PHILIPPINE BIDDING DOCUMENTS

Procurement of INFRASTRUCTURE PROJECTS

Government of the Republic of the Philippines

PROPOSED CONSTRUCTION OF QCITIZEN HOMES - SAN AGUSTIN COMMUNITY 2 (SITIO KAWAYAN)

Project number:
24-00181

Sixth Edition
July 2020

Preface

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

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

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

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

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

a. All the documents listed in the Table of Contents are normally required for the procurement of Infrastructure Projects. However, they should be adapted as necessary to the circumstances of the particular Project.

b. Specific details, such as the "*name of the Procuring Entity*" and "*address for bid submission*," should be furnished in the Instructions to Bidders, Bid Data Sheet, and Special Conditions of Contract. The final documents should contain neither blank spaces nor options.

c. This Preface and the footnotes or notes in italics included in the Invitation to Bid, BDS, General Conditions of Contract, Special Conditions of Contract, Specifications, Drawings, and Bill of Quantities are not part of the text of the final document, although they contain instructions that the Procuring Entity should strictly follow.

d. The cover should be modified as required to identify the Bidding Documents as to the names of the Project, Contract, and Procuring Entity, in addition to date of issue.

e. Modifications for specific Procurement Project details should be provided in the Special Conditions of Contract as amendments to the Conditions of Contract. For easy completion, whenever reference has to be made to specific clauses in the Bid Data Sheet or Special Conditions of Contract, these terms shall be printed in bold typeface on Sections I (Instructions to Bidders) and III (General Conditions of Contract), respectively.

f. For guidelines on the use of Bidding Forms and the procurement of Foreign-Assisted Projects, these will be covered by a separate issuance of the Government Procurement Policy Board.

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Glossary of Terms, Abbreviations, and Acronyms

ABC – Approved Budget for the Contract.

ARCC – Allowable Range of Contract Cost.

BAC – Bids and Awards Committee.

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

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

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

BIR – Bureau of Internal Revenue.

BSP – Bangko Sentral ng Pilipinas.

CDA – Cooperative Development Authority.

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

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

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

CPI – Consumer Price Index.

DOLE – Department of Labor and Employment.

DTI – Department of Trade and Industry.

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

GFI – Government Financial Institution.

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

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

GOP – Government of the Philippines.

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

LGUs – Local Government Units.

NFCC – Net Financial Contracting Capacity.

NGA – National Government Agency.

PCAB – Philippine Contractors Accreditation Board.

PhilGEPS - Philippine Government Electronic Procurement System.

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

PSA – Philippine Statistics Authority.

SEC – Securities and Exchange Commission.

SLCC – Single Largest Completed Contract.

UN – United Nations.

Section I. Invitation to Bid

Notes on the Invitation to Bid

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

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

a. The date of availability of the Bidding Documents, which shall be from the time the IB is first advertised/posted until the deadline for the submission and receipt of bids;

b. The place where the Bidding Documents may be acquired or the website where it may be downloaded;

c. The deadline for the submission and receipt of bids; and

d. Any important bid evaluation criteria.

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

REPUBLIC OF THE PHILIPPINES
QUEZON CITY GOVERNMENT
BIDS AND AWARDS COMMITTEE FOR INFRASTRUCTURE & CONSULTANCY
2nd floor, Finance Building, Procurement Department, Quezon City Hall Complex, Elliptical Road, Quezon City

BAGONG PILIPINAS

November 26, 2024

Invitation to Bid

No.	Project No.	Project Name	Location	Amount	Duration Cal. Days	Office	Fund Source
Building – Small B							
1	24-00174	Proposed Rehabilitation of Quezon City Science High School Gymnasium at Barangay Sto. Cristo	Sto. Cristo	8,104,650.92	150	Engineering Department	Special Education Fund
2	24-00175	Proposed Rehabilitation of Multi Purpose Building at District 4	Paligsahan	13,558,827.25	210	Engineering Department	20% Community Development Fund
3	24-00176	Proposed Rehabilitation of Deped Building and Mathay Building at Tandang Sora Elementary School in Barangay Tandang Sora	Tandang Sora	15,387,830.08	210	Engineering Department	Special Education Fund
4	24-00177	Proposed Rehabilitation of SB Building at Commonwealth High School	Commonwealth	17,326,936.11	120	Engineering Department	Special Education Fund
Building – Medium A							
5	24-00178	Proposed Construction of Skatepark at Quezon City Memorial Circle	Central	88,032,089.66	180	Engineering Department	20% Community Development Fund
6	24-00179	Proposed Rehabilitation of Justice Cecilia Muñoz Palma High School in Barangay Payatas	Payatas	91,238,505.75	240	Engineering Department	Special Education Fund
7	24-00180	Proposed Interior Renovation of M.I.C.E. Theater	Central	98,052,998.08	180	Engineering Department	20% Community Development Fund
8	24-00181	Proposed Construction of Qcitizen Homes - San Agustin Community 2 (Sitio Kawayan)	San Agustin	146,310,627.99	480	City Architect Department	General Fund
Flood Control – Small B							
9	24-00182	Proposed Construction of Retaining Wall at Kaligayahan Elementary School in Barangay Kaligayahan	Kaligayahan	6,931,823.75	180	Engineering Department	Special Education Fund
10	24-00183	Proposed Improvement of Drainage System at Misamis Street (Sta 0+000B to Sta 0+0165B and Sta 0+000D to Sta 0+162.5D), Golden Acres Road (Sta 0+000C to Sta 0+074C) And Edsa Outfall (Sta 0+000A to Sta 0+040A) in Barangay Sto. Cristo	Sto. Cristo	18,715,127.73	210	Engineering Department	20% Community Development Fund

Flood Control – Medium A							
11	24-00184	Proposed Construction of Drainage System Along Katipunan Avenue from Middle Access Road (Sta. 0+000) to Creek (Sta. 0+122) at Barangay Pansol	Pansol	31,630,241.45	240	Engineering Department	20% Community Development Fund
12	24-00185	Proposed Drainage System at Kaliraya Street from ROTC Hunter (Sta. 0+000) to G. Araneta Avenue (Sta. 0+290) in Barangay Tatalon	Tatalon	43,541,391.67	90	Engineering Department	Local Disaster Risk Reduction and Management Fund – Continuing Appropriation
Road – Small B							
13	24-00186	Proposed Rehabilitation of Road and Drainage at Block 1 To 18, Purok 15, Unit V in Barangay Batasan Hills	Batasan Hills	28,929,937.82	300	Engineering Department	20% Community Development Fund
Park – Small B							
14	24-00187	Proposed Urban Greening and Revitalization of Project 6 Pocket Park at Road 1	Project 6	2,471,890.08	90	Parks Development & Administration Department	20% Community Development Fund
15	24-00188	Proposed Urban Greening and Revitalization of Alley 200 Park (Maginhawa Street to Matimtiman Street)	Sikatuna	3,832,124.87	90	Parks Development & Administration Department	20% Community Development Fund
16	24-00189	Proposed Urban Greening and Revitalization of Alley 100 Park (Maginhawa Street to Mahiyain Street)	Teacher's Village East	4,375,287.67	120	Parks Development & Administration Department	20% Community Development Fund
17	24-00190	Proposed Urban Greening and Revitalization of Alley 136 Park (Maginhawa Street to Matimtiman Street)	Sikatuna	4,493,307.34	90	Parks Development & Administration Department	20% Community Development Fund
Park – Medium A							
18	24-00173B	Proposed Redevelopment of Pugad Lawin Shrine	Bahay Toro	31,509,579.94	360	Parks Development & Administration Department	20% Community Development Fund – Continuing Appropriation
Electrical Work – Medium A							
19	24-00145B	Proposed Installation of Solar Power System at Commonwealth Elementary School Including Net Metering Application	Commonwealth	12,317,262.22	120	Engineering Department	Special Education Fund
20	24-00149B	Proposed Installation of Solar Power System at Batasan Hills National High School Including Net Metering Application	Batasan Hills	12,468,274.28	120	Engineering Department	Special Education Fund
21	24-00155B	Proposed Installation of Solar Power System at Holy Spirit Elementary School Including Net Metering Application	Holy Spirit	12,771,548.68	120	Engineering Department	Special Education Fund

1. The **QUEZON CITY LOCAL GOVERNMENT**, through *funding source of various years* intends to apply the sum stated above being the Approved Budget for the Contract (ABC) to payments under the contract *for the above stated Projects*. Bids received in excess of the ABC shall be automatically rejected at bid opening.

2. The **QUEZON CITY LOCAL GOVERNMENT** now invites bids for the above Procurement Project. Completion of the Works is required *as stated above*. 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 **QUEZON CITY LOCAL GOVERNMENT – BAC Secretariat** and inspect the Bidding Documents at the address given below *weekdays from **8:00 am. – 5:00 p.m.***

5. A complete set of Bidding Documents may be acquired by interested bidders on **27 November 2024 (Wednesday)** from given address and website/s below *and upon payment of a non-refundable fee for the Bidding Documents, pursuant to the latest Guidelines issued by the GPPB*. The Procuring Entity shall allow the bidder to present its proof of payment for the fees *presented in person.*

   STANDARD RATES:

Approved Budget for the Contract	Maximum Cost of Bidding Documents (in Philippine Peso)
More than 500,000 up to 1 Million	1,000.00
More than 1 Million up to 5 Million	5,000.00
More than 5 Million up to 10 Million	10,000.00
More than 10 Million up to 50 Million	25,000.00
More than 50 Million up to 500 Million	50,000.00
More than 500 Million	75,000.00

   The following are the requirements for purchase of Bidding Documents;

   1. PhilGEPS Registration Certificate (Platinum – 3 Pages)
   2. Document Request List (DRL)
   3. Authorization to purchase bidding documents
      3.1 Secretary's Certificate (for corporation)
      3.2 Special Power of Attorney (for sole proprietorship)
   4. Notarized Joint Venture Agreement (if applicable)
   5. Letter of Intent

   It must be duly received by the BAC Secretariat at 2nd Floor, Procurement Department, Finance Building, Quezon City Hall Compound.

6. The ***QC- BAC- INFRASTRUCTURE & CONSULTANCY*** will hold a Pre-Bidding Conference[1] on **December 05, 2024** at **10:00 AM** at **2nd Floor**, **Procurement Department-Bidding Room, Finance Building**, **Quezon City Hall Compound** or we encourage the prospective bidders to join through our **Virtual Conference (ZOOM APP)** which shall be open to prospective bidders.

   Virtual Conference (ZOOM APP)
   Meeting ID: 854 9489 0133
   Password: 273320

7. Bids must be duly received by the BAC Secretariat through manual submission at the office address as indicated below, on or before **December 17, 2024 – 9:00 AM**. 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.

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

9. Bid opening shall be on **December 17, 2024 – 10:00 AM** at **2nd Floor, Procurement Department-Bidding Room, Finance Building, Quezon City Hall Compound** and/or via Zoom. Bids will be opened in the presence of the bidders' representatives who choose to attend the activity.

   Virtual Conference (ZOOM APP)
   Meeting ID: 810 3646 5257
   Password: 201522

10. The ***Quezon City Local Government*** 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 e 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. DOMINIC B. GARCIA
    OIC, Procurement Department
    2nd Floor, Procurement Department,
    Finance Building, Quezon City Hall Compound
    Elliptical Road, Barangay Central Diliman, Quezon City.
    Tel. No. (02)8988-4242 loc. 8506/8710
    Email Add: bacinfra.procurement@quezoncity.gov.ph
    Website: **www.quezoncity.gov.ph**

12. You may visit the following websites:

    For downloading of Bidding Documents: **https://quezoncity.gov.ph/public-notices/procurement/**

By:

MS. MARIAN C. ORAYANI
Chairperson, BAC-Infrastructure and Consultancy Services

Section II. Instructions to Bidders

Notes on the Instructions to Bidders

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

1. Scope of Bid

The Procuring Entity, **Quezon City Government** invites Bids for the **PROPOSED CONSTRUCTION OF QCITIZEN HOMES - SAN AGUSTIN COMMUNITY 2 (SITIO KAWAYAN),** with Project Identification Number **24-00181.**

[Note: The Project Identification Number is assigned by the Procuring Entity based onits own coding scheme and is not the same as the PhilGEPS reference number, whichis generated after the posting of the bid opportunity on the PhilGEPS website.]

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 **2024** in the amount of **One Hundred Forty-Six Million Three Hundred Ten Thousand Six Hundred Twenty-Seven Pesos and 99/100 Ctvs. (P 146,310,627.99).**

2.2. The source of funding is:

a. LGUs, the Annual or Supplemental Budget, as approved by the Sanggunian.

3. Bidding Requirements

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

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

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

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

The Procuring Entity, as well as the Bidders and Contractors, shall observe the highest standard of ethics during the procurement and execution of the contract. They or through an agent shall not engage in corrupt, fraudulent, collusive, coercive, and

obstructive practices defined under Annex "I" of the 2016 revised IRR of RA No. 9184 or other integrity violations in competing for the Project.

5. Eligible Bidders

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

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

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

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

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

6. Origin of Associated Goods

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

7. Subcontracts

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

The Procuring Entity has prescribed that:

a. Subcontracting is not allowed.

7.1. *[If Procuring Entity has determined that subcontracting is allowed during the bidding , state:]* The Bidder must submit together with its Bid the documentary requirements of the subcontractor(s) complying with the eligibility criterial stated in **ITB** Clause 5 in accordance with Section 23.4 of the 2016 revised IRR of RA No. 9184 pursuant to Section 23.1 thereof.

7.2. *[If subcontracting is allowed during the contract implementation stage, state:]* The Supplier may identify its subcontractor during the contract implementation stage. Subcontractors identified during the bidding may be changed during the implementation of this Contract. Subcontractors must submit the documentary

requirements under Section 23.1 of the 2016 revised IRR of RA No. 9184 and comply with the eligibility criteria specified in **ITB** Clause 5 to the implementing or end-user unit.

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

8. Pre-Bid Conference

The Procuring Entity will hold a pre-bid conference for this Project on the specified date and time and either at its physical address on **December 05, 2024 at 10:00 AM at 2nd Floor, Procurement Department-Bidding Room, Finance Building, Quezon City Hall Compound** and/or we encourage the prospective bidders to join through our **Virtual Conference (ZOOM APP) Meeting ID: 854 9489 0133 Password: 273320**

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 **in no case shall exceed One Hundred Twenty (120) calendar days from the date of opening of bids, unless duly extended by the bidder upon the request of the Head of the Procuring Entity (HoPE) of the Quezon City Local Government**. 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 **5** of the **IB.**

18. Opening and Preliminary Examination of Bids

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

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

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

19. Detailed Evaluation and Comparison of Bids

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

19.2. If the Project allows partial bids, all Bids and combinations of Bids as indicated in the **BDS** shall be received by the same deadline and opened and evaluated simultaneously so as to determine the Bid or combination of Bids offering the lowest calculated cost to the Procuring Entity. Bid Security as required by **ITB** Clause 15 shall be submitted for each contract (lot) separately.

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

20. Post Qualification

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

21. Signing of the Contract

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

Section III. Bid Data Sheet

Notes on the Bid Data Sheet (BDS)

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

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

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

a. Information that specifies and complements provisions of the ITB must be incorporated.

