



Republic of the Philippines  
Office of the President  
**Philippine Sports Commission**

**PHILIPPINE BIDDING DOCUMENTS**  
(As Harmonized with Development Partners)

**Rehabilitation of Ninoy Aquino Stadium  
(Additional Works) Re-bid**

**Sixth Edition  
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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***



Republic of the Philippines  
Office of the President  
**Philippine Sports Commission**

## **Invitation to Bid for Rehabilitation of Ninoy Aquino Stadium (Additional Works) Re-bid**

1. The **Philippine Sports Commission**, through the **National Sports Development Fund (NSDF) FY 2021**, intends to apply the sum of **Php98,735,379.50** being the Approved Budget for the Contract (ABC) to payments under the contract for **Rehabilitation of Ninoy Aquino Stadium (Additional Works) Re-bid [PSCBAC-1-2021]**. Bids received in excess of the ABC shall be automatically rejected at bid opening.
2. The **Philippine Sports Commission** now invites bids for the above Procurement Project. Completion of the Works is required in **One Hundred Twenty (120) calendar days**. Bidders should have completed a contract similar to the Project. The description of an eligible bidder is contained in the Bidding Documents, particularly, in Section II (Instructions to Bidders).
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 the **Philippine Sports Commission** and inspect the Bidding Documents at the address given below from **Mondays to Fridays, 8:00 AM to 5:00 PM**.
5. A complete set of Bidding Documents may be acquired by interested bidders on **29 January 2021** from given address and website/s below and upon payment of the applicable fee for the Bidding Documents, pursuant to the latest Guidelines issued by the GPPB, in the amount of **Php50,000.00**. The Procuring Entity shall allow the bidder to present its proof of payment for the fees **in person**.
6. The **Philippine Sports Commission** will hold a Pre-Bid Conference on **8 February 2021, 10:00 A.M.** at Ground Floor, Administration Building, Rizal Memorial Sports Complex, P. Ocampo Sr. St., Malate, Manila, which shall be open to prospective bidders. Only one representative per prospective bidder shall be allowed. The representative must: (a) present a negative COVID-19 RT-PCR (swab test) result taken at least three (3) days before the scheduled pre-bid conference; and (b) fill out and submit the Health Declaration Form (HDF) at least two (2) days prior to the pre-bid conference. The HDF may be accessed this link: <https://bit.ly/3m9sxB6>
7. Bids must be duly received by the BAC Secretariat through manual submission at the office address as indicated below, on or before **22 February 2021 at 10:00 A.M.** 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 **7 February 2021, 10:00 A.M.** at the given address below. Bids will be opened in the presence of the bidders' representatives who choose to attend the activity. The representative must: (a) present a negative COVID-19 RT-PCR (swab) test result taken at least three (3) days before the scheduled pre-bid conference; and (b) fill out and submit the Health Declaration Form (HDF) at least two (2) days prior to the pre-bid conference. The HDF may be accessed this link: <https://bit.ly/3m9sxB6>.
10. The **Philippine Sports Commission** 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:

Atty. Michelle C. Labajanan  
Bids and Awards Committee Secretariat  
Philippine Sports Commission  
2<sup>nd</sup> Floor, Administration Building  
Rizal Memorial Sports Complex  
P. Ocampo Sr. St.,  
Malate, Manila  
bac@psc.gov.ph  
8523-9831 local 186  
www.psc.gov.ph

12. You may visit the following websites:

For downloading of Bidding Documents: <https://psc.gov.ph/en/pbd,-bid-data-sheet-and-terms-of-reference.html>

**28 January 2021**

Sgd.  
**ATTY. GUILLERMO B. IROY, JR.**  
Chairman, Bids and Awards Committee

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

## **1. Scope of Bid**

The Procuring Entity, **Philippine Sports Commission**, invites Bids for the **Rehabilitation of Ninoy Aquino Stadium (Additional Works) Re-bid** with Project Identification Number **PSCBAC-1-2021**.

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

## **2. Funding Information**

2.1. The GOP through the source of funding as indicated below for **FY 2021** in the amount of **Php98,735,379.50**.

2.2. The source of funding is:

a. National Sports Development Fund (NSDF)

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

A contract is considered to be "similar" to the contract to be bid if it has the major categories of work stated in the **BDS**.
- 5.3. For Foreign-funded Procurement, the Procuring Entity and the foreign government/foreign or international financing institution may agree on another track record requirement, as specified in the Bidding Document prepared for this purpose.
- 5.4. The Bidders shall comply with the eligibility criteria under Section 23.4.2 of the 2016 IRR of RA No. 9184.

## **6. Origin of Associated Goods**

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

## **7. Subcontracts**

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

The Procuring Entity has prescribed that:

- a. Subcontracting is not allowed.

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

## **8. Pre-Bid Conference**

The Procuring Entity will hold a pre-bid conference for this Project on the specified date and time and either at its physical address at Ground Floor, Administration Building, Rizal Memorial Sports Complex, P. Ocampo Sr. St., Malate, Manila 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 until **one hundred twenty (120) calendar days from the date of the opening of bids**. Any bid not accompanied by an acceptable bid security shall be rejected by the Procuring Entity as non-responsive.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

## **20. Post Qualification**

Within a non-extendible period of five (5) calendar days from receipt by the Bidder of the notice from the BAC that it submitted the Lowest Calculated Bid, the Bidder shall

submit its latest income and business tax returns filed and paid through the BIR Electronic Filing and Payment System (eFPS), and other appropriate licenses and permits required by law and stated in the **BDS**.

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

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

## ***Section III. Bid Data Sheet***

# Bid Data Sheet

ITB Clause			
5.2	For this purpose, contracts similar to the Project refer to contracts which have the same major categories of work, which shall be: <b>Construction of sports arena or sports stadium.</b>		
7.1	Subcontracting is not allowed.		
10.3	<b>Bidder must have a valid PCAB license with principal classification Category AAA General Building.</b> <b>Bidder must have PCAB ARCC rating of Medium A for Building.</b> <b>Bidder must be ISO 9001 Certified.</b>		
10.4	The key personnel must meet the required minimum years of experience set below:		
	<u>Key Personnel</u>	<u>General Experience</u>	<u>Relevant Experience (Experience in similar project and similar position)</u>
	Lead Architect (Conservation Design, Planning and Management)	10 years	5 years
	Project Manager (Architect or Engineer)	10 years	5 years
	Project Engineer/Architect	5 years	2 years
	Materials Engineer 2	5 years	2 years
	Electrical Engineer	5 years	2 years
	Mechanical Engineer	5 years	2 years
	Sanitary Engineer/Master Plumber	5 years	2 years
	Foreman	5 years	2 years
	Safety Officer with certificate of training in occupational safety and health	3 years	2 years
10.5	The minimum major equipment requirements are the following:		
	<u>Equipment</u>	<u>Capacity</u>	<u>Number of Units</u>
	Boom truck	10T	1
	Backhoe	½ bucket	1
	Dump truck	10 wheeler 20 cubic meters	3
	Jackhammer with compressor	175 CF, screw type	2
	Welding machine	500 amperes	5
12	No further instructions.		

15.1	<p>The bid security shall be in the form of a Bid Securing Declaration or any of the following forms and amounts:</p> <p>a. The amount of not less than <b>Php1,974,707.59</b> [two percent (2%) of ABC], if bid security is in cash, cashier's/manager's check, bank draft/guarantee or irrevocable letter of credit;</p> <p>b. The amount of not less than <b>Php4,936,768.98</b> [five percent (5%) of ABC] if bid security is in Surety Bond.</p>
19.2	Partial bids not allowed.
20	<p><b>Bidder must have a valid PCAB license with principal classification Category AAA General Building.</b></p> <p><b>Bidder must have PCAB ARCC rating of Medium A for Building.</b></p> <p><b>Bidder must be ISO 9001 Certified.</b></p> <p><b>Bidder must be in sound financial standing with annual turnover/gross billings of at least 50% of the ABC.</b></p> <p><b>Bidder must have complete construction of a structure with at least contract value of 50% of the ABC.</b></p> <p><b>Bidder must have a licensed civil engineer, mechanical engineer, electrical engineer, sanitary engineer and safety officer.</b></p> <p><b>Bidder must have ten (10) years of experience in the field of civil works specifically in sports stadium or sports arena.</b></p>
21	<p>Additional contract documents relevant to the Project that may be required by existing laws and/or the Procuring Entity, such as construction schedule and S-curve, manpower schedule, construction methods, equipment utilization schedule, construction safety and health program approved by the DOLE, and other acceptable tools of project scheduling <b>shall be submitted during post-qualification.</b></p>

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

## 1. **Scope of Contract**

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

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

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

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

## 3. **Possession of Site**

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

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

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

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

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

## 5. **Performance Security**

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

## **6. Site Investigation Reports**

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

## **7. Warranty**

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

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

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

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

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

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

## **10. Dayworks**

Subject to the guidelines on Variation Order in Annex “E” of the 2016 revised IRR of RA No. 9184, and if applicable as indicated in the **SCC**, the 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***

# Special Conditions of Contract

GCC Clause	
2	No further instructions.
4.1	The start date is the date indicated in the Notice to Proceed.
6	The site investigation reports are: <b>None</b> .
7.2	Fifteen (15) years.
10	No dayworks are applicable to the contract.
11.1	The Contractor shall submit the Program of Work to the Procuring Entity's Representative within 15 calendar days of delivery of the Notice to Proceed.
11.2	The period between Program of Work updates is thirty (30) calendar days. Payment will not be processed if an updated program of work is not submitted.
13	The amount of the advance payment is 15% of the total contract price.
14	No further instructions.
15.1	The date by which operating and maintenance manuals are required is <b>within seven (7) calendar days after completion date</b> .  The date by which "as built" drawings are required is <b>within fifteen (15) calendar days after completion date</b> .
15.2	The <b>final payment</b> will be withheld for failing to produce "as built" drawings and/or operating and maintenance manuals by the date required.

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

See attached Annex “A”, Technical Specifications.

## *Section VII. Drawings*

1. Architectural Plan
2. Structural Plan
3. Construction of Control Room Plan

Copies of the enumerated plans may be secured from the PSC Engineering Unit.

## ***Section VIII. Bill of Quantities***

See attached Annex “B”, Bill of Quantities

***Section IX. Checklist of Technical and Financial Documents***

# Checklist of Technical and Financial Documents

## I. TECHNICAL COMPONENT ENVELOPE

### *Class “A” Documents*

#### Legal Documents

- (a) Valid PhilGEPS Registration Certificate (Platinum Membership) (all pages);
- (b) Registration certificate from Securities and Exchange Commission (SEC), Department of Trade and Industry (DTI) for sole proprietorship, or Cooperative Development Authority (CDA) for cooperatives or its equivalent document;  
**and**
- (c) Mayor’s or Business permit issued by the city or municipality where the principal place of business of the prospective bidder is located, or the equivalent document for Exclusive Economic Zones or Areas;  
**and**
- (e) Tax clearance per E.O. No. 398, s. 2005, as finally reviewed and approved by the Bureau of Internal Revenue (BIR).

#### Technical Documents

- (f) 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**
- (g) 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**
- (h) Philippine Contractors Accreditation Board (PCAB) License;  
**or**  
Special PCAB License in case of Joint Ventures;  
**and** registration for the type and cost of the contract to be bid; **and**
- (i) 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 (subject to the provisions of GPPB Resolution No. 9-2020; **and**
- (j) 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**
- (k) 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

- (l) The prospective bidder's audited financial statements, showing, among others, the prospective bidder's total and current assets and liabilities, stamped "received" by the BIR or its duly accredited and authorized institutions, for the preceding calendar year which should not be earlier than two (2) years from the date of bid submission; **and**
- (m) The prospective bidder's computation of Net Financial Contracting Capacity (NFCC).

**Class "B" Documents**

- (n) 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**

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

Other documentary requirements under RA No. 9184

- (p) Original of duly signed Bid Prices in the Bill of Quantities; **and**
- (q) 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**
- (r) Cash Flow by Quarter.

### **Additional Forms**

<b>No.</b>	<b>Description</b>
1	Statement of Single Largest Completed Contract
2	List of all ongoing government and private contracts including contracts awarded but not yet started
3	Computation of Net Financial Contracting Capacity (NFCC)
4	Joint Venture Agreement
5	Organizational Chart
6	Qualification of Key Personnel Proposed to be Assigned to the Contract
7	Key Personnel (Format of Bio-data/Resume)
8	List of Equipment Owned or Leased and/or Under Purchase Agreements, Pledged to the Proposed Project
9	Statement of Availability of Key Personnel and Equipment
10	Affidavit of Site Inspection
11	Detailed Cost Estimates/Unit Price Analysis
12	Quarterly Cash Flow and Payment Schedule

**SF-INFR-16 - STATEMENT SHOWING THE BIDDER'S SINGLE LARGEST COMPLETED CONTRACT WHICH IS SIMILAR IN NATURE**

Business Name : \_\_\_\_\_

Business Address : \_\_\_\_\_

Name of Contract	a. Owner Name b. Address c. Telephone Nos.	Nature of Work	Contractor's Role		a. Amount at Award b. Amount at Completion c. Duration	a. Date Awarded b. Contract Effectivity c. Date Completed
			Description	%		
<u>Government</u>						
<u>Private</u>						

- Note: This statement shall be supported with:
- 1 Owner's Certificate of Final Acceptance or the Certificate of Completion
  - 2 Whenever applicable, the Constructor Performance Evaluation Summary (CPES) Final Rating which must be satisfactory.
  - 3 Contract
  - 4 Additional information to prove the role of the entity and the actual scope of work directly undertaken by the entity as mentioned under ITB Clause 12.1(a)(iii) of the Bid Data Sheet.

Submitted by : \_\_\_\_\_  
(Printed Name & Signature)

Designation : \_\_\_\_\_  
Date : \_\_\_\_\_

**SF-INFR-15 - LIST OF ALL ONGOING GOVERNMENT & PRIVATE CONSTRUCTION CONTRACTS INCLUDING CONTRACTS AWARDED BUT NOT YET STARTED**

Business Name : \_\_\_\_\_

Business Address : \_\_\_\_\_

Name of Contract/Location Project Cost	a. Owner Name b. Address c. Telephone Nos.	Nature of Work	Contractor's Role		a. Date Awarded b. Date Started c. Date of Completion	% of Accomplishment		Value of Outstanding Works
			Description	%		Planned	Actual	
<u>Government</u>								
<u>Private</u>								
						Total Cost		

Note: This statement shall be supported with:

- 1 Notice of Award and/or Contract
- 2 Notice to Proceed issued by the owner
- 3 Certificate of Accomplishments signed by the owner or Project Engineer

Submitted by : \_\_\_\_\_  
(Printed Name & Signature)

Designation : \_\_\_\_\_  
Date : \_\_\_\_\_

## COMPUTATION OF NET FINANCIAL CONTRACTING CAPACITY (NFCC)

- A. Summary of the Firm's/Contractor's assets and liabilities on the basis of the attached copy of audited financial statement, stamped "RECEIVED" by the Bureau of Internal Revenue or BIR authorized collecting agent, for the immediately preceding year 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.	Total Net Worth (1-3)	
6.	Current Net Worth or Net Working Capital (2-4)	

- B. The Net Financial Contracting Capacity (NFCC) based on the above data is computed as follows:  
 NFCC = K (current asset – current liabilities) minus value of all outstanding contracts including those awarded contracts but not yet started

NFCC =  $\text{Php } \underline{\hspace{15em}}$

K = 10 for a contract duration of one year or less.

Submitted by:

\_\_\_\_\_  
 Name of Firm / Contractor

\_\_\_\_\_  
 Signature of Authorized Representative

Date: \_\_\_\_\_

**NOTE:** If Partnership or Joint Venture, each Partner or Member Firm of Joint Venture shall submit the above requirements.

## JOINT VENTURE AGREEMENT

KNOW ALL MEN BY THESE PRESENTS:

That this JOINT VENTURE AGREEMENT is entered into by and between: \_\_\_\_\_, of legal age, (civil status), owner/proprietor of \_\_\_\_\_ and a resident of \_\_\_\_\_.

- and -

\_\_\_\_\_, of legal age, (civil status), owner/proprietor of \_\_\_\_\_ a resident of \_\_\_\_\_.

That both parties agree to join together their capital, manpower, equipment, and other resources and efforts to enable the Joint Venture to participate in the Bidding and Undertaking of the hereunder stated Contract of the Procuring Entity.

1.	<u><b>NAME OF PROJECT</b></u>	<u><b>CONTRACT AMOUNT</b></u>
----	-------------------------------	-------------------------------

That both parties agree to be jointly and severally liable for their participation in the Bidding and Undertaking of the said contract.

That both parties agree that \_\_\_\_\_ and/or \_\_\_\_\_ shall be the Official Representative of the Joint Venture, and are granted full power and authority to do, execute and perform any and all acts necessary and/or to represent the Joint Venture in the Bidding and Undertaking of the said contract, as fully and effectively and the Joint Venture may do and if personally present with full power of substitution and revocation.

That this Joint Venture Agreement shall remain in effect only for the above stated Contracts until terminated by both parties.

Done this \_\_\_\_ day of \_\_\_\_\_, in the year of our Lord \_\_\_\_\_.

## **CONTRACTOR'S ORGANIZATIONAL CHART FOR THE CONTRACT**

Submit Copy of the Organizational Chart that the Contractor intends to use to execute the Contract if awarded to him to include in the chart, among others, the names of the required proposed Key Personnel as indicated in the ITB and other Key Engineering Personnel.

**Attach the required Proposed Organizational Chart  
for the Contract as stated above**

*Note: This organization chart should represent the "Contractor's Organization" required for the Project, and not the organizational chart of the entire firm.*

**SF-INFR-48 - QUALIFICATION OF KEY PERSONNEL PROPOSED TO BE ASSIGNED TO THE CONTRACT**

	Project Manager (Licensed Civil Engineer or Licensed Architect)	PROJECT ENGINEERS						Materials/ Quality Control Engineer II (DPWH Accredited) * Attached Proof of Accreditation	Safety Officer (Certified by BWC of DOLE or with Certificate of Training in Occupational Safety and Health) *Attached Certification or Training	Conservation Specialist *	Sustainability Expert **
		Licensed Civil/ Structural Engineer for Building Works	Professional Mechanical Engineer	Professional Electrical Engineer	Licensed Sanitary Engineer	Licensed Electronics & Communication Engineer	Licensed Architect				
1	Name										
2	Address										
3	Date of Birth										
4	Employed Since										
5	Experience										
	Total Experience (Years)	Required									
		Actual									
	Experience in Similar Project (Years)	Required									
		Actual									
6	Previous Employment										
7	Education										
8	PRC License/Accreditation/Certification/ training (as required) Attached Supporting Documents for validation purposes										

*Experience in Similar Work refers to experience of the key personnel in the construction of any commercial, institutional, industrial buildings of similar nature and complexity as the proposed project occupying same proposed position.*

*\*Conservation Specialist shall have experience in conservation of Heritage building projects.*

*\*\* Sustainability Expert shall be LEED Accredited Professional or BERDE Certified Professional or its equivalent.*

Submitted by : \_\_\_\_\_  
(Printed Name & Signature)

Designation : \_\_\_\_\_

Date : \_\_\_\_\_

## KEY PERSONNEL (FORMAT OF BIO-DATA/RESUME)

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 the required number of years, give name and length of service with previous employers. (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 number of years of experience required under ITB Clause 12.1b(ii.2) of the Bidding Documents for each of the required key personnel.(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)



**SF-INFR-18 – STATEMENT OF AVAILABILITY OF KEY PERSONNEL AND EQUIPMENT**

(Date of Issuance)

Name of the Head of the Procuring Entity  
Position of the Head of the Procuring Entity  
(Name of Procuring Entity)  
(Address of Procuring Entity)

Attention : The Chairman  
Bids and Awards Committee

Dear Sir:

In compliance with the requirements of the \_\_\_(Name of the Procuring Entity)\_\_\_ 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 Manager, Project Engineers, Architect, Materials/Quality Control Engineer, Safety Officer, Conservation Specialist and Sustainability Expert 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 the Representative  
(Position)  
\_\_\_\_\_  
(Name of Bidder)

**AFFIDAVIT OF SITE INSPECTION**

I, (Representative of the Bidder), of legal age, (civil status), Filipino and residing at (Address of the Representative), under oath, hereby depose and say:

1. That I am the (Position in the Bidder) of the (Name of the Bidder), with office at (Address of the Bidder);
2. That I have inspected the site for (Name of the Contract), located at (location of the Contract);
3. That I am making this statement as part of the requirement for the Technical Proposal of the (Name of the Bidder) for (Name of the Contract).

