

PHILIPPINE BIDDING DOCUMENTS

**Procurement of
INFRASTRUCTURE
PROJECTS**

Government of the Republic of the Philippines

**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.

Section I. Invitation to Bid

Notes on the Invitation to Bid

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

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

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

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

Invitation to Bid for Completion of Three (3) Storey DSWD-CAR RSCC Building (2nd Posting) ITB 2022-DSWD-CAR-33

1. The **Department of Social Welfare and Development - Cordillera Administrative Region**, through the *General Appropriations Act of 2022* intends to apply the sum of *Twenty-Nine Million Two Hundred Fifty-Seven Thousand Seven Hundred Twenty-Two Pesos (Php29,257,722.00)* being the Approved Budget for the Contract (ABC) to payments under the contract for *Completion of Three (3) Storey DSWD-CAR RSCC Building under ITB 2022-DSWD-CAR-33*.

Bids received in excess of the ABC shall be automatically rejected at bid opening.

2. The **Department of Social Welfare and Development - Cordillera Administrative Region (DSWD-CAR)** now invite bids for the above Procurement Project. Completion of the Works is required within *Two Hundred Forty (240) Calendar Days upon receipt of Notice to Proceed*. Bidders should have completed a contract similar to the Project **within five (5) years upon submission and receipt of bids**. The description of an eligible bidder is contained in the Bidding Documents, particularly, in Section II (Instructions to Bidders).
3. Bidding will be conducted through open competitive bidding procedures using non-discretionary “*pass/fail*” criterion as specified in the 2016 revised Implementing Rules and Regulations (IRR) of Republic Act (RA) No. 9184.
4. Interested bidders may obtain further information from *DSWD-CAR* and inspect the Bidding Documents at the address given below from *8:00AM to 5:00PM, Monday to Friday*.

Likewise, bidders must inspect the construction site located at **Puguis, La Trinidad, Benguet**. A **Certificate of Site Inspection** shall be issued to the interested bidders as form part of the bidding documents.

5. A complete set of Bidding Documents may be acquired by interested bidders on *08 November 2022 to 12:00 PM of 28 November 2022* from given address and website/s below upon payment of the applicable fee for the Bidding Documents, pursuant to the latest Guidelines issued by the GPPB, in the amount of **Twenty-Five Thousand Pesos (Php25,000.00)**.

The procuring entity allows payment of bidding documents through Bank-to-Bank transaction. However, the Official Receipt will only be issued by the Cash Section to the bidder upon receipt of two (2) original deposit slip with the following bank details:

Account Number : 0222-0218-63
Account Name : DSWD FO CAR (MISC TRUST ACCNT)
Name of the Bank : LANDBANK – Baguio Branch

6. The *Department of Social Welfare and Development - Cordillera Administrative Region* will hold a **Pre-Bid Conference**¹ on **10:00 AM of 15 November 2022** at **DSWD-CAR Premises** and/or through videoconferencing or **Google Meet** with meeting ID/Link as <https://meet.google.com/twj-atsv-vzs>, which shall be open to prospective bidders.
7. Bids must be duly received by the BAC Secretariat at the office address as indicated below on or before **12:00 PM (PST) of 28 November 2022**.

The procuring entity allows submission of bids through courier provided that the bid envelope will be received on or before the deadline of bid submission.

Late bids shall not be accepted.

8. All bids must be accompanied by a bid security in any of the acceptable forms and in the amount stated in **ITB Clause 16**.
9. Bid opening shall be on **01:30 PM of 28 November 2022** at the given address below and/or through Google Meet with Meeting/ID link as <https://meet.google.com/mwq-bskr-wym>. Bids will be opened in the presence of the bidders' representatives who choose to attend the activity.
10. The *Department of Social Welfare and Development - Cordillera Administrative Region* reserves the right to reject any and all bids, declare a failure of bidding, or not award the contract at any time prior to contract award in accordance with Sections 35.6 and 41 of the 2016 revised Implementing Rules and Regulations (IRR) of RA No. 9184, without thereby incurring any liability to the affected bidder or bidders.
11. For further information, please refer to:

BAC SECRETARIAT

Procurement Section, DSWD-CAR

40 North drive, Baguio City

Email Address: bacsec.car@dswd.gov.ph

(074) 661-0430 Local 25025 / (02) 369-6580

Mobile Numbers: 0915-151-9259 (Globe)

0963-610-9340 (Smart)

12. You may visit the following websites for downloading of Bidding Documents:
<https://car.dswd.gov.ph/downloads/procurement/procurement-opportunities-2022/>

-SGD-

ENGR. ENRIQUE H. GASCON JR.

BAC Chairperson

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

Section II. Instructions to Bidders

Notes on the Instructions to Bidders

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

1. Scope of Bid

The Procuring Entity, *Department of Social Welfare and Development - Cordillera Administrative Region* invites Bids for the *Completion of Three (3) Storey DSWD-CAR RSCC Building (2nd Posting)*, with Project Identification Number *ITB 2022-DSWD-CAR-33*

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

2. Funding Information

2.1. The GOP through the source of funding as indicated below for *CY 2022* in the amount of *Twenty-Nine Million Two Hundred Fifty-Seven Thousand Seven Hundred Twenty-Two Pesos (Php29,257,722.00)*.

2.2. The source of funding is:

- a. NGA, the General Appropriations Act or Special Appropriations.

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 allowed. The portions of Project and the maximum percentage allowed to be subcontracted are indicated in the **BDS**, which shall not exceed fifty percent (50%) of the contracted Works.
- 7.2 The Supplier may identify its subcontractor during the contract implementation stage. Subcontractors identified during the bidding may be changed during the implementation of this Contract. Subcontractors must submit the documentary requirements under Section 23.1 of the 2016 revised IRR of RA No. 9184 and

comply with the eligibility criteria specified in **ITB** Clause 5 to the implementing or end-user unit.

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

8. Pre-Bid Conference

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

9. Clarification and Amendment of Bidding Documents

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

10. Documents Comprising the Bid: Eligibility and Technical Components

- 10.1. The first envelope shall contain the eligibility and technical documents of the Bid as specified in **Section IX. Checklist of Technical and Financial Documents**.
- 10.2. If the eligibility requirements or statements, the bids, and all other documents for submission to the BAC are in foreign language other than English, it must be accompanied by a translation in English, which shall be authenticated by the appropriate Philippine foreign service establishment, post, or the equivalent office having jurisdiction over the foreign bidder's affairs in the Philippines. For Contracting Parties to the Apostille Convention, only the translated documents shall be authenticated through an apostille pursuant to GPPB Resolution No. 13-2019 dated 23 May 2019. The English translation shall govern, for purposes of interpretation of the bid.
- 10.3. A valid **PCAB License** is required, and in case of joint ventures, a valid special PCAB License, and registration for the type and cost of the contract for this Project. Any additional type of Contractor license or permit shall be indicated in the **BDS**.
- 10.4. A List of Contractor's key personnel (e.g., Project Manager, Project Engineers, Materials Engineers, and Foremen) assigned to the contract to be bid, with their

complete qualification and experience data shall be provided. These key personnel must meet the required minimum years of experience set in the **BDS**.

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

11. Documents Comprising the Bid: Financial Component

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

12. Alternative Bids

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

13. Bid Prices

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

14. Bid and Payment Currencies

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

15. Bid Security

- 15.1. The Bidder shall submit a Bid Securing Declaration or any form of Bid Security in the amount indicated in the **BDS**, which shall be not less than the percentage of the ABC in accordance with the schedule in the **BDS**.
- 15.2. The Bid and bid security shall be valid within **120 calendar days upon 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

- 19.1. The Procuring Entity's BAC shall immediately conduct a detailed evaluation of all Bids rated "*passed*" using non-discretionary pass/fail criteria. The BAC shall consider the conditions in the evaluation of Bids under Section 32.2 of 2016 revised IRR of RA No. 9184.
- 19.2. If the Project allows partial bids, all Bids and combinations of Bids as indicated in the **BDS** shall be received by the same deadline and opened and evaluated simultaneously so as to determine the Bid or combination of Bids offering the lowest calculated cost to the Procuring Entity. Bid Security as required by **ITB** Clause 15 shall be submitted for each contract (lot) separately.
- 19.3. In all cases, the NFCC computation pursuant to Section 23.4.2.6 of the 2016 revised IRR of RA No. 9184 must be sufficient for the total of the ABCs for all the lots participated in by the prospective Bidder.

20. Post Qualification

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

21. Signing of the Contract

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

Section III. Bid Data Sheet

Notes on the Bid Data Sheet (BDS)

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

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

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

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

Bid Data Sheet

ITB Clause																			
5.2	<p>For this purpose, contracts similar to the Project refer to contracts which have the same major categories of work, which shall be:</p> <ul style="list-style-type: none"> • <i>Construction and/or Improvement of at least 3-Storey Buildings</i> 																		
7.1	<p>Subcontracting is allowed. The portions of Project and the maximum percentage allowed to be subcontracted which shall not exceed fifty percent (50%) of the contracted Works:</p> <ul style="list-style-type: none"> • Installation of all MEPF (<i>Mechanical-Electrical-Plumbing-Fire Protection</i>) and FDAS (<i>Fire Detection and Alarm System</i>) WORKS, specifically: <ol style="list-style-type: none"> 1. Design, Installation, Testing and Commissioning of Hydraulic Elevator System 2. Design, Installation, Testing and Commissioning of Fire Detection and Alarm System 3. Design, Installation, Testing and Commissioning of Fire Sprinkler System 4. Design, Installation, Testing and Commissioning of Generator Set/Back-up Power System 																		
10.3	PCAB license should be at least “small b” as to size range and/or at least C or D as to license category																		
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; margin-top: 10px;"> <thead> <tr> <th style="text-align: center;">Personnel</th> <th style="text-align: center;">General Experience</th> <th style="text-align: center;">Relevant Experience</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Project Manager</td> <td>at least 5 years in project management practice</td> <td>at least 5 years experience in architecture practice and in building construction of at least 3-storey in height</td> </tr> <tr> <td style="text-align: center;">Resident Architect</td> <td>at least 3 years experience in architectural design and site planning practice</td> <td>at least 3 years in specializing architectural interiors, fit-outs and exterior construction.</td> </tr> <tr> <td style="text-align: center;">Resident Civil Engineer</td> <td>at least 3 years experience in civil engineering practice</td> <td>at least 3 years in project supervision of vertical structures of at least 3-storey in height</td> </tr> <tr> <td style="text-align: center;">Electrical Engineer</td> <td>at least 3 years experience in electrical works in construction supervision</td> <td>at least 3 years experience in electrical works in building construction of at least 3-storey in height</td> </tr> <tr> <td style="text-align: center;">Electronics Communications Engineer</td> <td>at least 3 years experience in electronics communications engineering practice</td> <td>at least 3 years experience in FDAS and intercommunication design and construction</td> </tr> </tbody> </table>	Personnel	General Experience	Relevant Experience	Project Manager	at least 5 years in project management practice	at least 5 years experience in architecture practice and in building construction of at least 3-storey in height	Resident Architect	at least 3 years experience in architectural design and site planning practice	at least 3 years in specializing architectural interiors, fit-outs and exterior construction.	Resident Civil Engineer	at least 3 years experience in civil engineering practice	at least 3 years in project supervision of vertical structures of at least 3-storey in height	Electrical Engineer	at least 3 years experience in electrical works in construction supervision	at least 3 years experience in electrical works in building construction of at least 3-storey in height	Electronics Communications Engineer	at least 3 years experience in electronics communications engineering practice	at least 3 years experience in FDAS and intercommunication design and construction
Personnel	General Experience	Relevant Experience																	
Project Manager	at least 5 years in project management practice	at least 5 years experience in architecture practice and in building construction of at least 3-storey in height																	
Resident Architect	at least 3 years experience in architectural design and site planning practice	at least 3 years in specializing architectural interiors, fit-outs and exterior construction.																	
Resident Civil Engineer	at least 3 years experience in civil engineering practice	at least 3 years in project supervision of vertical structures of at least 3-storey in height																	
Electrical Engineer	at least 3 years experience in electrical works in construction supervision	at least 3 years experience in electrical works in building construction of at least 3-storey in height																	
Electronics Communications Engineer	at least 3 years experience in electronics communications engineering practice	at least 3 years experience in FDAS and intercommunication design and construction																	

	Mechanical Engineer	at least 3 years experience in mechanical engineering practice	at least 3 years experience in conveying systems and fire protection system works.
	Sanitary Engineer or Registered Master Plumber	at least 3 years experience	at least 3 years relevant experience
	Safety Officer	at least 3 years experience in safety management	at least 3 years experience as Safety Officer III in building construction
	Project Foreman	at least 2 years experience in building construction	at least 2 years experience in building construction of at least 3-storey in height
	Welder	at least 2 years experience in welding and hot works	at least 2 years experience in welding/hot works & must be TESDA Accredited-NCII
	<i>Note: key personnel should be equipped with the appropriate license/s and/or documents.</i>		
10.5	The minimum major equipment requirements are the following:		
	Equipment	Capacity	Number of Units
	Mini Dump Truck	at least 2 cubic meters	at least one (1)
	Speed Cutter	14 inches	at least one (1)
	Welding Machine	300 amps	at least three (3)
	Heavy Duty Chain Block	5 Tonner	at least two (2)
	Acetylene & Oxygen Tank		at least two (2)
	Portable Welding Machine		at least one (1)
	Power Trowel		at least two (2)
12	<i>Not Applicable</i>		
15.1	The bid security shall be in the form of a Bid Securing Declaration or any of the following forms and amounts: a. The amount of not less than Php 585,154.44 or 2% of the ABC , if bid security is in cash, cashier's/manager's check, bank draft/guarantee or irrevocable letter of credit; b. The amount of not less than Php 1,462,886.10 or 5% of the ABC if bid security is in Surety Bond.		
19.2	<i>Not Applicable</i>		
20	<i>None</i>		
21	Additional contract documents relevant to the Project - Construction Schedule and S-curve, Manpower Schedule, Construction Methods, Equipment Utilization Schedule, Construction Safety and Health Program approved by DOLE.		

Section IV. General Conditions of Contract

Notes on the General Conditions of Contract

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

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

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

1. **Scope of Contract**

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

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

2. **Sectional Completion of Works**

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

3. **Possession of Site**

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

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

4. **The Contractor's Obligations**

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

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

5. Performance Security

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

6. Site Investigation Reports

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

7. Warranty

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

8. Liability of the Contractor

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

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

9. Termination for Other Causes

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

10. Dayworks

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

11. Program of Work

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

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

12. Instructions, Inspections and Audits

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

13. Advance Payment

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

14. Progress Payments

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

15. Operating and Maintenance Manuals

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

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

Section V. Special Conditions of Contract

Notes on the Special Conditions of Contract

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

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

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

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

Special Conditions of Contract

GCC Clause	
2	<i>Not Applicable</i>
4.1	The Procuring Entity shall give possession of so much of the Site to the Contractor after a pre-construction meeting between the authorized DSWD Representatives and the Contractor.
6	Not Applicable
7.2	Fifteen (15) years.
10	No day works are applicable to the contract.
11.1	The Contractor shall submit the Program of Work to the Procuring Entity's Representative within Ten (10) days upon receipt of the Notice of Award.
11.2	The amount to be withheld for late submission of an updated Program of Work is Php10,000.00 .
13	The amount of the advance payment is fifteen percent (15%) of the Contract Value and can be availed of upon the submission and receipt of a request for the release of the advance payment after the issuance of the Notice to Proceed (NTP) and posting of an irrevocable letter of credit in favor of the procuring entity.
14	<i>Not Applicable</i>
15.1	The date by which operating and maintenance manuals are required is <i>within 15 days upon completion of the contract.</i> The date by which "as built" drawings are required is <i>within 15 days upon completion of the contract.</i> .
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 <i>Php300,000.00.</i>

Section VI. Specifications

Notes on Specifications

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

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

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

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

Sample Clause: Equivalency of Standards and Codes

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

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

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

Please see attached

**Technical Specifications and
General Conditions and Requirements**

Section VII. Drawings

Please see attached drawing/floor plans

Section VIII. Bill of Quantities

Notes on the Bill of Quantities

Objectives

The objectives of the Bill of Quantities are:

- a. to provide sufficient information on the quantities of Works to be performed to enable Bids to be prepared efficiently and accurately; and
- b. when a Contract has been entered into, to provide a priced Bill of Quantities for use in the periodic valuation of Works executed.

In order to attain these objectives, Works should be itemized in the Bill of Quantities in sufficient detail to distinguish between the different classes of Works, or between Works of the same nature carried out in different locations or in other circumstances which may give rise to different considerations of cost. Consistent with these requirements, the layout and content of the Bill of Quantities should be as simple and brief as possible.

Daywork Schedule

A Daywork Schedule should be included only if the probability of unforeseen work, outside the items included in the Bill of Quantities, is high. To facilitate checking by the Entity of the realism of rates quoted by the Bidders, the Daywork Schedule should normally comprise the following:

- a. A list of the various classes of labor, materials, and Constructional Plant for which basic daywork rates or prices are to be inserted by the Bidder, together with a statement of the conditions under which the Contractor will be paid for work executed on a daywork basis.
- b. Nominal quantities for each item of Daywork, to be priced by each Bidder at Daywork rates as Bid. The rate to be entered by the Bidder against each basic Daywork item should include the Contractor's profit, overheads, supervision, and other charges.

Provisional Sums

A general provision for physical contingencies (quantity overruns) may be made by including a provisional sum in the Summary Bill of Quantities. Similarly, a contingency allowance for possible price increases should be provided as a provisional sum in the Summary Bill of Quantities. The inclusion of such provisional sums often facilitates budgetary approval by avoiding the need to request periodic supplementary approvals as the future need arises. Where such provisional sums or contingency allowances are used, the SCC should state the manner in which they will be used, and under whose authority (usually the Procuring Entity's Representative's).

The estimated cost of specialized work to be carried out, or of special goods to be supplied, by other contractors should be indicated in the relevant part of the Bill of Quantities as a particular provisional sum with an appropriate brief description. A separate procurement procedure is normally carried out by the Procuring Entity to select such specialized contractors. To provide an element of competition among the Bidders in respect of any facilities, amenities, attendance, etc., to be provided by the successful Bidder as prime Contractor for the use and convenience of the specialist contractors, each related provisional sum should be followed by an item in the Bill of Quantities inviting the Bidder to quote a sum for such amenities, facilities, attendance, etc.

Signature Box

A signature box shall be added at the bottom of each page of the Bill of Quantities where the authorized representative of the Bidder shall affix his signature. Failure of the authorized representative to sign each and every page of the Bill of Quantities shall be a cause for rejection of his bid.

These Notes for Preparing a Bill of Quantities are intended only as information for the Procuring Entity or the person drafting the Bidding Documents. They should not be included in the final documents.

Please see attached Bill of Quantities.

Section IX. Checklist of Technical and Financial Documents

Notes on the Checklist of Technical and Financial Documents

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

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

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

Checklist of Technical and Financial Documents

I. TECHNICAL COMPONENT ENVELOPE

Class "A" Documents

Legal Documents

- (a) Valid PhilGEPS Registration Certificate (Platinum Membership) (all pages) 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; **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; **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; **and**
- (f) Project Requirements, which shall include the following:
 - a. Organizational chart for the contract to be bid;
 - b. List of contractor's key personnel (*e.g.*, Project Manager, Project Engineers, Materials Engineers, and Foremen), to be assigned to the contract to be bid, with their complete qualification and experience data;
 - c. List of contractor's major equipment units, which are owned, leased, and/or under purchase agreements, supported by proof of ownership or certification of availability of equipment from the equipment lessor/vendor for the duration of the project, as the case may be; **and**
- (g) Original duly signed Omnibus Sworn Statement (OSS) **and** if applicable, Original Notarized Secretary's Certificate in case of a corporation, partnership, or cooperative; or Original Special Power of Attorney of all members of the joint venture giving full power and authority to its officer to sign the OSS and do acts to represent the Bidder.

Financial Documents

- (h) The prospective bidder's computation of Net Financial Contracting Capacity (NFCC).

Class "B" Documents

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

II. FINANCIAL COMPONENT ENVELOPE

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

Other documentary requirements under RA No. 9184

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



GENERAL SPECIFICATIONS

“COMPLETION OF THREE (3) STOREY RSCC BUILDING”

PROJECT TITLE

PUGUIS, LA TRINIDAD, BENGUET

PROJECT LOCATION

Written and Prepared by:

ARCH. JIMMY M. MAYORES, UAP
ARCHITECT 1, AD/BGMS
PRC REG. NO.: **0049778**



ARCHITECTURAL SPECIFICATION

DIVISION 1 - "GENERAL PARAGRAPHS"

31 AUGUST 2022

JMM/ REV. 00

Revision	Date	Description



DIVISION 1 - GENERAL PARAGRAPHS

PART 1. GENERAL

1.1. DESCRIPTION

1.1.1. The work specified herein is the **COMPLETION OF THREE (3) STOREY RSCC BUILDING, Puguis, La Trinidad, Benguet.**

1.2. PROJECT INFORMATION

1.2.1. The work shall confirm the following contract drawings, details and maps, all of which form part of these specifications.

1.2.2. Omissions from the drawings or specifications or the misdescription of details of work which are manifestly necessary to carry out the intent of the drawings and specifications, or which are customary performed, shall not relieve the Contractor from performing as if fully and correctly set forth and described in the drawings and specifications.

1.2.3. The Contractor shall check all drawings and furnish it immediately upon receipt and shall promptly notify the Project Engineer/Architect of any discrepancies. Figures marked on drawings shall be followed in preference to scale measurements. Large scale drawings shall govern small scale drawings. The contractor shall compare all drawings and verify the figures before laying out the work and will be responsible for any errors which might have been avoided thereby.

1.2.4. All drawings issued for construction to General Contractor/s, Sub-contractor shall be furnished solely by the architect.

1.2.5. Physical Data: The physical conditions indicated on the drawings and in the specifications are the results of site investigations by survey and soil investigations conducted. However, it is expressly understood that the Architect/Designer will not be responsible for any interpretations or conclusions drawn therefrom.

1.3. EXISTING WORK

1.3.1. The disassembling, disconnecting, cutting, removal, or altering of existing work in any way shall be carried on in such a manner as to prevent damage on all portions of existing work, whether they are to remain in place, reused in the new work, or salvaged and stored.

1.3.2. All portions of existing work which have been cut, damaged or altered in any way during construction operations shall be repaired or replaced with a kind which matches the existing or adjoining work. All work of this nature shall, at the completion of all operations, be left in a condition which is as good as what existed before the new work started.

PART 2 SUBMITTALS

2.1. PROPOSED MATERIAL SUBMITTALS, CATALOGUE DATA AND SAMPLES

2.1.1. Proposed material submittals required of the Contractor shall be submitted within 30 calendar days after Notice to Proceed to allow sufficient time for processing, review, approval and procurement before the Contractor is ready to use the material. **No material shall be used prior to written approval.**



2.1.2. The Contractor shall furnish the name and address of the manufacturer of each item of material and equipment. Each submittal shall be accompanied by a cover letter signed by the Contractor.

2.1.3. The Contractor shall furnish three (3) copies for approval, giving full information, such as identifying description, catalogue numbers, catalogue cuts, and data sheets as may be required for all material and equipment designated in the technical sections of this specification. Clearly mark each item proposed to be the item number of the contract and identify in the submittals, with cross references to the item number of the Contract drawings and specifications so as to clearly identify the use for which it is intended. Data submitted in a bound volume in the same numerical sequence as specification section paragraphs.

2.1.4. The Contractor shall certify on all submittals that the material being proposed conforms to the contract requirements. In the event of any variance, the Contractor shall state specifically which portions vary, and request approval of a substitute. Incomplete submittals and submittals with inadequate data will be rejected.

2.2. SHOP DRAWINGS

2.2.1. Before starting the fabrication or installation of any of this work, the Contractor shall submit drawings as may be required and designated in the technical sections of this specification.

2.2.2. In addition to the drawings designated in the technical sections, the Contractor shall submit drawings as may be required and designated in the technical sections of this specification.

2.2.3. The Contractor shall prepare at his own expense and submit with such promptness as to cause no delay in his work or in that of any other Contractor doing work on the same building, three (3) blueprint copies in 30" x 20" or A1 size of all shop drawings, as well as schedules, required corrections, including all necessary corrections to artistic effect. The Contractor shall make any corrections required by the Architect, file with him two (2) corrected copies and furnish such other copies as may be needed.

2.2.4. Shop drawings are to be submitted within 30 calendar days after the issuance of Notice to Proceed.

2.3. The Contractor shall not be relieved of responsibility for any deviation from the requirement of the Contract Documents by the Architect's approval of Shop Drawings, Product Data or samples unless the Contractor has specifically informed the Architect in writing such deviation at the time of submission and the Architect has given written approval to the specific deviation.

2.4. The Contractor shall not be relieved from the responsibility for errors or omissions in the Shop Drawings, Product Data or samples by the Architect's approval thereof.

2.5. No portion of work requiring submission of Shop Drawings, Product Data or sample shall be commenced until the submittal has been approved by the Architect. All such portions of the work shall be in accordance with approved submittals.

2.6. Manufacturer's Certificates of Conformance: Before delivery, manufacturer's certifications shall be furnished by the Contractor as required by the technical specifications. The original of all manufacturers' certification shall name the appropriate item of equipment or material, specification, standard, or other documents specified as controlling the quality of that item and shall have attached thereto certified copies of test data upon which the certifications are based.

2.7. Laboratory Reports: An independent testing agency will be selected to conduct specified test, inspection services and prepare laboratory reports. Reports shall cite the contract requirements, the test or analysis procedures used, the actual test results, and state that the item tested or analyzed conforms



to fails to conform to the specification requirement. All test reports shall be signed by a representative of the testing laboratory authorized to sign certified test reports. In case test results fail to meet specified requirements, additional tests shall be conducted until such requirement is achieved. Cost incurred by retesting shall be borne by the Contractor.

2.8. Warranty Documents: In addition to the warranties required, the Contractor shall submit together with the technical publication specified herein, a copy of all warranty documents on all items of equipment, including those obtained in writing from the subcontractor, manufacturers and suppliers.

2.9. MOCK-UP:

2.9.1. *GENERAL:* As soon as practicable, provide a complete installation of mock-up test panels as required by the Contract Documents, Modifications deemed necessary shall be made in mock-up for evaluation, and re-tested until specified results are obtained.

2.9.2. Tests shall be conducted at Contractor's expense; Modifications for the mock-up as required from the result shall be obtained.

2.9.3. Coordinate mock-up test conditions and procedure with the Architect prior to the test.

2.10. Architect's Review of Submittals: The Architect shall review Shop Drawings, Product Data, and Samples with reasonable promptness upon Architect's receipt and will apply Architect's stamp thereto. Notations by the Architect which would increase contract cost or time of completion shall be brought to the Architect's attention before proceeding with the Work. Each submittal will be stamped indicating appropriate action as follows:

2.10.1. **"A" Action:** Means that fabrication, manufacture, or construction may proceed providing submittal which complies with the Architect's notations and Contract Documents. If, for any reason, the Contractor cannot comply with notations, Contractor shall make revisions and resubmit as described for submittals stamped "C" action.

2.10.2. **"B" Action:** Means that fabrication, manufacture, or construction may proceed, provided with submittal which complies with the Architect's notations and Contract Documents. If, for any reason, Contractor cannot comply with notations, Contractor shall make revisions and resubmit as described for submittals stamped "C" action.

2.10.3. **"B" Action-resubmit:** Means that fabrication, manufacture, construction may proceed; however, if the submittal did not fully demonstrate the full extent of all conditions, details, or coordination with other surrounding work, and, therefore, requires additional information and rework as noted. These shop drawings shall be submitted for final "A" and "B" action. Specific areas requiring additional information shall not be fabricated, manufactured or constructed prior to resubmission.

2.10.4. **"C" Action:** Means that submittal does not comply with design intent of Contract Documents. Submittals stamped "C" Action are not to be used. Contractor shall make revisions and resubmit.

2.11. IMPLEMENTING AGENCY (DSWD) /CONSULTING ENGINEERS/CONSTRUCTION MANAGEMENT CONSULTANT'S TESTING AND COMMISSIONING

2.11.1. Pre-construction survey

2.11.2. Site utility survey

2.11.3. Exterior window wall mock-up test

2.11.4. Concrete testing and survey

2.11.5. Concrete reinforcing testing and survey

*** END OF SECTION ***



ARCHITECTURAL SPECIFICATION

DIVISION 2 - "SITE CONDITIONS"

31 AUGUST 2022

JMM/ REV. 00

Revision	Date	Description



SITE CONDITIONS

PART 1 GENERAL

1.1. RELATED DOCUMENTS

1.1.1. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this Section.

1.2. SUMMARY

1.2.1. This section includes:

- 1.2.1.1. Site clearing
- 1.2.1.2. Removal and Disposal of Construction Materials
- 1.2.1.3. Storage and Filing of materials
- 1.2.1.4. Site Preparation
- 1.2.1.5. Earthwork
- 1.2.1.6. Foundation Works
- 1.2.1.7. Filing and Backfilling

1.3. SITE CLEARING

1.3.1. Should the existing RSCC Building have structural and utility deficiencies found by the General Contractor, it shall be completely demolished together with all concerned structure involved prior to written approval of the architect and the DSWD.

1.4. REMOVAL AND DISPOSAL OF CONSTRUCTION MATERIALS

1.4.1. Legal and proper waste management and disposal shall be observed during and after the construction. All abandoned footings, utilities, etc. that interferes with new construction shall be removed.

1.5. STORAGE AND FILING OF MATERIALS

1.5.1. **Delivery:** General Contractor shall ensure that materials are properly turned over and delivered on site in good quality and condition. A time and delivery record shall be available.

1.5.2. **Storage:** General Contractor shall designate and/or allot a space to sub- contractors for storage of their materials and for erection of their sheds and tool houses (if necessary). Materials shall be arranged properly and warehouse shall be maintained properly by a designated person of the General Contractor.

1.5.3. All cement, lime and other materials affected by moisture shall be stored on platforms and protected from weather. Materials shall be stored to insure the preservation of their quality and fitness for their work. Stored materials shall be located so as to facilitate prompt inspection.

1.5.4. Should it be necessary at any time to move materials, sheds or storage platforms, the Contractor shall do so at his own expense.



1.6. SITE PREPARATION

1.6.1. **Staking Out:** The building shall be staked out with all the lines and grades in accordance to the drawings and shall be established before excavation starts.

1.7. EARTHWORK

1.7.1. All earthwork shall be done in accordance with soil report recommendation

1.7.2. **Excavation and Leveling:** Excavation shall be constructed or protected so that they do not endanger life or property. Existing footings or foundations which may be affected by any excavation shall be underpinned adequately or otherwise protected against settlement and shall be protected against lateral movement. Before commencing the excavation, the person in charge of the excavation shall notify in writing the owners of adjoining buildings and should be protected. The Contractor assumes full responsibility to provide necessary temporary support during excavation to protect adjacent properties from any damages.

1.8. FOUNDATION

1.8.1. Foundation is designed for a soil bearing capacity of 3000 psi or 144 MPa (or referred to in its geotechnical report).

1.8.2. Foundation shall rest on natural soil, unless otherwise noted by the civil/structural engineer; no part of the foundation shall rest on fill. The contractor shall notify the civil/structural engineer after footing excavation has been completed and prior to concreting to confirm the design soil bearing capacity. In case, actual soil bearing capacity is found to be less than the recommended, notify the structural engineer for proper revision of footing design.

***** END OF SECTION *****



ARCHITECTURAL SPECIFICATION

DIVISION 3 - "CONCRETE"

31 AUGUST 2022

JMM/ REV. 00

Revision	Date	Description



CONCRETE

PART 1 GENERAL

1.1. RELATED DOCUMENTS

1.1.1. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this Section.

1.2. SUMMARY

1.2.1. This section includes:

1.2.1.1. General requirements for all concrete works

1.3. REFERENCES

1.3.1. ACI 315 - Specifications for Structural Concrete for Buildings; American Concrete Institute International.

1.3.2. ACI 318.1R - Guide for Concrete Floor and Slab Construction; American Concrete Institute International.

1.3.3. IBC - International Building Code: Current Editions.

1.3.4. National Building Code of the Philippines

1.3.5. National Structural Code of the Philippines

1.3.6. Local Building Codes and Regulations

1.4. SUBMITTALS

1.4.1. **Product Data:** Provide data on concrete mixture, including information on compatibility of different products and limitations.

1.5. WARRANTY

1.5.1. The manufacturer provides a material warranty of 20 years and provides a workmanship warranty of 5 years.

1.6. QUALITY ASSURANCE

1.6.1. Perform Work in accordance with ACI 318.

1.6.2. Manufacturer: Specializing in manufacturing specified products for at least 10years.

1.7. DELIVERY, STORAGE, AND HANDLING

1.7.1. All materials shall be delivered in manufacturer's containers, dry, undamaged and unopened, including instructions. All clearly labelled with the manufacturer's name, product identification, expiration date, etc.

1.7.2. Store materials strictly in accord with manufacturer's printed recommendations.

1.7.3. Cement and aggregates shall be stored in such a manner as to prevent their deterioration or the intrusion of foreign matter. Cement shall be stored immediately upon arrival on the site of the work, in substantial, waterproof bodegas. The floor must be sufficiently elevated to deter dampness. Aggregates shall be stored separately from other foreign materials.



1.7.4. Water to be used for mixing the concrete shall be clean and free from injurries, amount of oil acids, alkaline, salt and other organic materials. Mixers, which have been out of use for more than 30 minutes, shall be thoroughly cleaned before fresh concrete is mixed. Mixers shall be cleaned out before changing to another type of cement.

PART 2 PRODUCTS

2.1. MANUFACTURERS

2.1.1. Portland Cement must be approved by the Architect and Civil/Structural Engineer

PART 3 EXECUTION

3.1. EXAMINATION

3.1.1. Embedded materials such as gravel and sand should have been inspected and tested, cleared and graded washed.

3.1.2. Verify that areas of execution are acceptable to receive the work of this section.

3.1.3. Alert the Architect of any discrepancies, prior to commencing the Work of this section.

3.1.4. Coordinate the Work of this section with applicable trades.

3.2. MIXING OF CONCRETE

3.2.1. All concrete shall be mixed thoroughly and should be deposited as nearly as practicable. Make sure that the concrete is of the required workability at the point and time of placing. The mixing time of concrete is not less than 60 seconds for

3.2.2. 1.5 cu.m. mixer capacity and not less than 90 seconds for more than 1.5 cu.m. mixer capacity. Interval of placing the concrete shall not be so long allowing the concrete in place to harden partially. The time elapsing between mixing, transporting, placing and compaction altogether of a batch of concrete shall not be longer than the initial setting time of the concrete.

3.2.3. Retempering of concrete will not be permitted.

3.3. PLACING PROCEDURES

3.3.1. The concrete shall be deposited as nearly as possible in its final position. It shall be placed so as to avoid segregation of the concrete and displacement of the reinforcement, other embedded items or formworks. When placing on a nearly horizontal surface, placing shall start at the lower end of the surface to avoid decompaction of concrete.

3.3.2. For pouring of concrete for columns, the Contractor shall use drop chute with a maximum drop height of 1.50 meters or less. For pouring of concrete for slab, the Contractor shall execute the placing direction with backward movement. Concrete slab on fill with 100 mm thick shall be poured on gravel bed and shall be placed with the 10mm diameter Reinforcement Steel Bar (RSB) spaced at 400mm both ways.

3.3.3. Layers shall not be placed so that they form featheredges nor shall they be placed on a previous layer, which has taken its initial set. In order to comply with this requirement, another layer may be started before the initial set of the preceding layer.

3.3.4. Concrete shall not be placed during rain, which is sufficiently heavy or prolonged to wash mortar from coarse aggregate on the exposed faces of fresh concrete. Means shall be provided to remove any water accumulating on the surface of the placed concrete. Concrete shall not be deposited into such accumulations of water.



3.3.5. In dry weather, covers shall be provided for all fresh concrete surfaces, which are not being worked on. Water shall not be added to concrete for any reason.

3.4. CURING OF CONCRETE

3.4.1. Concrete shall be protected during the first stage of hardening from loss of moisture and from the development of temperature differentials within the concrete sufficient to cause cracking. The methods used for curing shall not cause damage of any kind to the concrete.

3.4.2. Curing shall be continued for as long as may be necessary to achieve the above objectives but not less than 7 days until the concrete is covered by successive construction whichever is the shortest period. The curing process shall commence as soon as the concrete is hard enough to resist damage from the process.

3.4.3. Exposed concrete surfaces shall be closely covered with impermeable sheeting, properly secured to prevent its removal by wind and the development of air spaces beneath it. If it is not possible to use impermeable sheeting, the Contractor shall keep the exposed surfaces continuously wet by means of water spray or by covering with a water absorbent material, which shall be kept wet.

3.4.4. The contractor shall provide a suitable form of shading to prevent the direct rays of the sun reaching the concrete surfaces for at least the first four days of the curing period.

3.5. GENERAL REQUIREMENTS FOR ALL CONCRETE

3.5.1. All materials and workmanship shall conform to the latest building code of American Concrete Institute (ACI-318).

3.5.2. All concrete shall develop a minimum compressive strength at the end of twenty-eight (28) days with corresponding maximum size aggregate and slumps as follows:

LOCATION	28 DAYS COMPRESSIVE STRENGTH	MAXIMUM SIZE AGGREGATE	MAXIMUM SLUMP
Curbs & Slab on Grade except Foundation	3000 psi (21 mPA)	1 in. (25mm)	4 in (100mm)
Foundation & Retaining Wall	3000 psi (21 mPA)	3/4 in. (19mm)	4 in (100mm)
Beams, Slabs, Columns & Shear walls	3000 psi (21 mPA)	3/4 in. (19mm)	4 in (100mm)

3.5.3. In general, the latest edition of ACI- 315, manual of standard practice detailing reinforced concrete structures shall be adhered to, unless otherwise shown or noted.

3.5.4. Minimum concrete cover to be maintained for reinforcing steel:



Suspended Slabs	3/4 in. (19mm)
Slab on Grade	1 ½ in. (38mm)
Walls Above Grade	1 in. (25mm)
Beam Stirrups and Column Ties	1 ½ in. (38mm)
where concrete is exposed to earth but poured against forms	2 in. (50mm)
where concrete is deposited directly against earth	3 in. (75mm)

3.5.5. All anchor bolts, dowels, and other inserts, shall be properly positioned and secured in placed prior to placing of concrete contractor shall note and provide all miscellaneous curbs, sills, stools, equipment, and mechanical bases that are required by the Architectural, Electrical, and Mechanical drawings.

3.5.6. All concrete shall be kept moist for a minimum of seven (70 consecutive days immediately after pouring by the use of wet burlap, fog spraying, curing compounds or other approved methods.

***** END OF SECTION *****



ARCHITECTURAL SPECIFICATION

DIVISION 4 - "MASONRY"

31 AUGUST 2022

JMM/ REV. 00

Revision	Date	Description



UNIT MASONRY ASSEMBLY

PART 1 GENERAL

1.1. REFERENCES

1.1.1. American Concrete Institute (ACI) Publication: Manual of Standard Practice for Detailing Reinforced Concrete Structures

1.1.2. American Society for Testing and Materials (ASTM) Publications:

C 39 - Compressive Strength of Cylindrical Concrete Specimens

C 91 - Masonry Cement

C 144 - Aggregate for Masonry Mortar

C 270 - Mortar for Unit Masonry

C 404 - Aggregates for Masonry Grout

C 426 - Drying Shrinkage of Concrete Block

D 1056 - Flexible Cellular Materials-Sponge or Expanded Rubber

D 1667 - Flexible Cellular Materials - Vinyl Chloride Polymers and Copolymers (Closed Cell Sponge)

E 447 - Compressive Strength of Masonry Prisms

1.1.3. Product Standards Agency (PSA) Publications (Philippines): PNS 07 - Specifications for Portland Cement

PNS 16 - Specifications for Concrete Hollow Blocks

PNS 18 - Specifications for Concrete Aggregate

PNS 49 - Specifications for Steel Bars for Concrete Reinforcement

SAO 181 - Industrial Quicklime and Hydrated Lime

1.2. DEFINITIONS

1.2.1. Concealed Masonry Surfaces:

1.2.1.1. Surfaces of foundation walls against which backfill is placed.

1.2.1.2. Surfaces covered by furring and wallboard plaster, stucco, or masonry facings.

1.2.1.3. Surfaces above suspended ceilings.

1.2.1.4. Surfaces within attic spaces, crawl spaces, pipe or duct chases and elevator shafts.

1.2.2. Exposed Masonry Surfaces

Masonry surfaces other than those listed above including those to be painted.

1.2.3. Grout Lift and Grout Pour

A grout lift is the layer of grout placed in a single continuous operation. A grout pour is the entire height of grout fill placed in one day and is composed of a number of successively placed grout lifts.

1.2.4. Reinforced Hollow Unit Masonry



Hollow concrete masonry units reinforced vertically and horizontally with steel bars located within cells or kerfs in the units and with cells containing reinforcing bars filled solidly with grout.

1.2.5. Additional Definitions:

- 1.2.5.1. *Back-Up*: That part of masonry walls which is behind the exterior facing.
- 1.2.5.2. *Bed Joint*: The horizontal layer of mortar on which a masonry unit is laid.
- 1.2.5.3. *Head Joint*: The vertical mortar joint between ends of masonry units. Sometimes
- 1.2.5.4. *Kerf*: A cut or notch made with a saw, or with a cutter, part way through a portion of a unit.
- 1.2.5.5. *Low Lift Grouting*: The technique of grouting masonry in 0.20 to 1.8 meters lifts as the wall is being laid.
- 1.2.5.6. *Reinforced Masonry*: Masonry in which reinforcement is embedded in such a manner that the components act together to resist lateral forces.

1.3. PERFORMANCE REQUIREMENTS

1.3.1. Provide unit masonry that develops the following net-area compressive strengths (f'm) at 28 days. Determine compressive strength of masonry by testing masonry prisms according to ASTM C 1314.

- 1.3.1.1. For Concrete Unit Masonry: f'm = 1500 psi (10.3 MPa)
- 1.3.1.2. For Load Bearing Concrete Unit Masonry: f'm = 2000 psi (13.8 MPa)

1.4. SUBMITTALS

1.4.1. **Product Data**: For each different masonry unit, accessory, and other manufactured product specified.

1.4.2. **Shop Drawings**: Show fabrication and installation details for the following:

- 1.4.2.1. Reinforcing Steel: Detail bending and placement of unit masonry reinforcing bars. Comply with ACI 315, "Details and Detailing of Concrete Reinforcement." Show elevations of reinforced walls.
- 1.4.2.2. Fabricated Flashing: Detail corner units, end-dam units, and other special applications.

1.4.3. **Samples for Verification**:

For the following:

- 1.4.3.1. Full-size units for each different masonry unit required, showing the full range of exposed dimensions to be expected in the completed construction.
- 1.4.3.2. Accessories embedded in the masonry.

1.4.4. **List of Materials Used in Constructing Mockups**: List generic product names together with manufacturers, manufacturers' product names, model numbers, lot numbers, batch numbers, source of supply, and other information as required to identify materials used. Include mix proportions for mortar and grout and source of aggregates.

1.4.4.1. Submittal is for information only. Neither receipt of list nor approval of mockup constitutes approval of deviations from the Contract Documents, unless such deviations are specifically brought to the attention of the Architect and approved in writing.



1.4.5. **Qualification Data:** For firms and persons specified in "Quality Assurance" Article.

1.4.6. **Material Test Reports:** From a qualified testing agency indicating and interpreting test results of the following for compliance with requirements indicated:

1.4.6.1. Each type of masonry unit required. Include test results, measurements, and calculations establishing net-area compressive strength of masonry units.

1.4.6.2. Mortar complying with property requirements of ASTM C 270.

1.4.6.3. Grout mixes complying with compressive strength requirements of ASTM C 476. Include description of type and proportions of grout ingredients.

1.4.7. **Material Certificates:** Signed by manufacturers certifying that each of the following items complies with requirements:

1.4.7.1. Each type of masonry unit required. Include test data, measurements, and calculations establishing net- area compressive strength of masonry units.

1.4.7.2. Each cement product required for mortar and grout, including name of manufacturer, brand, type, and weight slips at time of delivery.

1.4.7.3. Each combination of masonry unit type and mortar type. Include statement of net area compressive strength of masonry units, mortar type, and net- area compressive strength of masonry determined according to Tables 1 and 2 in ACI 530.1/ASCE 6/TMS 602.

1.4.7.4. Each material and grade indicated for reinforcing bars.

1.4.7.5. Each type and size of joint reinforcement.

1.4.7.6. Each type and size of anchor, tie, and metal accessory.

1.5. QUALITY ASSURANCE

1.5.1. **Testing Agency Qualifications:** An independent testing agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1093 to conduct the testing indicated, as documented according to ASTM E 548.

1.5.2. **Source Limitations for Masonry Units:** Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, through one source from a single manufacturer for each product required.

1.5.3. **Source Limitations for Mortar Materials:** Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from one manufacturer for each cementitious component and from one source or producer for each aggregate.

1.5.4. **Preconstruction Testing Service:** Engage a qualified independent testing agency to perform the following preconstruction testing:

1.5.4.1. Concrete Masonry Unit Test: For each concrete masonry unit indicated, per ASTM C 140.

1.5.4.1. Mortar Test: For mortar properties per ASTM C 270.

1.5.4.1. Grout Test: For compressive strength per ASTM C 1019.

1.5.5. **Preinstallation Conference:** Conduct conference at Project site to comply with requirements in project meetings.



1.6. DELIVERY, STORAGE & HANDLING

1.6.1. Handle, store and protect masonry units to avoid chipping, breakage or contact with the soil. Keep steel reinforcing bars free of rust and loose scale. Reject rusted steel reinforcing bars. Deliver cement and lime in unbroken bags, barrels, or other sealed containers. Keep cementitious materials dry. Store and handle cement to prevent the inclusion of foreign materials. Store aggregates in a manner to avoid contamination or segregation. Plainly mark and label containers with the manufacturer's names and brands.

PART 2 PRODUCTS

2.1. Masonry Units

2.1.1. **Masonry unit:** Subject to compliance with requirements and as approved by the Architect.

2.1.2. **Concrete Masonry Units (CHB):**

2.1.2.1. *Aggregates:* ASTM C33

2.1.2.2. *Linear Drying Shrinkage:* Not to exceed 0.065 percent when tested in accordance with ASTM 426.

2.1.2.3. *Kinds and Shapes:* In addition to the requirements specified, concrete masonry units of the various kinds shall conform to PNS 16, Type II for 150 mm thick ($f'm = 7$ MPa / 5 MPa) and for 100 mm thick ($f'm = 2.5$ MPa). Include closer, jamb, lintel and bond beam units and special shapes and sizes to complete the work as indicated.

2.2. Centering Device

2.2.1. Provide centering clips that prevent displacement of reinforcing bars during the course of construction.

2.3. Deformed Reinforcing Bars

ASTM A615, Grade 275 (40,000 psi).

2.4. Materials for Mortar and Grout

2.4.1. **Admixtures**

2.4.1.1. *Admixtures:* May be used in mortar or grout provided that the admixture does not adversely affect bond or compressive strength of mortar or grout.

2.4.1.2. *Prohibited Ingredients:* Do not use air entraining compounds, calcium chloride salts or other chemicals that will adversely affect metals or the coatings of metals embedded in the mortar or grout.

2.4.2. **Aggregate for Mortar**

ASTM C 144, except that not less than 3 percent nor more than 15 percent shall pass the No. 100 sieve. Aggregate used in mortar for joints 6 mm or less shall have 100 percent passing the No. 8 sieve with 10 percent being retained on the No. 16 sieve.

2.4.3. **Aggregate for Grout:**

2.4.3.1. *Fine Aggregate:* ASTM C 404, Size No. 2 or ASTM C 144.

2.4.3.2. *Pea Gravel:* ASTM C 404, except that 100 percent shall pass the 9 mm screen and not more than 5 percent shall pass the No. 8 sieve.



2.4.3.3. *Coarse Aggregate*: ASTM C 404, size No. 8.

2.4.4. **Portland Cement** : ASTM C150, Type I.

2.4.5. **Lime Putty**

Slaked according to the manufacturer's instructions.

2.4.5.1. *Hydrated Lime*: SAO 181.

2.4.5.2. *Pulverized Quicklime*: SAO 181 except 100 percent shall pass the No. 20 sieve and 90 percent shall pass the No. 50 sieve.

2.4.5.3. *Lime Paste*: Lime paste shall be made with pulverized quicklime or hydrated lime. Hydrated lime processed by the steam method shall be allowed to soak not less than 24 hours. Quicklime and other hydrated lime shall be allowed to soak not less than 72 hours. In lieu of hydrated lime paste for use in mortar, the hydrated lime may be added in the dry form.

2.4.6. **Water**: Potable.

2.5. Mortar Mixes

2.5.1. **Proportions:**

2.5.1.1. Type M in accordance with the proportion specifications of ASTM C 270. The mortar shall have a flow, after 11 minutes, of 75 percent or more when tested for water retention in accordance with ASTM C 91 except mortar shall be mixed to an initial flow of 105 to 115 percent.

2.6. Grout Mixtures

2.6.1. **Proportions:**

Mix in laboratory established proportions to in a compressive strength at 28 days of not less than 17.20 MPa (2500 psi) when tested in accordance with ASTM C 91 for fine aggregate and ASTM C 39 for grout containing coarse aggregate. Grout shall be classified as fine and low lift types as specified below.

2.6.2. *Fine Grout*: Portland cement, fine aggregate, and sufficient water to obtain a pouring consistency without segregation of the constituents. Slump shall be approximately 125 mm.

2.6.3. *Low Lift Grout*: Portland cement, lime paste or hydrated lime, fine aggregate and coarse aggregate, and sufficient water to obtain a pouring consistency without segregation of the constituents. Slump between 200 and 250 mm.

2.7. Source Quality Control

2.7.1. Prior to delivery of masonry units to the site, select by random sampling nine individual whole units from the units proposed for use. Select units free from cracks or other structural defects. Test in accordance with PNS 16.



PART 3 EXECUTION

3.1. Preparation

3.1.1. Examination

3.1.1.1. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.

3.1.1.1.1. For the record, prepare a written report, endorsed by Installer, listing conditions detrimental to performance.

3.1.1.1.2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.1.1.2. Before installation, examine rough-in and built-in construction to verify actual locations of piping connections.

3.1.2. Protection

3.1.2.1. *Forms and Shores:* Where required, construct forms to the shapes, lines, and dimensions of the members indicated. Construct forms sufficiently rigid to prevent deflections which may result in cracking or other damage to supported masonry and sufficiently tight to prevent leakage of mortar and grout. Do not remove supporting forms or shores until the supported masonry has acquired sufficient strength to support its weight and construction loads to which it may be subjected. In no case shall supporting forms or shores be removed in less than 10 days. Wait at least 16 hours after grouting masonry walls after applying uniform loads and wait an additional 48 hours before applying concentrated loads.

3.1.2.2. *Wall Bracing:* Brace walls against wind and other forces during construction. Allow sufficient time between lifts to prevent cracking of face shells of hollow masonry units. If blowouts, misalignment, or cracking of face-shells should occur during construction, tear down and rebuild the wall at no additional cost to the DSWD.

3.1.3. Surface Preparation

3.1.3.1. Clean laitance, dust, dirt, oil, organic matter or foreign materials from concrete surface upon which reinforced masonry is to be placed. Use sandblasting, if necessary, to remove laitance from pores and expose to the aggregate.

3.2. Laying Masonry Units

3.2.1. Wet Masonry Units

Do not wet concrete masonry units. Do not lay units having a film of water on the surface.

3.2.2. Embedded Items

Build in wall plugs, accessories, flashings, pipe sleeves and other items required being built-in as the masonry works progresses. Fill cells receiving anchor bolts and cells of the first course below bearing plates with mortar or grout. Fill spaces around metal door frames and other built-in items with mortar. Point openings around flush-mounted electrical outlet boxes in wet locations, including the flush joint above the box with mortar. Do not embed aluminum items.

3.2.3. Bond Beams and Lintels



Install bond units, reinforced as indicated, filled with grout. Install open bottom type bond beam units over cells to be filled. Place wire mesh or small mesh metal lath under open bond beam units if used over cells not to be filled.

3.2.4. Unfinished Work

Step back-unfinished work for joining with new work. Do not use toothing without the written approval of the DSWD-BGMS. Remove loose mortar and thoroughly clean the exposed joints before laying new work.

3.2.5. Placing Units

Lay hollow masonry units so as to preserve the vertical continuity of cells filled with grout. The minimum clear horizontal dimensions of vertical cores shall be 50 mm by 75 mm. Masonry bond units at corners. Anchor intersections by reinforcing bars as indicated. Adjust each unit to its final position while mortar is still soft and plastic. If any unit is disturbed after mortar has stiffened, remove and relay in fresh mortar. Keep chases, raked out joints, and spaces to be grouted, free from mortar and other debris.

3.2.6. Bond Pattern

Lay masonry units in running bond.

3.2.7. Cutting and Fitting

Wherever possible, use full units of the proper size in lieu of cut units.

Use power masonry saws for cutting and fitting. Concrete-masonry units shall be wet cut. Make cut edges clean, true and sharp. Make openings carefully so that wall plates, cover plates or escutcheons required by the installation will completely conceal the openings and will be aligned at the bottom with the masonry joints. Cut webs of hollow masonry units to the minimum required for proper installation. Provide reinforced masonry lintels, above openings over 300 mm wide for pipes, ducts and cables trays unless steel sleeves are used.

3.2.8. Mortar Joints

Spread bed joints with mortar for the full thickness of the face shells. Where only cells containing reinforcement are to be grouted, spread cross webs around such cell with mortar to prevent leakage of grout. Butter head joints for full thickness of the face shell and place the units. Avoid fins of mortar that protrude into cells to be grouted.

3.2.9. Jointing

Tool joints when the mortar is thumbprint hard. Tool horizontal joints first. Brush joints to remove loose and excess mortar. Mortar joints shall be finished as follows:

3.2.9.1. *Flush Joints*: Flush cut joints in concealed masonry surfaces and joints above electrical outlet boxes in wet areas. Make flush cut joints by cutting off the mortar flush with the face of the wall.

3.2.9.2. *Tooled Joints*: Tool joints in exposed exterior and interior masonry surfaces slightly concave. Use a jointer of sufficient length to obtain straight and true mortar joints.

3.2.9.3. *Joint Width*: 9 mm wide.

3.3. Placing Reinforcing Steel



Prior to placing grout, clean, reinforcement of loose, flaky rust, scale, grease, mortar, grout, or other coating which might destroy or reduce its bond with the grout. Details of reinforcement shall be in conformance with ACI 315. Do not bend or straighten reinforcing in a manner injurious to the steel. Do not use bars with kinks or bends not shown on the drawings. Placement of reinforcement shall be inspected and approved prior to placing grout.

3.3.1. Positioning Bars: Position vertical bars accurately at the centerline of the wall. Maintain a minimum clearance between the bars and masonry units of 12 mm and between parallel bars of one diameter of the reinforcement. Hold vertical reinforcing in place using metal support, centering clips, spacers, ties or caging devices located near the ends of each bar and at intermediate intervals of not more than 192 diameters of the reinforcement.

3.3.2. Splices: Locate splices only as indicated. Stagger splices in adjacent bars at least 600 mm. Lap bars a minimum of 40 diameters of the reinforcement or 600 mm, whichever is greater. Welded or mechanical connections shall develop the full strength of the reinforcement.

3.4. Placing Grout

Use a hand bucket, concrete hopper or grout pump. Place grout in the final position within 1-½ hours after mixing. Where grouting is discontinued for more than one hour, stop the grout 25-mm below the top of a course to form a key at pour points. Place grout to completely fill the grout spaces without segregation of the aggregates.

3.4.1. Low Lift Grout Method

Place grout as masonry is erected at a rate that will not cause displacement of the masonry due to hydrostatic pressure of the grout. If mortar has been allowed to set prior to grouting, remove fins protruding more than 12 mm into the grout space. Rod or puddle grout during placement using a long 25-mm by 50-mm wood stick or a mechanical vibrator.

3.5. Tolerance

Lay masonry plumb, true to line, with course level. Keep bond patterns plumb throughout.

3.6. Field Quantity Control

3.6.1. Grout

3.6.1.1. DSWD/BGMS will engage a qualified independent testing agency to perform field quality-control testing indicated below.

3.6.1.1.1. Payment for these services will be made by Contractor.

3.6.1.1.2. Retesting of materials failing to meet specified requirements shall be done at contractor's expense.

3.6.1.2. *Testing Frequency:* Tests and Evaluations listed in this Article will be performed during construction for each 5000 sq. ft. (465 sq. m) of wall area or portion thereof. C. Mortar properties will be tested per ASTM C 780.

3.6.1.3. Grout will be sampled and tested for compressive strength per ASTM C 1019. Employ a qualified testing laboratory to proportion and test grout. Do not change laboratory established proportions or use materials with different physical or chemical characteristics in grout for the work unless additional evidence is furnished that the grout meets the specified requirements.



3.6.1.4. *Concrete Masonry Unit Tests*: For each type of concrete masonry unit indicated, units will be tested according to ASTM C 140.

3.6.2. **Repairing, Pointing and Cleaning**

3.6.2.1. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.

3.6.2.2. *Pointing*: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application.

3.6.2.3. *In-Progress Cleaning*: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.

3.6.2.4. *Final Cleaning*: After mortar is thoroughly set and cured, clean exposed masonry as follows:

3.6.2.4.1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.

3.6.2.4.2. Test cleaning methods on sample wall panels; leave one-half of the panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.

3.6.2.4.3. Protect adjacent stone and non-masonry surfaces from contact with the cleaner by covering them with liquid strippable masking agent, polyethylene film, or waterproof masking tape.

3.6.2.4.4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing the surfaces thoroughly with clear water.

3.6.2.4.5. Clean masonry with a proprietary acidic cleaner applied according to manufacturer's written instructions.

3.6.2.4.6. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2 applicable to type of stain on exposed surfaces.

3.6.2.4.7. After mortar joints have attained their initial set but prior to hardening, completely remove mortar and grout daubs or splashing from exposed masonry surfaces. Before completion of the work, make out defects in joints in exposed masonry surfaces filled with mortar and tool to match existing joints. Immediately after grout work is completed remove scum and stains which have percolated through the masonry using a high-pressure steam of water and a stiff fiber bristle brush. Do not use metal tools or metal brushes for cleaning. Dry brush exposed concrete masonry unit surfaces at the end of work each day.

3.6.3. **Masonry Waste Disposal**

3.6.4. *Recycling*: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.



3.6.5. *Disposal as Fill Material*: Dispose of clean masonry waste, including broken masonry units, waste mortar, and excess or soil-contaminated sand, by crushing and mixing with fill material as fill is placed.

3.6.6. *Excess Masonry Waste*: Remove excess, clean masonry waste that cannot be used as fill, as described above, and other masonry waste, and legally dispose of the DSWD's property.

***** END OF SECTION *****



ARCHITECTURAL SPECIFICATION

DIVISION 5 - "METALS"

Section 1. General Requirements

31 AUGUST 2022

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METAL WORKS

PART 1 GENERAL

1.1. SUMMARY

1.1.1. Section includes:

1.1.1.1. Miscellaneous Metal Works and fittings

1.1.2. Related Sections:

1.1.2.1. "Specification for Structural Steelwork" by Structural Engineer for steel fabrications used as primary Project structure.

1.1.2.2. Division 05 – Non-Load Bearing Metal Frames and Load Bearing metal Frames

1.2. REFERENCES

1.2.1. ANSI A117.1 - Standard on Accessible and Usable Buildings and Facilities.

1.2.2. ASTM A 36/A 36M - Standard Specification for Carbon Structural Steel.

1.2.3. ASTM A 47/A 47M - Standard Specification for Ferritic Malleable Iron Castings

1.2.4. ASTM A 48/A 48M - Standard Specification for Gray Iron Castings

1.2.5. ASTM A 53/A 53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.

1.2.6. ASTM A 123/A 123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

1.2.7. ASTM A 500 - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.

1.2.8. ASTM A 513 - Standard Specification for Electric-Resistance-Welded Carbon and Alloy Steel Mechanical Tubing

1.2.9. ASTM A 780 - Standard Practice for Repair of Damaged and Uncoated Areas of Hot Dip Galvanized Coatings

1.2.10. ASTM B 633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel

1.2.11. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

1.2.12. ASTM B 221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric).

1.2.13. ASTM E 488 - Standard Test Methods for Strength of Anchors in Concrete and Masonry Elements.

1.2.14. ASTM E 935 - Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings.

1.2.15. AWS (American Welding Society) D1.1 - Structural Welding Code - Steel.



1.2.16. SSPC-Paint 15 -5 - Zinc Dust, Zinc Oxide, and Phenolic Varnish Paint; Steel Joist Shop Paint; Steel Structures Painting Council. The Society for Protective Coatings.

1.2.17. Local Rules and Regulations

1.2.18. IBC - International Building Code; Latest Edition.

1.2.19. National Building Code of the Philippines

1.2.20. Structural Code of the Philippines

1.3. PERFORMANCE REQUIREMENTS

1.3.1. Conform to ANSI A117.1., IBC Section 1009.11, IBC Section 1012, and other applicable codes, rules and regulations.

1.3.2. Test in accordance with ASTM E 935 and also conduct tests required by the Philippine Structural Code and authorities having jurisdiction.

1.4. SUBMITTALS

1.4.1. Submit in accordance with Submittal Procedures issued by Project Architect.

1.4.2. **Shop Drawings:** Indicate plans, elevations, sections, profiles, sizes, connection attachments, anchorage, size and type of fasteners, and accessories.

1.4.2.1. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.4.3. **Test Reports:** Submit substantiating engineering data, test results of previous tests by independent laboratory, and other supportive data sufficient to determine that performance criteria are met.

1.4.4. **Qualifications:** For Structural Engineer

1.5. QUALITY ASSURANCE

1.5.1. Perform shop and site welding to AWS D1.1.

1.5.2. Design structural components under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed in the Philippines.

PART 2 PRODUCTS

2.1. MANUFACTURER

Subject to compliance with requirements and as approved by the Architect. For compliance with requirements, acceptable manufacturers must be pre-approved by the Architect.

2.2. MISCELLANEOUS METAL WORKS AND FITTINGS

2.2.1. **Screws:** Shall be of a standard commercial grade and of the size and type indicated.

2.2.2. **Structural Carbon for Plates, Angles, or Shapes:** Shall conform to the latest revision of ASTM A36, Structural Steel

2.3. FABRICATION



2.3.1. **General:** Fabricate materials to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage, but not less than that required to support structural loads.

2.3.2. Fit and shop assemble components in largest practical sizes for delivery to site. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.

2.3.3. Fabricate components with joints tightly fitted and secured. Provide spigots and sleeves to accommodate site assembly and installation.

2.3.4. **Welded Connections:** Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.

2.3.4.1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.

2.3.4.2. Obtain fusion without undercut or overlap.

2.3.4.3. Remove flux immediately.

2.3.4.4. At exposed connections, finish exposed surfaces smooth and blended so no roughness shows after finishing and welded surface matches contours of adjoining surfaces.

2.3.5. **Exposed Mechanical Fastenings:** Provide flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.

2.3.6. At brackets and fittings fastened to plaster or gypsum board partitions, provide fillers made from crush-resistant material, or other means to transfer wall loads through wall finishes to structural supports and prevent bracket or fitting rotation and crushing of substrate.

2.3.7. Provide inserts and other anchorage devices for connecting railings to concrete or masonry work. Fabricate anchorage devices capable of withstanding loads imposed by railings. Coordinate anchorage devices with supporting structure.

2.3.8. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

2.4. GENERAL FINISHES

2.4.1. Comply with NAAMA's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

2.4.2. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

2.4.3. Provide exposed fasteners with finish matching appearance, including color and texture.



PART 3 EXECUTION

3.1. EXAMINATION

- 3.1.1. Verify that field conditions are acceptable and are ready to receive work.
- 3.1.2. Alert the Architect of any discrepancies, prior to commence the Work this section.
- 3.1.3. Coordinate the Work of this Section with applicable trades.

3.2. PREPARATION

- 3.2.1. Clean and strip primed steel items to bare metal where site welding is required.
- 3.2.2. Supply items required to be cast into concrete or embedded in masonry with setting templates, for installation as work of other sections.

3.2. INSTALLATION

- 3.2.1. Fit exposed connections together to form tight, hairline joints. Install in accordance with manufacturer's instructions.
- 3.2.2. Install components true to line within specified tolerances, accurately fitted, free from distortion or defects.
- 3.2.3. Field weld anchors as indicated on drawings. Touch-up welds with primer. Grind welds smooth.
- 3.2.4. **Welded Connections:** Use fully welded joints for permanently connecting components. Comply with requirements for welded connections whether welding is performed in the shop or in the field.
- 3.2.5. **Expansion Joints:** Install expansion joints at locations indicated but not farther apart than required to accommodate thermal movement. Provide slip-joint internal sleeve extending 50 mm beyond joint on either side, fasten internal sleeve securely to 1 side, and locate joint within 150 mm of post.

3.3. CLEANING AND PROTECTION

- 3.3.1. **Galvanized Surfaces:** Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.
- 3.3.2. Protect finishes from damage during the construction period with temporary protective coverings approved by the manufacturer. Remove protective coverings at time of Substantial Completion.
- 3.3.3. Restore finishes damaged during installation and construction period so no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish the entire unit, or provide new units.

***** END OF SECTION *****



ARCHITECTURAL SPECIFICATION

DIVISION 5 - "METALS"

Section 2. Non-Load Bearing Metal Frames

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NON-LOAD BEARING METAL FRAME

PART 1 GENERAL

1.1. SUMMARY

1.1.1. Section includes:

1.1.1.1. Non-Structural steel framing systems for interior partitions.

1.1.2. Related Requirements:

1.1.2.1. "Load Bearing Steel Studs" and "Metal Works" for exterior and interior structural steel framing members.