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

Bid Data Sheet

<table>
<tr><th>ITB Clause</th><th></th></tr>
<tr><td>5.2</td><td>For this purpose, similar contracts shall refer to contracts which have the same major categories of work.</td></tr>
<tr><td>7.1</td><td>Subcontracting is not allowed.</td></tr>
<tr><td>10.3</td><td>No additional contractor license or permit is required

In addition, eligible bidders shall qualify or comply with the following:

1. Bidders with valid Philippine Contractors Accreditation Board (PCAB)

Type

BUILDING - MEDIUM A</td></tr>
<tr><td>10.4</td><td>The minimum work experience requirements for key personnel are the following:

<table>
<tr><th>Qnty.</th><th>Key Personnel</th><th>General Experience</th><th>Relevant Experience</th></tr>
<tr><td>1</td><td>Project Manager</td><td>3 Years</td><td>3 Years</td></tr>
<tr><td>2</td><td>Project Engineers</td><td>3 Years</td><td>3 Years</td></tr>
<tr><td>1</td><td>DPWH Duly accredited Materials Engineer</td><td>3 Years</td><td>3 Years</td></tr>
<tr><td>4</td><td>Safety Officers</td><td>3 Years</td><td>3 Years</td></tr>
<tr><td>2</td><td>Foreman</td><td>3 Years</td><td>3 Years</td></tr>
<tr><td>25</td><td>Skilled Laborer</td><td>3 Years</td><td>3 Years</td></tr>
<tr><td>30</td><td>Non-Skilled Laborer</td><td>1 Year</td><td>3 Months</td></tr>
<tr><td>3</td><td>Warehouseman</td><td>1 Year</td><td>3 Months</td></tr>
<tr><td>2</td><td>Timekeeper</td><td>1 Year</td><td>3 Months</td></tr>
<tr><td>2</td><td>Driver</td><td>1 Year</td><td>3 Months</td></tr>
<tr><td>2</td><td>Equipment Operator</td><td>1 Year</td><td>3 Months</td></tr>
</table>

In addition, the bidder must execute an affidavit of undertaking duly notarized stating that the foregoing personnel shall perform work exclusively for the project until its completion. Please see attached bid forms.</td></tr>
<tr><td>10.5</td><td>The minimum major equipment requirements are the following:

<table>
<tr><th>Equipment</th><th>Capacity</th><th>Number of Units</th></tr>
<tr><td>Backhoe with Pavement Breaker</td><td></td><td>1</td></tr>
<tr><td>Dumptruck</td><td></td><td>2</td></tr>
<tr><td>Bar Cutter</td><td></td><td>5</td></tr>
<tr><td>Concrete Mixer</td><td></td><td>3</td></tr>
<tr><td>Welding Machine</td><td></td><td>4</td></tr>
<tr><td>Cutting Outfit</td><td></td><td>4</td></tr>
<tr><td>Minor tools</td><td></td><td>10</td></tr>
<tr><td>Pay Loader</td><td></td><td>1</td></tr>
<tr><td>Vibratory Roller</td><td></td><td>1</td></tr>
</table>
</td></tr>
</table>

	Plate Compactor 1 Generator Set Machine 1 Concrete Vibrator 1 ***In addition, the bidder must execute an affidavit of undertaking duly notarized stating that the foregoing equipment shall be used exclusively for the project until its completion. Please see attached bid forms.***
12	*[Insert Value Engineering clause if allowed.]*
15.1	The bid security shall be in the form of a Bid Securing Declaration with project number, or any of the following forms and amounts: a) The amount of not less than Php **2,926,212.56** or equivalent to two percent (2%) of ABC if bid security is in cash, cashier's/manager's check, bank draft/guarantee or irrevocable letter of credit; or b) The amount of not less than Php **7,315,531.40** or equivalent to five percent (5%) of ABC if bid security is in Surety Bond.
19.2	**Partial bid is not allowed.** The infrastructure project is packaged in a single lot and the lot shall not be divided into sub-lots for the purpose of bidding, evaluation, and contract award.
20	No additional requirement.
21	**Additional Contract Documents relevant to the Project as required:** **1. Construction Schedule and S-curve,** **2. Manpower Schedule,** **3. Construction Methods,** **4. Equipment Utilization Schedule,** **5. PERT/CPM or other acceptable tools of project scheduling, shall be included in the submission of Technical Proposal.**

Section IV. General Conditions of Contract

Notes on the General Conditions of Contract

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

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

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

1. Scope of Contract

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

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

2. Sectional Completion of Works

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

3. Possession of Site

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

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

4. The Contractor's Obligations

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

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

5. Performance Security

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

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

6. Site Investigation Reports

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

7. Warranty

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

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

8. Liability of the Contractor

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

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

9. Termination for Other Causes

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

10. Dayworks

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

11. Program of Work

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

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

12. Instructions, Inspections and Audits

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

13. Advance Payment

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

14. Progress Payments

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

15. Operating and Maintenance Manuals

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

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

Section V. Special Conditions of Contract

Notes on the Special Conditions of Contract

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

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

a. Information that complements provisions of the GCC must be incorporated.

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

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

Special Conditions of Contract

GCC Clause	
2	Completion of work shall be within 480 calendar days.
4.1	The Procuring Entity shall give possession of all parts of the Site to the Contractor upon receipt of the Notice to Proceed.
6	The site investigation reports are: *[list here the required site investigation reports.]*
7.2	*[Select one, delete the other.]* *[In case of permanent structures, such as buildings of types 4 and 5 as classified under the National Building Code of the Philippines and other structures made of steel, iron, or concrete which comply with relevant structural codes (e.g., DPWH Standard Specifications), such as, but not limited to, steel/concrete bridges, flyovers, aircraft movement areas, ports, dams, tunnels, filtration and treatment plants, sewerage systems, power plants, transmission and communication towers, railway system, and other similar permanent structures:]* Fifteen (15) years. *[In case of semi-permanent structures, such as buildings of types 1, 2, and 3 as classified under the National Building Code of the Philippines, concrete/asphalt roads, concrete river control, drainage, irrigation lined canals, river landing, deep wells, rock causeway, pedestrian overpass, and other similar semi-permanent structures:]* Five (5) years. *[In case of other structures, such as bailey and wooden bridges, shallow wells, spring developments, and other similar structures:]* Two (2) years.
10	Dayworks are applicable at the rate shown in the Contractor's original Bid.
13	The amount of the advance payment is no more that fifteen percent (15%) of the Contract Price subject to approval by the HOPE and compliance with the conditions under RA 9184 and its IRR.
14	No further instructions.
15.1	The date by which operating and maintenance manuals are required is *thirty (30) days* The date by which "as built" drawings are required as part of final payment
15.2	The amount to be withheld for failing to produce "as built" drawings and/or operating and maintenance manuals by the date required is ten (10%) percent of the contract price.

Section VI. Specifications

Notes on Specifications

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

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

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

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

Sample Clause: Equivalency of Standards and Codes

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

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

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

Republic of the Philippines
CITY ARCHITECT DEPARTMENT
5th Floor, Civic Center Building D Quezon City Hall Compound, Diliman Quezon City
(02) 8988-4242 Local 1501, 1509 & 8166 I cityarchitect@quezoncity.gov.ph

PROJECT : **PROPOSED CONSTRUCTION OF QCITIZEN HOMES – SAN AGUSTIN COMMUNITY 2 (SITIO KAWAYAN)**

LOCATION : **Barangay San Agustin, District 5, Quezon City**

SUBJECT : **GENERAL CONDITIONS AND TECHNICAL SPECIFICATIONS**

I. GENERAL CONDITIONS

1.0 DEFINITIONS

a. **OWNER** : **LOCAL GOVERNMENT OF QUEZON CITY**

b. **CONTRACTOR** : Any individual, form, corporation, partnership or association that enters into an agreement with the Owner for furnishing the materials and/or labor, tools, equipment, plant and other facilities required for the erection and completion of the project subject to the accompanying plans and working drawings.

c. The Owner/Implementing Agency and the Contractor are treated through the contract documents as if each were of the regular number, masculine gender.

1.1 EXAMINATION OF MEMBER

The Contractor shall carefully examine the premises before submitting any bids to enable him to have full knowledge of conditions existing therein.

1.2 LOCATION

The **Proposed Construction of QCitizen Homes – San Agustin Community 2 (Sitio Kawayan) at Barangay San Agustin, District 5, Quezon City** refer to the approved Location Plan.

1.3 EXECUTION, CORRELATION & INTENT OF DOCUMENTS

a. The Contract Documents are signed in sufficient number of copies by all parties concerned. In case anybody fails to sign copies of any item forming part of the set contract documents, the Implementing Agency's identification thereon shall suffice.

b. The items, specifications and all other documents forming the contract documents are complementary. Anything shown on plans but not mentioned in the specifications or vice versa or anything not expressly set forth in either, but necessarily implied, shall be furnished or done as if specifically shown and mentioned in both, with no extra charge. Where dimensions are given in figures, follow them in preference to measurement by scale.

c. Execute work as per agreement, making no changes or deviations whatsoever, without prior permission from the Implementing Agency.

d. The Contractor shall verify and check all dimensions particularly those on the plans. He will be held directly responsible in case of any discrepancy that may be discovered during the progress of work.

1.4 DETAIL DRAWINGS AND INSTRUCTIONS

Plans furnished for use at the jobsite are whenever necessary, supplemented by detail drawings and instructions essential to the proper execution of the work. Such supplementary detail drawings and instructions shall be treated as of equal force as though originally issued.

1.5 PLANS AND PROJECT SITE

Keep at project site, in good order and condition, one (1) set of approved plans, specifications, supplementary detail drawings and instructions.

1.6 SHOP DRAWINGS

Shop drawings shall be provided by the Implementing Agency and/or Contractor during the progress of construction. The contractor should not place any item subject to shop drawings until the Implementing Agency shall have duly approved such drawings.

1.7 CHANGES

The Owner and the Implementing Agency reserve the right to make alterations or additions, including changes during the progress of work. The same shall be carried into effect without in any way deviating from or violating any agreement. Whatever amount shall necessarily be entailed in the cost of labor or materials or both shall be added to or deducted from the original contract price.

1.8 TIME OF COMPLETION AND SCHEDULE OF CONSTRUCTION

The Contractor shall, before actual commencement of the project operations, prepare and submit to the Implementing Agency for verification and approval, a complete and comprehensive work schedule covering the entire duration of construction. He shall also include therein, the estimated number of days within which the entire project shall be completed stage by stage by phase.

1.9 WORKMANSHIP

The project shall be executed with the use of first class workmanship to the full intent and meaning of the plans and specifications and to the complete approval and acceptance by the Implementing Agency.

1.10 MATERIALS

All materials to be used shall be the best of their respective types and kind. They shall be properly stored and protected from damage or injury.

1.11 SAMPLES

Submit samples as specified and proceed with the work with the use of materials procured based on the samples previously approved by the Designing Agency.

1.12 INSPECTION OF WORK

The Contractor shall provide the facility for inspecting the work to the Implementing Agency, the Owner and other personnel having jurisdiction over the work.

1.13 DEFECTIVE OR IMPROPER WORK

All work or materials not acceptable to the Architect shall be removed immediately and replaced with appropriate work or materials without extra charge. All condemned materials shall be taken away from the premises without delay.

1.14 BUILDING LAWS AND REGULATIONS

The Contractor shall be held responsible for strict compliance with existing labor laws and regulations and shall free the Owner from any responsibility in connection therewith, he shall pay on time at his own expense, all taxes, fees and/or licenses due to the government, both national and local arising from his work on the project.

1.15 MANNER OF PAYMENT

Payments to the Contractor shall be based on the periodic work accomplishments subject to verification, approval and recommendation by the Implementing Agency.

1.16 RETENTION MONEY

Progress payments shall be subject to a ten percent (10%) deduction, referred to as retention money. All retained amounts shall be released upon satisfactory completion of the work and issuance of the Certificate of Final Completion and Acceptance.

1.17 TEMPORARY WATER, POWER AND TELEPHONE FACILITIES

The Contractor shall make the necessary arrangements with the local utility companies so as to provide temporary facilities for the supply of water, power and telephone for the duration of construction, and all expenses in connection therewith shall be borne by the Contractor.

1.18 PRIVY

The Contractor shall provide a temporary privy in a most inconspicuous and sanitary manner, and shall have it removed at the termination of the work.

1.19 CLEARING AND CLEANING

Upon its completion, the project and its premises shall be cleared and cleaned as directed by the Implementing Agency, and make ready for immediate occupancy.

1.20 TEMPORARY BARRICADES, SIGNAL LIGHTS, BILLBOARDS, ETC.

The Contractor shall provide all temporary barricades, signal lights, Architect and Contractor's billboards, the required official building billboard, etc., necessary for the protection of the public and for the proper prosecution of the work and display of construction requirements.

1.21 PERFORMANCE AND GUARANTEE BOND

To guarantee the faithful performance of the Contractor under the contract, he shall post a Performance Bond in the amount of thirty percent (30%) of the contract price in the form of cash, manager's check or surety bond, callable on demand.

1.22 QUESTIONS AND DISAGREEMENTS

All questions and disagreements between the Contractor and the Owner relative to the interpretation of the plans and specifications shall be referred to the Implementing Agency whose decision on the matter shall be final.

II. TECHNICAL SPECIFICATIONS

2.0 SITE WORK

2.0.1 Staking out and establishment of additional wall lines, grades and benchmarks.

2.0.2 All excavation works including all necessary shoring, bracing and drainage of storm water from the site.

2.0.3 All soil treatment, backfilling, filling, compaction and grading, removal of excess material from site.

2.0.4 Protection of property, work and structures, workmen and other people from damage and injury.

2.0.5 Soil Poisoning / Termite Proofing.

2.0.6 Gravel Bedding and Compaction (Ordinary Gravel).

2.0.7 Backfill and compaction

2.0.8 Hauling and disposal of excess materials

2.0.9 Demolition works

2.1 LINES, GRADES AND BENCHMARKS

2.1.1 Stake out accurately the lines of the building and/or the other structures included in the contract, and establish grades therefore, after which secure approval of the Project Manager before any excavation work is commenced.

2.1.2 Erect basic batter boards and basic reference marks at such places where they will not be disturbed during the construction of the foundation.

2.2 EXCAVATION

Structural Excavations: Excavations shall be to the depths indicated in the drawings where bearing value as indicated in the Soils Investigation Report provided as part of the Construction Documents shall be attained. Excavations for footings and foundations carried below required depths shall be filled with lean concrete and bottom of such shall be level. All structural excavations shall extend a sufficient distance from the walls and footings to allow for proper erection and dismantling of forms, for installation pf service and for inspection.

All excavations shall be inspected and approved before pouring any concrete laying underground utility and auxiliary lines for placing select fill materials. The Contractor shall control the grading in the vicinity of all excavated areas to prevent surface drainage running into excavations. Water that accumulates in excavated areas shall be removed by pumping before fill is placed herein.

2.3 SOIL TREATMENT

Treat soil with 2% Chlordane or Andrex solution in water to provide an unbroken horizontal and vertical chemical barrier between the proposed structure and the possible termite colonies in the soil after excavation is completed and prior to pouring of concrete foundation and ground floor slabs. At the time the soil treatment is to be applied, the soil shall be in a friable condition with a sufficient low moisture content to allow uniform distribution of the treatment solution throughout the soil.

Do not apply pesticide during or immediately after heavy rains, or whenever climatic conditions are such that runoff will occur to create an environmental hazard. Cover treated areas with polyethylene or waterproof sheeting if concrete is not poured on the same day as the soil treatment. Take adequate precautions to prevent disturbance of the pesticide

barrier. Re-treat the soil or fill is disturbed after the treatment and before the placement of structural components. Apply pesticide prior to placement of vapor barrier or waterproofing membrane.

2.4 SHORING

Excavation shall be shored and braced by members of suitable sizes where necessary to prevent danger to persons, injurious caving or erosions. Shoring bracing and sheathing shall be removed, as the excavations are backfilled, in a manner such as to prevent injurious caving. The contractor shall keep all excavations free from water while construction is in progress.

2.5 FILLING AND BACKFILLING

After forms have been removed and when concrete work is hard enough to resist pressure resulting from fill, backfilling may then be done. Materials excavated may be used for backfilling. All filling shall be placed in layers not exceeding six (6) inches in thickness, each layer being thoroughly compacted and rammed by wetting, tamping, rolling.

2.6 PLACING AND COMPACTING FILL

2.6.1 Common Fill: shall be approved imported/site-excavated material free from roots, stumps and other perishable or objectionable matter.

2.6.2 Select Fill: shall be placed where indicated and shall consist of crushed gravel, crushed rock or a combination thereof. The material shall be free from adobe, vegetable matters and shall be thoroughly tamped after lacing.

2.6.3 Before placing fill materials, the surface upon which it shall be placed shall be cleared of all brush roots, vegetable matter and debris, and thoroughly wetted to ensure good bonding between grounds.

2.6.4 Compaction: Fills shall be evenly spread in horizontal layers of not more that 200mm in thickness. Each layer shall be wetted and compacted by approved mechanical compaction machine, roller or portable to a density of at least 90% or its maximum density for non-cohesive soils as determined by ASTM Method D-1557 or AASHTO Method T-180.

2.7 FINISH GRADING

The contractor shall fill and grade the whole area to the indicated sub-grade elevations as directed by the Architect or Engineer. The contractor shall verify the finish grade elevations of the proposed pavements. Prior to grading operations, the areas shall be cleared of all heavy growth or vegetation stumps, roots, cables, wires, rocks and other debris. The finished sub-grade shall be reasonably smooth and compacted and ready to receive the base course for the proposed pavement.

2.8 DISPOSAL OF EXCESS MATERIALS

Any excess and demolished materials remaining after completion of the earthwork shall be disposed of by hauling and transported out of the premises at the contractor's own expense.

2.9 SUB-GRADE PREPARATION

2.9.1 SCOPES

The sub-grade preparation shall be that part of the work which is the preparation for the support of the bases for pavements and structures. It shall extend to the full width of pavements including shoulders and lay-bys as shown on the drawings or as specified herein. Unless otherwise agreed upon by the Engineer, sub-grade preparation or a section of the road shall not be commenced

unless the contractor is able, after the completion and acceptance of the work, to commence immediately pavement construction.

2.9.2 PRODUCTS

All materials and equipment necessary for proper completion of this work shall be subject to the approval of the Engineer.

2.9.3 EXECUTION

2.9.3.1 Prior Works: Prior to commencing the preparation of the sub-grade, all culverts, cross drains, and other similar structures (including the fully compacted backfill) shall be completed. No work shall be started on the preparation of the sub-grade before the prior works herein approved by the Engineer.

2.9.3.2 Sub-grade Level Tolerance: The finish compacted surface of the sub-grade shall conform to AASHTO M-145.

2.9.3.3 Sub-grade in Cutting Common Material

a. Unless otherwise specified, all materials below sub-grade level in earth cutting to a depth of 150mm of other depth shown on the drawings or directed by the Engineer shall be excavated. The material, if suitable, shall be placed to one side for re-use, or if unsuitable, shall be disposed of in accordance with the requirements of AASHTO M-145.

b. Where material has been removed from below sub-grade level, the base of the resulting cutting shall be compacted to a depth of 150mm to the requirements of AASHTO M-145 Table 1. If necessary, the moisture content of the material shall be adjusted.