IN FAITH WHEREOF, I hereby affix my signature this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_ at \_\_\_\_\_, Philippines.

\_\_\_\_\_  
AFFIANT

SUBSCRIBED AND SWORN TO before me this \_\_\_\_\_, day of \_\_\_\_\_ 2016, affiant exhibiting to me his/her *(any Government ID/Passport No.)* issued on \_\_\_\_\_ at \_\_\_\_\_, Philippines and his/her ID picture appearing herein.

\_\_\_\_\_  
(Notary Public)

Until	_____
PTR No.	_____
Date	_____
Place	_____
TIN	_____

Doc. No. \_\_\_\_\_  
Page No. \_\_\_\_\_  
Book No. \_\_\_\_\_  
Series of 20\_\_

NAME OF CONTRACTOR: \_\_\_\_\_

**FORM 3 - DETAILED COST ESTIMATES /UNIT PRICE ANALYSIS**

1. ITEM NO.	2. ITEM NAME/DESCRIPTION	3. TOTAL QUANTITY AND UNIT
-------------	--------------------------	----------------------------

4. SEQUENCE OF OPERATION/ACTIVITIES

M A T E R I A L S	PRICE NO.	NAME/DESCRIPTION OF MATERIALS	UNIT	QUANTITY	UNIT COST	AMOUNT

5. DIRECT MATERIALS COST

L A B O R	REF. NO.	DESIGNATION/DESCRIPTION OF PERSONNEL	UNIT	NO. OF HOURS	UNIT RATE (hourly)	AMOUNT

6. DIRECT LABOR COST

E Q U I P M E N T	REF. NO.	NAME/DESCRIPTION OF EQUIPMENT	UNIT	NO. OF HOURS	UNIT RATE (hourly)	AMOUNT

7. DIRECT EQUIPMENT COST

WORK DAYS TO COMPLETE ITEM 3	8. ESTIMATED DIRECT COST (EDC) = (5 + 6 + 7)
	9. OVERHEAD CONTINGENCIES MISC.(OCM), PROFIT = __ % of EDC
	10. VAT ( __ % x [8 + 9])
AVERAGE OUTPUT/WORKDAY	TOTAL COST (8 + 9 + 10)
	UNIT COST

Signature and Official Stamp of Bidder: \_\_\_\_\_ Date: \_\_\_\_\_

Contract Name : \_\_\_\_\_  
Location : \_\_\_\_\_

**QUARTERLY CASH FLOW AND PAYMENT SCHEDULE**

PARTICULAR	% WT.	1	2	3	4
ACCOMPLISHMENT					
CASH FLOW					
CUMULATIVE ACCOMPLISHMENT					
CUMULATIVE CASH FLOW					

Submitted by:

Name of the Representative of the Bidder  
Position  
Name of the Bidder

Date: \_\_\_\_\_

*One of the requirements from the bidder to be included in its Financial Envelope is the monthly cash flow and payment schedule.*



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**Name of the Project : REHABILITATION OF NINOY AQUINO STADIUM  
(ADDITIONAL WORKS) RE-BID**

**Location : RMSC, Pablo Ocampo Sr. St., Malate, Manila**

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### **I. OBJECTIVE**

The basic objective of the project is to rehabilitate the Ninoy Aquino Stadium located at RMSC, Pablo Ocampo Sr. St., Malate, Manila.

### **II. BASIC INFORMATION**

Project Name : Rehabilitation of Ninoy Aquino Stadium (Additional Works) Re-bid

Location : RMSC, Pablo Ocampo Sr. St., Malate, Manila

### **III. QUALIFICATION**

- Contractors must have a valid PCAB license with principal classification Category AAA General Building.
- Contractor must have PCAB ARCC rating of Medium Afor Building.
- Contractor must be ISO 9001 Certified.
- Contractor must be in sound financial standing with annual turnover/gross billings of at least 50% of the ABC.
- Contractor must have complete construction of a structure with at least contract value of 50% of the ABC.
- Contractors must have a licensed Civil Engineer, Mechanical Engineer, Electrical Engineer, Sanitary Engineer and Safety Officer.
- The company must have ten (10) years of experience in the field of civil works specifically in Stadium.

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#### **IV. GENERAL SPECIFICATIONS**

The work shall include the supply of labor, materials, tools, equipment and services necessary to complete the subject project per approved Scope of Work, approved Construction Plans/Drawings and these Technical Specifications, which are parts of the Contract of Services, Governing Codes: Republic Act No. 9184 and its Implementing Rules and Regulations, National Building Code of the Philippines (P.D. 1096), Philippine Electrical Code, Philippine Plumbing and Sanitary Code, Philippine Mechanical Code, and all related applicable local ordinances and regulations.

Necessary building permits, clearances or licenses including occupancy permits shall be provided by the Contractor.

The Contractor shall submit, prior to the execution of the specified works, his schedule of work expressed in PERT/CPM Network Diagram, indicating the computation of the contract time, all activities, their duration and projected percentage accomplishments/cash flow, for monitoring purposes.

For all new constructions, the Contractor shall provide new materials, fabricated products, and necessary equipment and services for all works.

For all repair or replacement works, use brand new materials, brands/models, measurements, and finishes. Major materials, products or work items, large volume or quantity items, or other expensive items that are not particularly mentioned in these specifications, shall require submission of samples, product tests, mock-up models, and selection, or approval prior to their installation or application in the project.

Sub-contracting shall only be limited to specialty work items, which require provision of special materials, methods, techniques and equipment and are subject to the approval of the Philippine Sports Commission.

The contractor shall provide full-time supervision of the works.

All materials and equipment shall be delivered to the site at designated locations within the project premises.

The Philippine Sports Commission or its authorized representative reserves the right to reject any materials or workmanship that may be found defective or not in conformity with the approved Construction Plans/Drawings and these Technical Specifications. In case where conflicts between the Construction Plans/Drawings and the Technical Specifications arise, these should be immediately being brought to the attention of the Philippine Sports Commission or its authorized representative for appropriate action.

All billings shall be subject to submission of a Statement of Account by the Contractor, including his percentage accomplishment report and photographs for inspection/evaluation and acceptance by the Philippine Sports Commission. The Contractor shall provide access to the construction areas for the convenience of the inspection team during project inspection.

Change or additional works that are necessary but were not included in the scope of work shall be subject to variation order preparation upon request and notice by the Contractor.

#### **V. GENERAL REQUIREMENTS**

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## 1.0 Regulatory Requirements

- 1.1 National Building Code of the Philippines
- 1.2 National Plumbing and Sanitary Code of the Philippines
- 1.3 Philippine Electrical Code
- 1.4 Philippine Mechanical Code

## 2.0 Submittals

- 2.1 Construction Schedules
- 2.2 Shop Drawings, Product Data and Samples, Color Swatches
- 2.3 Construction Photographs
- 2.4 Permits (when necessary)

## VI. OUTLINE TECHNICAL SPECIFICATIONS

### 1.0 Securing/Renewal of Building Permits:

Necessary building permits, clearances, or licenses including occupancy permit shall be provided by the Contractor. The Contractor shall pay all fees and other incidental expenses.

### 2.0 Dismantling of existing unwanted structures:

#### 2.1 Demolition, Removal and Dismantling

1. Before commencing any demolition, removal, and/or dismantling work, all affected electrical lines and water supply lines shall be disconnected, or shut off except such as required for use in connection with the work on site.
2. Demolish selectively and remove or dismantle carefully all components of structures indicated in the drawings necessary to prepare for renovations. All reusable materials shall be coordinated with the agency architect/engineer for reuse.
3. Store reusable parts of the structures and materials within the area. All other materials retrieved from the site shall be turned over, supported with an inventory report on quantity and description of materials, to the Philippine Sports Commission, through the agency Property Officer. Only reusable materials shall stay in the construction area. On the other hand, all unused and destroyed materials shall be supported with a Report of Waste Materials.
4. Protect and maintain structures, materials, fixtures, and utilities that are to remain within the property.

### 3.0 Site Works

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### 3.1 Site Preparation

#### 3.1.1 General

The Work under this Section shall include complete demolition work: timbering, clearing, grubbing, scalping, clean up and disposal of all debris and other objectionable matter and grading work as directed by the Construction Officer.

#### 3.1.2 Requirements

Demolition in work shall consist of complete removal/demolition of all obstructions.

Timbering shall consist of felling and disposal of all trees specifically indicated to be removed. No timbering shall be done until each tree to be removed has been physically marked for removal by the Construction Officer. Trees marked for removal shall be felled in such a manner as not to injure other trees, fences, wires, buildings and facilities which are to remain. All damage to remaining trees, plants or facilities resulting from such timbering shall be repaired by the Contractor at no additional cost to the Agency. All resulting stumps shall be left clean and free from sharp protuberances and shall not extend more than 30 cm above ground surface.

Cleaning shall consist of the removal and disposal of all stumps, vines, bush, grass, roots, vegetation, fences, rocks, masonry and debris within the limits and rights-of-way of the project.

Disposal of non-combustible waste shall be accomplished by removal from job-site by the Construction Officer. In no case shall the Construction Officer, prior to commencement of operation, or permission from the property owner, such permission to include the site location, method of disposal and any restrictions or conditions that may form part of the agreement between the Contractor and the Owner. The Contractor shall save the Government from any claim arising or resulting from such disposal operations.

Burning shall be accomplished at site without damage to nearby trees, buildings or other facilities by flames, smoke or ash. All applicable regulations shall be complied with such burning. Permission by the Construction Officer to accomplish burning shall not be construed as to relieve the Contractor of determining and complying with such regulations. All fires shall be kept under constant and adequate attendance and fire control measures and devices shall be sufficient in quantity to control all blazes. In the event that conditions are unsuitable for burning waste, at the option of the Contractor, combustible material may be disposed by other means, provided that prior approval of the Construction Officer is obtained.

The grading work shall be done after clearing the site of stumps, roots, grass, etc. Grading work shall be general smoothing the ground surface of the site such as covering holes left by stumps, etc. and leveling sharp and steep grades.

### 3.2 Excavating and Grading

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### 3.2.1 General

Work under this section shall be subject to the requirements of applicable paragraphs of the General Conditions of Contract.

### 3.2.2 Work Included

This work includes labor, materials, and equipment necessary for excavating and grading as required in the Drawings and as specified herein. This, in general, includes cleaning and removal of grass, trees, and loose stones, and excavation for foundations, footings, septic vault, and rough and finish grading.

### 3.2.3 Materials

Factory fill material shall be of the materials approved by the Construction Officer, and shall be of the type that has obtained its optimum moisture contents.

Unsatisfactory fill materials are Fill Materials that are too wet or too soft, as determined by the Construction Officer, and deficient in providing a stable subgrade or foundation of structures or pavements.

Selected backfill materials shall consist of sand, stone, gravel or screened stoned, uniformly graded and free from soft or unsound particles or other objectionable materials. Sieve analysis shall conform with ASTM C136, and shall conform to the following gradation limits:

Passing 3/8 inch sieve	-	100%
Passing No. 4 sieve	-	85-100%
Passing No. 100 sieve	-	0-10%
Passing No. 200 sieve	-	0-3%

### 3.2.4 Workmanship

#### 3.2.4.1 Staking Out

The Contractor shall stake cut lines and corners. He shall build batter boards and shall locate first and second floor lines in relation to existing grades. Lines and levels shall be approved by the Construction Officer or his representative before excavation is started.

The Contractor shall construct two permanent benchmarks of previously known elevations near the site of construction for purpose of determining any settlement that may occur during the construction.

#### 3.2.4.2 Excavation

Excavation shall be executed in a careful manner to proper depths. No excavation shall be carried below elevations indicated on Drawings unless made necessary by existing conditions. Claims for extras will not be allowed for excavations not authorized by the Construction Officer.

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Excavated materials shall be transported to and placed in fill areas within work limits. Unsatisfactory materials encountered within established subgrades as shown or 0.30m below grade shall be replaced with satisfactory materials as specified.

Surplus excavated materials not required for fill or embankment shall be disposed of in designated waste or spoil areas. Unsatisfactory excavated materials shall be disposed in designated waste or spoil areas. Excavated materials shall be performed to provide proper drainage at all times. Materials required for fill, in excess of that produced by excavation within the grading limits, shall be excavated from approved borrow areas.

Excavation shall be left clean and clear of loose material.

#### 3.2.4.3 Water and Drainage

Contractor shall do everything necessary for keeping water out of excavations and away from building during construction.

#### 3.2.4.4 Backfill

Backfill shall be installed against foundation walls in not more than 2" or 50mm. Backfill shall be carefully tamped. Debris shall not be used for backfilling.

#### 3.2.4.5 Grading

Finish grading shall include areas with limits shown on plot plan. Grades shall be reformed to easy contours in accordance with Drawings.

### 3.3 Concrete Culvert Pipe

#### 3.3.1 General

Whenever Concrete Culvert Pipes are indicated in the Plans, this work shall consist of furnishing reinforced and non-reinforced concrete culvert pipes of the sizes and dimensions indicated on the drawings, conforming to the specifications and the directions of the Construction Officer.

#### 3.3.2 Materials

The fabrication of the pipes shall conform to the specification of ASHO Designation M 170. The Construction Officer reserves the right to inspect and test the pipes delivered for use in the work. Defects that are discovered after acceptance of delivery of the pipes but before installation of the pipe shall be cause for rejection without additional cost to the Agency. Mortar for pipe joints shall be composed of one (1) part portland cement and two (2) parts sand, and shall conform to the requirements of item RC 100: Plain and Reinforced Concrete.

#### 3.3.3 Workmanship

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Trenching for concrete culvert pipes shall conform to, and shall be payable under, item EX 100: Excavation. The pipe trench shall be excavated to the depth, grade and width established by the Construction Officer. In material considered satisfactory by the Construction Officer, the pipes may be laid directly on the trench bed shaped to the form of the pipes for at least 10 per centum of their outside diameters. In rock or hardpan and other material considered unsatisfactory by the Construction Officer, the trench bed shall be excavated 30 centimeters deeper and the required selected or granular material shall be laid to bed the pipes. In preparing the pipe bed, recesses for pipe bells shall be provided. Pockets of unsuitable material shall be removed and replaced with approved selected or granular material.

Pipes shall be carefully laid, with hubs up-graded, ends fully and closely joint, true to the lines and grades required. After one length of pipe is laid, the lower portion of the hub shall be primed with mortar on the inside sufficient enough to bring the inner surfaces of the next pipe flushed and even those of the previous one. The remainder of the joint on the inside shall then be filled with mortar and then struck off to a smooth finish. The outside of the joint shall also be filled with mortar, and excess mortar shall be used to form a bead all around the outside of the joint. After the initial set of the outside mortar, it shall be protected from air and sun by thoroughly wetted burlap or earth.

The pipes shall be tested for undue settlement and for water tightness of joints, before backfilling the trench. Unsatisfactorily work shall be corrected without additional cost to the Government.

Filling and Backfilling. The mortar joints shall have set sufficiently prior to backfilling. Backfilling shall be brought up, in uniform 15-centimeter layer on both side and over the line of pipes, to the finished grade. Compaction shall be accompanied by sprinkling with water to obtain at least 95% relative compaction.

#### 3.3.4 Methods of Measurement and Basis of Payment

For purposes of progress payments, concrete pipes installed complete in place in accordance with drawings, these specifications, or as directed by the Engineer shall be paid for the total length in linear meters according to size and kind, measured along the axis of the pipes.

The quantities measured as provided above and accepted for payment shall be paid for the purposes of progress payments only at the unit price per linear meter of the kind and size of concrete pipes, in which price and payments shall constitute full compensation for furnishing or manufacturing of the pipes, for hauling and installing, for bedding and jointing, and for all other headwalls and other structures are excluded from the payment prescribed herein. Final payment shall not exceed the total amount for this work item shown in the Proposal Schedule.

When the Proposal Schedule does not provide separate payment for work herein specified, full compensation therefore shall be considered as included in the lump sum contract price for Exterior Drainage System within the purview of items PS 100.

### 3.4 Roadways and Paving

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### 3.4.1 General

Whenever Roadways and Paving are called for in the Plans, the Contractor shall furnish all labor, materials, equipment and incidentals for the construction of new pavement, sidewalks, gutters and curbs, and for the restoration of existing pavement, sidewalks, gutters and curbs, as shown on the Drawings and as specified herein. The Construction Officer may direct the Contractor to excavate and repave additional areas to those indicated.

### 3.4.2 Standard Specification Reference

Except as otherwise specified herein, materials and construction shall be in accordance with the "Republic of the Philippines, Department of Public Highways, General Specifications for Roads and Bridges, 1976."

ASTM D1559 Resistance to Plastic Flow of Bituminous Mixture Using Marshall Apparatus.

### 3.4.3 Materials

Granular subbase and base course materials shall be as specified under Items 300, 301, and 302 of the General Specifications. Grading requirements shall be as follows:

<b>Sub-base</b>	<b>Standard Sieve Size</b>	<b>Percent Passing</b>
75.00 mm		100
37.50 mm	80	100
9.50 mm	45	100
4.75 mm	30	85
2.00 mm	15	65
0.425 mm	5	35
0.075 mm	0	15
<b>Base</b>	<b>Standard Sieve Size</b>	<b>Percent Passing</b>
25.00 mm		100
19.0 m	75	100
7.75 mm	40	60
2.00 mm	25	45
0.425 mm	12	25
0.075 mm	5	12

Concrete shall meet the requirements for structural concrete.

For asphalt concrete, under Item 401 of General Specifications, aggregate grading shall be Class B. Test specimens of the job-mix formula shall be prepared and tested in accordance with the design procedures given for the Marshall Method of Mix design, and shall meet the requirements given below when tested in accordance with ASTM D1559.

<b>Marshall Stability N</b>	<b>3300 min</b>
Flow, 0.25 mm	8 - 46
Percent voids in total mix	3 - 5
Use 75-blows/end compaction	

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The job-mix formula shall be submitted for the Construction Officer's approval that may change the aggregate grading and bitumen content to improve the quality of the mix.

For Gravel surfacing material, under Item 407 of General Specifications 1 grading requirements shall be as follows:

<b>Standard Sieve Size</b>	<b>Percent Passing</b>
25.00 mm	100
19.00 mm	85 - 100
9.50 mm	60 - 100
4.75 mm	50 - 85
2.00 mm	40 - 70
0.425 mm	25 - 45
0.075 mm	10 - 25

### 3.4.4 Workmanship

#### 3.4.4.1 Subgrade

Following clearing, grubbing and preparation stripping of topsoil the subgrade shall be prepared by sprinkling and rolling with a steel roller until the subgrade is completed to 90 percent of optimum. Subgrade in cut areas shall be scarified to a depth of 0.15 m and recompact at a moisture content slightly above the optimum.