1.2. SUBMITTALS

1.2.1. Submit in accordance with Submittal Procedures issued by Project Architect.

1.2.2. **Shop Drawings:** Indicate plans, elevations, sections, profiles, sizes, connection attachments, anchorage, size and type of fasteners, and accessories.

1.2.2.1. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.2.3. **Test Reports:** Submit substantiating engineering data, test results of previous tests by independent laboratory, and other supportive data sufficient to determine that performance criteria are met.

1.2.4. Manufacturers' height limiting tables indicating products provided.

1.2.5. **Product Data:** For each type of product.

Retain "Studs and Runners" Subparagraph below for third-party verification of products. SFIA's program certifies that studs and runners comply with the IBC, ASTM C 645, AISI S100, and AISI S220. Mechanical properties, coatings, dimensions, and labeling are checked.

1.2.5.1. Studs and Runners: Provide documentation that framing members' certification is according to SFIA's "Code Compliance Certification Program for Cold-Formed Steel Structural and Non-Structural Framing Members".

1.2.6. **Evaluation Reports:** Submit evaluation reports certified under an independent third-party inspection program administered by an agency accredited by IAS to ICC-ES AC98, IAS Accreditation Criteria for Inspection Agencies.

1.2.7. **Manufacturer's Certification:** Submit manufacturer's certification of product compliance with codes and standards along with product literature and data sheets for specified products.

1.2.8. **Sustainable Design Submittals:**

1.2.8.1. *Product Data for Credit MR 4.1 [and Credit MR 4.2]:* For products having recycled content, documentation indicating percentages by weight of postconsumer and pre consumer recycled content. Include a statement indicating the cost for each product having recycled content.



1.2.8.2. *Product Data for Credit MR 2.1 [and Credit MR 2.2]:* For products diverted from disposal in landfills and incinerators, and where recycled resources are directed back to the manufacturing process. Include a statement indicating percentage of materials diverted and recycled, and the costs associated with each.

1.2.8.3. *Product Data for Credit MR 5:* For products where product manufacturing is within a 500 mile radius of the jobsite and the point of extraction of the raw materials. Include a statement indicating the location and distances for the manufacturing plant and the point of extraction of raw materials in relation to the jobsite location.

1.3. QUALITY ASSURANCE

1.3.1. Provide certification of code compliance with the “Code Compliance Certification Program” implemented by the Steel Framing Industry Association (SFIA).

PART 2 - PRODUCTS

2.1. ACCEPTABLE MANUFACTURERS

2.1.1. **Manufacturers:** Subject to compliance with requirements and as approved by the Architect. For compliance with requirements, acceptable manufacturers must be pre-approved by the architect.

2.2. PERFORMANCE REQUIREMENTS

2.2.1. **Fire-Test-Response Characteristics:** For fire-resistance-rated assemblies that incorporate nonstructural steel framing, provide materials and construction identical to those tested in assembly indicated, according to ASTM E 119 by, and displaying a classification label from, an independent testing agency acceptable to the authority having jurisdiction.

2.2.1.1. Construct fire-resistance rated partitions in compliance with tested assembly requirements.

2.2.1.2. Rated assemblies to be substantiated from applicable testing using proposed products, by Contractor.

2.2.2. Design framing systems in accordance with American Iron and Steel Institute Publication S220 “North American Specification for the Design of Cold-Formed Steel Framing – Non-Structural Members”, except as otherwise shown or specified.

2.2.3. **Design loads:** As indicated on the Architectural Drawings or 5 PSF minimum as required by the International Building Code.

2.3. FRAMING SYSTEMS

2.3.1. **Recycled Content of Steel Products:** Post-Consumer recycled content plus one-half of pre consumer recycled content not less than 25 percent.

2.3.2. General Framing Members:

2.3.2.1. Protective Coating: Comply with ASTM C 645. Coatings shall have a protective coating meeting the requirements of ASTM A653/A653M, G40, or shall have a protective coating with an equivalent corrosion resistance.

2.3.2.1.1. Coatings providing equivalent corrosion resistance to a G40 shall demonstrate equivalent corrosion resistance with an evaluation report acceptable to the authority having jurisdiction.



2.3.3. Studs and Runners: Comply with manufacturer's for conditions indicated.

2.3.3.1. *Steel Studs and Runners:* ASTM C 645.

2.3.3.1.1. *Minimum Base-Steel Thickness:* indicated in the physical properties table of the submitted manufacturers literature, and cross referenced with the appropriate height determination table to meet required performance.

2.3.3.1.2. *Depth:* As Specified on the Architectural Drawings, and cross referenced with the appropriate height determination table to meet required performance.

2.3.4. Slip-Type Head Joints: Where indicated, provide [one of] the following:

2.3.4.1. *Single Long-Leg Runner System:* top runner with 2-inch deep flanges (or as required) in thickness not less than indicated for studs, installed with studs friction fit into top runner and with continuous bridging located within 12 inches of the top of studs to provide lateral bracing.

2.3.4.2. *Double-Runner System:* top runners, inside runner with 2-inch deep flanges (or as required) in thickness not less than indicated for studs and fastened to studs, and outer runner sized to friction fit inside runner.

2.3.4.3. *Deflection Track:* Steel sheet top runner manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.

2.3.4.4. *Firestop Tracks:* Top runner manufactured to allow partition heads to expand and contract with movement of the structure while maintaining continuity of fire- resistance-rated assembly indicated; in thickness not less than indicated for studs and in width to accommodate depth of studs.

2.3.4.5. *Flat Strap and Backing Plate:* Steel sheet for blocking and bracing in length and width indicated.

2.3.4.5.1. *Minimum Base-Steel Thickness:* As indicated on Drawings.

2.3.4.6. *U-Channel Bridging:* Steel, 0.054-inch minimum base-steel thickness, with minimum 1/2-inch wide flanges.

2.3.4.6.1. *Depth:* As indicated on Drawings.

2.3.4.6.2. *Clip Angle:* Not less than 1-1/2 by 1-1/2 inches, 0.0538-inch thick, galvanized steel.

2.3.4.7. *Hat-Shaped, Rigid Furring Channels:* ASTM C 645.

2.3.4.7.1. *Minimum Base-Steel Thickness:* [0.018 inch] [0.0296 inch].

2.3.4.7.2. *Depth:* [7/8 inch] [1-1/2 inches].

2.3.4.8. *Resilient Furring Channels:* 1/2-inch deep, steel sheet members designed to reduce sound transmission.

2.3.4.9. *Carrying Channels:* 0.054-inch uncoated-steel thickness, with minimum 1/2-inch wide flanges.

2.3.4.9.1. *Depth:* 3/4 inch.



2.3.4.9.2. Furring Brackets: Adjustable, corrugated-edge type of steel sheet with minimum uncoated-steel thickness of 0.0296 inch.

2.3.4.9.3. Tie Wire: ASTM A641/A641M, Class 1 zinc coating, soft temper, 0.062-inch diameter wire, or double strand of 0.048-inch diameter wire.

2.3.4.10. *Z-Shaped Furring*: With slotted or unslotted web, face flange of 1-1/4 inches, wall attachment flange of 7/8 inch, minimum uncoated-steel thickness of 0.018 inch, and depth required to fit insulation thickness indicated.

2.4. AUXILIARY MATERIALS

2.4.1. **General**: Provide auxiliary materials that comply with referenced installation standards.

2.4.1.1. *Fasteners for Metal Framing*: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

2.4.1.2. *Isolation Strip at Exterior Walls*: Provide the following:

2.4.1.2.1. *Foam Gasket*: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch thick, in width to suit steel stud size.

PART 3 EXECUTION

3.1. EXAMINATION

3.1.1. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance of the Work.

3.1.2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2. PREPARATION

3.2.1. Coordination with Sprayed Fire-Resistive Materials:

3.2.1.1. Before sprayed fire-resistive materials are applied, attach offset anchor plates, z furring members, or ceiling runners (tracks) to surfaces indicated to receive sprayed fire-resistive materials. Where offset anchor plates are required, provide continuous plates fastened to building structure not more than 24 inches o.c.

3.2.1.2. After sprayed fire-resistive materials are applied, remove them only to the extent necessary for installation of non-load-bearing steel framing. Do not reduce the thickness of fire-resistive materials below that required for fire-resistance ratings indicated. Protect adjacent fire-resistive materials from damage. Repair or replace any fire-resistive materials as required.

3.3. GENERAL INSTALLATION

3.3.1. Install steel framing according to ASTM C754 and to the manufacturer's written instructions unless more stringent requirements are indicated

3.3.2. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.

3.3.3. Install bracing at terminations in assemblies.



3.3.4. Do not bridge building control and expansion joints with non-structural steel framing members. Frame both sides of joints independently.

3.4. INSTALLING FRAMED ASSEMBLIES

3.4.1. Install framing system components to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.

3.4.1.1. *Single-Layer Application*: [16 inches] [24 inches] o.c. unless otherwise indicated.

3.4.1.2. *Multilayer Application*: [16 inches] [24 inches] o.c. unless otherwise indicated.

3.4.1.3. *Tile Backing Panels*: 16 inches o.c. unless otherwise indicated.

3.4.2. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strips between studs and exterior wall.

3.4.3. Install studs so flanges within the framing system point in the same direction.

3.4.4. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings except where partitions are indicated to terminate at or above suspended ceilings. Continue framing around ducts penetrating partitions above the ceiling.

3.4.4.1. *Slip-Type Head Joints*: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.

3.4.4.2. *Door Openings*: Securely fasten vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs. Fasteners shall not exceed height from the face of framing members more than specified in ASTM C840.

3.4.4.2.1. Install two studs at each jamb unless a framing member has been specifically engineered for the jamb.

3.4.4.2.2. Extend jamb studs through suspended ceilings and attach to underside of overhead structure if the suspended ceiling system cannot withstand forces imposed by door swings.

3.4.4.2.3. If jamb studs cannot be attached to the overhead structure, the Design Professional should be consulted for bracing design.

3.4.4.3. *Other Framed Openings*: Frame openings other than door openings the same as required for door openings unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.

3.4.4.4. *Fire-Resistance-Rated Partitions*: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.

3.4.4.4.1. *Firestop Track*: Where indicated, install to maintain continuity of fire-resistance rated assembly indicated.

3.4.4.5. *Sound-Rated Partitions*: Install framing to comply with sound-rated assembly indicated.

3.4.4.6. *Curved Partitions*:



3.4.4.6.1. Bend track to uniform curve and locate straight lengths so they are tangent to arcs.

3.4.4.6.2. Begin and end each arc with a stud, and space intermediate studs equally along arcs. On straight lengths of no fewer than two studs at ends of arcs, place studs 6 inches o.c. (or as required).

3.4.5. Direct Furring:

3.4.5.1. Screw to wood framing.

3.4.5.2. Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.

3.4.6. Installation Tolerance: Install framing members plumb within ¼ inch in 10 ft-0 in.

3.4.7. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

***** END OF SECTION *****



ARCHITECTURAL SPECIFICATION

DIVISION 5 - "METALS"

Section 3. Non-Load Bearing Metal Frames

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LOAD BEARING STEEL STUDS

PART 1 GENERAL

1.1. RELATED DOCUMENTS

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

1.2. SUMMARY

1.2.1. Section includes

1.2.1.1. Load-bearing wall framing.

1.2.1.2. Floor joist framing.

1.2.1.3. Exterior non-load bearing wall framing

1.2.2. Related Requirements:

1.2.2.1. "Non-Load-Bearing Steel Framing" and "Metal Works" for interior non-load-bearing, metal-stud framing and ceiling-suspension assemblies.

1.3. RECONSTRUCTION MEETINGS

1.3.1. Preconstruction Conference: conduct conference at Project site.

1.4. SUBMITTALS

1.4.1. **Product Data:** For each type of cold-formed steel framing product and accessory.

1.4.2. **Sustainable Design Submittals:**

1.4.2.1. Documentation for each individual CFS product of all applicable LEED® Version 4 credits in the SFIA document entitled LEED®ing with COLD-FORMED STEEL.

1.4.3. **Shop Drawings:**

1.4.3.1. Provide Shop Drawings prepared by cold-formed metal framing manufacturer.

1.4.3.2. Include layout, spacings, sizes, thicknesses, and types of cold-formed steel framing; fabrication; and fastening and anchorage details, including mechanical fasteners.

1.4.3.3. Indicate reinforcing channels, opening framing, supplemental framing, strapping, bracing, bridging, splices, accessories, connection details, and attachment to adjoining work.

1.4.3.4. Shop drawings shall be stamped by a professional engineer registered in the jurisdiction of the project.

1.4.4. **Delegated-Design Submittal:** For cold-formed steel framing by Specialty Structural Engineer (SSE).

1.5. INFORMATIONAL SUBMITTALS

1.5.1. **Qualification Data:** For testing agency.

1.5.2. **Welding Certificates**



1.5.3. **Product Certificates:** Code Compliance certificates for studs and tracks

1.5.4. **Product Test Reports:** For each listed product, for tests performed by manufacturer and witnessed by a qualified testing agency.

1.5.4.1. Steel sheet.

1.5.4.2. Expansion anchors.

1.5.4.3. Power-actuated anchors.

1.5.4.4. Mechanical fasteners.

1.5.4.5. Vertical deflection clips.

1.5.4.6. Horizontal drift deflection clips

1.5.4.7. Miscellaneous structural clips and accessories.

1.5.5. **Evaluation Reports:** For cold-formed steel framing.

1.5.5.1. Products to be certified under an independent third-party inspection program administered by an agency accredited by IAS to ICC-ES AC98 IAS Accreditation Criteria for Inspection Agencies.

1.6. QUALITY ASSURANCE

1.6.1. **Manufacturer Qualifications:** Member in good standing of the Steel Framing Industry Association (SFIA).

1.6.1.1. Products to be certified under an independent third-party inspection program administered by an agency accredited by IAS to ICC-ES AC98 IAS Accreditation Criteria for Inspection Agencies.

1.6.2. Provide certification of code compliance with the "Code Compliance Certification Program" implemented by the Steel Framing Industry Association (SFIA).

1.6.3. Provide documentation on the qualifications of the contractor that will install the cold-formed steel framing. Documentation to include contractor's recognition in the Steel Framing Industry Association (SFIA) "Contractor Certification Program."

1.6.4. **Product Tests:** Mill certificates or data from a qualified independent testing agency [or in-house testing with calibrated test equipment,] indicating steel sheet complies with requirements, including base-steel thickness, yield strength, tensile strength, total elongation, chemical requirements, and metallic-coating thickness.

1.6.5. **Welding Qualifications:** Qualify procedures and personnel according to the following:

1.6.5.1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."

1.6.5.2. AWS D1.3/D1.3M, "Structural Welding Code - Sheet Steel."

1.6.6. Comply with AISI S230 "Standard for Cold-Formed Steel Framing - Prescriptive Method for One and Two Family Dwellings."

1.6.7. Must at least comply with the following AISI specifications and standards:

1.6.7.1. AISI S100 "North American Specification for the Design of Cold-Formed Steel Structural Members."

1.6.7.2. AISI S200 "North American Standard for Cold-Formed Steel Framing - General Provisions."



1.6.7.3. AISI S201 "North American Standard for Cold-Formed Steel Framing - Product Standard."

1.6.7.4. AISI S202 "Code of Standard Practice for Cold-Formed Steel Structural Framing."

1.6.7.5. AISI S240 "North American Standard for Cold-Formed Steel Structural Framing." { Note Use only for IBC 2018. AISI S240 supersedes AISI S200, S210, S211, S212, S213, and S214. }

1.7. DELIVERY, STORAGE, AND HANDLING

1.7.1. Protect cold-formed steel framing from corrosion, moisture staining, deformation, and other damage during delivery, storage, and handling, as required in AISI's "Code of Standard Practice."

PART 2 PRODUCTS

2.1 MANUFACTURERS

2.1.1. **Manufacturers:** Subject to compliance with requirements and as approved by the Architect. For compliance with requirements, acceptable manufacturers are needed to be pre-approved by the Architect.

2.2 PERFORMANCE REQUIREMENTS

2.2.1. **Delegated Design:** Engage a qualified Specialty Structural Engineer to design cold-formed steel framing as defined in Section 014000. The design professional, individual or organization having responsibility for the design of the specialty items. This responsibility shall be in accordance with the state's statutes and regulations governing the professional registration and certification of architects or engineers.

2.2.2. **Structural Performance:** Provide cold-formed steel framing capable of withstanding design loads within limits and under conditions indicated.

2.2.2.1. Design Loads Computed

2.2.2.2. *Deflection Limits:* Design framing systems to withstand the computed design load without horizontal and vertical deflections

2.2.2.3. Design framing systems to provide for movement of framing members located outside the insulated building envelope without damage or overstressing, sheathing failure, connection failure, undue strain on fasteners and anchors, or other detrimental effects when subject to a maximum ambient temperature change of 120 deg F (67 deg C).

2.2.2.4. Design framing system to maintain clearances at openings, to allow for construction tolerances, and to accommodate live load deflection of primary building structure

2.2.2.5. Design exterior non-load-bearing wall framing to accommodate horizontal deflection without regard for contribution of sheathing materials.

2.2.3. **Cold-Formed Steel Framing Design Standards:**

2.2.3.1. Floor and Roof Systems: AISI S210.

2.2.3.2. Wall Studs: AISI S211.

2.2.3.3. Headers: AISI S212.

2.2.3.4. Lateral Design: AISI S213.



2.2.4. AISI Specifications and Standards: Unless more stringent requirements are indicated, comply with AISI S100 and [ASTM C955] [AISI S200 and ASTM C955, Section 8] [AISI S240]. [ASTM C955 for IBC 2009 and 2012, Use AISI S200 and ASTM C955, Section 8 for IBC 2015, Use AISI S240 for IBC 2018.]

2.2.5. Fire-Resistance Ratings: Comply with ASTM E 119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agencies.

2.2.5.1. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.

2.2.6. GENERAL COLD-FORMED STEEL FRAMING

2.2.6.1. *Framing Members, General:* Comply with [ASTM C955] [AISI S200 and ASTM C955, Section 8] [AISI S240] for conditions indicated.

2.2.6.2. *Steel Sheet:* ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated, of grade and coating weight as follows:

2.6.2.1. *Grade:* [ST33H (ST230H)] [ST50H (ST340H)] [As required by structural performance] [33 KSI for 18 gauge (0.0428) and lighter and 50 KSI for 16 gauge (0.0538) and heavier.].

2.6.2.2. *Coating:* [CP 60: G60 (Z180), A60 (ZF180), AZ50 (AZM150), or GF30 (ZGF90)] [CP 90: G90 (Z275), AZ50 (AZM150), or GF45 (ZGF135)].

[Note: For IBC 2012: Per ASTM C955, Paragraph 4.4 - Members shall have a protective coating in accordance with Table 1. CP-60 minimum. Table 1 of C955 lists G60, A60, AZ50 and GF30 as allowable coatings for use for coating designator CP60; and G90, AZ50 and GF45 for coating designator CP90. The coating designators indicate that each of these coatings meet the requirements of C955.]

2.2.6.3. *Steel Sheet for Clips:* ASTM A1003/A1003M, ASTM A653/A653M, structural steel, zinc coated, of grade and coating as follows:

2.6.2.3.1. *Grade:* [33 (230)] [50 (340), Class 1] [As required by structural performance].

2.6.2.3.2. *Coating:* CP 90: G90 [recommended](Z275), AZ50 (AZM150), or GF45 (ZGF135)

2.2.7. LOAD-BEARING WALL FRAMING

2.2.7.1. *Steel Studs:* Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, with minimum base metal thickness, flange width and section properties required to meet design requirements.

2.2.7.2. *Steel Track:* Manufacturer's standard U-shaped steel track, of web depths indicated, unpunched, with straight flanges, and matching properties of steel studs

2.2.7.3. *Steel Single- or Double-L Headers:* Manufacturer's standard L-shapes used to form header beams, of web depths required, and with minimum base metal thickness, flange width and section properties required to meet design requirements.

2.2.7.4. *Steel Single- or Double-L Headers:* Manufacturer's standard L-shapes used to form header beams, of web depths indicated

2.2.8. FLOOR JOIST FRAMING



2.2.8.1. *Steel Joists*: Manufacturer's standard C-shaped steel joists, of web depths indicated, with stiffened flanges, and with minimum base metal thickness, flange width and section properties required to meet design requirements.

2.2.8.2. *Steel Joist Track*: Manufacturer's standard U-shaped steel joist track, of web depths required, unpunched, with unstiffened flanges, and with minimum base metal thickness, flange width and section properties required to meet design requirements.

2.2.9. CEILING JOIST FRAMING

Retain this article if steel joists are required. If joist and joist-track depth is not indicated, revise "Steel Ceiling Joists" Paragraph below and insert depth required.

2.2.9.1. *Steel Ceiling Joists*: Manufacturer's standard C-shaped steel sections, of web depths indicated, with stiffened flanges, and with minimum base metal thickness, flange width and section properties required to meet design requirements.

2.2.10. SOFFIT FRAMING

2.2.10.1. *Exterior Soffit Frame*: Manufacturer's standard C-shaped steel sections, of web depths indicated, with stiffened flanges, and with minimum base metal thickness, flange width and section properties required to meet design requirements.

2.2.11. FRAMING ACCESSORIES

2.2.11.1. Fabricate steel-framing accessories from steel sheet, ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated, of same grade and coating weight used for framing members.

2.2.11.2. Provide accessories of manufacturer's standard thickness and configuration, required by design requirements.

2.2.12. ANCHORS, CLIPS, AND FASTENERS

2.2.12.1. SSE shall include the following anchors, clips and fasteners required by the design requirements:

2.2.12.1.1. Steel Shapes and Clips.

2.2.12.1.2. Anchor Bolts.

2.2.12.1.3. Expansion Anchors.

2.2.12.1.4. Power-Actuated Anchors if allowed by Structural Engineer of Record.

2.2.12.1.5. Mechanical Fasteners, head type: low-profile head beneath sheathing, manufacturer's standard elsewhere.

2.2.12.1.6. Welding Electrodes.

2.2.13. MISCELLANEOUS MATERIALS

2.2.13.1. Galvanizing Repair Paint: ASTM A780.

2.2.13.2. Cement Grout: Portland cement, ASTM C 150, Type I; and clean, natural sand, ASTM C 404. Mix at a ratio of 1-part cement to 2-1/2 parts sand, by volume, with minimum water required for placement and hydration.

2.2.13.3. Nonmetallic, Non-Shrink Grout: Premixed, nonmetallic, non-corrosive, non-staining grout containing selected silica sands, Portland cement, shrinkage-compensating agents, and plasticizing and water-reducing agents,



complying with ASTM C 1107/C 1107M, with fluid consistency and 30-minute working time.

2.2.13.4. Shims: Load bearing, high-density multi monomer plastic, and non leaching; or of cold-formed steel of the same grade and coating as framing members supported by shims.

2.2.13.5. Sealer Gaskets: Closed-cell neoprene foam, ¼-inch thick, selected from manufacturer's standard widths to match width of bottom track or rim track members.

2.2.14. FABRICATION

2.2.14.1. Fabricate cold-formed steel framing and accessories plumb, square, and true to line, and with connections securely fastened, according to referenced AISI's specifications and standards, manufacturer's written instructions, and requirements in this Section.

2.2.14.1.1. Fabricate framing assemblies using jigs or templates.

2.2.14.1.2. Cut framing members by sawing or shearing; do not torch cut.

2.2.14.1.3. Fasten cold-formed steel framing members by welding, screw fastening, clinch fastening, pneumatic pin fastening, or riveting as standard with fabricator. Wire tying of framing members is not permitted.

2.2.14.1.3.1. Comply with AWS D1.3/D1.3M requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.

2.2.14.1.3.2. Locate mechanical fasteners and install according to Shop Drawings, with screw penetrating joined members by no fewer than three exposed screw threads.

2.2.14.1.4. Fasten other materials to cold-formed steel framing by welding, bolting, pneumatic pin fastening, or screw fastening, according to Shop Drawings.

2.2.14.2. Reinforce, stiffen, and brace framing assemblies to withstand handling, delivery, and erection stresses. Lift fabricated assemblies to prevent damage or permanent distortion.

2.2.14.3. *Fabrication Tolerances*: Fabricate assemblies' level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet and as follows:

1. *Spacing*: Space individual framing members no more than plus or minus 1/8 inch from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.

2. *Squareness*: Fabricate each cold-formed steel framing assembly to a maximum out-of-square tolerance of 1/8 inch.

PART 3 EXECUTION

3.1. EXAMINATION

3.1.1. Examine supporting substrates and abutting structural framing 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. PREPARATION

3.2.1. Before sprayed fire-resistive materials are applied, attach continuous angles, supplementary framing, or tracks to structural members indicated to receive sprayed fire-resistive materials.

3.2.2. After applying sprayed fire-resistive materials, remove only as much of these materials as needed to complete installation of cold-formed framing without reducing thickness of fire-resistive materials below that are required to obtain fire-resistance rating indicated. Protect remaining fire-resistive materials from damage.

3.2.3. Install load bearing shims or grout between the underside of load-bearing wall bottom track and the top of foundation wall or slab at locations with a gap larger than 1/4 inch to ensure a uniform bearing surface on supporting concrete or masonry construction.

3.2.4. Install sealer gaskets at the underside of wall bottom track or rim track and at the top of foundation wall or slab at stud or joist locations.

3.3. INSTALLATION, GENERAL

Install according to the manufacturer's instruction or manual.

3.4. FIELD QUALITY CONTROL

3.4.1. Testing: DSWD/BGMS will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.

3.4.2. Field and shop welds will be subject to testing and inspecting.

3.4.3. Testing agency will report test results promptly and in writing to the Contractor and Architect.

3.4.4. Remove and replace work where test results indicate that it does not comply with specified requirements.

3.4.5. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.5. REPAIRS AND PROTECTION

3.5.1. *Galvanizing Repairs*: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed steel framing with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.

3.5.2. Provide final protection and maintain conditions, in a manner acceptable to ensure that cold-formed steel framing is without damage or deterioration at time of Substantial Completion.

***** END OF SECTION *****



ARCHITECTURAL SPECIFICATION

DIVISION 5 - "METALS" *Section 4. Handrails and Railings*

31 AUGUST 2022

JMM/ REV. 00

Revision	Date	Description



HANDRAILS AND RAILINGS

PART 1 GENERAL

1.1. SUMMARY

1.1.1. Section includes:

1.1.1.1. Wrought Iron handrails, railings, balusters, and fittings.

1.1.1.2. Steel tube handrails, railings, balusters, and fittings.

1.1.2. Related sections:

1.1.2.1. "Specification for Structural Steelwork" by Structural Engineer for steel fabrications used as primary Project structure.

1.1.2.2. "Metal Fabrications" for fasteners, fixings, plates, brackets, and miscellaneous other pieces required to complete work of this Section.

1.1.2.3. "Gypsum Board Assemblies" for placement of blocking and backing for work of this Section.

1.1.2.4. "Interior Painting", "Exterior Painting" and "High Performance Coatings": for applied finishes on metal handrails and railings.

1.2. REFERENCES

1.2.1. ANSI A117.1 - Standard on Accessible and Usable Buildings and Facilities.

1.2.2. ASTM A 36/A 36M - Standard Specification for Carbon Structural Steel.

1.2.3. ASTM A 47/A 47M - Standard Specification for Ferritic Malleable Iron Castings

1.2.4. ASTM A 48/A 48M - Standard Specification for Gray Iron Castings

1.2.5. ASTM A 53/A 53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.

1.2.6. ASTM A 123/A 123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

1.2.7. ASTM A 500 - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.

1.2.8. ASTM A 513 - Standard Specification for Electric-Resistance-Welded Carbon and Alloy Steel Mechanical Tubing

1.2.9. ASTM A 780 - Standard Practice for Repair of Damaged and Uncoated Areas of Hot Dip Galvanized Coatings

1.2.10. ASTM B 633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel

1.2.11. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

1.2.12. ASTM B 221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric).



- 1.2.13. ASTM E 488 - Standard Test Methods for Strength of Anchors in Concrete and Masonry Elements
- 1.2.14. ASTM E 894 - Test Method for Anchorage of Permanent Metal Railing Systems and Rails for Buildings.
- 1.2.15. ASTM E 935 - Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings.
- 1.2.16. ASTM E 985 - Standard Specification for Permanent Metal Railing Systems and Rails for Buildings.
- 1.2.17. AWS (American Welding Society) D1.1 - Structural Welding Code - Steel.
- 1.2.18. SSPC-Paint 15 -5 - Zinc Dust, Zinc Oxide, and Phenolic Varnish Paint; Steel Joist Shop Paint; Steel Structures Painting Council.The Society for Protective Coatings.
- 1.2.19. SSPC-Paint 20 - Zinc-Rich Coating (Type I _ Inorganic and Type II _ Organic); Steel Structures Painting Council
- 1.2.20. Local Rules and Regulations: Current Editions.
- 1.2.21. IBC - International Building Code;
- 1.2.22. National Building Code of the Philippines
- 1.2.23. The Local Building Code of Quezon City

1.3. PERFORMANCE REQUIREMENTS

- 1.3.1. Conform to ANSI A117.1., IBC Section 1009.11, IBC Section 1012, and other applicable codes, rules and regulations.
- 1.3.2. Design railing assembly, wall rails, and attachments to resist loads as required by IBC Section 1607.7, and loads as required by Philippine Structural Code for “highly crowded areas”, without damage or permanent set. , and at minimum as follows:
 - 1.3.2.1. *Uniform load*: 0.73 kN in any direction at the top;
 - 1.3.2.2. *Concentrated load*: 0.89 kN in any direction at any point along the top
 - 1.3.2.3. *Uniform load*: 3.00 kN/m applied 1100 mm above finish floor.
- 1.3.3. Test in accordance with ASTM E 935 and also conduct tests required by the Philippine Structural Code and authorities having jurisdiction.
- 1.3.4. **Thermal Movements**: Provide exterior railings that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1.3.2.4. *Temperature Change* (Range): 67 deg C, ambient; 100 deg C, material surfaces.
- D.E. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

1.4. SUBMITTALS

- 1.4.1. Submit in accordance with Submittal Procedures issued by Project Architect.



1.4.2. **Shop Drawings:** Indicate plans, elevations, sections, profiles, sizes, connection attachments, anchorage, size and type of fasteners, and accessories.

1.4.2.1. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.4.3. **Test Reports:** Submit substantiating engineering data, test results of previous tests by independent laboratory, and other supportive data sufficient to determine that performance criteria are met.

1.4.4. **Qualifications:** For Structural Engineer

1.5. QUALITY ASSURANCE

1.5.1. Perform shop and site welding to AWS D1.1.

1.5.2. Perform railing Work in accordance with ASTM E894, ASTM E935, and ASTM E985.

1.5.3. Design structural components under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed in the Philippines.

1.6. PROJECT CONDITIONS

1.6.1. **Field Measurements:** Verify actual locations of walls and other construction contiguous with railings by field measurements before fabrication and indicate measurements on Shop Drawings.

1.6.1.1. *Established Dimensions:* Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabrication railings without field measurements. Coordinate wall and other contiguous construction to ensure that actual dimensions correspond to established dimensions.

1.6.1.2. Provide allowance for trimming and fitting at site.

1.7. COORDINATION AND SCHEDULING

1.7.1. Coordinate installation of anchorages for railings. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

1.7.2. Schedule installation so wall attachments are made only to completed walls. Do not support railings temporarily by any means that do not satisfy structural performance requirements.

PART 2 PRODUCTS

2.1. STEEL RAILING SYSTEM

2.1.1. Metal Surfaces, General: Provide materials with smooth surfaces, without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.

2.1.2. Pipe: ASTM A 53/A 53M, Type F or Type S, Grade A, Standard Weight (Schedule 40), unless another grade and weight are required by structural loads.

2.1.3. Tubing: ASTM A 500 (cold formed) or ASTM A 513, Type 5 (mandrel drawn).

2.1.4. Plates, Shapes, and Bars: ASTM A 36/A 36M.



2.1.5. Castings: Either gray or malleable iron, unless otherwise indicated.

2.1.5.1. Gray Iron: ASTM A 48/A 48M, Class 30, unless another class is indicated or required by structural loads.

2.1.5.2. Malleable Iron: ASTM A 47/A 47M.

2.1.6. Mounting: Brackets, Flanges, and Anchors: Cast or formed metal of same type of material and finish as supported rails, unless otherwise indicated

2.2. FASTENERS

2.2.1. General: Provide the following:

2.2.1.1. Steel Railings: Plated steel fasteners complying with ASTM B 633, Class Fe/Zn 25 for electrodeposited zinc coating.

2.2.2. Fasteners for Anchoring Railings to Other Construction: Select fasteners of type, grade, and class required to produce connections suitable for anchoring railings to other types of construction indicated and capable of withstanding design loads.

2.2.3. Fasteners for Interconnecting Railing Components:

2.2.3.1. Provide concealed fasteners for interconnecting railing components and for attaching them to other work, unless otherwise indicated.

2.2.3.2. Provide flush countersunk Phillips flat-head machine screws for exposed fasteners, unless otherwise indicated. G.D. Anchors: Provide cast-in-place, chemical, or torque-controlled expansion anchors, fabricated from corrosion resistant materials with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry and equal to four times the load imposed when installed in concrete, as determined by testing per ASTM E 488 conducted by a qualified independent testing agency.

2.3. FABRICATION

2.3.1. **General:** Fabricate railings to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage, but not less than that required to support structural loads.

2.3.2. Fit and shop assemble components in largest practical sizes for delivery to site. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.

2.3.3. Fabricate components with joints tightly fitted and secured. Provide spigots and sleeves to accommodate site assembly and installation.

2.3.4. **Connections:** Fabricate railings with welded connections, unless otherwise indicated.

2.3.5. **Welded Connections:** Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.

2.3.5.1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.

2.3.5.2. Obtain fusion without undercut or overlap.



2.3.5.3. Remove flux immediately.

2.3.5.4. At exposed connections, finish exposed surfaces smooth and blended so no roughness shows after finishing and welded surface matches contours of adjoining surfaces.

2.3.6. Form changes in direction as follows:

2.3.5.5. By radius bends of radius indicated or by inserting prefabricated elbow fittings of radius indicated.

2.3.5.6. Form simple and compound curves by bending members in jigs to produce uniform curvature for each repetitive configuration required; maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.

2.3.7. Provide wall returns at ends of wall-mounted handrails, unless otherwise indicated. Close ends of returns unless clearance between end of rail and wall is 1/4 inch (6 mm) or less.

2.3.8. Provide anchors and plates required for connecting railings to structure.

2.3.9. **Exposed Mechanical Fastenings:** Provide flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.

2.3.10. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.3.11. **Brackets, Flanges, Fittings, and Anchors:** Provide wall brackets, flanges, miscellaneous fittings, and anchors to interconnect railing members to other work, unless otherwise indicated.

2.3.11.1. At brackets and fittings fastened to plaster or gypsum board partitions, provide fillers made from crush-resistant material, or other means to transfer wall loads through wall finishes to structural supports and prevent bracket or fitting rotation and crushing of substrate.

2.3.12. Provide inserts and other anchorage devices for connecting railings to concrete or masonry work. Fabricate anchorage devices capable of withstanding loads imposed by railings. Coordinate anchorage devices with supporting structure.

2.3.13. **Exterior Components:** Fabricate connections that will be exposed to weather in a manner to exclude water.

2.3.14. **Interior Components:** Close exposed ends of railing members with prefabricated end fittings. Continuously seal joined pieces by continuous welds.

2.3.15. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

2.4. FINISHES, GENERAL

2.4.1. Comply with NAAMA's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

2.4.2. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.



2.4.3. Provide exposed fasteners with finish matching appearance, including color and texture, of railings.

2.5. STEEL AND IRON FINISHES

2.5.1. **Shop Primer for Galvanized Steel:** Zinc-dust, zinc-oxide primer formulated for priming zinc-coated steel and for compatibility with finish paint systems indicated, and complying with SSPC-Paint 5.

2.5.2. **Galvanizing Repair Paint:** High-zinc-dust-content paint for re-galvanizing welds in steel, complying with SSPC-Paint 20.

2.5.3. Hot-dip galvanized steel and iron railings, including hardware, after fabrication.

2.5.3.1. Comply with ASTM A 123/A 123M for hot-dip galvanized railings.

2.5.3.1. Comply with ASTM A 153/A 153M for hot-dip galvanized hardware.

2.5.4. Fill vent and drain holes that will be exposed in the finished Work, unless indicated to remain as weep holes, by plugging with zinc solder and filing off smooth.

2.5.5. For galvanized railings, provide hot-dip galvanized fittings, brackets, fasteners, sleeves, and other ferrous components.

2.5.6. **Preparation for Shop Priming:** After galvanizing, thoroughly clean railings of grease, dirt, oil, flux, and other foreign matter, and treat with metallic-phosphate process.

2.5.7. **Shop Priming:** Apply shop primer to prepared surfaces of railings, unless otherwise indicated. Comply with requirements in SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting. Primer need not be applied to surfaces to be embedded in concrete or masonry.

PART 3 EXECUTION

3.1. EXAMINATION

3.1.1. Verify that field conditions are acceptable and are ready to receive work.

3.1.2. Alert the Architect of any discrepancies, prior to commence the Work this section.

3.1.3. Coordinate the Work of this Section with applicable trades.

3.2. PREPARATION

3.2.1. Clean and strip primed steel items to bare metal where site welding is required.

3.2.2. Supply items required to be cast into concrete or embedded in masonry with setting templates, for installation as work of other sections.

3.3. INSTALLATION

3.3.1. Fit exposed connections together to form tight, hairline joints. Install in accordance with manufacturer's instructions.

3.3.2. Perform cutting, drilling, and fitting required for installing railings. Set railings accurately in location, alignment, and elevation; measured from established lines and levels and free of rack.

3.3.2.1. Do not weld, cut, or abrade surfaces of railing components that have been coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.



3.3.3. Install components true to line within specified tolerances, accurately fitted, free from distortion or defects.

3.3.4. Adjust railings before anchoring to ensure matching alignment at abutting joints. Anchor railings securely to structure.

3.3.5. Field weld anchors as indicated on drawings. Touch-up welds with primer. Grind welds smooth.

3.3.6. **Welded Connections:** Use fully welded joints for permanently connecting railing components. Comply with requirements for welded connections in Part 2 "Fabrication" Article whether welding is performed in the shop or in the field.

3.3.7. **Expansion Joints:** Install expansion joints at locations indicated but not farther apart than required to accommodate thermal movement. Provide slip-joint internal sleeve extending 50 mm beyond joint on either side, fasten internal sleeve securely to 1 side, and locate joint within 150 mm of post.

3.4. ERECTION INSTALLATION TOLERANCES

3.4.1. **Maximum Variation from Plumb:** 6mm per floor level, non-cumulative.

3.4.1.1. Set posts plumb within a tolerance of 2 mm in 1m.

3.4.2. **Maximum Offset from True Alignment:** 6mm cumulative.

3.4.1.2. Align rails so variations from level for horizontal members and variations from parallel with rake of steps and ramps for sloping members do not exceed 5 mm in 3 m.

3.4.3. **Maximum Horizontal Out-of-Position:** 6mm.

3.5. CLEANING AND PROTECTION

3.5.1. **Galvanized Surfaces:** Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

3.5.2. Protect finishes of railings from damage during construction period with temporary protective coverings approved by the railing manufacturer. Remove protective coverings at time of Substantial Completion.

3.5.3. Restore finishes damaged during installation and construction period so no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish the entire unit, or provide new units.

*** END OF SECTION ***



ARCHITECTURAL SPECIFICATION

DIVISION 7 - "THERMAL & MOISTURE PROTECTION"

Section 1. Cementitious Waterproofing

31 AUGUST 2022

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Revision	Date	Description



CEMENTITIOUS WATERPROOFING

PART 1 GENERAL

1.1. RELATED DOCUMENTS

1.1.1. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this Section.

1.2. SUMMARY

1.2.1. This Section includes the following:

1.2.1.1. Polymer-modified cementitious waterproofing (two coat application; minimum 2mm wet film thickness) with all ancillary materials and components required for a complete watertight system for water tanks to take cement sand rendering / tiling finishes, and in other cases as indicated in drawings.

1.2.1.2. Polymer-modified cementitious waterproofing against negative water pressure (two coat application; minimum 1mm wet thick for each coat) with all ancillary materials and components required for a complete waterproofing system applied as indicated in drawings.

1.3. PERFORMANCE REQUIREMENTS

1.3.1. **For potable water tanks:** Any part or component of the waterproofing system should be non-toxic; and must be complied with the requirements of British Water Research Council in relation to "Suitable Use in Contact with Potable Water"; or other equivalent standard of other national water research institutes.

1.3.2. **For resistance against negative water pressure:** The waterproofing shall be able to achieve the following minimum performance requirements according to the specified standard or equivalent recognized standards:

1.3.2.1. Resistance to negative water pressure: 3 bar minimum (DIN 1048);

1.3.2.2. Resistance to positive water pressure: 7 bar minimum (DIN 1048);

1.3.2.3. Abrasion resistance: Wear Index 1 or equivalent to 40MPa Concrete (ASTM D4060).

1.4. SUBMITTALS

1.4.1. Submit under provisions of Project Procedure Manual issued by Project Architect.

1.4.2. **Product data:** Manufacturer's detailed product data, method of application, recommendations and limitations of use, include manufacturer's written instructions for evaluating, preparing, and treating substrate, technical data, and tested physical and performance properties of waterproofing.

1.4.3. **Shop drawings:**

1.4.3.1. Indicate details of penetrations, abutments curb and wall transitions, internal and exterior corners, terminations, water stops, drains, outlets and sub- drainage system including tie-in with sub-drainage pipework, at construction and expansion joints and at interface with other materials.



1.4.3.2. Include drawings, elevations and details where applicable.

1.4.4. **Samples:** Contractor shall submit adequate samples for inspection and review.

1.4.5. **Product Test Reports and Test Certificate:**

1.4.5.1. From a qualified independent testing agency indicating and interpreting test results of waterproofing for compliance with requirements, based on comprehensive testing of current waterproofing formulations.

1.4.5.2. Certification indicating volatile organic compound (VOC) content of all component materials.

1.4.5.3. Certification indicating the material is non-toxic and suitable for use in contact with water.

1.4.6. **Applicator Certificates:** Signed by manufacturers certifying that applicators comply with requirements.

1.4.7. **Sample Warranty:** Copy of special waterproofing manufacturer and Applicator's warranty stating obligations, remedies, limitations, and exclusions before starting waterproofing.

1.5. QUALITY ASSURANCE

1.5.1. **Source Limitations:** Obtain waterproofing materials through one source from a single manufacturer. Provide accessory materials that are approved by the membrane manufacturer.

1.5.2. **Manufacturer Qualifications:**

1.5.2.1. Specializing in manufacturing of specified systems and high performance, commercial grade waterproofing systems and material for at least 10 years.

1.5.2.2. Waterproofing manufacturers shall be capable of providing field service, if necessary, during construction; approving acceptable applicator and application methods.

1.5.3. **Applicator Qualification:**

1.5.3.1. Trained in techniques for application of specified waterproofing materials, approved by the manufacturer to apply specified systems, and with a minimum 5 years of successful experience in at least three projects of similar scope and complexity.

1.5.3.2. Authorized, approved, or licensed by waterproofing manufacturers to install manufacturer's products.

1.5.3.3. Applicator shall designate a single individual as project foreman who shall be on site at all times during installation.

1.5.3.4. A single waterproofing applicator shall perform the complete assembly of each type of waterproofing system included in this Section.

1.5.3.5. Use adequate numbers of skilled workmen thoroughly trained and experienced in the necessary crafts and completely familiar with the specified requirements and methods needed for proper performance of the work of this Section.

1.6. DELIVERY, STORAGE, AND HANDLING



1.6.1. All materials shall be delivered in manufacturer's containers, dry, undamaged and unopened. All clearly labelled with the manufacturer's name, product identification, expiration date, etc.

1.6.2. Store materials strictly in accord with manufacturer's printed recommendations.

1.6.3. Strictly follow special precautions recommended by manufacturers where flammable and hazardous materials are involved or released. Hazardous waste materials shall be legally transported and disposed of in strict conformance to local regulations.

1.7. PROJECT CONDITIONS

1.7.1. Do not apply waterproofing systems until substrates are in conditions that are recommended by the manufacturer.

1.7.2. Apply waterproofing system only when air and surface temperatures are between 5 deg. Celsius and 38 deg. Celsius.

1.8. WARRANTY

1.8.1. The applicant and the manufacturer shall jointly provide guarantee for the performance of the waterproofing with a form approved by the architect, warranty all works in connection with the waterproofing system to be free from defects in material and workmanship for a period of 30 years from the date when the relevant works is completed.

PART 2 PRODUCTS

2.1. SUPPLIER

2.1.1. Subject to compliance with requirements and as approved by the Architect. For compliance with requirements, acceptable manufacturers are needed to be pre-approved by the architect.

2.2. CEMENTITIOUS WATERPROOFING SYSTEM

2.2.1. General: The waterproofing system shall be a Polymer Modified Cementitious Waterproofing system including all ancillary materials and components required for a complete watertight system in strict accord with manufacturer's recommendations.

2.3. CEMENTITIOUS WATERPROOFING SYSTEM AGAINST NEGATIVE WATER PRESSURE

2.3.1. General: The waterproofing system shall be a two-component Polymer Modified Cementitious Waterproofing system including all ancillary material and components required for a complete watertight system in strict accord with manufacturer's recommendations.

PART 3 EXECUTION

3.1. EXAMINATION

3.1.1. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements and other conditions affecting performance.

3.1.2. Verify that concrete has cured and aged for a minimum time period recommended by waterproofing manufacturers.

3.1.3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2. SURFACE PREPARATION



3.2.1. Clean and prepare substrate according to manufacturer's written recommendations. Provide clean, dust-free, and dry substrate for waterproofing application.

3.2.2. Mask off adjoining surfaces not receiving waterproofing to prevent spillage affecting other construction.

3.2.3. Close off deck drains and other deck penetrations to prevent spillage and migration of waterproofing fluids.

3.2.4. Remove grease, oil, bitumen, form-release agents, paints, curing compounds, and other penetrating contaminants or film-forming coatings from concrete.

3.2.5. Remove fins, ridges, and other projections and fill honeycomb, aggregate pockets, and other voids.

3.3. APPLICATION

3.3.1. Installation sequencing, timing and procedures shall be in strict accord with manufacturer's instructions and recommendations.

3.3.2. Perform application in strict accordance with manufacturer's written specification or endorsed method statement.

3.4. FIELD QUALITY CONTROL

3.4.1. Prior to Application of Waterproofing to water tank:

3.4.1.1. Fill the water tank with water to a level 100mm below the slab soffit.

3.4.1.2. Test period: not less than 24 hours.

3.4.1.3. Inspect for any water seepage due to cracks, void and other irregularities, and repair accordingly.

3.4.2. After Application of Waterproofing to water tank:

3.4.2.1.. Fill the water tank with water to a level 100mm below the slab soffit

3.4.2.2. Test period: not less than 48 hours

3.4.2.3. Inspect for any water seepage, and repair & re-test until satisfactory

3.6. PROTECTION

3.6.1. Ensure that waterproofing is protected from traffic, weather and damage during construction. Repair or replace all damaged waterproofing before covering with other finish materials.

3.6.2. Protect adjacent surfaces and materials from damage and soiling by the work of this Section.

***** END OF SECTION *****



ARCHITECTURAL SPECIFICATION

DIVISION 7 - "THERMAL & MOISTURE PROTECTION"

Section 2. Cold Liquid Applied Elastomeric Waterproofing

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COLD LIQUID APPLIED ELASTOMERIC WATERPROOFING

PART 1 GENERAL

1.1. SUMMARY

1.1.1. Section includes:

1.1.1.1. [07:WP1] Elastomeric urethane membrane waterproofing systems.

1.1.1.2. [07:WP2] Elastomeric synthetic resin based waterproofing systems

1.1.1.3. [07:WP3] Elastomeric rubber polymer waterproofing systems

1.1.1.4. [07:WP4] Elastomeric urethane membrane waterproofing exposed systems

1.1.2. Related Sections include the following:

1.1.2.1. "Concrete Finishing" for finishing requirements of concrete substrates, and hardener sealers applied to uncured concrete.

1.1.2.2. "Cementitious Waterproofing" for alternative waterproofing for immersion that may be substituted for waterproofing for immersion specified in this Section.

1.1.2.3. "Joint Sealers" for sealants used in conjunction with Work of this Section.

1.1.2.4. "Concrete and Masonry Coatings" for water repellent sealers applied to cured concrete and masonry.

1.2. REFERENCES

1.2.1. ASTM C836 - Standard Specification for High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane for Use with Separate Wearing Course.

1.2.2. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers. Tensile strength and elongation tests.

1.2.3. ASTM E96 - Standard Test Method for Water Vapour Transmission of Materials. Method BW.

1.2.4. ASTM D2240 - Shore A hardness testing

1.2.5. ASTM G 26 - weather-ometer testing

1.2.6. American Concrete Institute ACI Publication 515. IR - Guide to The Use of Waterproofing, Damp proofing, Protective and Decorative Barrier Systems for Concrete, 1985.

1.2.7. National Roofing Contractors' Association - NRCA Roofing And Waterproofing Manual, 4th Edition, 1996.

1.2.8. Local rules and regulations: current editions

1.2.9. National Building Code 2004

1.3. SUBMITTALS

1.3.1. Submit under provisions of Project Procedure Manual issued by the Construction Manager.

1.3.2. Product data:



1.3.2.1. Manufacturer's detailed product data specifications and application and maintenance instructions, recommendations, and limitations of use.

1.3.2.2. Certification indicating volatile organic compound (VOC) content of all component materials.

1.3.3. Shop drawings:

1.3.3.1. Indicate details of penetrations, abutments curb and wall transitions, internal and exterior corners, terminations, water stops, drains, outlets and sub-drainage system including tie-in with sub-drainage pipe work, at construction and expansion joints and at interface with other materials.

1.3.3.2. Include drawings, elevations and details where applicable.

1.3.4. Submittals for electronic leak detection:

1.3.4.1. Submit method statement for test of waterproofing by electronic leak detection for architect's and construction manager's approval prior to the performance of test.

1.3.4.2. Submit a test report after the test indicating defective areas and remedial works done.

1.3.5. Samples: 300 mm x 300 mm (12 in. square) of each cured membrane system specified herein, showing build-up, thickness, colour and texture specified. F. Test reports:

1.3.5.1. Submit a certified laboratory test report. Include the following for the tests carried out in this Section: -

1.3.5.1.1. Test results together with comparison with permitted parameters.

1.3.5.1.2. Remarks and conclusions by the testing professionals.

1.3.5.2. Subsequently, and before any installation work commences on the project site, the applicant shall provide the DSWD with one reproducible and two prints of the approved shop drawings incorporating the modifications made.

1.3.6. Certifications: Submit manufacturer's certification that waterproof system conforms to requirements specified herein.

1.4. QUALITY ASSURANCE

1.4.1. Manufacturer qualifications:

1.4.1.1. Specializing in the manufacturing of high-performance, commercial grade waterproofing systems and materials for at least 10 years.

1.4.1.1. The waterproofing manufacturers shall be capable of providing field service representation during construction, approving acceptable installer and application methods, and conducting final inspection of the waterproofing system/assembly.

1.4.1.1. For complete assemblies and each system, furnish all materials and products from a single manufacturer, unless approved otherwise by the manufacturer of primary material or product.

1.4.2. Applicator qualifications:



1.4.2.1. Trained in techniques for application of specified waterproofing materials, licensed by manufacturer to apply specified systems and with a minimum 5 years of successful experience in similar type installations / applications.

1.4.2.2. A single waterproofing applicator shall perform the complete assembly of each type of waterproofing system included in this Section.

1.4.3. **Manufacturer's inspection:** Arrange / schedule / ensure that waterproofing system manufacturer's representative inspects on-site substrate conditions, application of waterproofing system (including, but not limited to, installation of subsequent construction, such as backfill, reinforcing steel, and similar work that may compromise integrity of waterproofing system) and, if necessary, directs, instructs, clarifies, and/or advises of proper procedures as the work progresses.

1.4.4. **Mock-up:** Prior to Pre-Installation Conference, prepare a mock-up of the work of this Section at a location on the job site where approved by the Architect.

1.4.4.1. Make a mock-up for each of the various types of installation (Minimum size: 6m x 6m).

1.4.4.2. The work is to be carried out under the direct supervision of the Contractor and the waterproofing manufacturer's technical representative.

1.4.4.3. Employ workmen as they would be employed during the actual erection at the project site.

1.4.4.4. Show all aspects of the work of this Section to the quality specified.

1.4.4.5. Make necessary adjustments or re-installation in the mock-up(s) to satisfy requirements of this section and secure the Architect's approval.

1.4.4.6. The mock-up(s), when approved by the Architect, will be used as a datum point for comparison with the remainder of the work of this Section for the purpose of acceptance or rejection.

1.4.4.7. Upon approval of the Architect, the mock-up(s) may become an actual part of the installation required for this Work.

1.4.5. **Pre-installation meeting:** two weeks minimum prior to start of installation of the work, arrange for and conduct a pre-installation conference at the job site.

1.4.5.1. Ensure attendance by representatives of DSWD/BGMS, Contractor, installation subcontractor(s) for the work, and manufacturer of waterproofing system materials.

1.4.5.2. The installation procedures and requirements should be reviewed and discussed.

1.4.6. **Maintenance manual:**

1.4.6.1. Upon completion of work in this section, submit one maintenance manual, identified with project name, location and date; type of system applied and surface to which system was applied, and shop drawings where necessary to fully describe the applied system.

1.4.6.2. Include recommendations for periodic inspections, care and maintenance.

1.4.6.3. Identify common causes of damage with instructions for temporary patching until permanent repairs can be made.



1.4.7. **Reference Standard:** For Work of this Section used as primary waterproofing on exterior horizontal applications, comply with applicable recommendations in the NRCA Roofing and Waterproofing Manual

1.5. PROJECT CONDITIONS

1.5.1. Environmental requirements:

1.5.1.1. Do not apply waterproofing systems until substrates are in a condition that is recommended by the manufacturer.

1.5.1.2. Apply waterproofing system only when air and surface temperatures are between 5 deg. C and 38 deg. C.

1.6. WARRANTY

1.6.1. The applicant and the manufacturer shall jointly provide guarantee for the performance of the waterproofing with a form approved by the architect, guaranteeing all works in connection with the waterproofing system to be free from defects in material and workmanship for a period of fifteen (15) years from the date of Practical Completion.

PART 2 PRODUCTS

2.1. WATERPROOFING SYSTEMS – GENERAL

2.1.1. **General:** All waterproofing materials shall be from the same manufacturer, compatible with each other, and compatible with adhesive mortar and grout for tile and stone placed over waterproofing systems.

2.2. ELASTOMERIC URETHANE MEMBRANE SYSTEM [07:WP1]

2.2.1. **Available Products:** Subject to compliance with requirements products that may be incorporated into the Work.

2.2.2. All ancillary materials and components required for a complete water-tight system in strict accord with manufacturer's instructions including, but not limited to:

2.2.2.1. Crack and joint treatment systems;

2.2.2.2. Expansion/Movement Joint Treatment:

2.2.2.3. Cold Joint treatment by Waterstop:

2.2.2.4. Primers or surface conditioners as required by the manufacturer to prepare substrates to a condition fit for the application of liquid applied waterproofing;

2.2.2.5. Corner angle fillets and water stops where necessary recommended by waterproofing manufacturer;

2.2.2.6. Protection boards to vertical surfaces; board: As recommended by waterproofing membrane manufacturer:

2.2.2.7. Services and entry penetration accessories.

2.2.3. **Performance Requirements:**

2.2.3.1. Proprietary liquid applied elastomeric waterproofing shall meet the following:

a. Min, dry film thickness:	210 mm	ASTM D3767
b. Tensile strength:	1.5 N/mm ²	ASTM D412



c. Elongation:	600 %	ASTM D412
d. Crack bridging	1/16* (@15F)	ASTM C836
e. Adhesion to concrete	0.9 N/mm	ASTM D903
f. Water vapour transmission:	0.1 perm inch dry	ASTM E96
g. Min. solids content.	80%	ASTM C836
h. Shore A Hardness	40 +-5	ASTM D2240
i. Weather-ometer	no cracking	ASTM G26
j. Adhesion in peel, lbs./inch	5	ASTM C836
k. Swelling in water, 3days	Nil At room temp	ASTM 0836

2.2.3.2. After the curing of the waterproofing membrane, the protection board should be installed on the surface of the waterproofing membrane to protect it from damage against backfilling. The thickness of the board should be 6mm. The protection board should have the following properties:

a. Thermal Resistance R-value (@ 75 F Mean Temperature)	1.0 F-ft ² -h/btu	ASTM C 518
b. Thermal Conductivity (@75 F Mean Temperature)	0.25 btu-in/hr-ft ² -F	ASTM C 518
c. Water Vapor Trans. rate (Procedure A)	0.6	ASTM E 96
d. Water absorption	0.4/0.6	ASTM C 272
e. (% by volume, min/max)		
f. Compression strength (psi@10% deflection, min/ave)	12 / 16	ASTM D182

2.2.3.3. Certificates together with complete test reports to substantiate that the materials supplied meet the requirements specified must be submitted at the time of tender.

2.3. ELASTOMERIC SYNTHETIC RESIN BASED SYSTEMS [07:WP2]

2.3.1. Waterproofing Membrane:

2.3.1.1. Cold, liquid applied elastomeric solvent-free synthetic resin based waterproofing system suitable for direct application of adhesive mortar.

2.3.1.2. Acceptable products, subject to compliance with requirements, include:

2.3.2. All ancillary materials and components required for a complete, compatible water-tight system, including but not limited to:

2.3.2.1. Primers or surface conditioners as required by the manufacturer to prepare substrates to a condition fit for the application of liquid applied waterproofing

2.3.2.2. Joint treatment, corner angle fillets, and wall to wall junctions:

2.3.2.3. Services and entry penetration, and floor drain accessories.

2.4. WATERPROOFING FOR IMMERSION [07:WP3]

2.4.1. Waterproofing Membrane:

2.4.1.1. Cold, liquid applied elastomeric solvent-free, load-bearing, self-curing liquid rubber polymer waterproofing system suitable for cementitious substrates and direct application of tile and stone using adhesive mortar.



2.4.2. All ancillary materials and components required for a complete, compatible water-tight system, including but not limited to:

2.4.2.1. Primers or surface conditioners as required by the manufacturer to prepare substrates to a condition fit for the application of liquid applied waterproofing

2.4.2.2. Joint treatment, corner angle fillets, and wall to wall junctions:

2.4.2.3. Services and entry penetration, and floor drain accessories.

2.5. ELASTOMERIC URETHANE MEMBRANE EXPOSED SYSTEM [07:WP4]

2.5.1. **Available Products:** Subject to compliance with requirements products that may be incorporated into the Work.

2.5.2. All ancillary materials and components required for a complete water-tight system in strict accord with manufacturer’s instructions including, but not limited to:

2.5.2.1. Crack and joint treatment systems;

2.5.2.2. Primers or surface conditioners as required by the manufacturer to prepare substrates to a condition fit for the application of liquid applied waterproofing;

2.5.2.3. Corner angle fillets and water stops where recommended by waterproofing manufacturer;

2.5.2.4. Services and entry penetration accessories.

2.5.3. Performance Requirements:

2.5.3.1. Description: Composite liquid polyurethane waterproofing system designed for use as waterproofing and as an exposed wearing surface on plaza decks, pedestrian walkways, and balconies.

a.Cures to form a seamless, monolithic, waterproof, abrasion resistant surface

b.Adheres to smooth concrete, to well-anchored and primed wood and to primed metal surfaces.

2.5.3.2. Waterproofing shall meet or perform better than the following:

Base Coat	Top Coat			
a. Min. wet film thickness:	1.00 mm	0.38mm		
b. Tensile strength:	2.2 N/mm ²	20 N/mm ²	ASTM D412	
c. Min. Elongation:	140%	140%	ASTM D412	
d. Peel Strength (on concrete) cohesive to Base Coat	133N	100%	ASTM C794	
e. Water vapor transmission: metric perms metric perms	0.12	0.6	ASTM E96	
f. Shore A Hardness	20	75	ASTM C661- 83	



2.6. PRODUCT HANDLING

2.6.1. **Procedures:** All material shall be delivered in manufacturers' containers, dry, undamaged and unopened. All clearly labeled with the manufacturer's name, product identification, expiration date, and lot numbers intact.

2.6.1.1. Identify each container with manufacturer's name, brand name, material type, stock number, colour, and application instructions.

2.6.2. Store materials strictly in accord with manufacturer's printed recommendations, copies of which will be furnished to DSWD/BGMS.

2.6.3. All lots or shipment of accessories shall be tested within 30 days of receipt of materials according to the procedure for determining field quality as stated hereinafter. Outdated material must not be used. The waterproofing manufacturer's representative shall verify that all lots or shipments are from an authorized distributor, and the waterproofing, tank lining, and accessories are genuine products of the specified manufacturers.

2.6.4. Special precautions recommended by the manufacturer shall be strictly followed where flammable and hazardous materials are involved or released. Hazardous waste materials shall be legally transported and disposed of in strict conformance to local regulations.

PART 3 EXECUTION

3.1. EXAMINATION

3.1.1. Examine surfaces for conditions that will adversely affect execution, permanence, and quality of work.

3.1.2. Before commencing any waterproofing works, the Contractor must demonstrate on site that all materials are fully compatible with each other and with the substrates.

3.1.3. Examine substrates for contaminants such as water, curing compounds, hardeners, bond breakers, etc. No work shall be undertaken when the substrate surface moisture exceeds the permissible maximum, as tested by the moisture testing equipment on site.

3.1.4. Verify that concrete substrates are dry and curing methods (or compounds) are compatible with waterproof system materials. Perform moisture tests as directed by waterproof system manufacturers to ensure that concrete substrates are sufficiently dry for application of elastomeric coating systems.

3.1.5. Do not proceed with work until unsatisfactory conditions have been corrected and examined by the manufacturer's representative.

3.2. PREPARATION

3.2.1. Check concrete surfaces and confirm that surfaces to receive waterproofing are cured (not less than 14 days) and are dry. Concrete surfaces shall be a floated finish, free from cavities and projecting nibs, shuttering faces shall be of an equivalent standard, damaged concrete shall be made good with waterproof cement sand mortar.

3.2.2. Check masonry surfaces and confirm that surfaces to receive waterproofing have smooth, flush-pointed joints or cement parge coats over the entire surface. Rough brick or open texture blocks shall be made smooth by application of a waterproof sand cement render.



3.2.3. Prepare cracks, joints (expansion, control and construction), penetrations (drains, pipe, and columns/stanchions), wall junctures (base) and similar details in accord with manufacturer's recommendations. Remove ridges and fins.

3.2.4. Remove from substrate surface all contaminants which would affect bond by sandblasting, mechanical grinding, abrading, high pressure water blasting or

3.2.5. High-pressure air, in accord with manufacturer's recommendations. Completely remove dust, loose particles, and debris.

3.2.6. Submit a letter of confirmation that all water retaining structures and tanks, concrete walls and slabs are free of curing compounds, and material compatibility testing have been conducted with satisfactory results, prior to the waterproofing installation.

3.3. APPLICATION

3.3.1. All installation sequencing, timing and procedures to be in strict accord with manufacturer's instructions and carried out under supervision of the manufacturer's technical representative.

3.3.2. Install sealants or apply "detail", "face" or "stripe" coating in accord with manufacturer's recommendations.

3.3.4. Apply primer coating in accord with manufacturer's recommendations. Conform to manufacturer's recommendations of "recoat time" for applying base coat; re-prime if "recoat time" is exceeded.

3.3.5. Perform application in strict accord with manufacturer's written specifications.

3.3.6. Apply waterproofing base coat(s) at the rate or wet film thickness required to achieve the minimum or average dry film thickness recommended by the manufacturer. Allow to cure as recommended by the manufacturer. Where multiple base coats are indicated, apply and cure separately.

3.3.7. Fillet (at intersections of vertical and horizontal surfaces):

3.3.7.1. At all wall to floor junctions, form 25mm angle fillet.

3.3.7.2. A 25 x 25mm chamfer should be provided to all external angles / corners. All in accord with manufacturer's recommendations.

3.3.8. Protection course to vertical surfaces: Apply protection boards over waterproofing surfaces using proprietary adhesives or adhesive tapes in accord with manufacturer's recommendations.

3.4. FIELD QUALITY CONTROL

3.4.1. **Visual inspection:** Visually inspect waterproofing system installation thoroughly in presence of the manufacturer's representative and repair any defects as recommended by the manufacturer.

3.4.2. **Testing of Horizontal Installations:**

3.4.2.1. After allowing waterproofing system installation to completely cure and set, flood test horizontal installations with a minimum of 50 mm (2 in.) of water for at least 48 hours. Examine for, identify, and repair any leaks, then retest.



3.4.3. Dry film thickness test:

3.4.3.1. The wet film thickness of each coat of liquid applied waterproofing material shall be checked during application by measurements taken with a film gauge. Thickness shall be sufficient that when cured the dry film thickness shall be minimum recommended by the manufacturer. The manufacturer's technical representative shall verify dry film thickness (DFT) of all waterproofing materials at various locations on the project site.

3.4.4. Test by Rapid Infra-red Thermographic Scanning (RITS):

3.4.4.1. For roof areas and interior wet areas, in addition to tests specified above, perform the non-destructive test by RITS in accordance with the approved method statement to establish the waterproofing integrity of the waterproofing membrane.