2.10 GRADED AGGREGATES AND BASE COURSE

2.10.1 SUBMITTALS

2.10.1.1 Test Reports: Before delivery of materials, submit the following test reports:

a. Gradation
b. Bearing Ratio
c. Atterberg Limit

2.10.2 DELIVERY AND STORAGE

Do not construct base course when rainfall or other weather conditions will detrimentally affect the quality of the finished course.

2.11 PRODUCTS

2.11.1 MATERIALS

a. Aggregates: Consist of durable sound crushed gravel, crushed stone, free of lumps and balls of clay or other objectionable matter. Crushed stone shall be free from flat, soft or disintegrated pieces. Crushed gravel retained on a No. 4 sieve shall have at least ninety percent (90%) by weight with at least two fractured faces one hundred percent (100%) by weight with at least one fractured face.

b. Base course materials samples shall have a Bearing Ratio of at least 100 as determined by laboratory tests on a 4-day soaked specimen in accordance with ASTM D 1883; compact specimen in accordance with

ASTM D 1557, Method D. Determine grain size in accordance with ASTM C-117.

c. Soil binder material, the surface of the layer by a combination of rolling and blading. Final surface shall be smooth and free from waves, irregularities and from ruts of soft yielding spots.

III. CONCRETE

3.0 GENERAL

3.0.1 Unless otherwise specified herein, concrete work shall conform to the requirements of ACI Building Code. Full cooperation shall be given other trades to install embedded items. Provisions shall be made for setting items not placed in the forms. Before concrete is placed, embedded items shall have been inspected and tested for concrete aggregates and other materials shall have been done.

3.1 SUBMITTALS

3.1.1 Shop Drawings: Reproduction of contract drawings is unacceptable.

3.1.2 Shop Drawings for Reinforcing Steel: ACI 318. Indicate bending diagrams, assembly diagrams, splicing and lap of bars, shapes. Dimensions and details of bar reinforcing, accessories and concrete cover. Do not scale dimensions from structural drawings to determine lengths of reinforcing bars.

3.1.3 Contractor Mix Design: Thirty (30) days prior to concrete placement, submit a design for each strength and type of concrete. Furnish a complete list of materials including type, brand; source and amount of cement and admixtures; applicable reference specifications and copies of test reports showing that the mix has been successfully tested to produce concrete with the properties specified and will be suitable for the job conditions. Provide fly ash and pozzolan test results performed within six (6) months of submittal date. Obtain approval before concrete placement.

3.1.4 Certificates of Compliance

a. Aggregates
b. Admixtures
c. Reinforcement
d. Cement

3.1.5 Catalogue Data

a. Water stops
b. Materials for Curing Concrete
c. Joint Sealant
d. Joint Filter
e. Vapor Barrier
f. Epoxy Bonding Agents

3.2 MATERIALS

3.2.1 Cement for concrete shall conform to the requirements of specifications for Portland cement (ASTM C-150).

3.2.2 Water used in mixing concrete shall be clean and free from other injurious amounts of oil, acids, alkaline, organic materials or other substances that may be deleterious to concrete or steel.

shape of the particles shall be generally rounded or cubicle and reasonably free from flat or elongated particles. The stipulated percentages of fines in the sand shall be obtained either by processing sand or by the production of suitable graded manufactured sand.

3.2.4 Coarse Aggregates shall consist of gravel. Crushed gravel or rock. Or a combination of gravel and rock. Coarse aggregates shall consist of hard, tough, durable, clean and uncoated particles. The size of coarse aggregates to be used in the various parts of the Work shall be ¾".

3.2.5 Reinforcing bars shall conform to the requirements of ASTM Standard specifications for Billet Steel Bars for concrete reinforcement (A15-625) and to Specification for minimum requirements for the deformed steel bars for concrete reinforcement (A305-56). Tensile strength and grade for all reinforcing bars such as main horizontal (for beams), vertical (for columns), ties, stirrups and inserts shall be as follows:

Grade 40 - 12 mmØ and smaller – fy = 275 MPa

Grade 60 - 16 mmØ to 25mmØ – fy = 415 MPa

3.3 PROPOTIONING AND MIXING

3.3.1 Proportioning of all materials entering into the concrete mixture of 2,500 psi concrete shall be as follows:

Class	Cement	Sand	Gravel
A	1.0	3.0	6.0

3.3.2 Proportioning of all materials entering into the concrete mixture of 3,000 psi concrete shall be as follows:

Class	Cement	Sand	Gravel
A	1.0	2.0	4.0

3.3.3 Proportioning of all materials entering into the concrete mixture of 5,000 psi concrete shall be as follows:

Class	Cement	Sand	Gravel
A	1.0	1.0	2.0

3.3.4 Strength of Concrete: Concrete shall have 28-day cylinder strength of 2,500 psi shall be for Lean Concrete.

3.3.5 Strength of Concrete: Concrete shall have 28-day cylinder strength of 3000 psi shall be for Wall Footing, Slab-on-fill, Stairs 1 & 2, Canopy/Ledge, STP, Cistern and Fire Reserve Tank, Genset Pad, Site Pavements and Concrete encasement / Handle for Electrical.

3.3.6 Strength of Concrete: Concrete shall have 28-day cylinder strength of 5,000 psi shall be for Columns, Beams, Suspended-Slabs, Footings and Elevator Shear Wall.

3.3.7 Mixing: Concrete of 5,000 psi compressive strength shall be ready-mixed in transit from batching plant as scheduled order from qualified supplier. The 3,000 psi concrete can be machine mixed on-site or also ready mixed in transit from batching plant. On-site mixing shall be within 30 minutes after the cement has been added to the aggregates.

3.4 FORMS

3.4.1 General: Forms shall be used whenever necessary to continue the concrete and shape it to the required lines, or to ensure the concrete contamination with materials caving from adjacent excavated surfaces. Forms shall have sufficient strength to withstand the pressure resulting from placement and vibration of the concrete, and shall be maintained rigidly in correct position. Forms shall be sufficiently tight to prevent loss of mortar from the concrete. Forms for exposed surfaces against which backfill is not to be placed shall be lined with a form grade plywood or metal panels.

3.4.2 Cleaning and Use of Forms: Before placing the concrete, the contact surfaces of the form shall be cleansed of encrustation of mortar, the grout or other foreign material, and shall be coated with commercial form oil that will prevent sticking and will not stain the concrete surfaces.

3.4.3 Removal of Forms: Forms shall be removed in a manner that will prevent damage to the concrete. Forms shall not be removed without approval. Any repairs of surface imperfections shall be performed at once and airing shall be started as soon as the surface is sufficiently hard to permit it without further damage.

3.5 PLACING REINFORCEMENT

General: Steel reinforcement shall be provided as indicated, together with all necessary gauge 16 G.I. wire ties, chairs, spacers, supports and other devices necessary to install and secure the reinforcement properly. All reinforcement, when placed, shall be free from loose, flaky rust and scale, oil grease, clay and other coating and foreign substances that would reduce or destroy its bond with concrete. Reinforcement shall be placed accurately and secured in place by use of metal or concrete supports, spacers and ties. Such supports shall be of sufficient strength to maintain the operation. The supports shall be used in such manner that they will not be exposed or contribute in any way, to the discoloration or deterioration of the concrete.

3.6 CONVEYING AND PLACING CONCRETE

3.6.1 Conveying: Concrete shall be conveyed from mixer to forms as rapidly as practicable, by methods that will prevent segregation, or loss of ingredients. There will be no vertical drop greater than 1.5 meters except where suitable equipment is provided to prevent segregation and where specifically authorized.

3.6.2 Placing: Concrete shall be worked readily into the corners and angles of forms and around all reinforcement and embedded items without permitting the material to segregate. Concrete shall be deposited as close as possible to its final position in the forms so that flow within the mass does not exceed two (2) meters and consequent segregation is reduced to a minimum near forms or embedded items, or elsewhere as directed. The discharge shall be so controlled that the concrete may be effectively compacted into horizontal layers not exceeding 30 centimeters in depth within the maximum lateral movement specified.

3.6.3 Time interval between mixing and placing: Concrete shall be placed before initial set has occurred and before it has contained its water content for more than 45 minutes.

3.6.4 Consolidation of concrete: Concrete shall be consolidated with the aid of mechanical vibrating equipment and supplemented by hand spading and tamping. Vibrators shall not be inserted into lower coursed that have commenced initial set and reinforcement embedded in concrete beginning to set or already set shall not be disturbed by vibrators. Consolidation around major embedded parts shall be by hand spading and tamping and vibrators shall not be used.

3.6.5 Placing concrete through reinforcement: In placing concrete through reinforcement, care shall be taken that no segregation of the coarse aggregate occurs. On the bottom of beams and slabs, where the congestion of steel near

the forms makes placing difficult, a layer of mortar of the same cement-sand ratio as used in concrete shall be first deposited to cover the surface.

3.7 CURING

3.7.1 General: All concrete shall be moist-cured for a period not less than seven (7) consecutive days by an approved method or combination applicable to local conditions.

3.7.2 Moist curing: The surface of the concrete shall be kept continuously wet by covering with burlap, plastic or other approved materials thoroughly saturated with water and keeping the covering wet spraying or intermittent hosing.

3.8 FINISHING

3.8.1 Concrete surfaces shall not be plastered unless otherwise indicated. Exposed concrete surfaces shall be formed with smooth form material, and after removal of forms, the surfaces shall be smooth, true to line and shall present a finished appearance except for minor defects which can be easily repaired by patching with cement mortar, or can be grounded to a smooth surface to remove all joint marks of the form work.

3.8.2 Concrete slabs on fill: The concrete slabs on fill laid on a prepared foundation consisting of sub-grade and granular fill with thickness equal to the thickness of overlaying slab except as indicated otherwise.

3.9 SURFACE FINISHES

3.9.1 Defects: Repair formed surfaces by removing minor honeycombs, pits greater than one square inch surface area or 0.25-inch maximum depth, or otherwise defective areas. Provide edges perpendicular to the surface and patch with non-shrink f=grout. Patch the holes and defects when the forms are removed.

3.9.2 Floor slabs, Pavements and Miscellaneous Construction: Unless otherwise specified, slab at the fountain area are straight to finish with waterproofing. Slope floors uniformly to drains where drains are provided. Depress the concrete base slab where Granite or Ceramic tiles are indicated.

3.9.3 Finish: Place, consolidate and immediately strike-off concrete to obtain proper contour, grade and elevation. A set sufficient for floating and supporting the weight of the finisher and equipment.

3.10 MISCELLANEOUS

3.10.1 Construction Joints: Locate joints to least impair strength; continue reinforcement across joints unless otherwise indicated.

3.10.2 Expansion Joints and Contraction Joints: For slab on grade, provide at edges of interior floor slab, adjacent to walls as indicated. Completely fill joints exposed to weather with joint filler material and joint sealant. Do not extend reinforcement or other embedded metal items bonded to the concrete through any expansion joints unless an expansion sleeve is used. Provide contraction joints, either formed or saw cut or cut with a jointing tool, to the indicated depth after the surface has been finished. Sawed joints shall be completed within 4 to 12 hours after concrete placement. Protect joints from intrusion of foreign matter.

3.11 METAL WORKS

3.11.1 DESCRIPTION

3.11.1.1 Metal works shall conform to the approved plans and to the Standard Specifications.

3.11.2 REFERENCE STANDARDS

3.11.2.1 Comply with the latest edition of the following as applicable, unless otherwise specified or modified.

3.11.2.1.1 AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), 1978: Specification for the Design, Fabrication and Erection of Structural Steel for Buildings. Code of Standard Practice for Steel Buildings and Bridges; Specification for Architecturally Exposed Structural Steel.

3.11.2.1.2 AMERICAN WELDING SOCIETY (AWS): Standard Welding Symbols A2.0-68; Standard Welding Code D1.1-1973 (Rev 1-73 & 2-74) (To govern if in conflict with AISC).

3.11.2.1.3 RESEARCH COUNCIL ON RIVETED AND BOLTED JOINTS OF THE ENGINEERING FOUNDATION (RCRBJ): Specification for Structural Joists using ASTM A-325-76s Bolts.

3.11.2.1.4 STRUCTURAL STEEL PAINTING COUNCIL (SSPC): Painting Manual, Vol. 1; Good Painting Practice, Painting Manual, Vol. 2; Systems and Specifications.

3.11.3 SOURCE QUALITY CONTROL

Errors of Shop Drawings, fabrication, correct fitting and alignment of the various metal items or component members shall be the responsibility of the Contractor. However, the Contractor shall permit the Architect or an independent inspection agency, if engaged by the Owner, to inspect work in progress in his shop. Such inspections shall not relieve the Contractor of his responsibility to furnish materials and workmanship in accordance with the Contract Documents.

3.11.4 PRODUCT DELIVERY, HANDLING AND STORAGE

Handle and store in such manner as to prevent damage or disfigurement. Store finished items or components above ground on platforms, pallets or other supports and protect from harmful elements.

3.11.5 PROTECTION

The Contractor shall protect any existing work subject to damage during the installation of the specified work and shall adequately protect specified work during installation.

3.11.6 FIELD QUALITY CONTROL

Facilities shall be provided by the Contractor as needed for the proper inspection of the specified work, including temporary platforms, hoists, protective devices, electric current, etc. Improper workmanship, as determined by the Architect shall be corrected and replaced, at no additional cost to the Owner.

3.11.7 MATERIALS

Products shall conform to the respective reference specifications and standards and to the requirements specified herein:

3.11.7.1 STEEL AND IRON: If not specified otherwise, use standard mill-finished structural steel shapes or bar iron incompliance with AISC Specifications for Design, Fabrication and Erection of Structural Steel for Buildings.

3.11.7.2 BOLTS, NUTS, STUDS AND RIVETS: ASTM A 325

3.11.7.3 SCREWS: Fed. Spec FF-S-85, Fed. Spec. FF-S-92, and Fed. Spec. FF-S-111

3.11.8 FABRICATION

By mechanics skilled in the trade and in accordance with the manufacturer's directions, Metalwork shall be fabricated to allow for expansion and contraction of materials. Provide welding and bracing of adequate strength and durability, with tight, flush joints, dressed smooth and clean. Complete with bolts and nuts.

3.11.9 MEASUREMENTS

Before fabrication, provide necessary field measurements and verify all measurements.

3.11.10 METAL SURFACES

Shall be clean and free from all scale, flake, rust and rust pitting; well-formed and finished to shape and size, with sharp lines, angles and smooth surface. Shearing and punching shall leave clean true lines and surfaces. Weld or rivet permanent connections. Weld and flush rivets shall be used and finished flush smooth on surfaces that will be exposed after installation. Do not use screws or bolts where they can be avoided; when used, heads shall be countersunk, screwed up tight and threads nicked to prevent loosening.

3.11.11 CONSTRUCTION

Thickness of metals and details of assembly and supports shall give ample strength and stiffness for the minimum loads specified or indicated. Joints exposed to weather shall be formed to exclude water.

3.11.12 SHOP FABRICATION

Fabrication and assembly shall be done in the shop to the greatest extent possible.

3.11.13 SUBMITTALS

Shop Drawings: Submit along with catalogue, cuts, templates, and erection and installation details, indicating thickness, type, grade, class of metal and dimensions. Show construction details, reinforcement, anchorage, and installation with relation to the construction.

3.11.14 QUALIFICATION OF WELDERS

In accordance with AWS D1.1using procedures, materials and equipment of the type required for the work.

3.11.15 DELIVERY AND STORAGE

Protect from corrosion, deformation and other types of damage. Store items in an enclosed area free from contact with soil and weather. Contractor shall replace and remove damaged items with new items.

3.11.16 WELDING

Use welding electrode E70xx and perform welding, welding inspection and corrective welding in accordance with AWS D1.1. Weld in a manner to prevent permanent distortion of the connected parts. Weld continuously along the entire area of contact (except where tack welding is permitted. Do not tack weld exposed to connections.) Grind smooth visible weld in finished installation.

3.11.17 METAL PURLINS

Metal purlins shall be of high grade galvanized steel with minimum tensile strength of 275 MPa, 2mm in thickness.

IV. MASONRY

4.0 MATERIALS

4.0.1 All materials and workmanship shall be in accordance with the applicable standard and specifications of the Structural Code of the Philippines and uniform Building Code.

4.0.2 Concrete Hollow Blocks (CHB) shall have a minimum face thickness of 1" (25mm). Nominal size shall be 4" x 8" x 16", minimum compressive strength shall be 500 psi for non-load bearing and 700-1000 psi for load bearing. All units shall be stored for a period not less than 28 days (including curing period) and shall not be delivered to the job site prior to that time unless the structure is equal or more than the specified.

4.0.3 Prior to commencing the preparation of the sub-grade, all culverts, cross drains, and other similar structures (including the fully compacted backfill) shall be completed. No work shall be started on the preparation of the sub-grade before the prior works herein approved by the Engineer.

4.0.4 Cement shall be standard Portland cement ASTM 270 - Type N.

4.0.5 Mortar: Mix mortar from 3 to 5 minutes in such quantities as needed for immediate use. Re-tempering will not be permitted if mortar stiffens because of premature setting. Discard such materials as well as those that have not been used within one hour after mixing. Proportioning shall be one (1) part Portland cement and two (2) parts and by volume, but not more than one (1) Portland cement and three (3) parts and by volume.