Areas that require common fill to raise to sub-grade elevations shown on the Drawings shall be filled except that no lift shall be thicker than 150 mm. Where existing sub-grade materials have been disturbed, or are in the opinion of the Construction Officer unsuitable for subgrade, the materials shall be removed as directed and shall be replaced with common fill and shall be compacted.

No subbase material for new restored pavement shall be placed until the Construction Officer has inspected and approved the subgrade.

#### 3.4.4.2 Subbase and Base Course Materials

Aggregate Base Course shall be placed and compacted as shown on the Drawings, and as required in - Aggregate Base Course.

The finish base course shall not vary more than 1.5 centimeters above or below the set grade at any point. Any area that does not conform to the grading requirements shall be reworked and recompact.

#### 3.4.4.3 Portland Cement Concrete Pavement

See - Portland Cement Concrete Pavement.

#### 3.4.4.4 Sidewalks

All sidewalks disturbed during the course of the work shall be restored to their original condition. New sidewalks shall be 21 Map concrete.

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New concrete pavement shall be in accordance with - Concrete of the General Specifications.

Concrete pavement to be removed shall be up to vent lines cut by an abrasion saw. Where existing reinforcing steel is removed it shall be replaced with equivalent steel bars.

Concrete curbs and gutters shall be constructed as indicated on plans. All exposed concrete edges shall be finished with an edging tool having a 1-cm radius.

### 3.5 Concrete Curb and Gutter

#### 3.5.1 General

Whenever indicated in the plans, this work shall consist of concrete curb or combined curb and gutter, constructed at the locations and to the dimensions, shape shown on the drawings and specified herein or as directed by the Construction Officer.

#### 3.5.2 Materials

Concrete shall be of the class of strength shown on the drawings and shall conform to the requirements of Plain and Reinforced Concrete. Pre-molded filler for expansion joints shall conform to the specifications of AASHO M-33 and poured filler for intermediate construction joints shall be of mixed asphalt and mineral filler or mixed asphalt and rubber filler conforming to the specifications of AASHO M-89, with asphalt having a penetration (77oF, 100gr., 5 specs.) within the range of 30 to 50 and a softening point of not less than the range of 30 to 50 and a softening point of not less than 90oC (200oF). Steel reinforcement, if any, shall conform to the specifications of ASTM Designation: A615, Grade 40.

#### 3.5.3 Workmanship

Formwork for concrete placing shall be constructed upon the prepared base previously completed in accordance with the requirements of Aggregate Base Course. Forms shall be smooth on the side placed next to the concrete and shall have a true smooth upper edge. The depth of forms for back of curbs shall be equal to the full depth of the curb, and the depths of the face of the forms for curbs shall be equal to the full-face height of the curb. Forms shall be rigid enough to withstand the pressure of fresh concrete without distortion, and shall be thoroughly cleaned and coated with form oil to prevent adherence of concrete. Setting of forms shall conform to the required dimensions and to the alignment and grade shown on the drawings. Stakes shall be positioned to hold the form rigidly in place and clamps, spreaders, and braces shall be additionally placed where necessary to enhance rigidly in the forms. Benders or thin plank forms cleaned together may be used on curves, grade changes, or for curb returns. In constructing curbs, entrances shall be provided for driveways, with dimensions shown on the drawings or designated by the Construction Officer. Dowels and reinforcements shall be of the size, shape and spacing shown on the drawings.

The curb and gutter shall be constructed in uniform segments not more than 5 meters in length, except where shorter segments are required to coincide with the location of

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weakened plane or contraction joints in the adjacent concrete pavement, or for closure, but no segment shall be less than 2 meters long. The poured joint shall be formed by sheet templates that will give the required joint thickness and that are cut to the cross-section of the curb or the combined curb or gutter. The templates are set carefully normal to the line of curb and to plane of gutter and held firmly in place until the concrete has set sufficiently to hold its shape. They are removed shortly after the curb face form is removed, but before all the other forms are removed. Expansion joints shall be formed with pre-molded joint material, likewise placed normal to line or curb and to plane of gutter, cut and shaped to the cross-section of the curb and gutter, and positioned at locations shown on the drawings.

Concrete shall be placed and consolidated in the forms without segregation. Prior to the removal of the forms, the surface of concrete shall be shaped true to grade by means of a straight edge float preferably 3 meters long, operated longitudinally over the surface of the concrete. For clamps and braces shall have been so positioned as not to interfere with the operation of this float. Immediately after the removal of the front curb forms, the face of the curb shall be floated and troweled smooth. No plastering will be permitted and the finishing shall be accomplished by simply floating the green concrete, accompanied by careful wetting. Minor defects shall be repaired with mortar containing one part Portland cement and two parts of fine aggregate. Corners and edges shall be rounded to the radii shown on the drawings. Surface irregularities in excess of 6 millimeters in 3 meters shall be considered as cause for rejection of segment, which shall be removed and replaced without additional cost to the government.

Removal of the rest of the forms may be done after 24 hours that the concrete is placed, but proper protection shall be made by the Contractor to prevent injury or damage to the finished concrete. After finishing and sufficient hardening to the concrete curb or the combined concrete curb and gutter, curing shall be immediately done by any method specified under Plain and Reinforced Concrete. Backfilling next to the curb shall be performed and paid for under the provisions of Filling and Backfilling.

#### 3.5.4 Methods of Measurement and Basis of Payment

For purposes of progress payments, the quantity to be paid for shall be the total length in linear meters of concrete curb and gutter, completed and measured in place. Measurement shall be made along the face of the curb, whether the portion being measured is straight or curved. No deductions shall be made for flattening of curbs at entrances.

The quantity of curb or combined curb and gutter as measured above shall be paid for purposes of progress payments only at the unit price bid per linear meter, in which price and payment shall constitute full compensation for all materials, labor, plant, equipment, tools and incidentals necessary to complete the work. Inclusive of form work, concrete placing, finishing, shaping, curing, joining, etc. Final payment shall not exceed the total amount for this work item as shown in the Proposal Schedule.

## 4.0 Temporary Facilities

### 4.1 Temporary Facilities

#### 4.1.1 Scope of Work

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This section shall include the mobilization and demobilization of Contractor's plant, equipment, materials and employee to the site; construction/ rental and maintenance of Engineer's staff house, and service vehicle in compliance with the contract requirements during the entire project duration.

This section shall include the furnishing of labor, materials, transportation, tools, supplies, plant, equipment and appurtenances to complete satisfactorily the construction of the proposed project.

#### 4.1.2 Mobilization and Demobilization

The Contractor upon receipt of the Notice-to-Proceed shall immediately mobilize and transport his plant, equipment, materials and labor forces to the site and demobilize or remove the same at the completion of project and level/ clear the site acceptable to the Engineer and the Owner. Mobilization and Demobilization are incidental to other items of work and will not be measured for payment.

#### 4.1.3 Field Office for the Engineer

During the performance of the contract, the Contractor shall provide and maintain field office for the Engineer and Engineer's representative within the site of the work at designated location indicated on the Drawings while the work is in progress.

The Contractor shall also maintain the existing staff house of the Engineer and shall also provide and maintain a separate office on rental basis for the Engineer's Representative at location approved by the Engineer during the entire duration of the contract.

Construction shanties, sheds and temporary facilities provided as required for the Contractor's convenience shall be maintained in good condition and neat appearance including finishes as required by the Engineer.

The field office for the Engineer/Engineer's representative shall be constructed all in accordance with the Standard Specification and design shown on the approved Drawings.

The building shall have the floor area prescribed on the Plans and shall have a 24-hour security services and shall strictly comply with the provisions of Batas Pambansa 344 (Accessibility Law) and the Building National Code.

All facilities to be provided by the Contractor shall conform to the best standard for the required types. The facilities provided by the Contractor including utilities and communication facilities shall revert to the Government including office equipment, furniture, etc. upon completion of the Project.

The Contractor shall be responsible for raising the ground (if necessary), the grading and provision of drainage facilities in the vicinity of the facility with suitable access walkways, seeding and sodding of the ground as directed and approved by the Engineer. Also, the Contractor shall provide a parking area at the compound near the building and a satisfactory access road to the parking area. The Contractor shall be responsible for the maintenance and protection of all facilities to be provided during the entire duration of the Contract including provision of adequate stock of all expendable items, such as light bulbs, light tubes, laboratory equipment and supplies, etc., at all times to ensure proper and continuous functioning of all the Engineer's facilities.

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The buildings shall be provided with air-conditioning system, complete with all standard accessories which will operate on a 220 volt, 60 cycle current at the location and quantity/capacity reflected per approved Plans which can cool and dehumidify the air.

It shall be understood that if the Contractor cannot provide the articles as described or intends to supply equivalent substitutes, the Engineer may execute their availability and the Contractor shall pay therefore as certified by the Engineer or the Engineer shall have the right to deduct the sums from any money which is due or which will become due to the Contractor.

#### 4.1.4 Temporary Light and Power

The Contractor shall provide and maintain temporary electrical service including installation of temporary power and lighting within the construction site and facilities constructed thereat.

The electrical services shall be adequate in capacity to supply power to construction tools and equipment without over-loading the temporary facilities and shall be made available to supply power, lighting and construction operations of all trades. All temporary equipment and wiring for power and lighting shall be in accordance with the applicable provisions of the local governing codes. At the completion of the construction work, all temporary wiring, lighting, equipment and devices shall be removed.

#### 4.1.5 Temporary Toilets

The Contractor shall provide and maintain in sanitary condition enclosed toilets for the use of all construction personnel located within the contract limits, complete with fixtures, water and sewer connections and all appurtenances. Installation shall be in accordance with all applicable codes and regulations of the local authorities having jurisdiction thereof. Upon completion of the work, temporary toilet and their appurtenances shall be removed.

#### 4.1.6 Temporary Water Service

The Contractor shall provide and maintain temporary water supply service, complete with necessary connections and appurtenances. Installed water supply lines shall be used as a source of water for construction purposes subject to the approval of the Engineer. The Contractor shall pay the cost of operation, maintenance and restoration of the water system.

All temporary water service including equipment and piping shall be removed upon completion of the work and all worn out and damaged parts of the permanent system shall be replaced and restored in first class condition equal to new.

#### 4.1.7 Security

The Contractor shall provide sufficient security in the construction site to prevent illegal entry or work damaged during nights; holidays and other period when work is not executed; and during working hours. The Contractor shall take ample precautions against fire by keeping away flammable materials, and ensure that such materials are properly handled and stored. Fires shall not be allowed within the area of construction, except when permitted by the Engineer.

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#### 4.1.8 Disposal Area

The proposed location of disposal area shall be at the site designated by the Engineer. It is the responsibility of the Contractor to disposed off-site all construction debris and be considered in the preparation of his proposal.

#### 4.1.9 Maintenance of Field Office for the Engineer

The maintenance of staff house for the Engineer shall include provision of water and electricity 24 hours daily and shall be paid for from the date the Engineer's representative's occupancy reckoned from the commencement of the Works until completion of the contract. Unit of measurement and payment is "Month".

### 5.0 Clearing and Grubbing

#### 5.1 Construction Requirements

This item shall consist of clearing, grubbing, removing and disposing all vegetation and debris as designated in the Contract, except those objects that are designated to remain in place or are to be removed in consonance with other provisions of this Specification. The work shall also include the preservation from injury or defacement of all objects designated to remain.

#### 5.2 Clearing and Grubbing

All surface objects and all trees, stumps, roots and other protruding obstructions, not designated to remain, shall be cleared and/or grubbed, including mowed as required, except as provided below:

- (1) Removal of undisturbed stumps and roots and nonperishable solid objects with a minimum depth of one (1) meter below subgrade or slope of embankment will not be required.
- (2) In areas outside of the grading limits of cut and embankment areas, stumps and nonperishable solid objects shall be cut off not more than 150 mm above the ground line or low water level.
- (3) In areas to be rounded at the top of cut slopes, stumps shall be cut off flush with or below the surface of the final slope line.
- (4) Grubbing of pits, channel changes and ditches will be required only to the depth necessitated by the proposed excavation within such areas.
- (5) In areas covered by cogon/talahib, wild grass and other vegetations, top soil shall be cut to a maximum depth of 150 mm below the original ground surface or as designated by the Engineer, and disposed outside the clearing and grubbing limits.
- (6) Except in areas to be excavated, stump holes and other holes from which obstructions are removed shall be backfilled with suitable material and compacted to the required density.

If perishable material is burned, it shall be burned under the constant care of component watchmen at such times and in such a manner that the surrounding vegetation, other

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adjacent property, or anything designated to remain on the right of way will not be jeopardized. If permitted, burning shall be done in accordance with applicable laws, ordinances, and regulation.

The Contractor shall use high intensity burning procedures, (i.e., incinerators, high stacking or pit and ditch burning with forced air supplements) that produce intense burning with little or no visible smoke emission during the burning process. At the conclusion of each burning session, the fire shall be completely extinguished so that no smoldering debris remains.

In the event that the Contractor is directed by the Engineer not to start burning operations or to suspend such operations because of hazardous weather conditions, material to be burned which interferes with subsequent construction operations shall be moved by the Contractor to temporary locations clear of construction operations and later, if directed by the Engineer, shall be placed on a designated spot and burned.

Materials and debris which cannot be burned and perishable materials may be disposed of by methods and at locations approved by the Engineer, on or off the project. If disposal is by burying, the debris shall be placed in layers with the material so disturbed to avoid nesting. Each layer shall be covered or mixed with earth material by the land-fill method to fill all voids. The top layer of material buried shall be covered with at least 300 mm of earth or other approved material and shall be graded, shaped and compacted to present a pleasing appearance. If the disposal location is off the project, the Contractor shall make all necessary arrangements with property owners in writing for obtaining suitable disposal locations which are outside the limits of view from the project. The cost involved shall be included in the unit bid price. A copy of such agreement shall be furnished to the Engineer.

The disposal areas shall be seeded, fertilized and mulched at the Contractor's expense. Woody material may be disposed of by chipping. The wood chips may be used for mulch, slope erosion control or may be uniformly spread over selected areas as directed by the Engineer. Wood chips used as mulch for slope erosion control shall have a maximum thickness of 12 mm and faces not exceeding 3900 mm<sup>2</sup> on any individual surface area. Wood chips not designated for use under other sections shall be spread over the designated areas in layers not to exceed 75 mm loose thickness. Diseased trees shall be buried or disposed of as directed by the Engineer.

All merchantable timber in the clearing area which has not been removed from the right of way prior to the beginning of construction, shall become the property of the Contractor, unless otherwise provided.

Low hanging branches and unsound or unsightly branches on trees or shrubs designated to remain shall be trimmed as directed. Branches of trees extending over the roadbed.

### **5.3 Individual Removal of Trees or Stumps**

Individual trees or stumps designated by the Engineer for removal and located in areas other than those established for clearing, grubbing and roadside cleanup shall be removed and

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disposed of as specified under Subsection 100.2.2 except trees removed shall be cut as nearly flush with the ground as practicable without removing stumps.

## 6.0 Steel Reinforcement Works

### 6.1 General

#### 6.1.1 Description

This section covers the requirements for fabricating, delivering and placing of steel reinforcement in position for casting all types of concrete work.

#### 6.1.2 Related Work Specified Elsewhere

Applicable Codes and Standards:

The codes and standards generally applicable to the work in this section are listed below:

- IS: 280 Mild wire for general engineering purpose
- IS: 432 Part I Mild steel and medium tensile steel bars Part II Hard drawn steel wire
- IS: 456 Code of practice for plain and reinforced concrete
- IS: 1139 Hot rolled mild steel, medium tensile steel and high yield strength steel deformed bars for concrete reinforcement
- IS: 1566 Hard drawn steel wire fabric for concrete reinforcement
- IS: 2502 Code of Practice for bending and fixing of bars for concrete reinforcement

The following clauses are intended to amplify the requirements of the reference documents listed above and the contractor/Project-in-charge shall comply with these clauses.

### 6.2 Submittals

#### 6.2.1 Bar Bending Schedule

The Contractor shall prepare Bar Bending Schedule for reinforcement before fabrication.

### 6.3 Materials

#### 6.3.1 Steel Reinforcement

Steel reinforcement to be procured by the Contractor for works shall be either of the following types:

- a) Mild steel of Grade 1 tested quality conforming to IS: 432
- b) 3370 Code of practice for concrete structures for (Part I to IV) the storage of liquids
- c) High yield strength cold worked deformed steel bars of tested quality conforming to IS: 1786 or hot rolled high tensile deformed steel bars of tested quality conforming to IS: 1139
- d) Hard drawn steel fabric conforming to IS: 1566
- e) Where galvanized reinforcement is specified in the drawings, the bars or mesh shall be hot-dip galvanized after bending generally in accordance with IS: 2629 and IS: 4759.

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Galvanized reinforcement shall be coated with a layer of zinc nowhere less than 0.05 mm in thickness

All reinforcement shall be stored horizontally above ground level on supports, skids or other approved supports, clear of any running or standing water. Contact with soil should be avoided. Proper drainage and protection from the elements shall be provided to minimize corrosion.

Before steel reinforcement is placed in position, the surface of the reinforcement shall be cleaned of rust, dust, grease and other objectionable substances. In order to confirm the quality periodical tests as specified as the relevant IS shall be conducted by the contractor at his own cost.

#### 6.3.2 Binding Wire

Binding wire shall be black annealed steel wire conforming to IS: 280 and of minimum 18 gauge.

#### 6.3.3 Welding Electrodes

Electrodes used for welding of steel bars shall be of ordinary mild steel grade electrodes conforming to IS: 814 and shall be of the best quality approved by Consultant/Project-In-Charge.

### 6.4 Storage

Reinforcement steel shall be handled and stored in a manner that bending or distortion of the bars is avoided and contamination of steel is prevented.

All reinforcement shall be stored horizontally above ground level on supports, skids or other approved supports, clear of any running or standing water Contact with soil should be avoided. Proper drainage and protection from the elements shall be provided to minimize corrosion Bars of different classifications and diameters shall be stored separately A record shall be kept of the batch numbers of reinforcement deliveries in such a form that the part of the works in which particular reinforcement is used can be readily identified. Welding electrodes shall be stored in moisture control-led environment in accordance with the manufacturer's recommendations.

### 6.5 Fabrication

Reinforcement steel shall be carefully and accurately cut, bent or formed to the dimensions and configurations shown on the drawings and as per bar bending schedules approved by the Consultant / Project-in-charge. All reinforcement shall be bent cold using appropriate pin size. Bars may be preheated only on approval of the Consultant. Quenching shall not cool hot bars. Bends shall be in accordance with IS: 2502. It shall be ensured that the bars are not straightened in any manner that will injure the material. Any bars incorrectly bent shall be used only if means for straightening and rebinding be such as not to affect adversely the material. Reinforcement shall not be re-bent or straightened without prior review by the Consultant. No reinforcement shall be placed in position on the works without approval of the Consultant, whether or not it is partially embedded in hardened concrete.

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Reinforcement steel having a reduced section, visible transverse cracks in bends, or otherwise damaged in anyway shall not be used.

Spiral reinforcement shall be accurately fabricated to the diameter and pitch shown on the drawings. One and one-half finishing turns shall be provided at both top and bottom unless shown otherwise. Cut ends of galvanized rods shall be given a protective coat of an approved zinc paint immediately after cutting.

## 6.6 Lapping

As far as possible bars of maximum length available shall be used. All bars shall be in one length unless otherwise shown on the drawings or agreed with the Consultant / Project-in-charge.