3.4.4.2. The test shall be carried out in the presence of the Architect, Construction Manager and the DSWD.

3.4.4.3. The test shall be carried out in a minimum area of 500sqm and a maximum area of 2000sqm each time, as specified in the approved method statement.

3.4.4.4. This test would include sealing all outlets and if necessary, constructing dams to compartmentalize large roofs. The roof shall then be flooded for 24 hours. After flooding all outlet blockages and dams shall be removed to drain the roof. At a period between 24 and 48 hours after release of the water, an infra- red scan shall be undertaken by an independent testing contractor as approved by the Architect and Construction Manager at the Contractor's expense to establish if there has been penetration through the membrane.

3.4.4.5. Defects shall be rectified and defective areas retested at no cost to DSWD until testing reveals no defects.

3.5. PROTECTION

3.5.1. Ensure that all waterproofing is protected from traffic, weather and damage during construction. Repair or replace all damaged waterproofing before covering with other finish materials.

3.5.2. Protect all insulation from damage from wetting, loading or abuse until they are under protective covering material or finish.

3.5.3. Protect adjacent surfaces and materials from damage and soiling by the work of this Section.

3.6. CLEANING

3.6.1. Remove all debris after completion of the work of this section. Store left over materials as agreed by DSWD/BGMS.

2.6.2. Clean adjacent surfaces and materials soiled by any work of this section.

***** END OF SECTION *****



ARCHITECTURAL SPECIFICATION

DIVISION 7 - "THERMAL & MOISTURE PROTECTION"

Section 3. Fire Stopping Sealant

31 AUGUST 2022

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Revision	Date	Description



FIRESTOPPING

PART 1 GENERAL

1.1. DESCRIPTION

1.1.1. Provide UL or equivalent approved firestopping system for the closures of openings in walls, floors, and roof decks against penetration of flame, heat, and smoke or gases in fire resistant rated construction.

1.1.2. Provide UL or equivalent approved firestopping system for the closure of openings in walls against penetration of gases or smoke in smoke partitions.

1.2. REFERENCES

1.2.1. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials

1.2.2. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials

1.2.3. ASTM E814 - Standard Test Method for Fire Tests of Penetration Firestop Systems

1.2.4. UL 1479 - Fire Tests of Through-Penetration Firestops

1.2.5. FIRE CODE OF THE PHILIPPINES

1.2.6. INTERNATIONAL BUILDING CODE

1.2.7. National Building Code of Philippines

1.3. SUBMITTALS

1.3.1. Submit under provisions of Division 01 Section "General Requirements."

1.3.2. **Product Data:** Manufacturer's specifications, product data, material safety data sheets, and installation instructions for each type of installation required, listing specific materials proposed.

1.3.3. **Shop Drawings:** Manufacturer's detailed drawings and applicable UL system numbers for firestop systems to be installed.

1.3.4. **Samples:** Samples of each item when requested by Project Manager.

1.3.5. **Manufacturer's Recommendations:** Manufacturer's written recommendations for installations or configurations not covered by a UL-listed firestop system.

1.3.6. **Test Reports:** Manufacturer's published test reports. Include manufacturer's system number and UL listing for each type of penetration.

1.3.7. **Certification:** Manufacturer's written certification that firestopping system(s) furnished comply with UL system requirements, are approved for each specific condition of use on the Project.

1.3.8. **Closeout Submittals:**

1.3.8.1. Sealant and adhesive quantity use in accordance with requirements of



BAAQMD Regulation 8-51.

1.3.8.2. Written guarantee.

1.4. DELIVERY AND STORAGE

1.4.1. Deliver firestopping materials to the job site in factory sealed, unopened containers bearing manufacturer's name, brand, product designation, batch number and packaging date.

1.4.2. Store in unopened containers. Follow manufacturer's recommendations for storage temperatures and shelf life.

1.4.3. Follow manufacturer's recommendations for handling products containing toxic materials. Use recommended solvents and cleaning agents for cleaning tools, equipment and skin.

1.5. QUALITY ASSURANCE

1.5.1. FM, UL, or WH or other approved laboratory tested products will be acceptable. Firestopping systems shall be the products of one manufacturer Coordinate the work of the trades toward achieving this end.

1.5.2. Installer Qualifications: Firm experienced in installation or application of systems similar in complexity to those required by this Project, and acceptable to or licensed by the product manufacturer.

1.5.3. Inspector Qualifications: Contractor to engage a qualified inspector to perform inspections and final reports. The inspector to meet the criteria contained in ASTM E699 for agencies involved in quality assurance and to have a minimum of two years' experience in construction field inspections of firestopping systems, products, and assemblies. The inspector to be completely independent of, and divested from, the Contractor, the installer, the manufacturer, and the supplier of material or item being inspected. Submit inspector qualifications.

1.6. PROJECT CONDITIONS

1.6.1. Environmental Requirements:

1.6.1.1. Furnish adequate ventilation if using solvent.

1.6.1.2. Furnish forced air ventilation during installation if required by the manufacturer.

1.6.1.3. Keep flammable materials away from sparks or flame.

1.6.1.4. Provide masking and drop cloths to prevent contamination of adjacent surfaces by firestopping materials.

1.6.1.5. Comply with manufacturer's recommendations for temperature and humidity conditions before, during and after installation of firestopping.

1.6.2. **Existing Conditions:** Verify existing conditions and substrates before starting work. Correct unsatisfactory conditions before proceeding. Proceed with installation only after penetrations of substrates have been completed and supporting brackets installed.

1.7. GUARANTEE

1.7.1. Written guarantee agreeing to repair or replace firestopping which fails in joint adhesion, co-adhesion, abrasion resistance, weather resistance, extrusion resistance, migration resistance, stain resistance, or general durability, or appears to deteriorate in any other manner



not clearly specified by submitted manufacturer's data as an inherent quality of the material for the exposure indicated.

1.8. APPLICABLE PUBLICATIONS

1.8.1. Publications listed below form a part of this specification to the extent referenced. Publications are referenced in the text by the basic designation only.

1.8.2. ASTM International (ASTM):

1.8.2.1. E84-14: *Surface Burning Characteristics of Building Materials*

1.8.2.2. E699-09: *Standard Practice for Evaluation of Agencies Involved in Testing, Quality Assurance, and Evaluating of Building Components*

1.8.2.3. E814-13a: *Fire Tests of Through-Penetration Firestops*

1.8.2.4. E2174-14: *Standard Practice for On-Site Inspection of Installed Firestops*

1.8.2.5. E2393-10a: *Standard Practice for On-Site Inspection of Installed Fire Resistive Joint Systems and Perimeter Fire Barriers*

1.8.3. FM Global (FM):

1.8.3.1. Annual Issue Approval Guide Building Materials 4991-13

1.8.3.2. Approval of Firestop Contractors

1.8.4. Underwriters Laboratories, Inc. (UL):

1.8.4.1. Annual Issue Building Materials Directory Annual Issue Fire Resistance Directory

1.8.4.2. 723-10(2008) Standard for Test for Surface Burning Characteristics of Building Materials

1.8.4.3. 1479-04(R2014) Fire Tests of Through-Penetration Firestops

1.8.5. Intertek Testing Services - Warnock Hersey (ITS-WH):

1.8.5.1. Annual Issue Certification Listings

1.8.6. Environmental Protection Agency (EPA):

1.8.6.1. 40 CFR 59(2014) National Volatile Organic Compound Emission Standards for Consumer and Commercial Products

PART 2 PRODUCTS

2.1. SUPPLIER

2.1.1. Subject to compliance with requirements and as approved by the Architect. For compliance with requirements, acceptable manufacturers are needed to be pre-approved by the architect.



2.2. FIRESTOP SYSTEMS

2.2.1. Provide either factory built (Firestop Devices) or field erected (through- Penetration Firestop Systems) to form a specific building system maintaining required integrity of the fire barrier and stop the passage of gases or smoke. Firestop systems to accommodate building movements without impairing their integrity.

2.2.2. Through-penetration firestop systems and firestop devices tested in accordance with ASTM E814 or UL 1479 using the "F" or "T" rating to maintain the same rating and integrity as the fire barrier being sealed. "T" ratings are not required for penetrations smaller than or equal to 101 mm (4 in.) nominal pipe or 0.01 sq. m (16 sq. in.) in the overall cross-sectional area.

2.2.3. Firestop sealants used for firestopping or smoke sealing to have the following properties:

2.2.3.1. Contain no flammable or toxic solvents.

2.2.3.2. Release no dangerous or flammable outgassing during the drying or curing of products.

2.2.3.3. Water-resistant after drying or curing and unaffected by high humidity, condensation or transient water exposure.

2.2.3.4. When installed in exposed areas, capable of being sanded and finished with similar surface treatments as used on the surrounding wall or floor surface.

2.2.4. Firestopping system or devices used for penetrations by glass pipe, plastic pipe or conduits, unenclosed cables, or other non-metallic materials to have following properties:

2.2.5. Classified for use with the particular type of penetrating material used.

2.2.5.1. Penetrations containing loose electrical cables, computer data cables, and communications cables protected using firestopping systems that allow unrestricted cable changes without damage to the seal.

2.2.6. Maximum flame spread of 25 and smoke development of 50 when tested in accordance with ASTM E84 or UL 723. Material to be an approved firestopping material as listed in UL Fire Resistance Directory or by a nationally recognized testing laboratory.

2.2.7. FM, UL, or WH rated or tested by an approved laboratory in accordance with ASTM E814.

2.2.8. Materials to be nontoxic and noncarcinogen at all stages of application or during fire conditions and to not contain hazardous chemicals. Provide firestop material that is free from Ethylene Glycol, PCB, MEK, and asbestos.

2.2.9. For firestopping exposed to view, traffic, moisture, and physical damage, provide products that do not deteriorate when exposed to these conditions.

2.2.9.1. For piping penetrations for plumbing and wet-pipe sprinkler systems, provide moisture-resistant through-penetration firestop systems.

2.2.9.2. For floor penetrations with annular spaces exceeding 101 mm (4 in.) or more in width and exposed to possible loading and traffic, provide firestop systems capable of supporting the floor loads involved either by installing floor plates or by other means acceptable to the firestop manufacturer.

2.2.9.3. For penetrations involving insulated piping, provide through-penetration firestop



systems not requiring removal of insulation.

2.3. SMOKE STOPPING IN SMOKE PARTITIONS:

2.3.1. Provide silicone sealant in smoke partitions as specified in Section 07, JOINT SEALANTS.

2.3.2. Provide mineral fiber filler and bond breaker behind sealant.

2.3.3. Sealants to have a maximum flame spread of 25 and smoke developed of 50 when tested in accordance with ASTM E84.

2.3.4. When used in exposed areas capable of being sanded and finished with similar surface treatments as used on the surrounding wall or floor surface.

PART 3 EXECUTION

3.1. EXAMINATION

3.1.1. Submit product data and installation instructions, as required by article, submittals, after an on-site examination of areas to receive firestopping.

3.1.2. Examine substrates and conditions with an installer present for compliance with requirements for opening configuration, penetrating items, substrates, and other conditions affecting performance of firestopping. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2. CONDITION OF SURFACES

3.2.1. Inspect surfaces to receive firestopping materials and report any defects to Project Manager. Do not start work until defects have been corrected. Starting work implies acceptance of surfaces as satisfactory.

3.2.2. Unless otherwise permitted by manufacturer, do not apply firestopping materials to polycarbonates; materials that bleed oils, plasticizers or solvents; organo-metallic compounds; silicone rubber containing organo-tin compound; sulfur, polysulfides, polysulfides and other sulfur containing materials; amines, urethanes and amine-containing materials; and unsaturated hydrocarbon plasticizers.

3.2.3. Do not apply materials in confined spaces where material is not exposed to atmospheric moisture.

3.3. PREPARATION

3.3.1. Remove dirt, grease, oil, laitance and form-release agents from concrete, loose materials, or other substances that prevent adherence and bonding or application of the firestopping or smoke stopping materials.

3.3.2. Remove insulation on insulated pipe for a distance of 150 mm (6 inches) on each side of the fire rated assembly prior to applying the firestopping materials unless the firestopping materials are tested and approved for use on insulated pipes.

3.3.3. Prime substrates were required by the joint firestopping system manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.

3.3.4. Masking Tape: Apply masking tape to prevent firestopping from contacting adjoining



surfaces that will remain exposed upon completion of work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears from firestopping materials. Remove tape as soon as it is possible to do so without disturbing the seal of firestopping with substrates.

3.4. INSTALLATION

3.4.1. Do not begin firestopping work until the specified material data and installation instructions of the proposed firestopping systems have been submitted and approved.

3.4.2. Install firestopping systems with smoke stopping in accordance with FM, UL, WH, or other approved system details and installation instructions.

3.4.3. Install smoke stopping seals in smoke partitions.

3.5. FIELD QUALITY CONTROL

3.5.1. Perform manufacturer's quality control check program at least once daily and upon changing to a new lot of materials.

3.5.2. Inspect cured seals after 24 hours by removing damming materials to examine seals. Replace dams where a required part of assembly.

3.5.3. Where voids occur, fill with freshly mixed foam or solid sealant. Reinspect after added material has cured 24 hours.

3.5.4. Ensure that cured foam sealants show acceptable or better color and cell structure range per manufacturer's recommendations.

3.5.5. Remove unacceptable sealants and replace with new.

3.6. CLEAN-UP

3.6.1. As work on each floor is completed, remove materials, litter, and debris.

3.6.2. Clean up spills of liquid type materials.

3.6.3. Clean off excess fill materials and sealants adjacent to openings and joints as work progresses by methods and with cleaning materials approved by manufacturers of firestopping products and of products in which opening and joints occur.

3.6.4. Protect firestopping during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated firestopping immediately and install new materials to provide firestopping complying with specified requirements.

3.7. INSPECTIONS AND ACCEPTANCE OF WORK

3.7.1. Do not conceal or enclose firestop assemblies until inspection is complete and approved by the Contracting Officer Representative (COR).

3.7.2. Furnish service of approved inspector to inspect firestopping in accordance with ASTM E2393 and ASTM E2174 for firestop inspection, and document inspection results. Submit written reports indicating locations of and types of penetrations and type of firestopping used at



each location; type is to be recorded by UL listed printed numbers.

***** END OF SECTION ****



ARCHITECTURAL SPECIFICATION

DIVISION 7 - "THERMAL & MOISTURE PROTECTION"

Section 4. Joint Sealers

31 AUGUST 2022

JMM/ REV. 00

Revision	Date	Description



JOINT SEALERS

PART 1 GENERAL

1.1. Sections includes:

- 1.1.1. Sealants and joint backing with no fire resistance rating.
- 1.1.2. Pre-compressed foam sealers with no fire resistance rating.

1.2. RELATED SECTIONS:

- 1.2.1. "Cold Liquid Applied Elastomeric Membrane Waterproofing": Sealants required in conjunction with waterproofing.
- 1.2.2. "Fire Resistive Joint Sealants": Sealants with fire resistance rating
- 1.2.3. "Glazing": Glazing sealants and accessories.
- 1.2.4. "Ceramic Tiling": Installation of sealant at tile.
- 1.2.5. Structural Engineer's Specifications for Structural Concrete.
- 1.2.6. Structural Engineer's Specifications for Structural Steelwork.

1.3. REFERENCES

- 1.3.1. ASTM C 834 - Standard Specification for Latex Sealants.
- 1.3.2. ASTM C 919 - Standard Practice for Use of Sealants in Acoustical Applications.
- 1.3.3. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants.
- 1.3.4. ASTM C 1193 - Standard Guide for Use of Joint Sealants.
- 1.3.5. ASTM D 1667 - Standard Specification for Flexible Cellular Materials—Vinyl Chloride Polymers and Copolymers (Closed-Cell Foam).
- 1.3.6. Local Rules and Regulations: Current Editions.
- 1.3.7. IBC - International Building Code; 2003 Edition.

1.4. SUBMITTALS

- 1.4.1. **Product Data:** Provide data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations, and color availability.
- 1.4.2. **Samples:** Submit two samples, in appropriate size illustrating sealant colors for selection and approval.
- 1.4.3. **Manufacturer's Installation Instructions:** Indicate special procedures, surface preparation, and perimeter conditions requiring special attention.

1.5. QUALITY ASSURANCE

- 1.4.4. **Manufacturer Qualifications:** Company specializing in manufacturing the Products specified in this section with minimum ten years documented experience.
- 1.4.5. **Applicator Qualifications:** Company specializing in performing the work of this section with minimum five years of experience.

1.6. ENVIRONMENTAL REQUIREMENTS



1.4.6. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

1.7. WARRANTY

1.7.1. Warranty:

1.7.1.1. The applicant and the manufacturer shall jointly provide guarantee for the performance of the sealants and accessories with a form approved by the architect, warranty all works in connection with the specified system to be free from defects in material and workmanship for a period of 5 years from the date when the relevant works is completed.

1.7.1.2. Include coverage for installed sealants and accessories which fail to achieve airtight seal, exhibit loss of adhesion or cohesion, or do not cure.

PART 2 PRODUCTS

2.1. MANUFACTURERS

2.1.1. Subject to compliance with requirements and as approved by the Architect. For compliance with requirements, acceptable manufacturers are needed to be pre-approved by the architect.

2.2. SEALANTS

2.2.1. General Purpose Exterior Sealant [07:JT3]: Polyurethane; ASTM C 920, Grade NS, Class 25, Uses M, G, and A; single component.

2.2.1.1. Color: Colors matching finished surfaces and approved by Architect.

2.2.1.2. Applications: Use for:

2.2.1.2.1. Control, expansion, and soft joints in masonry.

2.2.1.2.2. Joints between concrete and other materials.

2.2.1.2.3. Joints between metal frames and other materials.

2.2.1.2.4. Joints in cast plastic and FRP.

2.2.1.2.5. Other exterior joints for which no other sealant is indicated.

2.2.2. Exterior Metal Lap Joint Sealant [07:JT8]: Butyl or polyisobutylene, nondrying, non-skinning, non-curing.

2.2.2.1. Applications: Use for:

2.2.2.1.1. Concealed sealant bead in sheet metal work.

2.2.2.1.2. Concealed sealant bead in siding overlaps.

2.2.3. General Purpose Interior Sealant [07:JT4]: Acrylic emulsion latex; ASTM C 834, Type OP, Grade NF single component, paintable.

2.2.3.1. Color: Colors matching finished surfaces and approved by Architect.

2.2.3.2. Applications: Use for:

2.2.3.2.1. Interior wall and ceiling control joints.

2.2.3.2.2. Joints between door and window frames and wall surfaces.



2.2.3.2.3. Other interior joints for which no other type of sealant is indicated.

2.2.4. Acoustical Sealant [07:JT7]: Butyl or acrylic sealant; ASTM C 920, Grade NS, Class 12-1/2, Uses M and A; single component, solvent release curing, non skinning.

2.2.4.1. Applications: Use for concealed locations only at walls with STC requirement:

2.2.4.1.1. Sealant bead between top stud runner and structure and between bottom stud track and floor.

2.2.5. Silicone Sealant [07:JT1]: ASTM C 920, Grade NS, Class 25, Uses NT, A, G, M, O; single component, solvent curing, non-sagging, non-staining, fungus resistant, non-bleeding.

2.2.5.1. Color: Colors matching finished surfaces and approved by Architect.

2.2.5.2. Movement Capability: Plus and minus 25 percent.

2.2.5.3. Service Temperature Range: -54 to 82 degrees C.

2.2.5.4. Shore A Hardness Range: 15 to 35.

2.2.5.5. Applications: Use for:

2.2.5.5.1. Glazing.

2.2.5.5.2. Tile at wet areas

2.2.6. Polysulphide Sealant [07:JT6]: One or two-part polysulphide base polymer sealing compound conforming to ASTM C920 and ANSI A-1 16.1, Class B (non-sag grade)

2.2.6.1. Subject to compliance with requirements, available products include, but are not limited to the following:

2.2.6.1.1. Degussa; Expanseal Polysulphide Joint Sealant.

2.2.6.1.2. Pacific Polymers, Inc.; Elastoseal 230 Type I or Elasto-Seal 227 Type II (Gun Grade).

2.2.6.1.3. Pecora Corporation; Synthacalk GC-2+.

2.2.6.1.4. Polymeric Systems Inc.; PSI-350.

2.2.6.1.5. PolySpec Corp.; T-2235-M, T-2282, Thiokol 2P

2.2.6.1.6. Sika; Duoflex NS

2.2.6.1.7. Sonneborn, Division of ChemRex Inc.; Sonolastic Polysulfide Sealant.

2.2.6.1.8. Approved substitute

2.2.6.2. Type and Grade: S or M and NS (nonsag).

2.2.6.3. Class: 25.

2.2.6.4. Uses Related to Exposure: NT (non-traffic).

2.3. ACCESSORIES

2.3.1. Primer: Non-staining type, recommended by sealant manufacturer to suit application.

2.3.2. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.



2.3.3. Joint Backing: [07:JT21] Round foam rod compatible with sealant; ASTM D 1667, closed cell PVC; oversized 30 to 50 percent larger than joint width.

2.3.4. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

2.3.5. Compressible Neoprene Filler [07:JT31]: Any product compliant with needed requirements.

PART 3 EXECUTION

3.1. EXAMINATION

3.1.1. Verify that substrate surfaces are ready to receive work.

3.1.2. Verify that joint backing and release tapes are compatible with sealant.

3.1.3. Alert the Architect of any discrepancies, prior to commencing the Work of this section.

3.1.4. Coordinate the Work of this section with applicable trades.

3.2. PREPARATION

3.2.1. Remove loose materials and foreign matter which might impair adhesion of sealant.

3.2.2. Clean and prime joints in accordance with manufacturer's instructions.

3.2.3. Perform preparation in accordance with manufacturer's instructions and ASTM C 1193.

3.2.4. Protect elements surrounding the work of this section from damage or disfigurement.

3.3. INSTALLATION

3.3.1. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

3.3.2. Perform installation in accordance with ASTM C 1193.

3.3.3. Perform acoustical sealant application work in accordance with ASTM C 919.

3.3.4. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.

3.3.5. Install bond breaker where joint backing is not used.

3.3.6. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.

3.3.7. Apply sealant within recommended application temperature ranges. Consult the manufacturer when sealant cannot be applied within these temperature ranges.

3.3.8. Tool joints: concave.

3.3.9. Pre-compressed Foam Sealant: Do not stretch; avoid joints except at corners, ends, and intersections; install with face 3 to 6 mm below adjoining surface.

3.4. CLEANING

3.4.1. Clean adjacent soiled surfaces.

3.5. PROTECTION OF FINISHED WORK

3.5.1. Protect sealants until cured.

***** END OF SECTION *****



ARCHITECTURAL SPECIFICATION

DIVISION 7 - "THERMAL & MOISTURE PROTECTION"

Section 5. Architectural Joint System

31 AUGUST 2022

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Revision	Date	Description



ARCHITECTURAL JOINT SYSTEM

PART 1 GENERAL

1.1. RELATED DOCUMENTS

1.1.1. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this Section.

1.2. SUMMARY

1.2.1. This Section includes the following:

1.2.1.1. Architectural joint systems for building interiors.

1.2.1.2. Architectural joint systems for building exteriors.

1.2.2. Related Sections include the following:

1.2.2.1. "Unit Masonry Assemblies" for masonry wall joint systems.

1.2.2.2. "Firestopping" for firestopping materials

1.2.2.3. "Joint Sealers" for liquid-applied joint sealants.

1.3. DEFINITIONS

1.3.1. **Maximum Joint Width:** Widest linear gap a joint system tolerates and in which it performs its designed function without damaging its functional capabilities.

1.3.2. **Minimum Joint Width:** Narrowest linear gap a joint system tolerates and in which it performs its designed function without damaging its functional capabilities.

1.3.3. **Movement Capability:** Value obtained from the difference between widest and narrowest widths of a joint opening typically expressed in numerical values (mm or inches) or a percentage (plus or minus) of nominal value of joint width.

1.3.4. **Nominal Joint Width:** The width of the linear opening specified in practice and in which the joint system is installed.

1.4. SUBMITTALS

1.4.1. **Shop Drawings:** Provide the following for each joint system specified:

1.4.1.1. **Placement Drawings:** Include line diagrams showing plans, elevations, sections, details, splices, blockout requirement, entire route of each joint system, and attachments to other work. Where joint systems change planes, provide isometric or clearly detailed drawings depicting how components interconnect.

1.4.1.2. **Architectural Joint System Schedule:** Prepared by or under the supervision of the supplier. Include the following information in tabular form:

1.4.1.2.1. Manufacturer and model number for each joint system.

1.4.1.2.2. Joint system location cross-referenced to Drawings.

1.4.1.2.3. Nominal joint width.

1.4.1.2.4. Movement capability.

1.4.1.2.5. Materials, colors, and finishes.



1.4.1.2.6. Product options.

1.4.1.2.7. Fire-resistance ratings.

1.4.2. **Samples for Initial Selection:** For each type of joint system indicated.

1.4.3. Include manufacturer's color charts showing the full range of colors and finishes available for each exposed metal and elastomeric seal material.

1.4.3. **Samples for Verification:** For each type of architectural joint system indicated.

1.4.4. Full width by 150 mm long, for each system required.

1.4.4. **Product Test Reports and Certificates:** Based on evaluation of comprehensive tests performed by a qualified testing agency, for current products, to demonstrate compliance with specifications.

1.5. QUALITY ASSURANCE

1.5.1. **Source Limitations:** Obtain interior architectural joint systems through one source from a single manufacturer.

1.5.2. **Product Options:** Drawings indicate size, profiles, and dimensional requirements of architectural joint systems and are based on the specific systems indicated.

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

1.5.3. **Accessibility Requirements:** Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA), Accessibility Guidelines (ADAAG)" and ICC A117.1.

1.5.4. **Fire-Test-Response Characteristics:** Where indicated, provide architectural joint system and fire-barrier assemblies identical to those of assemblies tested for fire resistance per UL 2079 or ASTM E 1966 by a testing and inspecting agency acceptable to authorities having jurisdiction.

1.5.5. **Hose Stream Test:** Wall-to-wall and wall-to-ceiling assemblies shall be subjected to hose stream testing.

1.6. COORDINATION

1.6.1. Coordinate installation of exterior wall and soffit joint systems with roof expansion assemblies to ensure that wall transitions are watertight.

1.7. DELIVERY, STORAGE AND HANDLING

1.7.1. Exercise proper care in the handling of all work so as not to injure the finished surface, and take proper precautions to protect the work from damage after it is in place.

1.7.2. Deliver materials to the job site ready for use, and fabricated in as large sections and assemblies as practical. Assemblies shall be identical to submitted and reviewed shop drawings, samples and certificates.

1.7.3. Store materials under cover in a dry and clean location off the ground. Remove materials that are damaged or otherwise not suitable for installation from the job site and replace them with acceptable materials at no additional cost.

1.8. PROJECT CONDITIONS



1.8.1. Where necessary, check actual locations of walls and other construction to which work must fit, by accurate field measurements before fabrication. Show recorded measurements on final shop drawings and coordinate fabrication schedule with construction progress to avoid delay of work.

PART 2 PRODUCTS

2.1. MATERIALS

2.1.1. **Aluminum:** ASTM B 221, Alloy 6063-T5 for extrusions; ASTM B 209, Alloy 6061-T6 for sheet and plate, alloy 3003-H14 for bending plates.

2.1.1.1. Apply manufacturer's standard protective coating on aluminum surfaces to be placed in contact with cementitious materials.

2.1.2. **Stainless Steel:** ASTM A 666, Type 316 for plates, sheet, and strips.

2.1.2.1. Remove tools and die marks and stretch lines or blend into finish.

2.1.2.2. *Finish:* No. 2B, bright, cold-rolled, unpolished.

2.1.3. **Brass:** ASTM B 36/B 36M, UNS Alloy C26000 for half hard sheet and coil.

2.1.4. **Bronze:** ASTM B 455, Alloy C38500 for extrusions; Alloy C23000 red brass for plates.

2.1.5. **Elastomeric Seals:** Preformed elastomeric membranes or extrusions to be installed in metal frames.

2.1.6. **Compression Seals:** ASTM E 1612; performed rectangular elastomeric extrusions having internal baffle system and designed to function under compression.

2.1.7. **Strip Seals:** ASTM E 1783; performed elastomeric membrane or tubular extrusions having an internal baffle system and secured in or over a joint by a metal locking rail.

2.1.8. **Cellular Foam Seals:** Extruded, compressible foam designed to function under compression.

2.1.9. **Elastomeric Concrete:** Modified epoxy or polyurethane extended into a prepackaged aggregate blend, specifically designed for bonding to concrete substrates.

2.1.10. **Fire Barriers:** Any material or material combination, when fire tested after cycling, designated to resist the passage of flame and hot gases through a movement joint and to meet performance criteria for required rating period.

2.1.11. **Accessories:** Manufacturer's standard anchors, clips, fasteners, set screws, spacers, moisture barrier and other accessories compatible with material in contact, as indicated or required for complete installations.

2.2. ARCHITECTURAL JOINT SYSTEMS, GENERAL

2.2.1. **General:** Provide architectural joint systems of design, basic profile, materials, and operation indicated. Provide units with capability to accommodate variations in adjacent surfaces.

2.2.1.1. Furnish units in longest practicable lengths to minimize field splicing. Install hairline mitered corners where the joint changes direction or abuts other materials.

2.2.1.2. Include factory-fabricated closure materials and transition pieces, teejoints, corners, curbs, cross-connections, and other accessories as required to provide continuous joint systems.



2.2.2. Design architectural joint systems for 40mm nominal joint width and plus or minus 50 percent joint movement in all directions unless otherwise indicated in drawings.

2.3. ARCHITECTURAL JOINT SYSTEMS FOR BUILDING INTERIORS

2.3.1. **Manufacturers:** Subject to compliance with requirements, provide products approved by the architect.

2.3.2. Architectural Joint Systems for Building Interior:

2.3.2.1. *Exposed Metal:* Aluminum or as otherwise indicated in drawings.

2.3.2.2. *Finish:* Clear anodized unless otherwise indicated in drawings.

2.3.2.3. *Gasket colour:* As selected by Architect from manufacturer's full range.

2.3.2.4. *Products:* As indicated in drawings.

2.3.2.5. *Fire-Resistance Rating:* Provide joint system and fire-barrier assembly with a rating not less than that of adjacent construction unless otherwise indicated.

2.4. ARCHITECTURAL JOINT SYSTEMS FOR BUILDING EXTERIORS

2.4.1. **Manufacturers:** Subject to compliance with requirements and as approved by the Architect.

2.4.2. Architectural Joint Systems for Building Exterior:

2.4.2.1. *Exposed Metal:* Stainless steel grade 316 or as otherwise indicated in drawings.

2.4.2.2. *Gasket color:* As selected by Architect from manufacturer's full range.

2.4.2.3. *Products:* As indicated in drawings.

2.4.2.4. *Fire-Resistance Rating:* Provide joint system and fire-barrier assembly with a rating not less than that of adjacent construction unless otherwise indicated.

2.5. FINISHES

2.5.1. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

2.5.2. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

2.5.3. Appearance of Finished Work: Noticeable variations in the same piece are not acceptable.

PART 3 EXECUTION

3.1. EXAMINATION

3.1.1. Examine surfaces and block outs where architectural joint systems will be installed for installation tolerances and other conditions affecting performance of work.

3.1.1.1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2. PREPARATION

3.2.1. Prepare substrates according to architectural joint system manufacturer's written instructions.



3.2.2. Repair concrete slabs and block outs using manufacturer's recommended repair grout of compressive strength adequate for anticipated structural loadings.

3.2.3. Coordinate and furnish anchorages, setting drawings, and instructions for installing joint systems. Provide fasteners of metal, type, and size to suit type of construction indicated and to provide for secure attachment of joint systems.

3.3. INSTALLATION

3.3.1. Comply with manufacturer's written instructions for storing, handling, and installing architectural joint assemblies and materials unless more stringent requirements are indicated.

3.3.2. **Metal Frames:** Perform cutting, drilling, and fitting required to install joint systems.

3.3.2.1. Install in true alignment and proper relationship to joints and adjoining finished surfaces measured from established lines and levels.

3.3.2.2. Adjust for differences between actual structural gap and nominal design gap due to ambient temperature at time of installation. Notify Architect where discrepancies occur that will affect proper joint installation and performance.

3.3.2.3. Cut and fit ends to accommodate thermal expansion and contraction of metal without buckling of frames.

3.3.2.4. Locate in continuous contact with adjacent surfaces.

3.3.2.5. Standard-Duty Systems: Shim to level where required. Support underside of frames continuously to prevent vertical deflection when in service.

3.3.2.6. Heavy-Duty Systems: Repair or grout blockout as required for continuous frame support and to bring frame to proper level. Shimming is not allowed.

3.3.2.7. Locate anchors at intervals recommended by the manufacturer, but not less than 3 inches (75 mm) from each end and not more than 24 inches (600 mm) o.c.

3.3.3. **Seals in Metal Frames:** Install elastomeric seals and membranes in frames to comply with manufacturer's written instructions. Install with a minimum number of end joints.

3.3.3.1. Provide in continuous lengths for straight sections.

3.3.3.2. Seal transitions according to manufacturer's written instructions. Vulcanize or heat-weld field-spliced joints as recommended by the manufacturer.

3.3.3.3. Installation: Mechanically lock seals into frames or adhere to frames with adhesive or pressure-sensitive tape as recommended by the manufacturer.

3.3.4. **Compression Seals:** Apply adhesive or lubricant adhesive as recommended by manufacturer to both frame interfaces before installing compression seals.

3.3.5. **Foam Seals:** Install with adhesive recommended by the manufacturer.

3.3.6. **Epoxy-Bonded Seals:** Pressurize seal for time period and to pressure recommended by manufacturer. Do not over pressurize.

3.3.7. Terminate exposed ends of joint assemblies with field- or factory-fabricated termination devices.



3.3.8. **Fire-Resistance-Rated Assemblies:** Coordinate installation of architectural joint assembly materials and associated work so complete assemblies comply with assembly performance requirements.

3.3.9. **Fire Barriers:** Install fire barriers to provide continuous, uninterrupted fire resistance throughout the length of joint, including transitions and field splices.

3.3.10. **Water Barrier:** Provide water barrier at exterior joints and where called for on Drawings. Provide drainage fittings at a maximum of 50 feet (15.2 m) or where indicated.

3.4. PROTECTION

3.4.1. Do not remove protective covering until finish work in adjacent areas is complete. When protective covering is removed, clean exposed metal surfaces to comply with manufacturer's written instructions.

3.4.2. Protect the installation from damage by work of other Sections. Where necessary due to heavy construction traffic, remove and properly store cover plates or seals and install temporary protection over joints. Reinstall cover plates or seals prior to Substantial Completion of the Work.

***** END OF SECTION *****



ARCHITECTURAL SPECIFICATION

DIVISION 8 - "DOORS & WINDOWS"

Section 1. Wood Door

31 AUGUST 2022

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Revision	Date	Description



WOOD DOORS

PART 1 GENERAL

1.1. RELATED DOCUMENTS

1.1.1. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this Section.

1.1.2. Wood doors; configuration; fire rated and non-rated.

1.2. SUMMARY

1.2.1. This Section includes the following:

1.2.1.1. Wood doors , medium-density overlay, hardboard, and plastic- laminate faces.

1.2.1.2. Factory finishing flush wood doors.

1.2.1.3. Factory fitting flush wood doors to frames and factory machining for hardware.

1.2.1.4. Louvers for flush wood doors.

1.2.2. Related Sections include the following:

1.2.2.1. "Finish Carpentry" for wood door frames.

1.2.2.2. "Glazing" for glass view panels in flush wood doors.

1.3. REFERENCES

1.3.1. AWI P-200 – Architectural Woodwork Quality Standards Illustrated; Architectural Woodwork Institute.

1.3.2. NFPA 80 – Standard for Fire Doors and Fire Windows; National Fire Protection Association.

1.3.3. NFPA-105 Recommended Practice for Installation of Smoke-Control Door Assemblies.

1.3.4. NFPA 252 – Standard Methods for Fire Tests of Door Assemblies; National Fire Protection Association.

1.3.5. WDMA – Window and Door Manufacturers Association: I.S. 1-A Industry Standard for Architectural Flush Wood Doors.

1.3.6. UL (BMD) – Building Materials Directory; Underwriters Laboratories Inc.

1.3.7. British Standards Institution (BSI)

1.3.8. National Building Code of the Philippines

1.3.9. Quezon City's Local Rules and Regulations

1.3.10. Fire Code of the Philippines

1.4. SUBMITTALS

1.4.1. **Product Data:** For each type of door. Include details of core and edge construction, louvers, and trim for openings. Include factory- finishing specifications.



1.4.2. **Shop Drawings:** Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; location and extent of hardware blocking; and other pertinent data.

1.4.2.1. Indicate dimensions and locations of mortises and holes for hardware.

1.4.2.2. Indicate dimensions and locations of cutouts.

1.4.2.3. Indicate requirements for veneer matching.

1.4.2.4. Indicate doors to be factory finished and finish requirements.

1.4.2.5. Indicate fire ratings for fire doors.

1.4.3. **Samples for Initial Selection:** Color charts consisting of actual materials in small sections for the following:

1.4.2.6. *Plastic-Laminate Door Faces:* Show the full range of colors, textures, and patterns available.

1.4.2.7. *Faces of Factory-Finished Doors:* Show the full range of colors available for stained and opaque finishes.

1.4.4. **Samples for Verification:**

1.4.4.1. For each door type specified, provide one full size mockup completed with hardware installation, representing actual product, color, and finishes for verification.

1.4.5. **Product Test Reports:** Certified test reports showing compliance with specified performance characteristics and physical properties, for each type of door specified

1.5. QUALITY ASSURANCE

1.5.1. **Source Limitations:** Obtain flush wood doors through one source from a single manufacturer.

1.5.2. **Quality Standard:** Comply with AWI's "Architectural Woodwork Quality Standards Illustrated."

1.5.2.1. Provide AWI Quality Certification Labels or an AWI letter of licensing for Project indicating that doors comply with requirements of grades specified.

1.5.3. **Manufacturer:** Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

1.5.4. **Fire-Rated Wood Doors:** Doors complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 252.

1.5.4.1. *Test Pressure:* Test according to UL 10C. After 5 minutes into the test, the neutral pressure level in the furnace shall be established at 1000 mm or less above the sill.

1.5.4.2. *Oversize, Fire-Rated Wood Doors:* For door assemblies exceeding sizes of tested assemblies, provide oversize fire door label or certificate of inspection, from a testing and inspecting agency acceptable to authorities having jurisdiction, stating that doors comply with requirements of design, materials, and construction.

1.5.4.3. *Local codes and regulations:* Fire-rated doors to comply with local codes and regulations and approved by the Fire Services Department.



1.5.5. **Non-Rated Wood Doors:** Conform to National building code and local codes and regulations for fire retardant requirements, and approved by Fire Department.

1.5.6. Maintain at the project site a copy of all specified door quality standards for review during installation and finishing.

1.5.7. **Pre-installation Conference:** Two weeks minimum prior to start of installation of the work, arrange for and conduct a pre-installation conference at project site.

1.5.7.1. Ensure attendance by representatives of DSWD, Contractor, installation subcontractor(s) for the work, and manufacturer.

1.5.7.2. The installation procedures and requirements should be reviewed and discussed.

1.6. DELIVERY, STORAGE, AND HANDLING

1.5.6.1. Comply with the Care and Installation guidelines as described in AWI Quality Standards Illustrated, Section 1300 and manufacturer's written instructions.

1.5.6.2. Package doors individually in plastic bags or cardboard cartons. Plastic wrap and protect doors during transit, storage and handling to prevent damage, soiling or deterioration.

1.5.6.3. Accept doors on site in manufacturer's packaging. Inspect for damage.

1.5.6.4. Mark each door on top and bottom rail with the opening number used on Shop Drawings.

1.7. PROJECT CONDITIONS

1.7.1. Coordinate the work with door opening construction, door frame and door hardware installation.

1.8. WARRANTY

1.8.1. The manufacturers and installers shall jointly provide a twenty years warranty against material defects, fire protection and workmanship for work of this section.

PART 2 PRODUCTS

2.1. MANUFACTURER

2.1.1. All doors specified in this section shall be proprietary products from a single manufacturer. Subject to compliance with requirements and as approved by the Architect. For compliance with requirements, acceptable manufacturers are needed to be pre-approved by the architect.

2.2. DOOR CONSTRUCTION, GENERAL

2.2.1. Requirements for all doors:

2.2.1.1. Door construction shall conform to AWI "Architectural Woodwork Quality Standards Illustrated".

2.2.1.2. Core: Particleboard complying with ANSI A208.1, Grade LD-2.

2.2.1.3. Construction: Five plies with stiles and rails bonded to core, then the entire unit abrasive planed before veneering or before faces and crossbands are applied unless otherwise specified.

2.2.1.3.1. Wood veneer faced doors: Minimum face veneer thickness shall be 0.5mm at 12% moisture content after finish sanding.



2.2.1.3.2. Facing Adhesives: Type I – waterproof, per WDMA TM-6 “Adhesive Bond Test Method.”

2.2.1.4. *Thickness*: 45mm unless otherwise specified.

2.2.1.5. *Blocking*: Provide composite blocking with improved screw- holding capability approved for use in doors of fire ratings indicated as needed to eliminate through-bolting hardware.

2.2.1.6. ANSI/WDMA I.S. 1-A Performance Duty Level: Heavy-duty.

2.2.2. Fire-Rated Doors:

2.2.2.1. *Construction*: Construction and core specified above for type of face indicated or manufacturer's standard mineral-core construction as needed to provide fire rating indicated.

2.2.2.2. *Blocking*: For mineral-core doors, provide composite blocking with improved screw-holding capability approved for use in doors of fire ratings indicated as needed to eliminate through- bolting hardware.

2.2.2.3. *Edge Construction*: Provide edge construction with intumescent seals concealed by outer stile matching face veneer, and laminated backing at hinge stiles for improved screw- holding capability and split resistance.

2.2.2.4. *Pairs*: Provide fire-rated pairs with fire-retardant stiles matching face veneer that are labeled and listed for kinds of applications indicated without formed-steel edges and astragals unless otherwise indicated.

2.2.3. Doors for Transparent Finish:

2.2.3.1. *Grade*: Premium, with Grade AA faces.

2.2.3.2. *Species and Cut*: Species as selected by Architect from manufacturer's full range of products, plain sliced.

2.2.3.3. Assembly of Veneer Leaves on Door Faces: Balance match.

2.2.3.4. Pair and Set Match: Provide for doors hung in the same opening or separated only by mullions.

2.2.3.5. *Room Match*: Provide door faces of compatible color and grain within each separate room or area of building.

2.2.3.6. *Transom Match*: Continuous match.

2.2.3.7. *Blueprint Matching*: Where indicated, provide doors with faces produced from the same flitches as adjacent wood paneling and arranged to provide blueprint matching with wood paneling. Comply with requirements in Division 6 Section "Interior Architectural Woodwork."

2.2.3.8. *Stiles*: Same species as faces.

2.3. LOUVERS AND LIGHT FRAMES

2.3.1. **Wood Louvers**: Door manufacturer's standard solid-wood louvers, unless otherwise indicated.

2.3.2. **Metal Louvers**:



2.3.2.1. Blade Type: Vision-proof, inverted V unless otherwise indicated in drawings.

2.3.2.2. Metal and Finish: As indicated in drawings.

2.3.2.2.1. Galvanized steel, 1.0 mm thick, hot-dip zinc coated and factory primed for paint finish; or

2.3.2.2.2. Extruded aluminum with Class II, color anodic finish complying with AA-C22A32/A34 and color to match approved sample.

2.3.3. **Fire Door Louvers:** Metal louvers with fusible link and closing device, listed and labeled for use in doors with fire rating of one and one-half hours and less.

2.3.3.1. Metal and Finish:

2.3.3.1.1. Galvanized steel, 1.0 mm thick, hot-dip zinc coated and factory primed for paint finish.

2.3.4. **Wood Beads for Light Openings in Wood Doors:**

2.3.4.1. Wood Species: Same species as door faces.

2.3.4.2. Profile: To be selected from the Manufacturer's standard shape and to match the approved sample.

2.3.5. **Metal Frames for Light Openings in Fire Doors:** Manufacturer's standard frame formed of 1.2-mm-thick, cold-rolled steel sheet; factory primed and approved for use in doors of fire rating indicated.

2.3.6. **Wood-Veneered Beads for Light Openings in Fire Doors:** Manufacturer's standard wood-veneered noncombustible beads matching veneer species of door faces and approved for use in doors of fire rating indicated. Include concealed metal glazing clips where required for opening size and fire rating indicated.

2.3.7. Glazing to fire rated doors shall be a clear safety glass installed with a proprietary glazing system and tested to UL 10C.

2.4. FABRICATION

2.4.1. Fabricate doors in sizes indicated for Project-site fitting.

2.4.2. Fabricate wood doors in accordance with requirements of AWI's "Architectural Woodwork Quality Standards Illustrated".

2.4.3. Fabricate fire rated doors in accordance with requirements of Underwriters' Laboratories. Attach fire rating label to door.

2.4.4. Comply with clearance requirements of referenced quality standard for fitting. Comply with requirements in NFPA 80 for fire-rated doors.

2.4.5. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, DHI A115-W series standards, and hardware templates.

2.4.6. Coordinate measurements of hardware mortises in metal frames to verify dimensions and alignment before factory machining.

2.4.6.1. *Metal Astragals:* Pre-machine astragals and formed-steel edges for hardware for pairs of fire-rated doors.



2.4.7. **Fire Retardant Treatment:** Chemically treated and pressure impregnated; capable of providing flame spread index of 25, maximum, and smoke developed index of 50, maximum, when tested in accordance with ASTM E84.

2.4.8. **Transom and Side Panels:** Fabricate matching panels with same construction, exposed surfaces, and finish as specified for associated doors. Finish bottom edges of transoms and top edges of rabbeted doors same as door stiles.

2.4.9. Fabricate door and transom panels with full-width, solidlumber meeting rails. Provide factory-installed spring bolts for concealed attachment into jambs of metal door frames.

2.4.9. **Openings:** Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of door(s) required.

2.4.10. **Light Openings:** Trim openings with moldings of material and profile indicated. K. Louvers: Factory install louvers in prepared openings.

2.4.11. **Exterior Doors:** Factory treat exterior doors with water repellent after manufacturing has been completed.

2.5. FACTORY FINISHING

2.5.1. **General:** Comply with AWI's "Architectural Woodwork Quality Standards Illustrated" for factory finishing.

2.5.2. Finish doors at the factory.

2.5.3. **Transparent Finish:**

2.5.3.1. *Grade:* Premium.

2.5.3.2. *Finish:* Manufacturer's standard finish with performance comparable to AWI System TR-6 catalyzed polyurethane.

2.5.3.3. *Staining:* As selected by Architect from manufacturer's full range.

2.5.3.4. *Effect and Sheen:* To match approved samples.

PART 3 EXECUTION

3.1. EXAMINATION

3.1.1. Examine doors and install door frames before hanging doors.

3.1.1.1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.

3.1.1.2. Reject doors with defects.

3.1.2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2. INSTALLATION

3.2.1. **Hardware:** For installation, see "Door Hardware."

3.2.2. Install doors to comply with manufacturer's written instructions, AWI's "Architectural Woodwork Quality Standards Illustrated", and as indicated.

3.2.3. Install fire-rated doors in corresponding fire-rated frames according to NFPA 80.



3.2.4. Condition doors to average temperature and humidity in the area of installation for not less than 48 hours prior to installation. Store doors per recommendations of WDMA I.S. 1-A, "Care and Installation at Job Site."

3.2.5. Set plumb, level, square and true. Install work after building humidity is at an acceptable level.

3.2.6. Install in a neat and workmanlike manner, free from hammer or tool marks, open joints or slivers.

3.2.7. Remove and replace all doors found to be warped, twisted, bowed, or otherwise damaged. Do not install doors which cannot be properly fitted to frames.

3.2.8. Coordinate installation of doors with installation of frames and hardware.

3.2.9. Ensure that smoke gaskets are in-place before prefinished door installation.

3.2.10. **Job-Fitted Doors:** Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire rated doors. Machine doors for hardware. Seal cut surfaces after fitting and machining.

3.2.10.1. Clearances: Provide 3.2 mm at heads, jambs, and between pairs of doors. Provide 3.2 mm from bottom of door to top of decorative floor finish or covering. Where threshold is shown or scheduled, provide 6.4 mm from bottom of door to top of threshold.

3.2.10.1.1. Comply with NFPA 80 for fire-rated doors.

3.2.10.2. Bevel non-fire-rated doors 3-1/2 degrees at lock and hinge edges.

3.2.10.3. Bevel fire-rated doors 3-1/2 degrees at lock edge; trim stiles and rails only to extent permitted by labeling agency.

3.2.11. **Factory-Fitted Doors:** Align in frames for uniform clearance at each edge.

3.2.12. **Factory-Finished Doors:** Restore finish before installation if fitting or machining is required at Project site.

3.3. ADJUSTMENTS

3.3.1. **Operation:** Rehang or replace doors that do not swing or operate freely.

3.3.2. **Finished Doors:** Replace doors that are damaged or do not comply with requirements. Doors may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing.

3.4. PROTECTION

3.4.1. Provide temporary and removable protection for installed products to protect installed work from damage by construction operations.

3.4.2. Do not partially cover door surfaces with paper, cardboard, or any other opaque covering that will create uneven aging of wood veneer.

3.4.3. Remove protective coverings when no longer needed; reuse or recycle plastic coverings if possible.

*** END OF SECTION ***



ARCHITECTURAL SPECIFICATION

DIVISION 8 - "DOORS & WINDOWS"

Section 2. Steel Door

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Revision	Date	Description



STEEL DOOR

PART 1 GENERAL

1.1. SCOPE

1.1.1. Specifications apply to the supply only of steel frame products including, fire labelled and unlabelled and steel doors, swing type, flush, glazed or louvered, fire labelled, with or without temperature rise ratings.

1.2. REQUIREMENTS OF REGULATORY AGENCIES

1.2.1. Install fire labelled steel doors and frame products in accordance with NFPA-80, current edition, except where specified otherwise.

1.3. SUBMITTALS

1.3.1 Manufacturer's Brochures, Samples and Shop Drawings

1.3.1.1. Submit shop drawings indicating each type of door, steel, and material thickness, mortises, reinforcements, anchorages, locations of exposed fasteners, openings (glazed, panelled or louvered) and arrangement of standard hardware. Include schedule identifying each unit, with door marks and numbers relating to numbering on drawings and door schedule of architect.

1.3.1.2. Submit shop drawings and manufacturer's brochures for approval before delivery of equipment and materials. Drawings and brochures shall contain enough detailed information to determine that the equipment conforms to the requirements of this specification.

1.3.2 Operation and Maintenance Instructions

1.3.2.1. Three (3) complete sets of bound operating and maintenance instructions for the Steel Door in manufacturer's format shall be furnished specifically for the installation. Operation portion may be detailed information relative to type, method, sequence of controls and operation, with illustrations to prevent misinterpretation. Maintenance instructions shall include complete data for servicing the complete system, lubricating, repairing, identification and ordering of all replacement parts.

1.4. GENERAL REQUIREMENTS

1.4.1. All material and equipment shall be new otherwise specified or indicated. The equipment shall be the product of a manufacturer regularly engaged in the manufacture and/or installation of this type of equipment. Working parts shall be accessible for inspection, servicing and repair. Provide adequate means for the lubrication of wearing parts that require lubrication.

1.5. WARRANTY

1.5.1. Materials and workmanship shall be warranted by manufacturer for a period of one year. The warranty is based upon the product being used with the hardware for which it was prepared, the assumption that normal industry and installation and usage recommendations were employed, that the product was properly painted and maintained, and was subject to normal use. The warranty is limited to the replacement or repair of said door or frame.

PART 2 PRODUCTS



2.1. SUPPLIER

2.1.1. Steel Door shall be a product of reliable and experienced manufacturers providing the most up-to-date technology, safety, quality and regular service maintenance.

2.1.2. Subject to compliance with requirements and as approved by the Architect. For compliance with requirements, acceptable manufacturers are needed to be pre-approved by the architect.

PART 3 EXECUTION

3.1. SITE STORAGE AND PROTECTION OF MATERIALS

3.1.1. All materials shall be thoroughly inspected upon receipt and all discrepancies, deficiencies and/or damages shall be immediately reported, in writing, to the supplier. All damages incurred during shipment shall be noted on the carriers' Bill of Lading and immediately reported, in writing, to the supplier. All materials shall be properly stored on planks or dunnage, out of water and covered to protect from damage from any cause. Doors shall be removed from their wrappings or coverings upon receipt on site, shall be stored in a vertical position, spaced with blocking to permit air circulation between them.

3.2. INSTALLATION

3.2.1. Install doors and hardware in accordance with hardware templates and manufacturers' instructions. Adjust operable parts for correct clearances and function. Install louvres, glazing and door silencers. Installation shall comply with requirements and rules set by the public authority of competent jurisdiction on Steel Door. Testing and adjustments shall be performed prior to final acceptance.

3.3. FINAL INSPECTION

3.3.1. After all necessary testing has been performed, the doors and hardware contractor shall provide evidence of certification by a government authority for the project area, stating that each Steel Door safety has been tested and approved for use with the equipment having the specific ratings indicated or specified.

***** END OF SECTION *****



ARCHITECTURAL SPECIFICATION

DIVISION 8 - "DOORS & WINDOWS"

Section 3. Access Door & Panel

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ACCESS DOORS AND PANELS

PART 1 GENERAL

1.1. RELATED DOCUMENTS

1.1.1. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this Section.

1.2. SUMMARY

1.2.1. Section includes:

1.2.1.1. Access door and frame units, fire-rated and non-fire-rated, in wall, and ceiling locations.

1.2.2. Related sections:

1.2.2.1. Unit Masonry Assemblies: Openings in masonry.

1.2.2.2. Paints and Coatings: Field paint finish.

1.2.2.3. MEP Engineer's Specifications for mechanical and electrical work.

1.3. REFERENCES

1.3.1. ITS (DIR) - Directory of Listed Products; Intertek Testing Services NA, Inc..

1.3.2. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc..

1.3.3. ISO/TC 162 Doors;

1.3.4. National Building Code of the Philippines: 2004 Edition

1.3.5. Fire Code of the Philippines

1.4. SUBMITTALS

1.4.1. Submit under provisions of Project Procedure Manual issued by Project Architect.

1.4.2. Product Data: Provide sizes, types, finishes, hardware, scheduled locations, and details of adjoining work.

1.4.3. Shop Drawings: Indicate exact position of all access door units.

1.4.4. Manufacturer's Installation Instructions: Indicate installation requirements.

1.4.5. Certificates: Certificate of compliance from Local Fire Services Department and authority having jurisdiction indicating approval of fire rated doors.

1.4.6. Project Record Documents: Record actual locations of all access units.

1.5. REGULATORY REQUIREMENTS

1.4.7. Conform to applicable code for fire rated access doors.

1.4.7.1. Provide access doors completed with hardware and related accessories of fire rating as indicated and equivalent to the fire rated assembly in which they are to be installed.

1.4.8. Provide products listed and labelled by UL or ITS (Warnock Hersey) as suitable for the purpose specified and indicated.

1.4.9. Provide certificate of compliance from Local Fire Services Department and authority having jurisdiction indicating approval of fire rated access panels, hardware and related accessories.



1.6. PROJECT CONDITIONS

1.6.1. Coordinate the work with other work requiring access doors.

PART 2 PRODUCTS

2.1. GENERAL

2.1.1. Access Doors:

Proprietary product subject to compliance with requirements specified herein. Subject to compliance with requirements and as approved by the Architect. For compliance with requirements, acceptable manufacturers are needed to be pre-approved by the architect.

2.2. ACCESS DOOR UNITS - WALLS AND CEILINGS

2.2.1. Door and Frame Units: Solid wood

2.2.1.1. Frames and flanges: 1.5 mm wood.

2.2.1.2. Door panels: 1.5 inches solid wood

2.2.1.3. Sizes: Provide access panels of the following typical sizes unless otherwise indicated.

2.2.1.3.1. Walls: Refer to drawings and schedules.

2.2.1.3.2. Ceilings: 300 x 300 mm.

2.2.1.3.3. Ceilings: 610 x 610 mm to allow personnel passage to HVAC ducting or extensive equipment.

2.2.1.3.4. Lay-in Grid Ceilings: To match grid modules.

2.2.1.4. Hardware: Provide hardware for the proper functioning of the access doors including the following.

2.2.1.4.1. Hinge: Concealed constant force closure spring type.

2.2.1.4.2. Lock: Screwdriver slot for quarter turn cam lock.

2.2.1.5. Prime coat with baked on primer.

2.4. FABRICATION

2.4.1. Weld, fill, and grind joints to ensure flush and square unit.

PART 3 EXECUTION

3.1. EXAMINATION

3.1.1. Verify that rough openings for doors and frames are correctly sized and located.

3.1.2. Alert the Architect of any discrepancies, prior to commencing the Work of this section.

3.1.3. Coordinate the Work of this section with applicable trades.

3.2. INSTALLATION

3.2.1. Install units in accordance with manufacturer's instructions.

3.2.2. Install frames plumb and level in openings. Secure rigidly in place.

3.2.3. Position units to provide convenient access to the concealed work requiring access.

***** END OF SECTION *****



ARCHITECTURAL SPECIFICATION

DIVISION 8 - "DOORS & WINDOWS"

Section 4. Door Hardware

31 AUGUST 2022

JMM/ REV. 00

Revision	Date	Description

DOOR HARDWARE

PART 1 GENERAL



1.1. RELATED DOCUMENTS

1.1.1. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this Section.

1.2. SUMMARY

1.2.1. The section includes the following:

- 1.2.1.1. Door Hardware, including electric hardware.
- 1.2.1.2. Entrance door hardware.
- 1.2.1.3. Gate Hardware.
- 1.2.1.4. Digital keypad access control devices.
- 1.2.1.5. Card Access control system.
- 1.2.1.6. Hand-key biometric access control devices.
- 1.2.1.7. Hold-open closers with fire-alarm interface.
- 1.2.1.8. Wall or floor-mounted electromagnetic hold-open devices.
- 1.2.1.9. Power supplies for electric hardware.
- 1.2.1.10. Low energy door operators plus sensors and actuators.
- 1.2.1.11. Remote button release hardware.
- 1.2.1.12. Cabinet locks.
- 1.2.1.13. Padlocks.
- 1.2.1.14. Cylinders for doors fabricated with locking hardware.
- 1.2.1.15. Stainless steel guard rails between pairs of exterior doors.
- 1.2.1.16. Wiring and riser diagrams for electric hardware.
- 1.2.1.17. Key cabinets.
- 1.2.1.18. Key management software.

1.2.2. Related sections include the following:

- 1.2.2.1. Finish Carpentry: Finish Hardware Installation.
- 1.2.2.2. Joint Sealers – exterior thresholds.
- 1.2.2.3. Metal Doors and Frames.
- 1.2.2.4. Wood Doors.
- 1.2.2.5. Special Doors.
- 1.2.2.6. Entrances and Storefronts.
- 1.2.2.7. Glazed Curtain Walls.
- 1.2.2.8. Fire/Life-Safety System.



1.2.2.9. Security Access Systems.

1.2.2.10. Metal Frame, Door and Impact Exit Device Assemblies.

1.2.3. **Specific Omissions:** Hardware for the following is specified or indicated elsewhere.

1.2.3.1. Windows.

1.2.3.2. Cabinets, including open wall shelving and locks.

1.2.3.3. Signs, except where scheduled.

1.2.3.4. Toilet accessories, including grab bars.

1.2.3.5. Installation.

1.2.3.6. Rough hardware.

1.2.3.7. Folding partitions, except cylinders where detailed.

1.2.3.8. Sliding aluminum doors, except cylinders where detailed.

1.2.3.9. Access doors and panels, except cylinders where detailed.

1.2.3.10. Corner Guards.

1.2.4.11. Wrought Iron railing gates and supports.

1.2.5.12. Brass rail and drink rail supports.

1.3. REFERENCES

1.3.1. **American National Standards Institute**

1.3.1.1. ANSI A117.1 – Standard on Accessible and Useable Buildings and Facilities.

1.3.1.2. ANSI A156.1 – Butts & Hinges.

1.3.1.3. ANSI A156.2 – Bored and Preassembled Locks & Latches.

1.3.1.4. ANSI A156.13 – Approved American National Standard Mortise Locks & Latches.

1.3.1.5. ANSI A156.18 – Materials and Finishes.

1.3.1.6. ANSI A156.19-1984 –Power Assist and Low Energy Power Operated Doors

1.3.1.7. ICC/ANSI A117.1– Specifications for making buildings and facilities usable by physically handicapped people.

1.3.1.8. ANSI A250.8 – Recommended Specifications for Standard Steel Doors and Frames.

1.3.1.9. ANSI/ASTM F476-84 – Standard Test Methods for Security of Swinging Door Assemblies.

1.3.2. **BHMA – Builders Hardware Manufacturers Association**

1.3.3. **DHI – Door and Hardware Institute**

1.3.4. **NFPA – National Fire Protection Association**

1.3.4.1. NFPA 80 – Fire Doors and Windows



1.3.4.2. NFPA 101 – Life Safety Code

1.3.4.3. NFPA 252 – Fire Tests of Door Assemblies

1.3.4.4. NFPA 253 – Standard Method of Test for Critical Radiant Flux for Floor Covering Systems Using a Radiant Heat Energy Source

1.3.5. UL – Underwriters Laboratories

1.3.5.1. UL10B – Fire Tests of Door Assemblies as amended to incorporate positive pressure testing.

1.3.5.2. UL 305 – Panic Hardware

1.3.6. NAAMM – National Association of Architectural Metal Manufacturers

1.3.7. International Building Code

1.3.8. Local Codes and Regulations

1.3.9. Fire Code of the Philippines

1.4. SUBMITTALS

1.4.1. **Product Data:** Include construction and installation details, material descriptions, dimensions of individual components and profiles, and finishes.

1.4.2. **Samples for Initial Selection:** For each finish, color, and texture required for each type of door hardware indicated.

1.4.3. Samples for Verification:

1.4.3.1. Submit minimum 50-by-100-mm plate Samples of each type of finish required, except primed finish.

1.4.3.2. For exposed door hardware of each type, in specified finish, full size. Tag with full description for coordination with the door hardware sets. Submit Sample before, or concurrent with, submission of the final door hardware sets.

1.4.3.3. Samples will be returned to the Contractor. Units that are acceptable and remain undamaged through submittal, review, and field comparison process may, after final check of operation, be incorporated into the Work, within limitations of keying requirements.

1.4.4. **Door Hardware Schedule:** Submit six copies of schedule prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final door hardware sets with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

1.4.4.1. *Format:* Organize vertically formatted schedule into “Hardware Sets” with index of doors and headings, indicating complete designations of every item required for each door or opening. Use the same scheduling sequence and format and use the same door numbers as in the Contract Documents.

1.4.4.2. *Contents:* Include following information.

1.4.4.2.1. Type, style, function, size, quantity and finish of hardware items.

1.4.4.2.2. Use BHMA Finish codes per ANSI A156.18.

1.4.4.2.3. Name, part number and manufacturer of each item.



- 1.4.4.2.4. Fastenings and other pertinent information.
- 1.4.4.2.5. Location of hardware set coordinated with floor plans and door schedule.
- 1.4.4.2.6. Explanation of abbreviations, symbols, and codes contained in schedule.
- 1.4.4.2.7. Mounting locations for hardware.
- 1.4.4.2.8. Door and frame sizes, materials and degrees of swing.
- 1.4.4.2.9. List of manufacturers used and their nearest representative with address and phone number.
- 1.4.4.2.10. Catalog cuts.
- 1.4.4.2.11. Manufacturer's technical data and installation instructions for electronic hardware.
- 1.4.4.2.12. Date of jobsite visit.

1.4.5. **Shop Drawings:** Details of electrified door hardware, indicating the following:

1.5.1. *Wiring Diagrams:* Power, signal, and control wiring. Include the following:

- 1.5.1.1. System schematic.
- 1.5.1.2. Point-to-point wiring diagram.
- 1.5.1.3. Riser diagram.
- 1.5.1.4. Elevation of each door.

1.5.2. Detail interface between electrified door hardware, access control and life safety system.

1.5.3. *Operation Narrative:* Describe the operation of doors controlled by electrified door hardware.

1.4.6. **Product Certificates:** For electrified door hardware, signed by the product manufacturer.

1.7. Certify that door hardware approved for use on types and sizes of labeled fire doors complies with listed fire door assemblies.

1.4.7. **Qualification Data:** For Installer and Supplier.

1.4.8. **Product Test Reports:** Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for locks, latches, delayed egress locks and closures.

1.4.9. **Maintenance Data:** For each type of door hardware to include in maintenance manuals. Include final hardware and keying schedule.

1.4.10. Furnish as-built/as-installed schedule with closeout documents, including wiring/riser diagrams, manufacturers' installation, adjustment and maintenance information, and supplier's final inspection report.

1.4.11. **Warranty:** Special warranty specified in this Section.

1.4.12. **Submittal Sequence:** Submit the final door hardware schedule at earliest possible date, particularly where approval of the door hardware schedule must precede fabrication of other work



that is critical in Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the door hardware sets.

1.5. SUBSTITUTION

1.5.1. Bid and submit manufacturer's updated/improved item if scheduled item is discontinued.

1.5.2. Make substitution requests including product data and indicating benefit to the Project. Furnish operating samples on request.

1.5.2.1. Items listed with no substitute manufacturers have been requested by DSWD to meet existing standards.

1.5.3. Should be approved by the Architect

1.6. QUALITY ASSURANCE

1.6.1. Qualifications:

1.6.1.1. *Hardware supplier:* direct factory contract supplier who employs a certified architectural hardware consultant (AHC) or dip GAI (Guild of Architectural Ironmongery), available at reasonable times during course Work for project hardware consultation to DSWD, Architect and Contractor.