4.1 SUBMITTALS

4.1.1 Submit samples for approval two (2) samples each of each type of wall reinforcement and wall ties.

4.1.2 Certificates of Conformance: Submit certificate attesting that masonry cement, masonry units, aggregates and accessories meet the requirements specified.

4.2 ERECTION

4.2.1 All masonry shall be laid plumb, true to line, with level and accurately spaced courses, and with each course breaking joint with the source below. Bond shall be kept throughout corners and reveals shall be plumb and true. Units with greater than 12% absorption shall be wet before laying. Work required to be built in masonry; including anchors, wall plugs and accessories shall be built-in as the erection progresses.

4.2.2 Masonry Units: Each course shall be solidly bedded in Portland cement mortar. All units shall be damp when laid units shall be showed into place not laid, in a full bed of un-furrowed mortar. All horizontal and vertical points shall be completely filled with mortar when and as laid. Each course shall be bonded at corners and intersections. No cells shall be left open in face surfaces. All cells shall be filled up with mortar for exterior walls. Units terminating against beam or slab soffits shall be wedged tight with mortar. Do not lay cracked, broken or defaced block.

4.2.3 Plastering: Clean and evenly wet surfaces. Apply scratch coat with sufficient force to form good keys. Cross scratch coat upon its initial set; keep damp. Apply

coat after each scratch coat has set at least 24 hours after scratch coat application. Lightly scratch brown coat; keep moist for two (2) days; allow drying out. Do not apply finish until brown coat has seasoned for seven (7) says. Just before applying coat, wet brown coat again. Float finish coat to true even surface; trowel in manner that will force sand particles down into plaster, with final trawling, leave surfaces banished smooth free from rough areas, trowel marks, checks, other blemishes. Keep finish coat moist for at least two (2) days; thereafter protect against rapid drying until properly, thoroughly cured.

4.3 SCAFFOLDING

4.3.1 Provide safe wood or metal scaffolding required for masonry and other related work, including cleaning down on completion. Remove upon demobilization.

4.4 SURFACE PREPARATION

4.4.1 Lay floors without borders from centerline outward. Make adjustments at walls. Clean concrete sub-floor and moisten it without soaking. Sprinkle dry cement over surface. Spread setting bed mortar on concrete and tamp to assure good bond over the entire area then screed to smooth, level bed. Set average setting bed thickness at ¾" but not less than ½".

4.4.2 Wall: Scratch coat application as foundation coat shall be at most ½". While still plastic, deeply score scratch coat or scratch and cross-scratch. Protect scratch coat and keep reasonably moist within seasoning period. Use mortar for scratch floor coats, within one hour after mixing. Re-tempering of partially hardened mortar is not permitted. Set scratch coat be cured for at least two (2) days before starting the setting.

4.5 CLEANING

4.5.1 Protection: Protect work which may be damaged, stained or discolored during cleaning operations.

4.5.2 Pointing: Upon completion of masonry work, cut out defective mortar joints and tuck joints and all holes solidly with mortar.

4.5.3 Cleaning: Clean exposed masonry surface with clear water and stiff fiber brushes and rinse with clean water. Where stains, mortar or other soil remain, continue cleaning as follows: Clean masonry surfaces by scrubbing with warm water and soap and rinsing thoroughly with clean water. Restore damaged, stained and discolored work to its original conditions or replace with new work.

V. THERMAL CONTROL AND MOISTURE PROTECTION

5.0 WATERPROOFING

a.	Capillary Type	:	Toilets and Canopy
b.	Flexible Type	:	Decks, Balcony and Open Area
c.	Epoxy Food Grade	:	STP and Cistern & Fire Reserve Tank

5.1 VAPOR BARRIER

Use 8 mils thick, 6 feet wide roll plastic vapor barrier laid over compacted base course at ground floor slab with 300mm minimum overlap prior to setting up of steel reinforcing bars. Submit samples for approval.

VI. ARCHITECTURAL

6.0 FLOOR AND WALL FINISHES

6.0.1 Floor Finishes

a. 600mm x 600mm Non-Skid Ceramic Floor Tiles

b. 300mm x 300mm Non-Skid Ceramic Floor Tiles

c. Rubberized Paint Finish

d. Plain Cement Floor Finish

6.0.2 Exterior/Interior Walls

a. 300mm x 600mm Ceramic Wall Tiles

b. 25mm Ø Steel Ladder Rung, Painted Finish

c. Brick Wall

d. Glass Blocks

6.1 CEILING FINISHES

a. 12mm Thk. Gypsum Board including framing and accessories (Common Area)

b. 12mm thk. Moisture Resistant Gypsum Board including framing and accessories.

c. 6" Pre-Painted Metal Spandrel 0.40mm thk. on light metal frame (Roof Eaves)

6.2 ROOFING WORKS

a. Rib Type Roofing Ga. 24, Pre-painted, Long Span with Insulation and Complete Accessories with Flashing

b. Stainless Roof Gutter (G.a. 24) including framing and accessories

c. 12mm thk. Fascia Board including Accessories, Painted Finish

6.3 WINDOWS

Follow as per approved plan and specifications.

6.4 DOORS

Follow as per approved plan and specifications.

6.5 PAINTING

All paints shall meet the required specifications and shall be delivered at the site in the original container. Use non Volatile Organic Compound (V.O.C.) paint or approved by the implementing agency and only accredited painters of the manufacturer shall execute the work to ensure the true origin and quality of paint and warranty of work.

Concrete walls shall be treated with neutralizers. Exterior walls without wall veneer shall be applied with a primer before final coat. In general, rough surfaces of concrete, cabinets and woodworks surfaces shall be properly sandpapered and puffied before any application of paint.

a. Quick Dry Enamel, Paint Finish (Metal)

b. Elastomeric, Plain Paint Finish (Exterior Concrete Wall)

c. Semi-Gloss Latex Paint Finish (Interior Masonry walls, Stairs – 3 coats)

d. Flat Latex Paint Finish (Concrete Soffit – 3 coats)

e. Flat Latex Paint Finish (Ceiling Boards – 3 coats)

f. Quick Dry Enamel Paint Finish (Wood – 3 coats)

6.6 PAINTING

a. Provide all rough hardware required for the construction of works: nails, straps, lag screws, etc.

b. Butt Hinges : Use Butt Hinges, 3.5" x 3.5" with bearings for panel door.

c. Locksets : For PVC plastic, wood and metal swing doors use stainless mortise locksets with striker plate.

d. Door Stop : Locate position where no traffic could be obstructed. For restroom doors where tile finish abuts the door swing side, 6" above inside floor finish on door panel.

e. Door Closers : Provide Heavy Duty Door closer for metal doors.

6.7 OTHER FINISHES

a. QC Logo

b. Stainless Steel Signage with neon backlights

"QCITIZEN HOMES SITIO KAWAYAN" (ht = 200 mm)

c. Guard Railings at Hallway, Painted Finish (ht = 1.10 m)

d. Guard Railings at Balcony, Painted Finish

e. Guard Railings at Stairs, Painted Finish

f. Hand Railings at Stairs, Painted Finish

g. 10cm thk. Concrete Kitchen Countertop, Plastered Finish

6.8 CLEAN-UP

When the work is completed, the Contractor shall remove all temporary structures and surplus materials of every sort, restore what has been removed before, and leave the premises or site in as good condition as he had originally found them.

VII. ELECTRICAL WORKS

7.0 WORK INCLUDED

7.0.1 The work to be done under this Division comprises the furnishing of all tools, labor, equipment, fixtures and materials, unless otherwise herein specified, required to complete and leave ready for use the electrical system in accordance with this specification and accompanying drawings of materials and finishes.

7.0.2 The electrical contractor shall coordinate his work so that the general contractor and all other subcontractors will understand clearly the work to be done. The electrical contractor shall finish all electrical facilities and provision necessary for the installations and operations of other trades such as mechanical, air-conditioning, plumbing, sanitary and others.

7.0.3 All contractors and all companies or persons providing labor, materials or both for this project, are specifically referred to the General Conditions of the specifications, to the general contract plans, to all Divisions of specifications and to the various other contract documents, which may affect the completion of the contract work.

7.1 CODES, INSPECTIONS, PERMITS AND FEES

7.1.1 The work under this contract shall be done according to the requirements of the latest edition of the Philippine Electrical Code, the rules and regulations of the Local Government Authorities of Quezon City and the requirements of Manila Electric Company. Nothing contained in this specification or shown on the drawings shall be construed as conflict with national and local ordinances or laws governing the installation of Electrical Works, and all such laws and ordinances are hereby made part of these specifications. The contractor is required to meet the requirements hereof.

7.1.2 All permits and electrical fees required for this work shall be obtained at the expense of the Contractor. The Contractor shall furnish the Architect or the Owner or the same maybe, a final certificate of electrical inspection and approval from the proper government authorities after completion of the work.

7.2 TEST

7.2.1 The electrical contractor shall apply such test, replace or remedy all defective work and adjust such system as needed or as the Architect or the owner shall direct. He shall also instruct the proper use of the system and equipment to persons designated by the owner

7.3 MEASUREMENTS

7.3.1 The Electrical Contractor shall procure from the Architect detailed drawings of those parts of the work not fully shown on the plans and he shall compare and verify with the Owner. Any lack of agreement shall be submitted at once to the Architect for adjustments.

7.4 SLEEVES AND FORMS FOR OPENING

7.4.1 The Electrical Contractor shall provide and places all sleeves, for piping penetrating floors, walls, partitions, etc. He shall locate all necessary slots and openings for his work and it shall be done at such time as not to delay the general contractor of the project.

7.5 LOCATION OF OUTLETS

7.5.1 All Outlets shall be truly centered in panels and spaces provided thereof. Any discrepancy in the outlet location between the electrical plan and architectural plans shall be submitted to the Architect at once, to be verified before outlets are installed.

7.6 GROUNDINGS

7.6.1 All metallic conduits, supports, cabinets and equipment shall be properly grounded and bonded by means of copper straps. The conduits of such system shall be grounded by connecting to the grounding rod.

7.6.2 All ground connections shall have clean outlet surfaces and shall be tinned and sealed while bolting. Unless otherwise specified, ground wire shall be installed in exposed conduits and connections made readily accessible for inspection. Connection shall not be made underground or concealed in floors or walls.

7.7 WIRING METHODS

All wiring shall in general be installed inside standard conduits. All conduits shall run embedded in concrete, underground but in concrete envelope, embedded in hollow blocks partition, concrete slab, walls and roof above, between double wall wooden partitions if any, where the installation of concealed and/or embedded conduit wiring may be used, but only upon approval of the Owner's authorities concerned. Exposed conduits shall be Intermediate Metal Conduits unless otherwise specified.

7.8 GUARANTEE

7.8.1 The Electrical Contractor shall guarantee his work for a period of one (1) year from the date of final acceptance by the owner except for particulars items specifically mentioned in these specifications.

7.8.2 The Electrical Contractor shall, without additional compensation for the period specified, replace any work materials or equipment furnished and installed by him under this contract, which develop defects except from ordinary wear and tear.

7.9 MATERIALS

7.9.1 All materials shall be new and shall conform to the standards of *Underwriter's Laboratories, Inc.*

7.9.2 All materials on all systems shall comply with the following specifications unless specified and all materials not specified shall be of the best of their respective kind.

7.9.3 Materials sample shall be submitted for approval as required by the Architect and Electrical Engineer.

7.10 WIRES

7.10.1 All wires shall be copper, soft drawn and annealed, shall be 98% conductivity or better, shall be smooth and true of a cylindrical form and shall be within the actual size called for.

7.10.2 All wires and cables shall comply with the requirements of the *Underwriter's Laboratories Inc.*, the ASTM and the IPCEA as to their particular usage.

7.10.3 Wires and cables for outdoor and indoor lighting and power system shall be moisture and Heat Resistant Thermoplastic insulated for 600volts working pressure type THHN unless otherwise noted on the plans or specified.

7.10.4 For lighting and power system, no wire smaller than 3.5mm² shall be used except for control leads/ grounding wire.

All wires and cables shall be manufactured by a reliable manufacturing company acceptable to the Electrical Engineer of the owner

7.11 CONDUITS

7.11.1 The conduit system shall consist of the following

Intermediate Metal Conduit (IMC) & Electrical Metallic Tubing (EMT)

They shall be of standard sizes and weight, mild steel hot dipped galvanized with inside enamel or epoxy coating, and acceptable to the Electrical Engineer of the Owner.

Polyvinyl Chloride Conduit (PVC)

They shall be of standard size and weight, made of polyvinyl chloride, extruded, heavy wall, rated for 90-degree centigrade cable, schedule 40, pipes or approved equal pipes.

Limitations of use shall be as follows:

a. As per requirement of the latest edition of PEC and/or NEC.

b. Not permitted where subject to mechanical damage.

7.11.2 All conduits shall be true cylindrical form and shall be within the actual size called for.

7.11.3 All conduits shall be of true cylindrical form and shall be within the actual size called for.

7.11.4 No conduits shall be used in any system smaller than 15-mm electrical trade size, not shall have more than four 90 degrees' bend in any one run, and where necessary, hand hole and pull boxes shall be provided.

7.11.5 No wires shall be pulled in any conduit until the conduit system is complete in all details, in case of underground work, until concrete envelope or masonry has been completed in every detail. In case of concealed work, until rough plastering has been completed.

7.11.6 The ends of all conduits shall be tightly plugged to exclude plaster dust sand and soil including moisture while the renovation of the perimeter is in the process.

7.12 OUTLET BOXES AND FITTINGS

7.12.1 At all outlets of every kind, for all systems, there shall be provided a suitable fitting which shall be either a box or other device especially designed to receive the type of fitting to be mounted thereon.

7.12.2 The Contractor shall consult with the Electrical Engineer as to the nature of various fittings to be used before installing his outlet fittings and shall conform strictly in the use of fittings so that the work when completed will be finished design.

7.12.3 In case of lamp post, the outlet of fittings shall be provided with suitable fixtures supports or a support of a size and a kind required by the fixture to be erected.

7.13 SWITCHES

7.13.1 Local lighting switches shall be flush type, heavy duty, 15- ampere size 250 volts, bakelite case, quick connect terminal Outdoor lights shall be automatically operated by means of photo switch and manual selection. Or it might be a manual switch by means of breaker switch inside the lighting panel.

7.14 RECEPTACLES

7.14.1 Standard receptacles shall be 15- ampere size 250volts, parallel slots, duplex, flush mounted composition case, side wired with the insulated mounting yoke. If weatherproof wall plate is required, standard factory made metal waterproof plate.

7.15 PLATES

7.15.1 All switches and receptacles plates shall be bakelite plastic, ivory-colored or as directed by the Architect.

7.16 SWITCH GEAR, PANEL BOARDS AND CABINETS

7.16.1 Panel boards for outdoor lightings shall conform as indicated in the drawings with respect to supply characteristics, rating of main lug or main circuit breaker, main magnetic contactor, number and sizes of branch circuit breakers. All should have factory-wired control wirings with terminal block connection for external leads.

7.16.2 Lighting and power panel board either wall mounted or free standing shall consist of a factory complete dead front assembly of back plan, main busses, overcurrent and switching units, sheet metal cabinet and trim. Cabinet shall be fabricated from code gauge galvanized sheet metal with cover capped and fastened.

7.16.3 Panel boards and trim shall be suitable for the type of mounting shown on the drawings. The inside and outside of the panel boards cabinet and trim shall be factory painted and having two (2) coats of rust proof prime coat and one finish shop of gray enamel paint.

7.16.4 All cabinets and enclosure shall be general purpose, NEMA type 1 for indoor installation. Except where specifically noted on plans for outdoor use shall be rain tight and dust type NEMA 4X type enclosure.

7.16.5 All circuit breakers with frame size above 100AT shall have minimum interrupting capacity of 22 KAIC at 240 volts and frame size 70AT and below shall have minimum interrupting capacity of 18 KAIC at 240 volts. All circuit breakers shall be molded case, bolt on type with thermal magnetic trip elements. Number of poles, trip coil rating and frame size shall be as indicated on plans.

7.16.6 Switchgear main circuit breaker shall be stationary type, programmable trip device, an electronic relay that employs microprocessors-based technology. Functions to overload protection, short circuit protection, with selectivity, instantaneous short circuit protection with adjustment and ground fault protection.

7.16.7 Cardholder on inside of door with clear plastic cover and complete typewritten schedule of panel branch circuit shall be provided. Leave spare circuit blank.

7.16.8 Local panel boards and switchgear manufacture shall include among others,

7.16.9 Submit samples and or product description of panel board to be used for approval prior to ordering and installation.

7.17 ELECTRIC SERVICE

7.17.1 The electric service shall be three (3)-phase, 3-wires+ 1-ground wire, 220volts, 60 hertz. The sizes of service entrance conductor and conduit are shown in the plans.

7.17.2 The electrical contractor shall inspect the site, consult with *MERALCO* and check the orientation of the proposed service entrance before commencing work to avoid field problems.

7.18 LIGHTING SYSTEM

7.18.1 The lighting system shall be complete in every respect as indicated on the electrical plans or as specified in the Architectural plans. Exact fixture location shall be determined.

