the rejection of our bid.

Name: \_\_\_\_\_

Legal Capacity: \_\_\_\_\_

Signature: \_\_\_\_\_

Duly authorized to sign the Bid for and behalf of: \_\_\_\_\_

Date: \_\_\_\_\_

## **CONSTRUCTOR'S ORGANIZATIONAL CHART FOR THE CONTRACT**

Submit Copy of the Organizational Chart that the Constructor intends to use to execute the Contract if awarded to it. Indicate in the chart the names of the **All Key Personnel for the Project**.

**Attach the required Proposed Organizational Chart for the Contract as stated above**

*Note: This organization chart should represent the "Constructor's Organization" required for the Project, and not the organizational chart of the entire firm.*



# CONTRACTOR'S LETTER-CERTIFICATE TO PROCURING ENTITY

[Date of Issuance]

**Dr. PRIMO G. GARCIA**

Chair, Bids and Awards Committee (BAC)

UP Open University

UPOU Headquarters, Los Baños, Laguna

Dear Sir:

Supplementing our Organizational Chart for the Contract, we have the honor to submit herewith, and to certify as true and correct, the following pertinent information:

1. That I/we have engaged the services of       (Name of Employee/Key Personnel)      , to be the       (Designation)       of the       (Name of Contract)      , who is a       (Profession)       with Professional License Certificate No.        issued on        and who has performed the duties in the construction of the Contracts enumerated in the duly filled Form       .
2. The said Engineer/Employee/Key Personnel shall be designated by us as our       (Designation)       to personally perform the duties of the said position in the above-mentioned Project, if and when the same is awarded in our favor.
3. That said Engineer/Employee/Key Personnel shall employ the best care, skill and ability in performing his duties in accordance with the Contract Agreement, Conditions of Contract, Plans, Specifications, Special Provisions, and other provisions embodied in the proposed contract.
4. That said Engineer/Employee/Key Personnel shall be personally present at the jobsite to supervise the phase of the construction work pertaining to this assignment as       (Designation)      , all the time.
5. That, in order to guarantee that said Engineer/Employee/Key Personnel shall perform his duties properly and be personally present in the Job Site, he is hereby required to secure a certificate of appearance for the Procuring Entity Engineer/Authorized Representative at the end of every month.

That, in the event that I/we elect or choose to replace said       (Designation)       with another Engineer/Employee/Key Personnel, the Procuring Entity will be accordingly notified by us in writing at least twenty one (21) days before making the replacement. We will submit to the Procuring Entity, for prior approval, the name of the proposed new       (Designation)      , his qualifications, experience, and list of projects undertaken and other relevant information.

6. That any willful violation on my/our part of the herein conditions may prejudice my/our standing as a reliable contractor in future bidding of the Procuring Entity.

Very truly yours,

\_\_\_\_\_  
*(Name and Signature of Authorized Representative of Bidder)*

CONCURRED IN:

\_\_\_\_\_  
*(Name and Signature of Employee/Key Personnel)*

\_\_\_\_\_  
*(Address)*

**QUALIFICATION OF KEY PERSONNEL PROPOSED TO BE ASSIGNED TO THE CONTRACT**

Bidder's Name: \_\_\_\_\_

Bidder's Address: \_\_\_\_\_

		Resident Architect/Civil Engineer	Project Registered Electrical Engineer	Safety Officer/Engineer	General Foreman	Electrician		
Name								
Address								
Date of Birth								
Employed Since								
Experience								
(a) Total Experience (Years)	Required							
	Actual							
(b) Experience in Similar Project (Years)	Required							
	Actual							
Previous Employment								
Education								
PRC Registration & License/ Accreditation/ Certification (as required)								

Note: This form is applicable to all required List of Key Personnel for the Contract to Bid

Submitted by: \_\_\_\_\_

*(Printed Name & Signature)*

Designation: \_\_\_\_\_

Date: \_\_\_\_\_

## BIO-DATA OF KEY PERSONNEL

Give the detailed information of the following personnel who are scheduled to be assigned as full-time field staff for the project. **Fill out a form for each person.**