1.6.1.1.1. Responsible for detailing, scheduling and ordering of finished hardware.

1.6.1.2. *Installer:* Experienced craftsperson with a resume of successful projects. Can readily differentiate between number 2 and number 3 phillips- drive screws and screwdrivers. Can readily differentiate between #10-24 machine screws and drywall screws, and can explain correct usages of these items.

1.6.2. **Hardware:** New, free of defects, blemishes and excessive play. Obtain each kind of hardware (latch and locksets, exit devices, hinges and closers) from one manufacturer.

1.6.3. **Exit Doors:** Operable from inside with single motion without the use of a key or special knowledge or effort.

1.6.4. **Fire-Rated Openings:** NFPA 80 compliant for fire ratings indicated, based on testing according to NFPA 252 and comply with Makati local codes and regulations acceptable by the Local Fire Services Department.

1.6.4.1. *Test Pressure:* After 5 minutes into the test, neutral pressure level in the furnace shall be established at 40 inches (1016 mm) or less above the sill.

1.6.4.2. Provide proper latching hardware, non-flaming door closers, approved bearing hinges, and resilient seals. Coordinate with the wood door section for required intumescent seals. Furnish openings complete.

1.6.4.3. Scheduled resilient seals may exceed selected door manufacturer's requirements.

1.6.5. Furnish hardware items required to complete the work in accordance with specified performance level and design intent, complying with manufacturers' instructions.

1.6.5.1. Where the scheduled item is now obsolete, bid and furnish the manufacturer's updated item at no additional cost to the project.



1.6.6. **Pre-Installation Meetings:** Initiate and conduct with supplier, installer and related trades, coordinate materials and techniques, and sequence complex hardware items and systems installation. Include manufacturers' representatives of locks, panic hardware and door closers in the meetings. Convene at least one week prior to commencement of related work.

1.7. DELIVERY, STORAGE AND HANDLING

1.7.1. **Delivery:** coordinate delivery to appropriate locations (shop or field).

1.7.1.1. Permanent keys and cores: secured delivery direct to the DSWD/BGMS

1.7.2. **Acceptance at Site:** Items individually packaged in manufacturers' original containers, complete with proper fasteners and related pieces. Clearly mark packages to indicate contents, locations in hardware schedule and door numbers.

1.7.3. **Storage:** Provide securely locked storage area for hardware, protect from moisture, sunlight, paint, chemicals, dust, excessive heat and cold, etc.

1.8. PROJECT CONDITIONS

1.8.1. Where exact types of hardware specified are not adaptable to finished shape or size of members requiring hardware, provide suitable types having as nearly as practical as the same operation and quality as type specified, subject to Architect's approval.

1.9. SEQUENCING AND COORDINATION

1.9.1. Coordinate with concrete works.

1.9.2. Reinforce walls for wall-mounted hardware, including wall stops and stainless steel guard rails.

1.9.3. Coordinate finish floor materials and floor-mounted hardware.

1.9.4. Conduit and raceways as needed for electrical, electronic and electro pneumatic hardware items. Fire/life-safety system interfacing. Point-to-point wiring diagrams plus riser diagrams to related trades.

1.9.5. Furnish manufacturer templates to door and frame fabricators.

1.9.5.1. Ensure proper blocking in wood doors to support wood screws for panic hardware and door closers.

1.9.5.2. Ensure proper reinforcement in metal doors and frames to support machine screws for panic hardware and door closers.

1.9.6. Use a hardware consultant or GAI to check Shop Drawings for doors and entrances to confirm that adequate provisions will be made for proper hardware installation.

1.10. WARRANTY

1.10.1. **Special Warranty:** Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.

1.10.1.1. Failures include, but are not limited to, the following:

1.10.1.1.1. Structural failures including excessive deflection, cracking, or breakage.



1.10.1.1.2. Faulty operation of operators and door hardware.

1.10.1.1.3. Deterioration of metals, metal finishes, and other materials beyond normal weathering and use.

1.10.2. Warranty Period:

1.10.2.1. Locksets: Three years.

1.10.2.2. Exit Devices: Three years mechanical, one year electrical.

1.10.2.3. Closers: Ten years mechanical, two years electrical.

1.10.2.4. Hinges: Life of Building.

1.10.2.5. Other Hardware: Two years.

1.11. COMMISSIONING

1.11.1. Conduct these tests three weeks prior to requesting a certificate of substantial completion.

1.11.2. Test door hardware operation with climate control system and stairwell pressurization system both at rest and while in full operation.

1.11.3. Test electrical, electronic and electro-pneumatic hardware systems for satisfactory operation.

1.11.4. Test hardware interfaced with fire/life-safety systems for proper operation and release.

1.12. MAINTENANCE SERVICE

1.12.1. **Maintenance Tools and Instructions:** Furnish a complete set of specialized tools and maintenance instructions as needed for DSWD/BGMS's continued adjustment, maintenance, and removal and replacement of door hardware.

1.12.2. **Maintenance Service:** Beginning at Practical Completion, provide six months' full maintenance by skilled employees of door hardware Installer. Include quarterly preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper door hardware operation. Provide parts and supplies same as those used in the manufacture and installation of original products.

PART 2 PRODUCTS

2.1. DISCLAIMER

2.1.1. Named Manufacturers or Manufacturers' products are for reference of quality and standard required for the type of specified product only. The acceptance of the actual product for the works is subject to compliance with requirements of this specification, including compliance with Philippine National Building codes and regulations and accepted by the Philippine Fire Code.

2.1.2. Subject to compliance with requirements and as approved by the Architect. For compliance with requirements, acceptable manufacturers are needed to be pre-approved by the architect.

2.2. SCHEDULED DOOR HARDWARE

2.2.1. **General:** Provide door hardware for each door to comply with requirements in this Section and door hardware sets indicated in the door schedule.



2.2.1.1. **Door Hardware Sets:** Provide quantity, item, size, finish or color indicated, and products equivalent in function and comparable in quality to named products and complying with standards referenced.

2.2.1.2. **Sequence of Operation:** Provide electrified door hardware function, sequence of operation, and interface with other building control systems indicated.

2.3. HINGES

2.3.1. **Butts and Hinges:** Hafele.

2.3.2. **Door swing:** drawings typically depict doors at 90 degrees, doors will actually swing to maximum allowable. Use wide-throw conventional or continuous hinges as needed up to 8 inches in width to allow the door to stand parallel to the wall for true 180-degree opening. Advise the architect if 8-inch width is insufficient.

2.3.3. **Conventional Hinges:** Steel or stainless steel pins and concealed bearings. Hinge open widths minimum, but of sufficient throw to permit maximum door swing.

2.3.3.1. Three hinges per leaf to 7-foot, 6-inch height. Add one for each additional 30 inches in height, or any fraction thereof.

2.3.3.2. Extra heavy weight hinges on doors over 3 foot, 5 inches in width.

2.3.3.3. Extra-heavy weight hinges on doors with panic hardware or fire exit devices.

2.3.3.4. Out swinging exterior doors: non-ferrous with non-removable (NRP) pins.

2.3.3.5. Non-ferrous material exteriors and at doors subject to corrosive atmospheric conditions.

2.3.3.6. Provide shims and shimming instructions for proper door adjustment.

2.3.4. **Continuous Hinges:**

2.3.4.1. *Geared-type aluminum at exteriors.*

2.3.4.1.1. Heavy-duty, extra-bearing units for doors over 3 foot, 5 inches in width.

2.3.4.1.2. Heavy-duty, extra-bearing units for doors with panic hardware or fire exit devices.

2.3.4.1.3. Use wide-throw units where needed for maximum degree of swing, advise the architect if commonly available hinges are insufficient.

2.3.4.2. *Pinned steel/stainless steel type:* continuous stainless steel, 0.25-inch diameter stainless-steel hinge pin.

2.3.4.2.1. Use engineered application-specific wide-throw units as needed to provide maximum swing degree of swing, advise the architect if required width exceeds 8 inches.

2.3.5. **Pivots:** high-strength forged bronze or stainless steel, tilt-on precision bearing and bearing pin.

2.3.5.1. Bottom and intermediate pivots: adjustability of minus 1/16 inch, plus 1/8 inch. F. Reference Manufacturer: Hafele

2.4. LOCKSETS, LATCHSETS, DEADBOLTS

**2.4.1. Mortise Locksets and Latch sets:** as scheduled.

2.4.1.1. *Chassis:* cold-rolled steel, handing field-changeable without disassembly.

2.4.1.2. *Latch bolts:* 3/4-inch throw stainless steel anti-friction type.

2.4.1.3. *Lever Trim:* through-bolted, accessible design, cast lever or solid extruded bar type levers as scheduled. Filled hollow tube design unacceptable.

2.4.1.3.1. *Spindles:* security design independent breakaway. Breakage of the outside lever does not allow access to the inside lever's hub works to gain wrongful entry.

2.4.1.4. *Thumb turns:* accessible design not requiring pinching or twisting motions to operate.

2.4.1.5. *Deadbolts:* stainless steel 1-inch throw.

2.4.1.6. *Electric operation:* Manufacturer-installed continuous duty solenoid.

2.4.1.7. *Strikes:* 16 gauge curved steel, bronze or brass with 1-inch deep box construction, lips of sufficient length to clear trim and protect clothing.

2.4.1.8. *Certifications:*

2.4.1.9. ANSI A156.13, 1994, Grade 1 Operational, Grade 1 Security.

2.4.1.10. ANSI/ASTM F476-84 Grade 31 UL Listed.

2.4.2. Extra Heavy Duty Cylindrical Locks and Latches: as scheduled.

2.4.2.1. *Chassis:* cylindrical design, corrosion-resistant plated cold-rolled steel, through-bolted.

2.4.2.2. *Locking Spindle:* stainless steel, interlocking design.

2.4.2.3. *Latch Retractors:* forged steel. Balance of inner parts: corrosion resistant plated steel, or stainless steel.

2.4.2.4. *Backset:* 2-3/4" typically, more or less as needed to accommodate frame, door or other hardware.

2.4.2.5. *Lever Trim:* accessible design, independent operation, spring-cage supported, minimum 2" clearance from lever mid-point to door face.

2.4.2.6. *Electric operation:* Manufacturer-installed continuous duty solenoid.

2.4.2.7. *Strikes:* 16 gauge curved steel, bronze or brass with 1" deep box construction, lips of sufficient length to clear trim and protect clothing.

2.4.2.8. *Certifications:*

2.4.2.8.1. ANSI A156.2, 1994, Series 4000, Grade 1.

2.4.2.8.2. UL listed for A label and lesser class single doors up to 4ft x 8ft.

2.4.3. Standard Duty Cylindrical Locks and Latches: as scheduled.

2.4.3.1. *Chassis:* cylindrical design, corrosion-resistant plated cold-rolled steel, through-bolted.



- 2.4.3.2. *Locking Spindle*: stainless steel, interlocking design.
- 2.4.3.3. *Latch Retractors*: forged steel. Balance of inner parts: corrosion resistant plated steel or stainless steel.
- 2.4.3.4. *Backset*: 2-3/4" typically, more or less as needed to accommodate frame, door or other hardware.
- 2.4.3.5. *Lever Trim*: accessible design, independent operation, spring-cage supported, minimum 2" clearance from lever mid-point to face of door.
- 2.4.3.6. *Certifications*:
 - 2.4.3.6.1. ANSI A156.2, 1994, Series 4000, Grade 2
 - 2.4.3.6.2. UL listed for A label and lesser class single doors up to 4ft x 8ft.

2.5. EXIT DEVICES / PANIC HARDWARE

2.5.1. General features:

- 2.5.1.1. Independent lab-tested 1,000,000 cycles.
- 2.5.1.2. Push-through push-pad design. No exposed push-pad fasteners, no exposed cavities when operated. Return stroke fluid dampeners and rubber bottoming dampeners, plus anti-rattle devices.
- 2.5.1.3. 0.75-inch throw deadlocking latch bolts.
- 2.5.1.4. End caps: impact-resistant, flush-mounted. No raised edges or lips to catch carts or other equipment.
- 2.5.1.5. No exposed screws to show through glass doors.
- 2.5.1.6. Non-handed basic device design with center case interchangeable with all functions, no extra parts required to effect change of function.
- 2.5.1.7. Releasable in normal operation with 15-lb. maximum operating force per UBC Standard 10-4, and with 32 lb. maximum pressure under 250- lb. load to the door.
- 2.5.1.8. Flush end cap design as opposed to typical "bottle-cap" design end cap.

2.5.2. Specific features:

- 2.5.2.1. *Non-Fire Rated Devices*: cylinder dogging.
- 2.5.2.2. *Lever Trim*: Breakaway type, forged brass or bronze escutcheon min .130" thickness, compression spring drive, match lockset lever design.
- 2.5.2.3. *Rod and latch guards* with sloped full-width kick plates for doors fitted with surface vertical rod devices with bottom latches.
- 2.5.2.4. *Fire-Labeled Devices*: UL label indicating "Fire Exit Hardware". Vertical rod devices less bottom rod (LBR) unless otherwise scheduled.
- 2.5.2.5. *Impact recessed devices*: 1-1/4inch projection when push-pad is depressed. Sloped metal end caps to deflect carts, etc. No pinch points to catch skin between the touch bar and door.



2.5.2.6. *Delayed Egress Devices*: Function achieved within a single exit device component, including latch, delayed locking device, request-to-exit switch, nuisance alarm, remote alarm, key switch, indicator lamp, relay, internal horn, door position input, external inhibit input plus fire alarm input. NFPA 101 "Special Locking Arrangement" compliant.

2.5.2.7. *Electrically Operated Devices*: Single manufacturer source for electric latch retraction devices, electrically controlled trim, power transfers, power supplies, monitoring switches and controls.

2.5.2.8. *Removable Mullions*: Removable with a single turn of building key. Securely reinstalled without need for key. Furnish storage brackets for securely storing the mullion away from the door when removed.

2.6. CLOSERS

2.6.1. **Accessibility Requirements**: Where handles, pulls, latches, locks, and other operating devices are indicated to comply with accessibility requirements, comply with ANSI A117.1.

2.6.2. Comply with the following maximum opening-force requirements:

2.6.2.1. *Interior, Non-Fire-Rated Hinged Doors*: 5lbf (22.2 N) applied perpendicular to door.

2.6.2.2. *Sliding or Folding Doors*: 5 lbf (22.2 N) applied parallel to the door at latch.

2.6.2.3. *Fire Doors*: Minimum opening force allowable by authorities having jurisdiction.

2.6.2.4. *Means of Egress Doors*: Comply with NFPA 101. Door closers shall not require 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 minimum required width.

2.6.3. **Surface Closers**:

2.6.3.1. Full rack-and-pinion type cylinder with removable non-ferrous cover and cast iron body. Double heat-treated pinion shaft, single piece forged piston, chrome silicon steel spring.

2.6.3.2. ISO 2000 certified. Units stamped with date-of-manufacture code.

2.6.3.3. Independent lab-tested 5,000,000 cycles.

2.6.3.4. Non-sized, non-handed and adjustable. Place closers inside buildings, stairs and rooms.

2.6.3.5. Plates, brackets and special templating when needed for interface with particular header, door and wall conditions and neighboring hardware.

2.6.3.6. Separate adjusting valves for closing speed, latching speed and backcheck, fourth valve for delayed action where scheduled.

2.6.3.7. Extra-duty arms (EDA) at exterior doors scheduled with parallel arm units.

2.6.3.8. Exterior door closers: tested to 100 hours of ASTM B117 salt spray test, furnish data on request.

2.6.3.9. Exterior doors do not require seasonal adjustments in temperatures from 120 degrees F to 0 degrees F, furnish data on request.



2.6.3.10. Non-flaming fluid will not fuel door or floor covering fires.

2.6.3.11. Pressure Relief Valves (PRV): unsafe, not permitted.

2.6.4. **Floor Closers:** hydraulically controlled, cement case, maximum degree dead stop permitted by trim or adjacent structure. Special pins, floor pans and longer spindles when needed to accommodate floor and jamb conditions.

2.6.5. **High Security Closers:** Removable heavy gauge metal case. Cylinders independent test lab certified to exceed 10,000,000 cycles. Vandal and tamper resistant forged steel arm. Exposed fasteners: pinned TORX type.

2.6.5.1. *Advanced Variable Backcheck (AVB):* where scheduled, these units commence backcheck at approximately 45 degrees.

2.6.6. **Overhead Concealed Closers:** Power transmitted to the door separately from hanging means. Closer spindles do not support the door. Cast iron cylinders with hydraulically checked rack and pinion construction and single piece forged pistons. Separate noncritical sweep and latch speed valves.

2.6.6.1. Concealed in 1-3/4inch x 4-1/2inch tube, double-lever arm power transmission.

2.6.6.2. 10,000,000 cycle-tested cylinder, double-lever arm power transmission.

2.6.7. **Electromagnetic Hold-Open Closers:** Integrate with UL listed fire/life-safety alarm systems.

2.6.7.1. Multi-point units: hold-open bypass at 80 deg or 140 deg. Swingfree/no-drift arms at pull-side mounted units.

2.6.8. **Low-Energy Door Operators:** Comply with ANSI/BHMA 156.19 Electric power-open, hydraulically checked spring power closing. Modular construction. Finished metal cover. Field-adjustable opening force, opening speed, time-open, closing and latching speeds. Door reopens and the timing cycle restores if the system reacts during the closing cycle. Breakaway clutch protection from forced closing. Door, frame, motor and drivetrain protected by attenuated initiation of opening cycle.

2.6.8.1. Self-contained low-voltage power supply, terminal strip and sequencing for incorporation of electric hardware with system operation.

2.7. OTHER HARDWARE

2.7.1. **Automatic Flush Bolts:** Low operating force design, "LBR" type where scheduled.

2.7.2. **Overhead Stops:** Stainless steel (100 series). Non-plastic mechanisms and finished metal end caps. Field-changeable hold-open, friction and stop-only functions.

2.7.3. **Kick Plates:** Four beveled edges, .050 inches minimum thickness, height and width as scheduled. Sheet-metal screws of bronze or stainless steel to match other hardware.

2.7.4. **Door Stops:** Provide stops to protect walls, casework or other hardware.

2.7.5. Unless otherwise noted in Hardware Sets, provide floor type with appropriate fasteners. Where floor type cannot be used, provide wall type. If neither can be used, provide an overhead type.

2.7.5. **Seals:** Finished to match adjacent frame color. Resilient seal material: polypropylene, nylon brush, or solid high-grade neoprene. UL label applied to seals on rated doors. Substitute products:



certify that the products equal or exceed specified material's thickness and durability. Proposed substitutions: submit for approval.

2.7.5.1. *Solid neoprene*: MIL Spec. R6855-CL III, Grade 40.

2.7.5.2. Non-corroding fasteners at in-swinging exterior doors.

2.7.5.3. *Sound control openings*: Use components tested as a system using nationally accepted standards by independent laboratories. Ensure that the door leafs have the necessary sealed-in-place STC ratings. Adhesive mounted components are not acceptable. Fasten applied seals over the bead of sealant.

2.7.5.4. *Fire-rated Doors, Resilient Seals*: UL10C compliant. Coordinate with selected door manufacturers' and selected frame manufacturers' requirements. Where rigid housed resilient seals are scheduled in this section and the selected door manufacturer only requires an adhesive mounted resilient seal, furnish rigid housed seal at minimum, or both the rigid housed seal plus the adhesive applied seal. Adhesive applied seals alone are deemed insufficient for this project where rigid housed seals are scheduled.

2.7.5.5. *Fire-rated Doors, Intumescent Seals*: Furnished by selected door manufacturer. Furnish fire-labeled opening assembly complete and in full compliance with UL10C. Where required, intumescent seals vary in requirement by door type and door manufacture -- careful coordination required. Adhesive Applied intumescent strips are not acceptable, use concealed-in-door-edge type or kerfed-in-frame type.

2.7.6. Automatic door bottoms: low operating force units. Doors with automatic door bottoms plus head and jamb seals cannot require more than two pounds operating force to open when closer is disconnected.

2.7.7. **Thresholds**: Comply with requirements below, as scheduled and per details.

2.7.7.1. Standard: BHMA A156.21.

2.7.7.2. *Accessibility Requirements*: Where thresholds are indicated to comply with accessibility requirements, comply with ANSI A117.1.

2.7.7.2.1. Bevel raised thresholds with a slope of not more than 1:2. Provide thresholds not more than 1/2 inch (13 mm) high.

2.7.7.2.2. Thresholds for Means of Egress Doors: Comply with NFPA 101. Maximum 1/2 inch (13 mm) high.

2.7.7.3. *Exteriors*: Seal perimeter to exclude water and vermin. Use butyl rubber or polyisobutylene sealant complying with requirements in Division 7 "Thermal and Moisture Protection". Non-ferrous 1/4inch fasteners and lead expansion shield anchors, or Red-Head #SFS-1420 (or approved equivalent) Flat Head Sleeve Anchors (SS/FHSL).

2.7.7.4. Fire-rated openings, 90min or less duration: use thresholds to interrupt floor covering material under the door where that material has a critical radiant flux value less than 0.22 watts per square centimeter, per NFPA 253. Use the threshold unit as scheduled. If none is scheduled, request direction from the Architect.

2.7.7.5. Fire-rated openings, 3hour duration: Thresholds, where scheduled, to extend full jamb depth.

2.7.7.6. Acoustic openings: Set units in full bed of Division-7-compliant butyl rubber or polyisobutylene sealant, leave no air space between threshold and substrate.



2.7.7.7. Plastic plugs with wood or sheet metal screws are not an acceptable substitute for specified fastening methods.

2.7.7.8. Substitute products: certify that the products equal or exceed specified material's thickness and quality.

2.7.7.9. Proposed substitutions: submit for approval.

2.7.8. **Fasteners:** Generally, exposed screws to be Phillips or Robertson drive. Pinned TORX drive at high security areas. Flat head sleeve anchors (FHSL) may be slotted drive. Sheet metal and wood screws: full-thread. Sleeve nuts: full length to prevent door compression.

2.7.9. **Through-bolts:** Do not use. Coordinate with wood doors, ensure provision of proper blocking to support wood screws for mounting panic hardware and door closers. Coordinate with metal doors and frames, ensure provision of proper reinforcement to support machine screws for mounting panic hardware and door closers.

2.7.10. **Silencers:** Interior hollow metal frames, 3 for single doors, 4 for pairs of doors. Omit where adhesive mounted seal occurs. Leave no unfilled/uncovered prepunched silencer holes.

2.7.11. **Key Control Software:** Same manufacturer as key cylinders, supply to DSWD.

2.7.12. **Wall- & Floor-mounted electromagnetic door holders:** Incorporate into the U.L.-listed fire & life-safety system, doors release to allow closure and latching when the door's zone is in alarm state. Use the minimum projection required to allow the door to open as widely as allowed by wall conditions and projection of door hardware.

2.7.13. **Stainless Steel Guard Rails:** Tubular stainless steel welded construction, #8 standard finish, no mid-panels, 6-inch minimum concrete embedment of forward vertical member, wall attachment at four points using 1/4-inch minimum diameter fasteners through integral welded strap.

2.8. FINISH

2.8.1. **Standard:** BHMA A156.18, as indicated in door hardware sets and schedule.

2.8.2. Areas using BHMA 626 to have push-plates, pulls and protection plates of BHMA 630, Satin Stainless Steel, unless otherwise noted.

2.8.3. **Door closers:** factory powder coated to match other hardware, unless otherwise noted.

2.8.4. **Aluminum items:** match predominant adjacent material. Seals to coordinate with frame color.

2.9. KEYING REQUIREMENTS

2.9.1. **Key System:** Manufacturer's utility-patented keyway, conventional cylinders. Utility patent protection to extend at least until 2014. Key blanks available only from factory direct sources, not available from after-market key blank manufacturers. For estimate use factory GMK charge. Initiate and conduct meetings(s) with DSWD and I-R Security & Safety Consultants representatives to determine system keyway(s), structure and degree of geographic exclusivity. Furnish DSWD's written approval of the system.

2.9.1.1. New factory registered master key system.

2.9.1.2. *Non-I.C. construction keying:* furnish inserted type partial key. At substantial completion, remove inserts in DSWD's presence; demonstrate consequent non operability of construction key. Give all removed inserts and all construction keys to DSWD/BGMS.



2.9.1.3. Furnish 10 construction keys.

2.9.1.4. Furnish 2 construction insert extractor tool 35-057.

2.9.1.5. Furnish 2 construction control keys.

2.9.2. **Key Cylinders:** furnish utility patented, 6-pin interchangeable solid brass construction with cylinder housing capable of accommodating standard cylinder core with different number of pins.

2.9.3. **Cylinders/Cylinder cores:** furnish keyed at factory of lock manufacturer where permanent records are maintained. Locks and cylinders of the same manufacturer.

2.9.4. **Permanent keys:** furnish secured shipment direct from point of origination to DSWD.

2.9.5. **Bitting List:** furnish secured shipment direct from point of origination to DSWD upon completion.

PART 3 EXECUTION

3.1. PREPARATION

3.1.1. Ensure that walls and frames are square and plumb before hardware installation.

3.1.2. Locate hardware per ANSI A250.8 and applicable building, fire, life-safety, accessibility, and security codes.

3.1.2.1. Notify the Architect of any code conflicts before ordering material.

3.1.2.2. Mounting Heights: Mount door hardware units at heights indicated on Drawings unless otherwise indicated or required to comply with governing regulations.

3.1.2.3. Where new hardware is to be installed near existing doors/hardware scheduled to remain, match locations of existing hardware.

3.1.3. **Overhead stops:** before installing, determine proposed locations of furniture items, fixtures, and other items to be protected by the overhead stop's action.

2.1.4. Existing frames and doors scheduled to receive new hardware: carefully remove existing hardware, tag and bag, and turn over to DSWD.

2.1.4.1. Patch and fill wood frames and doors with solid wood dutchments before cutting for new hardware. Do not reuse existing screw holes - - fill with dowel plugs and re-pilot.

2.1.4.2. *Metal doors/frames:* Weld or fasten with screws: filler pieces in existing hardware cut-outs and mortises not scheduled for re-use by new hardware. Leave surfaces smooth - - no applied patches.

2.1.4.3. Remove unused existing floor closers, fill empty floor closer cavities with concrete.

3.2. INSTALLATION

3.2.1. Install hardware per manufacturer's instructions and recommendations. Do not install surface-mounted items until finishes have been completed on substrate. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate for proper installation and operation. Remove and reinstall or replace work deemed defective by the Architect.



3.2.1.1. *Gaskets*: install jamb-applied gaskets before closers, overhead stops, rim strikes, etc; fasten hardware over and through these seals. Install sweeps across bottoms of doors before astragals, cope sweeps around bottom pivots, trim astragals to tops of sweeps.

3.2.1.2. When hardware is to be attached to an existing metal surface and insufficient reinforcement exists, use RivNuts, NutSerts or similar anchoring devices for screws.

3.2.1.3. Use manufacturers' fasteners furnished with hardware items, or submit a Request for Substitution with the Architect.

3.2.1.4. Replace fasteners damaged by power-driven tools.

3.2.2. Locate floor stops no more than 4 inches from walls and not within paths of travel. See paragraph 2.2 regarding hinge widths, door should be well clear of point of wall reveal. Point of door contact no closer to the hinge edge than half the door width. Where the situation is questionable or difficult, contact the Architect for direction.

3.2.3. Locate overhead stops for minimum 90 degrees and maximum allowable degree of swing.

3.2.4. Drill pilot holes for fasteners in wood doors and/or frames.

3.2.5. Lubricate and adjust existing hardware scheduled to remain. Carefully remove and give to DSWD items not scheduled for reuse.

3.3. ADJUSTING

3.3.1. Adjust and check for proper operation and function. Replace units, which cannot be adjusted to operate freely and smoothly.

3.3.1.1. Hardware damaged by improper installation or adjustment methods to be repaired or replaced to DSWD's satisfaction.

3.3.1.2. Adjust doors to fully latch with no more than 1 pound of pressure.

3.3.1.3. Adjust delayed-action closers on fire-rated doors to fully close from fully opened position in no more than 10 seconds.

3.3.2. **Inspection**: Use hardware supplier. Include supplier's report with closeout documents.

3.3.3. **Follow-up inspection**: Installer to provide letter of agreement to DSWD that approximately 6 months after substantial completion, installer will visit Project with representatives of the manufacturers of the locking devices and door closers to accomplish following:

3.3.3.1. Re-adjust hardware.

3.3.3.2. Evaluate maintenance procedures and recommend changes or additions, and instruct DSWD/BGMS's personnel.

3.3.3.3. Identify items that have deteriorated or failed.

3.3.3.4. Submit a written report identifying problems and likely future problems.

3.4. DEMONSTRATION

3.4.1. Demonstrate electrical, electronic and pneumatic hardware systems, including adjustment and maintenance procedures.



3.5. PROTECTION/CLEANING

3.4.2. Cover installed hardware, protect from paint, cleaning agents, weathering, carts/barrows, etc. Remove covering materials and clean hardware just prior to substantial completion.

3.4.3. Clean adjacent wall, frame and door surfaces soiled from installation/reinstallation process.

3.6. SCHEDULE OF FINISH HARDWARE

3.6.1. See door schedule for hardware set assignments.

***** END OF SECTION *****



ARCHITECTURAL SPECIFICATION

DIVISION 8 - "DOORS & WINDOWS"

Section 5. Glazing Works

31 AUGUST 2022

JMM/ REV. 00

Revision	Date	Description



GLAZING WORKS

PART 1 GENERAL

1.1. SCOPE

- 1.1.1. The work includes the supply and furnishing of materials, including equipment, and performing labor necessary to complete the installation of glazing works as specified and as shown on drawings and schedules.

1.2. SUBMITTALS

1.2.1. Samples

Submit duplicate 250 mm (10 inch) glass samples, factory labeled, of each type of glass specified herein.

1.2.2. Manufacturer's Data

Include glass manufacturer's recommendations for setting and sealing materials and for installation of the type of glazing material specified.

1.2.3. Certificates of Compliance

Submit certificates or provide labels or marking affixed to materials, attesting that identical materials have been successfully tested and meet specified requirements.

1.2.4. Shop Drawings

Show complete details of setting methods and materials for the type of glazing material specified.

1.3. DELIVERY AND STORAGE

Deliver products to the project site in unopened containers, labeled plainly with manufacturer's names and brands. Store glass and setting materials in a safe, dry location and do not unpack until needed for installation. Handle and install materials in a manner that will protect them from damage.

1.4. ENVIRONMENTAL CONDITIONS

Provide sufficient ventilation to prevent condensation of moisture on glazing work during installation. Do not perform glazing work during damp or rainy weather.

PART 2 PRODUCTS

2.1. MANUFACTURER

Subject to compliance with requirements and as approved by the Architect. For compliance with requirements, acceptable manufacturers are needed to be pre-approved.

2.2. GLASS

Conforming to Fed. Specs. DD-G-451d and DD-G-1403B, unless specified otherwise. In certain glazed panels, provide safety glazing material conforming to Consumer Product Safety Commission 16 CFR Part 1201.

2.2.1. Clear Sheet or Float Glass



Shall be transparent flat glass that meets the requirements and tolerances of Fed. Specs. DD-G-451d, 6 mm (1/4 inch) thick, unless otherwise specified. Provide at windows where clear glass is indicated or specified.

2.2.2. Tinted Float Glass

Conforming to Fed. Specs. DD-G-451d, of high quality and effective in reducing glare and heat transmittance, 6 mm (1/4 inch) thick. Tint and shade will be with a light transmittance of approximately 50%. Provide at windows where tinted glass is indicated or specified.

2.2.3. Tempered Glass (Clear and Tinted)

Tempered glass shall be 12 mm (1/2 inch) thick, reflective glass and clear glass as indicated on the drawings.

2.2.4. Mirror Glass

Shall be of high quality float glass free from imperfections and impurities, 6 mm (1/4 inch) thick. Silvering shall be performed by modern continuous operation under controlled conditions. The coating shall be of pure silver and of adequate thickness to provide reflectivity of 83% or more of incident light, and shall be without pinholes or other defects visible to the naked eye.

2.2.5. Reflective Glass / Reflective Blue

Shall be 12 mm (1/2 inch) thick, unless otherwise specified. Shade shall be selected by the Architect.

2.2.6. Wired Glass

Shall meet the requirements of Underwriters Laboratories as a fire retardant material. Wire glass shall also conform to the requirements of the National Fire Protection Association (NFPA) 257 "Standard for Fire Test of Window Assemblies". Wire glass shall be clear, polished, diamond mesh and a minimum of 6 mm (1/4 inch) thick. Provide wire glass to glass areas wherever safety requirements from fire are necessary.

2.2.7. Low-E

Shall conform to the Philippine green building code and other reference codes.

2.2.8. Double Glazed

Shall conform to the Philippine Green Building Code and other reference codes.

2.2. SETTING MATERIALS

Provide setting materials of the types required for the applicable setting method, unless specified otherwise herein. Do not use metal sash putty, non-skinning compound, nonresident preformed sealers, or impregnated preformed gaskets. Materials exposed to view and unpainted shall be gray or neutral color.

2.2.1. Elastomeric Sealant

Use a channel or stop glazing metal sash. Sealant shall be chemically compatible with setting blocks, edge blocks, and sealing tapes. Color of sealant shall be as selected.

2.2.2. Preformed Channels

Neoprene, vinyl or rubber, NAAMM SG-1, or any recommended product by the glass manufacturer for the particular condition.



2.2.3. Sealing Tapes

Prefomed, semisolid, polymeric based material of proper size and compressibility for the particular condition. Use only where glazing rabbet is designed for tape recommended by the glass or sealant manufacturer. Provide spacer shims for use with compressible tapes.

2.2.4. Setting Blocks and Edge Blocks

Lead or neoprene of 70 to 90 Shore "A" durometer hardness, chemically compatible with sealant used, and of sizes recommended by the glass manufacturer.

2.2.5. Accessories

As required to provide a complete installation, including glazing point clips shams, angles, beads, and spacer strips. Provide non-corroding metal accessories. Provide primers sealers and cleaners as recommended by the glass and sealant manufacturers.

PART 3 INSTALLATION

3.1. PRECAUTIONS AND PROCEDURES

Installation shall be according to the manufacturer's guide or manual. Determine the sizes to provide the required edge clearances by measuring the actual opening to receive the glass. Grind smooth all edges of glass that will be exposed in finish work. Leave labels in place until the installation is approved. Securely fix movable items or keep in a closed and locked position until the glazing compound has thoroughly set.

3.2. GLASS SETTING

Items to be glazed shall be either shop or field glazed using glass of the quality and thickness specified or indicated. Preparation and glazing, unless otherwise specified or approved. Aluminum windows may be glazed in conformance with one of the glazing methods described in the standards under which they are produced, except that face puttying with no bedding will not be permitted. Handle and install glazing materials in accordance with the manufacturer's instructions. Use beads or stops, which are furnished with the items to be glazed to secure the glass in place.

3.3. CLEANING

Thoroughly clean glass surfaces and removes labels, paint spots, putty and other defacement. Glass shall be clean at the time the work is accepted.

***** END OF SECTION *****



ARCHITECTURAL SPECIFICATION

DIVISION 9 - "FINISHES"

Section 1. Homogeneous Ceramic Tiles

31 AUGUST 2022

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Revision	Date	Description



HOMOGENEOUS CERAMIC TILES

PART 1 GENERAL

1.1. SCOPE

1.1.1. The work includes the supply and furnishing of materials and performing labor necessary for the complete installation of all ceramic tile-work as shown or indicated on drawings and as specified herein.

1.2. SUBMITTALS

1.2.1. **Samples:** Submit samples of each type of floor and wall tiles including all required beads, molding, and trim units.

1.3. DELIVERY AND STORAGE

1.3.1. Deliver materials (except bulk materials) in manufacturer's unopened containers fully identified with manufacturer's name, trade name, type, class, grade, size and color.

1.3.2. Store materials in unopened containers off ground and under cover, protected from damage.

1.4. EXTRA STOCK

1.4.1. Supply an extra two percent of each type of tile used in clean, marked cartons for emergency use.

PART 2 PRODUCTS

2.1. SUPPLIERS

2.1.1. Subject to compliance with requirements and as approved by the Architect. For compliance with requirements, acceptable manufacturers are needed to be pre-approved by the architect.

2.2. MATERIALS

2.2.1. All materials shall be of the best of their respective kinds, in sizes and colors as shown on the plans, details and finish schedules or otherwise specified herein or as will be approved by the Architect upon submission of samples. Samples of all tiles shall be submitted to the Architect for approval before placing orders. All tiles shall be delivered to the jobsite in unopened grade-sealed containers.

2.2.1. Colors and Patterns

Tile Colors and patterns shall be selected by the architect and approved by the DSWD. Colors and patterns by reference to manufacturer's name and designations are for color and pattern identification only and are not intended to limit selection of other manufacturer's products with similar color and patterns.

2.2.2. Floor Tile

2.2.2.1. Unglazed Ceramic Tile

For floors, shall be vitrified floor tiles, porcelain or natural clay with cushioned edges. Sizes and colors shall be as indicated on drawings.

2.2.3. Wall Tile



2.2.3.1. *Glazed Ceramic Tile*

Bright or matte finish with cushioned edges. Sizes and colors shall be as indicated on drawings.

2.2.4. **Hydrated Lime**

ASTM C206, Type S; or ASTM C207, Type S.

2.2.5. **Sand**

ASTM C144, for mortar setting beds, grouting and pointing.

2.2.6. **Water**

Clean, potable.

2.2.7. **Portland cement**

ASTM C1500, Type I, white for grout, gray for other uses.

PART 3 EXECUTION

3.1. INSTALLATION

3.1.1. Do not start tile work until roughing-in for plumbing and electrical work has been completed and tested. All surfaces to receive tile-work shall be cleaned of loose materials and given proper surface preparation prior to ceramic tile-work. Prepare and install in accordance with ANSI A108.1 and ANSI A108.5.

3.1.2. **Application of Scratch Coat**

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

3.1.2.2. On masonry, first apply a thin coat with great pressure, then bring it out sufficiently to compensate for the major irregularities on the masonry surfaces to a thickness of not less than 6 mm at any point.

3.1.2.3. Evenly rake scratch coats, but not dash coats, to provide a good mechanical key for subsequent courses before the mortar has fully hardened.

3.1.2.4. On surfaces not sufficiently rough to provide a good mechanical key, dash on the first coat with a whisk by broom or fiber brush using a strong whipping motion. Do not trowel or otherwise disturb mortar applied by dashing until it is hardened.

3.1.3. **Floor Tile Installation on Mortar Bed**

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

3.1.3.2. Clean concrete subfloor then moisture but not soak. Afterwards sprinkle dry cement over the surface and spread the mortar on the setting bed.

3.1.3.3. Mix mortar 1 part Portland cement to 2 parts sand. Tamp to assure good bond over the entire area and screed to provide a smooth and level bed at proper height and slope.

3.1.3.4. Pitch floor to drain as required.



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

3.1.3.6. Keep the joints parallel and straight over the entire area by using straight edges.

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

3.1.3.8. Lay tiles from center outward and make adjustments at walls.

3.1.4. **Wall Tile Installation on Mortar Bed**

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

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

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

3.1.4.4. Allow no single applications of mortar to 19 mm thick.

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

3.1.4.6. Apply a bond coat 0.8 mm thick to the plastic setting bed or to the back of each sheet or tile.

3.1.4.7. Press tile firmly into the bed and beat into place within 1 hour.

3.1.4.8. Lay tile field in rectangular block areas not exceeding 600 mm x 600 mm. cut the setting bed through its entire depth along the edges of each block area after placement and before subsequent blocks are installed.

3.1.5. **Grouting**

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

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

3.1.5.1.2. Before grout sets, strike or tool the joints of cushion-edge tile to the depth of the cushion.

3.1.5.1.3. Fill all joints of square-edged tile flush with the surface of the tile. Fill all gaps or sips.

3.1.5.1.4. During grouting clean all excess grout off with clean burlap, other cloth or sponges.

3.2. **CLEANING**

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



3.3. PROTECTION

3.3.1. Cover finished tile floors with clean 13.6 kg. Natural Kraft paper before permitting foot traffic. Place board walkways on floors that are to be continuously used as passageways by workers. Protect tiled corners external angles, with board corner strips in areas used as passageways by workers.

***** END OF SECTION *****



ARCHITECTURAL SPECIFICATION

DIVISION 9 - "FINISHES"

Section 2. Homogenous Porcelain Timber Tiles

31 AUGUST 2022

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HOMOGENEOUS PORCELAIN TIMBER TILES

PART 1 GENERAL

1.1. RELATED DOCUMENTS

1.1.1. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this Section.

1.2. SUMMARY

1.2.1. This Section includes the following:

1.2.1.1. Tile for floor applications, including porcelain timber tile.

1.2.1.2. Thresholds at door openings.

1.2.1.3. Tile Waterproofing Membrane

1.2.1.4. Self-leveling Underlayment

1.2.2. Related sections includes the following:

1.2.2.1. Joint Sealers.

1.3. REFERENCES

1.3.1. ANSI A108.8 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant Furan Mortar and Grout.

1.3.2. ANSI A108.10 - American National Standard Specifications for Installation of Grout in Tilework.

1.3.3. ANSI A118.1 - American National Standard Specifications for Dry-Set Portland Cement Mortar.

1.3.4. ANSI A118.3 - American National Standard Specifications for Chemical Resistant, Water Cleanable Tile Setting and -Grouting Epoxy and Water Cleanable Tile- Setting Epoxy Adhesive.

1.3.5. ANSI A118.4 - American National Standard Specifications for Latex-Portland Cement Mortar.

1.3.6. ANSI A118.5 - American National Standard Specifications for Chemical Resistant Furan Mortars and Grouts for Tile Installation.

1.3.7. ANSI A118.11 - American National Standard Specifications for EGP (Exterior glue plywood) Latex-Portland Cement Mortar.

1.3.8. ASTM C 847 - Standard Specification for Metal Lath.

1.3.9. IBC - International Building Code.

1.4. SUBMITTALS

1.4.1. Submit under provisions of Project Procedure Manual issued by Project Architect.

1.4.2. **Shop Drawings:** Indicate tile layout, patterns, color arrangement, perimeter conditions, junctions with dissimilar materials, control and expansion joints, thresholds, accessories, and setting details.

1.4.3. **Product Data:** Provide instructions for using grouts and adhesives.



1.4.4. **Samples:** Mount tile and apply grout on two plywood panels, four tiles, square in size illustrating pattern, color variations, and grout joint size variations.

1.4.5. **Manufacturer's Certificate:** Certify that products meet or exceed specified requirements.

1.4.6. **Maintenance Data:** Include recommended cleaning methods, cleaning materials, stain removal methods, polishes and waxes.

1.5. QUALITY ASSURANCE

1.5.1. Maintain one copy of TCA Handbook and ANSI A108 Series/A118 Series on site.

1.5.2. **Manufacturer Qualifications:** Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

1.5.3. **Installer Qualifications:** Company specializing in performing the work of this section with a minimum three years of experience.

1.6. MOCK-UP

1.5.1. Construct field mock-up, 2000 mm long by 2000 mm wide, with backer board, cleavage membrane, waterproofing, finish grout, and specified accessories.

1.5.2. Locate where directed by the Project Architect.

1.5.3. Mock-up may or may not remain as part of the Work subject to approval of the Project Architect.

1.7. DELIVERY, STORAGE, AND HANDLING

1.7.1. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

1.8. ENVIRONMENTAL REQUIREMENTS

1.8.1. Do not install adhesives in an unventilated environment.

1.8.2. Maintain ambient and substrate temperature of 10 degrees C during installation of mortar materials.

1.9. EXTRA MATERIALS

1.9.1. Provide DSWD requested quantity of each size, color, and surface finish of tile specified.

PART 2 PRODUCTS

2.1. MATERIALS

2.1.1. **Manufacturers:** Subject to compliance with requirements and as approved by the Architect. For compliance with requirements, acceptable manufacturers are needed to be pre-approved by the architect.

2.2. ADHESIVE MATERIALS

2.2.1. **Epoxy Adhesive:** Comply with ANSI A118.3, TCA "extra heavy" - 100 percent solid epoxy, thinset bond type.

2.2.2. **Tile Setting Adhesive:** Elastomeric, waterproof, liquid applied.

2.3. MORTAL MATERIALS



2.3.1. **Mortar Bed Materials:** Portland cement, sand, latex additive and water.

2.3.2. **Mortar Bond Coat Materials:** Dry-Set Portland Cement type: Comply with ANSI A118.1

2.4. GROUT MATERIALS

2.4.1. **Manufacturers - Floors:** must be approved by the architect.

PART 3 EXECUTION

3.1. EXAMINATION

3.1.1. Verify that sub-floor surfaces are smooth and flat within tolerances specified and are ready to receive tile.

3.1.2. Verify that wall surfaces are smooth and flat within tolerances are dust-free, and are ready to receive tile.

3.1.3. Verify that sub-floor surfaces are dust-free, and free of substances which would impair bonding of setting materials to sub-floor surfaces.

3.1.4. Verify that concrete sub-floor surfaces are ready for tile installation by testing for moisture emission rate and alkalinity; obtain instructions if test results are not within limits recommended by tile manufacturer and setting materials manufacturer

3.1.5. Verify that required floor-mounted utilities are in the correct location.

3.1.6. Alert the Architect of any discrepancies, prior to commencing the Work of this section.

3.1.7. Coordinate the Work of this section with applicable trades.

3.2. PREPARATION

3.2.1. Protect surrounding work from damage.

3.2.2. Vacuum clean surfaces and damp clean.

3.2.3. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.

3.2.4. Prepare substrate surfaces for adhesive installation in accordance with adhesive manufacturer's instructions.

3.3. INSTALLATION – GENERAL

3.3.1. Install tile and thresholds and grout in accordance with applicable requirements of ANSI A108.1 through A108.13, manufacturer's instructions, and TCA Handbook recommendations.

3.3.2. Lay tile to pattern indicated. Do not interrupt tile patterns through openings.

3.3.3. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align or offset floor, base, and wall joints as indicated on Design Drawings.

3.3.4. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make joints watertight, without voids, cracks, excess mortar, or excess grout.

3.3.5. Form internal and external angles as indicated on Design Drawings

3.3.6. Sound tile after setting. Replace hollow sounding units.



3.3.7. Keep control joints free of adhesive or grout.

3.3.8. Allow tile to set for a minimum of 48 hours prior to grouting.

3.3.9. Grout tile joints.

3.3.10. Apply sealant to junction of tile and dissimilar materials and junction of dissimilar planes.

3.4. INSTALLATION – FLOORS – THIN-SET METHODS

3.4.1. Over interior concrete substrates, installed in accordance with TCA Handbook Method F113, dry-set or latex-portland cement bond coat or F116, organic adhesive, with latex fortified grout.

3.4.1.1. Use uncoupling membrane under all tiles unless other underlayment is indicated.

3.4.1.2. Where epoxy bond coat and grout are indicated, install in accordance with TCA Handbook Method F131.

3.5. INSTALLATION – FLOORS – MORTAR BED METHODS

3.5.1. Over interior concrete substrates, install in accordance with TCA Handbook Method F112, bonded, unless otherwise indicated.

3.5.1.1. Where waterproofing membrane is indicated, with standard grout or no mention of grout type, installed in accordance with TCA Handbook Method F121.

3.5.1.2. Where epoxy bond coat and grout are indicated, install in accordance with TCA Handbook Method F132, bonded.

3.5.2. Cleavage Membrane: Lap edges and ends.

3.5.3. Waterproofing Membrane: Lap and seal watertight, edges and ends.

3.6. CLEANING

3.6.1. Clean tile and grout surfaces.

3.7. PROTECTION OF FINISHED WORK

3.7.1. Do not permit traffic over the finished floor surface for 4 days after installation.

***** END OF SECTION *****



ARCHITECTURAL SPECIFICATION

DIVISION 9 - "FINISHES"

Section 3. Resilient Flooring

31 AUGUST 2022

JMM/ REV. 00

Revision	Date	Description



RESILIENT FLOORING

PART 1. GENERAL

1.1. SCOPE

This specification covers the furnishing of materials and labor necessary to complete the installation of all vinyl flooring and base as shown in drawings and finish schedule and as specified herein.

1.2. SUBMITTALS

1.2.1. **Catalog Data.** Complete descriptive literature for each type of the following items:

1.2.1.1. Floor tile

1.2.1.2. Wall base

1.2.1.3. Clearly mark data to indicate which type, size, model or item will be provided. Data shall be sufficient to show conformance to specified requirements.

1.2.2. **Manufacturer's Installation Procedures**

1.2.2.1. Submit four (4) current copies of the flooring manufacturer's recommended standard installation procedure for each type of flooring material.

1.2.3. **Colors and Patterns**

1.2.3.1. One (1) sample of each color and pattern of each of the following items:

1.2.3.1.1. Floor tile

1.2.3.1.2. Wall base

1.2.3.2. Where colors and patterns are not indicated, submit not less than 12 different samples of the manufacturer's standard colors and patterns for selection by the Architect and/or DSWD.

1.2.4. **Manufacturer's Maintenance Data and Instructions**

1.2.4.1. Upon completion and prior to acceptance of the work, submit current copies in triplicate of the flooring manufacturer's printed recommendations for maintenance methods and products for each type of flooring material.

1.3. DELIVERY AND STORAGE

1.3.1. Deliver materials to the job in the manufacturer's original unopened containers with the brands, names, and production runs clearly marked thereon. Handle materials carefully and store them in their original containers at not less than 21 degrees C for at least 48 hours before work is started. Do not open containers until inspected and accepted.

1.4 ENVIRONMENTAL CONDITIONS

1.4.1. Maintain spaces in which flooring work is to be performed at not less than 18 degrees C at the floor level for at least 48 hours prior to starting the work, during the time work is performed, and for at least 48 hours after the work is completed. Maintain a minimum temperature of 12 degrees C thereafter. Provide adequate ventilation to remove moisture and fumes from the area.



PART 2 PRODUCTS

2.1. MATERIALS

2.1.1. Resilient floors shall conform to the respective specifications and standards and to the requirements specified herein.

2.1.1.1. **Color and Pattern:** The color and pattern of tile shall be uniformly distributed throughout the thickness of the tile. Resilient flooring materials of the same type, pattern, and color shall be of the same production run and shall be so marked. Variations in shades and off-pattern matches between containers will not be acceptable. Flooring in any one continuous area or that used in replacement of damaged flooring in a continuous area shall be from the same lot and have the same shade and pattern.

2.1.1.2. Resilient Composition Tile:

2.1.2.1. *Floor Tile.* Subject to compliance with requirements and as approved by the Architect. For compliance with requirements, acceptable manufacturers are:

1. Metrotiles Inc.
2. Apo Flooring
3. Solidwood Flooring
4. Puyat Flooring Product, Inc.
5. Hankuk Construction and Material Inc.
6. Other approved equal by the Architect.

2.1.2.2. **Leveling compounds, underlayment, and patching compounds.** Leveling compounds, underlayment, and patching compounds as recommended or approved by flooring manufacturers.

2.1.2.3 **Accessories.** Accessories shall be standard products of the flooring manufacturer.

PART 3 EXECUTION

3.1. CONDITION OF SURFACES

3.1.1. The flooring shall not be installed on surfaces that are unsuitable and will prevent a proper installation. Floor surfaces that are to receive flooring shall be clean, thoroughly dry, smooth, firm and sound, and free from oil, paint, wax, dirt, and any other damaging material.

3.1.1.1. Prepare substrates according to manufacturer's written instructions to ensure adhesion of floor coverings.

3.1.1.2. Concrete Substrates: Prepare according to ASTM F 710.

3.1.1.2.1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.

3.1.1.2.2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by the manufacturer. Do not use solvents.

3.1.1.2.3. Alkalinity and Adhesion Testing: Perform tests recommended by the manufacturer. Proceed with installation only after substrates pass testing.



3.1.1.2.4. Moisture Testing: Perform tests recommended by manufacturer and as follows. Proceed with installation only after substrates pass testing.

3.1.1.2.4.1. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. (1.36 kg of water/92.9 sq. m in 24 hours.

3.1.1.2.4.2. Perform relative humidity test using in situ probes, ASTM F 2170. Proceed with installation only after substrates have a maximum 75 percent relative humidity level measurement.

3.1.1.3. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.

3.1.1.4. Do not install floor coverings until they are the same temperature as space where they are to be installed.

3.1.1.4.1. Move floor coverings and installation materials into spaces where they will be installed at least 48 hours in advance of installation.

3.1.1.5. Sweep and vacuum clean substrates to be covered by floor coverings immediately before installation.

3.1.2. Preparation of Concrete Floor Surfaces

Grind all ridges and other uneven surfaces smooth. Concrete curing compounds, other than the type that does not adversely affect adhesive, shall be entirely removed from the slabs. Cut out and fill cracks with 1.5mm wide and wider with a crack filler as specified for this application. Provide latex underlayment to fill the remaining holes, cracks, and depressions, and for smoothing, leveling, and feather edging the concrete. Remove loose particles, vacuum chalky, dusty surfaces and prime the cleaned surfaces if recommended by the flooring manufacturer.

3.1.3. Moisture Test for Concrete Floors

As recommended by the floor covering manufacturer.

3.2. APPLICATION

3.2.1. Install flooring after work of other trades that might damage flooring has been completed. Apply flooring and accessories in accordance with the manufacturer's installation procedure. Work shall be performed by workmen experienced in the application of such flooring.

3.2.2. Detailed requirements are as follows:

3.2.2.1. Adhesives

Apply adhesives in accordance with the adhesive manufacturer's printed directions, unless specified or directed otherwise. Smoking, the use of open flames and other immediate sources of ignition are strictly prohibited in the area where solvent-containing adhesives are being used or spread. Post conspicuous signs reading "NO SMOKING OR OPEN FLAME" in the area of spread adhesive.

3.2.2.2. Flooring

Apply tile flooring in the patterns indicated. Start in the center of the room or area, and work from the center towards the edges. Keep tile line and Joint Square, symmetrical,



tight, and vent; and keep each floor in true, level plans, except where indicated as sloped. Vary edge width as necessary to maintain full-size tiles in the field but no edge tile shall be less than one-half (1/2) the field tile size, except where irregular shaped rooms make it impossible.

3.2.2.3. Cutting

Cut flooring to and fit around all permanent fixtures, built-in furniture and cabinets, pipes and outlets. Cut edges, fit, and scribed to walls and partitions after field flooring has been applied.

3.2.2.4. Edge Strips

Provide edging strips where flooring terminates at points higher than the contiguous finished flooring, except at doorways where the thresholds are provided. Secure plastic strips with adhesives.

3.2.2.5. Application of Resilient Tile

Prime concrete slabs in contact with the ground with cut-back type primer if recommended by the flooring manufacturer. Work primer with a non-absorptive base completely into the surface. Allow the primer to become roughly dry before applying adhesive. Apply only cut-back adhesive to primed concrete surfaces.

3.3. CLEANING AND PROTECTION

3.3.1. Remove all excessive adhesives from the surface of the flooring and the cove.

3.3.2. Perform initial maintenance on the completed installation as recommended by the flooring manufacturer.

3.3.3. Protect the flooring as recommended by the flooring manufacturer from damage by other trades and by the placement of fixtures and furnishings.

3.4. WARRANTY

3.4.1. Manufacturer shall warrant that its conductive vinyl tile is free from defects in materials and workmanship for a period of one year and that it will meet the electrical resistance requirements of NFPA Standard 99 for a period of five (5) years.

***** END OF SECTION *****



ARCHITECTURAL SPECIFICATION

DIVISION 9 - "FINISHES"

Section 4. Acoustical Ceiling

31 AUGUST 2022

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Revision	Date	Description



ACOUSTICAL CEILING

PART 1 GENERAL

1.1. SCOPE

1.1.1. This specification covers the furnishing of materials and labor including equipment necessary to complete the installation of acoustical treatment work as shown on the drawings and as specified herein.

1.2. SUBMITTALS

1.2.1. Manufacturer's Data

1.2.1.1. Standard catalog data for acoustical units and suspension system.

1.2.2. Certificates of Conformance

1.2.2.1. Test reports by an independent testing laboratory attesting that acoustical ceiling systems meet specified requirements. Data attesting to conformance of the proposed system to Underwriters Laboratories, Inc. requirements for the fire endurance rating listed in UL Fire Resistance Directory may be submitted for approval in lieu of test reports.

1.2.3. Manufacturer's Instructions

1.2.3.1. Shall be submitted showing printed instructions covering installation of Acoustic Materials and Suspension Systems.

1.2.4. Submit 2 sets of 200mm x 200mm sample with proper label or manufacturer's tag indicating material descriptions.

1.3. DESIGN CRITERIA FOR CEILING SYSTEM

1.3.1. Fire Endurance

1.3.1.1. The fire endurance (separation) rating of ceiling system(s), including ceiling penetrations such as light fixtures and electric boxes, shall be non-combustible Flame spread of acoustical units shall be 25 or less and smoke development shall be 50 or less.

1.3.2. Ceiling Sound Transmission Class

1.3.2.1. The ceiling sound transmission class (ceiling STC range) of the ceiling system shall be 35- 39 when determined in accordance with CISCA Test Method AMA-1-II and reported in accordance with ASTM E 413 for 16 frequency data. Test ceiling shall be continuous at the partition and shall be assembled in the suspension system in the same manner that the ceiling will be installed on the project.

1.3.3. Ceiling Sound Absorption

1.3.3.1. The Noise Reduction Coefficient (NRC) shall be determined in accordance with ASTM C 423 Method of Test.

1.4. DELIVERY AND STORAGE

1.4.1. Deliver acoustical units in the manufacturer's original unopened containers with brand name and type clearly marked. Handle materials carefully and store them under cover in dry, watertight enclosures. Immediately before installation, store acoustical units for not less than 24 hours at the same temperature and relative humidity as the space where they will be installed.



1.5. ENVIRONMENTAL CONDITIONS

1.5.1. Maintain a uniform temperature of not more than 30 degrees C and a relative humidity of not more than 70 percent continuously before, during, and after installation of acoustical units.

1.5.2. Interior finish work such as plastering, concrete and terrazzo work shall be completed and dry before installation. Mechanical, electrical and other work above the ceiling line shall be completed and approved prior to the start of acoustical ceiling installation.

1.6. REFERENCES

1.6.1. ASTM C635 AND C636: Manufacturing of metal suspension systems and Installation of Suspended Ceilings.

1.6.2. Underwriters Laboratories, Inc.: Fire Resistance Directory, Acoustical Materials (BYIT).

1.6.3. ASTM E84: Surface Burning Characteristics Classification.

1.6.4. ASTM E119: Fire Tests of Building Construction and Materials.

1.6.5. ASTM C423: Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.

1.6.6. CISCA Ceiling Systems Installation Handbook.

1.6.7. Fire Code of the Philippines

1.6.8. National Building Code of the Philippines

1.6.9. International Building Code

PART 2 PRODUCTS

2.1. ACOUSTIC UNITS

2.1.1. Subject to compliance with requirements and as approved by the Architect. For compliance with requirements, acceptable manufacturers are needed to be pre-approved by the architect.

2.2. SUSPENSION SYSTEM

2.2.1. **Type:** Exposed grid.

2.2.2. **Structural Classification:** Intermediate duty.

2.2.3. **Finish:** Surfaces exposed to view shall be uniform width and shall be aluminum with factory applied white baked enamel finish. Zinc-coated steel shall receive a phosphate treatment prior to painting.

2.2.4. **Accessories:** Provide manufacturer's standard hold down clips and wall or edge moldings.

2.2.5. **Seismic Requirements:** As per Uniform Building Code.

2.2.6. **Accessibility:** Shall provide direct access to the space above the ceiling. Locate as directed. All other acoustical panels within the grid shall be demountable through the access panel opening.

2.2.7. **Hangers:** Hanger wire shall be 12-gage 2-millimeter galvanized, soft annealed, mild steel wire in accordance with ASTM C 636.

2.3. ACOUSTICAL SEALANT



2.3.1. Synthetic rubber or polymeric-based material and having the following properties:

2.3.1.1. Consistency: 290 to 310

2.3.1.2. Aging: Slightly tacky at 71 degrees C after 50 days.

2.3.1.3. Accelerated Aging: No significant change after 260 hours in the weather meter.

2.3.1.4. Non-staining.

2.3.1.5. Solids Content: Approximately 80 to 90 percent.

2.3.1.6. No oil migration.

2.4. ACOUSTICAL TILE ADHESIVE

2.4.1. As per manufacturer's recommendations.

2.5. IDENTIFICATION OF ACCESS PANELS

2.5.1. Identify ceiling access panel by a number utilizing white identification plates or plastic buttons with contrasting numerals. The plates or buttons shall be of minimum one-inch diameter and securely attached to one corner of each access unit. The code identification system shall be as follows:

2.5.1.1. Air conditioning controls.

2.5.1.2. Air conditioning duct system.

2.5.1.3. Intercommunication system.

2.5.2. Provide a typewritten card framed under glass, listing the code identification numbers and the corresponding system description listed above. Mount the framed card where directed and furnish a duplicate.

PART 3 EXECUTION

3.1. CONDITION OF SURFACES

3.1.1. Examine surfaces to receive directly attached acoustical units for unevenness, irregularities, and dampness that would affect quality and execution of the work.

3.1.2. Do not start work until unsatisfactory conditions are corrected.

3.1.3. **Work to be concealed:** Verify work above ceiling is complete and installed in a manner that will not affect layout and installation of ceiling panels.

3.1.4. Beginning of installation shall signify acceptance of conditions in areas to receive ceiling panels.

3.1.5. **Fire-rated requirements:** Construction above fire-rated assembly shall meet requirements of UL Design where scheduled by Drawings.

3.2. INSTALLATION

3.2.1. Suspended Ceilings

3.2.1.1. *Standard reference:* Install ceiling panels and suspension system, including necessary hangers, grillage, splines, and other supporting hardware, in accordance with ASTM C636, CISCA Installation Syds., (UL Design) and any applicable code requirement.



3.2.1.2. *Manufacturer's reference*: Install ceiling panels in exposed grid systems, supported on all edges in accordance with manufacturer's current printed recommendations.

3.2.1.3. Finished ceilings shall be true to lines and levels and free from warped, soiled or damaged grid or acoustical units.

3.2.1.4. Install ceiling systems in a manner capable of supporting all superimposed loads, with maximum permissible deflection of $L/360$ or span and maximum surface deviation of $1/8$ " in 12 feet.

3.2.1.5. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest adjacent hangers and related carrying channels as required to span the required distance.

3.2.1.6. Hang independently of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of the longitudinal axis or face plane of adjacent members.

3.2.1.7. Do not support lighting fixtures from or on main runners or cross runners if weight of the fixture causes the total dead load to exceed the deflection capability of $1/360$ of its span. In such cases, support fixture loads by supplementary hangers located within 6 inches of each corner, or support the fixtures independently.

3.2.1.8. Do not install fixtures so that the main runners and cross runners will be eccentrically loaded. Where fixture installation would produce rotating of runners, provide stabilizer bars.

3.2.1.9. Install edge molding at intersection of ceiling and vertical surfaces, using maximum lengths, straight, true to line and level. Miter corners; provide edge moldings at junctions with other ceilings finishes.

3.2.1.10. Install units level, in uniform plane and free from twist, warp and dents.

3.2.1.11. Adjust any sags or twists which develop in the ceiling systems and replace any part which is damaged or faulty.

3.2.1.12. Replace all damaged grid with new as required.

3.2.1.13. Install the suspension system in accordance with ASTM C 636 and the following additional requirements.

3.2.2. Hangers

3.2.2.1. Space hangers 1200 mm in each direction. Hangers shall be laid out for each individual room or space. Install additional hangers where required to support framing around beams, ducts, columns, grilles and other penetrations through the ceiling.

3.2.3. Suspension Members

3.2.3.1. Keep main runners and carrying channels clear of abutting walls and partitions. Provide at least two main runners for each ceiling span.

3.2.4. Acoustical Units

3.2.4.1. Edges of ceiling tiles shall be in close contact with metal supports and in true alignment. Arrange units so that units less than $1/2$ width is minimized.



3.2.5. Wall or Edge Molding

3.2.5.1. Install wall molding at the intersection of suspended ceiling and vertical surfaces. Miter corners where wall moldings intersect or install corner caps.

3.2.6. Hold down Clips

3.2.6.1. Provide hold down clips for all panels and around troffer lights.

3.2.7. Caulking

3.2.7.1. Seal all joints around pipes, ducts or electrical outlets penetrating the ceiling. Apply a continuous ribbon of acoustical sealant on the vertical web of wall or edge moldings.

3.2.8. Seismic Restraint System

3.2.8.1. Provide seismic restraint for the suspension system

3.2.9. Cement Installation

3.2.9.1. Install acoustical tile according to manufacturer's recommendations.

3.3. CLEANING

3.3.1. Clean soiled or discolored unit surfaces after installation. Touch up scratches, abrasions, voids and other defects in painted surfaces. Remove damaged or improperly installed units and install new materials.

***** END OF SECTION *****



ARCHITECTURAL SPECIFICATION

DIVISION 9 - "FINISHES"

Section 5. *Paints & Coats*

31 AUGUST 2022

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Revision	Date	Description



PAINTS AND COATINGS

PART 1 GENERAL

1.1. RELATED DOCUMENTS

1.1.1. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this Section.