7.18.2 All wiring shall be installed in conduits, and in general shall be concealed. Buried underground in concrete encasement and/or embedded in concrete.

7.18.3 Mounting height of devices shall be as indicated in the plans and/or subject to Architect's approval prior to installations as follows

Local switches	-	1.2 above finish floor line
Receptacles	-	0.3 above finish floor line

7.19 DISTRIBUTION FEEDERS

7.19.1 Distribution voltage shall be 220volts, three (3)-phase, 3 wire + 1 - ground. Feeder conductors and raceway shall be installed as shown on drawings and no change in size shall be made without the written consent of the Architect. Feeder conductors shall be continuous, and without splices between terminals. When feeders are run in multiple, they shall be exactly of the same length to avoid unbalanced division of the current.

7.20 CONNECTORS AND INSULATION

7.20.1 Use solderless mechanical pressure type lugs, copper connectors for splicing wires greater than no 8mm.sq. All splices shall be properly insulated using rubber tape and plastic electrical tape. Application of tapes shall be equivalent to the insulation of wire concerned, edges to provide smooth surfaces before taping.

7.21 BRANCH CIRCUITS

7.21.1 The drawings indicate the general methods of installation of all circuit wirings and the power lighting outlets which are to be supplied from this circuit. Branch circuit raceways shall be run from outlets to panel boards as direct as the ground and level condition will allow. Circuit allocations shall be as indicated on the drawings. Where it becomes necessary to connect any outlet to the circuit other than the one shown on the drawings, this shall be done without extra charge and only upon written consent of the Architect. No wire smaller than 3.5mm sq. shall be used for any lighting or power branch circuit. All lighting outlet shall be supplied from 2-wire single phase circuits. Number of wires for other outlets shall be as indicated on the drawings.

7.22 MOTOR CONNECTIONS

7.22.1 Connect the motor starting devices for all motors, except where otherwise specifically provided for under other contracts. Furnish all necessary connections between controllers and motors in conduit, and leave motor ready to start. The power supply leads to the motor from the controller shall be the same as the feeder indicated on the drawings, except for six terminal lead motor where wye-delta starting method is being applied.

7.22.2 Other trades, i.e. mechanical contractor, except as otherwise noted or specified will supply and deliver all controllers and shall erect and connect up safe complete.

7.22.3 The Electrical Contractor or trade people shall be held responsible as far as power supply to the controller is concerned. He shall ascertain the exact location of the motor controller and motors from other trades before installing the circuit work.

7.23 RECORD DRAWINGS AND AS BUILT PLANS

7.23.1 The Electrical Contractor shall keep an active record of the actual installation works during the progress job. These shall become the reference for the preparation of the As-Built Plans which shall include all pertinent information, complete in all aspects of the actual installations, all new information not originally shown in the contract drawings. The As-Built Plans shall be prepared

by the Electrical Contractor at his expense and shall be submitted to the Architect and the Engineer for approval upon the completion of the work. The approval of the As-Built drawings shall be a pre-requisite for the final acceptance of the electrical works.

7.23.2 Two (2) copies of the As-Built drawings, signed and sealed by the Electrical Contractor's Professional Electrical Engineer, shall be submitted to the Architect and Engineer consultants. Original tracing/ reproducible copy shall also be submitted.

VIII. AUXILIARY WORKS

8.0 WORK INCLUDED

8.0.1 The work to be done under this Auxiliary System comprises the furnishing of all tools, materials, labor & installation of equipment, unless otherwise herein specified, required to complete and leave ready for use the Fire Detection and Alarm System, Closed Circuit Television (CCTV) and Security System, and Voice and Data System in accordance with this specification and accompanying drawings.

8.0.2 The contractor for the electronic works (auxiliary systems Contractor) shall coordinate his work so that the general contractor and all other subcontractors will understand clearly the work to be done.

8.0.3 All contractors and all companies or persons providing labor, materials or both for this project, are specifically referred to the General Conditions of the specifications, to the general contract plans, to all Divisions of specifications and to the various other contract documents, which may affect the completion of the contract work.

8.1 CODES, INSPECTIONS, PERMITS AND FEES

8.1.1 The work under this contract shall be done according to the requirements of the latest edition of the Philippine Electronics Code, the rules and regulations of the Local Government Authorities of Quezon City and the requirements of the telecommunications service provider. Nothing contained in this specification or shown on the drawings shall be construed as conflict with national and local ordinances or laws governing the installation of Electronic Works, and all such laws and ordinances are hereby made part of these specifications. The contractor is required to meet the requirements hereof.

8.1.2 All permits and fees required for this work shall be obtained at the expense of the auxiliary system Contractor. The auxiliary system Contractor shall furnish to the Architect/Engineer or the Owner or the same maybe, a final certificate of electronic inspection and approval from the proper government authorities after completion of the work.

8.2 TEST

8.2.1 The auxiliary system Contractor shall test all installed systems, replace or remedy all defective works and adjust such system as needed or as the Architect or the Owner shall direct. He shall also conduct meetings with the technical people selected by the Owner, and properly discuss the proper operation and maintenance of all auxiliary system installed.

8.3 MEASUREMENTS

8.3.1 The auxiliary systems Contractor shall procure from the Architect/Engineer detailed drawings of those parts of the work not fully shown on the plans and he

shall compare and verify with the Owner. Any lack of agreement shall be submitted at once to the Architect/Engineer for adjustments.

8.4 SLEEVES AND FORMS FOR OPENINGS

8.4.1 The auxiliary systems Contractor shall provide and places all sleeves, for piping penetrating floors, walls, partitions, etc. He shall locate all necessary slots and openings for his work and it shall be done at such time as not to delay the general contractor of the project.

8.5 LOCATION OF DATA OUTLETS, CAMERAS AND ALARM BELLS

8.5.1 All data outlets shall be truly centered in panels and spaces provided thereof. Any discrepancy in the location of an outlet and security camera between the electronics plans and architectural plans shall be submitted to the Architect/Engineer at once and verify before such are installed.

8.6 GROUNDINGS

8.6.1 All metallic conduits, cable trays, supports, cable ladder, metallic cabinets, metallic enclosures/racks and all electronic equipment shall be properly grounded by means of AWG #6 copper wire that is bonded to the building's Electrical grounding system or other means prescribed by EIA- 607. Special attention should be given to independent grounding of each auxiliary system to eliminate EMC and EMI problems.

8.7 WIRING METHOD

8.7.1 All wiring shall in general be installed inside standard conduits. All conduits that runs thru or embedded in concrete, underground but in concrete envelope, embedded in hollow blocks partition, concrete slab, walls and roof above, between double wall wooden partitions if any, PVC conduit can be used. Where the installation of concealed and/or embedded conduit wiring may be used, but only upon approval of the Owner's authorities concerned. Exposed conduits shall be Intermediate Metal Conduit (IMC) unless otherwise specified.

8.7.2 In Voice and Data System, cable trays and ladders may be used as a requirement for structured cabling system as prescribed by EIA- 569. Patch guide is also used for orderly cord storage inserted just above and beneath on modular patch panel (MPP) frame, at the front side. Patch guides allow an orderly arrangement of patch cords. Marking/ labeling all the different component for easy identification and maintenance is a must.

8.7.3 Proper guidelines for cabling administration shall be strictly provided: cabling plan, numbering & labeling scheme, location of cabinets and distribution boxes. Respect the maximum drive distances between the equipment racks and telecom outlet: for UTP Cat6 is 120 meters, while 3,000 meters for fiber- optic cables.

8.7.4 As per requirement set by the Bureau of Fire Protection (BFP) and also per recommendation of the Fire Code of the Philippines, Intermediate Metal Conduit (IMC) conduit shall be used for the entire installation of Fire Alarm System in buildings, except Electrical Metallic Tubing (EMT) conduit may be provided in dry locations not enclosed in concrete or where not subject to mechanical damage.

8.7.5 Strictly maintain uniform cable geometry all through wiring schemes.

8.8 GUARANTEE

8.8.1 The auxiliary system Contractor shall guarantee his work for a period of one (1) year from the date of final acceptance by the owner except for particular items specifically mentioned in these specifications.

8.8.2 The auxiliary system Contractor shall, without additional compensation for the period specified, replace any work materials or equipment furnished and installed by him under this contract, which develop defects except from ordinary wear and tear.

8.9 MATERIALS

8.9.1 All materials to be installed shall be brand new. All the materials shall conform to the standards set by *Underwriter's Laboratories, Inc. (UL).*

8.9.2 All materials to be installed for the auxiliary system shall comply with the following specifications, and for those materials which are not directly specified shall be of the best of their respective kind.

8.9.3 Samples on all materials to be installed shall be submitted to the Architect/Engineer for approval.

8.10 WIRES/CABLES

8.10.1 All wires and cables shall comply with the requirements of the *Underwriter's Laboratories, Inc. (UL)*, the ASTM, the IPCEA as to their particular usage, and the cabling/ wiring requirement set by *EIA- 568A.*

8.10.2 All thermoplastic fixture (TF) to be used shall be copper, soft- drawn and annealed, shall be 98% conductivity or better, shall be smooth and true of a cylindrical form and shall be within the actual size called for.

8.10.3 For the CCTV and Security System, to power- up all the security cameras, captured video shall be transmitted and recorded to the network video recorder (NVR) using CAT6 UTP cable.

8.10.4 Category 6 (CAT6) UTP cable for horizontal cabling shall be used for the entire Data System. For safety reasons, the fiber- optic cable should be low smoke halogen free and flame retardant. The UTP cable shall be UL approved and should be able to run applications up to 1000 MHz. UTP cables and fiber- optic cables manufactured by a reliable manufacturing company acceptable to the Engineer or the Owner.

8.10.5 Fire Alarm System Thermoplastic fixture (TF) copper wire shall be used for the wiring connections of Class A wiring communication shall be provided.

8.10.6 All copper wires (TF wire) shall be manufactured or any approved equal brand manufactured by a reliable manufacturing company acceptable to the Engineer or the Owner.

8.11 CONDUITS

8.11.1 The conduit system shall consist of the following:

Electrical Metallic Tubing (EMT)

Conduit shall be of standard size and weight, mild steel hot dipped galvanized with inside enamel or epoxy coating, approved brand equal and acceptable to the Engineer or the Owner.

Polyvinyl Chloride Conduit (PVC)

Conduit shall be of standard size and weight, made of polyvinyl chloride, extruded, heavy wall, rated for 90-degree centigrade cable, schedule 40 and acceptable to the Engineer or the Owner.

8.11.2 All conduits shall be of true cylindrical form and shall be within the actual size called for.

8.11.3 No conduits shall be used in any system smaller than 15-mm electrical trade size, shall not have more than four 90 degrees' bend in any one run, and where necessary, hand hole and pull boxes shall be provided.

8.11.4 No wires shall be pulled in any conduit until the conduit system is complete in all details, in case of underground work, until concrete envelope or masonry has been completed in every detail. In case of concealed work, until rough plastering has been completed.

8.11.5 The ends of all conduits shall be tightly plugged to exclude plaster dust sand and soil including moisture while other works in the perimeter is in process.

8.12 TELECOM OUTLET BOXES AND FITTINGS

8.12.1 LAN outlet is the interface between horizontal cabling and the modular line cord connecting to the computer/ telephone terminal. The eight (8)- position modular UTP telecom outlet and its pin assignments shall meet *EIA- 568* standards. All voice/ data outlets should be RJ45 type, ISO compliant, Insulation Displacement Contact, modular for RJ45 connector universal application and multi- vendor supportive.

8.12.2 Use a modular line cord (patch cord) with L ≤ 3m to connect the telecom outlet to a workstation. Patch cord is a flexible piece of cable terminated at both ends with plugs. Patch cords shall connect either the ports of active equipment on patch panel or the workstations to the wall outlet at the workplace. Twisted pair patch cord RJ45/ RJ45 shall be very high speed multimedia patch cords. Patch cord gray (G) will be installed from telecom outlet to workstation, while patch cord blue (B) will be installed from modular patch panel (MPP) to hub.

8.12.3 At all data outlets of every kind, for all auxiliary systems, there shall be provided suitable fittings which shall be either a box or other device especially designed to receive the type of fitting to be mounted thereon.

8.12.4 The auxiliary systems Contractor shall consult with the Engineer as to the nature of various fittings to be used before installing the outlet fittings and shall conform strictly in the use of fittings so that the wire when completed will be finished design.

8.13 ELECTRONIC COMPONENTS & EQUIPMENT

8.13.1 All CCTV electronic devices/components and equipment shall be listed by *Underwriter's Laboratories Inc. (UL)* approved by the *Factory Mutual System.* It should be furnished by a single supplier/ manufacturer (one brand) only who are regularly engaged in the production/supply of such component/equipment, to achieve devices compatibility and for a reliable CCTV and Security system. All electronics equipment shall be state of the art and shall be only solid state component, and must be suitable for the purpose intended.

8.13.2 PoE Switch

All security cameras should be Power over Ethernet (PoE) supplied using a 48-port UTP 10/100/1000 Managed Ethernet injector.

8.13.3 CCTV Camera

All security cameras installed outdoors shall be Compact Bullet Smart IP Camera with water-tight housing (IP 66), while those installed indoors shall be 2MP Smart IP Indoor- Dome Camera. Both cameras shall use 1/2.8" progressive scan CMOS as image sensor, with a minimum effective pixel of 2.0 MP, maximum IR range of 30m and at least 120 dB WDR.

8.13.4 Network Video Recorder (NVR)

NVR supports H.264/H.264+/MPEG4 video formats, can handle up to 60 IP cameras, recording at up to 12MP resolution and has up to 8 SATA interfaces and 1 eSATA interface connectable for recording and backup.

8.13.5 LED Monitor/Display

The monitor should be CCTV- graded, with LED BL panel better than 32", supports NTSC/ PAL signal system, with a minimum resolution of 1920 x 1080 Full HD, and supports 2 x BNC, VGA, DVI & HDMI at input/ output. It shall require an AC input of 100 – 240Vac and consumes a power of at least 24W. It shall have a high- end video processor, PIP control function and automatic color control and color adjustment.

8.13.6 All Telephone (Voice) and Data System electronic devices/components and equipment shall be listed by *Underwriter's Laboratories Inc. (UL),* or approved by the *Factory Mutual System.* It should be furnished by a single supplier/ manufacturer (one- brand) only who are regularly engaged in the production/supply of such component/equipment, to achieve devices compatibility and for a reliable voice and data system. The specifications are intended to provide a broad outline of the required voice and data system, but are not intended to include all details of design and construction.

8.13.7 Cabinets/ Rack Enclosures

Cabinets are the basis for housing all cabling system components. The cabinets shall be fully equipped with internal frames for patch panel, active equipment (cross- connect hardware), connection modules, and to organize the cable and patch cord lay out. Typically, a standard 19" framing and paneling shall be used provided by proper climate control or ventilation. Cabinets should be in a room that is environmentally suitable, climate controlled and that can be secured. All cabinets should have locks or intrusion detection to safeguard the network infrastructure.

8.13.8 IDC Frame

Insulation displacement contact (IDC) frame shall have sufficient space for overvoltage protection, front side connections for easy installation, one single insertion tool for all connections. The front panel covers all underlying modules and cabling for a homogenous appearance and orderly installation.

8.13.9 All Fire Alarm electronic devices/components and shall be listed by *Underwriter's Laboratories Inc. (UL)*, or approved by the *Factory Mutual System.* It should be furnished by a single supplier/ manufacturer (one- brand) only who are regularly engaged in the production/supply of such component/equipment, to achieve devices compatibility and for a reliable fire detection and alarm system. Provide a complete, manual fire alarm system. The actuation of any manual station or shall cause: building alarm devices to sound.

8.13.10 DC Power Supply

Obtain a power input of 240Vac from emergency support panel, transformed and rectified to 24V DC output. This DC supply is enough for operation of initiating, alarm signal, trouble signal, and tripping circuits.

8.13.11 Battery Back- up

This is provided for FDAS operation in the event of primary power source failure. Transfer from normal to auxiliary power shall be done automatically. The rechargeable batteries shall have a sufficient ampere- hour rating to operate the system under supervisory and troubled conditions, including audible trouble signal devices for 60 hours and audio visual signal devices under alarm

conditions for an additional 5 minutes. Provide a solid- state automatic battery charger capable of recharging a completely discharged batteries to fully charged condition in 48- hours or less.

8.13.12 Manual Pull Station

It contains electronics that communicate the station's status (alarm, normal) to the transponder over two wires which also provide power to the pull station. Stations shall be flush mounted.

8.13.13 Audiovisual Alarms

Provide surface mounted approved audiovisual alarm devices consisting of a single vibrating type alarm horn/bell suitable for use in an electronically-supervised circuit and top- mounted integral flashing strobe light. Horn/bell shall have a sound rating of at least 90 dB at 3m. Strobe light shall have a ruby colored lens and shall pulse in march- time sequence.

8.14 AUXILIARY SERVICE ENTRANCE REQUIREMENTS

8.14.1 Use two (4) sets of 63mmØ PVC empty conduit for each incoming telecommunication service. A tapered entrance column is required. It is also possible to utilize the electrical system service entrance column (co- shared).