Laps shown on the drawings or otherwise specified by the Consultant shall be based on the use of bars of maximum length by the contractor. In case the Contractor wishes to use shorter bars, laps shall be provided at the Contractor's cost in the manner and locations approved by the Consultant /Project-in-charge.

Not more than 1/3 of the bars or as specified in the drawings shall be lapped at one section. Reinforcement bars shall not be welded unless shown on the drawings or instructed by the Consultant / Project-In-Charge.

## 6.7 Placement

All reinforcement shall be placed accurately and maintained in the position indicated on the drawings. The contractor shall provide approved type of supports for maintaining the bars in position and ensuring required spacing and correct cover of concrete to the reinforcement as called for in drawings. Pre-cast cement concrete blocks of required shapes and size, MS. chairs and spacers bars shall be used in order to ensure accurate positioning of reinforcement. Pre-cast concrete blocks shall be cast well in advance and shall be at least equal in quality to the class of concrete specified in the work.

In fair faces of concrete, temporary spacers only shall be used and removed or withdrawn as compaction of concrete proceeds. Spacers will not be permitted to be left in fair faces of concrete.

All intersections of the reinforcements shall be securely tied with two strands of binds wire twisted tight to make the skeleton or network rigid so that the reinforcement is not displaced during placing of concrete.

Tack welding of crossing bars shall not be done except as authorized or directed by the Consultant / Project in-charge. Nothing extra will be paid for tack welding.

The contractor shall take all responsible precautions to ensure that when handling or erecting reinforcement no damage shall be done to finished concrete. Bars that are partially embedded in concrete shall not be filed bent unless concurrence has been obtained from the Consultant / Project-In-Charge.

Walkways and borrow runs for placing and compacting the concrete shall be independent of the reinforcement.

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Loose binding wire and other extraneous metal shall be removed from inside the form work prior to concrete placing.

Without relieving the Contractor of the responsibilities for the correctness thereof, the reinforcement shall be inspected and approved by the Consultant in writing before any concrete is placed and the contractor shall allow sufficient time for such inspecting and any subsequent remedial action to be carried out. No part of the reinforcement shall be used for conducting electrical currents.

### **6.8 Cover to Reinforcement**

Unless shown otherwise on the drawings, minimum cover for all reinforcement shall be provided as per IS: 456 care shall be taken to maintain the correct cover to reinforcement.

For concrete members exposed to weather, earth, action of harmful chemicals, acid vapor, saline atmosphere, sulphurous smoke, etc. minimum cover for reinforcement shall be increased by 15 cm to 40 mm as directed by the Consultant / Project-In-Charge.

The maximum cover for reinforcement shall not be greater than that specified above or shown on the drawings plus 10 mm except for bundled bars.

For bundled bars, minimum, concrete cover shall be equal to the equivalent diameter of the bundle but need not be greater than 50 mm.

Exposed reinforcement intended for binding with future extensions shall be protected from corrosion as shown in the drawings.

### **6.9 Cleaning**

After placing, the reinforcement shall be maintained in a clean condition until the concrete is placed. On no account the bars shall be oiled or painted or mould oil used on the formwork be allowed to come in contact with the bars.

Before concreting is commenced, the bars shall be thoroughly cleaned with dry gunny bags if they are coated lightly with rust or other impurities.

### **6.10 Work Will Include**

a) All cutting to lengths, labor in bending and cranking, forming hook ends, handling, hoisting and all that is necessary to fix reinforcement in work as per Drawings and specifications. This shall also include all that is fairly intended and is necessary for completion of work.

b) Cost of pre-cast concrete cover blocks to maintain cover and holding reinforcement in position, chairs, spaces, dowels, pins, laps, etc.

c) For fabricating and fixing reinforcement in any structural member irrespective of its location, dimension and level.

d) Work at all levels.

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e) All the above mentioned works shall be included in the quoted rates Nothing extra shall be payable to the contractor on this account

f) Reinforcement Steel procurement shall be done by the Contractor.

## 7.0 Concrete Works

### 7.1 Concrete

#### 7.1.1 General

The Contractor shall furnish all labor, materials, equipment and incidentals necessary for the construction / rectification of all concrete work including reinforcing steel, forms, water stops and miscellaneous related items such as wall sleeves, anchor bolts and embedded items specified under other sections.

#### 7.1.2 Repair of Defective Concrete

Defective or honeycombed areas, as determined by the Construction Officer, shall be chipped down to at least 25mm deep into sound concrete by means of chisels or chipping hammers. If honeycombs around reinforcement steel, a clear space at least 10mm wide shall be chipped all around the steel.

For areas than 40mm deep, the patch may be made for filling form tie holes, etc.

Thicker repairs will require build-up in successive 40mm deep layers on successive days, and each layer shall be applied with neat cement paste as described in paragraph 2 above.

For very deep patches the Construction Officer may order the use of a non-shrink grout, with or without the addition of pea gravel. The materials shall be composed of 1 to 1½ cement/sand mortar without non-shrink grout components to prevent rust staining of the surface. After hardening, the patch shall be rubbed as for filling form-tie voids.

All exposed concrete surfaces and adjoining work stained by spilling or leakage of concrete shall be cleaned to the satisfaction of the Construction Officer.

All cracks that appear in the concrete prior to acceptance of the work shall be “veed” and filled with sealant.

#### 7.1.3 Repair of Pre-Cast Architectural Ornamentation

Walls and concrete surfaces should be cleaned of biological growth, black depositions, soil deposits, cuprous or ferrous staining, using materials or chemicals and methods as recommended by the Lead Architect. Extermination of woody plants and other biological growth should also be done following prescribed chemicals and method. In the process of removing biological growth in crevices or cracks in the concrete building fabric, the

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affected concrete portions should be so restored, or patched, or stabilized with compatible material fill.

Mechanical Cleaning shall be done using soft nylon brush for delicate interior/exterior wall surfaces. Hand-axe or saws shall be used for removing woody plants prior to chemical application/injection to destroy the growth.

Chemical Cleaning through solutions or poultices shall be done on hard to clean surfaces that may include cuprous or ferrous staining, or black deposits. Pre-cast decor wall decorative ornaments, e.g. art deco ornamentations on concrete walls, shall be applied with poultices.

Cracks and fissures found in the walls, ceilings, slabs and architectural ornamentations of the historic building should be addressed by structural assessment and appropriate stabilization, patching up and grouting measures, e.g. compatible injection fill (CIF), structural stitching, (if seriously fissured and affecting the physical/mechanical properties of the member and building) etc. CIFs should be properly tested prior to final penetration into the cracks or fissures. CIF composition and calibration shall be determined under the supervision of the Lead Architect.

Missing parts, losses or lacunae, especially in ornamental or decorative elements, should be filled in or replaced following: a) testing the material composition of the elements; b) basing the replacement or reproduction on historical references; c) should there be no historical references available, especially if the loss or lacuna is significant, the replacement or in-fill for the loss can be designed following the perceived thematic pattern of existing or surviving extant portions, and should be decided after consultation with the owner/custodian of the property and the members of the architectural team.

#### 7.1.4 Evaluation and Acceptance

After the removal of the forms any concrete, judged by the Construction Officer as defective and beyond repair, shall be rejected, demolished and replaced with new concrete in a manner acceptable to the CO. The evaluation and acceptance of concrete shall be in accordance with Chapter 17 of ACI Standard 301.

#### 7.1.5 Inspection

Installation of reinforcing steel, pipes, sleeves, anchors and other embedded items, batching, mixing, transportation, placing, curing and finishing of concrete shall at all times be subject to the inspection of the Construction Officer.

No concrete shall be placed without prior notice to and approval of the Construction Officer.

## 8.0 Masonry Works

### 8.1 Scope of Work

The work includes furnishing all labor, materials and services, equipment, plant and other facilities and the satisfactory performance of all work necessary to complete all cement and masonry work shown in the plans and specified herein.

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The work under this section shall include but not be limited to the following:

- 8.1.1 Concrete Hollow Block Walls
- 8.1.2 Masonry Reinforcing Bars for Concrete Blocks
- 8.1.3 Grouting
- 8.1.4 Connecting Wall Anchors, Ties, Bolts and Related Embedded Items.
- 8.1.5 Installation Only of Frames For Doors, Windows, Louvers, Steel Lintels and Recessed Fixtures.

## 8.2 Standard Specification References

The following Standards are referred to:

ASTM C32	Concrete Aggregates
ASTM C90	Hollow Load-Bearing Concrete Masonry Units
ASTM C144	Aggregate for Masonry Mortar
ASTM C150	Portland Cement
SAO No.15-2	Standardization of Concrete Hollow Blocks

## 8.3 Protection of Materials

All materials for the work of this section shall be delivered, stored and handled so as to preclude damage of any nature. Manufactured materials, such as cement, shall be delivered and stored in their original containers, plainly marked with identification of material and maker. Materials in broken containers, or in packages showing watermarks or other evidence of damage, shall not be used and shall be removed from the site.

## 8.4 Samples

The contractor shall submit to the CO for approval samples of concrete blocks, and also information on the cement and sand such as chemical analysis of cement and the sieve analysis of sand.

## 8.5 Materials

### 8.5.1 Cement

Cement shall be normal Portland cement conforming to ASTM Specifications C150, Type I. Masonry cements shall not be used. One color of cement shall be used throughout the Work.

### 8.5.2 Sand for Mortar

Sand shall be clean, durable particles, free from injurious amounts of organic matter. The sand shall conform to ASTM Specifications C144 or C33 as required. Sand for grout shall conform to ASTM Specifications C144 or C33 as required.

### 8.5.3 Water

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Water shall be free from injurious amounts of oils, acids, alkalis, organic matter, and shall be clean and fresh.

#### 8.5.4 Concrete Hollow Blocks (CHB)

##### 8.5.4.1 Classification

Concrete block shall conform to ASTM C90, Grade N, and/or to the Philippine Bureau of Standards SAO No. 15-2. The load bearing concrete blocks, Type I, shall be divided into the following two classification:

8.5.4.1.1 Class A, for use in exterior walls below grade and for exterior walls above grade that may be exposed to the weather.

8.5.4.1.2 Class B, for general use in walls above grade not exposed to the weather.

##### 8.5.4.2 Manufacturing Requirements

Concrete hollow blocks shall be manufactured to the requirements as shown in Table I.

Minimum Face Shell Thickness	Compressive Strength Minimum (Average Gross Area MPa)		Water Absorption Maximum (KN/cu.m)	Moisture Content Percentage of Total Absorption
	Average of 5 Samples	Individual Sample	Average of 5 Samples	Average of 5 Samples
A	6-9	5.5	240	40
B	4-8	4.1	240	40

Aggregate for concrete blocks shall consist of sand and evenly graded pea gravel conforming to ASTM C33.

All concrete hollow blocks shall be even textured with straight and true edges, wet steam cured for at least 18 hours and then air cured in covered storage for not less than 28 days before delivery to the job site.

Units when received at the construction site shall be stacked so as to provide air circulation and shall be protected from the weather. The moisture content of hollow blocks when laid shall not exceed 35 percent of total absorption.

##### 8.5.4.3 Dimensions

The actual dimensions of the concrete hollow blocks shall be as shown in Table II below.

NOMINAL DIMENSIONS (mm)			ACTUAL DIMENSIONS (mm)		
Width	Height	Length	Width	Height	Length

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100	200	400	92	194	397
150	200	400	143	194	
200	200	400		194	

No overall dimension shall differ from the specified actual dimensions by more than 3mm.

#### 8.5.4.4 Minimum Face Shell and Web Thickness

The following dimensions shown in Table III below shall apply for minimum face and web thickness:

NOMINAL WIDTH (mm)	MINIMUM FACE SHELL THICKNESS (mm)	MINIMUM WEB THICKNESS (mm)
100	19	19
150	25	25
200	32	25

### 8.6 Mortar Mixes

Masonry mortar for setting blocks shall be in the proportion of 1 part cement to 3 parts sand or as otherwise approved by CO. Mortars shall be mixed with water in an amount compatible with workability ingredients shall be accurately measured by volume in boxes especially constructed for the purpose by the Contractor.

Mixing shall be done immediately before usage, and the Contractor shall use the Dry-Mix method. In the Dry-Mix method, the materials for each batch shall be well fumed together until the even color of the mixed dry materials indicates that the cementitious material has been thoroughly distributed throughout the mass, after which the water shall be gradually added until a thoroughly mixed mortar of the required plasticity is obtained.

Mortar boxes shall be cleaned out at the end of each day's work and all tools shall be kept clean.

Mortar that has begun to set shall not be used or retamped.

The mixing of mortar by hand will be permitted only when the quality of hand mixing is comparable to mechanical mixing. The CO reserves the right to reject hand mixing and require all mixing by mechanical means. Mortar shall not be retained for more than 1-1½ hours and shall be constantly mixed until used.

Pointing mortar shall be pre-hydrated mortar mixed dry and water added while mixing to obtain a damp, or workable mix. After one or two hours, enough water shall be added to bring it to proper consistency, which shall be somewhat drier than masonry mortar.

The color of mortars shall be uniform throughout for adjoining areas, and shall be satisfactory to the CO.

#### 8.6.1 Installation

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#### 8.6.1.1 General

All masonry shall be laid plumb and true to lines and built to the thickness and bond required with courses level and joints and bond uniform. Masonry shall be carried up in a uniform manner. No one portion shall be raised more than one meter above adjacent portions, except with the approval of the CO.

#### 8.6.2 Application

##### 8.6.2.1 Scratch Coat

Cross scratch as soon as scratch coat has attained initial set and apply brown coat as soon as practicable.

##### 8.6.2.2 Brown Coat

Scratch or brown finish shall be allowed to set hard. Keep brown coat moist until finish coat is applied.

##### 8.6.2.3 Finish Coat

Bring to true, even surfaces with rods, darbles and trowel smooth, leaving finished surface free from tool marks and blemishes. Keep cement plaster moist for at least 3 days and protect against rapid drying until cured.

##### 8.6.2.4 Patching

Patch plaster shall be done prior to preparation for painting works.

#### 8.6.3 Concrete Hollow Block

Concrete blocks shall be laid in running bond, unless otherwise indicated, with joints not exceeding 10mm and uniform throughout and finished slightly concave and smooth. Pointing shall be performed with the proper tools to a dense and neat finish. Finger pointing will not be allowed. All blocks shall be laid in a full bed of mortar applied to shell and webs. Apply mortar to the vertical joints of blocks that have already been set in the wall and all contact faces of the unit to be set. Each unit shall be placed and shoved against the previously laid block to produce a well compacted vertical mortar joint for the whole shell thickness. Intersecting bearing walls shall be tied together with metal ties at 0.80 meter vertical spacing. Bends of tie and reinforcing bars shall be embedded in cells filled with mortar.

All necessary block cutting shall be neatly done by saws.

Control joints shall be installed at the locations noted and detailed on the Drawings. The joints shall be raked out to a depth 20mm for the full height of the walls and caulked. The maximum length between joints shall be 10 meters if not shown otherwise on the Drawings, or directed by the CO.

All horizontal and vertical reinforcing bars shall be anchored at a minimum of 20 bar diameter into the concrete walls, columns, slabs and girders.

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Joints made at the intersection of block walls with structural concrete and all door, window and louver frames and where indicated shall be filled with mortar grout and pointed.

Unless otherwise shown on the Drawings, install all door, window and louver frames using screws and expansion shields, and set all frames tightly against the masonry walls.

#### 8.6.3.1 Concrete Hollow Block to be Plastered

Concrete block wall which are to be plastered shall be laid in running bond. Joints are to left rough to assist in the bounding of plaster. Otherwise, concrete block masonry shall conform to the previous paragraph 2- Concrete Hollow Block.

#### 8.6.3.2 Concrete Hollow Block to be Tooled Jointed

Concrete block walls to be tooled jointed as indicated on the Drawings shall be laid in stack bond with uniformly maintained joints not exceeding 13mm. All joints shall be tooled smooth to a stripped finish as soon as the mortar has set sufficiently. No cold chiseling will be permitted. Finishes shall be as indicated in the Drawings.

#### 8.6.3.3 Lintels, Ties and Miscellaneous Items

The Contractor shall build in all miscellaneous items specified in other sections to be set including frames, lintels, reinforcing steel, electrical boxes and fixtures, sleeves, anchors and other miscellaneous items. All anchorage attachments and bonding devices shall be set so as to prevent slippage and shall be completely covered with mortar.

#### 8.6.3.4 Grouting

Grout and cement mortar for setting structural columns, railings, frames in walls and where otherwise required shall be done with mortar of 1-part cement to 1-part sand. Before placing grout thoroughly clean all surfaces. Grout shall be tamped into place with a blunt tool to fill the entire void. In the event space does not permit tamping, the Contractor shall build the necessary forms and place the grout by putting from one side only. When grout is placed by pouring, a head of grout shall be maintained in the form. Grout shall be kept wet for three days and after the temporary supports or adjusting wedges are removed, the empty spacer shall be grouted, and the surrounding grout pointed.

#### 8.6.3.5 Cleaning

All exposed masonry work shall be thoroughly cleaned. Mortar smears and droppings on concrete block walls shall be dry before removal with a trowel. Masonry work may be cleaned using a mild muriatic acid solution.

#### 8.6.3.6 Storage and Handling

Masonry units shall be handled with care to prevent chipping and breakage. Storage piles, stacks or bins shall be so located as to avoid being disturbed or shall be barricaded to protect chase materials from damage due to construction operations and traffic. Masonry units shall be stacked on platforms and covered or

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stored in any other approved manner that will insure the protection these materials from weather. Cement and lime shall be stored off the ground under watertight cover and away from sweating walls and other damp surfaces until ready for use. Damaged or deteriorated materials shall be removed the premises.

## 9.0 Metal Works

### 9.1 Description

The work includes the furnishing of all labor, materials, equipment and transportation required to complete fabrication, delivery and erection of all railings for buildings and other such similar structure in accordance with this specification and in conformity with the plans.

Railing shall not be considered a part of the structural system of the building unless it is stated in the design.

### 9.2 Reference

The following publications of the issues listed below, but referred to thereafter by basic designation only, form part of this specification to the extent indicated by the reference thereto:

American Society for Testing and Materials (ASTM) Publications:

A 276 M	Standard Specification for Stainless Steel Bars and Shapes
ASTM E 935	Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings
ASTM B 221	Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes
ASTM B 308	Standard Specification for Aluminum-Alloy 6061-T6 Standard Structural Profiles

American Association of State Highway and Transportation Officials (AASHTO) Publications:

AASHTO M 193 Standard Specification for Cast Aluminum Alloy Railings Posts

DPWH Standard Specification on Item 1051 – Railings

### 9.3 Requirement

In conformance with the General Conditions, the Contractor is required to furnish a certificate from the manufacturer or producer, certifying that all materials or products delivered to the job site meet the measurements specified herein.

### 9.4 Shop Drawings

The Contractor shall submit shop drawings to the Construction Engineer for approval in accordance with the General Conditions. Shop Drawings shall consist of all shop and erection details. All members and connection for any portion of the structure shown or not shown on

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the contract drawings shall be detailed by the fabrication and indicated on the shop symbols in accordance with the American Welding Society (AWS) Structural Welding Code.

## 9.5 Materials

Materials shall conform to the respective publications and other requirements specified herein and as shown, and shall be the approved products of manufacturers regularly engaged in the manufacture of such products.

Comply with standards indicated for forms and types of metals indicated or required for handrail and railing system components.

- Stair Railings: 50 x 8mm thk GI pipe, or as indicated on plans.
- Stair Handrail: 50 x 10mm thk pipe, Stainless steel or as indicated on plans.