1.2. SUMMARY

1.2.1. This Section includes the following:

1.2.1.1. Surface preparation.

1.2.1.2. Field application of paints, stains, varnishes, and other coatings.

1.2.2. Related sections include the following:

1.2.2.1. MEP Engineer's Specifications for mechanical and electrical work.

1.3. REFERENCES

1.3.1. ASTM D 16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications.

1.3.2. ASTM D 4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials.

1.3.3. ASTM D3960 "Standard Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings".

1.3.4. ASTM D2486-79 "Standard Test Method for Scrub Resistance of Wall Paints".

1.3.5. ASTM E84-01 "Standard Test Method For Surface Burning Characteristics of Building Materials."

1.3.6. ASTM D1653 "Test Methods for Water Vapour Transmission of Organic Coating Films".

1.3.7. PDCA (MAN) - Architectural Specification Manual; Painting and Decorating Contractors of America.

1.3.8. SSPC (PM1) - Steel Structures Painting Manual, Vol. 1, Good Painting Practice; The Society for Protective Coatings.

1.3.9. SSPC (PM2) - Steel Structures Painting Manual, Vol. 2, Systems and Specifications, the Society for Protective Coatings.

1.3.10. National Building Code of the Philippines

1.3.11. Local Rules and Regulation

1.3.12. Philippine Green Building Code

1.4. DEFINITIONS

1.4.1. Conform to ASTM D 16 for interpretation of terms used in this section.



1.5. SUBMITTALS

- 1.5.1. Submit under provisions of Project Procedure Manual issued by the Construction Manager.
- 1.5.2. **Product Data:** Provide data on all finishing products.
- 1.5.3. **Samples for Selection:** Submit two paper chip samples, 300 x 300 mm in size illustrating range of colors and textures available for each surface finishing product scheduled.
- 1.5.4. **Samples for Review:** Submit two painted samples, illustrating selected colors and textures for each color and system selected with specified coats cascaded. Submit on actual receiving substrate, 600 x 600 mm in size.
- 1.5.5. **Manufacturer's Instructions:** Indicate special surface preparation procedures, substrate conditions requiring special attention, and recommended area coverage for specified product.
- 1.5.6. At project completion, provide an itemized list complete with manufacturer, paint type and colour-coding for all colours used for DSWD/BGMS's later use in maintenance.
- 1.5.7. **Maintenance Data:** Submit data on cleaning, touch-up, and repair of painted and coated surfaces.

1.6. QUALITY ASSURANCE

- 1.6.1. **Manufacturer Qualifications:** Company specializing in manufacturing the Products specified in this section with minimum five years documented experience.
- 1.6.2. **Applicator Qualifications:** Company specializing in performing the work of this section five years documented experience and approved by manufacturer and approved by manufacturer.

1.7. REGULATORY REQUIREMENTS

- 1.7.1. Conform to applicable codes, including local rules and regulations, for flame and smoke rating requirements for products and finishes, subject to acceptance by the Local Fire Department.

1.8. MOCK-UP

- 1.8.1. Provide panel, 2440 mm long by 1220 wide, illustrating special coating color, texture, and finish.
- 1.8.2. Provide door and frame assembly illustrating paint, stain and varnish coating color, texture, and finish.
- 1.8.3. For the sky ceiling, 3000 (H) x 3000(W) x 5000 projection covering different eventual substrates.
- 1.8.4. Locate where directed
- 1.8.5. Mock-up may or may not remain as part of the Work

1.9. DELIVERY, STORAGE, AND PROTECTION

- 1.9.1. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- 1.9.2. **Container Label:** Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.



1.9.3. **Paint Materials:** Store at minimum ambient temperature of 7 degrees C and a maximum of 32 degrees C, in ventilated area, and as required by manufacturer's instructions.

1.10. ENVIRONMENTAL REQUIREMENTS

1.10.1. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

1.10.2. Do not apply exterior coatings during rain, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.

1.10.3. Apply paint only on dry, clean, properly cured and adequately prepared surfaces in areas where dust is no longer generated by construction activities such that airborne particles will not affect the quality of the finished surface.

1.10.4. Minimum Application Temperatures for Latex Paints: 7 degrees C for interiors; 10 degrees C for exterior; unless required otherwise by manufacturer's instructions.

1.10.5. Minimum Application Temperature for Varnish Finishes: 18 degrees C for interior or exterior, unless required otherwise by manufacturer's instructions.

1.10.6. Provide lighting level of 860 lx measured mid-height at substrate surface.

1.11. EXTRA MATERIALS

1.11.1. Supply 3 L of each color; store where directed.

1.11.2. Label each container with color in addition to the manufacturer's label.

PART 2 PRODUCTS

2.1. MANUFACTURERS

2.1.1. As specified and subject to Compliance with Local Regulation, Fire Code and Green Building Code

2.1.2. Subject to compliance with requirements and as approved by the Architect. For compliance with requirements, acceptable manufacturers are needed to be pre approved by the architect.

2.2. PAINTS AND COATINGS – PERFORMANCE

2.2.1. Paint and coating system shall be tested by an independent testing agency for the following properties according to the following test methods:

2.2.1.1. Volatile Organic Content: 95g/ltr or less.

2.2.1.2. Scrub Resistance: 4600 wet cycles or less.

2.2.1.3. ASTM E84 Flame Spread Classification: Passes Class 1 requirement.

2.2.1.4. ASTM D 1653: WVP (perms) = 27.0

2.2.2. Paint materials including primers, colourants, pigments, tints, and bases shall be free (absolute zero % content, except for trace amounts) of lead, cadmium, hexavalent chromium, or mercury. Formulate paint materials, at the factory, with anti-mildew agents so that colours are not affected; incorporated into the formulation. In addition, include carefully balanced ultraviolet inhibitors for exterior material.



2.3. PAINTS AND COATINGS – GENERAL

- 2.3.1. Paints and Coatings: Ready mixed, except field-catalyzed coatings. Prepare pigments:
- 2.3.1.1. To a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating.
 - 2.3.1.2. For good flow and brushing properties.
 - 2.3.1.3. Capable of drying or curing free of streaks or sags.

2.4. PAINT SYSTEMS – EXTERIOR

2.4.1. Wood, Opaque, Alkyd, 3 Coat:

- 2.4.1.1. One coat of alkyd primer sealer.
- 2.4.1.2. Gloss: Two coats of alkyd enamel.

2.4.2. Wood, Transparent, Stain:

- 2.4.2.1. Two coats of stain.

2.4.3. Concrete/Masonry/Cement Plaster, Opaque, Alkyd modified, vinyl-acrylic latex, 3 coat:

- 2.4.3.1. One coat of water repellent primer sealer.
- 2.4.3.2. Flat: Two coats of alkyd modified, vinyl-acrylic latex enamel.

2.4.4. Gypsum Board and Plaster, Opaque, Latex, 3 Coat:

- 2.4.4.1. One coat of latex primer sealer.
- 2.4.4.2. Flat: Two coats of latex.

2.4.5. Ferrous Metals, Unprimed, Latex, 3 Coat:

- 2.4.5.1. One coat of latex primer.
- 2.4.5.2. Semi-gloss: Two coats of vinyl-acrylic latex enamel.

2.4.6. Ferrous Metals, Primed, Latex, 2 Coat:

- 2.4.6.1. Touch-up with rust-inhibitive primer recommended by top coat manufacturer.
- 2.4.6.2. Semi-gloss: Two coats of vinyl-acrylic latex enamel.

2.4.7. Galvanized Metals, Latex, 3 Coat:

- 2.4.7.1. One coat galvanized primer.
- 2.4.7.2. Semi-gloss: Two coats of vinyl-acrylic latex enamel.

2.4.8. Paint MaE-OP-3A - Aluminum, Unprimed, Alkyd, 3 Coat:

- 2.4.8.1. One coat etching primer.
- 2.4.8.2. Semi-gloss: Two coats of alkyd enamel.

2.4.9. Pavement Marking Paint:



2.4.9.1. Two coats of chlorinated rubber base traffic lane paint; yellow or white as indicated on drawings.

2.5. PAINT SYSTEMS – INTERIOR

2.5.1. **Wood**, as indicated in Interior Design Documents.

2.5.2. Wood, Opaque, Latex, 3 Coat:

2.5.2.1. One coat of latex primer sealer.

2.5.2.2. Semi-gloss: Two coats of latex enamel.

2.5.3. Wood - Cabinet Interior, Opaque, Latex, 2 Coat:

2.5.3.1. One coat of latex primer sealer.

2.5.3.2. Semi-gloss: One coat of vinyl-acrylic latex enamel.

2.5.4. Wood, Transparent, Stain:

2.5.4.1. Filler coat (for open grained wood only).

2.5.4.2. Two coats of stain; polyurethane, non-yellowing.

2.5.4.3. One coat sealer.

2.5.4.4. Gloss: One coat of polyurethane, non-yellowing.

2.5.4.5. Satin: One coat of; polyurethane, non-yellowing

2.5.5. Concrete/Masonry, Opaque, Latex, 2 Coat:

2.5.5.1. One coat of block filler.

2.5.5.2. Flat: One coat of vinyl-acrylic latex enamel.

2.5.6. **Corrugated Metal**: Special finish as indicated in Design Documents.

2.5.7. Ferrous Metals, Unprimed, Alkyd / Latex, 3 Coat:

2.5.7.1. One coat of alkyd primer.

2.5.7.2. Semi-gloss: Two coats of vinyl-acrylic latex enamel.

2.5.8. Ferrous Metals, Primed, Latex, 2 Coat:

2.5.8.1. Touch-up with alkyd primer.

2.5.8.2. Semi-gloss: Two coats of vinyl-acrylic latex enamel.

2.5.9. Galvanized Metals, Latex, 3 Coat:

2.5.9.1. One coat galvanized primer.

2.5.9.2. Semi-gloss: Two coats of vinyl-acrylic latex enamel.

2.5.10. Aluminum, Unprimed, Alkyd, 3 Coat:

2.5.10.1. One coat etching primer.

2.5.10.2. Semi-gloss: Two coats of alkyd enamel.



2.6. ACCESSORY MATERIALS

2.6.1. **Accessory Materials:** Linseed oil, shellac, turpentine, paint thinners and other materials not specifically indicated but required to achieve the finishes specified; commercial quality.

PART 3 EXECUTION

3.1. EXAMINATION

- 3.1.1. Verify that surfaces are ready to receive Work as instructed by the product manufacturer.
- 3.1.2. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
- 3.1.3. Test shop-applied primer for compatibility with subsequent cover materials.
- 3.1.4. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
 - 3.1.4.1. Plaster and Gypsum Wallboard: 12 percent.
 - 3.1.4.2. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.
 - 3.1.4.3. Interior Wood: 15 percent, measured in accordance with ASTM D 4442.
 - 3.1.4.4. Exterior Wood: 15 percent, measured in accordance with ASTM D 4442.
 - 3.1.4.5. Concrete Floors: 8 percent.
 - 3.1.4.6. Alert the Architect of any discrepancies, prior to commencing the Work of this section.
 - 3.1.4.7. Coordinate the Work of this section with applicable trades.

3.2. PREPARATION

- 3.2.1. **Surface Appurtenances:** Remove or mask electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or finishing.
- 3.2.2. **Surfaces:** Correct defects and clean surfaces which affect work of this section. No painting work shall commence until all such adverse conditions or defects have been corrected to acceptable level.
- 3.2.3. **Marks:** Seal with shellac those which may bleed through surface finishes.
- 3.2.4. **Impervious Surfaces:** Remove mildew by scrubbing with solution of tetra- sodium phosphate and bleach. Rinse with clean water and allow the surface to dry.
- 3.2.5. **Concrete and Unit Masonry Surfaces to be Painted:** Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with a solution of trisodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.
- 3.2.6. **Gypsum Board Surfaces to be Painted:** Fill minor defects with filler compound. Spot prime defects after repair.
- 3.2.7. **Plaster Surfaces to be Painted:** Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.



- 3.2.8. **Asphalt, Creosote, or Bituminous Surfaces to be Painted:** Remove foreign particles to permit adhesion of finishing materials. Apply latex based sealer or primer.
- 3.2.9. **Insulated Coverings to be Painted:** Remove dirt, grease, and oil from canvas and cotton.
- 3.2.10. **Concrete Floors to be Painted:** Remove contamination, acid etch, and rinse floors with clear water. Verify required acid-alkali balance is achieved. Allow to dry.
- 3.2.11. **Aluminum Surfaces to be Painted:** Remove surface contamination by steam or high pressure water. Remove oxidation with acid etch and solvent washing. Apply etching primer immediately following cleaning.
- 3.2.12. **Galvanized Surfaces to be Painted:** Remove surface contamination and oils and wash with solvent. Apply a coat of etching primer.
- 3.2.13. **Uncoated Steel and Iron Surfaces to be Painted:** Remove grease, mill scale, weld splatter, dirt, and rust. Where heavy coatings of scale are evident, remove by hand wire brushing or sandblasting; clean by washing with solvent. Apply a treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Prime paint the entire surface; spot prime after repairs.
- 3.2.14. **Shop-Primed Steel Surfaces to be Finish Painted:** Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Re- prime entire shop-primed item.
- 3.2.15. **Interior Wood Items to Receive Opaque Finish:** Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after the primer has dried; sand between coats. Back prime concealed surfaces before installation.
- 3.2.16. **Interior Wood Items to Receive Transparent Finish:** Wipe off dust and grit prior to sealing, seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after the sealer has dried; sand lightly between coats. Prime concealed surfaces with gloss varnish reduced 25 percent with thinner.
- 3.2.17. **Exterior Wood to Receive Opaque Finish:** Remove dust, grit, and foreign matter. Seal knots, pitch streaks, and sappy sections. Fill nail holes with tinted exterior calking compound after the prime coat has been applied. Back prime concealed surfaces before installation.
- 3.2.18. **Exterior Wood to Receive Transparent Finish:** Remove dust, grit, and foreign matter; seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes with tinted exterior calking compound after sealer has been applied. Prime concealed surfaces.
- 3.2.19. **Wood Doors to be Field-Finished:** Seal wood door top and bottom edge surfaces with clear sealer.
- 3.2.20. **Metal Doors to be Painted:** Prime metal door top and bottom edge surfaces.
- 3.2.21. Protect all interior surfaces and areas, including glass, aluminium surfaces etc. and equipment and any labels and signage from the painting operations and damage by drop cloths, shield masking, templates, or other suitable protective means and make good any damage caused by failure to provide protection.
- 3.2.22. Erect boundaries or screens and post signs to warn off or limit or direct traffic away or around the work area as required.



3.3. APPLICATION

- 3.3.1. Apply products in accordance with manufacturer's instructions.
- 3.3.2. Where adjacent sealant is to be painted, do not apply finish coats until sealant is applied.
- 3.3.3. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before the next coat is applied.
- 3.3.4. Apply each coat to a uniform appearance. Apply each coat of paint slightly darker than the preceding coat unless otherwise approved.
- 3.3.5. Sand wood surfaces lightly between coats to achieve required finish.
- 3.3.6. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying the next coat.
- 3.3.7. Where clear finishes are required, tint fillers to match wood. Work fillers into the grain before set. Wipe excess from the surface.

3.4. FINISHING MECHANICAL AND ELECTRICAL EQUIPMENT

- 3.4.1. Refer to MEP specifications of color coding of equipment, duct work, piping, and conduit or as indicated otherwise.
- 3.4.2. Paint shop-primed equipment, where indicated.
- 3.4.3. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
- 3.4.4. Finish equipment, piping, conduit, and exposed ductwork in finished areas in colors according to the color schedule.
- 3.4.5. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.5. FIELD QUALITY CONTROL

- 3.5.1. Inspect and test questionable coated areas in accordance with the Architect's instructions.

3.6. CLEANING

- 3.6.1. Collect waste material which may constitute a fire hazard, place it in closed metal containers, and remove daily from the site.
- 3.6.2. Remove all paint where spilled, splattered or spray as work progresses using means and materials that are detrimental to the affected surface.

3.7. SCHEDULE - SURFACES TO BE FINISHED

- 3.7.1. Do Not Paint or Finish the Following Items:
 - 3.7.1.1. Items fully factory-finished unless specifically noted.
 - 3.7.1.2. Fire rating labels, equipment serial number and capacity labels.
 - 3.7.1.3. Stainless steel items.
- 3.7.2. Paint the surfaces described in PART 2, Paint Systems Articles.
- 3.7.3. Mechanical and Electrical: Use paint systems defined for the substrates to be finished.



3.7.3.1. Paint all insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, and hangers, brackets, collars and supports occurring in finished areas to match background surfaces, unless otherwise indicated.

3.7.3.2. Paint shop-primed items occurring in finished areas.

3.7.3.3. Paint interior surfaces of air ducts and convector and baseboard heating cabinets that are visible through grilles and louvers with one coat of flat black paint to visible surfaces.

3.7.3.4. Paint dampers exposed behind louvers, grilles, and convector and baseboard cabinets to match face panels.

3.7.4. Paint both sides and edges of plywood backboards for electrical and telephone equipment before installing equipment.

3.7.5. Finish surface as indicated in Design Documents.

***** END OF SECTION *****



ARCHITECTURAL SPECIFICATION

DIVISION 9 - "FINISHES"

Section 6. Stone Finishes

31 AUGUST 2022

JMM/ REV. 00

Revision	Date	Description



STONE FINISHES

PART 1 GENERAL

1.1. Section includes:

- 1.1.1. Exterior stone finish system.
- 1.1.2. Metal framing support system.
- 1.1.3. Flashing and trim integral stone cladding system.

1.2. REFERENCES

- 1.2.1. ASTM B 221 - Standard Specification for Aluminum-Alloy Extruded Bars, Rods, Wires, Shapes and Tubes.
- 1.2.2. ASTM D 897 - Standard Test Method for Tensile Properties of Adhesive Bonds.
- 1.2.3. ASTM D 1761 - Standard Test Method for Mechanical Fasteners in Wood.
- 1.2.4. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- 1.2.5. ASTM E 283 - Standard Test Method for Rate of Air Leakage through Exterior Windows, Curtain Walls, and Doors.
- 1.2.6. ASTM E 330 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors under the Influence of Wind Loads.
- 1.2.7. ASTM E 331 - Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
- 1.2.8. ASTM E 1996 - Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes

1.3. PERFORMANCE REQUIREMENTS

1.3.1. **Design Requirements;** design exterior stone cladding system to withstand:

- 1.3.1.1. Positive and negative design wind loads acting normal to the wall plane in accordance with Building Code and ASCE 7 with deflection of any member not to exceed $L/175$, as tested to ASTM E 330.
- 1.3.1.2. Movement caused by an ambient temperature range of 120 degrees F and a surface temperature range of 160 degrees F.

1.3.2. **Performance Requirements:**

- 1.3.2.1. *Air infiltration:* Maximum 0.01 CFM per square foot, tested to ASTM E 283 at pressure differential across assembly of 6.24 PSF.
- 1.3.2.2. *Water resistance:* No leakage, tested to ASTM E 331 at 12.0 PSF.
- 1.3.2.3. *Uniform load deflection:*
 - 1.3.2.3.1. Two panel specimens: No damage, tested to ASTM E 330 at 65 PSF positive and negative.



1.3.2.3.2. Single panel specimen: No damage, tested to ASTM E 330 at 260 PSF positive and negative.

1.3.2.4. *Uniform load structural:*

1.3.2.4.1. Two panel specimens: No damage and maximum 0.07 inch permanent set, tested to ASTM E 330 at 97.5 PSF positive and negative.

1.3.2.4.2. Single panel specimen: No damage and maximum 0.150 inch permanent set, tested to ASTM E 330 at 390 PSF positive and negative.

1.3.2.5. *Impact resistance:* No penetration, tested to ASTM E 1996 at 50 FPS.

1.3.2.6. *Freeze/thaw resistance:* No delamination, cracking, chipping, or visible distortion; tested to GB/T 9966.1 at 25 cycles.

1.3.2.7. *Adhesive bond:* Average bond strength of 284 PSI, tested to ASTM D 897.

1.3.2.8. *Tensile bond strength for adhesive:* Average of 358 PSI, tested to ASTM D 897 after 25 thermocycles.

1.3.2.9. *Shear load strength for riveted brackets:* Average of 172 PSI, tested to ASTM D 1761.

1.3.2.10. *Fire hazard classification:* Maximum flame spread/smoke developed rating of 10/155, tested to ASTM E 84.

1.4. SUBMITTALS

1.4.1. Submit under provisions of Section 01 30 00 - Administrative Requirements.

1.4.2. **Product Data:** Manufacturer's data sheets on each product to be used, including:

1.4.2.1. Preparation instructions and recommendations.

1.4.2.2. Storage and handling requirements and recommendations.

1.4.2.3. Installation methods.

1.4.3. **Shop Drawings:** Include plans, elevations, and details, size and layout of panels, trim, accessories, supports, and attachments.

1.4.3.1. Show locations, mounting details and details of joints both within honeycomb-backed stone cladding assembly and between stone panel cladding assembly and other construction.

1.4.3.2. Include details of all varying joints, anchorage, corners, direction changes and connection to other materials.

1.4.3.3. Show locations and details of the channel system.

1.4.3.4. Show direction of veining, grain, or other directional pattern.

1.4.3.5. Include large-scale elevations of each building elevation with each panel numbered and dimensioned

1.4.4. **Selection Samples:** For each finished product specified, two complete sets of color chips representing the manufacturer's full range of available colors and patterns.



1.4.5. **Verification Samples:** For each finished product specified, two sets of samples, minimum size 6 inches (152 mm) square, representing actual product, color, and patterns and exhibiting the extreme range of color and other visual characteristics to be expected for the project.

1.4.6. **Manufacturer's Certificates:** Certify products meet or exceed specified requirements.

1.4.7. **Closeout Submittals:** Provide manufacturer's maintenance instructions that include recommendations for cleaning and maintenance of cladding.

1.5. QUALITY ASSURANCE

1.5.1. **Manufacturer/Fabricator Qualifications:** Minimum of 5 years experience in the manufacturing of the panel product specified and meeting the following:

1.5.1.1. Manufacturing facilities utilized in production ISO-9001 certified.

1.5.1.2. Panels shall be tested in a dedicated and certified on-site lab using approved ASTM testing standards and conducted for every 10,000 SF of panels.

1.5.2. **Installer Qualifications:** Minimum 3 years documented experience in work of this Section and the type of panel products specified.

1.5.3. **Mock-Up:** Provide a 4 foot high by 8 foot wide mock-up for evaluation of surface preparation techniques and application workmanship.

1.5.4. Finish areas designated by the Architect.

1.5.5. Do not proceed with remaining work until color and workmanship is approved by the Architect.

1.5.6. Refinish mock-up area as required to produce acceptable work.

1.5.7. Approved mockup may remain as part of the Work.

1.5.4. **Pre-Installation Conference:**

1.5.4.1. Convene at site 2 weeks prior to beginning work of this Section.

1.5.4.2. Attendance: Architect, implementing agency, Contractor, panel manufacturer's representative, panel installer, and related trades.

1.5.4.3. Review and discuss: Project conditions, scheduling, related work and other matters affecting erection.

1.6. DELIVERY, STORAGE, AND HANDLING

1.6.1. Schedule delivery and installation of stone panel cladding with all parties involved to avoid extended on-site storage and coordinate with work adjacent to stone panel cladding. Ship panels by elevation in a predetermined priority sequence to be determined prior to production.

1.6.2. Store products in manufacturer's properly labeled, unopened packaging until ready for installation.

1.6.3. Store panels off ground; prevent contact with materials that could cause staining or damage.

1.6.4. Store and handle stone and related materials to prevent deterioration or damage due to moisture, temperature changes, contaminates, corrosion, breaking, chipping, and other causes.



1.6.5. Mark stone units, on the surface that will be concealed after installation, with designations used on Shop Drawings to identify individual stone units. Orient markings on vertical panels so that they are right side up when units are installed.

1.6.6. Lay out and arrange panels on the ground in the order of the elevation sequence for inspection of color consistency and panel alignment.

1.6.7. Perform detailed quality control checks on every panel prior to packaging.

1.6.8. Package all panels in custom plywood crates using protective covers on all of the panel edges and fill the gaps between panels with expandable foam for maximum protection.

1.7. PROJECT CONDITIONS

1.7.1. **Field Measurements:** Verify locations of structural members and wall opening dimensions by field measurements before stone wall panel fabrication, as the project schedule permits.

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.

1.7.2.1. *Cold-Weather Requirements:* Comply with cold-weather construction and protections requirements for masonry contained in ACI 530.1/ASCE6/TMS 602. Remove and replace honeycomb-backed stone panels damaged by frost or freezing conditions.

1.7.2.2. *Hot-Weather Requirements:* Comply with hot-weather construction and protection requirements for masonry contained in ACI 530.1/ASCE 6/TMS 602.

1.8. WARRANTY

1.8.1. Provide manufacturer's limited 10-year limited warranty against delamination and separation of panel components

1.9. MAINTENANCE MATERIAL

1.9.1. Furnish extra materials of each product and color installed packaged with protective covering for storage and identified with labels describing contents.

PART 2 PRODUCTS

2.1. EXTERIOR STONE FINISHES

2.1.1. **Stone Finish:** Subject to compliance with requirements and as approved by the Architect. For compliance with requirements, acceptable manufacturers are needed to be pre-approved by the architect.

2.1.2. **Hanging Channels:** Continuous extruded aluminum rails.

2.1.2.1. *Channel Material:* ASTM B 221, 6063-T5ORT6 alloy and temper.

2.1.2.2. *Finish:* Flat black painted finish where exposed.

2.1.2.3. *Water seepage:* Allow water to pass between channel and substrate.

2.1.2.4. Connection and anchorage hardware, including interlocking channels, anchor plates, structural silicone and threaded inserts shall be of sufficient size, thickness and strength to properly support panels and applied loads. Panel fastening shall be completely concealed.



2.1.3. Accessories:

2.1.3.1. *Fasteners*: Concealed type except where unavoidable and suited to application, stainless or corrosion resistant coated steel or any product recommended by the manufacturer.

2.1.3.2. *Joint Sealers*: Type recommended by panel manufacturer.

2.2. FABRICATION

2.2.1. Fabricate manufacturer's standard interlocking channel system. System shall allow for the free and noiseless vertical and horizontal thermal movement due to expansion and contraction. Buckling of panels, opening of joints, undue stress on fasteners, failure of sealants or any other detrimental effects due to thermal movement will not be permitted

2.2.2. Attach channels to the back of panels in the factory.

2.2.3. Where indicated shop fabricate panels return in the factory with hairline joints to appear as monolithic stone.

2.2.4. Apply clear sealer to exposed stone surfaces at the factory.

PART 3 EXECUTION

3.1. EXAMINATION

3.1.1. Examine surfaces to receive stone panels and conditions under which they will be installed for compliance with installation tolerances and other conditions affecting performance of panels.

3.1.2. Do not begin installation until substrates have been properly prepared.

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

3.2. PREPARATION

3.2.1. Clean surfaces thoroughly prior to installation.

3.2.2. Before setting panels, clean surfaces that are dirty or stained by removing soil, stains and foreign materials. Clean stone by thoroughly scrubbing with fiber brushes and then drenching with clear water. Use only mild cleaning compounds that contain no caustic or harsh materials or abrasives.

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

3.3. INSTALLATION

3.3.1. Install in accordance with manufacturer's instructions and approved Shop Drawings.

3.3.2. Install interlocking channel system properly aligned for the panel installation.

3.3.3. Set panels aligned, level, and plumb. Shim as required with hard plastic shims up to a maximum of 1/2 inch thick.

3.3.4. Fasten receiving channels to support. Snap panels into receiving channels. Use silicone sealant in the bed of the channel if recommended by the manufacturer.

3.3.5. Seal panel joints with joint sealer.



3.3.6. Allowable Tolerances:

3.3.6.1. *Variation from Plumb*: For vertical lines, external comers and surfaces of walls, do not exceed 1/8 inch in 10 feet, 3/16 inch in 20 feet, or 1/4 inch in 40 feet or more.

3.3.6.2. *Variation from Level*: For lintels, sills, water tables, parapets, horizontal bands, horizontal grooves, and other conspicuous lines, do not exceed 1/16 inch in 10 feet, 1/8 inch in 20 feet or 3/16 inch maximum.

3.3.6.3. *Variation of Linear Building Line*: For positions shown in plan and related portions of walls and partitions, do not exceed 1/8 inch in 20 feet or 1/4 inch in 40 feet or more.

3.3.6.4. *Variation in Cross-Sectional Dimensions*: For thickness of walls from dimensions indicated, do not exceed plus or minus 1/8 inch.

3.3.6.5. *Variation in Joint Width*: Do not vary from average joint width more than plus or minus 1/16 inch or a quarter of nominal joint width, whichever is less. For joints within 60 inches of each other, do not vary more than 1/16 inch or a quarter of nominal joint width, whichever is less from one to the other.

3.3.6.6. *Variation in plane between adjacent stone units (lipping)*: Do not exceed 1/16-inch difference between planes of adjacent units.

3.3.7. Separate dissimilar metals and use gasket fasteners where needed to eliminate the possibility of corrosive or electrolytic action between metals.

3.4. ADJUSTING AND CLEANING

3.4.1. Remove and replace broken, chipped, stained, or otherwise damaged stone, defective joints, and honeycomb-backed stone panel cladding that does not match approved samples.

3.4.2. Repair panels with minor damage as acceptable to the Architect.

3.4.3. Clean stone panel cladding as work progresses. Remove excess sealant and smears as sealant is installed.

3.4.4. Clean stone panel cladding no fewer than six days after completion of pointing and sealing. Clean using clean water and stiff-bristle fiber brushes. Do not use wire brushes, acid-type cleaning agents, cleaning agents containing caustic compounds or abrasives, or other materials or methods that could damage stone.

3.5. PROTECTION

3.5.1. Protect installed products until completion of project.

3.5.2. Prevent staining of stone from mortar, grout, sealants, and other sources. Immediately remove such materials from stone without damage to the stonework.

3.5.3. Protect base of walls from rain-splashed mud and mortar splatter by means of coverings spread on ground and over wall surface.

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

*** END OF SECTION ***



ARCHITECTURAL SPECIFICATION

DIVISION 9 - "FINISHES"

Section 7. Gypsum Board Assemblies

31 AUGUST 2022

JMM/ REV. 00

Revision	Date	Description



GYP SUM BOARD ASSEMBLIES

PART 1 GENERAL

1.1. Section includes:

- 1.1.1. Gypsum board and joint treatment products
- 1.1.2. Mold and Mildew-resistant gypsum board products
- 1.1.3. Fire-rated gypsum area separation walls
- 1.1.4. Gypsum shaft liner
- 1.1.5. Abuse-resistant gypsum board
- 1.1.6. Mold-resistant gypsum board
- 1.1.7. Sound dampening area separation walls
- 1.1.8. Gypsum soffit board
- 1.1.9. Gypsum sheathing board
- 1.1.10. Accessories for the installation and trimming of gypsum board partitions and ceilings

1.2. RELATED SECTIONS

- 1.2.1. Metal Framing
- 1.2.2. Access Panels and Frames
- 1.2.3. Plaster and Gypsum Board

1.3. REFERENCES

- 1.3.1. ASTM C 36 - Standard Specification for Gypsum Wallboard
- 1.3.2. ASTM C 79 - Standard Specification for Gypsum Sheathing Board
- 1.3.3. ASTM C 442 - Standard Specification for Gypsum Backing Board, Gypsum Coreboard
- 1.3.4. ASTM C 475 - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board
- 1.3.5. ASTM C 514 - Standard Specification for Nails for the Application of Gypsum Board
- 1.3.6. ASTM C 588 - Specification for Gypsum Base for Veneer Plasters
- 1.3.7. ASTM C 630 - Standard Specification for Water-Resistant Gypsum Backing Board
- 1.3.8. ASTM C 754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products
- 1.3.9. ASTM C 840 - Standard Specification for Application and Finishing of Gypsum Board
- 1.3.10. ASTM C 931 - Standard Specification for Exterior Gypsum Soffit Board
- 1.3.11. ASTM C 954 - Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness



- 1.3.12. ASTM C 1002 - Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs
- 1.3.13. ASTM C 1047 - Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base
- 1.3.14. ASTM C 1280 - Standard Specification for Application of Gypsum Sheathing
- 1.3.15. ASTM C 1396 - Standard Specification for Gypsum Board
- 1.3.16. ASTM D 3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
- 1.3.17. ASTM E 119 - Standard Test Methods for Fire Tests of Building Construction and Materials
- 1.3.18. CAN/ULC-S101 - Standard Methods of Fire Endurance Tests of Building Construction and Materials
- 1.3.19. GA-214 - Recommended Levels of Gypsum Board Finish; Gypsum Association 09 21 16-3
- 1.3.20. GA-216 - Application and Finishing of Gypsum Board; Gypsum Association
- 1.3.21. GA-231 - Assessing Water damage to Gypsum Board; Gypsum Association
- 1.3.22. GA-238 - Guidelines for the Prevention of Mold Growth on Gypsum Board; Gypsum Association
- 1.3.23. GA-253 - Recommended Specifications for the Application of Gypsum Sheathing; Gypsum Association
- 1.3.24. GA-600 - Fire Resistance Design Manual; Gypsum Association FF. GA-801 - Handling and Storage of Gypsum Panel Product; Gypsum Association
- 1.3.25. UL 263 - Standard for Fire Tests of Building Construction and Materials
- 1.3.26. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc. JJ. ULC (FRD) - Fire Resistance Directory; Underwriters' Laboratories of Canada

1.4. PERFORMANCE REQUIREMENT

1.4.1. **Fire-Rated Assemblies:** Provide materials and construction identical to those tested in fire endurance rated assemblies by an independent testing agency acceptable to the authorities having jurisdiction.

1.4.1.1. Test Method: ASTM E 119 or UL 263

1.4.1.2. Test Method: CAN/ULC-S101M

1.4.1.3. Ratings: As indicated on the drawings; designations listed are from:

1.4.1.3.1. Gypsum Association GA-600, Fire Resistance Design Manual

1.4.1.3.2. UL Fire Resistance Directory

1.4.1.3.3. ULC Fire Resistance Directory

1.4.1.3.4. ITS Directory of Listed Products

1.4.2. **Sound-Rated Assemblies:** Provide materials and construction identical to those tested in STC/IIC-rated assemblies by an independent testing agency.



1.4.2.1. Test Method: ASTM E 90/E 492 and classified according to ASTM E 413/E 989

1.4.2.2. STC Ratings: As indicated on the drawings; designations listed are from Gypsum Association GA-600, Fire Resistance Design Manual

1.5. SUBMITTALS

1.5.1. **Product Data:** Manufacturer's data sheets on each product to be used, including:

1. Preparation instructions and recommendations
2. Storage and handling requirements and recommendations
3. Installation methods

1.5.2. **Shop Drawings:** Indicate special details associated with fireproofing, acoustic seals, or curved sheet installations.

1.5.3. **LEED Submittals:** Provide documentation of how the requirements of Credit will be met:

1.5.3.1. Product Data for Credit MR 2.1 and 2.2: For products being recycled, documentation of total weight of project waste diverted from landfill.

1.5.3.2. Product Data for Credit MR 4.1 and MR 4.2: For products having recycled content, documentation including percentages by weight of post-consumer and pre-consumer recycled content.

1.5.3.2.1. Include statements indicating costs for each product having recycled content.

1.5.3.3. Product Data for Credit IEQ 4.1: For adhesives used to laminate gypsum board panels to substrates, including printed statement of VOC content.

1.5.3.4. Product Data for Credit IAQ 4.6 (Schools): For products used in school construction, including certification meeting CHPS Low-Emitting Material criteria Section 01 35 00 - Special Procedures.

1.5.3.5. Product Data for Credit MR 5.1 and Credit MR 5.2: Submit data, including location and distance from Project of material manufacturer and point of extraction, harvest or recovery for main raw material.

1.5.3.5.1. Include a statement indicating cost for each regional material and the fraction by weight that is considered regional.

1.5.3.6. *Maintenance Data:* Manufacturer's recommendations for cleaning each type of product specified.

1.5.3.7. *Manufacturer's Certificates:* Certify products meet or exceed specified requirements.

1.6. QUALITY ASSURANCE

1.6.1. **Installer Qualifications:** Installer: Company specializing in performing Work of this section with minimum three years.

1.6.2. **Mock-Up:** Provide a mock-up of the area indicated on the Drawings for evaluation of surface preparation techniques and application workmanship.

1.6.2.1. Locate finish areas designated by Architect.



1.6.2.2. Do not proceed with remaining work until workmanship and finish is approved by the Architect.

1.6.2.3. Refinish mock-up area as required to produce acceptable work.

1.7. DELIVERY, STORAGE AND HANDLING

1.7.1. Deliver and store gypsum board in accordance with GA-801.

1.7.2. Ship materials with a weathertight cover and in manufacturer's original packages showing manufacturer's name and product brand name.

1.7.3. Remove plastic shipping bags upon receipt and storage. Failure to remove may increase the likelihood of mold growth.

1.7.4. Store materials inside and protected from damage by weather and direct sunlight. Stack flat; protect ends, edges, and faces of gypsum boards from damage. Protect steel studs and metal accessories from moisture.

1.8. PROJECT CONDITIONS

1.8.1. 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.

1.8.2. Do not install interior products until installation areas are enclosed and conditioned.

1.8.3. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.

PART 2 PRODUCTS

2.1. MANUFACTURERS; approved by the architect

2.2. PROJECT CONDITIONS

2.2.1. **Substitutions:** Not permitted.

2.2.2. Requests for substitutions will be considered in accordance with provisions of Section 01 General Requirements.

2.3. GYPSUM PRODUCTS, GENERAL

2.3.1. **Size:** Provide maximum lengths and widths available that will minimize joints in each area that correspond with the support system indicated.

2.3.2. **Regional Materials:** Provide a minimum 20 percent of building materials (by cost) that are regionally, extracted, processed and manufactured within a radius of 500 miles from Project.

2.3.3. **Synthetic Gypsum:** In compliance with LEED requirements, it must be pre-approved by the architect.

2.3.4. **Recycled Content:** Provide gypsum panel products with recycled content such that post-consumer recycled content plus one-half of pre-consumer recycled content constitutes a minimum 50 percent by weight.

2.4. INTERIOR GYPSUM MATERIAL

2.4.1. 16mm thick [unless otherwise indicated] Gypsum Board, taper-edge, with waterproof coating, clear coating, clear color or approved equivalent. Ceiling metal frame assemblies to be



to be galvanized steel, gauge 24 thickness, or as indicated in the drawings; all accessories to the assembly to be as recommended by manufacturer.

2.4.2. Fire-Rated Gypsum Board: Gypsum core panel with glass fibers to enhance fire resistance of the core; surfaced with ivory-colored paper on front and strong liner paper on back; and complying with ASTM C 1396 Section 5 and ASTM C 36, Type X, "Premium".

2.4.2.1. *Acceptable Product:* as approved by the architect.

2.4.2.2. *Thickness:* 1/2 inch (12.7 mm), unless otherwise indicated

2.4.2.3. *Thickness:* 5/8 inch (15.9 mm), unless otherwise indicated

2.4.2.4. *Width:* 48 inches (1219 mm)

2.4.2.5. *Length:* Use longest length available, avoiding unnecessary joints

2.5. GYPSUM SHEATHING AND SOFFIT PANELS

2.5.1. Fire-Rated Exterior Gypsum Soffit Board: Gypsum core soffit panel with additives to enhance fire-resistance and sag resistance of core; surfaced with paper on front and back; and complying with ASTM C 1396 Section 8 and ASTM C 931, Type X.

2.5.1.1. *Acceptable Product:* as approved by the architect.

2.5.1.2. *Thickness:* 5/8 inch (15.9 mm)

2.5.1.3. *Width:* 48 inches (1220 mm)

2.5.1.4. *Length:* Use longest length available, avoiding unnecessary joints

2.6. GYPSUM PLASTER BASE

2.6.1. Fire-Rated Plaster Base: Gypsum core lathing panel with additives to enhance fire resistance of core and surfaced with absorptive paper on front and long edges and complying with ASTM C 1396 Section 10 and ASTM C 588, Type X.

2.6.1.1. *Acceptable Product:* as approved by the architect.

2.6.1.2. *Thickness:* 5/8 inch (15.9 mm)

2.6.1.3. *Width:* 48 inches (1220 mm)

2.6.1.3.1. *Length:* Use longest length available, avoiding unnecessary joints

2.6.1.3.2. *Edges:* Tapered

2.7. GYPSUM JOINT TREATMENT AND FINISH PRODUCTS

2.7.1. Joint Treatment Tape: Complying with ASTM C 475 and GA-216

2.7.2. Joint Compound: Vinyl type premixed compound; complying with ASTM C 475; in acceptable product(s) approved by Architect.

2.7.3. Joint Compound: Setting type lightweight; job mixed chemical-hardening compound; off white color; complying with ASTM C 475; in acceptable product(s) approved by Architect.

2.7.4. Joint Compound: Level Five vinyl type premixed compound; off-white color or tinted gray color; complying with ASTM C 475 and fulfilling ASTM C 840; designed for joint finishing of Level Five gypsum board; in acceptable product(s) approved by Architect.



2.8. ACCESSORY MATERIALS

2.8.1. **Corner Bead:** Formed galvanized steel angle, min. base steel 0.014 in. thick, and complying with ASTM C 1047

2.8.2. **Casing Bead:** Formed galvanized steel trim, minimum base steel thickness of 0.014 inch (0.35 mm), complying with ASTM C 1047, type(s) as follows:

2.8.2.1. J-shaped U-bead, for face nailing and finishing with joint treatment

2.8.2.2. J-shaped U-bead, requiring no finishing

2.8.2.3. L-shaped, for application over edge and finishing with joint treatment

2.8.3. **Control Joint:** Extruded vinyl formed with V-shaped slot covered with removable flexible vinyl strip; complying with ASTM C 1047

2.8.4. **Control Joint:** Bent zinc sheet formed with V-shaped slot, covered with plastic tape, with perforated flanges; complying with ASTM C 1047

2.8.5. **Screws:** ASTM C 954 or ASTM C 1002 or both with heads, threads, points, and finish as recommended by panel manufacturer

2.8.6. **Nails:** ASTM C 514 with heads, lengths, configurations, and finish as recommended by panel manufacturer

2.8.7. **Acoustical Sealant:** Non Drying, non hardening, non skinning, nonstaining, nonbleeding, gunnable type as recommended by panel manufacturer

2.8.8. **Insulation:** ASTM C 665, Type I, mineral fiber (either glass, rock, or slag) insulation blankets without membrane facing

PART 3 EXECUTION

3.1. EXAMINATION

3.1.1. Verify site conditions are ready to receive work and framing and opening dimensions are as indicated on the Drawings.

3.1.2. If preparation is the responsibility of another installer, notify the Architect of unsatisfactory preparation before proceeding.

3.2. PREPARATION

3.2.1. Clean surfaces thoroughly prior to installation.

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

3.2.3. Coordinate preparation of Level 5 gypsum board with manufacturer's requirements.

3.3. INSTALLATION

3.3.1. **Application:** Apply and maintain conditions during installation in accordance with GA-216 and GA-238 and as follows:

3.3.1.1. Keep the gypsum board dry throughout the application.

3.3.1.2. Do not use gypsum board that has visible mold growth



- 3.3.1.3. Apply gypsum board on walls with a minimum 1/4 inch (6.4 mm) gap between the gypsum board and the floor.
 - 3.3.1.4. Do not apply gypsum board over other building materials where conditions exist that are favorable to mold growth.
 - 3.3.1.5. Maintain a sound weather-tight building envelope including, such elements as the roof, sealants, windows, etc.
 - 3.3.1.6. Immediate and appropriate remediation measures must be taken as soon as water leaks or condensation sources are identified.
 - 3.3.1.7. Provide routine cleaning and maintenance operations to prevent saturation of the gypsum board.
 - 3.3.1.8. If a gypsum board is damaged by water, assess the need for replacement in accordance with GA-231.
- 3.3.2. Install accordance with GA 216 and the following:
- 3.3.2.1. *Metal Framing*: ASTM C 754.
 - 3.3.2.2. *Gypsum Sheathing Board*: ASTM C 1280 and GA-253
 - 3.3.2.3. *Fire-Resistant Construction*: GA 600.
 - 3.3.2.4. *Gypsum Board and Joint Treatment*: ASTM C 840 and GA-214
 - 3.3.2.5. Gypsum panel manufacturer's published recommendations.
- 3.3.3. **Finishing**: Tape, fill, sand and finish joints in accordance with ASTM C 840 and GA-214
- 3.3.3.1. *Level 1*: Plenums and service corridors.
 - 3.3.3.2. *Level 2*: Water-resistant gypsum backing board indicated to receive tile.
 - 3.3.3.3. *Level 3*: Gypsum board indicated to receive heavy or medium textured coatings and heavy-grade wall coverings.
 - 3.3.3.4. *Level 4*: Gypsum board indicated to receive light textured coatings and light- grade wall coverings.
 - 3.3.3.5. *Level 5*: All other gypsum boards.
 - 3.3.3.6. *Level 5 Skim Coated Gypsum Wall Board*: Skim coat joints with Rapid Deco Joint compound specified.

3.4. PROTECTION

- 3.4.1. Protect work from damage and deterioration until the date of Substantial Completion.
- 3.4.2. Touch-up, repair or replace damaged products before Substantial Completion.

*** END OF SECTION ***



ARCHITECTURAL SPECIFICATION

DIVISION 9 - "FINISHES"

Section 8. Facade Wood Panel Cladding

31 AUGUST 2022

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Revision	Date	Description



FACADE WOOD PANEL CLADDING

PART 1. GENERAL

1.1. SUMMARY

- 1.1.1. Section Includes:
 - 1.1.1.1. Facade wood cladding panels.
 - 1.1.1.2. Attachments and fasteners.

1.2. RELATED SECTIONS

- 1.2.1. Division 1: General Requirements
- 1.2.2. Division 4: Masonry
- 1.2.3. Division 5; Sec. 2. Non-Load Bearing Metal Frames
- 1.2.4. Division 5; Sec. 3. Load Bearing Metal Frames
- 1.2.5. Division 7: Thermal and Moisture Protection
- 1.2.6. Division 9; Finishes

1.3. ACTION SUBMITTALS

- 1.3.1. **Shop Drawings:**
 - 1.3.1.1. Include plans, elevations, and details, size and layout panels, flashing, rainscreen airflow, supports and attachments.
- 1.3.2. **Product Data:**
 - 1.3.2.1. Technical data, physical properties and installation instructions for each component.
- 1.3.3. **Color Charts:** Manufacturers standard color options.
- 1.3.4. **Samples:** Submit manufacturers finished samples [3-inch x 3-inch showing available colors] [12-inch x 12-inch in specified color]
- 1.3.5. **Warranty:**
 - 1.3.5.1. Manufacturer's warranty certificate.
 - 1.3.5.2. Installers written warranty statement.

1.4. INFORMATIONAL SUBMITTALS

- 1.4.1. **Installer:** Installation experience statement.
- 1.4.2. **Testing and Evaluation Reports:** Independent testing laboratory for the following for ASTM E84 and NFPA 285.

1.5. QUALITY ASSURANCE

- 1.5.1. **Manufacturer Qualifications:**
 - 1.5.1.1. Minimum of 5 years successful experience producing exterior wood cladding materials.
 - 1.5.1.2. Produce certified materials
 - 1.5.1.3. Domestic factory assembly, shop fabrication and pre-finishing
 - 1.5.1.4. As pre-approved by the architect.
- 1.5.2. **Installer Qualifications:**
 - 1.5.2.1. Minimum 2-years [documented] installation experience of specified materials.
- 1.5.3. **Single Source Responsibility:**



1.5.3.1. Materials from a single manufacturer for each component and warranty.

1.5.4. Pre-Installation Conference:

1.5.4.1. Convene to review the following:

1.5.4.1.1. Areas of installation.

1.5.4.1.2. Framing and rough carpentry.

1.5.4.1.3. Connections to adjacent surfaces and transitions.

1.5.4.1.4. Structural requirements and anchoring locations.

1.5.5. Mock-Up:

1. Provide 8 feet by 8 feet (or as directed by architect) mockup erected at site, to verify color, workmanship and installation details as determined by architect.

2. Complete assembly, color, sheen and model.

1.6. FIELD CONDITIONS

1.6.1. Do not install panels on wet or frozen substrate.

1.7. DELIVERY, STORAGE, AND HANDLING

1.7.1. Deliver, store, and handle materials following manufacturer instructions.

1.7.2. Immediately upon delivery notify the manufacturer of damaged or defective materials for replacement.

1.7.2.1. Verify manufactures labels meet approved product name, color, texture and finish.

1.7.3. Store factory sealed materials indoors, above grade and protected from sun, weather and materials that could cause staining or discoloration of finish.

1.7.3.1. Maintain humidity levels less than 65 percent relative humidity prior to installation.

1.8. WARRANTY

1.8.1. Manufacturer to warrant against material defects and manufacturing tolerances for a period of 10 years.

1.8.2. Installer to warrant against installation defects for a period of 2-4years. Repair or replace materials during warranty period at no cost to DSWD.

PART 2 - PRODUCTS

2.1. MANUFACTURERS

2.1.1. Must be approved by the architect.

2.2. FABRICATION

2.2.1. **Panels:** Solid phenolic impregnated kraft paper wall panels with no voids, air spaces or foamed insulation in the core material.

2.2.2. **Panel Dimensions:** Field fabrication shall be allowed where necessary but shall be kept to an absolute minimum. All fabrication shall be done under controlled shop conditions when possible.

2.2.3. **Fabrication Tolerances:** Manufacturer to provide shop fabrication and pre-finishing for a warranted finish.

2.4. ACCESSORIES

2.4.1. **Fasteners:** Manufacturer approved austenitic stainless-steel fastener with bi-metal welded carbon steel point.

2.4.2. **Attachment System:** Manufacturer approved sub-frame system to support a cladding



weight of up to 8 pounds per square foot, fabricated of 0.09-inches 6063 T5 extruded aluminum or 16-gauge G90 Galvanized steel.

PART 3 EXECUTION

3.1. EXAMINATION

- 3.1.1. Examine materials, installation instructions, and review manufacturer's instructions on site.
- 3.1.2. Verify panel style, color, and fasteners are approved by the Architect.
- 3.1.3. Verify substrates and adjacent surfaces are level and plumb for installation.
 - 3.1.3.1. Do not begin work until construction has progressed to allow installation of materials.
 - 3.1.3.2. Confirm sheathing is plumb and level, with no deflection greater than 1/4- inch in 20 feet.
 - 3.1.3.3. Verify manufacturers fastener spacing requirements.
 - 3.1.3.4. Verify proper hole diameter in panels per manufacturer's instructions.
- 3.1.4. Proceed with work when construction has progressed to allow a warranted installation. 1. Installation deems acceptance of work for a warranted installation.

3.2. INSTALLATION

- 3.2.1. Install in accordance with manufacturer's instructions and Shop Drawings, maintaining required 1-inch ventilation spacing requirement.
- 3.2.2. Fasten panels to an approved attachment system structurally supported by aluminum, galvanized steel or wood stud supported wall.
- 3.2.3. Install panel square, edges clean and true to size.
 - 3.2.3.1. Cut panels to fit at perimeter and around penetrations with minimum 3/8-inch gap.
 - 3.2.3.2. Re-chamfer field cut edges.
- 3.2.4. Do not install damaged, irregular or defective panels.

3.3. FIELD QUALITY CONTROL

- 3.3.1. Inspect panel ventilation at top and bottom of wall for proper vertical air flow required for rainscreen systems.
- 3.3.2. Comply with manufacturer's written installation instructions applicable to products and applications indicated.
- 3.3.3. Verify installation, fasteners and connections with adjacent materials, and transitions have been completed in accordance with shop drawings.
- 3.3.4. Installer is responsible for engineering the connection between the Stonewood system and the supporting wall.

3.4. ADJUSTING

- 3.4.1. Modify, adjust and replace panels not within manufacturer's tolerances and as required by the Architect.

3.5. PROTECTION

- 3.5.1. Protect surface, corners and components from damage prior to DSWD's occupancy using temporary protection.

***** END OF SECTION *****



ARCHITECTURAL SPECIFICATION

DIVISION 10 - "SPECIALTIES"

Section 1. Signages

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SIGNAGES

PART 1 GENERAL

1.1. SCOPE

1.1.1. Furnish materials and equipment and perform labor required to complete the installation of exterior/interior signages and digital print/ceramic art on ceramic board, at location indicated on the drawings.

1.2. SUBMITTALS

The following shall be submitted:

1.2.1. Shop Drawings

1.2.1.1. Drawings showing elevations of each type of sign, digital print and ceramic art on ceramic board; dimensions, details, and methods of mounting or anchoring; shape and thickness of materials; and details of construction. A schedule showing the location, each sign type, and message as well as digital print and ceramic art on ceramic board shall be included.

1.2.2. Product Data

1.2.2.1. Exterior/Interior Signage System and Digital Print/Ceramic Art on Ceramic Board Manufacturer's descriptive data and catalog cuts.

1.2.2.2. Installation

1.2.2.2.1. Manufacturer's installation instructions and cleaning instructions.

1.2.3. Operation and Maintenance Data: Protection and Cleaning

1.2.3.1. Six copies of maintenance instructions listing routine maintenance procedures, possible breakdowns and repairs, and troubleshooting guides. The instructions shall include simplified diagrams for the equipment as installed.

1.3. DELIVERY AND STORAGE

1.3.1. Materials shall be wrapped for shipment and storage, delivered to the jobsite in manufacturer's original packaging, and stored in a clean, dry area in accordance with manufacturer's instructions.

1.4. WARRANTY

1.4.1. Manufacturer's standard performance guarantees or warranties that extend beyond a one year period shall be provided.

PART 2 PRODUCTS

2.1. MANUFACTURER

2.1.1. Subject to compliance with requirements and as approved by the Architect. For compliance with requirements, acceptable manufacturers are needed to be pre-approved by the architect.

2.2. SIGNAGE

2.2.1. Refer to the plans for the details and requirements.



PART 3 EXECUTION

3.1. INSTALLATION FOR SIGNAGES

3.1.1. Installations shall be in accordance with the manufacturers guide. It should be free from exposed and unnecessary cuts, holes or blank plates, advertising labels, other than as particularly shown on the Drawings, specified herein or approved by the Architect.

3.1.3. Exposed surfaces shall be clean and free from dust, dirt, scratches, dents, broken parts or units, chips, cracks, misaligned or improperly fitted joints, stains, discoloration or other defects or damage.

3.1.3. Each unit shall be assembled tightly and rigidly, secured in place and free from unnecessary movement.

3.1.4. Each unit assembly shall be set straight, plumb, level, accurately positioned and spaced at locations required.

3.1.5. Signs or dimensional letters shall be installed in accordance with approved manufacturer's instructions at locations shown on the approved detail drawings.

3.2. INSTALLATION FOR DIGITAL PRINT AND CERAMIC ART ON CERAMIC BOARD

3.2.1. All surfaces to receive the ceramic board shall be cleaned of loose materials and given proper surface preparation prior to its installation.

3.2.2. Put double-sided tape and silicone to Ceramic Board

3.2.3. Attach the paper tape along the joint.

3.2.4. Directly attach the ceramic board to the old material.

3.2.5. Fill the gap with sealant.

***** END OF SECTION *****



ARCHITECTURAL SPECIFICATION

DIVISION 10 - "SPECIALTIES"

Section 2. Toilet and Bath Accessories

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TOILET ACCESSORIES

PART 1 GENERAL

1.1. SCOPE

1.1.1. This specification covers the furnishing of materials and labor necessary to complete the installation of all toilet accessories as shown on drawings and as specified herein.

1.2. SUBMITTALS

1.2.1. Manufacturer's Catalog Data

1.2.1.1. Submit for each type of accessories specified. Include descriptions of materials, finishes, fastenings and anchoring devices, and appurtenances.

1.2.2. Samples

1.2.2.1. Submit one of each type of accessory complete with appurtenances and finish as specified. Approved samples may be installed in the work provided each sample labeled for identification and location recorded.

1.3. DELIVERY AND STORAGE

1.3.1. Deliver materials to the site in unopened containers, labeled with the manufacturer's names and brands, ready for installation. Store accessories in safe, dry locations until needed for installation.

PART 2 PRODUCTS

2.1. MATERIALS AND FABRICATION

2.1.1. Fabricate accessories in accordance with commercial practice, with welds ground smooth. Bend, flange, draw, form, and perform similar operations in a manner to ensure no defects. Flanges of recessed accessories to return to walls to provide a continuous, tight-against the wall installation.

2.1.1.1. Corrosion-resistant steel shall conform to AISI, Type 304. The exposed surfaces shall have a No. 4 finish, unless otherwise specified.

2.1.1.2. Brass shall be cast/ forged in accordance with ANSI A112.18.1M. Steel sheet shall conform to ASTM A 366/A 366M and ASTM A 568/A 568M. Surface preparation and pretreatment shall be provided as required for the subsequent finish.

2.1.1.3. Galvanized-steel sheet shall be hot-dipped, minimum spangle, conforming to ASTM A 526/A 526M, with not less than a 35 gram (1.25-ounce) zinc coating in accordance with ASTM A 525. ASTM A 525M. The surface preparation for painting shall conform to ASTM D 2092, Method A.

2.2. FINISHES

2.2.1. Finishes on metals not specified otherwise shall be provided as follows: Metal Finish

Corrosion-resisting steel	General-purpose polished (Stainless Steel)
Aluminum	Satin Anodic, Clear
Carbon Steel	Bright Chromium Plate
Copper Alloy (Brass)	Bright Chromium Plate
Zinc Alloy	Bright Chromium Plate



2.3. TOILET ACCESSORIES

2.3.1. See specification sheets.

Subject to compliance with requirements and as approved by the Architect. For compliance with requirements, acceptable manufacturers are needed to be pre-approved by the architect.

PART 3 EXECUTION

3.1. INSTALLATION

3.1.1. Shall be in accordance with the manufacturer's guide. Field measurements shall be taken prior to the preparation of drawings and fabrication to ensure proper fits. Surfaces of fastening devices exposed after installation shall have the same finish as the attached fixtures. Exposed screw heads shall be oval. Install fixtures at the location and height as shown on the drawings. Protect exposed surfaces of accessories with strippable plastic or by other means until the installation is accepted. Coordinate fixture manufacturer's mounting details with other trades as their work progresses. After installation, thoroughly clean exposed surfaces and restore damaged work to its original condition or replace with new work.

3.1.1. Recessed Accessories

Set anchors in mortar in masonry construction or fasten to metal studs or framing with sheet metal screws in metal construction.

3.1.2. Surface Mounted Accessories

Mounting on concealed back-plates shall have concealed fasteners. Unless indicated or specified otherwise, install fixtures with sheet metal screws or wood screws in lead-lined braided jute, teflon or neoprene sleeves, or lead expansion shield, or other approved fasteners as required by the construction. Install back-plates in the same manner, or provide with lugs or anchors set in mortar, as required by the construction.

3.2. QUALITY CONTROL

3.2.1. Inspect each installed fixture and fitting for damage. Replace damaged units or components. Test fixtures and fittings and accessories to demonstrate proper operation upon completion of installation and after units are pressurized. Replace malfunctioning fixtures and fittings and accessories or components, and re-test. Repeat until all units are operating properly.

3.3. ADJUSTING AND CLEANING

3.3.1. Operate and adjust faucets and controls. Replace damaged units. Adjust water pressure at faucets and valves and flushometers having controls to provide proper flow and stream of water. Replace washers for leaks and drips. Clean fixtures, fittings and accessories and spout and drain strainers with manufacturer's recommended cleaning methods and materials.

3.4. PROTECTION

3.4.1. Provide protective covering for installed fixtures and fittings. Close off water supply until turnover and do not allow use of fixtures and fittings for temporary facilities. Close off the area completely if possible.

***** END OF SECTION *****



ARCHITECTURAL SPECIFICATION

DIVISION 10 - "SPECIALTIES"

Section 3. Toilet Compartments and Lactation Stations

31 AUGUST 2022

JMM/ REV. 00

Revision	Date	Description

TOILET COMPARTMENTS & LACTATION STATIONS



PART 1 GENERAL

1.1. SCOPE

1.1.1. Furnish and install toilet partitions as shown on drawings and as specified herein.

1.2. SUBMITTALS

1.2.1. Shop Drawings

1.2.1.1. Submit shop drawings indicating elevations of partitions, full scale sections, thickness and gauges of metal, fastenings, proposed method of anchoring, the size and spacing of anchors, details of construction, hardware, fittings, mountings, and other related items and installation details.

1.2.2. Samples

1.2.2.1. Submit one of each item of hardware, fittings, fastening, and each type of panel. The panel sample shall be cross-sectioned not less than 150 mm by 150 mm in size and shall show finish on base material and core of the panel.

1.2.3. Manufacturer's Data

1.2.3.1. Submit literature for each item of hardware, fitting, fastening and each type of panel, complete with description of materials, finishes, and anchoring devices, and appurtenances.

1.2.4. Colors

1.2.4.1. Submit one sample of each color of partition for verification that products match the color indicated. Where colors are not indicated, submit the manufacturer's standard color samples for selection by the Architects and approved by the DSWD.

1.3. DELIVERY AND STORAGE

1.3.1. Deliver materials to the site in original sealed containers or packages, bearing the manufacturer's name, brand designation, specification number, type, style and finish as applicable. Store and handle materials in a manner to protect them from damage.

PART 2 PRODUCTS

2.1. MANUFACTURER

2.1.1. Subject to compliance with requirements and as approved by the Architect. For compliance with requirements, acceptable manufacturers are needed to be pre-approved by the architect.

2.2. MATERIALS

2.2.1. Toilet compartments/cubicles - comprising panels, doors, and partitions/compartments (compact laminate phenolic board) including door frame system urinal divider, cubicle divider, hardware and accessories in nylon finish and all other incidentals to complete. Sizes, dimensions of doors, cubicles and dividers as shown on plans. Color shall be as selected by the Architect and approved by the DSWD.

2.3. DOOR HARDWARE AND FIXING

2.3.1. All pilaster shall rest on a polyamide adjustable foot and anchored to the divisional walls by black anodized "U" channel. The pilasters shall be finished with black anodized heavy duty



channel at the top rail. Fixing of the pilaster to the wall shall be done with black anodized heavy duty channel.

2.3.2. Each cubicle shall be equipped with nylon steel privacy thumb turn, nylon door knob, nylon coat hook, steel hinges with polyamide cover. All the accessories shall be of heat chemical and bacteria resistance nylon.

2.4. FINISH

2.4.1. All edges of doors and pilasters are chamfered and finished without any metal trimming.

PART 3 EXECUTION

3.1. INSTALLATION

3.1.1. Installation of toilet partitions and urinal screens shall be in accordance with approved shop drawings and manufacturer's installation and directions.

***** END OF SECTION *****



ARCHITECTURAL SPECIFICATION

DIVISION 12 - "FURNISHINGS"

Section 1. General Furnitures

31 AUGUST 2022

JMM/ REV. 00

Revision	Date	Description



GENERAL FURNITURES

PART 1 GENERAL

1.1. Scope of Work

1.1.1. The Contractor shall provide and install all furnishing, complete with all upholstery, surface veneers, glass covers, framing, supports, fixings and paintings, varnishing or polishing as appropriate for this Contract and all to the approval of the Architect.

1.1.2. The work shall consist of furnishing all labor, materials, equipment and other incidentals necessary to complete the work as shown on the Drawings or as may be directed by the Architect.

1.2. Submittals

1.2.1. Shop drawings and catalogs shall be submitted for approval before ordering. Comprehensive material list for all furniture and fittings, for the approval of the Architect.

PART 2 PRODUCTS

2.1. Products shall be supplied by an approved manufacturer. Refer to the furniture specification sheet and shall be of sufficient rigidity and stability to suit their intended purpose. Colors shall be as selected by the Architect.

PART 3 EXECUTION

3.1. INSTALLATION

3.1.1. Furniture and fittings shall be fabricated and installed in accordance with acceptable standards for high quality work, details as indicated in the drawings, all to the approval of the Architect.

3.1.2. Each unit shall be assembled tightly and rigidly secured in place free from any damage or defects.

3.1.3. Exposed surfaces shall be clean, free from scratches, dents, warping, waviness, buckling, misalignment or improper fitted joints.

***** END OF SECTION *****



ARCHITECTURAL SPECIFICATION

DIVISION 14 - "CONVEYING SYSTEMS"

Section 1. Elevator

31 AUGUST 2022

JMM/ REV. 00

Revision	Date	Description



ELEVATOR

PART 1 GENERAL

1.1. SCOPE

This specification covers the furnishing of materials and labor including equipment necessary to complete the installation of the hydraulic elevator as specified herein.

1.2. SUBMITTALS

1.2.1. Manufacturer's Brochures, Samples and Shop Drawings

1.2.1.1. Submit shop drawings and manufacturer's brochures for approval before delivery of equipment and materials. Drawings and brochures shall contain enough detailed information to determine that the equipment conforms to the requirements of this specification.

1.2.2. Operation and Maintenance Instructions

1.2.2.1. Three (3) complete sets of bound operating and maintenance instructions for the passenger elevator in manufacturer's format shall be furnished specifically for the installation. Operation portion may be detailed information relative to type, method, sequence of controls and operation, with illustrations to prevent misinterpretation. Maintenance instructions shall include complete data for servicing the complete system, lubricating, repairing, identification and ordering of all replacement parts.

1.2.3. Wiring Diagrams and Sequence of Operations

1.2.3.1. Furnish four (4) sets of complete wiring diagrams and sequence of operations showing the electrical connections and functions of all apparatus connected with the passenger elevator, both in the machine room, hall and in the hoist way at the time of final inspection. One set shall be plastic or glass covered, framed and mounted in the elevator machine room. The other three sets shall be delivered to the Architect and DSWD.

1.3. GENERAL REQUIREMENTS

1.3.1. All material and equipment shall be new otherwise specified or indicated. The equipment shall be the product of a manufacturer regularly engaged in the manufacture and/or installation of this type of equipment. Working parts shall be accessible for inspection, servicing and repair. Provide adequate means for the lubrication of wearing parts that require lubrication.