8.14.2 Provide a telecom and CCTV room with a minimum floor area of 7.5 m^2 (3.0m x 2.5m typical), enough to house the main distribution frame IP PBX equipment, control PCs, the NVR, power supply, control PCs, LED displays/monitors and other CCTV equipment. This telecom room should be climate- controlled and shall be manned by network administrator(s) and security personnel.

8.15 RECORD DRAWINGS AND AS BUILT PLANS

8.15.1 The auxiliary system Contractor shall keep an active record of the actual installation works during the progress job. The said records shall become the reference for the preparation of the As-Built Plans which shall include all pertinent information, complete in all aspects of the actual installations, all new information not originally shown in the contract drawings. The As-Built Plans shall be prepared by the auxiliary system Contractor at his expense and shall be submitted to the Architect and the Engineer for approval upon the completion of the work. The approval of the As-Built drawings shall be a pre-requisite for the final acceptance of the electronic works.

Two (2) copies of the As-Built drawings, signed and sealed by the auxiliary system Contractor's Professional Electronics Engineer, shall be submitted to the Architect and Engineer consultants. Original tracing/ reproducible copy shall also be submitted.

IX. PLUMBING WORKS

9.0 DESCRIPTION

9.0.1 Applicable provisions of General Conditions govern work under this section.

9.0.2 All fittings, connections and piping embedded in concrete shall be subject to inspection by the Architect and/or his representative before covering and/or completion.

9.0.3 The contractor shall provide all items, articles, materials, operations of methods listed, mentioned or scheduled on the drawings and/or herein, including labor, materials and incidentals necessary and required for their completion.

9.0.4 The contract drawings and specifications are complementary to each other, and any labor or materials called for by either, whether or not called for by both, if necessary, for the successful operation of any of the particular type of equipment furnished and installed will be without additional cost to the owner.

9.0.5 Intent: It is not intended that the drawings shall show every pipe fitting.

9.0.6 All such items, whether specifically mentioned or not, or indicated in the drawings shall be furnished and installed, if necessary to complete the system in accordance with the best practice of the plumbing trade and to the satisfaction of the engineer and the owner.

9.0.7 The plumbing contractor is required to refer to all architectural, structural and electrical plans and specifications and shall investigate all possible interferences and conditions affecting his work.

9.1 SCOPE OF WORKS

9.1.1 Work included under this section of this specification consists of furnishing all labor, tools and equipment, appliances and materials necessary for complete installation, testing and operation of the plumbing and storm drainage system in accordance with the contract.

a. Arrange for, obtain and bear the cost of necessary permits, bonds and fees, private or government shall be paid by the contractor.

b. Soil, waste and vent pipe system within the building.

c. Sanitary drainage system of the building and its connection to the nearest existing sewer line or drainage line.

d. Storm drainage system and connection to the nearest storm drainage outlets.

e. Cold-water distribution system and supply pipes to fixtures, hose bibs, inclusive of all valves, fittings and other accessories to complete the system.

f. Supply of all plumbing fixtures, trims and accessories.

g. Supply and installation of transfer pumps, elevator pit pump including valves and accessories under the supervision of the pump supplier.

h. Supply and installation of overhead tank with accessories.

i. The contractor shall provide all necessary shop drawings and two (2) sets of As-Built Plans.

j. Testing for leakage of all water supply and distribution system, drains, waste and venting system plus pressure testing for two (2) hours and disinfection of water distribution system.

k. Water meter and MWSI connection as shown on plans and to be verified at the jobsite.

l. Test run of transfer pumps and elevator pit pump.

m. Excavation and backfilling in connection with the work shall be included.

n. Furnishing of written one (1) year warranty of the plumbing system

9.2 SUBMITTALS

9.2.1 Within fifteen (15) days after award of contract, the plumbing contractor shall submit for engineer's approval, four (4) copies of all complete list of manufacturer's name of all materials he proposes to use.

9.2.2 After approval of the above list and before purchase of any materials, the plumbing contractor shall submit to the engineer for approval, four (4) complete sets of detailed information consisting of manufacturer's bulletins, shop drawings and partial list of materials to be provided under this contract.

9.2.3 The plumbing contractor shall assume the loss of and the entire responsibility of any change in the work as shown in the contract drawings, which may be occasioned by approval of materials other than those specified.

9.3 APPLICABLE CODE AND STANDARDS

9.3.1 All plumbing works to be done and the sizes of pipes to be used shall be in accordance with the National Plumbing Code and the Plumbing Code of the Philippines.

9.3.2 The plumbing contractor shall verify the above paragraphs with each section of the specifications and coordinate his work so that the general contractor will understand clearly the intent of the work to be done.

9.4 PRODUCTS

9.4.1 Description of Materials

All materials to be used shall conform to the standards specified. Use of materials shall be governed by other requirements imposed on other section of these specifications. Materials shall be subject to tests necessary to ascertain their fitness if the engineer so requires.

9.4.2 Alternate Materials

Use of any material not specified in these specifications may be allowed, provided such alternate has been approved by the engineer, and provided further, that a test if required shall be done by an approved agency in accordance with generally accepted standards.

9.4.3 Identification of Materials

Each length of pipe, fittings, traps, fixtures and devices used in the storm drainage system shall have case, stamped or indelibly marked on it the manufacturer's trademark or name, type and classes of products when so required by the standards mentioned. All materials and equipment mentioned in these specifications, including all incidental items not specifically indicated, but required to complete the contract shall be new and free from defects. If damaged during the course of construction, it shall be repaired or replaced as directed by the Project Manager at no additional cost for the owner.

9.4.4 Pipes and Fittings Schedule

9.4.4.1 Cold Water Lines – Water line shall be PPR Type or fusion weld.

9.4.4.2 Drain, Waste and Vent – shall be unplasticized polyvinyl chloride (uPVC) conforming to ASTM D178 or approved equivalent.

9.4.4.3 Storm Drainage Lines – Pipe sizes 250mmØ and above shall be reinforced concrete pipe. Pipe sizes 200mmØ and below shall be non-reinforced concrete pipe.

9.4.5 Flanges, Bolting and Gaskets and Union

9.4.5.1 Provide flanges at flange connection to equipment and valves, slip-on or threaded as required.

9.4.5.2 Flanges shall conform to Class 300 black forged steel welding flanges 1/16" in raised faced to ASTM A-181 Grade 1. Bolts to ASTM A-193 regular hexagonal head unfinished, heavy semi-hexagonal nuts to ASTM A-194. Gasket shall be flat ring or full face or equal.

9.4.5.3 Provide union at each threaded connection to equipment, and valves for pipe sizes up to two (2) inches in diameter. It shall be galvanized steel pipe Class 300 screwed galvanized malleable iron, ground joint, brass to iron seat.

9.4.6 Valves

Valves up to and including two (2) inches shall be threaded ends, rough bodies and finished trimmings. Valves 2 ½ inches diameter and larger shall have iron [bodies, brass mounted and shall have either screws or flange ends.

9.4.6.1 Gate valves shall be tested at 150 psi for a period of two (2) hours.

9.4.6.2 Check valves shall be tested at 150 psi for a period of two (2) hours.

9.4.6.3 Float valve for cistern tank and fire tank shall be tested at 150 psi for a period of two (2) hours.

9.4.6.4 Foot valve shall be tested at 150psi for a period of two (2) hours.

9.4.6.5 Water meter shall be positive displacement type. any brand approved by MWSI or LWUA.

9.4.6.6 Hose Pipes shall be made of male inlet threads, hexagon shoulder and three quarter inch hose connections. Provide one (1) extra gate valve on the vertical before the hose bib.

9.4.7 Drains

9.4.7.1 Floor drains at toilets shall be made of stainless steel, gauge no. 22, beehive type, measuring 10 cm x 10 cm and provided with detachable stainless strainer, expanded metal lath type. Pipe size 50mmØ or approved equal.

9.4.7.2 Deck drain shall be ASA 10-12, pipe size 75 mm or approved equal.

9.4.7.3 Floor drain for genset room shall be ASA 40-9F, pipe size 100mmØ or approved equal.

9.4.7.4 Grating cover (to be supplied by civil contractor)

9.4.7.5 Area Drain/Catch Basin shall be 140kg/sq. cm. (2000psi) reinforced concrete with GI cutting cover.

9.4.7.6 Valve box shall be 140 kg/sq. cm. (2000psi) reinforced concrete with pre-cast RC cover.

9.4.7.7 Site storm drain shall be reinforced concrete for 250mmØ and above, 200mmØ and below shall be concrete pipe.

9.4.8 Pipe Sleeves

9.4.8.1 Pipe sleeves shall be installed and properly secured in place at all points where pipes pass through masonry or concrete, except unframed floors on earth.

9.4.8.2 Pipe sleeves shall be of sufficient diameter to provide approximately one-quarter inch clearance around the pipe.

9.4.8.3 Pipe sleeve in walls and partitions shall be of wrought iron or steel pipe schedule 40. The pipe sleeves in concrete beams of concrete fireproofing shall be steel pipe schedule 40.

9.4.8.4 Pipe sleeves through floors shall be galvanized steel pipe schedule 40. Sleeve in pipe floor shall extend not less than one (1) inch and not more than two (2) inches above and the space around the pipe shall be packed with fiberglass insulation.

9.4.8.5 Pipe sleeves in footings shall be steel pipe and shall be not less than four (4) inches larger in diameter than the pipe to be installed.

9.4.9 Hangers and Supports

Vertical run of pipe shall be supported by brace. Horizontal runs of pipe shall be supported by loop 4-sway hanger.

9.4.10 Equipment and Pumps Specifications

9.4.10.1 Transfer Pumps

Furnish and install where shown on plans, one (1) set duplex type centrifugally end-suction pumps rated at 170 gpm against 152 ft. total dynamic head. Pump shall be close-coupled to a WEG or Franklin High Efficient Motor. Approved brand of pumps and electrical characteristics refer to Equipment Schedule.

9.4.10.2 Overhead Water Tank

Stainless steel construction, 1/4" thk with a capacity of 1875 gallons. complete with inlet port, outlet port, drain rung, saddle strap, inlet port, and manhole cover. Refer to Equipment Schedule Plumbing plan.

9.4.10.3 Elevator Pit Pump

Submersible type, non-clog, designed to pump waste water. Pump shall have a capacity of 26.42 gpm vs 20 ft. Complete with float switches. Refer to Equipment Schedule Plumbing plan.

9.4.10.4 Portable Septic Tank

Leak proof one-piece seamless limit chemical resistant, corrosion proof equipped with HDPE filter media with large surface area for optimal microorganism growth, clog free, removable modular chamber. 3,700 effective volumes. Refer to Equipment Schedule Plumbing plan.

9.4.11 Plumbing Fixtures and Accessories

9.4.11.1 Water closet shall be vitreous china, free standing toilet combination. Color is white.

9.4.11.2 Lavatory shall be vitreous china, self-priming with front overflow or approved equal. Color is white.

9.4.11.3 Faucets shall be made of stainless steel for interior use.

9.4.11.4 Hose Bibb shall be made of bronze cast finish.

9.5 EXECUTION

9.5.1 Piping Installation

Piping shall be installed as shown on the drawings, as recommended by the manufacturer and as directed during installation, straight and direct as possible, forming right angles or parallel lines with building walls and other pipes and neatly spaced. Erect pipe risers plumb and true, parallel with walls and other pipes neatly spaced. All piping shall be supported or suspended on stands, clamps, hangers or equivalent or approved design. Supports shall be installed in such a manner to permit pipe free expansion and contraction while minimizing vibration.

9.5.2 Plumbing System Test

The entire system of drains, waste and vent shall be tested. Water test shall be in accordance with the plumbing Code. Every portion of the system shall be tested to a hydrostatic pressure equivalent to at least 10-foot head water for a period of ½ hour before covering. All cold water lines shall be tested at 150 psi for a period of two (2) hours before covering. Defects disclosed by the test shall be repaired with new materials at the expense of the contractor.

9.5.3 Fixture Installation

Support all fixtures securely in a neat workman-like manner on approved carriers and supports. The method of support for each fixture shall be approved type manufacturer's standard, except where fixture designations on the drawings indicate modifications. Install all fixtures level and flush with finish floors and partitions. All fixtures shall be provided with individual shut-off valve and equipped with a trap.

X. MECHANICAL WORKS

A. FIRE PROTECTION, *AUTOMATIC, WET-PIPE TYPE SPECIFICATIONS*

10.0 GENERAL

Applicable provisions of the "General Conditions" govern work under this section.

10.1 QUALIFICATIONS OF CONTRACTORS

The Contractor for the fire protection installation shall be a qualified Fire Protection Contractor, regularly engaged in the installation of automatic fire sprinkler systems and other fire protection equipment, and must have at least one (1) sprinkler installation approved by the Philippine Insurance Rating Association (PIRA). Companies or corporations whose personnel have supervised an approved sprinkler plan and subsequently approved by PIRA or by the Fire Department are also qualified.

10.2 SCOPE OF WORK

10.2.1 This specification includes the furnishing of all labor, materials, equipment and services necessary or incidental to the complete installation, testing, adjusting and placing into service of the several systems of fire protection, all as shown on the drawings and as hereinafter specified. Drawings and specifications are considered as mutually explanatory and all works called for by one and not the other, shall be performed as though called for by both. In cases of conflicting information, the Architect and Engineer shall be notified at once in writing. Where incidental equipment or appurtenances are required

and not listed as shown, same shall be furnished as required for a complete fire protection system.

10.2.2 Drawings are intended to show general arrangement and approximate physical sizes of equipment diagrammatically. Every bolt, nut, brace, strut, etc., is not necessarily indicated or specified; all such items as may be required, necessary or incidental to the proper and dependable operation of each system being a requirement of this contract, whether specifically referred to or not, must be supplied.

10.2.3 Work included in this specification shall consist of, but not limited to the following items:

a. Arrange for, obtain and bear the cost of necessary permits, bonds and fees for the automatic sprinkler work.

b. All fees, private or government shall be paid by the Contractor.

c. Fire hose cabinets and fire hose accessories, including connection pipe and fittings to the sprinkler system.

d. Furnish and install fire department connection for the wet system.

e. Do the testing of all piping works and necessary cleaning of the fire protection works. This includes also the testing of the fire department pipeline and drain pipe and water flow alarms.

f. Fire extinguishers as shown in the plans shall be supplied and installed by the Contractor. Over and above those specified, the owner of the building shall supply the requirements of the Fire Department.

g. All openings through which fire may spread from one floor to the other, such holes through floors or walls for the pipe shall be sealed with fire resistant materials.

h. Furnish the shop drawings and certificates of inspection.

i. Periodically remove from the jobsite all rubbish and debris resulting from the fire protection work.

j. Furnish and install one (1) unit of 10 lbs. (HFC 236fa) portable fire extinguishers for Electrical Rooms, Pump Room and Genset Room.

k. Miscellaneous items as hereinafter provided.

10.3 SITE CONDITIONS

The Contractor shall be deemed to have visited the site and acquaint himself with the existing site condition, means of access and take into account any feature that may affect his tender. No claim for his neglect to do so or not, out of a misunderstanding on his part in these conditions shall be entertained.

The Fire Protection Contractor shall be responsible for the proper coordination with other trade contractors.

10.4 STANDARDS, CODES AND REGULATIONS

The applicable current standards for the fire protection systems shall be the National Fire Protection Association (NFPA), NFPA-13, and Philippine Fire Code-PD 1185, the PSME Code and all other applicable local codes and ordinances.

10.5 SUBMITTAL (SHOP) DRAWINGS AND DATA

10.5.1 Before commencing any work or providing any materials at the jobsite for this project, the Fire Protection Contractor shall submit to the Engineer for approval, four (4) copies of catalogue cuts and descriptive matter regarding materials and equipment which he intends to furnish and install.

10.5.2 Shop drawings and data shall be submitted specifically for, but not limited to the following items: calves, pipes, pipe hangers, hose valves and accessories, Fire Department connections, fire pumps and, controllers, fire hose cabinets, mechanical grooved coupling, flexible pipe connectors, pressure reducing valves, pipe riser support and sleeves, portable fire extinguishers and foam equipment.

10.5.3 The Fire Protection Contractor shall not proceed with the installation of the work until he has received the Engineer's approval on his shop drawings.

10.5.4 The Engineer's approval of shop drawings, catalogue cuts, etc. shall not relieve the Fire Protection Contractor of the responsibility for any errors or omissions which may exist in the items neither submitted nor shall relieve him from the responsibility for deviations from the contract drawings and specifications.

The stamped approval of the shop drawings, catalogue cuts, etc. shall not be construed as a complete check, but will indicate only that the general design and method of construction is satisfactory.

10.5.5 In the event inspection authorities require additional clarifying details, the details shall be prepared and approval of the same secured by the Fire Protection Contractor at his expense.

10.6 CONDUCT OF WORK

The Fire Protection Contractor shall employ on the job at all times a competent superintendent Licensed Mechanical Engineer who shall be responsible for the progress and execution of the work. Workmanship shall be of high quality, conforming to standard practice as stipulated by NFPA, ASTM and ASA and PSME recommendations by skilled workmen during regular working hours.

10.7 LOCAL AND IMPORTED MATERIALS

10.7.1 All materials and equipment furnished under this section shall be new, manufactured in the United States, and Non-UL/FM but conforming to NFPA Standards.