- Authorized Managing Officer / Representative

- Sustained Technical Employee

1. Name: \_\_\_\_\_

2. Date of Birth: \_\_\_\_\_

3. Nationality: \_\_\_\_\_

4. Education and Degrees: \_\_\_\_\_

5. Specialty: \_\_\_\_\_

6. Registration: \_\_\_\_\_

7. Length of Service with the Firm: \_\_\_\_\_ Year from \_\_\_\_\_ (months) \_\_\_\_\_ (year)  
to \_\_\_\_\_ (months) \_\_\_\_\_ (year)

8. Years of Experience: \_\_\_\_\_

9. If Item 7 is less than ten (10) years, give name and length of service with previous employers for a ten (10)-year period (attached additional sheet/s), if necessary:

Name and Address of Employer	Length of Service
_____	_____ year(s) from _____ to _____
_____	_____ year(s) from _____ to _____
_____	_____ year(s) from _____ to _____

10. Experience:

This should cover the past ten (10) years of experience. (Attached as many pages as necessary to show involvement of personnel in projects using the format below).

1. Name: \_\_\_\_\_

2. Name and Address of Owner: \_\_\_\_\_

3. Name and Address of the Owner's Engineer: \_\_\_\_\_  
(Consultant)

4. Indicate the Features of Project (particulars of the project components and any other particular interest connected with the project): \_\_\_\_\_

5. Contract Amount Expressed in Philippine Currency: \_\_\_\_\_

6. Position: \_\_\_\_\_

7. Structures for which the employee was responsible: \_\_\_\_\_

8. Assignment Period: from \_\_\_\_\_ (months) \_\_\_\_\_ (years)  
: to \_\_\_\_\_ (months) \_\_\_\_\_ (years)

\_\_\_\_\_  
Name and Signature of Employee/Key Personnel

It is hereby certified that the above personnel can be assigned to this project, if the contract is awarded to our company.

\_\_\_\_\_  
(Place and Date)

\_\_\_\_\_  
(Bidder's Authorized Representative)



post of (Designation) therefor, if the contract is awarded to him since I understand that to do so will be a sufficient ground for my disqualification as (Designation) in any future (Name of the Procuring Entity) bidding or employment with any Contractor doing business with the (Name of the Procuring Entity) .

\_\_\_\_\_  
(Signature)

**DRY SEAL**

**Republic of the Philippines)**  
\_\_\_\_\_ ) S.S.

SUBSCRIBED AND SWORN TO before me this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_ affiant exhibiting to me his Government Issued ID No. \_\_\_\_\_ issued on \_\_\_\_\_ at \_\_\_\_\_.

Notary Public  
Until December 31, 20\_\_

Doc. No. \_\_\_\_\_;  
Page No. \_\_\_\_\_;  
Book No. \_\_\_\_\_;  
Series of \_\_\_\_\_;

**List of contractor’s major equipment units, which are owned, leased, and/or under purchase agreements, supported by proof of ownership or certification of availability of equipment from the equipment lessor/vendor for the duration of the project, as the case may be:**

<b>A. Equipment</b>	<b>Minimum Quantity</b>	<b>Available Quantity</b>
1. Welding Machine (min. 400amp)	1 unit	
2. Grinder	2 units	
3. Compressor	2 units	
4. Insulation Resistance Tester	1 unit	
<b>B. Others</b>		
1. PPE (Personal Protective Equipment) (hard hat, safety vest, safety shoes, safety harness, safety gloves)	15 pcs per item except safety harness (5 pcs only)	

Note: This statement shall be supported with Proof of ownership such as Certified copy of the Official Receipt of each item listed or an Affidavit of ownership.