PART 2 PRODUCTS

2.1. Hydraulic Elevator shall be a product of reliable and experienced manufacturers providing the most up-to-date technology, safety, quality and regular service maintenance. Subject to compliance with requirements and as approved by the Architect/Engineer. For compliance with requirements, acceptable manufacturers are needed to be approved by the architect/Engineer.



PART 3 EXECUTION

3.1. INSTALLATION

3.1.1. Install elevator in accordance with manufacturer's standard instructions and procedures. Installation shall comply with requirements and rules set by the public authority of competent jurisdiction on elevators. Testing and adjustments shall be performed prior to final acceptance.

3.2. FINAL INSPECTION

3.2.1. After all necessary testing has been performed, the elevator contractor shall provide evidence of certification by a government authority for the project area, stating that each elevator safety has been tested and approved for use with the equipment having the specific ratings indicated or specified.

***** END OF SECTION *****



ARCHITECTURAL SPECIFICATION

DIVISION 15 - "MECHANICAL"

Section 1. Basic Mechanical Materials and Methods

31 AUGUST 2022

JMM/ REV. 00

Revision	Date	Description



MECHANICAL SPECIFICATIONS

GENERAL NOTES:

1. Mechanical Contractor is to furnish and pay for all labor, material, equipment, permits & fees required for the complete installation of all systems in this section of work.
2. All work is to be performed in accordance with national mechanical codes and all other applicable codes. Mechanical Contractor is to coordinate with the General Contractor in regards to project timeline, work hours, as well as any bonding or insurance requirements.
3. All mechanical equipment shall be provided complete with all accessories, hangers, supports, controls, etc. for a fully functioning system regardless of presence on plans.
4. All equipment, materials and installation shall be guaranteed to be free of defects for a period of one (1) year after final acceptance of work or in accordance with the manufacturer's standard guarantee, if longer. All compressors are to include a five (5) year warranty. Existing equipment is excluded from warranty requirements.
5. These drawings are diagrammatic and show the general location and arrangement of all materials and equipment. The drawings shall be followed as closely as building construction and all other work will permit.
6. Do not scale drawings for measurement.
7. All duct dimensions shown are interior duct dimensions.
8. Before bid mc is responsible for clarifying with the General Contractor any confusion in regards to responsibility of work to be performed or materials to be provided. The submittal of the bid by the contractor will be held as proof that the contractor understands thoroughly and completely the scope of the work involved, and has included on the bid all the necessary items to carry out this section of work.
9. All existing equipment and systems are assumed by engineers to be in good working order. Before beginning work Mechanical Contractor is to ensure any equipment & systems to remain are properly functioning. Notify the General Contractor immediately if problems are discovered.
10. All questions must be submitted in RFI format to the architect and must be addressed by the appropriate designer of record prior to becoming a proposed change order.
11. Upon completion of work Mechanical Contractor is to provide the DSWD with a complete bound set of all equipment operation & maintenance manuals. Package is also to include and warranty & guarantee information.
12. Mechanical Contractor is to provide training to the DSWD or AD-BGMS in regards to operation, function, and maintenance of all mechanical equipment, controls, etc.

***** END OF SECTION *****



ARCHITECTURAL SPECIFICATION

DIVISION 15 - "MECHANICAL"

Section 2. Automatic Fire Sprinkler System

31 AUGUST 2022

JMM/ REV. 00

Revision	Date	Description



SPRINKLER SYSTEM, AUTOMATIC, WET TYPE

PART 1 GENERAL

1.1. RELATED SECTIONS

1.1.1. Applicable provisions of the "General Conditions" govern work under this section.

1.2. QUALIFICATIONS OF CONTRACTORS

1.2.1. The contractor for the protection installation shall be a qualified Fire Protection Contractor, regularly engaged in the installation of automatic fire sprinkler systems and other fire protection equipment, and must have at least one (1) sprinkler installation approved by local authority.

1.3. SCOPE OF WORK

1.3.1. This specification includes the furnishing of all labor, materials, equipment and services necessary or incidental to the complete design, installation, testing adjusting and placing into service of the several systems of fire protection, all as shown on the design provided by the contractor for approval of DSWD and as herein after specified. Drawing and specification are considered as mutually explanatory and all works called for by one and not the other shall be performed as though called for by both. In cases of conflicting information, the Architect and Engineer shall be notified at once in writing. Where incidental equipment or appurtenances are required, and not listed as shown, same shall be furnished as required for a complete fire protection system.

1.3.2. Drawings are intended to show general arrangement and approximate physical sizes of equipment diagrammatically. Every bolt, nut brace, struts, etc., is not necessarily indicated or specified; all such items as may be required, necessary or incidental to the proper and dependable operation of each system being a requirement of this contract whether specifically referred to or not, must be supplied.

1.3.3. Work included in this specification shall consist of, but is not necessarily limited to the following items;

1.3.3.1. Design, arrange for, obtain and bear the cost of necessary permits, bonds and fees for the automatic sprinkler work.

1.3.3.2. All permits fees, private or government shall be paid by the contractor.

1.3.3.3. Furnish and install sprinkler system to the entire building where shown on the drawings. System to include all pipes, hangers, sway braces, sprinkler heads, control valves, drains alarms, water flow switches and control valve monitor switches. The fire pumps, drives, jockey pumps and controllers, pumps standard accessories shall be supplied and installed by the Sprinkler Contractor.

1.3.3.4. Fire hose cabinets, pressure reducing valves and hose accessories, including connection pipe and fittings to the sprinkler system.

1.3.3.5. Alarm check valves, complete with set of trimmings, retarding chamber, water motor alarm gong, alarm pressure switches, water flow switches and monitor switches.



The Sprinkler Contractor shall coordinate and interface the required electrical wiring connection for the water flow and monitor switches to the building fire alarm system.

1.3.3.6. Furnish and install a system of dry standpipe complete with valves and fire department connection. Contractor to provide as shown in the plans by – pass valve with pipe and fitting to connect the wet sprinkler pipe riser with the dry standpipe riser.

1.3.3.7. Furnish and install fire departments connection for the sprinkler system.

1.3.3.8. Furnish and install inspector's test connection pipe, nozzles, and valves on the farthest point of each floor, located where shown on the drawings.

1.3.3.9. Furnish and install water flow alarm switches, and monitor tamper switches to floor control valves. The sprinkler contractor shall furnish and install the wiring connection of the water flow and monitor switches to the sprinkler supervisory control panel with the Electrical Contractor. The supervisory control panel shall be interface to the Building fire alarm panel and BMS system at the Ground floor by the Electrical Contractor.

1.3.3.10. Do the testing of all piping works and necessary cleaning of the fire protection works. These include also testing of the fire department pipeline and drain pipe, and water flow alarms.

1.3.3.11. Fire extinguishers as shown in the plans shall be supplied and installed by the contractor. Overt and above those specified, the Owner of the building and/or the Tenants shall supply the requirements of the Fire Department.

1.3.3.12. All opening through which fire may spread from one floor to the other, such holes through floor or walls for the pipe shall be sealed with fire resistant materials.

1.3.3.13. Chipping and plastering works necessary for the area covered in the installation of automatic sprinkler system.

1.3.3.14. Furnish the shop drawing and certificates of inspection.

1.3.3.15. Periodically remove from the jobsite all rubbish and debris resulting from the fire protection work.

1.3.3.16. Furnish and install portable foam – water hose station with the necessary AFFF foam liquid concentrate, foam nozzles for the protection of the combustible diesel fuel for the Genset equipment located at the Mechanical Electrical rooms.

1.3.3.17. Furnish and install two units of 22.7 Kgs. (50Lbs.) Class C Carbon Dioxide portable fire extinguisher near the transformer vaults, genset and main Electrical rooms.

1.3.3.18. Miscellaneous items as hereinafter specified.

1.4. SITE CONDITIONS

1.4.1. The Contractor shall be deemed to visit the site and acquaint himself with the existing site conditions, means of access and take into account any feature that may affect his tender. No claim for his neglect to do so no out of any misunderstanding on his part on this conditions shall be entertained. The Contractor shall be responsible for the proper coordination with other trade Contractors.



1.5. STANDARDS, CODES AND REGULATIONS

1.5.1. The applicable current standards for the fire protection system shall be the National Fire Protection Association (NFPA), NFPA-13, NFPA-10, NFPA-20, NFPA-14 Philippine Fire Code-P.D. 1185, the PSME Code and all other applicable codes and ordinances.

1.6. SUBMITTAL (SHOP) DRAWINGS AND DATA

1.6.1. Before commencing any work or providing any materials at the jobsite for this project the Fire Protection Contractor shall submit to the Architect, for approval four (4) copies of catalog cuts and descriptive matter regarding materials and equipment which he intends to furnish and install. Shop drawing and data shall be submitted specifically for, but not limited to the following items: Sprinkler heads, valves, pipes, pipe hangers, hose valve and accessories, fire hose cabinets, mechanical grooved coupling (flexible pipe connectors), pressure reducing valve, pipe riser support and sleeves, portable fire extinguishers, and foam equipment, and the sprinkler monitoring control panel.

1.6.2. The Fire Protection Contractor shall not proceed with the installation of the work until he has received the Architects approval on his shop drawings.

1.6.3. The Architect's approval of shop drawing, catalogue cuts, etc., shall not relieve the Fire Protection Contractor of the responsibility for any errors or omissions which may exist in the items submitted nor shall it relieve him from the responsibility for deviation from the contract drawing and specifications. The stamped approval of the shop drawing, catalogue cuts, etc., shall not be construed as a complete check but will indicate only that the general design and method of construction is satisfactory.

1.6.4. In the event additional clarifying details are required by inspection authorities, details shall be prepared and approval of same secured by the Fire Protection Contractor at his expense.

1.7. CONDUCT OF WORK

1.7.1. The Fire Protection shall employ on the job at all times a competent superintendent Licensed Professional Mechanical engineer who shall be responsible for the progress and execution of the work. Workmanship shall be of high quality, conforming to the standard practice as stipulated by NFPA, ASTM, ASA and PSME recommendations by skilled workmen during regular working hours.

PART 2 PRODUCTS

2.1. SELECTION OF MATERIALS AND EQUIPMENT

2.1.1. All materials and equipment furnished under this section shall be new and approved by Underwriter's Laboratories, Inc. (UL), Factory Mutual (FM), and American Water Works Association (AWWA) where applicable.

2.1.2. The proposal submitted shall include all materials and equipment as specified or shown on the drawings.



2.2. AUTOMATIC SPRINKLER AND STANDPIPE SYSTEM

2.2.1. Pipe shall be new, designed for 175 psi working pressure, conforming to ASTM specification manufactured in the United States or approved equal local pipes and have the manufacturer's name or brand along with the applicable ASTM standard, marked on each length of pipe. The local manufactured pipe brand "Supreme Pipe" are acceptable brand with proper schedule and wall thickness.

2.2.2. Pipe shall be steel, schedule 40, black and in accordance with the specifications ASTM A120 or A53. Pipe that shall be grooved by the use of cut grooving machine shall be schedule 80. Pipe that shall be grooved by roll grooving machine shall be schedule 40.

2.2.3. Schedule 40 black steel pipes shall be joints by screwed joints in accordance with specifications ANSI B2.1 up to 65mm. and flanged, victaulic type or screwed connections for 75mm. and up. Pipe fittings to be used with schedule 80 pipe shall be rated 300 lbs. class if there are any.

2.2.4. Sprinkler piping that is exposed to the weather or used in a corrosive atmosphere shall be painted with protective coating. Sprinkler piping in the building shall be painted with two coats of enamel primer and two coats of Fire Red color enamel paint.

2.2.5. All ASTM A53 and ASTM A120 sprinkler pipe must be hydrostatically tested at the mill per the ASTM Standard.

2.2.6. Screwed fittings shall be malleable iron, 300 lbs. and 150 lbs. class, black and in accordance with ANSI B16.3. "Victaulic" brand mechanical tee and elbow UL/FM fitting can also be used.

2.2.7. Flanged fitting shall be steel, short body, 1560, black and in accordance with ANSI B16.1. Gaskets shall be full face of 1/8" minimum thickness red sheet rubber. Flange bolts and heavy semi-finished hexagon head nuts, cadmium plated, having dimension in accordance with ANSI B18.2.

2.2.8. Weld fitting shall be steel, standard weight, black and in accordance with ANSI B16.25, ASTM A234, ANSI B16.5 or ANSI B16.11.

2.2.9. Outside screw and yoke (O.S. & Y.) gate valves shall be flanged, iron body, bronze mounted, 175 psi working pressure, with handwheel turning counterclockwise to open. Valve shall be tested and listed and by UL and/or FM.

2.2.10. Check valve shall be flanged, swing type, iron body bronze seat ring and disc ring, and 175 psi working pressure rating. Valve shall be tested and listed by UL and/or FM.

2.2.11. Check valve shall be butterfly wafer style, iron body, rubber seal, and 175 psi pressure rating. Valve shall be tested and listed by UL and/or FM.

2.2.12. Fire department connections shall be 2-1/2" x 2-1/2" x 4" Siamese connection, brass body, brass chain and plugs, and brass escutcheon, lettered 'AUTOMATIC SPRINKLER' for sprinkler system, and/or "STANDPIPE" for standpipe system. Inlet threading shall be National Standard, same as municipal fire department connection shall tested and listed by UL and/or FM and 175 psi rating.

2.2.13. Valve for main riser drain shall be angle type or globe type, bronze body screwed 175 psi pressure rating, 2" size, and a renewable composition soft disc.



2.2.14. Valve for auxiliary drain and inspector's test connection shall be globe type, bronze body, screwed 175 psi pressure rating, 1" size, and a renewable composition disc.

2.2.15. At each location where called for on plans or where required by the Fire Department, provide an approved retard-type electric flow alarm switch. Provide alarm bell as required. Flow alarm switch shall have extra set of contacts for extension by others to central alarm panel.

2.2.16. Interior bell or horn shall be 24 VDC. Horn or bell shall be tested and listed by UL and/or FM.

2.2.17. Flow switch shall be vane type, 24 VDC. Flow switch shall be tested and listed by UL and/or FM.

2.2.18. O.S. & Y. gate valve supervisory switch shall be 24 VDC. Supervisory switch shall be tested and listed by UL and/or FM.

2.2.19. Valves for fire department valve station (Dry Standpipe) shall be angle type, 1/2" female iron pipe threads by 2-1/2" male NST hose threads, chromium plated with chromium plated cap and chain. Valve hose threads shall be National Standard same as Municipal fire department. Valve shall be tested and listed by UL and/or FM with pressure rating of 175 psi.

2.2.20. Valve for fire hose stations shall be angle type, pressure restricting, 1-1/2" female iron pipe threads, rough brass x male NST threads, polished brass, chromium plated. Valve shall be tested and listed by UL and/or FM.

2.2.21. Cabinet for fire hose station shall be recessed, 16 gauge steel body, ANOLOK finish aluminum door trim. Cabinet shall be designed to fit a 100 feet hose pin rack and a fire extinguisher. Door shall be full panel glass. Cabinet finish shall be baked white enamel inside with "Fire Red" coat outside. Cabinet may be locally made of approved quality.

2.2.22. Pin rack hose for fire hose station cabinet shall be semi-automatic type, baked red enamel finish, designed for 100 feet of 1-1/2" hose, and furnished with 1-1/2" chrome plated brass rack nipple.

2.2.23. Fire hose for fire hose station shall be 100 feet 1-1/2" cotton single jacket, rubber lined hose with wax and gum treatment. Hose coupling shall be 1-1/2" chrome plated, male-female National Standard hose threads. Fire hose and couplings shall be approved by UL and/or FM.

2.2.24. Nozzle for fire hose station shall be 1-1/2" adjustable, capable of complete shut-off, solid straight stream or any degree of solid conical fog, chrome plated. Threads shall be National Standard hose threads. Nozzle shall be approved by UL and/or FM.

2.2.25. Provide 1-1/2" spanner to each fire hose cabinet (FHC).

2.2.26. Furnish and install one each – 4.5Kgs. (10Lbs.) Capacity ABC Dry powder chemical, multi purpose type potable fire extinguisher UL Listed and Factory Mutual Approved, to each fire hose cabinet.

2.3. IDENTIFICATION SIGNS AND CHART

2.3.1. The drain, alarm test valves, etc., shall have standard identification signs, painted fire red with white lettering. The sign shall be attached to the valve in a conspicuous position.



2.4. SPRINKLER HEADS

2.4.1. Sprinkler heads shall be recessed, upright, pendent, vertical sidewall, horizontal sidewall type as required, 12mm. dia. and/or 13.5mm. dia. Orifice, 12mm. dia. And/or 19mm. dia. pipe threads, rated at 68 degrees Centigrade, 93 degrees C, and/or 121 degrees C. Sprinklers in areas with suspended ceiling the escutcheon plates shall be of the same finish as the textures of the ceiling boards. Sprinkler shall be 93 degrees Centigrade at the Parking areas with very extra-large orifice glass bulb upright type, brass finish and a K-factor of 14.5. Sprinkler shall be 68 degrees Centigrade at the theater with very extra-large orifice glass bulb recessed type, chrome finish with a K-factor of 14.5. Sprinklers shall be tested and listed by UL and/or FM.

2.4.2. Furnish to the owner a steel enameled box housing for the space heads and a sprinkler wrench as shown on the plans.

2.5. HOOD FIRE EXTINGUISHING SYSTEM

2.5.1. Exhaust hood, duct, and cooking appliance fire extinguishing system shall be UL and FM approved for main kitchen. The details of the hood and cooking appliances shall be furnished by the Tenant later on. Approved Manufacturer: - Range Guard by ASCOA, Cardox, Kiddie, Ansul

2.6. FIRE PUMP

2.6.1. The fire pumps shall be supplied and to be installed by the Sprinkler Contractor and the specification are as follows:

2.6.2. **Fire Pump Assembly:** Furnish and install Underwriter's Laboratories Inc. (U.L.) approved fire pumps as shown on plans, complete with motors, motor starters, controls, fitting and other appurtenances and accessories necessary to complete the equipment installation in each respect. Pumps shall be located and connected as shown in the drawings. Complete installation shall be in accordance with the requirements and meeting with the approval of NFPA 20, Philippine Rating Bureau (PRB) and of the Fire Department.

2.6.3. The fire pump to be installed at the building shall be as follows:

2.6.3.1. *Fire Pumps:*

Shall be designed by the contractor and shall be of standards.

2.6.3.2. *Jockey Pumps:*

Shall be designed by the contractor and shall be of standards.

2.6.3.3. *Drives:* For the jockey pumps, the motor horsepower rating shall be in accordance with the manufacturer's requirements. The motor shall be of such capacity that 115% of the full load ampere rating shall not exceed at any condition of pump load.

2.6.3.4. *Control Equipment:* The fire pump motor control equipment shall be completely assembled, wired and tested at the factory and shall be specifically designed for fire pump purpose. Control equipment of the combined manual and automatic primary resistance or Wye-Delta type reduced voltage starter with all components enclosed in one or more approved drip-tight enclosures, and shall incorporate the following:

2.6.3.4.1. Disconnect Switch – externally operable quick break type.

2.6.3.4.2. Circuit Breaker – time delay type with trips in all phases set or 300% of the motor full – load current.



2.6.3.4.3. Motor Starter – Primary resistance, reduced voltage type capable of being energized automatically through the pressure switch or manually by means of an external handle.

2.6.3.4.4. Running Period Timer – set to keep motor in operation when started automatically for a minimum period of one (1) minute for each 10 HP motor rating but not to exceed seven (7) minutes.

2.6.3.4.5. Entire unit shall withstand the full available short current as given by the serving Meralco Company.

2.6.3.4.6. Pilot Lamp – to indicate circuit breaker closed and power available.

2.6.3.4.7. Ammeter test link and voltmeter test studs.

2.6.3.4.8. Alarm panel with visible and audible alarm 120 Volts independent source of power to indicate circuit breaker open on power failure.

2.6.3.4.9. Manual Selection Station – a two – position station shall be provided on the enclosure marked 'AUTO' and 'NON-AUTO'.

2.6.3.4.10. Means shall be provide on the controller to operate an alarm signal continuously while the pump is running.

2.6.3.4.11. Detailed operating instructions shall be provide on a plate mounted securely on the front of the enclosure.

2.6.3.4.12. Pressure Recorders.

All of the above equipment must be manufactured in accordance with pamphlet and requirements of the National Fire Protection Association #20 and installed as per their recommendations.

2.6.3.5. Jockey pump control shall included a combined manual and automatic reduced voltage type motor starter for the pump, fusible disconnect switch, hand- off automatic selector switch, control voltage transformer and pressure regulator having a range of 0 to 250 lbs. Control shall be furnished under this Section for installation and writing under Section "Electrical Works".

2.6.3.6. Jockey pump, drivers, controls and necessary attachments, specified herein, shall be purchased under a unit contract from the fire pump manufacturer, or hi representative, stipulating compliance with these specifications. Fire pump shall be laboratory tested by the pump manufacturer with certified performance test curves furnished to the Engineer and the insurance authorities at the time of the field acceptance test. Upon award of contract, the manufacturer shall furnish the required number of pump unit dimension prints, control cubicle dimension prints, and schematic wiring diagram, all contained in an indexed booklet for the Engineer's approval.

2.6.3.7. The pump manufacturer shall provide the services of a qualified Engineer to advise the Contractor on the proper installation of equipment, make necessary mechanical adjustments and align fire pump flexible coupling. Pump manufacturer shall pay the test fees, shall arrange and conduct final field acceptance test, and provide all required test equipment.



2.7. AUTOMATIC SPRINKLER SYSTEM AND STANDPIPE SYSTEM

2.7.1. The interior surfaces of all piping and equipment shall be clean and free of all dirt, loose scale, rust, and other foreign materials before installation. Piping shall be painted with coats of red lead enamel paint and two coats of enamel fire red color paint

2.7.2. Pipe ends shall be reamed to remove all burns, and pipe sections shall be cleaned inside to remove all chips and foreign material prior to making up joints. Approved joint compound shall be applied to the threads of the pipe and not in the fitting when making up joint. Pipe shall not extend into the waterway of the fitting.

2.7.3. Sprinkler heads installed where they may be exposed or subjected to mechanical damage shall be furnished complete with head guards.

2.7.4. When welding pipe on jobsite, the fire hazard of the welding process shall be suitable safeguards. Weld in place of pipe and fittings shall not be allowed at the jobsite. Only shop weld fabrication will be permitted with factory made fittings. Mitered weld will not be permitted. Intersection of feedmain and crossmain pipe shall be provided with flanged or victaulic type fittings.

2.7.5. Pipe passing through the building walls and floors above grade shall be provided with sleeves of standard weight galvanized steel pipe, and shall be installed prior to concreting works of the Civil Contractor. The annular spaces between pipe and sleeves shall be packed tight insulated fire resistive materials. Provide chrome plated escutcheon plates large enough to cover the pipe sleeves. Sleeves shall be sized as follows:

- 1" pipe - 2" ID Sleeve
- 1-1/4" pipe - 2" ID Sleeve
- 1-1/2" pipe - 2-1/2" ID Sleeve
- 2" pipe - 3" ID Sleeve
- 2-1/2" pipe - 4" ID Sleeve
- 3" pipe - 5" ID Sleeve
- 4" pipe - 6" ID Sleeve
- 6" pipe - 8" ID Sleeve
- 8" pipe - 10" ID Sleeve

2.8. PIPE SUPPORTS

2.8.1. All piping shall be supported by means of hangers of approved quality, capable of supporting load. Sizing, spacing and installation shall be in accordance with National Fire Protection Association Standard No. 13, "Sprinkler System", except as otherwise shown on drawing or specified herein.

2.8.2. The fire protection Contractor shall furnish and install the required sprinkler pipe seismic sway bracing for the risers, feedmain pipe and crossmain pipe all in accordance with the tables and figures shown on NFPA – 13 requirements for the protection of the piping against breakage due to seismic earthquake movement.

2.8.3. No cutting, drilling, welding or burning of any structural steel members shall be allowed. Power driven studs and welding studs shall not be allowed.

2.8.4. All bolts and threaded rods shall be used with double nut and washer wherever a single unsecured nut could work loose and allow either threaded rod supported piping to drop.



2.9. HOOD FIRE EXTINGUISHING SYSTEM

2.9.1. System shall be installed in accordance with the latest edition of the applicable standard of National Fire Protection Association, manufacturer's manual and all applicable codes.

2.9.2. Contractor shall visit the jobsite, take all field measurements and verify all conditions affecting the work.

2.9.3. Contractor shall obtain and pay for any permits specifically required for the fire extinguishing installation.

2.10. FOAM FIRE PROTECTION FOR COMBUSTIBLE LIQUID OF GENSET

2.10.1. Provide portable foam fire hose station near the location of the combustible fuel tanks of the proposed Generator equipment, as indicated in the plans. The Fire Hose station shall be fire hose reel type, wall mounted swinging semiautomatic with 40mm. x 15meters Fire hose NST threads, and with Foamwater Nozzle "National Foam RP-6" brand or equally approved by the Fire Protection Engineer. The hose reel shall be covered with a red vinyl painted with white sign 'FIRE HOSE KEEP CLEAR' lettering. The required foam liquid AFFF concentrates in 5 – gallons cans shall also be provided by the Contractor as per plans.

2.10.2. Provide two (2) units of 50 Kgs. Capacity Carbon Dioxide portable type fire extinguishers on wheels at the Electrical – Mechanical Rooms. On other Electrical Rooms at the Upper floor levels shall be provide with 10 Lbs. capacity Carbon Dioxide portable fire extinguishers.

PART 3 EXECUTION

3.1. TESTS AND INSPECTION

3.1.1. The Fire Protection Contractor shall conduct and bear the costs of all necessary tests of the fire protection work, furnishing all labor, power and equipment. All piping shall be tested with water and test witnessed by representatives of the Architect/Engineer and the DSWD.

3.1.2. The fire protection piping shall be tested under a hydrostatic pressure of not less than 200 lbs. PSIG, for a duration of not less than two (2) hours or at 50 lbs. per square inch in excess of the maximum static pressure when the maximum pressure is in excess of 150 lbs. per sq. in.

3.1.3. The piping subjected to the hydrostatic test shall be filled with water and thoroughly checked for the elimination of all air. The control valves shall be closed during pressure testing. All joints shall be proven tight or acceptable by the test. Defective work or materials shall be corrected or replaced in an approved manner. If necessary, piping shall be dismantled and reassembled with the used of new pipe or fitting as no caulking or make-shift method of temporary repair of defective work will be permitted. Test shall be repeated until the particular line or system receives the approval of the representatives of the Architect/Engineer.

3.1.4. Acceptance of the automatic work shall be based upon the inspection and tests of the complete installation by representatives of the local Fire Department, Architect, Engineer, PIRA, and the Owner.

***** END OF SECTION *****



ARCHITECTURAL SPECIFICATION

DIVISION 16 - "ELECTRICAL"

31 AUGUST 2022

JMM/ REV. 00

Revision	Date	Description



ELECTRICAL SPECIFICATIONS

PART 1 GENERAL

1.1. GENERAL DESCRIPTION

1.1.1. The work to be done under this divisions of the Specifications consist of the fabrication, furnishing delivery and installation, complete in all details of the Electrical Work, at the subject premises and all work materials incidental to the proper completion of the installation, except those portions of the work which are expressly stated to be done by others. All work shall be done in accordance with the governing Codes and Regulations and with the Specifications, except where the same shall conflict with such codes etc., which latter shall then govern. The requirements with regards to materials and workmanship specify the required standard for the furnishing of all labor, materials and appliances necessary for the complete installation of the work specified herein and indicated on the drawings. The Specifications are intended to provide a broad outline of the requirement and are not intended to include all details of design and construction.

1.1.2. LAWS/CODES and REGULATIONS:

1.1.2.1. The work under this division shall be executed in accordance with the latest requirements of the following:

1.1.2.1.1. The National Building Code of the Philippines

1.1.2.1.2. Philippine Electrical Code Laws, ordinances, and regulations of the locality having jurisdiction over the project.

1.1.2.1.3. Power and telephone utility companies

1.1.2.1.4. UAP Doc. 301

1.1.2.2. The requirements of the above-mentioned governing laws/codes and the requirements of the companies having involvement/participation are hereby made part of these Specifications and the contractor is required to comply with the same. This does not relieve the contractor from complying with requirements of specifications or drawings in excess of above laws and ordinances, codes and requirements which are not prohibited by the same.

1.1.3. GUARANTEE

1.1.3.1. The contractor shall guarantee that the electrical system is free from all grounds and defective materials and workmanship for a period of one (1) year from the date of acceptance of the work. All defects arising within the guarantee period shall be reminded by the contractor at his own expense. The contractor shall indemnify and save harmless procuring entities from and against all claims, suits, actions, or liabilities for damages arising from injuries, disabilities or loss of life to persons or damage to public or private properties resulting from fault or any act of contractor or his representative in the execution of this work. The partial acceptance of the work for the purpose of making partial payments, based on the estimated cost satisfactorily completed by the contractor, shall not be considered as final acceptance of that portion of the work.

1.1.4. DRAWINGS & SPECIFICATIONS



1.1.4.1. The electrical plans, which constitute an integral part of these Specifications, shall serve as the working drawings. The plans indicate the general layout and arrangement of the complete electrical system and other works.

1.1.4.2. The drawings and specifications are meant specifically to be complementary to each other and where it is called for by one shall be binding as if called for by both. Anything which is basically required to complete the installation for proper operation but not expressly mentioned on the drawings and/or specifications shall be furnished and installed by the contractor at no extra cost to the procuring entity as though specifically stipulated or shown in both.

1.1.4.3. Procuring Entity shall have the final decision on any apparent conflict between the drawings and specifications or on any under and controversial point in either or both.

1.1.4.4. All dimensions and locations shown on the plans are approximate and shall be verified in the field, as actual locations, distances, and levels are governed by actual conditions.

1.2. SCOPE OF WORK

1.2.1. The work to be done under this division shall include the furnishing of all tools, labor, supervision, equipment, fixtures and all necessary materials, each complete and in proper working condition unless one or other is specifically excluded or stated otherwise in this specification but not limited to the following items of works.

1.2.1.1. All works and material for a complete lighting and power systems including cables and conduits, circuit breakers, panelboard and connection to all lighting fixtures and power outlets, motor appliances, switches, supports and accessories.

1.2.1.2. All excavation works, backfilling, dewatering, removal of surplus earth, preparation of formworks and pouring of concrete envelopes as indicated on the drawings or as required to complete the installation.

1.2.1.3. All steel support for conduits, wires, panelboard, boxes, lighting fixtures, etc. as indicated or as required to complete the installation.

1.2.1.4. A complete grounding system as required by the governing codes.

1.2.1.5. A complete testing of all electrical systems.

1.2.1.6. Where material is furnished and supplied by the Engineer, the Contractor shall receive, unload, handle and transport to the site, assemble and install completely. This Contractor shall be responsible for safekeeping and warehousing of such materials/equipment from the time of his acceptance.

1.2.1.7. All items incidentals to and or required for the proper completion such as painting of boxes, conduits and the likes.

1.2.1.8. Coordination with other trade Contractors.

1.2.1.9. Coordination with other companies/offices including handling of all material related to material testing and application of electrical permits.

1.2.1.10. Preparation of necessary shop drawings required for the proper execution of the works subject to the approval of the Engineer.

1.2.1.11. Preparation of "As-Built" drawings.



1.2.2. Work Not Included Under Electrical Works The work excludes the furnishing of the following:

1.2.2.1. Supply and installation of all motors, pumps and their associated control equipment.

1.2.2.1.1. All electrical system installation beyond the motor branch circuit breakers.

1.2.2.1.2. All motor controllers as indicated to be supplied with equipment.

1.2.2.1.3. Structural foundation of the above.

1.2.3. If any item of works or material has been omitted which are necessary for the completion of the Electrical Work as outlined herein before, then such items shall be hereby included in this section of work.

1.3. PROCEDURE

1.3.1. Workmanship

1.3.1.1. The contractor shall execute the work in the most thorough, prompt and workmanlike manner and in accordance with the plans and specifications. The installations shall be done through standard methods and good engineering practices.

1.3.2. Materials

1.3.2.1. All materials to be installed shall be brand new except as otherwise noted on the plans or specifications. The materials shall be as specified. No substitution of materials is allowed. Should the contractor find it necessary to use another type/brand of materials instead of the specified item, he shall first obtain approval from the procuring entity prior to installation. Any substituted material installed without the approval of the procuring entity shall be subject to replacement.

1.3.3. Coordination

1.3.3.1. It is the sole responsibility of the contractor to conduct coordination of his activities with the following:

1.3.3.1.1. Other trades and suppliers

1.3.3.1.2. Procuring Entity/Engineer

1.3.3.1.3. EPPI

1.3.3.1.4. Local Government Authority

1.3.3.1.5. Deviation From The Plans

1.3.3.2. No deviation from the plans is to be made unless given notice or approval by the procuring entity.

1.3.4. Record Drawings and "As-Built" plan.

1.3.4.1. The contractor is required to keep an active record of the actual installation during the progress of the job. This shall be the reference in the preparation of the As-Built plans which shall include all pertinent information, complete in all aspects of the actual installation, and all new information not originally shown in the contract drawings. The As-Built plans shall be prepared by the contractor at his expense and shall be submitted to



the Procuring Entity for approval upon the completion of the work. The approval of the As-Built drawings shall be a prerequisite for the final acceptance of the electrical works. Submit two (2) copies of the "As-Built" drawings signed and dry sealed by a Registered Professional Electrical Engineer. Original tracing/reproducible copy shall also be submitted to the procuring entity.

1.4. SUBMITTALS

1.4.1. Obtain approval before procurement, fabrication or delivery of items to the job site. Partial submittals will not be entertained and will be returned without review. Submittals shall include the manufacturer's name, trade name, place of manufacturer, catalogue model of number, nameplate data, size, layout dimensions, capacity, project specification and paragraph reference and technical society publication references, and other information necessary to establish contract compliance of each item to be furnished.

1.4.1.1. Shop Drawings In addition to the requirements of the contract clauses, shop drawings shall meet the following requirements:

1.4.1.1.1. Drawings shall be a minimum of 210 mm x 297 mm in size or in A3 size, except as specified otherwise.

1.4.1.1.2. Drawings shall include wiring diagrams and installation details indicating the proposed location layout and arrangement, control panels, accessories, and other items that must be

1.4.1.1.3. Wiring diagrams shall identify circuit termination and the internal wiring for each item of equipment and its interconnection.

1.4.1.1.4. Drawings shall indicate adequate clearances for operation, maintenance and replacement of equipment devices. If the layout is disapproved, revise the layout and resubmit.

1.4.1.2. Manufacturer's Data Submittal for each manufactured item shall be current descriptive literature of cataloged products.

1.4.1.3. *Publication Compliance*

1.4.1.3.1. Where equipment or materials are specified to conform to industry and technical society publications of organizations such as American National Standard Institute (ANSI), American Society for Testing and Materials (ASTM) and Underwriters Laboratories, Inc. (UL), submit proof of such compliance. The label or listing by the specified organization will be acceptable evidence of compliance. In each of the publications referred to herein, consider the advisory provisions to be mandatory as though the word "shall" had been substituted for "should" wherever it appears. Interpret reference in these publications to the authority having jurisdiction, or words of similar meaning, to mean the Engineer. In lieu of the label or testing, submit a certificate from an approved independent testing organization, adequately equipped and component to perform such services, organization's test methods and not the item conforms to the specified organizations publications. The edition or the revised version of such codes and standards current at the date twenty eight (28) days prior to date of bid submission shall apply. During Contract execution, any changes in such codes and standards shall be applied after approval by the DSWD.



1.4.2. **Submit Reports on Tests**

1.4.2.1. All reports must be formal, typewritten and properly identified

1.4.3. **Certificates of Compliance**

1.4.3.1. Submit manufacturer's certifications as required on products, materials, finish and equipment indicated in the Technical Sections. Certifications shall be documents prepared specially for the contract. Preprinted certifications and copies of previously submitted documents are not acceptable. The manufacturer's certification shall name the appropriate products, equipment or materials and the publication specified as controlling the quality of the item. Certification shall not contain a statement to imply that the item does not meet requirements specified such as "Good As", "Achieves the same end use and results as materials formulated in accordance with referenced publications" or "Equal or exceeds the service and performance of the specified materials". Certifications shall simply state that the item conforms to the requirements specified; and shall be printed on the manufacturer's letterhead and shall be signed by the manufacturer's official, authorized to sign certificates of compliance shown to assure a coordinated installation.

1.5. **DELIVERY AND STORAGE**

1.5.1. Handle, store, and protect equipment and materials in accordance with the manufacturer's recommendations and with the requirements of NFPA 70B, Appendix 1, titled "Equipment Storage and Maintenance during Construction". Replace damaged or defective items with new one.

1.6. **CATALOG PRODUCTS/SERVICE AVAILABILITY**

1.6.1. Materials and equipment shall be current products by manufacturers regularly engaged in the production of such products. Products shall have been in satisfactory commercial or industrial use for two (2) years prior to bid opening. The two (2) year period shall include applications of equipment and materials under similar circumstances and of similar size. The two (2) year period shall be satisfactorily completed by a manufacturer's catalog or brochures. Products having less than two (2) year field service record will be acceptable if a certified record of satisfactory field operation for not less than 6,000 hours, exclusive of the manufacturer's factory or laboratory tests is furnished. The equipment item shall be supported by service organization, which are reasonably convenient to the equipment on a regular and emergency basis during the warranty period of the contract.

1.6.1.1. *Manufacturer's Recommendations*

1.6.1.1.1. Where installation procedures or any parts thereof are required to be in accordance with manufacturer's recommendations, furnish printed copies of the recommendation prior to installation. Installation of the items shall not proceed until recommendations are received. Failure to furnish recommendations shall be cause for rejection of the equipment or materials.

1.6.1.2. *"As-Built" Drawings*

1.6.1.2.1. The cost of as-built drawings shall be borne by the Contractor. Submittal of such drawings shall be a condition to final payment.

1.7. **ELECTRIC POWER**

1.7.1. The contractor shall be responsible for his own electric power needed for the execution of the job.



1.8. TEST

1.8.1. Conduit tests on all electrical conductors installed in the presence of the procuring entity's representative.

1.8.1.1. check for grounds

1.8.1.2. insulation resistance test

1.8.1.3. continuity test for all outlets

1.8.1.4. voltage level test

1.8.1.5. phase relationship

1.8.1.6. check circuit connections at panel boards, all single phase circuits shall be connected to phase as shown in the load schedule.

1.8.2. All defects found during the test shall be repaired immediately by the contractor.

1.8.3. All tools, equipment and instruments needed to conduct tests shall be on the account of the contractor. All materials installed without prior approval shall be at the risk of the Contractor.

1.9. GENERAL NOTES

1.9.1. All electrical works and installations shall comply with the provisions of the latest edition of the Philippine electrical code with the rules and regulations of the national and local authorities concerned in the reinforcement of electrical laws and with the rules and regulations of utility companies concerned.

1.9.2. Service voltage to the building shall be 230 volts, three phase, three(3) wire systems.

1.9.3. The contractor shall verify the actual location of the concrete terminal pole connection to the power service supply.

1.9.4. All installation and wirings are concealed from view and shall be encased in polyvinyl chloride(pvc) pipes of schedule 40 except for power service entrance which shall be rigid steel conduit(rsc) pipes unless otherwise specified.

1.9.5. Minimum wire and conduit size shall be no. 12(3.5sq.mm.) TW AWG and 12mm diameter size respectively, for power supply outlets.

1.9.6. Pull boxes of appropriate size shall be provided even if not indicated in drawing to accommodate the number of wires and splices.

1.9.7. All fluorescent fixtures shall be provided with polyester filled, preheat, thermally protected high factor ballast.

1.9.8. All materials to be used shall be new of approved type appropriate for both location and intended use.

1.9.9. Light control switches shall be rated 10a 300v and shall carry a load greater than 50a.

1.9.10. Duplex convenience outlets shall be rated 10a, 250 volts and special purpose outlets shall be rated 15a, 250 volts.

1.9.11. For each spare unit in the panel board, provide an empty 20mm diameter riser terminating in a 2.5" by 4" octagonal box above the ceiling.



1.9.12. All works shall be done under the direct supervision of a duly licensed electrical engineer or a registered master electrician.

1.9.13. Outlet boxes shall be as follows:

1.9.13.1. Light outlets : 1-1/2" deep 4" octagonal box 1 or 2 way entries.

2-1/3" deep 4" octagonal box 3 or 4 way entries.

1.9.13.2. Receptacles/ telephone outlets: 2-1/8" deep 2"x4" utility box 1 gang raised plastic cover for 3 or 4 raceway entries.

1.9.14. No revision on the design shall be done without the prior knowledge and approval of the designer and the DSWD. Any such revision done without approval causes responsibility of the designer to cease as a whole:

1.9.14.1. Panel box 1.70m from top of panel box to finish floor line

1.9.14.2. Switch/push button 1.37m from center of device to finish floor line

1.9.14.3. Convenience outlet; intercom; telephone outlet; range outlet 0.30m from center of device to finish floor line

1.9.14.4. Buzzer; chime & fire alarm; 1.20m from center line of device to finish floor line.

PART 2 PRODUCT

2.1. SUPPLIER

2.1.1. Subject to compliance with requirements and as approved by the Architect. For compliance with requirements, acceptable manufacturers are needed to be pre-approved by the architect.

PART 3 EXECUTION

3.1. Installation shall be in accordance with approved shop drawings and manufacturer's installation/ guide and directions. Testing and adjustments shall be performed prior to final acceptance.

***** END OF SECTION *****



ARCHITECTURAL SPECIFICATION

DIVISION 22 - "PLUMBING"

31 AUGUST 2022

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Revision	Date	Description



PLUMBING SPECIFICATIONS

PART 1 GENERAL

1.1. SCOPE OF WORKS

1.1.1. The work to be undertaken under this section shall consist of the furnishing of all materials, labor tools, equipment and other facilities and the satisfactory performance of all work necessary for the complete installation, testing and operation of the plumbing system accordance with the applicable drawing and this section of that specifications consisting of, but not necessarily limited to the following:

1.1.1.1. Soil, waste and vents pipe system, within the building up to the sewer line.

1.1.1.2. Interior fire protection system consisting of combination standpipes, valves, fire hose cabinets, inlets, connectors and portable fire extinguishers.

1.1.1.3. Water service connection from the main building distribution system.

1.1.1.4. Furnishing, installation and testing of water closets, lavatories, accessories including controls & piping works.

1.1.1.5. Furnishing and installation of all plumbing fixtures, fittings, trims and accessories.

1.1.2. All work shall be performed in accordance with the requirements of all applicable laws of the Republic of the Philippines and all local codes and ordinances.

1.1.3. The contractor is required to refer to all mechanical, electrical, structural and architectural plans and specifications all shall investigate all possible interference and conditions affecting his work in this section and that of the other sections.

1.1.4. All plumbing works to be done and sizes of pipe to be used shall be of the sizes, which are required and in accordance with the National Plumbing Code of the Philippines.

1.2. RELATED SECTIONS

1.2.1. Toilet and Bath Accessories

1.2.2. Toilet Compartments

1.3. GENERAL REQUIREMENTS

1.3.1. Construction Requirements

1.3.1.1. The Contractor before any installation work is started shall carefully examine the plans and shall investigate actual structural and finishing work conditions affecting all the works. Where actual condition necessitates a rearrangement of the approved pipe layout, the Contractor shall prepare a plan for the proposed lay-out.

1.3.2. Drawing and Specifications:

1.3.2.1. The contract drawings and the specifications are complementary to each other, and any labor or materials called for by both, if necessary, for the successful operation of any other particular types of equipment shall be furnished and installed without additional cost of Procuring Entity.



1.3.2.2. All dimensional locations of fixtures, equipment, floors and roof drains, risers and pipe. Chases shall be verified on the architectural drawings and manufacturer's catalogs.

1.3.2.3. Upon completion of the work as described herein, the Contractor shall at his own expense furnish the Procuring Entity originals and three (3) sets of "AS BUILT" Plans for future reference and maintenance purposes.

1.3.3. Protection

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

1.3.4. Installation and Workmanship

1.3.4.1. All labor shall be performed in a first-class, neat and workmanlike manner by mechanics skilled in their work shall be satisfactory to the Project Architect.

1.3.4.2. No piping in any location shall be closed up, furred in or covered before testing and the examination of the same by the inspector, Procuring Entity or their representatives.

1.4. IDENTIFICATION OF MATERIALS:

1.4.1. Each length of pipe, fitting, traps, fixtures, and device used in the plumbing system shall have cast, stamped or indelibly marked on it the manufacturer's trademark or name, the weight, the type, and classes of product when so required by the standards mentioned above.

1.4.2. All plumbing fixtures and fittings installed without the above trademarks shall be removed and replaced with probably marked fixtures and fittings without any extra cost to the Procuring Entity.

1.5. WATER SUPPLY

1.5.1. Pipes and fittings for the waterline shall be as SPECIFIED BY EPPI.

1.5.2. Valves-All valves, unless otherwise specified shall be gate valves of size as indicated in the drawings: for hot water supply, valves and fittings shall be insulated of a thickness equal to that of the insulation on the adjoining pipe, securely fastened in place.

1.5.2.1. SANITARY DRAINAGE

1.5.2.1.1. Soil and waste Pipes and Fittings: Soil and waste pipes and fittings shall be PVC pipes (POLYVINYL CHLORIDE) series 1000 Neltex.

1.5.2.1.2. Vent Pipes and Fittings: Vent pipes and fittings shall be PVC pipes

1.5.2.1.3. Shower and Floor Drains: Shower and floor drains shall be of high grade, strong, tough, and even grained metals.

1.5.2.1.4. Cleanouts:

1.5.2.1.4.1. Ceiling cleanouts shall be of the same material as pipe with sealed screw type, raised head plug.

1.5.2.1.4.2. Floor cleanouts shall be cast-iron body with brass plug, colt-type or countersunk head; METMA brand.



1.5.2.2. *HANGERS, INSERTS AND PIPE SUPPORTS*

1.5.2.2.1. Provide suitable and substantial hangers and supports for all piping.

1.5.2.2.2. Support horizontal piping in accordingly approved sizes where pipe clamps are too short to connect to the building construction.

1.6. SUBMITTALS

1.6.1. **Manufacturer's Catalog Data**

1.6.1.1. Submit for each type of fixture specified. Include descriptions of materials, finishes, fastenings and anchoring devices, and appurtenances.

1.6.2. **Samples**

1.6.2.1. Submit one of each type of accessory complete with appurtenances and finish as specified. Approved samples may be installed in the work provided each sample labeled for identification and location recorded.

1.7. DELIVERY AND STORAGE

1.7.1. Deliver materials to the site in unopened containers, labeled with the manufacturer's names and brands, ready for installation. Store accessories in safe, dry locations until needed for installation.

PART 2 PRODUCTS

2.1. MATERIALS AND FINISHES

2.1.1. This specification covers all plumbing fixtures made from a mixture of white burning clays and finely ground minerals, the wares are subjected to a high temperature rendering them incapable of adsorbing liquid, when unglazed, does not have a mean value of water absorption greater than a 5% of the dry weight making it sanitary and odorless. It is then coated on all exposed surfaces with an impervious non-crazing vitreous glaze giving it a permanent colored finish and retains high quality gloss resistant to acids and alkalis making it easy to maintain.

PART 3 EXECUTION

3.1. INSTALLATION

3.1.1. Surfaces of fastening devices exposed after installation shall have the same finish as the attached fixtures. Exposed screw heads shall be oval. Install fixtures at the location and height as shown in the drawings. Protect exposed surfaces of accessories with strippable plastic or by other means until the installation is accepted. Coordinate fixture manufacturer's mounting details with other trades as their work progresses. After installation, thoroughly clean exposed surfaces and restore damaged work to its original condition or replace with new work.

3.1.2. **Surface Mounted Accessories**

3.1.2.1. Mounting on concealed back-plates shall have concealed fasteners. Unless indicated or specified otherwise, install fixtures with sheet metal screws or wood screws in lead-lined braided jute, teflon or neoprene sleeves, or lead expansion shield, or other approved fasteners as required by the construction. Install back-plates in the same manner, or provide with lugs or anchors set in mortar, as required by the construction.

3.2. WATER SYSTEM TEST



3.2.1. Upon completion of the roughing-in and before fixtures, the entire water piping system shall be tested at a hydrostatic pressure of one and half (1-1/2) times the expected working pressure in the system when in operation, and proven tight at this pressure or not less than 150 psi gauge.

3.2.2. Where a portion of the water piping system is to be concealed before completion, this portion shall be tested separately in a manner to that described for the entire system, and in the presence of the Procuring Entity or its representative.

3.3. DRAINAGE SYSTEM TEST

3.3.1. The entire drainage and venting system shall have necessary openings which can be plugged to permit the entire system to be filled with water to the level of the highest vent stack and/or vent above the roof.

3.3.2. The system shall hold this water for a full thirty (30) minutes during which time there shall be no drop more than four inches 100mm (4").

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

***** END OF SECTION *****



ARCHITECTURAL SPECIFICATION

DIVISION 32 - "EXTERIOR IMPROVEMENTS"

Section 1. Landscape Improvements

31 AUGUST 2022

JMM/ REV. 00

Revision	Date	Description



LANDSCAPE SPECIFICATION

PART 1. LANDSCAPE GENERAL NOTES

1.1. Notification

1.1.1. The Contractor shall notify the Architect at least 5 (five) working days prior to delivery of plant material to the site. Architect shall inspect plant material prior to off-loading.

1.2. Planting

1.2.1. Season Planting shall be done when the soil is in a workable condition. Unless otherwise specified in writing by the Architect, planting of trees shall be done according to the date specified.

1.3. Layout and Coordination

1.3.1. The Contractor shall mark all planting areas with stakes or paint. The Architect shall approve the layout before planting begins. Contractor shall not stage planting operations on trails or sidewalks. The Contractor shall obtain a utility location and ensure that utility marking is complete before any excavation begins. The Contractor shall locate any subsurface improvements such as sprinkling system or conduits. The Contractor shall be responsible for all damage resulting from neglect or failure to comply with this requirement. Shrubs and small trees with mature height less than fifteen feet (15') shall be planted at least ten feet (10') from overhead power lines. Trees with a mature height greater than fifteen feet (15') but less than twenty-five (25') shall be planted at least fifteen feet (15') from overhead power lines. Trees with a mature height greater than twenty-five feet (25') shall be planted at least twenty feet (20') from overhead power lines. The Contractor shall be responsible for moving trees if planted closer than the specified distance. The Architect reserves the right to relocate plant materials based on utility locations.

1.4. General Maintenance

1.4.1. The Contractor shall furnish all labor, materials, supplies and equipment required to establish, maintain, and protect the planted and seeded areas, for a one year plant establishment period from date of acceptance of the initial planting operations. However, maintenance activities shall commence immediately after each item is planted or when areas have been seeded. The Contractor shall supply a maintenance schedule to the Architect, thirty (30) days prior to the landscape inspection. The Contractor shall also be responsible for protection of his work during the maintenance period, and shall repair and replace all materials and seeded areas damaged or destroyed within the scope of the Work, regardless of cause. The Contractor's staff shall include supervisory personnel experienced in landscape maintenance. The Work Force is to be experienced and familiar with maintaining plant material in site's climatic conditions. Contractor shall replace any tree or shrub damaged by a lawnmower, weed whip or other equipment at no additional cost to the DSWD.

***** END OF SECTION *****



ARCHITECTURAL SPECIFICATION

DIVISION 32 - "EXTERIOR IMPROVEMENTS"

Section 2. *Playground Equipment and Safety Surfacing*

31 AUGUST 2022

JMM/ REV. 00

Revision	Date	Description



PLAYGROUND EQUIPMENT AND SAFETY SURFACING

PART 1 GENERAL

1.1. SUMMARY

1.1.1. This section consists of a general description of required playground equipment, poured-in-place safety surface, and the installation of said equipment. Contractor shall be responsible for site installation of these items and for furnishing and installing footings, anchors, fasteners, touch-up, repair and other accessory items as required.

1.2. REFERENCE STANDARDS

1.2.1. Safety Standards & Guidelines: All public playground equipment supplied shall meet all applicable provisions of the following:

1.2.1.1. "Handbook for Public Playground Safety" published by the Consumer Product Safety Commission (CPSC)

1.2.1.2. ASTM F1487-01 "Standard Consumer Safety Performance Specification for Playground Equipment for Public Use," published by the American Society for Testing and Materials (ASTM).

1.2.1.3. ASTM F1292, Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment.

1.2.1.4. ASTM F2223, Standard Guide for ASTM Standards on Playground Surfacing.

1.2.1.5. ASTM F2479, Standard Guide for Specification, Purchase, Installation and Maintenance of Poured-In-Place Playground Surfacing.

1.2.1.6. ASTM F1951, Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment.

1.2.1.7. ASTM F2049, Standard Guide for Fences/Barriers for Public, Commercial, and Multi-Family Residential Use Outdoor Play Areas.

1.2.1.8. Americans With Disabilities Act B. Quality Certification: All public playground equipment supplied shall be certified to ISO 9001 and IPEMA standards.

1.3. SUBMITTALS

1.3.1. Submit Manufacturers' Catalog Data.

1.3.2. Submit shop drawings indicating structure and equipment layout; footing quantity, size, design, and location.

1.3.3. Submit shop drawings depicting equipment locations as proposed on plan that indicates safety zones as recommended by equipment manufacturer and complying with recommendations as stated in above referenced industry standard documents.

1.3.4. Submit Shop Drawings for installation where additional details are necessary for proper installation or as requested by the architect..

1.3.5. Provide certification, after installation and substantial completion, by the playground installer, certifying that the equipment has been installed per the manufacturer's



recommendations and instructions, and meets or exceeds all necessary safety requirements as stated in above referenced industry standard documents.

1.3.6. Submit product information and samples of finishes from the full range of manufacturers' standard colors, textures, and patterns for DSWD's Representative selection.

1.3.7. Submit proof of surface installer training in writing a minimum of one week prior to installation.

1.4. QUALIFICATIONS

1.4.1. Equipment Installer Qualifications:

1.4.1.1. An experienced and certified installer who has completed work with similar equipment, materials, and design, and to the extent similar with this project and whose work has resulted in construction with a record of successful in-service performance. Contractor to provide a list of all subcontractors and their appropriate qualification. Installer shall follow manufacturer's instructions and installation documentation for all equipment.

1.4.2. Surface Installer Qualifications:

1.4.2.1. Company specializing in outdoor resilient surfaces in the USA for at least 10 years. The applicator shall be approved and trained, with a minimum of three years' documented experience. Conditions of all surface substrates with respect to structural performance shall be evaluated and approved by the surface installer prior to application of the surface system.

1.5. DELIVERY AND STORAGE

1.5.1. Deliver and store products in original, unopened containers with labels intact when not being installed and protected during construction operations to prevent damage, theft, or vandalism.

1.5.2. Inspect parts within 48 hours of delivery, compare with manufacturers bill of material, and report any missing or non-conforming parts to manufacturer.

1.5.3. All surface materials shall be protected from weather and binders shall be stored in temperatures no lower than 40° F. Page 2

1.5.4. All touch up, cleaning, repair or replacement shall be at contractor's expense.

1.6. WARRANTY

1.6.1. Minimum lifetime warranty on all deck posts, steel deck posts, and fastening system, and associated fastening hardware against structural failure caused by corrosion or deterioration from exposure to weather, or defective materials or defective workmanship.

1.6.2. Minimum 15-year warranty on support materials and decks against structural failure caused by corrosion, defective materials, or defective workmanship.

1.6.3. Minimum 10 year warranty on all steel components including railings, loops, and rungs against structural failure caused by defective materials or defective workmanship.

1.6.4. Minimum 1-year warranty on all products not listed above against structural failure caused by defective materials or defective workmanship.

1.6.5. Minimum 5-year warranty on safety surfacing against structural failure caused by defective materials or defective workmanship.



1.7. MINIMAL WEATHER CONDITIONS

1.7.1. At the time of surface material application, ambient air temperature shall be no less than 40 °F and rising and remain so for at least 72 hours after completion.

1.7.2. All surface materials shall be protected from weather and other damage prior to application, during application and while curing.

PART 2 PRODUCTS

2.1. GENERAL

2.1.1. All material components of the poured-in-place surface system shall be obtained from the same source.

2.1.2. All play equipment, posts, ladders, decks, rails, etc. shall be constructed of fully welded tubular galvanized steel with manufacturer's coatings, factory applied.

2.1.3. Fasteners shall be stainless steel.

2.1.4. All play equipment roof structures and other selected equipment shall be integrally colored, prefinished PVC, polymer, or other molded plastics.

2.2. ACCEPTABLE MANUFACTURERS AND EQUIPMENT

2.2.1. Refer to conceptual playground equipment layout drawing.

2.2.2. Major playground equipment manufacturers meeting the requirements of this specification will be considered. All equipment suppliers and installers must meet or exceed the qualifications outlined within this section and must demonstrate that proposed equipment is equal or equivalent to conceptual design equipment.

2.2.3. Major playground safety surface manufacturers meeting the requirements of this specification will be considered.

2.3. MATERIALS

2.3.1. Poured-in-Place Primer: Single component moisture cured polyurethane primer.

2.3.2. Poured-in-Place Binder: An elastic polyurethane pre-polymer with minimal odor, excellent weathering and binding characteristics. Binder shall be 100% MDI based and contain 0% TDI monomers.

NOTE: TDI is listed as a carcinogen with OSHA and the IARC. Special handling is required with more than .1 % TDI.

2.3.3. Poured-in-Place black base: Shall be recycled SBR rubber:

2.3.3.1. Ground at ambient temperature.

2.3.3.2. Ground into 3/ 8" shredded strands and contain less than 4% dust.

2.3.3.3. Transported in suitable bags to protect from moisture.

2.3.4. Poured-in-Place EPDM rubber top course: Shall be UV stable.

2.3.4.1. Colors- Colors to be determined by the Architect from the manufacturer's standard color catalog.

2.3.4.2. Typical size: 1-3mm.



2.3.4.3. Include and provide aliphatic binder for all colors susceptible to fading according to manufacturer's guidelines.

2.3.5. Poured-in-Place System shall:

2.3.5.1. Have been tested for shock attenuation under ASTM F 1292 G-Max and HIC

2.3.5.2. Be non-slip and porous.

2.3.5.3. Have a Class B fire rating.

2.3.5.4. Have the following minimum technical specifications:

2.3.5.4.1. Thermal resistance: $r=2.32$ (astrn c 518-76)

2.3.5.4.2. Thermal conductivity: $k=0.75$ (astrn d 257)

2.3.5.4.3. Compression endurance: no deterioration (10,000 cycles w /10 ton load)

2.3.5.4.4. Flame spread/ federal spec. LII-t-43, type ii, smoke density: class i pass

2.3.5.4.5. Flammability: greatest radius: 1" (25mm) (est london, 90609 /1) classified: best category of flammability

2.3.5.4.6. Abrasion resistance: 0.3812g loss (astm d 1044)

2.3.5.4.7. Spike resistance: according to otto graff institute/ stuttgart approved for 1/ 4" spike (din 18035)

2.3.5.4.8. Flexibility factor: 0-1 (astm f 147)

2.3.5.4.9. Durability: wear index (g/1000 (est london, 90609 /1) revolutions) unaged: 1.64 air aged: 2.40

2.3.5.4.10. Water permeability: 1.7ltr./sec.fsq. Meter (din 18035, part g) (0.4 gal.fsec.fsq/ yd.)

2.3.5.4.11. Thermal stability range: -50°c to $+100^{\circ}\text{c}$ (-58°f to 212°f)

2.3.5.4.12. Freeze/ thaw: no change (-50°c (-58°f), 40 cycles)

2.3.5.4.13. Slip resistance: 65-70 units/ approved (est london, 90609 /1)

2.3.5.4.14. Tensile, psi: 200 psi (top surface) (astm d 412)

PART 3 EXECUTION

3.1. INSPECTION

3.1.1. Prior to application of the poured-in-place surface system, installer shall evaluate the substrate's structural performance and notify DSWD's Representative of all discrepancies. Work shall not proceed until unsatisfactory conditions are corrected.

3.1.2. Prior to equipment installation, installer shall examine the substrates and conditions under which all equipment is to be installed and notify the DSWD's representative in writing of conditions detrimental to the proper, complete, and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.2. INSTALLATION



3.2.1. Verify sub base drainage prior to installation with DSWD's Representative. Base material shall drain properly.

3.2.2. Poured-in-place surface system installation:

3.2.2.1. Primer: Where necessary, shall be applied at a rate of 300 sq. ft. per gallon to the substrate or geotextile fabric on the substrate using a short nap roller.

3.2.2.2. Base Mat:

3.2.2.2.1. Urethane to rubber ratio of 13.64% (12/88), which equals a mix of 12% urethane and 88% rubber, by weight, to achieve maximum resilience.

3.2.2.2.2. Using trowel, SBR/binder mix shall be spread in a consistent density to specified thickness at a rate of 31lbs. and 13 oz. total weight per cubic foot to the specified depth.

3.2.2.2.3. SBR/binder mix shall be allowed to cure (necessary time varies based on temperature and humidity).

3.2.2.3. Primer: Where necessary, shall be applied at a rate of 300 sq. ft. per gallon to the base mat using a short nap roller.

3.2.2.4. Top Course:

3.2.2.4.1. Urethane to rubber ratio of 21.95% (18/82), which equals a mix of 18% urethane and 82% rubber, by weight, to achieve maximum wearability and resilience.

3.2.2.4.2. Using trowel, EPDM/binder mix shall be spread in a consistent density to specified thickness at a rate of 2.44 lbs. per square foot, which yields a nominal thickness of 1/2".

3.2.2.4.3. EPDM/binder mix shall be allowed to cure (necessary time varies based on temperature and humidity).

3.2.3. Play Equipment Installation:

3.2.3.1. Assemble all equipment that requires pre-assembly before installation begins.

3.2.3.1.2. Install equipment at the locations agreed upon. Install level, plumb, secure and in accordance with manufacturer's recommendations, directions, and detail drawings. Cooperate with other trades. Repair and replace damaged units as directed by the Architect.

3.2.3.1.3. Protect installed equipment from damage, blemishes, or indication of use until completion and acceptance of the project.

***** END OF SECTION *****



ARCHITECTURAL SPECIFICATION

ELECTRONICS SPECIFICATION

Section 1. Fire Detection and Alarm System

31 AUGUST 2022

JMM/ REV. 00



Revision	Date	Description

FIRE DETECTION AND ALARM SYSTEM

PART 1 GENERAL

1.1. SECTION INCLUDES

- 1.1.1. Fire alarm system requirements
- 1.1.2. Fire alarm equipment
- 1.1.3. Fire alarm peripheral devices

1.2. RELATED SECTIONS

- 1.2.1. Basic electrical materials and methods are specified in Specifications Section 20 70 26 - Common Materials and Methods for Electrical Systems.
- 1.2.2. Training of BART personnel is specified in Specifications Section 01 79 00 - Demonstration and Training.

1.3. MEASUREMENT AND PAYMENT

- 1.3.1. General: Fire detection and alarm systems, as specified herein, will not be measured separately for payment but will be paid for as part of the contract lump sum price for Electrical Work as indicated in the Bid Schedule of the Bid Form.

1.4. REFERENCES

1.5. SUBMITTALS

- 1.5.1. General: Refer to Section 01 33 00 - Submittal Procedures, and Section 01 33 23 - Shop Drawings, Product Data and Samples, for submittal requirements and procedures.
- 1.5.2. Shop Drawings and Product Data: Detection and alarm system submittals shall include, as a minimum, the following information, data, and drawings:
 - 1.5.2.1. Complete descriptive data indicating UL listing for all system components;
 - 1.5.2.2. Complete sequence of operation of the system; and



1.5.2.3. Complete system wiring diagrams for components capable of being connected to the system and interfaces to equipment supplied by others.

1.5.2.4. Battery calculations, booster power supply voltage drop calculations.

1.5.2.5. Wire schedules and riser diagrams.

1.5.3. Testing Program: The completed fire alarm system shall be fully tested in accordance with NFPA 72 under the observation of the Engineer and subject to approval by the Local Fire Marshal. Submit test procedures before performing tests. Testing program shall include the following information, listings, and instructions:

1.5.3.1. Statement of procedure objective, scope of test, and list of equipment/system to be tested.

1.5.3.2. List of equipment required to set up and perform the tests.

1.5.3.3. List of prerequisite tests that need to be completed before the procedure can be performed.

1.5.3.4. Description of the required procedure setup, including diagrams illustrating test equipment connections and identifying test points, where applicable.

1.5.3.5. Step-by-step instructions for performing the procedure, identifying the points where data is to be recorded and the limits for acceptable data.

1.5.3.6. Provisions for recording pertinent test conditions and environment at time of test.

1.5.3.7. Instructions for recording data on data sheets and verifying that procedure steps have been completed.

1.5.4. Test Reports: Submit results of electrical continuity, insulation, and ground continuity tests performed on installed wiring.

1.5.5. Operation and Maintenance Manual: Submit operation and maintenance data, where not provided under other Sections, for the equipment and systems provided, in accordance with Section 01 78 23 - Operation and Maintenance Data.

1.5.6. Shop Drawings: Shop Drawings of the fire alarm and detection system shall be submitted to BART Engineer for approval. The Contractor shall submit a copy of the same document to the Local Fire Marshal for review. All comments from Local Fire Marshall shall be submitted to BART Engineer. Contractor shall be responsible for obtaining necessary permits and certifications for all the fire detection and alarm systems work. BART Engineer's approval shall be obtained before beginning of installation work.

1.5.7. Fire Alarm Record of Completion: See Attachment A.

1.6. QUALITY ASSURANCE

1.6.1. Each and all items of the fire alarm system shall be listed as a product of a single fire alarm system manufacturer under the appropriate category by the Underwriters Laboratories Inc. (UL), and shall bear the "UL" label. Control equipment shall be listed under UL category UOJZ as a single control unit. Partial listing will not be acceptable.