Steel base metal to be welded shall be open-hearth or electric furnace steel conforming to AASHTO M 183 unless otherwise shown on the approved Plans.

Stainless Steel shall conform to the requirements of ASTM A 276 M, Standard Specification for Stainless Steel Bars and Shapes or as called for in the Plans.

Paint railings with shop-Coat Red Lead primer, consisting of pure red lead pigment dispersed in vehicle of medium length linseed oil alkyd, linseed oil, thinner and driers.

Steel Pipe shall conform to ASTM A53, Grade b.

Aluminum shall conform to the requirements of AASHTO M 193, Standard Specification for Cast Aluminum Alloy Railings Posts, ASTM B 221, Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes or ASTM B 308 – Standard Specification for Aluminum-Alloy 6061-T6 Standard Structural Profiles or as called for in the Plans.

Fastenings shall be of commercial type, except where special types are shown or required. Fastenings for all exterior work shall be non-ferrous, unless otherwise shown. Fastenings for steel and aluminum and for all other interior work, where exposed, shall match the fastened metal.

Materials shall be delivered, stored, handled and installed in a manner to protect them from all damage during the entire construction period. Storage conditions shall be approved by the Construction Officer in accordance with the General Conditions.

## 9.6 General Fabrication

### 9.6.1 General

As much as possible, fit and assemble at shop, ready for erection, and in strict accordance with drawings, details and approved shop drawings. Railings shall not reflect any unevenness in the structure/ building. All railing posts shall be set plumb unless otherwise indicated in the Plans.

Metal works shall be prepared for painting in accordance with the section entitled PAINTING and primed with paint material specified. All materials shall be cleaned and

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straight. If straightening is necessary, it shall be done by a process and in a manner that will not damage the material.

Metal railings shall be fabricated in accordance with the dimensions shown on the approved Plans. In case of welded railings, all exposed joints shall be finished by grinding or filing after welding to give a neat appearance. Welding may be substituted for rivets or bolts with the approval of the Construction Officer.

Stainless steel railings shall be fabricated in accordance with the dimensions shown on the Plans. During installation, stainless steel railing shall be free from rust and surface blemish. It shall be rust free until ten (10) years after completion.

#### 9.6.2 Installation

Drill or punch holes for fasteners. Mill joints to a close fit. Cope or miter the corner joints to a well-formed shape and true alignment with the adjacent item. Fabricate and form joints exposed to weather to prevent water intrusion. Ensure that all castings are sound and free from warp or defects that impair their strength and appearance, with a smooth finish and sharp well-defined vertical and horizontal lines on all exposed surfaces. Shearing, Flame cutting, and Chipping, shall be done carefully and accurately. Flame-cut edges of members shall have all knicks removed.

For railing connections, use fully welded joints for permanently connecting railing components by welding. Cope or butt components to provide 100 percent contact or use manufacturer's standard fittings designed for this purpose.

### 9.7 Refurbishment of Existing Railing Details

Missing, damaged, or deteriorated railings especially in ornamental or decorative elements, should be repaired or replaced following: a) testing the material composition of the elements; b) basing the replacement or reproduction on historical references; c) should there be no historical references available, especially if the loss is significant, the replacement or in-fill for the loss can be designed following the perceived thematic pattern of existing or surviving extant portions, and should be decided after consultation with the owner/custodian of the property and the members of the architectural team.

As much as possible, fit and assemble on site, with minimal dismantling of original or historic metalwork and in strict accordance with historical data, drawings, details and approved shop drawings. Metal works shall be prepared for painting in accordance with the section entitled PAINTING and primed with paint material specified. All materials shall be cleaned and straight. If straightening is necessary, it shall be done by a process and in a manner that will not damage the material. Any historical techniques for the fastening, painting, or application of metalwork and its incidentals shall be adhered to in the restoration of or addition to existing railings.

### 9.8 Painting

The type of paint, the number of coats, and the extent of the painting shall be in conformance with the section entitled PAINTING. In general, all exposed surfaces of steel work shall be painted. Surfaces where the shop coat has been damaged shall be retouched using the same system as the original shop painting. Surfaces which will be contact after erection, except when

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in contact in welded or bolted connections, shall be given one finish coat or welds and the areas adjacent thereto shall be done promptly after the acceptance of the weld and shall be as specified under shop painting.

## 9.9 Inspection

Inspection shall be made promptly to permit immediate correction of defects. The inspector will mark each piece which is accepted, with the mark assigned to him. Unrestricted inspection shall be conducted in both shop and field, to verify preparation, size, gauging, location, acceptability of welds, identification marking and operation and current characteristics or welding sets in use.

## 9.10 Final Clean Up

Upon completion of erection and before final acceptance, the erector shall remove from the jobsite all false-works, rubbish, and temporary structures furnished by him.

## 10. Thermal Insulation and Moisture Protection Works

### 10.1 Roofing

#### 10.1.1 Description

The work includes the repair/refurbishment of pre-painted Rib-type Long-span roofing complete with hardware and accessories.

#### 10.1.2 General

The work includes furnishing all materials and requirements performing all operations to provide a long span corrugated twin ribbed roofing and miscellaneous roofing works as required to provide an acceptable installation. Surfaces to which metal formed roofing sheets are to be applied shall be thoroughly cleaned and prepared, free from any defects that may affect the application. Metal formed roofing shall be locked and lapped and installed as applicable. Specific installation details shall be in accordance with manufacturer's recommended installation practice.

Metal formed roofing and sheets and accessories shall always be carefully handled in strong and handling to prevent damage to the surfaces, edges and ends and shall be slightly elevated for drainage.

Metal formed roofing and sheets and accessories shall be delivered to the site in the original sealed container or packages bearing the manufacturer's name and brand designated where materials are covered by a reference specification number, type and class as applicable.

#### 10.1.3 Installation

Lay and install the first sheet with the turned down edge towards the outside of the area to be covered. Overlap the next sheet to the previous sheet in such a manner that the exposed edge is turned down and the covered edge is turned up. Side up fasteners should be done by rivets and washers spaced from 300 mm to 450 mm on centers.

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Care should be exercised in the proper anchorage of all roof frames.

Ridge strips for ridge rolls and ridge flashings are attached to the roofing sheets by means of rivets. Other flashings are to be fabricated from plain sheets of the same materials as the roofing in accordance with details and/or site requirements. These are also attached to roofing sheets by means of rivet.

#### 10.1.4 Temporary Protection

Metal formed roofing sheet surfaces requiring protection from stains, discoloration, surface abrasion and other construction abuses shall be suitably protected in accordance with the manufacturer's recommendations.

#### 10.1.5 Final Clearing

Upon completion, the Contractor shall clean the metal formed roofing sheets surfaces and drain line of burrs, leaves, stones and other foreign matter that may impair the flow of water. Surface shall be kept clean by periodic inspection.

### 10.2 Radiant Heat Barrier

#### 10.2.1 Scope of Work

The Contractor shall furnish and install all labor and material to complete the work.

#### 10.2.2 Material

##### 10.2.2.1 Radiant Barrier

Radiant Barrier shall be fire retardant aluminum foil for roof insulation. It shall have a 6-layer fire retardant double-sided aluminum foil laminate with superior radiant heat barrier properties. It shall be tearproof, waterproof and possesses the following properties.

Elongation	:	150% ASTM D882
Water Vapor Transmission	:	Greater than 5000 Mns/g ASTM E96-E
Water Vapor Permeance	:	Less than 0.20 ng/Ns Less than 0.004 (Perms) ASTM E96-E
Tensile Strength	:	M.D. 6.6 KN/m D.D. 5.0 KN/m C.D. 4.7 KN/m ASTM 828
Puncture Resistance	:	1.0 Joules T.APPA T800
Reflectivity	:	86% ASTM E466-71
Emissivity	:	5%
Roll Size	:	1.25m x 60m = 75.00 sq.m.
Weight	:	200 g/m <sup>2</sup>

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Thickness	:	0.190mm
Total R-Value (M2K/W)	:	1.72
Fire Retardant BS476	:	Part 6 Class 0 Part 7 Class 1

### 10.2.3 Workmanship

The product shall be delivered to the site in its original package or container bearing the manufacturers name and brand designation.

All materials shall be installed by skilled and selected workmen familiar with the product.

### 10.2.4 Installation

The installation shall have a joint overlap of 75mm. It shall be unrolled foil down length of roof from ridge.

For further information, see manufacturer's specifications.

## 10.3 Elastomeric Waterproofing Membrane

### 10.3.1 Scope of Work

The Contractor shall furnish and install all materials and labor required to provide waterproofing on designated locations.

### 10.3.2 Material

Elastomeric waterproofing membrane shall be liquid applied single component and made by a reputable manufacturer.

### 10.3.3 Preparation

All surfaces to be waterproofed should be clean, sound and dry. Concrete surfaces should have a light steel-trowel followed by a fine hair-broom or equivalent finish that is dry and free from dust, oil and other contaminants. Remove all high spots. Moss and lichen must be removed physically followed by treatment with fungal wash down through and allow to dry. Lattice should be removed from concrete by grit blasting, wire brushing or water jet blasting and allowing to dry.

For installation procedure and other information, see manufacturer's specification.

## 10.4 Closed-Cell Spray Applied Polyurethane Foam Insulation

### 10.4.1 Scope of Work

The Contractor shall furnish and install all materials and labor required to provide closed-cell spray applied polyurethane foam insulation on designated locations.

### 10.4.2 Material

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Closed-cell polyurethane foam insulation shall be a pressurized, spray applied viscous two component product comprised of diisocyanate and blended components including polyols, fire retarding compounds, catalysts, stabilizers, and non-ozone depleting blowing agents and made by a reputable manufacturer.

- Material should have the following specifications:
- Density of 40-50kg/m<sup>3</sup> at 1 inch thickness
- Compressive Strength of 0.19 MPa
- Thermal Conductivity at 25°C of 0.019 W/m-K
- R-Value of 6.9/ inch (ASTM C-518)
- Fire Rating of B3 (DIN 4102)
- Sound Transmission Coefficient of 43 (ASTM E-90-85/E413)

#### 10.4.3 Preparation

All surfaces to be waterproofed should be clean, sound and dry. Metal surfaces shall be prepared by removing all dust, oil and other contaminants. Roofing shall be made water-tight before application. Closed-cell spray applied polyurethane foam insulation is to be applied to the roofing surface to a thickness of two (2) inches, measured from the roof profile. Polyurethane membrane to be painted with one coat base primer and two coats acrylic type elastomeric roofing paint. Color as specified by C.O. or Architect.

For installation procedure and other information, see manufacturer's specification.

## 11. Architectural Works

### 11.1 Cement Finishes

#### 11.1.1 Scope of Work

This work includes furnishing of all materials, equipment and labor, and other facilities necessary to complete all scored cement finish.

#### 11.1.2 Materials

Normal Portland Cement conforming to ASTM Standard C150.

Sand shall be hard, sharp, well washed, siliceous, clean and free from deleterious materials conforming to ASTM Specifications C40.

#### 11.1.3 Workmanship

Thoroughly clean concrete surface of all dirt, dust, oil patches and other foreign matters. Apply the 1:2 mix cement mortar, troweled and leveled in accordance with the required slope in the plane. After the mortar has hardened initially, apply scored finish in accordance with the approved sample.

### 11.2 Cement Mortar

#### 11.2.1 General

Plastering work shall be properly coordinated with the work of other trades. The work of other trades shall be adequately protected from damage during plastering operations.

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Finishing work shall be protected with a covering of heavy Kraft waterproof paper or other approved protective covering with lapped and sealed joints. Scaffolding shall be amply strong, well braced, tied, securely and inspected regularly. Overloading on scaffolding shall not be permitted.

#### 11.2.2 Delivery, Storage and Handling of Materials

Manufactured materials shall be delivered in the manufacturer's original unbroken packages or containers which are labeled plainly with the manufacturer's names and brands. Cementitious materials shall be kept dry until ready to be used. They shall be stored off ground under cover and away from seating walls and other damp surfaces.

#### 11.2.3 Materials

Portland cement shall conform to the Standard Specifications ASTM C-150, Type 1, latest edition.

Sand shall be hard, sharp, well-washed, siliceous, clean and free from deleterious materials, conforming with ASTM C-40.

Water shall be fresh, clean and free from organic matter, acids and alkalis.

#### 11.2.4 Mixture

Plaster materials, specified on a volumetric basis, shall be measured accurately in approved containers that will insure the specified proportion. Measuring materials with shovels (shovel count) shall not be permitted. Mortar for plastering shall be mixed in the proportion by volume of one part Portland Cement, 3 parts sand and 25% part hydrated lime. Mortar for finish coat shall be of the same proportioning as specified for plastering expect that proportion of sand be increased to not more than 4 parts.

#### 11.2.5 Workmanship

Plastering work shall be finished level, plumb, square and true with a tolerance of 0.30mm to 3.00mm, without waves, cracks, blisters, pits, crazings, discoloration's, projections, or other imperfections. Plastering work shall be formed carefully around angles, contours, and well up to screeds. Special care shall be taken to prevent sagging and consequent dropping of applications. There shall be no visible junction marks in the finish coat where one day's work adjoining another.

#### 11.2.6 Application

Surfaces to receive plaster shall be cleaned of all projections, dust, loose particles, grease bond breeders and other foreign matter. Plaster shall not be applied directly to (a) concrete masonry surfaces that have been coated with bituminous compound (b) surfaces that have painted materials or previously plastered. Before the plaster work is started, masonry surfaces shall be wetted thoroughly with fog spray of clean water to produce a uniformly moist condition. Metal grounds, corner beads, screed and other accessories shall be checked carefully for alignment before work is started.

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Brown coat shall be applied with sufficient pressure to fill the grooves in hollow block of concrete to prevent air pockets and secure a good bond. Brown coat shall be lightly scratched and broomed. Each coat of cement plaster shall be kept moist for 48 hours after application and then allowed to dry.

Finished coat shall be applied until after brown coat has seasoned for 7 days. Just before application of the finished coat, brown coat shall again be evenly moistened with fog spray. Finished coat shall be floated first to a true and even surfaces then troweled in a manner that will force the sand particles down into the plaster. Plastered surfaces shall be smooth and free from rough areas, trowel marks, checks and blemishes. Thickness of plaster shall be 3/8" on vertical concrete and on masonry.

### 11.3 Plain Cement with Floor Hardener

#### 11.3.1 Scope of Work

This work includes furnishing all labor, materials, equipment, and other facilities, and the satisfactory performance of all work necessary to complete all plain cement with floor hardener work specified herein.

#### 11.3.2 Materials

Floor hardener shall be non-rusting and on titanium base, to provide extreme hard and highly abrasion and impact resistant floors. It shall be monolithic bonded with base concrete, impact resistant, oil and grease resistant., dense and non-porous, free from rust-stain, easy to install and highly abrasion resistant. Verify color.

#### 11.3.3 Workmanship

##### 11.3.3.1 Delivery

Materials shall be delivered to the site in their original packages of containers bearing the manufacturers name and brand designation.

##### 11.3.3.2 Preparation

Floor hardener shall be prepared and applied strictly in accordance with the manufacturer's printed instruction. Flat troweling shall be done keeping the trowel flat and only after the surface has sufficiently set, a second and flat trowelling shall be done. Continue trowelling process until the desired surface finish is achieved.

##### 11.3.3.3 Consumption

Heavy Duty:	4	- 6 kg/sq.m. Floor Hardener
	4	- 6 kg/sq.m. Cement

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## 11.4 Tile Works

### 11.4.1 Scope of Work

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.

### 11.4.2 Samples

Submit samples of floor and wall tiles, and countertop marble slab including all required beads and moldings to the C.O. before purchase for approval as to quality and shade or color.

### 11.4.3 Delivery of Materials

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

### 11.4.4 Measurement and Coordination

The Contractor shall coordinate with other trades involved before starting finishing work. He shall protect works of other trades from damage while finishing works is in progress. Tile work shall not be started until roughing-ins for plumbing and electrical work have been completed and tested.

### 11.4.5 Protection of Finished Work

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

### 11.4.6 Products

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 / Engineer upon submission of samples. Samples of all tiles shall be submitted to the Architect / Engineer for approval before placing orders. All tiles shall be delivered to the jobsite in unopened grade-sealed containers.

Tile Colors and patterns shall be selected. 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.

#### 11.4.6.1 Tiles

Glazed Wall Tiles - standard glaze bright or matte glazed. Square edge or cushion edge with integral spacers approximately 8 millimeters (5/16 inch.) thick. Sizes and colors shall be as indicated on drawings.

Unglazed Floor Tile - standard grade homogenous ceramic floor tiles with cushioned edges. Sizes and colors shall be as indicated on drawings.

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Stone slabs for main lobby wall shall be of the size, grade, shade or color specified in the plans and specifications. It must be free from imperfections that will affect its quality, appearance and strength after polishing.

#### 11.4.6.2 Grout Materials

Portland Cement Grout:

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

#### 11.4.7 Execution

##### 11.4.7.1 Application of Scratch Coat

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

##### 11.4.7.2 Floor Tile Installation on Mortar Bed

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. Clean concrete sub-floor then moistens but not soak. Afterwards, sprinkle dry cement over the surface and spread the mortar on the setting bed. Mix mortar 1 part Portland Cement to 3 parts sand. Tamp to assure good bond over the entire areas and screed to provide a smooth and level bed at proper height and slope. Pitch floor drain as required. After setting bed has been set sufficiently to be worked over, sprinkle dry cement over surface and lay tile. Keep tile joints parallel and straight and lay tile. Keep tile joints parallel and straight over the entire area by using straight edges. Tamp the tile solidly on to the bed, using wood blocks of size to endure solid bedding free from depressions. Lay tiles from center lines outward and make adjustments at walls.

##### 11.4.7.3 Wall Tile Installation on Mortar Bed

Before application of mortar bed, dampen the surface of scratch coat evenly to obtain uniform suction. Use temporary or spot grounds to control the thickness of

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the mortar bed. Fill out the mortar bed even with the ground and rod it to a true plane. Apply the mortar bed over an area no greater than what can be covered with tiles while the coat is still plastic. Allow no single application or mortar to be 19 millimeters (3/4 inch) thick. Completely immerse glazed wall tile in clean water and soak it at least 1/2 hour. After removal, stack tile on edge long enough to drain off excess water. Re-soak and drain individual tiles that dry along edges. Allow a bond coat 0.80 millimeters to 1.6 millimeters coats of paint over the shop prime coat. Touch up all exposed metal with anti-rust.

#### 11.4.7.4 Stone Slab Installation

##### Bedding

Bedding mortar shall consist of one (1) part portland cement to three (3) parts sand mix thoroughly until required consistency is reached.

##### Horizontal

Bedding mortar setting bed is spread, thoroughly clean concrete or masonry surface, making sure that it is free from dust or dirt accumulation and thoroughly moisten it with clean, fresh water. Spread mortar until surface of mortar setting bed is absolutely true and even in place, either leveled or uniformly sloped for drainage, as required. Place at one operation as large an area as can be covered with tiles before mortar reaches its initial setting.

##### Vertical

Where tiles are to be applied to masonry construction thoroughly clean and directly moisten surface before applying scratch coat. Properly moisten scratch coat or plumb coat, when there is one, prior to placing of tiles. Spot scratch coat or plumb coat when there is one, with pieces of tiles mortared in place to accurately indicate plane of tile when wall is finished. Butter each slab with setting mortar applied as butter coat, consisting of one (1) part portland cement, one half (1/2) to one (1) part lime putty and three (3) parts sand or a compatible adhesive suitable for vertical installation of stone slab. Cover back of each slab with setting mortar and bring to plumb and true surface flush with spot tiles previously mortared in place into scratch or plumb coat to indicate plane of finished wall.