10.7.2 The proposal submitted shall include all materials and equipment as specified or shown on the drawings.

10.8 STANDPIPE SYSTEM

10.8.1 Pipe shall be new, designed for 175psi working pressure, conforming to ASTM specifications, manufactured in the United States or approved local pipes and have the manufacturer's name or brand along with the applicable ASTM standard marked on each length of the pipe. The locally manufactured pipe brand "Supreme" are acceptable brand with proper schedule and wall thickness.

10.8.2 Pipe shall be steel, schedule 40, black and in accordance with the specifications ASTM A120 or A53.

10.8.3 Schedule 40 black steel pipes shall be joined by screwed joints in accordance with specifications ANSIB2.1 up to 2½" and flanged, Victaulic

type or screwed connections for 3" and up. Pipe fittings to be used with schedule 80 pipes shall be rated 300lbs. Class if there are any.

10.8.4 Sprinklers' piping that is exposed to the weather or used in a corrosive atmosphere shall be painted with protective coating. Sprinkler piping in the building shall be painted with two (2) coats of enamel primer and two (2) coats of Fire Red color enamel paint.

10.8.5 Screwed fitting shall be malleable iron, 300 lbs. and 150 lbs. class, black and in accordance with ANSI B16.3. "Victaulic" brand mechanical tee and elbow UL/Fm fittings can also be used.

10.8.6 Flanged fittings shall be steel, short body, 150, black and in accordance with ANSI B16.1. Gaskets shall be full face of 1/8" minimum thickness red sheet rubber. Flange bolts shall be hexagon head machine bolts with semi-finished hexagon head nuts, cadmium-plated having dimension in accordance with ANSI B18.2.

10.8.7 Weld fittings shall be steel, standard weight, black and in accordance with ANSI B16.9, ANSI B16.25, ASTM A234, ANSI B16.5 or ANSI B16.11.

10.8.8 Outside screw and yoke (O.S. & Y) gate valves shall be flanged, iron body, bronze mounted, 175 psi working pressure, with hand wheel turning counterclockwise to open. Valve shall be tested and listed by UL and/or FM.

10.8.9 Check valve shall be flanged, swing type, iron body bronze seat ring and disc ring, and 175 psi working pressure rating. Valve shall be tested and listed by UL and/or FM.

10.8.10 Check valve shall be butterfly wafer style, iron body, rubber seal 175 psi working pressure rating. Valve shall be tested and listed by UL and/or FM.

10.8.11 Fire Department connection shall be 4" x 2½" x 2½" Siamese connection, brass body, brass chain and plugs, and brass escutcheon letter "AUTOMATIC SPRINKLER" for sprinkler system, and/or "STANDPIPE" for standpipe system. Inlet threading shall be National Standard, same as municipal fire department connection shall be tested and listed by UL and/or FM and 175 psi rating.

10.8.12 Valve for main riser drain shall be angle type or globe type, bronze body, screwed, 175 psi working pressure rating, 2" size and a renewable composition soft disc.

10.8.13 Valve for auxiliary drain and inspector's test connection shall be globe type, bronze body, screwed, 175 psi working pressure rating, 1" size and a renewable composition disc.

10.8.14 At each location where called for on plans or where required by the fire department, provides an approved retard-type electric flow alarm switch. Provide alarm bell as required. Flow alarm switch shall have extra set of contacts for extension by others to central alarm panel.

10.8.15 Interior bell or horn shall be 24 VDC. Horn or bell shall be tested and listed by UL and/or FM. (Shall be supplied by the Electrical Contractor).

10.8.16 Flow switch shall be vane type, 24 DC. Flow switch shall be tested and listed by UL and/or FM.

10.8.17 Butterfly valve with tamper switch shall be tested and listed by UL and/or FM.

10.8.18 Valves for the fire hose stations shall be angle type, pressure restricting type 1½" female iron pipe threads, rough brass male NST threads, polished brass, chromium plated. Valve shall be tested and listed by UL and/or FM.

10.8.19 Cabinet for fire hose shall be recessed, 16-gauge body, aluminum door trim. Cabinet shall be designed for 100 feet hose pin rack and fire extinguisher. Door shall be full panel glass. Cabinet finish shall be baked white enamel inside with "Fire Red" coat inside. Cabinet may be locally made of approved quality.

10.8.20 Pin rack for the fire hose station cabinet shall be semi-automatic, baked red enamel finish, designed for 100 feet of 1½" hose, and furnished with 1½" chrome plated brass rack nipple.

10.8.21 Fire hose for fire hose station shall be 100 feet of 1½" cotton single jacket, rubber lined hose with wax and gum treatment. Hose couplings shall be 1½" chrome plated male-female National Standard hose threads. Fire hose and couplings shall be approved by UL and/or FM.

10.8.22 Nozzle for fire hose station shall be 1½" adjustable capable of complete shut-off, solid straight stream or any degree of solid conical fog with chrome plate. Threads shall be National Standard hose threads. Nozzle shall be approved by UL and/or FM.

10.8.23 Provide 1½" spanner to each FHC cabinet.

10.8.24 Furnish and install one (1) each – 10 lbs. capacity HFC 236fa chemical multi-purpose type portable fire extinguisher UL-listed and Factory Mutual approved to each fire hose cabinet.

10.9 IDENTIFICATION SIGNS

The drain, alarm test valves, etc. shall have standard identification signs, painted fire red with white lettering. The signs shall be attached to the valve in a conspicuous position.

10.10 FIRE PUMP

10.10.1 Fire Pump Assembly: Furnish and install fire pumps as shown on plans. One (1) Underwriters Laboratory Inc. approved fire service pump. The Fire pump at the Basement Floor shall be electric motor-driven with automatic controllers, and one (1) jockey pump complete with motors, motor starters, controls, fittings and other appurtenances necessary to complete the equipment installation in each respect Pumps shall be connected as shown in the drawings. Complete installation shall be in accordance with the requirements and meeting the approval of the NFPA 20, Philippine Insurance Rating Association (PIRA) and Fire Department.

10.10.2 The fire pumps to be installed at the Basement Floor level shall be as follows:

Fire Pump – One (1) unit Fire Pump shall be vertical turbine. Capacity and electrical supply shall be as per equipment schedule.

Pump shall be furnished with the following standard accessories:

a. Main Relief Valve 3", flanged type, UL/FM listed for the 750 GPM pumps.

b. 2" air release valve

c. water flow meter, rated at 750GPM

d. Discharge gauge (0-300psi), 3 1/2" face dial

e. Enclosed waste cone with sight glass

f. Discharge concentric reducer

10.10.3 The pump should deliver not less than 150% of rated capacity at a pressure not less than 65% of rated head. The shut-off pressure shall not exceed 140% of rated pressure. The pump shall be provided with suction bowls. Column, basket strainer, discharge head and an electric motor with hollow shaft with sufficient horsepower to drive the pump.

10.10.4 One (1) set fire pump controller with pressure recorder and shall reduce voltage primary resistor or Wye-Delta type starter, UL/FM listed.

10.10.5 The pump manufacturer shall provide the services of a qualified Engineer to advice the Contractor on the proper installation of equipment make necessary mechanical adjustments and align fire pump flexible couplings. Pump manufacturer shall pay the test fees, shall arrange and conduct final field acceptance test and provide all required test equipment.

10.10.6 One (1) set controller equipment: The fire pump control equipment shall be completely wired and tested at the factory and shall be specifically designed for fire pump purposes. Control equipment with all components shall be UL/FM listed and approved equipment, reduce voltage wye-delta type open transition or primary resistor type.

10.10.7 The Fire Protection Contractor shall provide and install the necessary electrical wiring in conduits. Controls from a power supply box to be provided inside the pump machine room to the fire pumps controller, to the equipment.

10.11 STANDPIPE SYSTEM

10.11.1 The interior surfaces of all piping and equipment shall be clean and free of all dirt. Loose scale, rust and other foreign materials before installation.

10.11.2 Pipe ends shall be reamed to remove all burrs and pipe sections shall be cleaned inside to remove all chips and foreign materials prior to making up joints. Approved joint compound shall be applied to the threads of the pipe and not in the fitting when making up joints. Pipe shall not exceed into the waterway of the fitting.

10.11.3 When welding pipe on jobsite, the fire hazard of the welding process shall be with suitable safeguards. Weld in place of pipe and fittings shall not be allowed at the jobsite. Only shop weld fabrication will be permitted with factory made fittings. Mitered weld will not be permitted. Intersection of feed main and cross main pipe shall be provided with flanged or Victaulic type fittings.

10.11.4 Pipe passing through the building walls and floors above grade shall be provided with sleeves of standard weight galvanized steel pipe and shall be installed prior to concreting works of the Civil Contractor. The annular spaces between pipe and sleeves shall be packed tight with insulation fire resistant materials. Provide chrome plated escutcheon plates enough to cover the pipe sleeves. Sleeves shall be sized as follows:

1"	pipe-2"	ID Sleeve
1 ¼"	pipe-2"	ID Sleeve
1 ½"	pipe-2 1/2"	ID Sleeve

2"	pipe-3"	ID Sleeve
2 ½"	pipe-4"	ID Sleeve
3"	pipe-5"	ID Sleeve
4"	pipe-6"	ID Sleeve
6"	pipe-8"	ID Sleeve
8"	pipe-10"	ID Sleeve

10.12 PIPE SUPPORTS

10.12.1 All piping shall be supported by means of hangers of approved quality, capable of supporting load. Sizing, spacing and installation shall be in accordance with national Fire Protection Association Standard No. 13, "Sprinkler Systems", except as otherwise shown on drawings or specified herein.

10.12.2 The Fire Protection Contractor shall furnish and install the required sprinkler pipe seismic sway bracing for the risers, feed main pipe and cross main pipe all in accordance with tables and figures shown NFPA-13 requirements for the protection of the piping against breakage due to seismic earthquake movement.

10.12.3 No cutting, drilling, welding or burning of any structural steel member shall be allowed. Power driven studs and welding studs shall not be allowed.

10.12.4 All bolts and threaded rods shall be used with double nut and washer and lock washer wherever a single unsecured nut could work loose and allow either threaded rod or supported piping to drop.

10.13 TESTS AND INSPECTIONS

10.13.1 The Fire Protection Contractor shall conduct and bear the costs of all necessary tests of the fire protection work, furnishing all labor, power and equipment. All piping shall be tested with water and test witnessed by representatives of the Architect/Engineer and the Owner.

10.13.2 The fire protection piping shall be tested under a hydrostatic pressure of not less the 200lbs. PSIG, for a duration of not less than two (2) hours or at 50 lbs. psi in excess of the maximum static pressure when the maximum pressure is in excess of 150 lbs. psi.

10.13.3 The piping subjected to the hydrostatic test shall be filled with water and thoroughly checked for the elimination of all air. The control valves shall be closed during pressure testing. All joints shall be proven tight or acceptable by the test. Defective work or materials shall be corrected or replaced in approved manner. If necessary, piping shall be dismantled and re-assembled with the use of new pipe or fittings as no caulking or makeshift method of temporary repair of defective work will be permitted. Test shall be repeated until the particular line or system receives the approval of the representatives of the Architect/Engineer.

10.13.4 Acceptance of the fire protection work shall be based upon the inspection and tests of the completed installation by representatives of the local fire department, Architect, Engineer, PIRA and the Owner.

B. AIR CONDITIONING AND VENTILATING SYSTEM

11.0 GENERAL REQUIREMENTS

11.0.1 Standards Compliance

a. Philippine Society of Mechanical Engineers Code

b. Philippine National Building Code

c. Philippine Electrical Code

d. Philippine Plumbing Code

e. Fire Code of the Philippines

f. American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE)

g. Sheet Metal and Air Conditioning Contractors National Association (SMACNA)

h. National Fire Protection Association

i. American Society of Testing Materials (ASTM)

j. Air Moving and Conditioning Association (AMCA)

k. American National Standard Institute (AMSI)

l. National Electrical Manufacturing Association (NEMA)

m. Underwriters Laboratory

n. American Society of Mechanical Engineers (ASME)

11.0.2 Scope of Works

a. Supply and Installation of Equipment and Materials. Complete.

b. Supply and installation of pipes and fittings, valves and appurtenances, ducts, miscellaneous and consumables.

c. Fabrication and installation pf hangers and supports.

d. Supply and installation of control, wiring from Split-Type Air-conditioner to circuit breakers and others to complete the control system.

e. Testing, adjusting, balancing and commissioning.

f. Provide shop drawings and two (2) sets of "As-Built" plans

g. Furnishing of written one (1) year warranty of ventilation and air-conditioning system

11.0.3 Submittals

a. Within fifteen (15) days after award of contract, the mechanical contractor shall submit for engineer's approval, four (4) copies of all complete list of manufacturer's name of all materials he proposes to use.

b. After approval of the above list and before purchase of any equipment or materials, the mechanical contractor shall submit to the engineer for approval, four (4) complete sets of detailed information consisting of manufacturer's bulletins, shop drawings and partial list of materials to be provided under this contract.

c. The mechanical contractor shall assume the loss of and the entire responsibility of any change in the work as shown in the contract drawings which may be occasioned by approval of materials other than those specified.

11.1 PRODUCTS

11.1.1 AIR COOLED CONDENSING UNIT

11.1.1.1 Units shall have capacity and configuration as shown on the drawings and as manufactured by a reputable manufacturer. All units shall be furnished factory assembled, tested and piped complete with compressors, fan, motors, integrally wired control panel, starters, spring type vibration isolators, steel base and refrigerant control accessories. Unit shall have gauge corrosion protected weatherproof casing.

11.1.1.2 Compressors for units with capabilities of up to 35160 watts and above shall be of semi-hermetic type and rated to operate at not more than 1750 RPM at full load. Compressors for units with capabilities of 26375 watts and below shall be of the hermetic type and rated to operate at not more than 3500 RPM at full load.

11.1.1.3 Condenser coils shall be seamless copper with mechanically bonded aluminum plate fins. Coil size, refrigerant circuiting and number of rows deep shall be compatible with the compressor displacement and capacity at the specified operating conditions with minimum refrigerant pressure drop.

11.1.1.4 Condenser fans shall be statically and dynamically balanced propeller-type fans directly driven by totally enclosed and inherently protected motors.

11.1.1.5 Motor starters, control components and power terminal shall be grouped in an accessible control box inside the unit casing. Electrical components shall be pre-wired and control circuits shall be independently protected with fuses or breakers. Compressor protection shall include automatic relays to prevent excessive compressor short cycling.

11.1.1.6 A complete charge of refrigerant 410A and compressor oil shall be furnished.

11.1.2 FAN COIL UNITS

11.1.2.1 Units shall either be of the floor-mounted or the ceiling-mounted, free blow type and/or ducted type as shown on the drawings.

11.1.2.2 Units shall have capacities at the operating conditions specified. They shall include an evaporator coil, expansion valve, centrifugal type air circulation blower, permanent type air filter, condensate drip pan and insulated decorative cabinet with discharge plenum, supply and return air grilles.

11.1.2.3 Fan motors shall be equipped with overload protection. They shall have fan switch and thermostat mounted on the unit.

11.1.3 CEILING-MOUNTED TYPE FANS

11.1.3.1 Units shall be ceiling-mounted type, direct driven and equipped with reverse flow prevention damper.

11.1.3.2 It shall have one-touch spring type louver for ease of cleaning and maintenance.

11.1.3.3 Fan casing shall be seam-welded and finished with corrosion resistant paint.

11.1.3.4 Fan shall have capacity and motor size as indicated in the plans.

11.1.4 PROPELLER EXHAUST FANS

11.1.4.1 Units shall be propeller type, suitable for wall mounting, direct-driven and equipped with gravity shutters.

11.1.4.2 It shall have wall mounting collar and fan guard.

11.1.4.3 Units shall have statically and dynamically balanced propeller set on a deep venture orifice. Unit shall be designed for continuous operation and shall be permanently lubricated. Inherent motor overload protection shall be provided.

11.1.4.4 Unit shall be epoxy-coated and finished with corrosion resistant paint.

11.1.4.5 Fans shall have capacity speed and motor size as indicated on the plans.

11.1.4.6 Fans shall be provided with a remote selector switch.

11.1.5 EXHAUST BLOWER

11.1.5.1 Furnish and install supply exhaust blowers as shown and as indicated on the drawings, complete with motors, belt sheaves vibration isolators.

11.2 BASIC MATERIALS AND METHODS

11.2.1 REFRIGERANT PIPING

11.2.1.1 Refrigerant piping shall be type L hard drawn seamless copper, suitable for a working pressure of 2,413 KPa. Fitting shall be wrought copper or brass designed for use with high temperature solder and suitable for a working pressure of not less than 2,413. Joints from soldered to threaded joints shall be made with standard adapter fittings using high temperature solder.

Pipes or tubings shall be cut accurately to measurements established at the building lines. All piping shall be laid straight and no pipe shall be laid against other metal without insulation. After cutting, the tubing shall be reamed, all burrs removed and the internal surfaces thoroughly cleaned. While soldering pipes and fittings together, a continuous flow of inert nitrogen gas must be applied to sweep the internal surface of the tubing to avoid the formation of oxide inside.