1.6.2. In addition to the UL-UOJZ requirement specified above, the system controls shall be UL listed for Power Limited Applications in accordance with California Electrical Code, Article 760. All circuits shall be marked in accordance with California Electrical Code, Article 760-22.



1.7. SITE CONDITIONS

1.7.1. Inspect surfaces and structures to, and on, which products will be installed before the work of this Section begins. Provide surfaces and structures capable of supporting the products. Surfaces that will be concealed by products shall be finished before products are installed.

PART 2 - PRODUCTS

2.1. FIRE ALARM SYSTEM

2.1.1. Furnish and install a complete addressable fire alarm system as indicated. The system shall be wired, connected, and left in first-class operating condition. Performance and capacities of signaling line circuits shall be in accordance with NFPA 72, Class X; Door holder circuit in accordance with NFPA 72, Class D; Printer circuit in accordance with NFPA 72, Class E; and initiating device circuits shall be in accordance with NFPA 72, Class A. The system shall be electrically supervised, and shall use closed loop initiating device circuits with individual zone supervision, individual indicating appliance circuit supervision, incoming and standby power supervision. Provide a control panel, manual pull stations, automatic smoke and heat detectors, annunciator, all wiring, connections to devices, outlet boxes, junction boxes, and all other material and accessories as necessary for a complete operating system.

2.1.2. All panels and peripheral devices shall be the standard product of a single manufacturer and shall display the manufacturer's name on each component. All fire alarm system components shall be California State Fire Marshall listed (CSFM).

2.1.3. The system alarm operation subsequent to the alarm activation of any manual pull station, automatic detection device, or sprinkler flow switch shall be as follows:

2.1.3.1. The appropriate initiating device circuit's red LED shall flash on the control panel and the remote annunciator until the alarm has been silenced at the control panel or the remote annunciator. Once silenced, this same LED shall latch on. A subsequent alarm received after silencing shall flash the subsequent zone alarm LED on the control panel.

2.1.3.2. A pulsing alarm tone shall occur within the control panel until silenced.

2.1.3.3. All alarm-indicating appliances shall sound in a Continuous Ringing Alarm pattern or Designated State Code pattern until silenced by the Alarm Silence Switch at the control panel or the remote annunciator.

2.1.3.4. All visual alarm lamps shall operate in a continuous pattern until extinguished by the Alarm Reset Switch.

2.1.3.5. Activate a supervised signal to notify BART Operations Control Center or other specified notifying parties.

2.1.3.6. Manual Pull Station: Use metal, recessed pull-lever, open circuit type manual pull stations to permit transmission of an alarm for fire drills or tests. To protect the



station, install a tamper-proof, clear polycarbonate shield and frame that fits easily over the pull station. When the shield is lifted to gain access to the pull station, a loud piercing warning sound shall be activated. The audio device shall be powered by the Fire Alarm Control Panel (FACP). Finish of the pull station shall consist of a base color of red with white lettering instructions. All outdoor or trackway pull stations shall be water-proof; protected with appropriate water tight housing and shall meet ADA requirements.

2.1.4. The alarm indicating appliances may be silenced by authorized personnel upon entering the locked control panel and operating the Alarm Silence Switch or by use of the key operated switch at the remote annunciator. A subsequent zone alarm shall reactivate the signals.

2.1.5. Elevator lobby smoke detector shall generate fire recall of elevator via FACP. If the alarmed detector is on any floor other than the main level of egress, the elevator cabs shall be recalled to the main level of egress.

2.1.6. The activation of any system smoke detector shall initiate an Alarm Verification operation whereby the control panel shall reset the activated detector and wait for a second activation. If, after reset, a second alarm is reported from the same or any other smoke detector within one minute, the system shall process the alarm in accordance with the operations listed above. If no second alarm occurs within one minute, the system shall resume normal operations. The Alarm Verification shall operate only for smoke detectors. Other activated initiating devices shall process alarms immediately.

2.1.7. Activation of Standpipe or Sprinkler Tamper Switch and Trouble Silence Switch:

2.1.7.1. The activation of any standpipe or sprinkler tamper switch shall activate a distinctive system supervisory audible signal and illuminate a "Sprinkler Supervisory Tamper" LED at the system control panel and the remote annunciator. There shall be no confusion between valve tamper activation and opens and grounds on fire alarm initiation circuit wiring.

2.1.7.2. Activating the Trouble Silence Switch will silence the supervisory audible signal while maintaining the Sprinkler Supervisory Tamper LED indicating the tamper contact is still activated.

2.1.7.3. Restoring the valve to the normal position shall cause the audible signal and LED to pulse at a March Time Rate.

2.1.7.4. Activating the Trouble Silence Switch will silence the supervisory audible signal and restore the system to normal.

2.1.8. Actuation of the program "Test Set-Up" switch at the control panel shall activate the "Walk Test" mode of the system that shall cause the following functions to occur:

2.1.8.1. Control relay functions shall be bypassed.

2.1.8.2. The control panel shall show a trouble condition.

2.1.8.3. The alarm activation of any initiation device shall cause the audible signals to pulse one round of code identifying the initiation circuit (e.g., an activated smoke detector connected to Zone 4 shall pulse the audible signals four times in rapid succession).

2.1.8.4. The panel shall automatically reset itself.

2.1.8.5. Any momentary opening of an initiating or indicating appliance circuit shall cause the audible signals to sound for four seconds to indicate the trouble condition.



- 2.1.9. Activation of an auxiliary bypass switch shall override the automatic functions either selectively or throughout the system and shall initiate a trouble condition at the control panel.
- 2.1.10. Supervision of the system shall include the following features and functions:
- 2.1.10.1. All auxiliary manual controls shall be supervised so that all switches will be returned to the normal automatic position to clear system trouble.
 - 2.1.10.2. Each independently supervised circuit shall include discrete amber "Trouble" LED to indicate disarrangement conditions per circuit.
- 2.1.11. The incoming power to the system shall be supervised so that any power failure shall be audibly and visually indicated at the control panel and the annunciator. A green "power on" LED shall be displayed continuously while incoming power is present.
- 2.1.12. The system batteries shall be supervised so that disconnection of a battery shall initiate audible and visual indication at the control panel and the annunciator.
- 2.1.13. The System Expansion Modules connected by ribbon cables shall be supervised for module placement. Should a module become disconnected from the CPU, the system trouble indicator shall illuminate and an audible trouble signal shall sound.
- 2.1.14. Wiring to a remote annunciator shall be supervised for open and ground conditions. An independent annunciator trouble indicator shall illuminate and an audible trouble signal shall sound at the control panel.
- 2.1.15. The system shall include the following electrical power requirements:
- 2.1.15.1. The primary operating power shall be 120 V ac, 60 Hz, no-break system power supplied with integral battery chargers capable of recharging the standby batteries to 80 percent capacity within 12 hours. The control panel shall receive 120 V ac power via a dedicated standby circuit.
 - 2.1.15.2. The system shall be provided with sufficient battery capacity to operate the entire system upon loss of normal 120 V ac power in a normal supervisory mode in accordance with NFPA 72. The system shall automatically transfer to the standby batteries upon power failure. All battery charging and recharging operations shall be automatic. Batteries, once discharged, shall recharge at a rate to provide a minimum of 80 percent capacity in 12 hours.
 - 2.1.15.3. The secondary power supply for fire emergency voice/alarm communications service shall be capable of operating the system under quiescent load (system operating in a non- alarm condition) for a minimum of 24 hours and then shall be capable of operating the system during a fire or other emergency condition for a period of 15 minutes at maximum connected load.
 - 2.1.15.4. All circuits requiring system-operating power shall be 24 V dc and shall be individually fused at the control panel.
 - 2.1.15.5. Faults on ancillary circuits shall not interfere with the operation of the alarm and detection system.
 - 2.1.15.6. Ancillary devices shall have separate power source. Faults on ancillary circuits shall not interfere with the operation of the alarm and detection system.
- 2.1.16. The system shall be an addressable fire alarm system complete with built-in or portable reprogramming capabilities so that all reprogramming or reconfiguration of the fire alarm system can be accomplished without removal of any solid-state devices. Hardware, software, and



passwords used in programming the system and the I/O Map shall be submitted to the Engineer.

2.1.17. The fire alarm system shall enable the District to record and broadcast a pre-recorded warning message prior to escalator shutdown in case of fire. Sixty seconds after smoke detector is activated in escalator room, the strobe light shall come on. It shall take less than 90 seconds for the escalator to stop.

2.1.18. The fire alarm system shall support either BACNet or LonWorks communication based integration interface. The integration interface shall allow an external monitoring center's system to receive and display, in real time all notification alarms from the fire alarm system.

2.2. EQUIPMENT

2.2.1. Fire Alarm Control Panel (FACP):

2.2.1.1. Each FACP shall be capable of supporting up to 800 addressable devices. Use twisted pairs shielded solid wire for addressable loops. Tapping is permitted.

2.2.1.2. Each addressable device shall have a unique address. The manufacturer shall program each address to a system input zone and correlate to output operations as indicated. Non-functioning, non-addressed and non-programmed devices shall report trouble. Provide for site modification to the addressable programming. Provide for removal of devices without the necessity of readdressing any other devices.

2.2.1.3. Provide installation flexibility by ensuring that the physical sequence (placement) of the devices on the loop need not determine the device address. Installation tables shall be furnished to identify all device addresses.

2.2.1.4. The FACP shall provide an integral service console that allows qualified service technicians to complete the following operations:

- 2.2.1.4.1. Enable/disable system options;
- 2.2.1.4.2. Configure a remote annunciator;
- 2.2.1.4.3. Set periods for various system timers;
- 2.2.1.4.4. Set evacuation signal rate;
- 2.2.1.4.5. Program relays and signals;
- 2.2.1.4.6. Set system time and date; and
- 2.2.1.4.7. Perform verification tests.

2.2.1.5. The FACP shall be provided with a 40-column, panel-mounted printer.

2.2.1.6. The FACP shall be provided with a built-in Field Programming Tool/Diagnostics Tool. This tool shall allow a qualified service technician to perform multiple level programming, detailed system diagnostics, and to print system summary reports.

2.2.1.7. The FACP shall provide independent dry contacts on all alarm zones, including system trouble for remote annunciation on a 24 V dc Supervisory Control and Data Acquisition (SCADA) system.

2.2.1.8. Provide a handset in the FACP for connection to the P.A. system via PABX for convenient use. Provide modular components.



2.2.1.9. The system shall be housed in a NEMA 12 wall-mounted cabinet, red in color, with a door and viewing windows. All annunciator indications, operating controls, and instructions shall be clearly visible through the viewing window. The door shall be provided complete with a lock and two keys.

2.2.1.10. A Liquid Crystal Display (LCD) of 2 lines by 40 characters shall be provided to annunciate each addressable device in zones, and represent these zones by alarm or trouble LEDs. Locate the LEDs on the control panel.

2.2.1.11. The FACP shall provide LED annunciation for all alarm zones with the following indications and controls: power on, reset, silence, trouble, and alarm.

2.2.2. Common Controls/CPU:

2.2.2.1. The CPU shall be self-configurable and able to map to the display module by I/O module type. It shall have field-programmable software capable of being programmed and configured on site using either a built-in service console or a serial port for connection of a portable laptop computer. A set of diagnostic equipment including laptop computer, cable connections, and associated software shall be provided.

2.2.2.2. Provide an LCD/Common Control with an 80-character LCD display and membrane switches for common control and programming functions.

2.2.2.3. Universal display modules with LEDs and membrane switches shall connect to the CPU and shall provide all zone annunciation and/or control functions. A slide-in designation label shall be provided to simplify changes to zone designations and language.

2.2.2.4. Provide the following common control switches and indicators: Detection Signal Operated LED, Common Trouble LED, Power ON LED, Enable Zone LED, Enable Zone Disconnect Switch and LED, Detection Signal Replay Sequence, Disable all Auxiliary Relays, Standby Power Trouble, Test All Lamps, All Clear, Annunciator Trouble, Ground Fault, and Reset System.

2.2.2.5. In addition, the LCD CPU/Common Control shall provide the following switches and functions: Alarm Queue Switch and LED, Supervisory Queue Switch and LED, Trouble Queue Switch and LED, Display I.D. Switch, Program Menu Switch, Cancel Switch, Previous Switch, Next Switch, and Enter Switch. These switches provide operator interface to the system software and function as programming keys.

2.2.2.5.1. The Liquid Crystal Display (LCD) shall be of the super twist high contrast type with 80 characters. Provide non-interleaving event display by type sorting input events into queues. Types shall be fire alarm, supervisory alarm, trouble, and monitor.

2.2.2.5.2. Provide a LED for each queue to indicate the presence of events. Provide queue select control switches to allow user selection of the event type to display. Provide previous and next control switches to allow scrolling through a list of events. Provide all that is required to support site programming. Use a smart menu scheme to guide the user through programming sequences. Initiate trouble if programming input is incomplete.

2.2.3. Remote Annunciator:

2.2.3.1. The remote annunciator shall provide LED annunciation for all alarm zones with the following indications and controls: power on, reset, trouble, and alarm.



2.2.3.2. The remote annunciator shall indicate alarm conditions for serial wiring supervision, data integrity, and power. A common trouble alarm indication shall be provided for grounds, opens, and shorts. The remote annunciator enclosure shall be flush-mounted and of NEMA 3R construction with stainless steel door.

2.2.4. Alarm Input Modules:

2.2.4.1. The input module shall be power-limited circuits and field programmable for any of the following operations:

2.2.4.1.1. Class B non-verified or verified Alarm input;

2.2.4.1.2. Normally open or normally closed Supervisory Inputs;

2.2.4.1.3. Monitor inputs; and

2.2.4.1.4. Remote Switch Inputs.

2.2.4.2. Each normally open sprinkler supervisory device shall be connected to a dedicated addressable transponder. Each supervisory addressable input device alarm or trouble operation shall be annunciated on the FACP and remote annunciator LCD's. Each supervisory device shall have an individual status LED.

2.3. FIRE ALARM PERIPHERAL DEVICES

2.3.1. **Manual Pull Stations:** Provide metal, recessed pull-lever breakglass, open circuit type manual addressable pull station, utilizing spring retention feature (glass rod not acceptable), capable of being reset with the same key as for the FACP. By using the key, authorized personnel can activate the manual pull station. Finish the station in red with white lettered instructions, which shall read: "Local Alarm - Does Not Alert Fire Department."

2.3.2. Automatic Detectors:

2.3.2.1. Provide stable, solid state, addressable, ionization detectors capable of detecting smaller invisible sub-micron sized particles, and photo-electric to detect larger visible particles that is in air duct applications. Provide the detectors with a measuring chamber and a protected reference chamber sensitive to changes in temperature and humidity only. Protect the measuring chamber from damage and insects.

2.3.2.2. Provide a built-in five second delay to minimize detection signals due to transient smoke. Safeguard radioactive parts and protect circuitry against electrical transients, electromagnetic interference, and polarity reversal. Factory set the detector sensitivity and provide for field adjustment within the range of UL defined sensitivity.

2.3.2.3. The detector shall be tamper-resistant and plug-mounted to a separate base. A built-in shorting device shall permit checking of the installation wiring before detector installation.

2.3.3. Auxiliary Devices:

2.3.3.1. Provide remote control relays connected to supervised auxiliary circuits for control of fans, dampers, door releases, fare gate releases, and escalator shutdown. Relay contact ratings shall be 5 A at 120 V ac resistive or 2.5 A at 120 V ac inductive for a 0.50 power factor.

2.3.3.2. Provide a normally open dry contact from the FACP to initiate an automatic announcement on the station public address system upon activation of the manual pull station. Also provide a 90-second delay timer circuit in the FACP as indicated that shall initiate shutdown of station escalators upon activation of the manual pull station.



2.3.3.3. Provide a dry contact for initiation of elevator recall to egress level.

2.3.4. **Visual Alarms:** Provide visual alarms (strobe lights) for the hearing impaired in accordance with applicable requirements of the Americans with Disabilities Act (ADA) and the following requirements:

2.3.4.1. Lamps shall be a xenon strobe type or equivalent. Color shall be clear or nominal white (unfiltered or clear filtered white light.)

2.3.4.2. Maximum pulse duration shall be 0.2 second with a maximum duty cycle of 40 percent. Pulse duration is defined as the time interval between initial and final points of 10 percent of maximum signal.

2.3.4.3. Intensity shall be a minimum of 75 cd.

2.3.4.4. Flash rate shall be a minimum of 1 Hz and a maximum of 3 Hz.

2.3.4.5. The appliance shall be placed 80 inches above the highest floor level within the space or 6 inches below the ceiling; whichever is lower.

2.3.5. **Audio Alarm:** Provide speaker for audio alarm with pre-recorded message capability. Audio characteristics shall meet NFPA-72.

PART 3 - EXECUTION

3.1. INSTALLATION

3.1.1. Fire Detection and Alarm System shall be designed by personnel who are factory trained and certified for fire alarm system design of the proposed approval type and brand. The Contractor shall submit designer's plans and specifications for approval.

3.1.2. Detection and Alarm System installer shall be factory trained and certified for fire alarm system installation of the proposed approved type and brand.

3.1.3. Interface and Coordination: Indicated diagrams and details show the general location and arrangement of equipment, conduit, wiring, and devices. Provide outlets, control and detection devices, and equipment properly located and readily accessible. Control and detection devices, equipment, and outlets shall be located to avoid interference with mechanical, architectural, and structural features.

3.1.4. Wiring Methods:

3.1.4.1. All wiring shall be installed in a continuous GRS conduit system. All conduits shall be concealed.

3.1.4.2. Prepare and submit a Fire Alarm Riser Diagram indicating type and quantity of devices and size and quantity of conductors and conduits.

3.1.4.3. No wiring other than that directly associated with fire alarm detection, alarm, or auxiliary functions shall be permitted in fire alarm conduits. Wiring splices shall be avoided to the extent possible and if needed, they shall be made only in junction boxes and shall be connected with crimp-type connectors. Wire nut-type connections are not acceptable.

3.1.4.4. Transposing or changing color-coding of wires will not be permitted. All conductors in conduit containing more than one wire shall be labeled on each end with wire markers conforming to the requirements of Specifications Section 26 05 24 - Low Voltage Wires and Cables. Conductors in cabinets shall be carefully formed and harnessed so that each drops off directly opposite to its terminal. Cabinet terminals shall



be numbered and coded. All controls and function switches shall be clearly labeled on all equipment panels.

3.1.4.5. All wiring shall be checked and tested to ensure that there are no grounds, opens, or shorts. The minimum allowable resistance between any two conductors or between conductors and ground is 10 MΩ as checked by a Megger after all conduit, conductors, and detector bases have been installed, but before the detector devices are plugged into the bases or end-of-line devices installed.

3.1.4.6. All conduits entering or leaving the terminal cabinets and junction boxes shall be numbered in a logical and consecutive manner. A number shall be used only once.

3.1.4.7. All conductors shall be tagged, labeled, and color-coded. Color-coding shall be by wire insulation, not taping or banding. The numbering and color-coding shall be continuous for each circuit wire.

3.1.4.8. Wire shall be numbered at each connection, termination, and junction point. Wire numbering tags shall be professionally manufactured wire-markers. Each group of wires shall be tagged with its destination at each panel, terminal box, or junction box.

3.1.5. **Control Panels:** Control and other panels shall be mounted with sufficient clearance for observation and testing. All fire alarm junction boxes shall be clearly marked for easy identification. Flexible connectors shall be used for all detection device-mounting boxes. Junction boxes and panels shall be securely hung and fastened with appropriate fittings to ensure positive grounding throughout the entire system.

3.1.6. **Pre-testing:** The system shall be completely pre-tested prior to final acceptance testing. All points shall be tested from point of initiation to the final point or points of annunciation. All circuits shall be tested for continuity and ability to transmit the required signal correctly to the FACP. Any problem due to wrong wire type, wire twist, impedance, mismatches, noise filtering, or shielding shall be corrected during pre-testing and prior to any final acceptance tests. Pre-testing shall include every device in the system. Coordinate with other trades as necessary for testing. Provide the following tests and procedures:

3.1.6.1. Sprinkler Flow Switches: Record time delay from water flow to alarm, and adjust as necessary for 30 to 50 seconds delay.

3.1.6.2. Valve Tamper Switches: Verify "trouble" signal is received on closing of each valve.

3.1.6.3. Smoke Detectors: Test with actual or approved artificial smoke. Verify that reset does not occur when devices are cleared of smoke. Verify supervisory circuit function.

3.1.6.4. Elevator Recall: Verify that elevators recall to designated floor.

3.1.6.5. Central Notification: Verify that one set of conductors in the terminal cabinet becomes a short circuit on any "trouble" condition and that the other set becomes a short circuit on any "Alarm" condition. Verify that the conductor groups are labeled properly.

3.2. FIELD QUALITY CONTROL

3.2.1. Provide the testing program, qualified technical personnel, tools, test equipment, and other items required to perform the tests. The Engineer shall witness all tests and certify the recorded results.



3.2.2. Furnish written notice as to when installed equipment will be tested so that the Engineer and Authority Having Jurisdiction can be present to witness the tests. A minimum of 30 calendar days prior notice of a proposed test shall be provided.

3.2.3. At the Contractor's option, a representative of the equipment manufacturer may be present to witness the tests and verify the results.

3.2.4. These tests shall not alter the Contractor's guaranty of the equipment. Replace and retest work and materials found to be not in compliance with Specification requirements.

3.2.5. Test splice points back to previous splice or terminal points before encapsulant is placed around the splice point.

3.2.6. Maintain test data sheets showing the results of tests performed. Provide data sheets listing the acceptable or specified test limits and the values actually measured. Furnish one set to the Engineer. Retain one set.

3.2.7. Provide data sheets showing the test set-up, the equipment used, the names of persons performing the test, the names of witnesses, the date, the location, and the serial number of the equipment under test. The test data sheets will be reviewed by the Engineer and accepted as submitted, or additional tests may be required. If additional tests are required because initial test results do not comply with these Specifications, the retesting shall be documented and submitted as before, at no additional cost to the District.

3.2.8. Perform tests in accordance with Article 3.01.B.5 above.

3.2.9. Perform inspection of control panel as follows:

3.2.9.1. The inspection shall first cover a physical check of panels in reference to the following items:

3.2.9.1.1. Proper model numbers.

3.2.9.1.2. Arrangement of instruments per Shop Drawings on panel front.

3.2.9.1.3. Arrangement of back-mounted accessories for proper clearance, operation, and maintenance.

3.2.9.1.4. Installation of wiring and accessories for conformance with the Contract Drawings and Specifications.

3.2.9.1.5. Finish of panel.

3.2.9.1.6. Tagging of wiring.

3.2.9.2. After completion of the physical inspection, perform circuit checkouts as required to verify the correct operation of the system.

3.2.9.3. Check electrical instruments and each electrical circuit for continuity either by checking entire "loops" if within panel or by simulating field conditions or operations. This test shall include instruments, alarms, relays, and pressure switches that are part of the panel circuits. When full simulation is not possible or practicable, wires shall be given a point-to-point continuity check.

3.2.10. Perform final checkouts and test. Ship panels only after required factory tests are performed and required modifications or corrections are made. A factory certificate of inspection is required before shipment and shall accompany the shipping documents.

***** END OF SECTION *****



ARCHITECTURAL SPECIFICATION

ELECTRONICS SPECIFICATION

Section 2. Intercommunication Systems

31 AUGUST 2022

JMM/ REV. 00

Revision	Date	Description



INTERCOMMUNICATION SYSTEM

Supply and Install.

See Electrical Auxiliary Plans for location.

- Trunklines

- Must be able to retain the existing Direct LineNumbers of GAB
- Will migrate from Direct Lines to Trunklines

-PABX System

- Must be able to handle all the calls from trunklines and must be IP ready, with features are as follows:

System Features

- *Incoming Call Features*

**Auto Clip*

-The system automatically stores information about outgoing calls to the AutoCLIP routing table. When a person calls back, the call will be routed directly to the original extension (e.g. receptionist) that made the former mentioned outgoing call.

**Call Routing*

-This feature is beneficial when every call made on the system is routed. You can set specific rules for each extension – for custom availability and where calls should be directed.

**DID (Direct Inward Dialing)*

-This feature is the phone numbers associated with the extensions and it allows others to dial in. The callers can find their desired extensions directly by dialing DID numbers.

**Follow me*

-Allow users to route their incoming calls to multiple phones in a specified sequence, allowing each user to create a unique call flow and failover for their extension.

**Queue*

-Allow inbound calls to a particular destination (e.g. Supply Section, Accounting Section) to queue up while waiting for an available extension to take their calls. Better than being on hold, going to voicemail, or getting a busy tone. As soon as an extension of the queue is available, the “queued” calls will ring the phone.

**Ring Group*

-Set a group of extensions into a ring group. When the callers call the ring group, all available extensions will ring simultaneously or sequentially (up to different ringing strategies).

**Time Conditions*

-The feature can be created and calls can be routed to different destinations at different time. Different inbound routes can use different Time Condition settings, so that you can control which phone line is available at different time periods. You can switch into different Time Conditions simply dialing the feature code on extension keypad.

-*Outgoing Call Features*



**BLF Support*

-BLF is short for Busy Lamp Field. It is a light on the IP phone that indicates real-time status of other extensions or trunks that are connected to your PBX.

**Callback*

-This feature will hang up the callers and call them back to direct the callers to the selected destination. It could reduce the cost for users who work out of the office using their own mobile phones.

**DOD (Direct Outward Dialing)*

-DOD is the caller ID of associated extensions displayed when dialing out. You can bind one DOD number to one extension or one DOD number to multiple extensions. This feature can help callees to identify different extensions calling from one company to avoid uncertainty.

**Emergency Number*

-This feature is designed to allow the emergency call to go through a trunk at ANYTIME and trigger a notification.

**Music on Hold (MoH)*

-Music played to callers while they are putting on hold. You can upload any .wav or .gsm file with music to the server and set the on-hold music for your business.

**DID (Direct Inward Dialing)*

-This feature is the phone numbers associated with the extensions and it allows others to dial in. The callers can find their desired extensions directly by dialing DID numbers.

Business Features

**Call Monitor*

-This involves a certain privileged user (e.g. a supervisor) tapping into a phone to monitor other extensions allowing being monitored. The system has three monitoring mode:

- Listen – you can only listen to the call but can't talk.
- Whisper – you can listen to and talk with the monitored extension without being heard by the other party.
- Barge-in – you can talk with both parties.

**Call Recording*

-This feature to record every phone conversation and store call recording files in external storage (e.g. USB, TF, SD, HDD).

-This is free without charge in the system.

**Custom Prompts*

-This Voice prompt can be used in various circumstances to provide better calling experience. Besides the system default prompt, you can upload your own voice prompt to make it more suitable for your business.

You can also record your voice prompt with your internal extension.

**DISA (Direct Inward System Access)*

-An external caller can access internal PBX features on certain CO



lines by keying in a special code.

-The PBX answers the incoming call with dial tone, and the caller enters the access code (if required) and destination extension number or routing code.

**Distinctive Ringtone*

-Multiple incoming phone numbers can each be assigned with its own distinctive ring tone.

IP Phone Entry Level

- HD Voice
- 2.3" 132x64-pixel graphical LCD with backlight
- Two-port 10/100M Ethernet Switch
- PoE support
- Opus codec support
- 1 SIP account
- Local 5-way conferencing
- Support EHS Wireless Headset
- Unified Firmware
- Support YDMP/YMCS
- Stand with 2 adjustable angles
- Wall mountable
- Compliance with all ISO Standard

GENERAL CONDITIONS

“COMPLETION OF THREE (3) STOREY RSCC BUILDING”

PROJECT TITLE

PUGUIS, LA TRINIDAD, BENGUET

PROJECT LOCATION

Written and Prepared by:

ARCH. JIMMY M. MAYORES, UAP
ARCHITECT 1, AD/BGMS
PRC REG. NO.: **0049778**

GENERAL CONDITIONS

PART ONE – DEFINITIONS AND DOCUMENTS

ARTICLE 1 - “DEFINITIONS”

1.1. CONTRACT DOCUMENTS

The Contract consists of the following Documents, including all the additions, deletions and modifications incorporated therein before the execution of the Contract:

- A. Agreement
- B. General Conditions
- C. Specifications
- D. Drawings

1.2. OWNER

Shall mean Department of Social Welfare and Development - Cordillera Administrative Region (DSWD-CAR)

1.3. ARCHITECT/ENGINEER/PROJECT REPRESENTATIVE

Shall mean *DSWD-CAR Building Grounds and Management Section (BGMS)*, acting on behalf of the Owner.

1.4. CONTRACTOR

The person or firm whose proposal has been accepted and to whom the Contract was awarded.

1.5. SUB-CONTRACTOR

Anyone having a direct contract with the Contractor who acts for or on behalf of the Contractor in executing any part of the Contract, not including one who merely furnishes materials without labor.

1.6. SURETY

Is the person, firm or corporation who provides the guarantee for the Contractor’s Bonds.

1.7. PERFORMANCE BOND

Is the approved form of the security furnished by the Contractor and his Surety as a guarantee of good faith on the part of the Contractor to execute the work in accordance with the terms of the Contract.

1.8. GUARANTEE BOND

Is the approved form of the security furnished by the Contractor and his Surety as a guarantee of the quality of the materials and equipment installed and the workmanship performed by the Contractor.

1.9. AGREEMENT

Is the contract between the Owner and the Contractor undertaking the project described in the Contract Documents including all supplemental agreements thereto and all general and special provisions pertaining to the work or materials therefore.

**1.10. DRAWINGS**

Are graphical presentations of the work involved in the project. They include all supplementary details and shop drawings.

1.11. GENERAL CONDITIONS

Are printed documents stipulating the procedural and administrative aspects of the contract.

1.12. SPECIFICATIONS

Are written or printed descriptions of work to be done describing qualities of material and mode of construction.

1.13. SUPPLEMENTARY SPECS

Are additional information which may be issued as an addition or amendment to the provision of the Specifications.

1.14. SCHEDULE OF MATERIALS AND FINISHES

Is an outline specification enumerating the type or trade names of materials to be used.

1.15. WRITTEN NOTICE

Written Notice means information, advice, or notification pertinent to the project delivered in person or sent by registered mail to the individual, firm or corporation at the last known business address of such individual, firm or corporation.

1.16. ACT OF GOD/ FORCE MAJEURE

Includes an earthquake, flood, typhoon, cyclone and other cataclysmic phenomena of nature and all misfortunes and accidents which human prudence could not foresee or prevent. Rain, wind, flood or other natural phenomenon of inconsequential degree for the locality shall not be construed as an Act of God or Force Majeure and no reparation shall be made to the Contractor for the damages to work resulting therefrom.

1.17. TIME LIMITS

Time limit is the duration of time allowed by the Contract for the completion of the project in any stipulated portions therefor.

1.18. LOCAL LAWS

Applies to all laws, ordinances and other governmental regulations applicable to the project and its undertaking.

1.19. WORK

The term "work" of the Contractor or Sub-contractor includes labor or material or both as well as equipment, transportation, or other facilities necessary to commence and complete the construction called for in the Contract.

1.20. FURNISH

The word "furnish" shall be understood to mean "Purchase and/or fabricate and deliver to the jobsite or other location when so designated".

1.21. INSTALL

The word "install" shall mean to build in, mount in position, connect or apply and object specified ready for the intended use.



1.22. PROVIDE

The word "provide" shall be understood to mean "furnish and install".

1.23. REQUIRED OR NECESSARY

The words "required or necessary" shall mean as required or necessary for the complete execution of that portion of the work.

1.24. APPROVED, DIRECTED AND ACCEPTABLE

The word "approved", "directed", and "acceptable", or words of like import shall mean approved, directed by or acceptable to the Architect/Engineer unless otherwise stipulated in the Contract.

1.25. SINGULAR OR PLURAL

In all cases where a device, item or part of equipment is referred to in the singular number, it is intended that such reference shall apply to as many devices, items, or parts as are required to complete the work.



ARTICLE 2 - "EXECUTION, CORRELATION AND INTENT OF DOCUMENTS"

2.1. SIGNATURE ON DOCUMENTS

The Contract Documents shall be signed in quintuplicate by the Owner and the Contractor duly witnessed.

2.2. INTENT OF CONTRACT DOCUMENTS

The Contract Documents are complementary, and what is called for by any one shall be as binding as if called for by all. The intent of the Drawings and Specifications is to prescribe the complete work that the Contractor is to undertake to comply with the Contract Documents. The intention of the Documents is to include all labor and materials, equipment and transportation necessary for the proper execution of the work.

2.3. INTERPRETATION OF THE CONTRACT DOCUMENTS

2.3.1. In case of conflict between the provisions of the Agreement or of any Contract Document, or between the provisions of one of the Contract Documents and provisions of another Contract Document, or in case of discrepancy, defective descriptions, error or omission in the Contract, the following rules shall be followed:

Rule 1. The Agreement and the Contract Documents shall be taken as mutually explanatory of one another. The various provisions of the Contract shall be interpreted together attributing to doubtful ones that sense which may result from all of them taken jointly.

Rule 2: The provision of the Civil Code of the Philippines on the interpretation of contracts and of the Rules of Court on the Interpretation of Documents shall be applied.

Rule 3: Where the conflict between or among the provision of the Agreement and/or the Contract Documents cannot be resolved by Rule 1 and 2, it shall be understood that:

1. The Detailed Drawings shall prevail over the General Drawings;
2. Figures written on Drawings shall prevail over the Drawings themselves; and
3. Calculated dimensions shall prevail over scaled dimensions.

Rule 4: Where the conflict cannot be resolved by applying Rule 3 or where Rule 3 does not apply, the conflict shall be resolved by giving precedence to the Agreement or to the provision of a Contract Document higher in order of priority among the various documents which comprise the Contract. The order of priority among these documents shall be as follows:

1. Agreement as modified by Notice of Award of Contract, if such be the case, and the Contractor's conformity thereto;
2. Instructions to Bidders and Pre-Bid Conference Instructions;
3. Addenda to Bid Documents and Bid Bulletins;
4. Specifications;
5. Drawings;
6. General Conditions of Contract;
7. Other Contract Documents; and



8. Other documents forming part of the Contract attached thereto or incorporated therein by reference.

Where the other or precedence is modified in the Agreement, such modified order of precedence shall be followed; however, the mere listing of Contract Documents in the Agreement or any Contract Document shall not be interpreted as establishing an order of precedence among them.

Rule 5: Where there is discrepancy, defective description, error or omission in any Contract Document, the Contract Documents shall be interpreted as being complementary to each other. Thus, what is called for in one Contract Document, although not mentioned in another Contract Document where it should have been mentioned, shall be deemed to be called for by the Contract.

Rule 6: The apparent silence of the Drawings, Specifications or any other Contract Documents as to any detail, or the lack of detailed description concerning any part of the work, shall be understood to mean that good and accepted construction practice in accordance with the usage or custom of the place shall be followed:

Rule 7: Rules 1 to 6 shall yield to specific rules of interpretation in this document or in the Contract.

2.3.2. The Architect/Engineer shall resolve the conflict, or interpret or explain such discrepancy, defective description, error or omission with due regard to Article 2.4. below.

2.3.3. The interpretation of, or explanation by the Architect/Engineer shall be issued in the form of instructions to the Contractor. Where the Architect/Engineer fails to issue the instructions in writing, the execution of that part of work affected by the interpretation or explanation without a timely objection or protest of the Owner or Architect/Engineer shall be deemed to have been executed in accordance with the Architect/Engineer's explanation or interpretation.

2.3.4. In all cases where a device, item or part of equipment is referred to in the singular number, it is intended that such reference shall apply to as many such devices, items, or parts as are required to complete the work.

2.4. CONFORMITY TO THE CONTRACT DOCUMENTS

2.4.1. All works shall conform to the Contract Documents.

2.4.2. If there be a variance between the Drawings and the Specifications, the provisions of the Specifications shall control. In case of conflict between the General Conditions of the Contract or any modification thereof and the detailed specifications requirements, the detailed specifications requirements shall control.

2.4.3. Any discrepancies found between the Drawings and Specifications and the site conditions or any errors or omissions in the Drawings or Specifications shall be immediately reported to the Architect/Engineer or Engineer, who shall promptly correct such discrepancies, errors, or omissions after his discovery. Any work involving such discrepancies shall be done at the Contractor's account.



3.4.4. Responsibility for adequacy of the design and for sufficiency of the Drawings and Specifications shall be borne by the Owner. The complete requirements of the work to be performed under the Contract shall be set forth in the Drawings and Specifications to be supplied by the Owner through the Architect/Engineer or Engineer or by the Architect/Engineer or Engineer as representative of the Owner.

3.4.5. Drawings and specifications furnished shall be in accordance with the Contract Documents and shall be the true and accurate development thereof.

The Architect/Engineer or Engineer shall furnish from time to time all additional detailed drawings and instructions essential to the proper execution of the work. The Architect/Engineer and Engineer shall furnish with reasonable promptness such additional detail drawings and instructions. All the additional drawings and instructions shall be consistent with the Contract Documents, true development thereof, and reasonably inferable therefrom. All such additional drawings and instructions are to be considered of equal force as those which originally accompany the specifications.

3.4.6. The Contractor and the Architect/Engineer or the Engineer if either one so request shall jointly prepare a schedule, subject to change from time to time in accordance with the progress of the work, fixing dates at which the various detail drawings will be required and the Architect/Engineer or Engineer shall furnish them in accordance with that schedule. Under like conditions, a schedule shall be prepared, fixing the dates for the submission of shop drawings, for the beginning of manufacture and installation of material, and for the completion of the various parts of the work.

2.5. CONTRACT DOCUMENTS AT SITE OF WORK

2.5.1. The Contractor shall keep at the site of work, in good order one copy each of all Drawings, Specifications, Breakdown of Work, Schedule of Construction Work and including all instructions and graphs available to the Architect/Engineer and his representative.

2.6. OWNERSHIP OF CONTRACT DOCUMENTS AND MODELS

The Drawings, Specifications, and Models, including all additional instructions and copies thereof, furnished for this work by the Architect/Engineer are the property of the Department of Social Welfare and Development - CAR (DSWD-CAR). They are not to be used on any other work, and, with the exception of the signed contract set, are to be returned to the Architect/Engineer at the completion of the work, before the Final Payment to the Contractor is made.



ARTICLE 3 - "DRAWINGS AND SPECIFICATIONS"

3.1. COPIES OF DRAWINGS AND SPECIFICATIONS

The Architect/Engineer shall furnish the Contractor free of charge, two (2) sets of Drawings and Specifications. All other copies of Drawings and Specifications as required by the Contractor will be furnished to him (by the Architect/Engineer) at cost of reproduction.

3.2. COORDINATION OF DRAWINGS AND SPECIFICATIONS

All drawings and models are intended to cooperate with the Specifications, to form a part thereof, and also to form a part of the Contract Documents. Where figures are given, they are to be followed in preference to measurements by scale. Anything shown on the Drawings but not mentioned in the Specifications, or vice-versa, or anything not expressly set forth as though specifically shown and mentioned in both, without any extra charge.

3.3. CLARIFICATION OF MEANING OF DRAWINGS AND SPECIFICATION

The Contractor shall carefully examine, compare and verify the data furnished by the Drawings and Specifications. Any doubt as to the meaning of Drawings (including notes thereon) or of the Specifications will be explained, and all directions and explanations necessary and proper to make more definite and certain any requirements of the Drawings (including notes thereon) of the provisions of the Specifications and give them due effect, will be given by the Architect/Engineer.

Should a conflict occur in or between Drawings and Specifications, the Contractor shall be deemed to have estimated a more expensive way of doing work unless he shall have asked for and obtained a decision, in writing, from the Architect/Engineers before submission of proposals as to which method or materials will be required. If, after award, the less expensive work is done, the Contractor shall credit the Owner an amount equivalent to the difference between the more expensive and the less expensive work.

If, in the Contractor's opinion, any work indicated on the Drawings or specified in such a manner as will make it impossible to produce a first-class work, he shall refer the same to the Architect/Engineer for interpretation before proceeding with the work. If the Contractor fails to make such reference, no excuse will thereafter be entertained for failure to carry out the work in the most satisfactory manner.

3.4. DISCREPANCIES IN DRAWINGS

In case of discrepancy in the figures or drawings, the matter shall be referred immediately to the Architect/Engineer, before any adjustment shall be made by the Contractor save only at the latter's own risk and expense. The decision of the Architect/Engineer on the adjustment of discrepancies so as to conform to the real intent of the drawings and specifications shall govern and shall be followed by the Contractor.



ARTICLE 4 - "DETAIL DRAWINGS AND INSTRUCTIONS"

4.1. SUPPLEMENTARY DRAWINGS AND INSTRUCTIONS

The drawings referred to in these Specifications may be further supplemented by additional detailed drawings and instructions essential to the proper interpretation of the Drawings and the proper execution of the work. The Architect/Engineer shall furnish with reasonable promptness such additional detail Drawings and Instructions. All such additional details drawings and instructions shall be consistent with the Contract Documents, true developments thereof, and reasonably inferable therefrom. All such additional drawings and instructions are to be considered of equal force as those which originally accompany the specifications. The work shall be executed in conformity with such detail's drawings and instructions, and the Contractor shall do no work without proper drawings and instructions.

4.2. SCHEDULE FOR SUBMISSION OF DETAIL AND SHOP DRAWINGS

The Contractor and the Architect/Engineer, if either one so request, shall jointly prepare a schedule subject to change from time to time in accordance with the progress of the work, fixing the dates at which the various detailed drawings will be required, and the Architect/Engineer shall furnish them in accordance with that schedule. Under like conditions, a schedule shall be prepared, fixing the dates for submission of the shop drawings, for the beginning of manufacture and installation of materials and for the completion of the various parts of the work.



ARTICLE 5 - "SHOP DRAWINGS"

5.1. CONDITIONS IN THE PREPARATION OF THE SHOP DRAWINGS

The Contractor shall prepare at his own expense and submit with such promptness as to cause no delay in his own work or in that of any other contractor doing work on the same building, two (2) copies of all shop or setting drawings, templates, patterns and models, as well as schedule required for the work of various trades, and the Architect/Engineer shall pass upon them with reasonable promptness, making desired corrections. The Contractor shall make any corrections required by the Architect/Engineer, file with him two (2) corrected copies and furnish such other copies as may be needed.

5.2. CHECKING DRAWINGS OF SUB-CONTRACTS

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

5.3. IDENTIFICATION

- A. Shop drawings shall be numbered consecutively and represent:
- B. Working and erection dimension
- C. Arrangements and sectional views
- D. Necessary details
- E. Kinds of materials and finishes

Shop drawings shall be dated and contain

- (a) name of project
- (b) descriptive names of equipment, materials, and classified item numbers,
- (c) location at which materials or equipment are to be installed in work.

5.4. LETTER OF TRANSMITTAL

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

5.5. CORRECTIONS, CHANGES AND VARIATIONS

The Contractor shall submit three (3) sets of prints of shop drawings to the Architect/Engineer for approval. Satisfactory shop drawings will be so identified by the Architect/Engineer, dated, and one (1) copy thereof returned to the Contractor should shop drawings be disapproved by the Architect/Engineer, one (1) set of such drawings will be returned to the Contractor with necessary corrections and changes to be made as indicated.

The Contractor shall make required corrections and changes and resubmit shop drawings, in duplicate until the Architect/Engineer's approval is obtained.



Upon receipt of approval, the Contractor shall insert date of approval on tracing and promptly furnish the Architect/Engineer with three (3) additional prints of approved drawings.

No work called for by shop drawings shall be executed until the Architect/Engineer's approval is given.

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

5.6. RESPONSIBILITY FOR ACCURACY

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



PART TWO - LAWS, REGULATIONS, SITE CONDITIONS, PERMITS AND TAXES

ARTICLE 6 - "LAWS, REGULATIONS, AND SITE CONDITIONS"

6.1. LAWS AND REGULATIONS

In general, the Contractor shall comply with all the laws, city and municipal ordinances, and all Building Codes, rules and regulations, insofar as they are binding upon or affect the parties hereto, the work, or those engaged thereon. He shall also comply with regulations of firms furnishing utilities such as water, gas, telephone and electricity for the project.

If the Contractor performs any work contrary to such laws, ordinances, rules and regulations, and without such notice to the Architect/Engineer, he shall bear all costs arising therefrom.

6.2. SITE CONDITIONS

Before the bidding and the awarding of the Contract, the Contractor is expected to have visited the locality of the work and made his own estimates of the facilities and difficulties attending to the execution of the proposed contract, including local conditions and all other contingencies. Short of subsurface exploration, the Contractor shall be responsible for identifying, verifying and measuring actual size dimensions, contour, natural grade, areas for demolition and clearing, and all other matters in so far as they may affect the scope of the work, and to consider such when he prepares his proposal. No extra compensation and extension of time will be given due to negligence or inadvertence of the Contractor.



ARTICLE 7 - "PERMITS, TAXES AND SURVEYS"

7.1. PERMITS AND LICENSES

All construction permits and licenses necessary for the execution of the work or of any temporary work and easements in relation thereto should be secured, and the corresponding required fees paid for by the Contractor. The cost of such permits and licenses may, however, be reimbursed by the Owner to the Contractor if specifically stipulated in the prior instructions of the Owner or the Architect/Engineer.

The Contractor shall be solely responsible for the actions taken by him should construction be started before acquiring the necessary permits and licenses.

The Contractor shall also secure the final occupancy permit but he shall not be responsible for the non-issuance or the delay in the issuance thereof through no fault of the Contractor.

7.2. TAXES

Wherever the law of the place of building requires a sales, consumer, use, or other similar tax related or pertinent only to the construction of the project, the Contractor shall pay such tax.

7.3. CONSTRUCTION STAKES AND REFERENCE MARKS

The Owner shall be responsible for the establishments of lot lines, boundary lines, easements, and benchmarks by a certified surveyor. The Owner may relegate this responsibility to the Contractor provided the Owner shall pay for the cost of said services. All other grades, lines, levels, and benchmarks necessary for the prosecution of the work shall be established and maintained by the Contractor.

The Contractor shall verify all grades, lines, levels and dimensions as indicated on the Drawings. He shall report any error or inconsistency to the Architect/Engineer before commencing work.

The Contractor shall provide and maintain well-built batter boards at all corners. He shall establish benchmarks in not less than two widely separated places. As work progresses, he shall establish benchmarks at each floor giving exact levels of various floors.

As work progresses, the Contractor shall layout the exact location of all partitions as a guide to all trades.

7.4. SERVICES OF LICENSED SURVEYOR

The Contractor shall pay for the services of a licensed surveyor to confirm and certify the location of column centers, piers, walls, pits, trenches, pipe work, culvert work, utility lines and work of similar nature required by the Contractor. A copy of such certification shall be furnished by the Architect/Engineer. It is the intention that the Surveyor's Certification shall represent an independent and disinterested verification of such layout.



The Contractor shall furnish certification from licensed surveyor that all partitions of work are located in accord with Contract requirements and at elevation required thereby. The surveyor shall promptly verify and certify to lines and levels of any portion or subdivision of work at any time it may be deemed necessary by the Architect/Engineer. Any deviation from the Drawings shall be certified to the Architect/Engineer within 24 hours of discovery of the same.

7.5. FINAL CERTIFICATION

Final certification shall be submitted upon completion of work, or upon completion of any section of work, if required by the Architect/Engineer, and before final payment is made. Any exception of deviations from the Drawings shall be noted on final certification, and there shall be included any maps, plots, notes, and the like necessary in the opinion of the Architect/Engineer to constitute a full and complete report.



PART THREE - EQUIPMENT AND MATERIALS

ARTICLE 8 - "GENERAL"

8.1. Notwithstanding anything herein specified or provided that may be construed to the contrary, all materials and equipment must conform to all laws, ordinances, regulations and building codes now or hereafter may be in force and applicable during the period of construction, and the Contractor shall obtain the necessary permits and pay the required fees therefore to the proper authorities. The Contractor shall bear any and damages by reason of any delay in the work arising from his failure to comply with the provisions of this clause. Provided, however, that should any revision or amendments to such laws, ordinances, regulations and building codes made during the construction period affect the cost or time of completion of the contract, a corresponding adjustment shall be made.

ARTICLE 9 - "EQUIPMENT"

9.1. QUALITY OF EQUIPMENT

In order to establish standards of quality, the Architect/Engineer and the Engineer have detailed Specifications, referred to certain equipment by name and catalog number. This procedure is not to be construed as eliminating from competition other products of equal or better quality by other manufacturers where fully suitable in design.

The Contractor shall furnish the complete list of proposed substitutions prior to the signing of the Contract, together with such engineering and catalog data as the Architect/Engineer and the Engineer may require.

The Contractor shall abide by the Architect/Engineer's and the Engineer's judgments when proposed substitute items of equipment are judged to be acceptable and shall furnish the specified item of equipment in such case. All proposals for substitutions shall be submitted in writing by the General Contractor and not by individual trades or material suppliers. The Architect/Engineer and the Engineer will approve or disapprove proposed substitutions in writing within a reasonable time. No substitute equipment shall be used unless approved in writing.

9.2. EQUIPMENT APPROVAL DATA

The Contractor shall furnish three (3) copies of complete catalog data for every manufactured item of equipment and all components to be used in the work, including specific performance data, material description, rating, capacity, working pressure, material gauge or thickness, brand name, catalog number, and general type.

This submission shall be compiled by the Contractor and approved by the Architect/Engineer and the Engineer before any of the equipment is ordered.

Each data or catalog in the submission shall be indexed according to specification section and paragraph for easy reference

After written approval, this submission shall become a part of the Contract, and may not be deviated from except upon written approval of the Architect/Engineer and the Engineer.



Catalog data for equipment approved does not in any case supersede the Contract Documents. The approval of the Architect/Engineer and the Engineer shall not relieve the Contractor from responsibility for deviations from Drawings or Specifications, unless he has, in writing, called their attention to such deviations at the time of submission, nor shall it relieve him from responsibility for errors of any sort in the items submitted. The Contractor shall check the work described by the catalog data with the Contract Documents for deviations and errors.

It shall be the responsibility of the Contractor to ensure that items to be furnished fit the space available. He shall make necessary field measurements to ascertain space requirements, including those of connections, and shall order such sizes and shapes of equipment that the final installation shall suit the true intent and meaning of the Drawings and Specifications.

Where equipment requiring a different arrangement of connections from those shown is approved, it shall be the responsibility of the Contractor to install equipment to operate properly, and in harmony with the intent of the Drawings and Specifications, and to make all changes in the work required by the different arrangement of connections.



ARTICLE 10 - "MATERIALS, FIXTURES, APPLIANCES AND FITTINGS FURNISHED BY THE CONTRACTOR"

10.1. MANUFACTURER AND DEALERS

Names of proposed manufacturers, material men, and dealers who are to furnish materials, fixtures, appliances or other fittings shall be submitted to the Architect/Engineer for approval as early as possible, to afford proper investigation and checking.

10.1.1. No manufacturer will be approved for any materials to be furnished under this Contract unless he shall be of good reputation, shall have a plant of ample capacity and adequate quality control, and shall have successfully produced similar products.

10.1.2. All transactions with manufacturers, or subcontractors, shall be through the Contractor.

10.1.3. In asking for prices on materials, the Contractor shall provide the manufacturer or dealer with complete information from Specifications and Drawings, and shall inform the manufacturer or dealer of all pertinent contract requirements.

10.1.4. The manufacturer or dealer shall have the materials, equipment, fixtures, appliances or other fittings supplied by him properly coded or identified in accordance with existing standards for the same to indicate class grade or quality.

10.2. SAMPLE OF MATERIALS

The Contractor shall furnish for approval, with such promptness as to cause no delay in work, samples as specified or required. Work shall be in accordance with approved samples.

Unless otherwise specified, three (3) samples shall be submitted, and of adequate size to show quality, type, color, range, finish, and texture or material.

Each sample shall be labeled, bearing material name and quality, the Contractor's name, date, project name, and other pertinent data.

Where specifications require manufacturer's printed installation directions, such directions shall accompany samples submitted for approval.

A letter of transmittal in triplicate from the Contractor requesting approval shall accompany all sets of samples.

Transportation charges to the Architect/Engineer's office must be prepaid on all samples forwarded.

Materials shall not be ordered until approval is received in writing from the Architect/Engineer. All materials shall be furnished substantially equal in every respect to approval samples.



10.3. TRADE NAME MATERIALS AND SUBSTITUTE

Whenever an item or class of material is specified exclusively by trade name, by manufacturer's name or by catalogue reference, entry such item shall be used except as provided for in paragraph (b) hereof.

No substitution shall be made for any material, article, or process required under Contract unless approved in writing by the Architect/Engineer.

Materials and articles installed or used without such approval shall be at the risk of subsequent rejections.

10.4. TESTING SAMPLES OF MATERIALS

The Contractor shall be submitting to the Architect/Engineer as many samples as may be required for testing. Testing of all samples shall comply with the Specifications and government standards and shall be performed by a competent entity or testing laboratory approved by the Architect/Engineer. All costs for shipment delivery, handling and testing of samples are to be paid by the Contractor.

10.5. QUALITY OF MATERIALS

Unless otherwise specified, all materials shall be new. The quality of material shall be of the grade of their respective kinds for the purpose. The work shall be performed in the best and most acceptable manner in strict accordance with the requirement of the Drawings and Specifications.

The decision of the Architect/Engineer as to quality and quantity of work and materials shall be final and precedent to the Contractor's right to receive any money hereunder.

10.6. STORAGE AND STOCKPILING OF MATERIALS

The Contractor shall allot suitable space to sub-contractors for storage of their materials and for erection of their sheds and tool houses.

All cement, lime and other materials affected by moisture shall be stored on platforms and protected from weather. Materials shall be so stored as to insure the preservation of their quality and fitness for the work. Stored materials shall be located so as to facilitate prompt inspection.

Should it be necessary at any time to move materials, sheds, or storage platforms, the Contractor shall do so at his own expense.

10.7. DEFECTIVE MATERIALS

All materials not conforming to the requirements of these Specifications shall be considered as defective. No defective materials, the defects of which have been subsequently corrected, shall be used until approval has been given. Upon failure on the part of the Contractor to comply with any order of the Architect/Engineer made pursuant to the provisions of this article, the Architect/Engineer shall have the authority to remove and replace defective materials and to



deduct the cost of removal and replacement from any money due or to become due the Contractor.

The apparent silence of the Specifications, Drawings, Special Provisions and Supplementary Specifications, as to any detail or description concerning any point shall be regarded as meaning that only the best general practice is to prevail and that only materials and workmanship of first-class quality are to be used.

Failure or neglect in the part of the Architect/Engineer, or any of his agents to condemn or reject bad or inferior materials shall not be construed to imply an acceptance of the materials if said bad or inferior materials are discovered at any time prior to the final acceptance of the work by the Owner the release of the Contractor.

10.8. IMPORTED MATERIALS, FIXTURES AND EQUIPMENT

The Contractor shall take cognizance of the time element of the Contract. He shall make early arrangements for the purchase and delivery of all specified imported materials, fixtures, appliances and equipment in order to avoid delay in the completion of the work.

No extension of the time of substitution of materials shall be allowed due to negligence or inadvertent of the Contractor.



ARTICLE 11 - "ITEMS FURNISHED BY THE OWNER"

11.1. Materials, equipment, fixtures, appliances and fittings specifically indicated shall be furnished by the Owner in accordance with a schedule of delivery agreed between the Owner and the Contractor. The fact that the owner is to furnish material is conclusive evidence of its acceptability for the purpose intended, and the Contractor may continue to use it until otherwise directed. If the Contractor discovers any defect in material furnished by the Owner, he shall notify the Architect/Engineer. The Contractor shall be responsible for material loss or damage after receipt of any material, equipment, fixture, appliance or fitting unless the same has been installed and accepted for the safekeeping by the Owner or his representative.

ARTICLE 12 - "ROYALTIES AND PATENTS"

12.2. The Contractor shall pay all royalties and license fees on all patented materials and processes furnished by him. He shall defend all suits or claims corresponding thereto for infringement of any patent rights and shall save the Owner harmless from loss on account thereof.

ARTICLE 13 – "MANUFACTURER'S DIRECTION"

12.3. All manufactured articles, materials, equipment, appliances, fixtures and fittings shall be applied, installed, connected, erected, used, cleaned, and conditioned, in accordance with manufacturer's printed directions, unless herein specified to the contrary. Where reference is made to the manufacturer's directions, the Contractor shall submit a specified number of copies of such directions to the Architect/Engineer.



PART FOUR – PREMISES AND TEMPORARY STRUCTURES

ARTICLE 14 - "USE OF PREMISES"

14.1. LIMITATION FOR USE

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

14.2. SAFEGUARD FOR STRUCTURE

The Contractor shall not load or permit any part of the structure to be loaded with a weight that will endanger its safety.

The Contractor shall enforce the Architect/Engineer's instructions regarding signs, advertisements, fires and smoking.



ARTICLE 15 - "TEMPORARY STRUCTURES AND FACILITIES"

15.1. TEMPORARY OFFICE AND CONTRACTORS

The Contractor shall at all times provide and maintain adequate weather tight temporary offices with water, light, telephone, and toilet facilities for the use of the Architect/Engineer, resident engineers, inspectors, contractors, and sub- contractors. This office shall be provided with a wooden floor raised above the ground, windows, doors and locks, tables, closet, blackboard, tack board, benches, and racks for drawings. One room of enclosed private area shall be apportioned for the exclusive use of three (3) Owner's Project Representatives.

15.2. TEMPORARY HOUSING FOR WORKERS

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

15.3. TEMPORARY SANITARY FACILITIES AND FIRST AID STATION

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

15.4. TEMPORARY BARRICADES AND GUARD LIGHTS

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

15.5. TEMPORARY WATER, POWER AND TELEPHONE FACILITIES

The Owner shall have the privilege of such temporary or trial usage, for such reasonable length of time as the Architect/Engineer shall deem to be proper. No claim for damage shall be made by the Contractor for injury to, or breaking of any parts of such work which may be caused by weakness or inaccuracy of structural parts or by defective material or workmanship.

If the Contractor so elects, he may, at his expense, place persons satisfactory to the Architect/Engineer to make such trial usage.



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

15.6. TEMPORARY SIGNS

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

15.7. TEMPORARY ROADWAYS

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

15.8. TEMPORARY STAIRS, LADDERS, RAMPS, RUNWAYS

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

15.9. TEMPORARY ENCLOSURES

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

15.10. TEMPORARY OR TRIAL USAGE

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

The Owner shall have the privilege of such temporary or trial usage, for such reasonable length of time as the Architect/Engineer shall deem to be proper. No claim for damage shall be made by the Contractor for injury to, or breaking of any parts such work which may be caused by weakness or inaccuracy of structural parts or by defective material or workmanship.



15.11. REMOVAL OF TEMPORARY STRUCTURES

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



PART FIVE - PROTECTION OF WORK AND PROPERTY

ARTICLE 16 - "PROTECTION OF WORK AND OWNER'S PROPERTY"

16.1. SAFEGUARD MEASURES

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

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

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

The Contractor shall provide and maintain barrels of water and fire buckets on premises for fire protection. Such equipment shall not be used for any other purpose.

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

16.2. OLD MATERIALS

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

16.3. TREES AND OTHER PLANTS

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

All trees and other plants that need to be transplanted elsewhere within fifty (50) meters from the building lines shall be done by the Contractor at his own expense in accordance with instructions from the Architect/Engineer or from the authorities concerned.

Undue damage to trees, plants, shrubs, streets, sidewalks, etc., resulting from or in connection with the construction work shall be made good and or replaced by the Contractor at his own expense to the satisfaction of the Owner and the Architect/Engineer.



16.4. DRAINAGE

If it is necessary in the prosecution of the work to interrupt or obstruct the- natural flow of rivers or streams, the drainage of the surface, or flow of artificial drains, the Contractor shall provide for the same during the progress of the work in such a way that no damage shall result to either public or private interests, For any neglect to provide for other natural or artificial drainage which he may have interrupted, he shall solely be held liable for all- damages which may result therefrom during the progress of the work.



ARTICLE 17 - "PROTECTION OF ADJACENT PROPERTY AND EXISTING UTILITIES"

17.1. CONTRACTOR'S SOLE RESPONSIBILITY

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

17.2. EXISTING UTILITIES

Existing utilities, if damaged due to negligence or fault of the Contractor, shall be repaired by the Contractor at his expense.

ARTICLE 18 - "PROTECTION OF LIFE, WORK AND PROPERTY DURING AN EMERGENCY"

18.1. AUTHORIZATION CONTRACTOR

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



PART SIX - LABOR, WORK AND PAYMENTS

ARTICLE 19 - "LABOR"

19.1. CHARACTER OF WORKMEN

The Contractor shall employ only competent and efficient engineers, superintendents, foremen, mechanics, laborers, or artisans. Whenever, in the opinion of the Architect/Engineer, any employee is careless or incompetent or obstructs the progress of the work or acts contrary to instructions or conducts himself improperly, the Contractor shall, upon written request of the Architect/Engineer, discharge or otherwise remove him from the work and not employ him again upon it.

Should the Contractor fail to remove unsatisfactory workmen or fail to furnish suitable and sufficient equipment or personnel for the proper prosecution of the work, the Architect/Engineer may withhold payment which are or may become due, or may suspend the work until such orders are complied with.

19.2. SUPERINTENDENCE AND SUPERVISION

The Contractor, if he supervises the work personally, must be a licensed engineer or Architect/Engineer, otherwise he must have employed a licensed engineer or Architect/Engineer acceptable to the Architect/Engineer who will supervise the work personally during work hours.

The Contractor shall keep in his project site, during the work's progress, a competent Project Engineer or Superintendent and any necessary assistants, all satisfactory to the Architect/Engineer.

The Project Engineer or Superintendent shall represent the Contractor in his absence and all directions given to him shall be as binding as if given to the Contractor. He shall have full authority to execute the orders or directions of the Architect/Engineer without delay and to promptly supply such materials, tools, plants, equipment, and labor as may be required.



ARTICLE 20 - "WORK"

20.1. METHODS AND APPLIANCES

The Contractor shall use such methods and appliances for the performance of all the operations connected with the work embraced under this Contract as will produce a satisfactory quality of work and rate of progress which, in the opinion of the Architect/Engineer, will insure the completion of the work within the contract time.

20.1.1. If, at any time before the commencement or during the progress of the work, such methods or appliances appear to the Architect/Engineer to be inefficient or inappropriate for producing the quality of work required, or ensuring the required rate of progress, the Architect/Engineer may order the Contractor to increase the rate of their efficiency, or to improve their system of operation. The Contractor must comply with such order. Failure, however, of the Architect/Engineer to demand such increase of efficiency or improvement of character of methods and appliances shall not relieve the Contractor from his obligation to turn out such quality of work and rate of progress as are called for in this Contract.

20.1.2. The Contractor shall, if required, furnish to the Architect/Engineer for approval full information satisfactory evidence as to the name of the manufacturer of machinery, mechanical or other equipment which he contemplates, using together with the performance capacities and other pertinent information.

20.2. LAYING OUT THE WORK

The Contractor shall lay out the lines and grades of the work as per conditions set forth under Article 7.3 (Construction Stakes and Reference Marks) of the General Conditions.

All stakes, benchmarks, etc., placed by the Contractor in laying out the work, approved by the Architect/Engineer, shall be carefully guarded and preserved by the Contractor. In case such stakes or marks are displaced or rendered useless through the carelessness or neglect of the Contractor or of his agents, employees, or workmen, they should be replaced by the Contractor at his own expense.

20.3. INSPECTION OF WORK

The Owner, Architect/Engineer and their representatives shall at all times have access to the work wherever it is in preparation or progress and the Contractor shall provide proper facilities for such access and for inspection.

20.3.1. If the specifications, the Architect/Engineer's instructions, laws, ordinances or any public authority require any work to be specifically tested or oved, the Contractor shall give the Architect/Engineer and other parties required to make the inspection, timely notice of its readiness for inspection, and the date fixed for such inspection. Inspections by Architect/Engineer shall be promptly made and where practicable, at the source of supply. If any work should be covered up without approval or consent of the Architect/Engineer, it must, if required by the Architect/Engineer, be uncovered for examination at the Contractor's expense.



20.3.2. Re-examination of questioned work may be ordered by the Architect/Engineer and if so, ordered the work must be uncovered by the Contractor. If such work be found not in accordance with the Contract Documents, the Contractor shall pay the cost.

20.3.3. The Contractor shall furnish promptly without additional charge, all reasonable facilities, labor and materials necessary for the safe and convenient inspection and test that may be required by the inspectors. All inspections and tests shall be performed in such manner as not to unnecessarily delay the work already completed. By removing or tearing out the same, the Contractor shall, on request, promptly furnish all necessary facilities, labor, and materials. If such work is found to be defective in any material respect due to fault of the Contractor or his sub- contractors, he shall defray all the expense of such examination and of satisfactory reconstruction. If, however, such work is found to meet the

requirements of the Contract, the actual cost of labor and materials necessarily involved in the examination and replacement plus 15 percent shall be allowed the Contractor and he shall, in addition, if completion of the work has been delayed thereby, be granted a Suitable extension of time on account of the additional work involved.

20.4. DEFECTIVE WORK

Defective work may be condemned by the Architect/Engineer at any time before final acceptance of the work, and when such work has been condemned it shall be taken out immediately by the Contractor and rebuilt in accordance with the Drawings and Specifications. Failure or neglect on the part of the Architect/Engineer or any of his agents to condemn or reject bad or inferior work, shall not be construed to imply an acceptance of the work of the same if such bad or inferior work is discovered at any time prior to the final acceptance of the work by the Owner and the release of the Contractor.

20.5. WORK DURING AN EMERGENCY

The Contractor shall perform any work and shall furnish and install all materials and equipment necessary during an emergency endangering life or property. In all cases shall notify the Architect/Engineer and the Engineer of the emergency as soon as practicable, but he shall not wait for instructions before proceeding to properly protect both life and property.