##### Polishing Surface

After all stone slabs had been laid it shall be wet ground with an electric grinding machine to a smooth, even surface. For vertical surfaces use an electric sanding machine. Use No.24 grit abrasive stone for the initial rubbing follow by No. 80 grit abrasive stone.

##### Finishing

Final rubbing shall be done by the use of abrasive stone no coarser than No.80 grit. and shall remove scratches and produce a true surface. The finish surface, after final grinding and rubbing shall not show a wave exceeding one thirty second (1/32) of an inch, when tested with steel straight edge, three (3) feet long. After

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final grinding, it shall be thoroughly cleaned and left in a finished polished condition using an electric buffing machine.

#### 11.4.7.5 Cleaning

The contractor shall clean all paints, spots, daubs, oil and stain in their entirety from all similar items and leave the work in perfect condition upon completion, satisfactory in every respect to the Owner and the Construction Officer.

#### 11.4.7.6 Guarantee

The Contractor shall guarantee his work in strict accord with the requirements for “Guarantee” as set forth in the General Conditions of the Contract Documents.

### 11.5 Stamped Concrete Floor Finish

#### 11.5.1 Scope of Work

The work includes the supply and furnishing of materials and performing labor necessary for the complete installation of all decorative stamped concrete flooring and paving as shown or indicated on drawings and as specified herein.

#### 11.5.2 Samples

Submit samples of stamped concrete floor finish and swatches to the C.O. before purchase for approval as to quality and shade or color.

#### 11.5.3 Delivery of Materials

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

#### 11.5.4 Measurement and Coordination

The Contractor shall coordinate with other trades involved before starting finishing work. He shall protect works of other trades from damage while finishing works is in progress. Topping work shall not be started until roughing-ins for plumbing and electrical work have been completed and tested.

#### 11.5.5 Protection of Finished Work

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

#### 11.5.6 Products

Concrete Topping and Hardener pursuant to ASTM C 309 and ASTM C 979, Liquid Integral Concrete Color compliant with ASTM C 979. Dry Integral Concrete Color compliant with ASTM C 979, Colored Bond Breaker, Colorless Bond Breaker, Stamping Mats, Curing Compound (ASTM C979 compliant), Concrete Cleaner as specified by manufacturer.

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#### 11.5.7 Execution

Apply stamped concrete materials in accordance with manufacturer's instructions at locations indicated on the Drawings.

#### 11.5.8 Cleaning

The contractor shall clean all paints, spots, daubs, oil and stain in their entirety from all similar items and leave the work in perfect condition upon completion, satisfactory in every respect to the Owner and the Construction Officer.

#### 11.5.9 Guarantee

The Contractor shall guarantee his work in strict accord with the requirements for "Guarantee" as set forth in the General Conditions of the Contract Documents.

### 11.6 Fiber Cement Boards

#### 11.6.1 Scope of Work

The work includes the supply and furnishing of materials and performing labor necessary for the complete installation of all fiber cement board ceiling panels as shown or indicated on drawings and as specified herein.

#### 11.6.2 Samples

One of each type of cement board showing the texture, finish and color. Standard catalog data for cement board. Maintenance Manuals: Maintenance instructions for cement board ceiling.

#### 11.6.3 Delivery of Materials

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

#### 11.6.4 Measurement and Coordination

The Contractor shall coordinate with other trades involved before starting finishing work. He shall protect works of other trades from damage while finishing works is in progress. Topping work shall not be started until roughing-ins for plumbing and electrical work have been completed and tested.

#### 11.6.5 Products

Fiber Cement Board:

For acoustical board undersheeting for walls and ceilings: use 6mm thick fiber cement board.

For undersheeting: use 6mm thick fiber cement board.

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For replacement of existing damaged and dilapidated fiber cement ceiling board, all existing plywood ceiling boards and all deteriorated plywood partition: use 6mm thick fiber cement board with the same finish, color and design of the existing ceiling/partition material.

#### 11.6.6 Execution

Boards are to be fixed as shown on plans. See details of plans for the installation of fiber cement board where it is applied as finishes.

#### 11.6.7 Cleaning

The contractor shall clean all paints, spots, daubs, oil and stain in their entirety from all similar items and leave the work in perfect condition upon completion, satisfactory in every respect to the Owner and the Construction Officer.

#### 11.6.8 Guarantee

The Contractor shall guarantee his work in strict accord with the requirements for “Guarantee” as set forth in the General Conditions of the Contract Documents.

### 11.7 Gypsum Boards

#### 11.7.1 Scope of Work

This Item shall consist of furnishing and installing gypsum board for ceiling and walls in accordance with this Specification and at the locations shown on the Plans, or as required by the Architect.

#### 11.7.2 Samples

One of each type of gypsum board showing the texture, finish and color. Standard catalog data for cement board. Maintenance Manuals: Maintenance instructions for cement board ceiling.

#### 11.7.3 Delivery of Materials

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

#### 11.7.4 Measurement and Coordination

The Contractor shall coordinate with other trades involved before starting finishing work. He shall protect works of other trades from damage while finishing works is in progress. Topping work shall not be started until roughing-ins for plumbing and electrical work have been completed and tested.

#### 11.7.5 Products

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Gypsum board shall comply with the Standard Specification for Gypsum Board, ASTM C 1396 regular and Type X (special fire-resistant gypsum board) with thicknesses as indicated on drawings, 1200 mm wide by maximum practical length, ends square cut and edges bevelled.

Joint materials shall be as recommended by gypsum board manufacturer for intended purpose.

Metal furring runners, hangers, tie wires, inserts, and anchors galvanized.

Drywall furring channels shall be 0.5 mm core thickness galvanized steel channels for screw attachment of gypsum board.

Resilient drywall furring shall be 0.5 mm base steel thickness galvanized steel for resilient attachment of gypsum board.

Nails shall conform to ASTM C 514. f. Steel drill screws shall conform to ASTM C 1002.

Laminating compound shall be as recommended by the manufacturer, asbestos-free.

Casing beads, corner beads, control joints and edge trim shall conform to ASTM C 1047, metal, zinc-coated by hot-dip process 0.5 mm base thickness, perforated flanges, one piece length per location.

Insulating strip shall be rubberized, moisture resistant, 3 mm thick cork strip, 12 mm Wide with self-sticking permanent adhesive on one face, lengths as required.

Joint compound shall conform to ASTM C 475, asbestos-free.

#### 11.7.6 Application

- a. Gypsum board shall not be applied until bucks, anchors, blocking, sound attenuation, electrical and mechanical works are approved.
- b. Single/double layer gypsum board shall be applied to wood or metal furring or framing using screw fasteners. Maximum spacing of screws shall be 300 millimeters on center.
- c. Base layer shall be applied to ceilings prior to base layer application on walls; apply face layers in same sequence. Offset joints between layers at least 250 millimeters.
- d. Base layers shall be applied at right angles to supports unless otherwise indicated.
- e. Base layer on walls and face layers shall be applied vertically with joints of base layer over supports and face layer joints offset at least 250 millimeters with base layer joints.
- f. Single layer gypsum board shall be applied to concrete or concrete block surfaces, where indicated, using laminating adhesive.
- g. Gypsum board shall be braced or fastened until fastening adhesive has set.

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h. Gypsum board shall be mechanically fastened at the top and bottom of each sheet

#### 11.7.7 Installation

Gypsum board shall be installed in accordance with ASTM C 840 and manufacturer's instruction, except as otherwise specified. Gypsum boards shall be used in maximum practical length to minimize number of end joints. Provide and install moisture and mold resistant glass mat gypsum wallboard products with moisture-resistant surfaces complying with ASTM C 1658 where shown and in locations which might be subject to moisture exposure during construction. Gypsum board shall be brought into contact, but shall not be forced into place.

For Ceilings:

1. For single-ply construction, perpendicular application shall be used.
2. For two-ply assemblies: a. Perpendicular application shall be used. b. Face ply of gypsum board shall be applied so that joints of face ply do not occur at joints of base ply with joints over framing members.

For Walls (Except Shaft Walls):

1. When gypsum board is installed parallel to framing members, space fasteners shall be 300 millimeters on center in field of the board and 200 millimeters on center along edges.
2. When gypsum board is installed perpendicular to framing members, space fasteners shall be 300 millimeters on center in field and along edges.
3. Screws shall be staggered on abutting edges or ends.
4. For single-ply construction, apply gypsum board with long dimension either parallel or perpendicular to framing members as required to minimize number of joints except when gypsum board shall be applied vertically over "I" furring channels.
5. For two-ply gypsum board assemblies, apply base ply of gypsum board to assure minimum number of joints in face layer. Apply face ply of wallboard to base ply so that joints of face ply do not occur at joints of base ply with joints over framing members.
6. For three-ply gypsum board assemblies, apply plies in same manner as for two-ply assemblies, except that heads of fasteners need only be driven flush with surface for first and second plies. Apply third ply of wallboard in same manner as second ply of two-ply assembly, except use fasteners of sufficient length enough to have the same penetration into framing members as required for two-ply assemblies.
7. No offset in exposed face of walls and partitions shall be permitted because of singleply and two-ply or three-ply application requirements.
8. Installing Two Layer Assembly Over Sound Deadening Board: a. The face layer of wallboard shall be applied vertically with joints staggered from joints in sound

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deadening board over framing members. b. Fasten face layer with screw, of sufficient length to secure to framing, spaced 300 millimeters on center around perimeter, and 400 millimeters on center in the field.

9. Control Joints shall conform to ASTM C 840 and as follows: a. Locate at both side jambs of openings if gypsum board is not "yoked". Use one system throughout. b. Not required for wall lengths less than 9000 mm (30 feet). c. Extend control joints the full height of the wall or length of soffit/ceiling membrane.

For Accessories:

1. Accessories shall be set plumb, level and true to line, neatly mitered at corners and intersections and securely attach to supporting surfaces as specified.
2. Install in one piece without the limits of the longest commercially available lengths.
3. Corner Beads: a. Shall be installed at all vertical and horizontal external comers and where shown. b. Use screws only. Do not use crimping tool.
4. Edge trim (casings Beads): a. At both sides of expansion and control joints unless shown otherwise. b. Where gypsum board terminates against dissimilar materials and at perimeter of openings, except where covered by flanges, casings or permanently built-in equipment. c. Where gypsum board surfaces of non-load bearing assemblies abut load bearing members.

For Finishing:

1. Joints, edges, comers, and fastener heads shall be finished in accordance with ASTM C 840. Level 4 finished shall be used for all finished areas open to public view.
2. Before proceeding with installation of finishing materials, the following shall be assured: a. Gypsum board is fastened and held close to framing or furring. b. Fastening heads in gypsum board are slightly below surface in dimple formed by driving tool.
3. Finish joints, fasteners, and all openings, including openings around penetrations, on that part of the gypsum board extending above suspended ceilings to seal surface of non-decorated smoke barrier, fire rated and sound rated gypsum board construction. After the installation of hanger rods, hanger wires, supports, equipment, conduits, piping and similar work, seal remaining openings and maintains the integrity of the smoke barrier, fire rated and sound rated construction. Sanding shall not be required of non- decorated surfaces.

#### 11.7.8 Cleaning

The contractor shall clean all paints, spots, daubs, oil and stain in their entirety from all similar items and leave the work in perfect condition upon completion, satisfactory in every respect to the Owner and the Construction Officer.

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#### 11.7.9 Guarantee

The Contractor shall guarantee his work in strict accord with the requirements for “Guarantee” as set forth in the General Conditions of the Contract Documents.

### 11.8 Painting Specifications

#### 11.8.1 Work Included

The work includes furnishing of all labor, painting equipment, scaffolding, protective coverings and materials, including those classified more in particulars as paint, hereinafter.

“Paint” as referred in this specification shall mean and include the surface finish treatment consisting of any, all or some of the following items, primers, fillers, body and final coats, emulsions, varnish, stain or enamels.

#### 11.8.2 Work Not Included

All ornamental metal works such as those of aluminum, stainless steel, brass except where otherwise required.

All shop and prime coats specified as part of the work of other trades.

All held painting of electrical and mechanical equipment, all piping including painting of pipe classification color designation.

All finished surfaces like washout finish, glazed tiles, glass, plastic, etc.

#### 11.8.3 General Requirement

The Contractor shall examine the specifications for the various other trades and shall thoroughly familiarize himself with all of the items and surfaces of work to be included.

The Contractor shall protect the work of all other trade against damage or injury by the Contractor’s employees, or by the materials, tools or utensils used in connection with the work. The Contractor shall at his own expense repair all work damaged as a result of the prosecution of this Contract.

#### 11.8.4 Materials

All paint materials to be used shall meet the requirement of the Products Standard Agency (Department of Trade and Industry).

Painting materials shall be BY REPUTABLE LOCAL SUPPLIER or equivalent.

The manufacturer’s certificate of origin and quality shall be submitted to the Construction Officer for inspection and approval before using any of the paint materials herein specified.

Paint materials such as linseed oil, shellac, turpentine, etc., shall be pure, of highest quality and should bear identifying label on container.

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The use of white zinc (lithopone) shall not be allowed.

Finish paint, in general, shall be as prepared by paint manufacturers, and no mixing at site shall be permitted.

#### 11.8.4.1 Tinting Color

Tinting colors for oil paints shall be colors in oil, ground in pure linseed oil, and of highest grade obtainable. Acrylic color for all water emulsion paints.

Color pigments shall be used to produce the exact shades of paint which shall conform to the approved color scheme of the finished coat. The first coat shall be white.

#### 11.8.4.2 Ready Mixed

With the exception of ready mixed materials in original containers, all mixing shall be done at jobsite. No materials are to be reduced or changed except as specified by manufacturer of said material.

#### 11.8.5 Delivery and Storage of Materials

All materials shall be delivered to the jobsite in manufacturer's factory sealed materials containers with the manufacturer's brand and name clearly marked and intact. All materials shall be stored only in one place assigned for this purpose, and such storage shall be kept clean and neat and all damage hereto, or its surroundings, shall be made good. All necessary precautions shall be taken in the storage of paints, oils, etc. to prevent fires by complying with all applicable fire prevention and safety ordinances. Paints shall be kept covered at all times.

#### 11.8.6 Workmanship

##### 11.8.6.1 Inspection of Surface to be Painted

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

##### 11.8.6.2 Preparation of Metal Surfaces

Wash all metal surfaces with mineral sprints or detergents to remove any dirt or grease before applying materials. Where rust or scale is present, wire brush or sandpaper clean before painting. Treat rusty portions with Metal Etching Solution # 71 or approved equivalent. Rinse and let dry.

##### 11.8.6.3 Preparation of Exterior and Interior Concrete

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WALLS - Prepare masonry surface to be painted by removing all dirt, dust, oil and grease stains and efflorescence. Treat with masonry Neutralizer # 44 or approved equivalent. Mix one liter of Masonry Neutralizer with 16 liters of water, then apply liberally by brush and let dry overnight before rinsing with water. Let dry.

#### 11.8.6.4 Preparation of Woodwork

Woodwork that is to have a finished of treatment, whether executed as field Woodwork work or shop finished, shall be smooth and free from raised grain or other surface imperfections that would affect its appearance, and shall be slightly sanded or steel wool between coats or finishes. All woodwork shall be sanded lightly with #100 sandpaper between coats. Paint shall be thoroughly dried before sanding.

Before applying succeeding coats, primers and undercoats shall be complete Integral and performing the function for which they are specified. Properly prepare and touch up all scratches, abrasions, or any other disfigurement and remove any foreign matter before proceeding with the following coat.

Do not apply final coat on interior work until other trades are finished with their work in any given area in normal sequence and all materials and debris removed and the premises left in satisfactory broom-clean condition as approved.

#### 11.8.6.5 Preparation of Concrete Mortar Surface

Concrete or cement mortar surfaces shall be thoroughly dried before painting and shall be cleaned by brushing of dirt or deposits of foreign materials. Porous concrete surfaces shall be treated with a synthetic emulsion clear sealer, polyvinyl chloride or epoxy sealed as suited for the base material. Cracks and holes shall be filled with putty, polyvinyl chloride or epoxy sealed as suited for the base material. Cracks and holes shall be filled with putty, polyvinyl chloride putty or epoxy putty. Monolithic concrete or porous concrete surfaces shall be putted with cement filler, synthetic emulsion putty, polyvinyl chloride putty or epoxy putty, and the putty scraped off to a smooth surface. Use putty that is compatible with the surface to be painted and the paint materials. When required, the surfaces shall be sanded with sandpaper # 120-180.

#### 11.8.6.6 Protection of Hardware and Accessories

Remove or protect hardware, hardware accessories, plates, lighting fixtures and similar items placed prior to painting, and reposition or remove protection upon completion of each space. Disconnect equipment adjacent to walls, where necessary, move to permit painting of wall surfaces, and following completion of painting, replace and reconnect.

Paint backsides of access panels, removable or hinged covers and the like.

#### 11.8.6.7 Mixing

Painting Contractor shall provide galvanized iron pans of suitable size in which all mixing pails shall be placed. No mixing shall be permitted outside these pans

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where rust inhibitive painting at the jobsite is not practicable, the surfaces shall be given 2 coats of rust-inhibitive paint at the fabrication shop.

Immediately after delivery of metal materials to the site, all marred or other defective paint coat shall be remedied by touch-up painting.

Field painting shall be applied after installation or fabrication and when welding has been completed. Welded portions shall be cleaned of deposits of foreign materials and given 2 coats of rust-inhibitive paint, provided that portions where painting after installation is not practicable, they shall be painted before installation.

Rust inhibitive paint may be applied by dipping.

#### Hole Filling

Deep holes, indented portions and large services of wood doors and wood furnishing shall be spot leveled with filling putty. Each application of putty shall be kept thin and additional coats be applied after the previous coat has been dried, resulting in a smooth surface which will not thin down. Sand-papering over putty not dried nor hardened shall not be allowed.

#### Application of Putty

Putty shall be applied to denied portions, services and irregularities with wood or metal spatulas to a thin coat and to meet the surface conditions. After putty coat has dried, the surfaces shall be sanded with # 120-180 sandpaper to a smooth surface by repetitive sanding.

#### Sealing

When coloring is required for base wood surfaces which are subject to irregular absorption, base wood surfaces shall be sealed. Sealing shall be done by brush applying sealing compound uniformly or by spraying, sealing compound with a spray gun to a thin coat.

#### Wood Filling

Wood filling compound shall be applied into holes with a brush of hard bristles or a wood spatula and surplus filling compound shall be scraped off. After leaving for a short period and when the compound is still sticky, the surface shall be rubbed with cotton waste or rough cloth in the direction perpendicular to grain of the wood and finish wiped with soft cloth.

Care shall be taken not to leave surplus filling compound at corners and moldings.

When coating is made for wood filling, the surface shall be finished wiped carefully nor to remove colored coat and not to leave surplus compound.

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After wood filling and when required time has elapsed, setting of wood filling shall be performed by brush applying setting compound uniformly or by thin application with a spray gun.

#### 11.8.6.8 Application

All painting and varnish work shall be done in workmanlike manner by skilled painter and varnished only.

All materials shall be evenly applied so as to form a film of uniform thickness, free from sags, runs, crawls, or other defects. Paint shall be thoroughly stirred so as to have the pigment evenly in suspension while paint is being applied.

In general, and unless otherwise specified, and/or instructed by the Construction Officer due to actual conditions on the job, no less than 24 hours' time shall elapse between application of succeeding coats. Each coat of paint shall be allowed to dry thoroughly and inspected for approval before the succeeding coat is applied.