Certified Correct:

\_\_\_\_\_  
Signature Over Printed Name of the Authorized Representative

**LIST OF CONTRACTORS EQUIPMENT, OWNED OR LEASED AND/OR UNDER PURCHASE AGREEMENTS**

Bidder's Name: \_\_\_\_\_

Bidder's Address: \_\_\_\_\_

Description	Model/Year	Capacity/ Performance/Size	Plate No.	Motor No./ Body No.	Location	Condition	Proof of Ownership/ Lessor or Vendor
<b>A. Owned</b>							
i.							
ii.							
iii.							
iv.							
v.							
<b>B. Leased</b>							
i.							
ii.							
iii.							
iv.							
v.							
<b>C. Under Purchase Agreements</b>							
i.							
ii.							
iii.							
iv.							

List of minimum equipment required for the Project:

Submitted by : \_\_\_\_\_

*(Printed Name & Signature)*

Designation : \_\_\_\_\_

Date : \_\_\_\_\_



**CASH FLOW BY QUARTER AND PAYMENT SCHEDULE**

PARTICULAR	% WT.	1 <sup>ST</sup> QUARTER	2 <sup>ND</sup> QUARTER	3 <sup>RD</sup> QUARTER	4 <sup>TH</sup> QUARTER
ACCOMPLISHMENT					
CASH FLOW					
CUMULATIVE ACCOMPLISHMENT					
CUMULATIVE CASH FLOW					

SUBMITTED BY:

\_\_\_\_\_

Name of Bidder

\_\_\_\_\_

(Printed Name and Signature of Authorized Managing Officer)

\_\_\_\_\_

Date

\_\_\_\_\_  
Date

## **CERTIFICATE OF SITE INSPECTION**

This is to certify that this Company, through its authorized representative, \_\_\_\_\_, has conducted the inspection of the site for the project “\_\_\_\_\_” located at UP Open University Headquarters, Los Baños, Laguna, on this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_, in connection with our desire to participate in the bidding for the above project.

\_\_\_\_\_  
(Printed Name & Signature of Bidder)

*Sealing and Marking of Bids:*

**Submission of hard copies to the BAC Secretariat Address:**

**One Original Copy for the Technical Components and Financial Components**

**PROCEDURE:**

1. The Technical Components (TC) of the Bid should be enclosed in envelope and must be labelled, sealed and signed as follows:

COMPLETION OF THE CONVENTION HALL OF THE INTERNATIONAL  
CONVENTION CENTER – TECHNICAL COMPONENT

[NAME AND ADDRESS OF THE BIDDERS]  
BIDS AND AWARDS COMMITTEE SECRETARIAT  
UP OPEN UNIVERSITY  
UPOU HEADQUARTERS, LOS BAÑOS, LAGUNA  
REFERENCE NO. IB No. 24-03-003  
“DO NOT OPEN BEFORE 18 April 2024, 1:30 PM”

2. The Financial Components (FC) of the Bid should be enclosed in another envelope and must be sealed and signed;

COMPLETION OF THE CONVENTION HALL OF THE INTERNATIONAL  
CONVENTION CENTER – FINANCIAL COMPONENT

[NAME AND ADDRESS OF THE BIDDERS]  
BIDS AND AWARDS COMMITTEE SECRETARIAT  
UP OPEN UNIVERSITY  
UPOU HEADQUARTERS, LOS BAÑOS, LAGUNA  
REFERENCE NO. IB No. 24-03-003  
“DO NOT OPEN BEFORE 18 April 2024, 1:30 PM”

3. The TC and FC envelopes should be enclosed in one mother envelope and must be labelled, sealed and signed as follows:

COMPLETION OF THE CONVENTION HALL OF THE INTERNATIONAL  
CONVENTION CENTER

[NAME AND ADDRESS OF THE BIDDERS]  
BIDS AND AWARDS COMMITTEE SECRETARIAT  
UP OPEN UNIVERSITY  
UPOU HEADQUARTERS, LOS BAÑOS, LAGUNA  
REFERENCE NO. IB No. 24-03-003  
“DO NOT OPEN BEFORE 18 April 2024, 1:30 PM”

Republic of the Philippines



Government Procurement Policy Board