20.6. INCREASED OR DECREASED QUANTITIES OF WORK

Adjustments of drawings to suit field conditions which cannot be foreseen at the time of calling for bids, may be necessary during construction. It is the essence of the Contract to recognize such changes in Drawings as constituting a normal and expected margin of adjustment, and not involving nor the permitting change or modification of Contract Prices, provided only, that resulting overruns or underruns from the quantities in the proposal do not exceed five percent. In case of discrepancy, the matter shall be submitted immediately to the Architect/Engineer, before any adjustment shall be made by the Contractor, otherwise it shall be at his own risk and expense.

20.7. CHANGES IN THE WORK

20.7.1. **CHANGES ORDERED BY OWNER:** The Owner may at any time, without invalidating the Contract and without notice to sureties, order extra or make changes by altering, adding to or deducting from the work, as covered by the Drawings and Specifications of this Contract and within the general scope thereof. Such changes shall be ordered by the Owner in writing, and no change or omission from the Drawings and Specifications shall be considered to have been authorized without written instructions signed by the Owner.



20.7.2. CHANGE OF SUBSURFACE CONDITIONS: If, during the progress of the work, sub-surface conditions at the site materially different from those shown on the Drawings or indicated in the Specifications are discovered or encountered, the attention of the Architect/Engineer shall be called immediately to such conditions, before they are disturbed. The Architect/Engineer shall thereupon promptly investigate the conditions, and if he finds that they materially differ from those shown on the Drawings or indicated in the Specifications, he shall at once, with the approval of the Owner, make such changes in the Drawings and Specifications as he may find necessary.

20.7.4. VALUE OF CHANGE/EXTRA WORK: The value of extra work or change shall be determined in any one or more of the following ways:

20.7.4.1. By estimate and acceptance in a lump sum.

20.7.4.2. By unit prices stipulated in the Contract.

20.7.6. CHANGES ORDERED BY THE ARCHITECT/ENGINEER: In giving instructions, the Architect/Engineer shall have the authority to make minor changes in the work, not involving extra cost, and not inconsistent with the design concept of the building.

20.9. CLEANING UP AT COMPLETION OF WORK

The contractor shall at all times keep the premises free from accumulation of waste materials or rubbish caused by his employees or work. At the completion of the work, he shall remove all his rubbish from and about building and all his tools, scaffolding and surplus materials and turn over the work for occupancy with:

20.9.1. All dirt, stains, and the like on all finishing of floors, walls and ceiling, decorative work, finishing hardware a fixture, removed;

20.9.1. All woodwork, finishing hardware and all metal works, cleaned and polished;

20.9.2. All glazing, marble and tile work, washed and polished. The Contractor shall also clean the building site as shown in the Drawings and all areas which the Contractor used in the operation of the project.

At no time shall any rubbish be thrown from windows or other parts of the building without tire use of rubbish chutes.

20.10. USE OF COMPLETED POSITIONS OF WORK

The Owner shall have the right take possession of and use any completed or partially completed portions of the work, notwithstanding that the time for completing the entire work or such portions may not have expired; but such taking possession and use shall not be deemed an acceptance of any work not completed in accordance with the Contract Documents. Neither shall it be deemed a waiver by the Owner of the rights to claim for damages due to delays in the completion of the work. If such prior use increases the cost of or delays the completion of uncompleted work or causes refinishing of completed work, the Contractor shall be entitled to such extra compensation, or extension if time or both, as agreed upon prior to the occupancy.

20.11. CERTIFICATE OF COMPLETION OF WORK

Upon due notice from the Contractor that he has substantially completed the work, the Architect/Engineer shall make an inspection of the project. Substantial completion shall mean that the value of the work completed shall not be less than 98% of the contract amount and that the remaining unfinished work shall be of minor nature only. If the contract covers the furnishing



and/or installation of equipment, fixtures, and utilities, said equipment fixtures and utilities shall be fully tested and test run in order that the work can be considered as substantially completed. As soon as, in the opinion of the Architect/Engineer, the work shall have been substantially completed and shall have satisfactorily passed any final test of materials that may be prescribed by the Contract, the Architect/Engineer shall issue a Certificate of Completion in respect of the work.

20.14. SEARCH FOR CAUSE OF DEFECTS OR FAULTS

The Contractor shall if required by the Architect/Engineer in writing, search for the cause of any defect, imperfection or fault under the directions of the Architect/Engineer. If such defect, imperfection or fault shall be one for which the Contractor is liable, the cost of the work carried out in searching said defects shall be borne by the Contractor and he shall, in such case, repair, rectify and make good such defect, imperfection or fault at his own expense.



ARTICLE 21 - "TIME OF COMPLETION OF WORK"

21.1. NOTICE TO PROCEED

Following the execution of the Contract Agreement by the Owner, written Notice to Proceed with the work shall be given to the Contractor. The Contractor shall begin and shall implement the work regularly and uninterruptedly thereafter (unless otherwise directed in writing by the Owner) with such force as to secure the completion of the work within the time stated in the Contract.

21.2. CONTRACT TIME

The Contractor shall complete, in an acceptable manner, all of work contracted for in the time stated in the Contract. Computation of Contract time shall commence upon receipt of the Notice to Proceed, unless otherwise stipulated in the Contract, and every calendar day following, shall be counted as a working day.

21.3. SCHEDULE OF COMPLETION

The Contractor shall submit, for approval, a Schedule of Construction Work in Critical Path Method form and/or any other form acceptable to the Architect/Engineer indicating the approximate date each item will be started and completed, the equipment to be used and number of men to be employed to complete it, in accordance with his schedule. The progress of the work shall be at a rate sufficient to complete the Contractor to take such steps as he considers necessary to complete the Contract within the period provided.

21.4. EXTENSION OF TIME

The Contractor will be allowed an extension of time based on the provisions of RA 9184.

21.5. LIQUIDATED DAMAGES

It is understood that time is an essential feature of this Contract, and that upon failure to complete the said Contract within the contract time, the Contractor shall be required to pay the Owner the liquidated damages in the amount computed in accordance with RA 9184, the said payment to be made as liquidated damages and not by way of penalty. The Owner may deduct from any sum due or to become due the Contractor any sums accruing for liquidated damages as herein stated. For purposes of calculating, the actual completion date shall be the date certified by the Architect/Engineer.



ARTICLE 22 - "PAYMENTS"

22.1. REQUESTS FOR PAYMENT

The Contractor may submit periodically but more than once each month a Request for Payment for work done. The Contractor shall furnish the Architect/Engineer all reasonable facilities required for obtaining the necessary information relative to the progress and execution of the work.

22.2. PROGRESS PHOTOGRAPHS TO ACCOMPANY REQUEST FOR PAYMENT

The Contractor at his own expense shall furnish the Architect/Engineer progress photographs, starting when the work begins and continuing so long as the work is in progress, on the outside of the building from station points designated by the Architect/Engineer, and other interior and yard shots necessary to support the claim in the billing.

22.3. ARCHITECT/ENGINEER'S ACTION ON A REQUEST FOR PAYMENT

Upon receipt of any Request for Payment by the Contractor, the Architect/Engineer shall either issue a Certificate of Payment or withhold the Request for Payment. When the Architect/Engineer decides to withhold the Request for Payment, he shall inform the Contractor in writing the reason for withholding it.

The Certificate of Payment shall include the value of work accomplished by the Contractor during the period covered by the certificate and recommendation to the Owner for payment in an amount the Architect/Engineer decides to be properly due.

22.4. APPROVAL WITHHELD

The Architect/Engineer may recommend withholding of payment in whole or in part on any approved Request for Payment on account of any of the following reasons:

- 22.4.1. Defective work not remedied.
- 22.4.2. Claims filed or reasonable evidence indicating probable filing of claims.
- 22.4.3. Failure of the Contractor to make payments properly to sub-contractors or for material or labor.
- 22.4.4. A reasonable doubt that the Contract can be complete for the balance then unpaid.
- 22.4.5. Damages to another Contractor.

When the above grounds are removed, payment shall be made for amounts withheld.

22.5. CONDITIONS RELATIVE TO CERTIFICATES OF PAYMENT

The Architect/Engineer shall estimate the value of work accomplished by the Contractor using as a basis the actual quantity of work accomplished. Such estimates of the Architect/Engineer shall be final and conclusive evidence of the amount of work performed, and shall be taken as the basis for the full measure of compensation to be received at the time by the Contractor.



22.6. PAYMENT OF CONTRACTOR'S OBLIGATIONS

The contractor shall pay punctually all workmen employed by him on his project at such rates as are provided by existing laws. He shall also pay promptly all materials and equipment used by him on his project, and all taxes due from him. He shall remit as required by law all amounts withheld from the salaries or wages of his employees or workmen.

The Contractor shall furnish the Owner with a statement sworn to before an officer duly authorized to administer oath that all persons who have done work or furnished materials under this Contract have been duly paid. If such written evidence is not furnished before the final payment under the Contract falls due, said Owner may after due notice to and clearance by the Contractor pay such lawful claims in whole or in part to any person, firm, or corporation claiming the same, and charge the amount thus paid to said Contractor, who will accept the same as payment from the amount due on the Contract.

22.7. CORRECTION OF WORK BEFORE FINAL PAYMENT

The Contractor shall promptly remove the premises all work condemned by the Architect/Engineer as failing to conform to the Contract, whether incorporated or not, and the Contractor shall promptly replace and re-execute his own work in accordance with the Contract and without expense to the Owner and shall bear the expenses of making good all work of other contractors destroyed or damaged by such removal or replacement.

22.8. OTHER REQUIREMENTS BEFORE FINAL PAYMENT

The Contractor shall submit (aside from those provided in the Contract Documents) the following before the final payment is made.

22.8.1. Certificate of Final Building Occupancy

22.8.2. Certificate of Final Inspection of electrical, telephone, sanitary, mechanical, water, safety and other utilities

22.8.3. Original and three (3) sets of signed and sealed by licensed professionals "As-built Drawings" of Architectural, Structural, Electrical, Electronics, Sanitary/Plumbing, and Mechanical works. "As-built Drawings" are the working drawings showing the system and actual locations of outlets, fixtures, services and equipment that were installed.

22.8.4. Three (3) copies of Directory of Panel Boards and list of circuits.

22.8.5. Three (3) copies of Instructions and Manual for operating of fixtures and equipment.

22.8.6. Three (3) copies of Keying Schedule.

22.9. ACCEPTANCE AND FINAL PAYMENT

Whenever the Contract, in the opinion of the Architect/Engineer, shall be completely performed on the part of the Contractor, the Architect/Engineer shall proceed to verify the work, shall make the final estimates, shall certify as to the completion of the work, and accept the same.

22.10.1. Owner then, excepting for causes herein specified, pay to the Contractor promptly, after the execution of said certificate, the remainder which shall be found due, excepting therefrom such sum or sums as may be lawfully retained under any of the provisions of this Contract; PROVIDED THAT FINAL PAYMENT ON THE CONTRACT SHALL NOT BE MADE UNTIL THE CONTRACTOR HAS SUBMITTED A STATEMENT SWORN TO BEFORE AN OFFICER DULY AUTHORIZED TO ADMINISTER OATH,



SHOWING THAT ALL TAXES DUE FROM HIM, AND ALL OBLIGATIONS FOR MATERIALS USED AND LABOR EMPLOYED IN CONNECTION WITH THIS CONTRACT HAVE BEEN DULY PAID; AND PROVIDED, FURTHER that nothing herein contained shall be construed to waive the right of the Architect/Engineer hereby reserved to reject the whole or any portion of the aforesaid work, should the same be found to have been constructed in violations of the Drawings and Specifications or of any of the conditions or covenants of this Contract within the guarantee period.

The making and acceptance of the final payment shall constitute a waiver of all claims by the Contractor.

22.10. CORRECTING OF WORK AFTER FINAL PAYMENT

22.10.1. Neither the final certificate nor payment nor any provision in the Contract Documents shall relieve the Contractor of responsibility for faulty materials or workmanship and, he shall remedy any defects due thereto and to pay for any damage to other work resulting therefrom, which shall appear within a period of one year from the date of acceptance of work by the Owner.

22.10.2. Neither the foregoing nor any provision in the Contract Documents, nor any special-guarantee limit, shall be held to limit the Contractor's liability for defects and damages and the right of the Owner under the provisions of the New Civil Code, and all laws, regulations and ordinances applicable to the plans and construction of the building.

22.10.3. The Owner shall give notice of observed defects with reasonable promptness. All questions arising under this article shall be decided by the Architect/Engineer whose decision shall be subject to arbitration.

22.11. RELEASE OF RETENTION

The amount retained by the Owner under the provision of the Contract shall be released within one (1) year after the date of final payment.



PART SEVEN - CONTRACTOR-SEPARATE CONTRACTOR SUBCONTRACTORS RELATIONS

ARTICLE 23 - "SEPARATE CONTRACTS TO OTHER CONTRACTORS"

23.1. OWNER'S RIGHT TO LET OTHER CONTRACTS

The Owner reserves the right to let other contracts in connection with this Contract.

ARTICLE 24 - "CONTRACTOR-SEPARATE CONTRACTORS RELATIONS"

23.2. STORAGE OF MATERIALS AND WORK COORDINATION

The Contractor under this Contract shall afford other contractors' reasonable opportunity for the introduction and storage of their materials and the execution of their work, and shall properly connect and coordinate his work with theirs so as to minimize interferences or obstruction in the progress of the work.

23.3. CUTTING, PATCHING AND DIGGING

The Contractor shall do all cutting, fitting or patching of his work that may be required to make its several parts come together properly and fit it to receive or be received by work of other contractors shown upon, or reasonably implied by, the Drawings and Specifications for the completed structure, and he shall make good after them as the Architect/Engineer may direct. Any cost caused by the defective or ill-timed work shall be borne by the party responsible therefore.

The Contractor shall not endanger any work by cutting, digging, or otherwise and shall not cut or alter the work of any other contractor save with the consent of the Architect/Engineer.

23.4. DEFECTIVE WORK BY SEPARATE CONTRACTORS

If any part of the Contractor's work depends for proper execution or results upon the work of any other contractor, the Contractor shall inspect and promptly report to the Architect/Engineer any defect in such work that renders it unsuitable for such proper execution and result. His failure to inspect and report shall constitute an acceptance of the other contractor's work as fit and proper for the reception of his work, except as to defects which may develop in the other contractor's work after the execution of this work.

To ensure the proper execution of his subsequent work the Contractor shall verify work already in place and shall at once report to the Architect/Engineer any discrepancy between the executed work and the drawings.

23.5. DAMAGE CAUSED BY CONTRACTORS TO SEPARATE CONTRACTORS

Should the Contractor cause damage to any separate Contractor on the work, the Contractor agrees, upon due notice, to settle with such contractor by agreement or arbitration and to relieve the Owner of any liability which may arise therefrom.



ARTICLE 24 - "SUB-CONTRACTS"

24.1. GENERAL

It is agreed and understood that only pre-identified specific scope of works is allowed to be subcontracted, subjected to the provision of Article 25.02.

Nothing contained in the Contract Document shall create any contractual relation between any subcontractor and the Owner.

24.2. COMPETENCY OF SUB-CONTRACTOR

All sub-contractor, specified or otherwise, shall be listed down, in standard form when required, and submitted a bid opening time. The Owner or the Architect/Engineer reserves the right to reject sub-contractors who are deemed inappropriate for the project. Specified sub-contractors shall be expected to comply with the requirements of the Contract, the same as required for other sub-contractor.

24.3. CONTRACTOR'S RESPONSIBILITY

The Contractor agrees that he is as fully responsible to the Owner for the acts and omissions of his subcontractors and the person either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.



PART EIGHT - SUSPENSION OF WORK AND TERMINATION OF CONTRACT

ARTICLE 26 - "RIGHT TO SUSPEND WORK OR TERMINATE CONTRACT"

26.1. The Contract may be suspended or terminated in accordance with RA 9184.

ARTICLE 27 - "OWNER'S RIGHT TO TERMINATE CONTRACT"

27.1. The owner, upon the certification of the Owner the sufficient cause exists to justify his action, may without prejudice to any other right or remedy and after giving the Contractor and his surety if any, terminate the Contract with the Contractor. Sufficient cause to justify termination of the Contract shall be in accordance with RA 9184.



PART NINE – RESPONSIBILITIES AND LIABILITIES OF CONTRACTOR AND OF OWNER

ARTICLE 28 - “CONTRACTOR’S RESPONSIBILITY FOR ACCIDENTS AND DAMAGES”

28.1. SAFEGUARDS TO BE UNDERTAKEN BY CONTRACTOR

The Contractor shall take all necessary precautions for the safety of employees and workmen on the work, and comply with all applicable provisions in the city, municipal and national safety laws and buildings codes and all government rules and regulations, to prevent injury to person on, about or adjacent to the premises where work is being performed. The Contractor shall erect and properly maintain at all times, as required by the conditions and progress of the work, such barriers, shoring, supports, braces, lights, danger signs and necessary safeguards, as will protect workmen and the public and as will effectively prevent any accident and damage to property in consequence of his work. The Contractor shall designate a responsible member of his organization the work, whose duty shall be the prevention of accidents and damage to the Owner’s property and adjoining property. The name and position of the person so designated shall be reported to the Architect/Engineer and the Owner’s technical representative by the Contractor.

28.2. CONTRACTOR’S RESPONSIBILITY

The Owner shall not be responsible for the death of, disease contracted, or injury received by the Contractor or any employee or laborers of the Contractor; for the Contractors’ plant or materials, for any damages caused by the Contractor of his employees to any property of the Owner and adjoining property. All damages shall be the responsibility of the Contractor.

28.3. INDEMNITY

The Contractor shall indemnify and save harmless the Owner from and against all losses and all claims, demands, payments, suits, actions, recoveries, and judgment of every nature and description brought or recovered against him, by reason of any act or omission of said Contractor, his agents or employees, in the execution of the work or the guarding of it.

Claims for payments and repairs or damages shall be settled by the Contractor at his own expense and to the satisfaction of the Architect/Engineer and the parties concerned. In the event of failure of the Contractor to repair at once such damages, and pay other claims, the Owner may repair the same and pay the claims, and deduct the entire costs of such repairs and claims from the payments due the Contractor.



ARTICLE 29 - "CONTRACTOR'S BONDS"

29.1. All bonds to be acquired by the Contractor shall be in accordance with RA 9184.

ARTICLE 30 - "LIENS, DISPUTES AND ARBITRATION"

30.1. LIENS

Neither the final payment nor any part of the retained percentage shall become due until the Contractor, if required, shall deliver to the Owner a complete release of all liens arising out of this Contract, or receipts in full in lieu thereof and, if required in either case of affidavit that so far as he has knowledge or information, the releases and receipts include all the labor and materials for which a lien could be filed; but the Contractor may, if any subcontractor refuses to furnish a release or receipt in full, furnish a bond satisfactory to the Owner, to indemnify him against any lien.

30.2. ASSIGNMENT

30.2.1. This Contract shall not be assigned in whole or in part by the Contractor nor shall any part of the work to be sublet by the Contractor without the prior written consent of the Owner and such consent shall not relieve the Contractor from full responsibility and liability for the work hereunder and for the due performance of all the terms and conditions of the Contract.

30.2.2. The Owner's consent to any subletting of work hereunder shall not be granted in any event until the Contractor has furnished the Owner with satisfactory evidence that the sub-contractor is carrying ample insurance to the same extent and in the same manner as is herein provided to be furnished by the Contractor.

30.2.3. If the Contract is assigned or any part thereof is sublet, the Contractor shall exonerate, indemnify and same harmless the Owner from and against any and all loss or expense caused thereby.

30.2.4. In case of any such transfer without the previous written consent of the Owner, the Owner may refuse to carry out the Contract either with the transferor or transferee; but all rights of actions for any breach of this Contract by the Contractor shall be reserved to and remain within said Owner.

30.3. DAMAGES

Should either party to this Contract suffer damages because of any wrongful act or neglect of the other party or of anyone employed by him, claim shall be made in writing to the party liable within a reasonable time of the first observance of such damage and not later than the final payment, except as expressly stipulated otherwise in the case of faulty work or materials, and shall be adjusted by agreement or arbitration.



30.4. DISPUTES

30.4.1. The Architect/Engineer shall, within a reasonable time, make decisions on all claims of the Owner or Contractor and on all matters relating to the execution and progress of the work or the interpretation of the Contract Documents.

30.4.2. Except as otherwise specifically provided in the Contract, all disputes concerning questions of fact arising under the Contract shall be decided by the Architect/Engineer, whose decision shall be final and conclusive upon the parties thereto as to questions of fact.

30.4.3. The Architect/Engineer's decisions shall be final if within the terms of the Contract Documents.

30.4.4. If however, the Architect/Engineer fails to render a decision within fifteen (15) calendar days after the parties have presented their evidence, either party may then demand arbitration. If the Architect/Engineer renders decision after arbitration proceedings have been initiated, such decision may be entered as evidence but shall not disturb or interrupt such proceedings except where decision is acceptable to the parties concerned.

30.5. ARBITRATION

All disputes, claims or questions subject to arbitration under this Contract shall be settled in accordance with the provisions of RA 9184.



PART TEN – AUTHORITY OF ARCHITECT/ENGINEER, AND PROJECT REPRESENTATIVES

ARTICLE 31 - “ARCHITECT/ENGINEERS STATUS”

31.1. The Architect/Engineer shall be the Owner’s representative during the construction period and they shall observe the work in processes on behalf of the Owner. They shall have authority to act on behalf of the Owner only to the extent expressly provided in the Contract Documents or other in writing, which shall be shown to the Contractor. They shall have authority to stop the work whenever such stoppage may be necessary in this reasonable opinion to insure the proper execution of the Contract. The Architect/Engineer’s failure of not ordering the stoppage of work, does not relieve the Contractor from the responsibility of complying with the Contract Documents and the sole responsibility of protecting persons, on, about, or adjacent to the premises where work is being performed against injury and death, and for protecting the Owner’s property and adjoining property against damage.

31.2. The Architect/Engineer shall decide any and all questions which may arise as to the quality and acceptability of materials furnished and work performed and so as to the manner of performance and rate of progress of work, and shall decide all questions which may arise as to the interpretation of the Drawings and Specifications, and all questions as to the acceptable fulfillment of the terms of the Contract.

31.3. As the Architect/Engineer is, in the first instance, the interpreter of the conditions of the Contract and the judge of its performance, they shall side neither with the Owner nor with the Contractor, but shall use their powers and under the Contract to enforce its faithful performance by both.

31.4. In case of the termination of the employment of the Architect/Engineer, the Owner shall appoint a capable and reputable Architect/Engineer, whose status under the Contract shall be that of the former Architect/Engineer; any dispute in connection with such appointment shall be subject to arbitration.



ARTICLE 32 - "AUTHORITY AND RESPONSIBILITIES OF THE ARCHITECTS/ENGINEERS OF THE CONTRACTOR"

32.1. The Contractor's Architects/Engineers shall be solely responsible for their respective designs, computations and other professional services they rendered in connection with the preparation of Drawings and Specifications. They shall assist the Owner's Architect/Engineer in the general inspection and direction of that particular portion of the work where their professional services are connected.

32.2. The Owner's Architects/Engineers shall inspect the work for conformance with the approved Drawings and Specifications and shall report to the Contractor's Architect/Engineer any discrepancy between such work and said Drawings and Specifications. They shall make recommendations when necessary and as required, consistent with the ethics of their profession.

32.3. The Contractor's Architects/Engineers shall perform any professional services necessary for the accomplishment of the work subject to the terms and conditions of the inter-professional agreement between the Owner's Architect/Engineer and the Contractor's Architects/Engineers or any existing contract affecting or relative to the project.

ARTICLE 33 - "AUTHORITY AND DUTIES OF THE PROJECT REPRESENTATIVES, RESIDENT ARCHITECT, RESIDENT ENGINEERS OR CONSTRUCTION INSPECTORS"

33.1. EMPLOYED BY THE OWNER

Technically qualified men referred to as Project Representatives, Architect/Engineers.

33.2. DUTIES

The duties of the Project Representatives are stipulated in the Special Provision of the Contract.

SUPPLEMENTARY SPECIFICATIONS

“COMPLETION OF THREE (3) STOREY RSCC BUILDING”

PROJECT TITLE

PUGUIS, LA TRINIDAD, BENGUET

PROJECT LOCATION

Written and Prepared by:

ARCH. JIMMY M. MAYORES, UAP
ARCHITECT 1, AD/BGMS
PRC REG. NO.: **0049778**



SUPPLEMENTARY SPECIFICATIONS

31 AUGUST 2022

JMM/ REV. 00

Revision	Date	Description



PROJECT REQUIREMENTS

ALL SCOPE OF WORKS INDICATED IN THESE DOCUMENTS ARE TO CONVEY DESIGN INTENT ONLY. THE CONTRACTOR IS TO DETAIL ALL SCOPE OF WORKS TO ACHIEVE THE DESIGN INTENT.

THE ITEMS BELOW SHALL BE INCLUDED IN THE DETAILED ESTIMATES OF THE CONTRACTOR BUT NOT LIMITED TO THE FOLLOWING:

1. GENERAL REQUIREMENTS

1.1. PERMITS AND CLEARANCES

-includes provision of signed and sealed plans by professionals, complete plans/design of structural, sanitary/plumbing, electrical, mechanical (fire protection system, elevator system, generator system, etc.), electronics (Auxiliary/Telephone/Intercommunication System, Network Cabling System, CCTV System, Public Address System) and other necessary plans, to include processing of necessary permits (Building permits, occupancy, etc.) and necessary clearances

1.2. PROJECT BILLBOARD / SIGNBOARD

-use standard billboard design and placement

1.2. MOBILIZATION / DEMOBILIZATION

- see general specifications for more details
- includes demolition works necessary for the execution of plans and specifications.

1.4. TEMPORARY BOARD UP

-standard temporary coverings shall be install along the perimeter of the building.

2. SCAFFOLDINGS

-includes Installation and Removal

3. ARCHITECTURAL WORKS

3.1 CARPENTRY & JOINERY

- includes all carpentry works and accessories. The following spaces shall have the specified carpentry works (see general specifications for more details):

3.1.1. Ground Floor

- Kitchen Pantry Storage
- Walk-in Closets
- Study Room Cabinets
- Children's Play Area Storages

Second Floor

- Non-Food Storage
- Female's Bedroom
- Male's Bedroom
- Lactation Room
- Infant's Bedroom
- Prayer Room
- Walk-in Closet
- Isolation Room

Third Floor

- Storage Rooms
- Bedroom
- Kitchen & Pantry

**Roof Deck**

- Laundry Area
- Bedroom

3.2 FLOOR FINISHES

- includes all materials for floor finishes including tile works (see plans and/or general specifications for more details):

3.2.1. Ground Floor

- Natural Stone Finish Homogenous Ceramic Tiles (600mm x 600mm) Non-Skid Type
- Light Gray Colored Office Carpet
- Gray Non-Skid Homogenous Ceramic Bathroom Tiles (600mm x 600mm)
- Rubberized Vinyl Tiles for Play Areas
- White Colored Homogenous Porcelain Tiles (600mmx600mm)
- Gray Colored Homogenous Porcelain Tiles (600mmx600mm)
- Wood Finish Homogenous Porcelain Bedroom Tiles (200mmx1200mm) Non-skid Type
- Polished Concrete Flooring
- Brown Stone Homogenous Porcelain Tiles (600mmx600mm) Non-Skid Type
- White Stone Homogenous Ceramic Stair Tiles (600mmx600mm) Non-Skid Type

Second Floor

- Natural Stone Finish Homogenous Ceramic Tiles (600mm x 600mm) Non-Skid Type
- Light Gray Colored Office Carpet
- Gray Non-Skid Homogenous Ceramic Bathroom Tiles (600mm x 600mm)
- Rubberized Vinyl Tiles for Play Areas
- White Colored Homogenous Porcelain Tiles (600mmx600mm)
- Gray Colored Homogenous Porcelain Tiles (600mmx600mm)
- Wood Finish Homogenous Porcelain Bedroom Tiles (200mmx1200mm) Non-skid Type
- Brown Stone Homogenous Porcelain Tiles (600mmx600mm) Non-Skid Type
- White Stone Homogenous Ceramic Stair Tiles (600mmx600mm) Non-Skid Type

Third Floor

- Natural Stone Finish Homogenous Ceramic Tiles (600mm x 600mm) Non-Skid Type
- Light Gray Colored Office Carpet
- Gray Non-Skid Homogenous Ceramic Bathroom Tiles (600mm x 600mm)
- White Colored Homogenous Porcelain Tiles (600mmx600mm)
- Gray Colored Homogenous Porcelain Tiles (600mmx600mm)
- Wood Finish Homogenous Porcelain Bedroom Tiles (200mmx1200mm) Non-skid Type
- Polished Concrete Flooring
- Brown Stone Homogenous Porcelain Tiles (600mmx600mm) Non-Skid Type
- White Stone Homogenous Ceramic Stair Tiles (600mmx600mm) Non-Skid Type

Roof Deck

- White Stone Homogenous Ceramic Stair Tiles (600mmx600mm) Non-Skid Type
- Polished Concrete Flooring
- Natural Stone Finish Homogenous Ceramic Tiles (600mm x 600mm) Non-Skid Type

3.3 WALL FINISHES



- includes all other materials for all wall finishes (see plans and/or general specifications for more details):

- 3.3.1. Tile Works**
 - Wall Cladding
 - Glass Wall Installation
 - Padded Walls
 - Acoustic-Treated Walls
 - Gypsum Board Drywall

3.4 CEILING FINISHES

- includes all other materials for all ceiling finishes (see plans and/or general specifications for more details):

- 3.4.1. Ground Floor**
 - Fire-Rated Gypsum Board Ceiling
 - Suspended Office Acoustic Ceiling Tiles
 - Painting Works
- Second Floor**
 - Fire-Rated Gypsum Board Ceiling
 - Suspended Office Acoustic Ceiling Tiles
 - Painting Works
- Third Floor**
 - Fire-Rated Gypsum Board Ceiling
 - Suspended Office Acoustic Ceiling Tiles
 - Floating Screen Ceiling
 - Wood Planks Decorative Ceiling
 - Painting Works

3.5 PAINTING WORKS

- includes all other materials for painting works (see plans and/or general specifications for more details):

- 3.5.1. Ground Floor Interior**
- Second Floor Interior**
- Third Floor Interior**
- Roof Deck Walls**

3.6 STEEL WORKS

- includes all other materials for steel works (see plans and/or general specifications for more details):

- 3.6.1. Stair Railings (Tubular Steel, Flat bar Railing and Wooden Top rails)**
- Fire Exit Railings (Tubular Steel, Flat bar Railing and Tubular Top rails)**

3.7 MASONRY WORKS

- includes all other materials for masonry works (see plans and/or general specifications for more details):

- 3.7.1. Second Floor Interior**
- Third Floor Interior**
- Rectification of existing walls**

3.8 DOORS AND WINDOWS

- includes all other materials for doors and windows with complete accessories (see plans and general specifications for more details):



3.8.1. DOORS:

D1A, Main Door A
D1B, Main Door B
D2, Dining Glass Door
D3, Kitchen Half Lite Door
D4A, Half Lite Door, LH Swing
D4B, Half Lite Door, RH Swing
D5A, Observation Door
D5B, Observation Door
D5C, Bedroom Door, RH Swing
D5D, Bedroom Door, LH Swing
D6, PWD Bathroom Door
D7A, Bathroom Door
D7B, Bathroom Door, LH Swing
D7C, Bathroom Door, RH Swing
D8, Kitchen Pantry Door
D9A, Fire Exit Door, RH Swing
D9B, Fire Exit Door, LH Swing
D10A, Office Glass Door, RH Swing
D10B, Office Glass Door, LH Swing
D11A, Panel Door
D11B, Panel Door
D12, Padded Door
D13A, Storage Door, RH Swing
D13B, Storage Door, LH Swing

WINDOWS:

W01, Fixed Glass Window
W02, Sliding Glass Window
W03, Sliding Glass Window
W04, Sliding Glass Window
W05, Awning w/ Fixed Glass Window
W06, Awning Glass Window
W07, Sliding and Awning Glass Window
W08, Fixed Corner Glass Window
W09, Awning w/ Fixed Glass Window
W10, Fixed Corner Glass Window
W11, Fixed Corner Glass Window
W12, Awning Glass Window
W13, Sliding Glass Window
W14, Awning Glass Window
W15, Sliding Glass Window
W16, Fixed Glass Window
W17, Sliding w/ Fixed Glass Window
W18, Awning w/ Fixed Glass Window
W19, Sliding Glass Window
W20, Awning Glass Window
W21, Wooden Window Frame (Open Through)
W22, Awning Glass Window
W23, Fixed Glass Window
W24, Fixed Glass Window
W25, Fixed Glass Window
W26, Fixed One Way Acrylic Observation Window



3.9 EXTERIOR FINISHES

- includes all other materials for exterior finishes (see plans and/or general specifications for more details):

- 3.9.1.** Horizontal Exterior Wood Cladding
- Decorative Stone Panel Cladding
- Vertical Exterior Wood Cladding
- Light Gray Paint
- Dark Gray Paint
- White Paint
- Black Paint for Exterior Window Framing
- Brown Paint
- Wood Finish Exterior Ceiling Soffit

3.10 ROOFING WORKS

- includes all other materials for roofing works (see plans and/or general specifications for more details):

- 3.10.1.** Installation of Parapet Walls
- Replacement, Addition and Improvement of Roofing

3.11 SPECIALIZED ITEMS

- includes all other materials for Fabrication, Supply and Installation of DSWD Logo signages and flagpole with flag (see plans and/or general specifications for more details):

- 3.11.1.** Fabrication, Supply and Installation of 2 sets DSWD Logo signages, 2 pcs flag pole
 - Flagpole Length (exposed height): 25'
 - Flag size: 4'x6'
 - Diameter: Base=6", Top=3.5"

4. MECHANICAL WORKS

Fire Detection Alarm System and Fire Protection System/ Fire Hose Reel System

- includes the Design, Supply, Delivery, Installation and Commissioning of Fire Detection Alarm System and Fire Protection System including Inspection, Testing & Maintenance/ Preventive Maintenance for 1 year) (see general specifications for more details):

4.1. Fire Detection and Alarm System (FDAS):

- FDAS components
- FDAS Conduits and Pipes
- Fire Alarm Control Panel
- Optical Smoke Detector
- Heat Detector
- Detector Bases
- Manual Pull Station/Call Point
- Fire Alarm Bell
- FDAS Cables and Wires
- Complete electrical connections

4.2. Fire Protection System/Fire Hose Reel System:

- Firehose Cabinets
- Complete Pippings



- Fire Pump and Jockey Pump
- Fire Extinguishers
- Sprinkler Heads

4.3. Testing & Maintenance/ Preventive Maintenance for 1 year

4.4. Design, Supply, Delivery, Installation of Stainless steel overhead water tank

4.5. Elevator System

- see plans and/or general specifications for more details. Includes the Supply, Installation, Testing and Commissioning of Passenger Elevator with complete electrical connections. Passenger elevator w/ 400kgs minimum. Capacity, 3 stops includes Testing & Maintenance/ Preventive Maintenance for 1 year.

5. ELECTRICAL WORKS

- includes Design, Supply, Delivery, Installation and Testing & Maintenance of electrical system of the building and shall be three phase power.

5.1 Wires and Cables

5.2 Conduits

5.3 Lighting Fixtures and Switches

- 30 sets High Quality Emergency Lights
 - Automatic switched on when power outage. Overcharge and over-discharge protection circuit
 - Battery -packed lighting device
 - Can Rotate UP or DOWN, Twin Head
 - Commercial Use
- 14 sets Luminous Exit Signs
 - Automatic switched on when power outage. Battery -packed lighting device
 - Dimension: 355 x 25 x 145mm min.
- One Gang Switches
- Two Gang Switches
- Three Gang Switches
- 76 sets Troffer Lights
 - 2 x 20W / 2 x 18W Recessed / Flush Type Aluminum Reflector 60cm x 60cm / 24 x 24 inches / 600 mm x 600 mm
 - Daylight
- 56 sets Drop Lights (decorative)
 - Warm lighting
- 32 sets Valance Lights (decorative)
 - Bar Counter Drop Light, Long Strip Pendant Lamp
 - Warm Light
- 281 sets Pin Lights (6W)
 - Round
 - White
- 95 sets Pin Lights (18W)
 - Round
 - White
- 23 sets Surface Mounted Downlights
 - 9" Beehive Housing, Recessed, IP40, with 18watts LED Bulb



- Black Housing
- Warm Light
- 82 sets Directional Downlights
 - Die-cast Aluminum
 - With 6W LED Light
 - Black Housing
- 4 sets Track Lights
- Exhaust Fans

5.4 Device, Plates, and Utility

- Convenience Outlets
- Utility Boxes
- Junction Boxes
- Pull Boxes
- Service Poles

5.5 Panel Boards

5.6 Generator Set (Backup power system)

- Supply, Delivery, Installation and Commissioning of Generator Set including Inspection, Testing & Maintenance/ Preventive Maintenance for 1 year
 - 175 KVA, 3 Phase, 230 Volts, 60 Hz - Diesel operated with ATS and Accessories and Complete Electrical Connections
 - Main Distribution Panel with breakers
 - Automatic Transfer Switch

5.7 Auxiliary System

- Design, Supply, Delivery, Installation and Commissioning of Telephone System
- 8 sets high quality Telephones with complete system
- Telephone System
 - Approved brand, wire No. 22 conductor telephone jacketed wire, in PVC conduits. Locate wire terminal box plate with jack as shown in the plans.
 - Telephone equipment - Owner Supplied
- Public Address: The voice alarm system shall be the integrated solution for BGM (Background Music) and EVAC (Emergency Voice Alarm). The voice alarm system shall be designed for public address and emergency evacuation. Communication System shall provide clear announcements during public addressing and one-way voice communication during and emergency and can provide BGM where required. Consider using approved brand, with Integrated Security. The system shall be capable of fulfilling the following requirements:
 - i. Clear, un-distorted announcements to selected areas during public addressing;
 - ii. Clear, un-distorted paging to all zones; either individually or collectively. Selection of groups of zones shall be programmable from time to time; and
 - iii. Background music to selected areas when the other functions are not selected.

5.8 Network Cabling System

- Supply, Delivery, Installation and Commissioning of Data System Includes internet connections, LAN connection to computers, Wi-Fi connections, Routers, and complete accessories.
- Structured Cabling System with Integrated Data Cabinet



- The bidder must conduct ocular site inspection for proper measurement and deployment of proposed equipment
- The project is to establish a 40 nodes Structured Cabling System with Integrated Data Cabinet

5.9 CCTV System

- Includes high quality CCTV cameras (30 units), Network Video Recorder, Hard Drives, Grounding System, Cabinets, Cables, Wiring Accessories, Smart Android TVs (4 units 50" min.), and complete accessories (Supply, Delivery, Installation and Commissioning)
- Supply, Installation, Integration, Testing and Commissioning of CCTV Camera (Security) System
 - 2units 4 TB Western Digital AV
 - 2units power adapter: 18 CH (30 ampere) PSU
 - Camera Features (2 units):
 - 3.0 MP
 - IR distance 20m
 - true day/night
 - OSD menu, DNR, smart IR
 - EXIR technology
 - IP66 weather proof
 - TVR Features (2 units):
 - 8CH-MP up to 5MP
 - H.264+ & Dual-stream video compression
 - 4 in 1 support HD-TV/analog/AHD/IP camera
 - full channel @ 5MP resolution non real-time recording- EXIR technology
 - HDMI output at up to 4K while VGA output at up to 1920x1080P resolution
 - long transmission distance over coax cab
 - Support up to 8ch synchronous playback
 - two-way Audio: 1-ch, RCA (2.0 Vp-p, 1K) (using audio input)
 - Interface Type: 1 SATA
 - Capacity: Up to 8 TB capacity for each disk
 - Dimensions: 315 x 242 x 45 mm
 - 12.4 x 9.5 x 1.8 inch
 - weight: ≤ 1.5 kg (3.3lb)

5.10 Public Address System

- Includes Supply, Delivery and Installation of high quality Built-in speakers (100 units) including complete wiring connections and control system including amplifier
 - PA System Processor
 - May be a single or multiple equipment
 - With Ethernet port for transmission of audio and control signals.
 - Rack-Mounted
 - PA System Network Switch
 - Rack Mounted
 - Power Amplifier (the number of amplifiers, channels, power rating, etc. shall be determined based on the "Amplifier Load Schedule Section designed by the contractor).
 - Network Amplifier Type
 - Rack Mounted
 - With Uninterruptible Power Supply that is able to provide back-up power for at least five (5) minutes (back-up time shall be tested prior to project acceptance; it is the responsibility of the CONTRACTOR to provide additional units in case the required back-up time is not met).
 - All amplifiers shall belong to the same brand and model line
 - Paging Microphone



- Push to Talk Button
- The paging microphone shall belong to the same brand and shall be compatible with the offered PA System processor

Wall/Ceiling Mounted Speaker

- Rated Power: 10 Watts (minimum)
- Minimum Woofer Diameter: 4 inches (minimum)
- Selectable wattage with minimum of 3 tapping points
- Speaker Type: Two (2) Way or Full-Range
- Color: Depends on the location

Conduits, wires, fittings and connectors (these shall be checked during project implementation, Contractor shall submit actual samples for approval prior to installation)

- Junction Boxes, Locknut, Bushing, Coupling, Full Threaded Rod, Conduit Clamp, Riser, Hangers and Accessories shall be of approved type.
- Equipment Rack
- With enough number of power outlets to supply all the equipment inside the rack.
- Rack height shall depend on the number of equipment to be installed.
- With service light installed at the back of the rack.
- Flexibility The system shall be configurable to changes deemed necessary

5.11 Three Phase Power Connection

- Includes Supply, Delivery, Installation and Commissioning of Three-Phase Power Supply Connection with complete accessories
- includes processing of three phase power supply in coordination with the Benguet Electric Cooperative (BENECO)
 - 3 pcs. Transformers
 - Protective Devices
 - Lightning Arresters
 - Fuse Cut-Outs
 - Fuse Links
 - Line Hardware
 - Connector Stirrups
 - Conductor Bare Wires
 - Clamp Hot Lines
 - Metering Requirements
 - Connector Compressions
 - CT
 - CT Box
 - Electrical Tapes
 - Meter Box, 3 Phase kwhm
 - RSC Pipes
 - Rubber Tapes
 - Straight Connectors
 - Test Blocks
 - Assorted Wires
 - KWH Meter
 - Multi function electronic KWHM
- Supply, Delivery, Installation of Power Cables complete with accessories and connections
- Design and construction of Transformer Pad
- Rectifications of existing Electrical Works including replacement of damaged electrical wirings and materials

5.12 Others



- Rectifications of existing Electrical Works including replacement of damaged electrical wirings and materials

6. SANITARY/PLUMBING WORKS

- includes Design, Supply, Delivery, Installation and Testing (Testing and adjustments, Hydrostatic Pressure Test) of Sanitary/Plumbing works

6.1 Cold Water lines

- 25mm PPR Pipe
- 20mm PPR Pipe
- 50mm PPR Pipe
- Fittings, elbows, tees, couplings adapter, unions, reducers, flanges
- 25mm Brass Gate Valve
- 20mm Brass Hose Bib
- Pipe Hangers, Support and Sway Braces
- Testing and adjustments, Hydrostatic Pressure Test
- Stainless Steel Gooseneck Faucet with lever type handle
- Stainless Steel Overhead Cold Water Tank, 15 drums
- 1"x1" Water Pump, 2 HP

6.2 Sewer, Waste and Vent Pipes

- 50mm PVC Pipe
- 100mm PVC Pipe
- 150mm PVC Pipe
- Fittings, elbows, tees, couplings adapter, unions, reducers, flanges
- Stainless Floor Drain
- 50mm Floor/Ground PVC Cleanouts
- 100mm Floor/Ground PVC Cleanout
- 150mm Floor/Ground PVC Cleanout
- Pipe Hangers, Support and Sway Braces
- Testing and adjustments, Hydrostatic Pressure Test

6.3 Fixtures

- Water Closet w/ complete accessories
- Under Counter Lavatory
- Stainless steel shower set (head, valve, & faucet)
- Water Heater
- Stainless steel grease trap
- Stainless Steel Kitchen Sink w/ stainless steel bottle trap
- Ceramic Urinal
- Tissue Holder
- Ceramic Soap Holder
- Stainless Steel Bidet
- Valves, flexible hose, and fittings
- Stainless Steel Grab Bars
- Hand Dryer

7. CHILDREN'S PLAYGROUND

- includes Supply, Delivery and Installation of Playground Equipment

7.1 Playground Equipment

- Kids Seesaw, outdoor
 - Resistant to sunlight and temperature changes



- Min. dimensions: 55.75 x 19.5 x 20.75 inches
- durable weather-resistant metal with rubber-padded rockers, comfy seats and sturdy handlebars
- Can carry up to 200kgs
- Suitable for children from 3 years old
- Ergonomically shaped seats with non-slip handles
- Kids Slide, outdoor
 - Min. Dimensions LxWxH 137 x 46 x 91.5 Centimeters
 - Made of durable and non-toxic PE material
 - Suitable for children from 3 years old
- Kids Monkey Bar, outdoor
 - Steel Tube Material, durable
 - 3124mm*1162mm*2285mm min. dimensions
- Kids Double Swing, outdoor
 - Complete swing 280x140x179 cm made of stainless steel and resistant PVC or equivalent
 - Seesaw min. dimensions 280x140x179 cm for 2 children
 - Suitable for children from 3 years old

6.2 Sand Bedding

- 6" Thick Sand Bedding, Play Sand
- Concrete Enclosure for Sand Bedding w/ paddings

8. PUMP ROOM & CONCRETE TANK

- construction of pump room and concrete tank for fire protection system (see plans and/or general specifications for more details):

8.1 Civil Works

8.2 Architectural Works

8.3 Plumbing Works

8.4 Electrical Works

9. GENERATOR SET ROOM

- construction of generator set room (see plans and/or general specifications for more details):

8.1 Civil Works

8.2 Steel Works

8.3 Tinsmithry

8.4 Architectural Works

10. CONSTRUCTION SAFETY & HEALTH

- includes acquisition of DOLE approved CSHP
- see general specifications for more details
- provide at least 5 sets approved hard hats, safety shoes and reflectorized vests for the DSWD representatives

Contract Reference Number: _____

Name of Project: **Completion of Three (3) Storey DSWD-CAR RSCC Building**

Location of the Project: **RSCC, Puguis, La Trinidad Benguet**

Standard Form Number SF-INFR-55

Revised on: August 11, 2004

BILL OF QUANTITIES

Columns 1, 2, 3, & 4 are to be filled up by the Procuring Entity				Columns 5 & 6 are to be filled by the bidders	
ITEM NO.	ITEM DESCRIPTION 2	UNIT 3	QTY. 4	UNIT PRICE (PESOS) 5	AMOUNT (PESOS) 6
1	GENERAL REQUIREMENTS				
1.1	Permits and Clearances	1.00	lot		
1.2	Project Billboard / Signboard	2.00	pcs		
1.3	Mobilization / Demobilization	1.00	lot		
1.4	Temporary Board Up	1.00	lot		
2	SCAFFOLDINGS				
2.1	Installation and Removal	1.00	lot		
3	ARCHITECTURAL WORKS				
3.1	CARPENTRY & JOINERY	1.00	lot		
	Ground Floor				
	Second Floor				
	Third Floor				
	Roof Deck				
3.2	FLOOR FINISHES	1.00	lot		
	Ground Floor				
	Second Floor				
	Third Floor				
	Roof Deck				
3.3	WALL FINISHES	1.00	lot		
3.4	CEILING FINISHES	1.00	lot		
	Ground Floor				
	Second Floor				
	Third Floor				
3.5	PAINTING WORKS	1.00	lot		
3.6	STEEL WORKS	1.00	lot		
3.7	MASONRY WORKS	1.00	lot		
3.8	DOORS AND WINDOWS	1.00	lot		
	Doors				
	Windows				
3.9	EXTERIOR FINISHES	1.00	lot		
3.10	ROOFING WORKS	1.00	lot		
3.11	SPECIALIZED ITEMS				
	Fabrication, Supply and Installation of 2 sets DSWD Logo signages, 2 pc flag pole	1.00	lot		
4	MECHANICAL WORKS				

Columns 1, 2, 3, & 4 are to be filled up by the Procuring Entity				Columns 5 & 6 are to be filled by the bidders	
ITEM NO.	ITEM DESCRIPTION 2	UNIT 3	QTY. 4	UNIT PRICE (PESOS) 5	AMOUNT (PESOS) 6
	Design, Supply, Delivery, Installation and Commissioning of Fire Detection Alarm System and Fire Protection System including Inspection, Testing & Maintenance/ Preventive Maintenance for 1 year				
	Fire Detection Alarm System and Fire Protection System/ Fire Hose Reel System				
4.1	Fire Detection And Alarm System (FDAS)	1.00	lot		
4.2	Fire Protection System/Fire Hose Reel System	1.00	lot		
4.3	Testing & Maintenance/ Preventive Maintenance for 1 year	1.00	lot		
4.4	Design, Supply, Delivery, Installation of Stainless steel overhead water tank	1.00	lot		
4.5	Elevator System	1.00	lot		
5	ELECTRICAL				
5.1	Wires and Cables	1.00	lot		
5.2	Conduits	1.00	lot		
5.3	Lighting Fixtures and Switches	1.00	lot		
5.4	Device, Plates, and Utility	1.00	lot		
5.5	Panel Boards	1.00	lot		
5.6	Generator Set (Backup power system), 175 KVA, 3 Phase, 230 Volts, 60 Hz - Diesel operated with ATS and Accessories and Complete Electrical Connections	1.00	lot		
5.7	Auxilliary System	1.00	lot		
	Design, Supply, Delivery, Installation and Commissioning of Telephone System				
5.8	Network Cabling System	1.00	lot		
	Supply, Delivery, Installation and Commissioning of Data System Includes internet connections, LAN connection to computers, Wi-Fi connections, Routers, and complete accessories.				
5.9	CCTV System	1.00	lot		
5.10	Public Address System	1.00	lot		
5.11	Three Phase Power Connection	1.00	lot		
5.12	Others	1.00	lot		
	Rectifications of existing Electrical Works including replacement of damaged electrical wirings and materials Rectifications of existing Electrical Works including replacement of damaged electrical wirings and materials, supply and installation of exhaust fans w/ ducting				
6	SANITARY/PLUMBING WORKS				
6.1	Cold Water lines	1.00	lot		
6.2	Sewer, Waste and Vent Pipes	1.00	lot		
6.3	Fixtures	1.00	lot		
7	CHILDREN'S PLAYGROUND				
7.1	Playground Equipment	1.00	lot		
7.2	Sand Bedding	1.00	lot		
8	PUMP ROOM & CONCRETE TANK				

Columns 1, 2, 3, & 4 are to be filled up by the Procuring Entity				Columns 5 & 6 are to be filled by the bidders	
ITEM NO.	ITEM DESCRIPTION 2	UNIT 3	QTY. 4	UNIT PRICE (PESOS) 5	AMOUNT (PESOS) 6
8.1	Civil Works	1.00	lot		
8.2	Architectural Works	1.00	lot		
8.3	Plumbing Works	1.00	lot		
8.4	Electrical Works	1.00	lot		
9	GENERATOR SET ROOM				
9.1	Civil Works	1.00	lot		
9.2	Steel Works	1.00	lot		
9.3	Tinsmithry	1.00	lot		
9.4	Architectural Works	1.00	lot		
10	CONSTRUCTION SAFETY & HEALTH	1.00	lot		
TOTAL BID PRICE:					
TOTAL AMT. IN WORDS: (in words)					



CERTIFICATE OF SITE INSPECTION

This is to certify that _____ of _____
(Name of Representative)

_____ with office address
(Name of Entity)

at _____ had inspected the site
for the **COMPLETION OF THREE (3) STOREY DSWD-CAR RSCC BUILDING**
located at Puguis, La Trinidad, Benguet.

This certification is issued to Mr./Ms. _____ as part
(Name of Bidder or Representative)
of his/her Technical Proposal.

Issued this ____ of _____, 2022.

RICHARD A. REAMICO
AO I, Section Head-BGMS

Bid Form for the Procurement of Infrastructure Projects

[shall be submitted with the Bid]

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 the 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 guidelines¹ 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

¹ currently based on GPPB Resolution No. 09-2020

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].

- I. 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: _____

Bid Securing Declaration Form

[shall be submitted with the Bid if bidder opts to provide this form of bid security]

REPUBLIC OF THE PHILIPPINES)
CITY OF _____) S.S.

BID SECURING DECLARATION **Project Identification No.: *[Insert number]***

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]

OTHER TERMS AND CONDITIONS

Contractor's Qualification(s)
a. Contractor shall be competent and experienced in the field of Construction with a minimum of five (5) years' experience.
Contractor's Working Hours
a. All normal work for this contract shall be performed during normal daylight hours. Any exceptions will require the written approval of the assigned Officer/BGMS Project Engineer.
b. If work is required overnight, the Contractor will be requires to furnish safe, proper and sufficient lighting arrangement if necessary.
Contractor's Responsibilities
a. Contractor shall submit own construction schedule within ten(10) working days upon receipt of notice to proceed;
b. Contractor/Service provider shall assign project foreman from the start until completion stage;
c. Contractor/Service provider shall coordinate with BGMS all the execution of works;
d. Contractor/Service provider shall provide warning signages, project log book;
e. Contractor/Service provider shall submit Statement of works accomplished and progress photos as requirement of the billing request ;
f. All assigned key personnel shall be physically present at the site throughout the entire duration of the project or working hours
Other Requirements
a. All dimensions/level etc. indicated in the drawing plans are to be verified on the site;
b. All materials is subjected for approval of the End user/ BGMS Project Engineer;
c. Any discrepancies, either between written dimensions and site dimensions shall be brought to BGMS office before executing the works.
d. A site inspection shall be required to determine the location and extent of works for the project. A Certificate of Site Inspection issued by the procuring entity shall be submitted as part of the bidding documents.

Omnibus Sworn Statement (Revised)

[shall be submitted with the Bid]

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]

Standard Form Number: SF-INFR-18

Revised on: July 29, 2004

Statement of Availability of Key Personnel and Equipment

(Date)

Mr. LEO L. QUINTILLA, CESE

Regional Director

DSWD-CAR

40 North Drive, Baguio City

Attention : The Chairperson
Bids and Awards Committee

Dear Sir:

In compliance with the requirements of the DSWD-CAR BAC for the bidding of the (Name of the Contract), we certify that (Name of the Bidder) has in its employ key personnel, such as project managers, project engineers, materials engineers and foremen, who may be engaged for the construction of the said contract.

Further, we likewise certify the availability of equipment that (Name of the Bidder) owns, has under lease, and/or has under purchase agreements, that may be used for the construction contracts.

Very truly yours,

(Name of Representative)

(Position)

(Name of Bidder)

FINANCIAL DOCUMENTS FOR ELIGIBILITY CHECK

- A. Summary of the Applicant Firm's/Contractor's assets and liabilities on the basis of the income tax return and audited financial statement for FY2021, stamped "RECEIVED" by the Bureau of Internal Revenue or BIR authorized collecting agent and a certified copy of Schedule of Fixed Assets particularly the list of construction equipment.

		Year 20__
1.	Total Assets	
2.	Current Assets	
3.	Total Liabilities	
4.	Current Liabilities	
5.	Net Worth (1-3)	
6.	Net Working Capital (2-4)	

- B. The Net Financial Contracting Capacity (NFCC) based on the above data is computed as follows:

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

NFCC = P _____

or

Commitment from a licensed bank to extend to it a credit line if awarded the contract or a cash deposit certificate in the amount of at least 10% of the proposed project to bid.

Name of Bank: _____ Amount: _____

I hereby certify that the computation of the above is based on the income tax return and audited financial statement for FY2021 stamped "RECEIVED" by the BIR or BIR authorized collecting agent.

Submitted by:

Name of Firm/Contractor

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.

Contractor's Organizational Chart for the Firm

Submit Copy of the Organizational Chart of the firm. Indicate in the chart the names of the Project Manager, Project Engineer, Bridge Engineer, Structural Engineer, Materials and Quality Control Engineer, Foreman and other Key Engineering Personnel.

Attach the required Proposed Organizational Chart for the Contract as stated above

(Name of Representative)
(Position)
(Name of Bidder)

**KEY PERSONNEL
(FORMAT OF BIO-DATA)**

Give the detailed information of the following personnel who are scheduled to be assigned as full-time field staff for the project. Fill up 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

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)

(The Authorized Representative)

Qualification of Key Personnel

Business Name : _____
 Business Address : _____

	(For Ex.) Project Manager / Engineer					
1 Name						
2 Address						
3 Date of Birth						
4 Employed Since						
5 Experience						
6 Previous Employment						
7 Education						
8 PRC License						

Minimum Requirements :
 :
 :
 :

Submitted by : _____
 (Printed Name & Signature)

Designation : _____
 Date : _____

List of Equipment, Owned or Leased and/or under Purchase Agreements

Business Name : _____
Business Address : _____

Description	Owned/ Leased/Under Purchase Agreement	Model/ Year	Capacity / Performance / Size	Plate No.	Motor No. / Body No.	Location	Condition	Proof of Ownership / Lessor or Vendor
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								
14.								
15.								

Submitted by : _____
(Printed Name & Signature)
Designation : _____
Date : _____

Print as many pages as necessary.

Statement of Single Largest Similar Completed Contract

Business Name: _____

Business Address : _____

Name of Contract/Title of the Project	a. Owner's Name b. Address c. Telephone Nos.	Date of the Contract	Contract Duration	Nature / Scope of Work	Contractor's Role (Whether sole contractor, subcontractor, or partner in a JV)		Total Contract Value at Award	Date of Completion	Total contract value at completion	Percentage of Planned and Actual Accomplishments, if applicable	
					Description	Percentage of Participation (%)				Planned	Actual
<u>Government Contracts</u>											
<u>Private Contracts</u>											
Total Cost											

Note: This statement shall be supported with:

- 1 Notice to Proceed and/or Purchase Order/Contract
- 2 Owner's Certificate of Final Acceptance issued by the project owner other than the contractor or a final rating of at least **Satisfactory** in the Constructors Performance Evaluation System (CPES).
- 3 In case of contracts with the private sector, an equivalent document shall be submitted

Submitted by _____ :

(Printed Name & Signature)

Designation _____ :

Date _____ :

STATEMENT OF ALL ITS ON-GOING 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

Name of the Contract or Title of the Project	Owner's Name and Address	Nature of Work / Scope of Work	Contractor's Role and percentage of participation	Date of Contract	Total Contract Value at Award	Value of Outstanding Works	Contract Duration	Percentage (%) of Accomplishment		Estimated Time of Completion	
								Planned	Actual	Start	Completion
A) Government Contracts											
i. On-going											
ii. Awarded but not yet started											
B) Private Contracts											
i. On-going											
ii. Awarded but not yet started											

Note: This statement shall be supported with:

1. Contract Agreement and/or Purchase Order
2. Notice to Proceed (for government contracts under Public Bidding)

Name of Firm / Applicant

Authorized Signatory

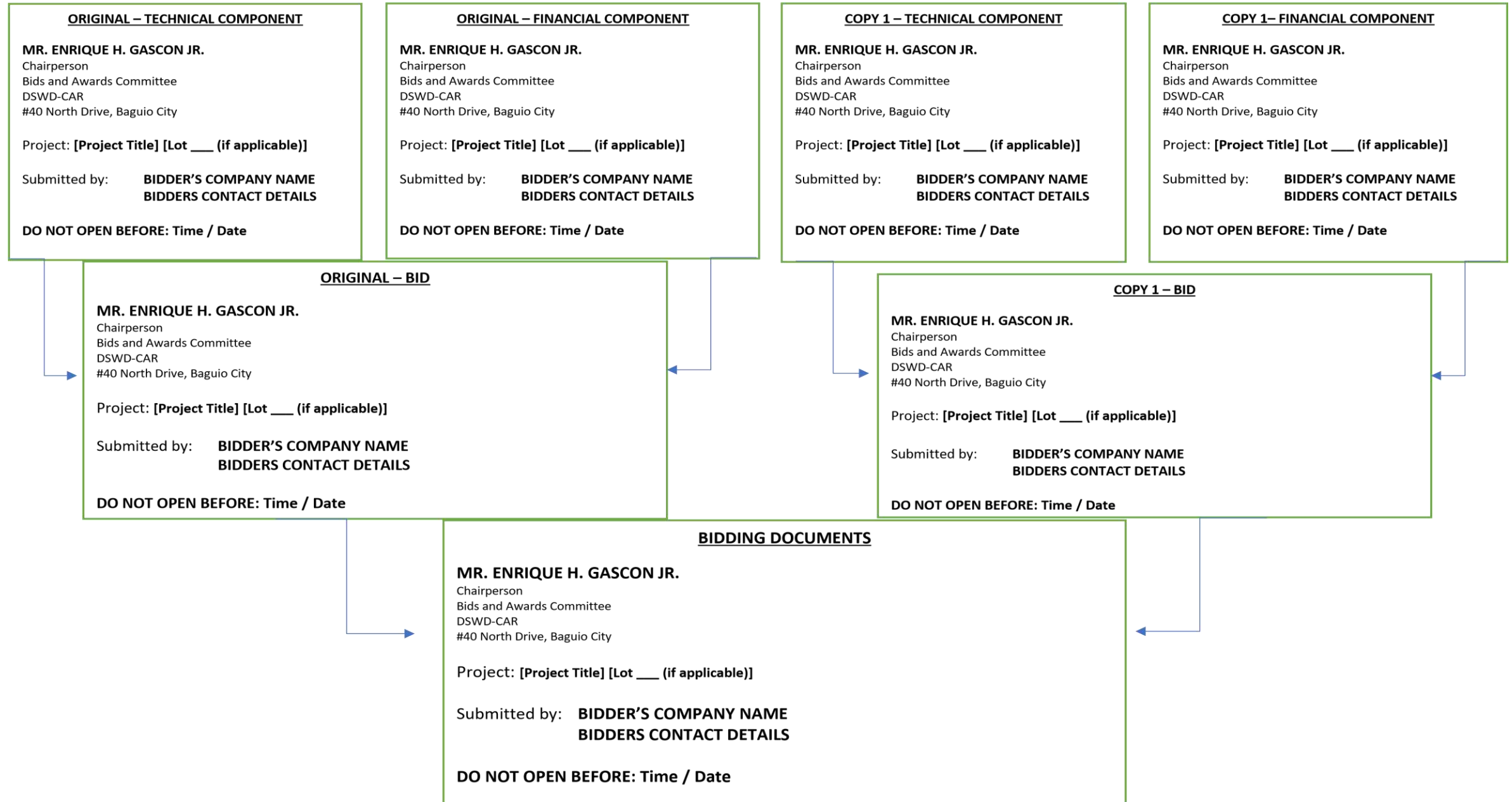
Date

Checklist of Technical and Financial Documents

		Name of Bidder/s	
ABC	Php29,257,722.00		
I. TECHNICAL COMPONENT ENVELOPE (1st Envelope)			
Class "A" Documents			
<u>Legal Documents</u>			
(a) Valid PhilGEPS Registration Certificate (Platinum Membership) (all pages) in accordance with Section 8.5.2 of the IRR;			
<u>Technical Documents</u>			
(b) Statement of the bidder's of all its ongoing government and private contracts, including contracts awarded but not yet started, if any, whether similar or not similar in nature and complexity to the contract to be bid; and			
(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; 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; and			
(f) Project Requirements, which shall include the following:			
a.	Organizational chart for the contract to be bid;		

b.	b. List of contractor's key personnel (e.g., Project Manager, Project Engineers, Materials Engineers, and Foremen), to be assigned to the contract to be bid, with their complete qualification and experience data;		
c.	List of contractor's major equipment units, which are owned, leased, and/or under purchase agreements, supported by proof of ownership or certification of availability of equipment from the equipment lessor/vendor for the duration of the project, as the case may be; and		
	(g) Original duly signed Omnibus Sworn Statement (OSS); and if applicable, Original Notarized Secretary's Certificate in case of a corporation, partnership, or cooperative; or Original Special Power of Attorney of all members of the joint venture giving full power and authority to its officer to sign the OSS and do acts to represent the Bidder.		
<u>Financial Documents</u>			
	(h) The prospective bidder's computation of Net Financial Contracting Capacity (NFCC)		
Class "B" Documents			
	(i) If applicable, duly signed joint venture agreement (JVA) in accordance with RA No. 4566 and its IRR in case the joint venture is already in existence or duly notarized statements from all the potential joint venture partners stating that they will enter into and abide by the provisions of the JVA in the instance that the bid is successful.		
II. FINANCIAL COMPONENT ENVELOPE (2nd Envelope)			
	(j) Original of duly signed and accomplished Financial Bid Form; and		
<u>Other documentary requirements under RA No. 9184</u>			
	(k) Original of duly signed Bid Prices in the Bill of Quantities; and		
	(l) Duly accomplished Detailed Estimates Form, including a summary sheet indicating the unit prices of construction materials, labor rates, and equipment rentals used in coming up with the Bid; and		
	(m) Cash Flow by Quarter.		

MARKING AND SEALING OF ENVELOPE:



Note: The technical and financial documents must be submitted in two (2) copies (Original Copy and Copy 1). The Original Technical Component envelope and Original Financial Component envelope must be sealed in one envelope marked “ORIGINAL BID”. The Copy 1 Technical Component envelope and Copy 1 Financial Component Envelope must also be sealed in another envelope marked “Copy 1 Bid”. These envelopes containing the Original Copy and Copy 1 must be enclosed in one single envelope marked “BIDDING DOCUMENTS”. The technical and financial documents must be properly tabbed and signed.