No painting shall be done in damp weather.

Except where otherwise noted or specified, all paints shall be applied in three (3) coats.

No work shall be done under conditions unsuitable for the production of good results. No painting or varnishing on woodwork shall be done while plastering is in process of drying.

Surfaces which cannot be satisfactorily finished on the number of coats specified shall have additional coats, or such preparatory coats and subsequent coats as may be required to produce satisfactory finished work at the expense of the Contractor.

All parts of molding and ornaments shall be left clean and true to details.

All finishes shall be uniform as to sheen color and texture except when glazing is required.

#### Brush Painting

Painting brush including roller brush shall be the products manufactured for application of specific type painting materials and shall be of proper shape with bristles suited for use at the painting locations.

Brush painting shall be executed uniformly with special care at joints of colors, caved or convicted corners and with true brush marks, free from unpainted portions, drippings, flows, bubbles or other defective works.

#### Spray Painting

Spray gun application shall be used where indicated in the color scheme schedule.

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Spray painting shall be executed with spray painting guns suited for the use. Spray painting shall be performed carefully so that smooth planes with uniform paint coats are attained, free of unpainted portions, paint irregularities, flows, drippings, bubbles or other defective works.

#### Rust-inhibitive Painting for Ferrous Materials

Rust-inhibitive paint shall be applied immediately after removal of dirt, oil and rust.

#### 11.8.6.9 Paint Finishes

ITEM	REMARKS
Exterior and Interior Concrete Walls	<p>Apply one (1) coat of flat latex or approved equivalent as primer/sealer by brush or roller. Let dry for 2 hours before recoating.</p> <p>Putty cracks, crevices and surface defects with acrylic emulsion, crevices and surface defects with acrylic putty or approved equivalent using putty knife. Let dry, sand and spot prime puttied area with primer.</p> <p>Apply two (2) coats latex Topcoat (semi-gloss or approved equivalent. Off White) by brush or roller. Allow 2 hours drying in between coats.</p>
Interior / Exterior Woodwork	<p>1<sup>st</sup> Coat: Flat wall enamel or approved equivalent.</p> <p>Putty: Glazing Putty #311 or approved equivalent</p> <p>2<sup>nd</sup> and 3<sup>rd</sup> Coats: Semi-Gloss Enamel #200 or approved equivalent Off-White</p>
All Metal Works	<p>Primer: Red Lead Primer #37 or approved equivalent</p> <p>Topcoat: Quick Drying Enamel #600 or approved equivalent Accent Color</p>

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#### 11.8.6.10 Sample

Before ordering material, sample applications of each type of finish and color shall be submitted to the Architect for approval.

#### 11.8.6.11 Cleaning

The Contractor shall clean all paints, spots, daubs, oil and stain in their entirety from all similar items and leave the work in perfect condition upon completion, satisfactory in every respect to the Owner and the Construction Officer.

#### 11.8.6.12 Guarantee

The Contractor shall guarantee his work in strict accord with the requirements for "Guarantee" as set forth in the General Conditions of the Contract Documents.

## 12. Doors and Windows and Accessories

### 12.1 Metal Flush Doors

#### 12.1.1 Scope of Work

Furnish materials and equipment and perform labor including plant and other facilities to complete the required steel doors to replace all non-functional and defective doors as shown on the drawings and as specified herein.

#### 12.1.2 General Requirement

Doors shall be of the quality and workmanship acceptable to the Officer. Doors shall be of the size and type indicated in the schedules and as specified herein guarantee finished doors against twisting, warping, cracking and such other defects due to construction and installation for a period of three hundred sixty hundred sixty days after final acceptance of the building.

#### 12.1.3 Materials

All members shall be rolled billet steel. Frames and ventilator shall be special angle shapes not less than 1" deep from front to back, not less than 1/8" in thickness. Weathering projections shall be rolled integral with the sections to provide overlapping, parallel contacts at both inside and outside points of closure on all four sides of the vent.

#### 12.1.4 Installation

Hinged doors shall be hung plumbed and fitted accurately allowing 1.5 mm clearance at the jambs and heads and 3 mm over thresholds. Clearance at the bottom of doors having

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no threshold shall be 9 mm. Lock stiles of doors 35 mm thick and thicker shall be leveled 3 mm. Knob locks and latches shall be installed 964 mm from the finished floors to the center.

Install in accordance with door and window manufacturer's printed instructions and details. Build in doors/windows as work progresses or install without forcing into prepared door/window openings. Set at proper elevation, location, and reveal; plumb, square, level, and in alignment. Brace and stay to prevent distortion and misalignment. Protect ventilators and operating parts against dirt and building materials by keeping closed and locked to frame.

Door and frame shall be factory finished with a rust inhibiting primer. Clean all surfaces of doors, fins, mullions, cover plates, and provide a hot-dip galvanized, phosphate-treated and shop primed finish.

## 12.2 Aluminum Doors and Windows

### 12.2.1 General Requirement

Furnish materials and equipment and perform labor required to complete the removal of all defective steel-framed doors and windows, and the installation of aluminum framed glass doors and windows.

All aluminum windows shall be products of reputable and nationally known manufacturers approved by the Construction Officer. Unless otherwise indicated, all window frames shall be constructed to withstand a minimum 1225 N/sq.m., wind load with the sashes in closed position. Windows shall be designed for glazing from outside with continuous glazing heads.

The Contractor shall submit to the Officer shop drawings for approval showing design, elevation of windows, full of size sections of sash, frames and mullion, hardware, construction and assembly details. Details of anchorage, erection, proposed location and method of jointing and splicing of the unit to be installed shall be clearly shown. Fabrication shall not commence until these shop drawings have been submitted and approved.

### 12.2.2 Materials

Doors and windows shall be aluminum framed complete with snap-on glass fasteners, vinyl inserts, neoprene weather stripping, Silicone caulking, and glass and glazing glass and glazing materials shall conform to Item 1000 10.5.

Aluminum Extrusions: ASTM Specification 6063 - 15.

Sheet Aluminum: Aluminum Association Alloy AA1100.

Steel Reinforcements: to CAN/CSA G40.21 M92.

Fasteners: Aluminum, Stainless Steel Type 316, or Cadmium Plated Steel, finished to Match Adjacent Material.

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Weather Stripping: Waterproof, Rot Proof Pile Fibre 4 mm High x 6 mm Wide in Neoprene Backing of Flexible Vinyl.

Sills: Sloped Extruded Aluminum Sill Sections including Upturned End Stops, Chairs, Anchors, Splice Plates; Finish Same as Aluminum Framing.

### 12.2.3 Construction

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

Cut, join and fit rails and stiles to hairline joints securely reinforced and jointed by means of concealed fastening wherever possible. Corners of frames and vents shall be mitered and internal corners coped; fitted with hairline joints.

Set and anchor as shown in details and in approved shop drawings. Set frames plumb and square and brace where necessary to prevent distortion. Wedge clear of masonry all frames set in prepared openings 4.5mm (3/16") to 6mm (1/4") to allow for caulking.

Provide weep holes in horizontal members of exterior frames and screens. Drain weepholes to exterior.

#### 12.2.3.1 Retrofitting of Historic Art Deco Grillwork

For fixed glass windows installed over historic grillwork, great care must be ensured to protect their existing finish and make. All glazing must be provided with a separate anchorage system set apart from existing grill work, with compatible materials and installation methodology that will introduce minimal disturbance to the existing works. Framing systems must not obstruct view of the original grillwork and must therefore be installed behind existing grillwork as viewed from a public space whenever possible.

The Contractor shall submit to the Officer shop drawings for approval showing design, elevation of windows, hardware, construction and assembly details. Details of anchorage, erection, proposed location and method of jointing and splicing of the unit to be installed shall be clearly shown. Fabrication shall not commence until these shop drawings have been submitted and approved.

### 12.2.4 Hardware

Hardware for doors and windows shall be acceptable foreign or local products of the types, material, sizes and mechanism as indicated on the drawings, and shall be free from any mark or other defect. For Construction Officer's approval. Samples of each type of hardware shall be submitted to the Architect for approval.

Hinges and door closers shall be the type size and capacity as indicated on the drawings, however, the Contractor shall verify each hardware item as to weight and other load of doors and windows, and minor modifications may be made without change in construction cost.

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Manufacturers' nameplates on doors or frames are not acceptable.

#### 12.2.5 Finish

Finish on exposed aluminum surfaces shall be anodized, powder coated or otherwise specified by the Architect. Finishes shall be durable and resistant to fading. Coatings shall be a minimum of 6 micrometers thick. The selection of color or finish shall be by the Owner and Architect through swatches provided by the contractor for such a purpose.

Shop apply strippable protective coating or covering to finished aluminum surfaces until completion of the work.

Paint ungalvanized steel clips, supports and reinforcing steel with steel primer or bituminous paint.

#### 12.2.6 Glazing

Glazing shall be as specified under the Section entitled GLASS AND GLAZING.

#### 12.2.7 Painting

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

#### 12.2.8 Protection and Cleaning

The Contractor shall be responsible for protecting the windows and doors during construction and for cleaning at the completion of the building.

### 12.3 Glass Doors

#### 12.3.1 Scope of Work

Provide complete tempered all glass swing entrance doors and sidelites which have been fabricated assembled and tested for proper operation at the factory. Includes all materials required for installation as shown on drawings and specifications.

#### 12.3.2 Materials

Rails shall be 6063-T5 Aluminum extrusions. Endcaps shall be screw applied or welded (as specified by architect)

Glass shall be at least ½“ thick fully tempered, clear. Glass shall be in compliance with the requirements set forth by American Society for Testing Materials (ASTM) – ASTM C-1048-91 Type 1, Quality Q3, Consumer Products Safety Commission (CPSC) – CPSC Standard of Architectural Glazing Material 16CFR 1201,1,2 and American National Standards Institute (ANSI) – ANSI Z97.1 for fabrication and tempering. Glass shall be horizontally tempered; tong marks are unacceptable Warpage shall be in compliance with

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ANSI Z97.1, ASTM C-1036-91 and ASTM C-1048-91. All exposed edges shall be flat polished.

### 12.3.3 Finishes

Finish on exposed aluminum surfaces shall be anodized, powder coated or otherwise specified by the Architect. Finishes shall be durable and resistant to fading. Coatings shall be a minimum of 6 micrometers thick. The selection of color or finish shall be by the Owner and Architect through swatches provided by the contractor for such a purpose.

Shop apply strippable protective coating or covering to finished aluminum surfaces until completion of the work.

Paint ungalvanized steel clips, supports and reinforcing steel with steel primer or bituminous paint.

### 12.3.4 Hardware

The door manufacturer shall furnish hardware for tempered glass swing entrance doors. Specify style, type, and finish as specified by the Architect. If conflict in standards occurs, comply with the portion of the specification that will result in the best quality product.

### 12.3.5 Execution

It is the responsibility of the contractor and sub-contractor to examine all doors and sidelites prior to installation. Qualified installers, in accordance with approved drawings and/or industry standards, shall install all glass swing entrance systems.

## 12.4 Glass Glazing

### 12.4.1 Scope of Work

This section of work includes furnishing of glass and labor required to complete all glass and glazing works.

### 12.4.2 Materials

#### 12.4.2.1 Plate Glass

Plate glass used shall be mechanically ground and polished, distortion-free surfaces. Use where good vision is required.

#### 12.4.2.2 Float Glass

Manufacture by “floating” continuous ribbon of molten glass onto a bath of molten tin where it is reheated to obtain a flat, fire-polished finish. It is then allowed to cool to a degree permitting it to be drawn on rollers in a long oven and then annealed.

#### 12.4.2.3 Sheet Glass

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Drawn either vertically or horizontally into sheets, then cut to size. Characterized by fire-polished surfaces with some inherent wave or distortion usually prominent in one direction.

#### 12.4.2.4 Mirror

Silvering quality float glass, ¼ inch thick, recommended specifically for high humidity usage, double silvered produced by a coat of electro-deposited copper. Furnish with edges polished, in one place unless otherwise, indicated on the drawing or approved.

#### 12.4.2.5 Grading

Grade AA - Intended for uses where superior quality is required.

Grade A - Intended for selected glazing.

Grade B - Intended for general glazing.

#### 12.4.2.6 Glazing Materials

Mastic - elastic compounds and non-skid compound

Putties - wood sash putty and metal sash putty

Sealants: Synthetic polymer - based sealants - resilient or non-resilient type

Performed caskets - Compression type, structural type

#### 12.4.3 Workmanship

Glass for glazing shall be cut and finished by grinding accurately to true sizes to set with equal bearing on the entire width of pane. Glass shall be set properly with glazing putty and angle glazing chips for windows, and with glazing beads for doors.

##### 12.4.3.1 Samples and Submittals

Submit samples of panel glass not less other than 2” x 3” and glazing materials in lengths not less than 6” for Construction Officer’s approval. Submit manufacturer’s specifications and recommendations for glazing conditions specified herein. Submit certificates of compliance, certifying conformity with requirements of this specification.

##### 12.4.3.2 Delivery

All glass shall be carefully packed for transportation, exercising reasonable precaution to insure avoidance of damage during transit. Care shall be insured in unloading, unpacking and storage on arrival at jobsite to avoid damage. Deliver all glazing accessory materials in manufacturer’s original unopened containers, clearly marked as to their contents.

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#### 12.4.3.3 Storage

Store all materials at the job site, in a manner assuring its safety from all forms of damage. Protect glass from soiling, condensation, etching, etc. Follow manufacturer's recommendations properly.

#### 12.4.3.4 Glazing

Prevent glass from all contact with metal or any hard or sharp materials by use of resilient shims placed at quarter points. Use resilient sealants. Use stops in sizes permitting a "good grip" onto the glass. Install glass only in opening that are rigid, plumb and square. Allow sufficient clearance at edges of glass to compensate for its expansion or for some settlement of the building. Clearance should be ¼ from edge to frame and 1/8" for face, markings, banners, posters and other decal shall not be spelled directly to glass surface as these could cause thermal stress. Removal of party of glazing compound smears from glass shall be performed by the glazing contractor during the materials normal work life. Failure to do so may result in damage to the glass.

### 13. Furnishing

#### 13.1 General

##### 13.1.1 Scope of Work

The scope of work consists of the supply and installation of Stadium Seating including accessories to complete all in accordance with the Specifications and Drawings at location indicated on the Drawings.

##### 13.1.2 Submittals

Drawings indicating metal thickness, fastenings, details of hinge mechanism, seat and back dimensions, proposed finish, and including seating plans showing row spacing, row lengths, the varying lateral spacing at backs and seats, back pitch, and chair widths for the various section lengths, floor pitch, and riser height, where applicable. Manufacturer's descriptive data, catalog cuts, and installation instructions.

##### 13.1.3 Delivery and Storage

Stadium seating shall be delivered to the site in unopened containers clearly labeled with the manufacturer's name and container contents. Materials shall be stored in a safe, dry, and clean location. Handling of items shall be in a manner that will protect the materials from damage.

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## 13.2 Products

### 13.2.1 Fixed Stadium Seating

Stadium Seating shall be High Density Polyethylene. Seating shall be floor mounted, with double-wall blow mould structure manufactured from HDPE with anti-UV, anti-oxidant, fire retardant, and anti-static additives with powder coated or hot galvanized magnesium alloy surface coated steel frame. Drain holes in the base must be provided to prevent water pooling.

Seating must conform to EN 12727 standard for mechanical testing.

Chair components and assembly shall be free from objectionable projections or irregularities. Corners and edges shall be smooth and rounded. Bolts, nuts, and other fastenings shall be capped. Steel shall be well-formed to shape and size required. Jointing of members shall be welded, riveted, or interlocked. Exposed welds shall be ground and dressed smooth. Casting shall be fine textured, sound, and free of pits, blow holes, and fins. Lines shall be true, accurate, and true-to-pattern with excess metal or imperfections removed. Fastening shall be concealed where possible.

## 13.3 Execution

Standards in each row shall be placed laterally so the aisle-end standards will be in alignment as indicated on seating layout drawing. The angle of inclination of backs shall be adjusted for variations in sightlines. Mechanical attachment of components shall be of sufficient flexibility so that when permanently assembled they will compensate for the changing dimensions laterally between standards caused by convergence toward the center. Seat and back attachments shall absorb inaccuracies in lateral spacing of standards at point of attachment caused by unevenness of floor. Varying lateral dimensions of backs and seats shall be in accordance with approved seating layout. Minimum width of seating unit shall be 500 mm and may be used only to complete a specific row dimension.

Installation of stadium chairs shall be in accordance with the seating drawings and approved installation instructions.

## 14. Electrical Works

### 14.1 Work Included

All work under these specifications shall consist of furnishing and/or installing all labor, materials, tools and all services necessary unless otherwise indicated to complete and make ready for operation, the electrical power, lighting and other utility system described herein and/or indicated in the Electrical Plans except for Owner-furnished equipment and fixtures in accordance with the electrical plans and these specifications.

14.1.1 Furnish and install low voltage service entrance including accessories.

14.1.2 Furnish and install feeder distribution layout.

14.1.3 Furnish and install lighting and power system.

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- 14.1.4 Furnish and install panel boards, circuit breakers, and disconnect switches.
- 14.1.5 Furnish and install outlets, switches and plates.
- 14.1.6 Furnish and install lighting fixtures and lamp (including T-runners & lighting diffusers)

#### **14.2 Work Not Included**

The following items of work shall be supplied by the Owner but to be installed by the Electrical Contractor or respective trade contractors or suppliers.

- 14.2.1 Motor, magnetic starters and controlling devices.
- 14.2.2 Electrical cooperative deposits

#### **14.3 Code Regulations**

All materials and equipment to be used in the electrical installations and construction shall be in accordance with the latest edition of the Philippine Electrical Code and the pertinent ordinances of the City Government.

All work shall comply with the rules and regulations of the local power company in so far as they are concerned in providing their respective permanent services to the building.

With respect to the local power company, it shall be the electrical contractor's sole responsibility to verify the point of service entrances and other requirements necessary for service connection of both abilities.

#### **14.4 Drawings and Specifications**

The electrical plans and these specifications are meant to be complementary to each other, and what is called for in one shall be as binding as if called for by both.

Any apparent conflict between the electrical plans and these specifications and any unclear points of controversial matters in either shall be referred to the owner's assigned representative for final decision.

Upon final completion of the work herein described, the electrical contractor shall furnish the Owner two (2) copies of the "As-built" plans for future reference and maintenance purposes.

The electrical plans indicate the general layout of the complete electrical system. Arrangement of feeders, circuit outlets, switches, controls, panel boards, service equipment and other work. Field verification of the scale dimensions on plane must be made, since actual locations, distances and levels will be governed by actual field conditions.

The Electrical Contractor shall check architectural, structural and plumbing plans be necessary to resolve such conflicts, the Electrical Contractor shall notify the Architect and secure approval and agreement on necessary adjustments before installation is started.

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#### **14.5 Permits and Inspection**

The Electrical Contractor shall obtain all necessary permits and certificates of electrical inspection from the proper government authorities concerned, required both for the performance of the work involved and the operation of the system upon completion of the work.

The Electrical Contractor shall pay all necessary electrical fees for the securing of the above-mentioned permits and certificates of electrical inspection.

The Electrical Contractor shall as his own expense, reproduce the electrical plans for work to the necessary scale and size, complete them with the necessary information and requirements as required by the government authorities concerned with approving such plans.

The Electrical Contractor shall coordinate with the local power company regarding the power facilities and secure approval of the power requirements.

#### **14.6 Materials and Workmanship**

All materials to be installed shall be brand new, unused and shall in every case to be the best where such standard have been established for the particular type of materials used.

Only skilled workmen using proper tools and equipment shall be employed during the entire course of the installation work. All workmanship shall be of the best quality, all work to be done in accordance with the best engineering practice of the trade involved.

#### **14.7 Wiring Method**

Branch circuit installation for lighting and power layout shall be done polyvinyl chloride pipes (PVC) exposed, inside drop ceiling, wooden and concrete partitions.

All auxiliary layout shall be in uPVC piping.

Branch circuit layout run underground or embedded in concrete slab shall also be in PVC pipes.

Low voltage service entrance and all feeders shall be in Rigid Steel Conduit (RSC).

Use flexible metal pipe for connection between junction boxes inside ceiling and lighting fixtures and ceiling fans with standard fittings.

All conduits shall be standard mild steel; hot galvanized or sherardized with an interior coating.

Conduits shall be 15mm minimum nominal diameter or otherwise as indicated in the Drawings.

All conduits shall be laid during the construction and shall be concealed in ceiling. All boxes, cabinets and other equipment shall be installed flush-mounted unless specified otherwise. All underground conduits shall be encased in concrete with minimum thickness of 10mm around conduit, and when outside the building, be reinforced sufficiently with steel bars.

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All boxes for lighting outlets, convenience outlets, tumbler switches and other devices shall be galvanized and approved products of reputable manufacturers. Outlet boxes shall be 1.5mm thick (Gauge 16). Ceiling and wall outlet boxes shall be 10mm octagonal. Boxes for wall, 50mm x 100mm x 55mm deep, locally made. Cut ends of conduits shall be reamed and cleaned to remove burr and sharp edges. Threads cut on conduits shall be the same thread dimensions as factory cut conduit threads. Conduit joints shall be made straight and true. Elbows and offsets and changes in direction of runs and shall be uniform. Bends shall be made without chinking or destroying the cross-sectional contours of the conduits. Conduit terminals shall be provided at outlet boxes and cabinets with locknuts and bushing. Conduits shall be continuous from outlet and from outlet to pull boxes and cabinets in the manner that the conduit system shall be electrically continuous.

Where conduit runs are exposed, they shall be supported at an interval of 1.52m maximum with proper clamps and bolts or expansion shields or other means of support.

Wires shall be subject to the approval of the C.O. and Architect. Use one brand only. All splices taps, junction in wires larger than 8.0 sq.mm. shall be done with solderless connectors or suitable sizes properly insulated with rubber tapes and protected by friction tapes, so that the insulation strength shall at least be equal to the insulation of the conductors they join.

Smallest size of wire to be used for lighting and power unless otherwise indicated shall be 3.5sq.mm.

#### **14.8 Guarantee**

The electrical contractor shall guarantee his work for a period of one (1) year form the date of acceptance of the Owner, with which time, he shall repair any defects and failures in any part of the system and replace defective materials, except those to the Owner.

#### **14.9 "As Built" Drawings**

Upon completion and before first acceptance of the work, the contractor shall prepare at his own expense and submit to the Architect "as built" drawings indicating in all detail the actual as-built conditions of the work required.

### **15. Health and Safety**

#### **General Guidelines**

In compliance with Section 17 of DOLE D. O. No. 13, the implementation of construction safety shall be considered in all stages of project procurement (design, estimate, and construction) and its cost shall be integrated to the overall project cost under Pay Item "SPL- Construction Safety and Health" as a lump sum amount, to be quantified in the detailed estimate. Likewise, all requirements, provisions, and instructions pertaining to the implementation of Construction Safety and Health in every project shall be included in the project bidding documents specifically under the Instructions to Bidders.

Further considering industry practices and applicable government requirements, the following guidelines are hereby issued to all concerned:

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### 15.1 Definition of Terms

As used herein, the terms below shall be defined as follows:

a. Occupational Safety and Health – As defined is the:

- 1) Promotion and maintenance of the highest degree of physical, mental, and social well-being of workers in all occupation;
- 2) Prevention among its workers of any departures from health caused by their working conditions;
- 3) Protection among workers in their employment from risk usually from factors averse to health; and
- 4) Placing and maintenance of worker in an environment adopted to his/her psychological ability.

b. Occupational Safety and Health Standard (OSHS)

By the powers vested in the Department of Labor and Employment under Article 162 of the Labor Code of the Philippines, the Occupational Safety and Health Standards (OSHS) was promulgated for the guidance and compliance of all concerned with the main objective of protecting every workingman against the dangers of injury, sickness or death through safe and healthful working conditions, thereby assuring the conservation of valuable manpower resources and the preservation of loss or damage to lives and properties, consistent with national development goals and with the State's commitment for the development of every worker as a complete human being.

Likewise, further described as: rules and regulations implementing Article 162 (Safety and Health Standards), Book IV, Title I, P. 0.442; set of mandatory OSH standards which codifies all safety orders being enforced prior to its promulgation; and - contains administrative requirements, general safety and health rules, technical safety regulations, and other measures to eliminate or reduce OSH hazards in the work place.

- c. Construction Safety and Health Standards – shall mean Rule 1410, Construction Safety and other relevant rules of the Occupational Safety and Health Standards (as amended) of the Department of Labor and Employment (DOLE).
- d. Construction Safety and Health Program– refers to a set of detailed rules to cover the processes and practices that should be utilized in a specific construction site in conformity with the OSHS including the personnel responsible and the penalties for violations thereof.
- e. Construction Safety and Health Officer – refers to safety personnel or any employee/worker trained by his employer to implement occupational safety and health programs in accordance with the provisions of DOLE D.O. No. 13 and the Occupational Safety and Health Standards (OSHS).
- f. Personal Protective Equipment (PPE) and Devices – are equipment and devices designed to protect employees from workplace injuries or illness resulting from contact with

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chemical, radiological, physical, electrical, mechanical, or other workplace hazards. It also includes variety of devices and garments such as face shields, safety glasses, hard hats, safety shoes, goggles, coveralls, gloves, vests, earplugs, respirators, safety harness and lifelines.

## 15.2 Purpose

The purpose of these guidelines is to establish a uniform methodology in estimating the required resources (manpower and equipment) for the implementation of Construction Safety and Health Standards in the workplace in compliance with the provisions of DOLE D.O. No. 13.

## 15.3 Methodology

The minimum construction safety and health requirements for project shall be prepared during the detailed engineering stage.

In order to establish a uniform basis for estimating the required quantity of resources (manpower and equipment) for a project the following methodology shall be used.

### a. Construction Safety and Health Program (CSHP)

Section 5 of the DOLE D.O. NO.13 provides that every construction project shall have a suitable Construction Safety and Health Program (CSHP).

For the purpose of these guidelines, all projects regardless of amount, funding source and mode of implementation shall comply with the minimum safety and health requirements.

The contractor's proposed CSHP shall be in accordance with DOLE D.O. No. 13, series of 1998 and its Procedural Guidelines to be submitted as part of the first envelope (Technical Proposal) during the bidding process and later the winning bidder shall submit the same for approval of the DPWH authority, subject to concurrence by DOLE-BWC.

For project to be implemented by administration, a CSHP shall also be prepared by the DPWH Implementing Office in accordance with the requirements of DOLE D. O. No. 13, s. of 1998 and likewise it shall also be submitted to DPWH authority for approval and thereafter to be concurred also by the DOLE-BWC.

The required Construction Safety and Health Program (CSHP) for specific project shall include but not limited to the following:

- a. composition of the Safety and Health personnel responsible for the proper implementation of CSHP;
- b. specific safety policies which shall be undertaken in the construction site, including frequency of and persons responsible for conducting toolbox and gang meetings;
- c. penalties and sanctions for violations of the Construction Safety and Health Program;

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- d. frequency, content and persons responsible for orienting, instructing and training all workers at the site with regard to the Construction Safety and Health Program which they operate; and
  - e. the manner of disposing waste arising from the construction.
- b. Construction Safety and Health Organization

To ensure that the Construction Safety and Health Program are observed and implemented at the project site, at the start of D.O. No. 56 s. 2005 construction, each site shall have an established construction safety and health organization composed of the following personnel:

**b.1 Safety Engineer/Officer**

Section 7.1 of D.O. NO.13 states that "The general contractor must provide for a full time Officer, who shall be assigned as the General Construction Safety and Health Officer to oversee full time the overall management of the Construction Safety and Health Program".

Section 7.2 states that " The general contractor must provide for additional Construction Safety and Health Officer/s in accordance with the requirements for Safety Man / Officer of Rule 1033, Training and Personnel Complement, as amended by DOLE D.O. No. 16 depending on the total number of personnel assigned to the construction project site, to oversee the effective compliance with the Construction Safety and Health Program at the site, under the direct supervision of the General Construction Safety and Health Officer".

For the purpose of these guidelines, and as recommended by DOLE, for every construction project with 100 and above workers, an accredited safety officer by DOLE-BWC shall be employed. Only the cost for the Construction Safety and Health Officer, whether on full time or part time basis, actually assigned at the construction site shall be included in the cost estimate.

On the part of the government, the implementing office shall designate as part of their project staff a Safety Engineer who shall be responsible for ensuring compliance with the pertinent DOLE Guidelines as well as the DPWH Guidelines on Occupational Safety and Health during the execution of the construction. The counterpart safety and health officer of the contractor shall closely coordinate and report to the government Safety Engineer.

**b.2 Health Personnel**

Rule 1412.01 of OSHS states that "at every construction site there shall be an organized and maintained medical and dental health service and personnel' conforming with Rule 1960 Occupational Health Services.

For the purpose of these guidelines only the medical and dental practitioners actually assigned in the project site and as required on the above stated Rule shall be included in the total cost of safety.

Manpower rates shall be based on the prevailing rates of such professionals in the area which is found favorable to the government.

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Employment period shall be based on the approved project duration and shall be adjusted correspondingly as the duration increases/decreases.

c. Personal Protective Equipment and Devices (PPE)

Section 6 (Personal Protective Equipment) of D. O. No. 13 guidelines states that "every employer shall, at his own expense, furnish his workers with protective equipment for eyes, face, hands and feet, lifeline, safety belt/harness, protective shields and barriers whenever necessary by reason of the hazardous work process or environment, chemical or radiological or other mechanical irritants of hazards capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical agent".

All Personal Protective Equipment and Devices shall be in accordance with the requirement of the Occupational Safety and Health Standards (OSHS) and should pass the test conducted and/or standards sets by the Occupational Safety and Health Center (OSHC).

For General Construction Work the required Basic PPEs for all workers shall be Safety Helmet, Safety Gloves and Safety Shoes. Specialty PPEs shall be provided to workers in addition to or in lieu of the corresponding basic PPE as the work or activity requires.

d. Signages and Barricades

Construction Safety Signages and Barricades shall be provided as a precaution and to advice the workers and the general public of the hazards existing in the worksite.

For road construction signages and barricades, it shall be in accordance with or in compliance to Department Circular No.9, Series of 2004 (Re: Road Safety Manuals and Handbooks) particularly on the 'Road Works Safety Manual.

e. Facilities

Section 16 of DOLE D.O. NO.13 requires that the employer shall provide the following welfare facilities in order to ensure humane working conditions;

- a. adequate supply of safe drinking water;
- b. adequate sanitary and washing facilities;
- c. suitable living accommodation for workers, and as may be applicable, for their families; and
- d. separate sanitary, washing and sleeping facilities for men and women workers.

For the purpose of these guidelines, facilities related to construction safety and health shall be in accordance with OSH Standards and the manner of costing shall be based on previously approved guidelines of the Department, duly quantified as a separate pay item.

f. Safety and Health Training

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Section 13 of DOLE D.O. No. 13 requires that the contractor shall provide continuing construction safety and health training to all technical personnel under his employ.

#### 15.4 Costing

In consideration of the cost involved of providing the necessary safety equipment and manpower for an effective implementation of safety in the workplace, and in compliance with DOLE D.O. No. 13, with safety as a separate pay item, the following shall be used as a guide:

a. Personal Protective Equipment

The PPEs shall be provided by the Constructor, and its cost shall be duly quantified and made part of the overall cost of safety and health (SPL). The use of PPEs shall conform to Rule 1080, Personal Protective Equipment and Devices of OSHS.

b. Clinical Materials and Equipment

Clinical materials and equipment such as medicines, beds and linens, other related accessories shall be to the account of the Constructors implementing the project and shall be in accordance with Rule 1960, Occupational Health Services of OSHS.

c. Signages and Barricades

The quantities and cost of signages and barricades necessary for a specific item of work shall be quantified and made part of that particular pay item of work.

For general signages and barricades not included in specific pay item of work but necessary for promoting safety in and around the construction site, the quantities and cost shall be a separate pay item and included in the overall cost of safety and health (SPL).

d. Facilities

Facilities such as portable toilets, waste disposal, sanitary and washing facilities, convenient dwellings and office, adequate lighting, and other facilities related to construction safety and health shall be in accordance with OSH Standards and previously approved guidelines of the Department and shall be quantified and the cost thereof be made a separate pay item under "Facilities for the Engineers" and "Other General Requirements" as required in the DPWH Standard Specifications.

e. Salaries/wages of Health and Safety Personnel

Labor cost for the medical and safety personnel actually assigned in the field shall be included in the overall cost of safety and health (SPL). Duration of employment shall be based on project duration of the particular project.

g. Safety and Health Training

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Cost associated for the provision of basic and continuing construction safety and health training to all safety and technical personnel shall be made part of the indirect/overhead cost of the project.

ITEM NUMBER	DESCRIPTION	UNIT OF MEASUREMENT
SPL – 2	Provision on Health and Safety	l.s.

#### 18.0 Securing of Occupancy Permit

The Occupancy building permits, clearances or licenses (when necessary) shall be provided by the Contractor. The Contractor shall pay all fees and other incidental expenses. The Contractor shall provide as-built plans/drawings (if applicable), duly accomplished construction logbook, certifications and other necessary documents to secure the Occupancy Permit in favor of the Philippine Sports Commission.

#### 19.0 Cleaning/Hauling of Wastes and Debris and Cleaning of Site

After final inspection of all the works undertaken, remove all paint stains, temporary structures, installation, unused/scrap materials, wastes and debris. Dispose of them properly.

### VII. GENERAL NOTES

The contractor shall be responsible in securing the necessary permits/licenses (Building, Electrical and Sanitary/Plumbing) from the Local Government Units (LGU's) and other government agencies in connection with the Rehabilitation Of Ninoy Aquino Stadium.

Other materials and workmanship not included on the above list but found necessary to complete the work shall be for the account of the contractor.

Sub-contractor/suppliers of major finishing materials (tiles, glass, paint, etc.) shall be a local or multi-national company with wholly owned Philippine subsidiary and shall have a similar local project of supply and installation of the above stated materials.

Sub-contractor of major finishing materials (ceramic tiles, etc.) shall be a *member of association of specialists on cleaning and restoration*.

The contractor shall be responsible for the safety measures during the implementation of the project and *must submit methodologies* in every finishing material required in the project.

*Branded materials* stated in the plans and specifications is the designer's reference of quality standards. *These products can be replaced provided that the replacement is approved of the same or higher quality.*

Restoration of floors, walls, ceiling affected by the Electrical works outside the area shall be the sole responsibility of the contractor.

The contractor shall *coordinate with PSC Project Architects, Engineers and Coordinators* in connection with the implementation of the project so as not to hamper with PSC operations.

The contractor is required to have the necessary and appropriate tools, instruments and equipment for the proper implementation of the project.

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The contractor shall submit the as built plans to PSC after the completion of the project. It is assumed that the bidder shall have full knowledge of the work and site condition, shall have reviewed the plans and specifications and bid documents, and thus warrants the availability of the work and materials upon submission of his bid proposal.

The contractor shall coordinate all aspects of the works in order to ensure a harmonious progress without interruptions, delays of modifications to work already completed.

The prospective bidder/contractor shall possess and submit with the eligibility documents a valid track record in undertaking related works.

All electrical (lighting systems, etc.) and other related facilities/equipment not included in the program of works that will be affected during the implementation of the project should be restored to their original operating condition/s at no additional cost to PSC authority.

## **VIII. PREVENTION OF ACCIDENT AND PUBLIC NUISANCE**

### **General**

The Contractor shall formulate adequate control measures in accordance with the relevant local laws and regulations regarding prevention of accidents, fires and public nuisances during the execution of the work.

The Contractor shall ensure that his workmen are aware, and shall so instruct the workmen, of good and safe working practices.

The Contractor's safety plan shall take into account, among other items, working in Restricted Areas, Contractor's Equipment; hand held power tools; percussion guns; air compressors and hoses; electrical equipment; fuels; use of dust masks, ear protectors, safety helmets and safety lines.

### **Prevention of Accidents**

The Contractor shall formulate a safety plan for work at the Site to provide proper protection, especially at such places in the airfield Restricted Areas.

### **Pollution Control**

The Contractor shall take all necessary steps to minimize noise, vibration, dust, soot, and other pollution resulting from the execution of the work.

## **IX. PERIOD OF WORK**

The Contractor shall complete the work within one hundred twenty (120) calendar days upon receipt of the Notice to Proceed. The contractor must work two (2) shifts per day to finish the work on time.

## **X. WARRANTY PERIOD**

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The Contractor shall submit a surety bond for a warranty period of one (1) year on materials and workmanship.

Any item found to be defective within the aforementioned period, the contractor shall immediately replace the said item/s at their own expense and no cost to PSC.

Any damage to life and property caused by the contractor operation within the vicinity of the facility covered by the project shall be the sole responsibility of the contractor.

## **XI. CONTRACTORS RISK AND WARRANTY SECURITY**

1. The Contractor shall assume full responsibility for the works from the time of construction commenced up to final acceptance by the Procuring Entity's Representative/s and shall be held responsible for any damage or destruction of the works except those occasioned by force majeure. The Contractor shall be fully responsible for the safety, protection, security and convenience of his personnel, third parties and public at large, as well as the works, equipment, fabrication and installation and the like to be affected by his construction works and deliveries.
2. The defects liability period shall be one (1) year from the contract completion. The certificate of acceptance shall be issued by PSC after all defects have been corrected.

## **XII. ACCEPTANCE OF THE PROJECT**

Certificate of Acceptance will be issued upon approval of the END USER and the Head of the Procuring Entity.

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Prepared by:

(Sgd.)

**Alvar Bantay**

Estimator/CAD Operator

Date: \_\_\_\_\_

Prepared by:

(Sgd.)

**Engr. Jomari Cruz**

Engineer II

Date: \_\_\_\_\_

Checked and Reviewed by:

(Sgd.)

**ENGR. PEDRO I. PINEDA JR.**

Head, Engineering and Maintenance

Date: \_\_\_\_\_

**Name of Project** : REHABILITATION OF NINOY AQUINO STADIUM (ADDITIONAL WORKS) Re-bid  
**Location** : RMSC, P. OCAMPO ST., MALATE, MANILA  
**Owner** : PHILIPPINE SPORTS COMMISSION  
**Subject** : BILL OF QUANTITIES

ITEM NO.	DESCRIPTION	QTY.	UNIT	UNIT PRICE	TOTAL
I.	Civil Works	LOT	1		
II.	Architectural Works	LOT	1		
III.	Score Board and Sound System	LOT	1		
IV.	Scaffoldings	LOT	1		

Total contract cost

In words: \_\_\_\_\_

In Figures: \_\_\_\_\_

Submitted By: \_\_\_\_\_

Name of Company: \_\_\_\_\_

Name of Authorized Signatory: \_\_\_\_\_

Designation: \_\_\_\_\_

Date: \_\_\_\_\_