11.2.1.2 Condensate drain piping shall be of galvanized iron sh. 40 pipes and sized to liberally dispose of the condensate to the nearest floor drain. A P-trap without cleanout plugs shall be provided at the outlet for every drain.

11.2.1.3 Pipe supports and hangers shall be provided and fabricated in a workmanship manner out of steel angles, rods and flat bars. Metal to metal contact between pipes and hangers must be avoided by providing a 3mm thick rubber in between.

11.2.1.4 Supports on horizontal lines shall be spaced at not more than 1.80 meters on center. All piping must be properly anchored sot that no stress is placed on equipment connection by expansion.

11.2.1.5 Pipe sleeves shall be of standard pipes with sufficient diameter to provide a minimum clearance of 6mm around the pipe and in case of insulated pipe, approximately 6mm around the insulation. Pipes should not be permitted to pass through the bearing walls, beams or columns.

11.2.1.6 Refrigerant pipes sizes shown on the drawings are for guide purposes only. Contractor is advised to confirm with the equipment supplier the required pipe sleeves for the units prior to installation at the jobsite.

11.3 AIR CONDITIONING CONTROL SYSTEM

11.3.1 Operation of the air conditioning system shall be fully automatic. They shall be capable of maintaining at full or partial loads inside conditions of 25 C.D.B. (plus or minus 1.11°C0 and 50% relative humidity (plus or minus 5% RH). Room thermostat shall control the operation of the compression through relays.

11.3.2 The controls shall be wired in such a way that whenever a condensing unit is in operation, the fan coil unit or air handling unit is also in operation.

11.3.3 The compressor crankcase heater must be of such capacity as to provide sufficient heat to the oil in the crankcase during the inoperative periods so that the serious oil foaming and slugging shall be prevented. The heater must be automatically energized whenever compressor operation stops and de-energized when the compressor starts.

11.4 REFRIGERANT VALVES AND ACCESSORIES

11.4.1 Refrigerant valves shall be installed in the suction and discharge lines adjacent to the compressor and on the liquid line discharge side of the condenser. The valves should be wrought copper or brass for use with R-410A and suitable for a working pressure of 2,413 KPa.

11.4.2 Thermostatic expansion valves of the properly capacity shall be installed in the refrigerant supply line to the evaporator. They shall be of the diaphragm type, externally equalized and must be of such optimum size as to maintain a full active evaporator under all conditions and yet reduce the possibility of flooding the refrigerant to the compressors during part load conditions.

11.4.3 Solenoid valves shall be installed on units with capacities of 26,375 watts and above and shall be designed for the operating pressure of the system. Valve capacities shall be based on a pressure drop across them not exceeding 20 KPa.

11.4.4 Dehydrators in combination with strainers shall be installed in the refrigerant line on the inlet side of the thermostatic expansion and solenoid valves. They shall have brass or copper bodies designed for a working pressure of 2,413 KPa.

11.4.5 Sight glasses shall be a combination of liquid and moisture indicators and shall be installed in the refrigerant to indicate whether or not the systems are properly charged and whether or not refrigerant in the system is dry.

11.5 REFRIGERANT PIPE INSULATION

11.5.1 Refrigerant piping insulation shall be applied on all refrigerant suction and condensate drain lines. Insulation material shall be flexible elastomeric pipe insulation 25mm thk. Joints shall be sealed with appropriate contact adhesive. Pipes installed outdoor shall be provided with Ga.26 aluminum cladding.

11.6 ELECTRICAL MATERIALS

11.6.1 ELECTRIC MOTORS

11.6.1.1 All motors shall operate at speed and electrical characteristics specified. They shall be guaranteed to operate at rated out-put with plus or minus ten (10) percent voltage variation at their terminals.

11.6.1.2 Motors 750 watts and above shall be 3-phase squirrel cage induction type, constant speed. Motors 560 watts and below shall be single-phase capacitor start induction run, or split type or shaded pole type as approved for the service.

11.6.1.3 Motor driving indoor equipment shall be of the open drip-proof construction. Motors driving outdoor equipment shall be of the totally enclosed fan cooled construction.

11.6.1.4 Motors driving equipment through pulleys and belts shall be provided with belt guards. The belt guards shall be made of heavy wire mesh or expanded metal set in a suitable frame covering the motor pulleys, belt and driving sheaves with access plates for tachometer reading.

11.6.2 MOTOR CONTROLERS

11.6.2.1 All motors starters shall be of magnetic type complete with overload and relays manufactured in accordance with NEMA standards. Enclosures shall be a suitable for the application

11.6.2.2 Starters for motor 3.73 kw and below shall be across the line type. Starters for motor above 3.73 Kw shall be of the reduced voltage type

11.6.2.3 Circuit breakers shall operate on the thermal magnetic principle. Aside from serving as disconnecting means, they shall afford protection for motor against phasing circuits faults. They shall be provided with enclosures suitable for the application

11.6.2.4 All motors shall be provided with an over and under voltage protection device.

11.6.3 WIRING

11.6.3.1 All electrical power and control wiring necessary to be provided by the contractor shall be accomplished in accordance with the requirements of the electrical plans and specifications and shall conform to the Philippine Electrical Code. Wiring system including materials shall also comply with the specifications under the electrical division of the project

11.6.4 ELECTRICAL INTERLOCKS

11.6.4.1 For motors requiring electrical interlocks, remote control or sequence starting control features, starters shall be equipped with

necessary auxiliary contacts or terminals to provide the control feature required. A separate set of terminal is required for each control circuit. Such starter shall be provided with "man-off-auto" selection switches. Other starters shall have a start-stop push buttons mounted in covers.

11.6.4.2 Except where otherwise specified, enclosure shall be sheet metal with hinged cover, NEMA type I for the general purpose indoor application. Starters shall be arranged for floor or wall mounting as shown or as indicated.

11.6.4.3 Pilot light shall be provided for all starters where the equipment is not visible from the starter and for all remote control stations.

11.6.4.4 Where possible, relays and switches that are not part of the automatic control system shall be mounted on the same panel as the corresponding motor starter. All supports for the stating equipment shall be furnished and installed by the A/C contractor.

11.6.4.5 This contractor shall furnish detailed wiring diagram to those installing the electrical wire and furnish all information necessary to assure the proper connection, operation and control of motorized equipment including interlocks, automatic and safety control auxiliary circuit

11.6.5 PAINTING AND FINISHING

11.6.5.1 Pipe hangers, duct hangers, uninsulated piping and other ferrous metal work that have not received factory painting shall be thoroughly cleaned and given two (2) coats of rust preventive paint.

11.7 EXECUTION

11.7.1 EQUIPMENT

11.7.1.1 Install all equipment as indicated and in accordance with the manufacturer's instructions. Provide clearance for inspection, repair, replacement and service. Provide conduits for wirings. Equip motors with unfused safety switches and overload protection in the operating disconnects switches and magnetic starters. Schedule and administer specified test

11.7.2 PIPING SYSTEM

11.7.2.1 Install piping and piping components to ensure proper and efficient operation of the equipment and controls. Proper supports for the mounting of vibration isolators, stands, guides, anchors, clamps and brackets shall be provided. Piping connections to equipment shall; be arranged so that removal or equipment can be accomplished with the least amount of disassembly or removal of the piping system. Allow sufficient pitch to ensure adequate drainage and venting. Hydrotest the piping system and conduct testing, adjusting and balancing of water flow to ensure efficient system performance

11.8 GUARANTEE AND SERVICES

11.8.1 The air conditioning and ventilating system equipment and accessories furnished and installed under this part of the specifications shall be guaranteed for a period of one (1) year from the date of acceptance thereof, and materials and equipment furnished shall be free from any defects in the materials, workmanship and design.

11.8.2 At any time within one year after the acceptance and upon proper notice, the contractor shall rectify any and all deficiencies including replacements of parts or the entire units without additional cost of the owner, if such deficiencies have been caused directly or indirectly by inferior materials, faulty workmanship and/or defective design or parts.

11.8.3 Expendable items such as oil, refrigerant, belts, filters, etc. are included in this one-year guarantee. During the guarantee period, the contractor shall perform free monthly inspection and service and make adjustments if necessary for the proper and efficient operation of the system.

C. CONVEYING SYSTEM - ELEVATOR

12.1 SCOPE OF WORK

This section covers the requirements for passenger elevators and service elevators, complete.

12.2 QUALITY ASSURANCE

Materials and equipment shall be the product of manufacturers regularly engaged in the manufacture of such products.

12.3 WELDER QUALIFICATIONS

The quality of welding and welding procedures shall be determined by testing the welder's ability to make sound welds, under standard working conditions with the equipment to be used in the work on this project, and in conformance with AWS D1.1, Section 5. Submit certified copies of the qualification of the welders employed on the contract.

Each welder shall identify his work with a code marking. Furnish a listing of the names of the welders with their corresponding code marks. Welders making defective welds during qualification tests and welders responsible for making defective welds after passing the test shall be given a requalification test. Reassign any welder who fails a requalification test.

12.4 SUBMITTALS

12.4.1 Manufacturer's Brochures and Layout Drawings: Submit manufacturer's brochures and layout drawings for approval before delivery of materials and equipment. Submit two samples of flooring to be used for passenger car platform. They shall contain enough detailed information to determine that the equipment conforms with the requirements of this specification and not less than the following information:

12.4.1.1 Layout drawings depicting the location and arrangement of machinery and controls in machine room.

12.4.1.2 Drawings and catalog cuts for Contractor – furnished items and equipment including doors, frames, car enclosures, car frame, safety device, governor, buffers, controllers, selectors, motors, traction equipment, guide rails and brackets. Provide a complete layout of the hoist way in plan and elevation.

12.4.1.3 Complete information on machine, motor generator set, brake, control system and buffers.

12.4.2 Operations and Maintenance Instructions: Furnish three complete sets of bound operating and maintenance instructions specifically for this installation. Operating portion shall be bound separately from maintenance

portion. Explain in detail any components or methods peculiar to a particular system. Furnish one complete manual prior to the time that the equipment test is performed. Furnish the remaining manuals before the contract is completed.

12.4.3 Posted operating Instructions:

12.4.3.1 Wiring Diagrams and Sequence of Operation: Furnish complete wiring diagrams showing the electrical connections, functions and sequence of operation of apparatus connected with the elevators, both in the machine room and in the hoist way.

12.4.3.2 Provide such diagrams in quadruplicate at the time of the final inspection and acceptance. One set shall be plastic or glass-covered, framed and mounted in the elevator machine room. The other set shall be delivered to the Architect.

12.4.3.3 Lubrication Chart: Furnish one plastic or glass-covered and framed lubrication chart. Mount this chart as directed in the elevator machine room. This chart shall identify lubricants as well as lubrication points and required frequency of application.

12.5 PRODUCTS

12.5.1 The elevator equipment shall be an AC (no motor generator required) feedback control elevator. The elevator car and hoist way doors shall be fully, automatically powered.

12.5.1.1 Passenger Elevator 1

a.	Type	-	Passenger Type
b.	No of Cars	-	1 Unit
c.	Capacity	-	1275 KGS
d.	Speed	-	60 m / min
e.	Traction Machine	-	Machine Power Supply
f.	Power Supply	-	220 -230 V
g.	Travel	-	refer to plan
h.	Number of Stops	-	refer to plan
i.	Car Dimension	-	1800mm x 1600mm
j.	Door Operation	-	Two (2) Panels Center Opening
k.	Door Opening	-	1000mm x 2100mm
l.	Car Interior	-	Refer to Architect
m.	Hoist way Size	-	2800mm x 2000mm
n.	PIT	-	1600mm

12.6 EXECUTION

12.6.1 COMPLIANCE: When the elevator work included in the contract is fully complete, the Contractors shall notify the Architect in writing that the

elevator is ready for final inspection and acceptance tests. Obtain the services of a certified elevator inspector the Contractor shall be fully responsible to perform all tests and demonstrate the proper operation of all parts and provisions of the equipment. The contractor shall prove to the satisfaction of the architect and the elevator inspector that the elevator as installed complies with the requirements of the contract.

12.6.2 FINAL INSPECTION: In addition to any others tests, make the following tests at the time of final inspection.

12.6.2.1 Test Period: Subject the elevator to a test for a period of one-hour continuous run, with specified rated load in the car. During the test run, the car shall be stopped at all floors in both directions of travel for a standing period of 10 seconds per floor. Provide also a manual test of the final limits (up and down over travel).

12.6.2.2 Speed Load Test: Determine the actual speed of the elevator car, in both directions of travel with the rated load and with not load in the elevator car. Make speed tests before the rated-load test run and also after the rated load test run. Determine speed by applying a tachometer to the car hoisting cables. The actual measured speed of elevator car with the rated load in the "UP" direction shall be within 5 percent of the rated speed. The maximum difference in actual measured speeds obtained under the various conditions outlines shall not exceed 10 percent of the total difference between the "UP" and "DOWN" directions.

12.6.2.3 Car leveling tests: test elevator car leveling devices for accuracy of landing at all floors with no load in car, symmetrical load in car, and with the rated load in car, in both directions of travel. Determine the accuracy of floor landing both before and after the rated full-load run test.

12.6.2.4 Brake Test: conduct brake test with the rated load in the car. Brakes shall stop and hold the car with the rated load.

12.6.2.5 Insulation resistance tests: the complete wiring systems of the elevator shall be free from short circuits and grounds, and the insulation resistance shall be determined by use of a "Megger". Conductors shall an insulation resistance of not less than one mega ohm between each conductor and ground and between each conductor and all other conductors.

12.6.2.6 Buffer test: test buffers for car

12.6.2.7 Certification: in addition to the test required, the contractor shall provide evidence of certification by a public authority of competent jurisdiction for the project area, stating that each governor and car safety has been tested and approved for use with the equipment having the specific ratings indicated or specified. Include the following data on a date plate attached to each safety:

a. Manufacturer's name

b. Model and type designation

c. Maximum tripping speed in meters per minute

d. Maximum gross load, in kilograms which the safety is designed to stop and sustain as installed.

e. The date of the safety test, made during the elevator inspection and acceptance tests witnessed by a certified elevator inspector, his name and certificate number.

12.6.3 REINSPECTION: if any equipment is found to be damaged or defective, or if the performance of the elevator does not conform to the requirements of the contract specifications or the safety code, no certificate of approval shall be issued, until all the defects have been corrected. When the repairs and adjustments have been completed and the discrepancies corrected, the architect shall be notified and the elevator shall be re-inspected. Do not use rejected elevators until they have been re-inspected and approved.

Note: ***In contrast between these Technical Specifications and the approved Plans issued to the Contractor, the approved Plans shall prevail. See also the approved program of works. In case of doubt, for clearer outlooks consult the assigned Architect/Engineer.***

Prepared by:

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Civil Engineer

Designers:

Ar. Ruel G. Resurreccion
Architect

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Civil / Structural Engineer

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Mechanical Engineer / Master Plumber

Engr. Erwin R. Sibucao
Electronics Engineer

Engr. Arvin R. Gammad
Electrical Engineer

Section VII. Drawings

[Insert here a list of Drawings. The actual Drawings, including site plans, should be attachedto this section, or annexed in a separate folder.]

Section VIII. Bill of Quantities

Notes on the Bill of Quantities

Objectives

The objectives of the Bill of Quantities are:

a. to provide sufficient information on the quantities of Works to be performed to enable Bids to be prepared efficiently and accurately; and

b. when a Contract has been entered into, to provide a priced Bill of Quantities for use in the periodic valuation of Works executed.

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

Daywork Schedule

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

a. A list of the various classes of labor, materials, and Constructional Plant for which basic daywork rates or prices are to be inserted by the Bidder, together with a statement of the conditions under which the Contractor will be paid for work executed on a daywork basis.

b. Nominal quantities for each item of Daywork, to be priced by each Bidder at Daywork rates as Bid. The rate to be entered by the Bidder against each basic Daywork item should include the Contractor's profit, overheads, supervision, and other charges.

Provisional Sums

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

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

Signature Box

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

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

BILL OF QUANTITIES
(Building Construction/Rehabilitation Project)

PROJECT TITLE : PROPOSED CONSTRUCTION OF QCITIZEN HOMES - SAN AGUSTIN COMMUNITY 2 (SITIO KAWAYAN)
LOCATION : BARANGAY SAN AGUSTIN, DISTRICT 5, QUEZON CITY
PROJECT NO. : 24 - 00181
DURATION : Four Hundred Eighty (480) Calendar Days

DETAILED COST ESTIMATE

ITEM NO.	WORK DESCRIPTION AND SCOPE OF WORKS	UNIT	QTY	UNIT COST	TOTAL COST
I	**GENERAL REQUIREMENTS**				
A	Mobilization / Demobilization	l.s.	1.00	₱	₱
B	Temporary enclosure around the construction area	l.s.	1.00		
C	Bunkhouse and temporary sanitation facility	l.s.	1.00		
D	Temporary electrical connection	l.s.	1.00		
E	Temporary water connection	unit	1.00		
F	Testing of Materials	l.s.	1.00		
G	Billboard	unit	1.00		
H	Construction Health and Safety	l.s.	1.00		
				Sub-Total I	**₱**
II	**SITE WORKS**				
A	Earthworks				
1	Site Clearing and Preparation	m²	943.00	₱	₱
2	Layout and Staking	m²	943.00		
3	Excavation	m³	1,597.00		
4	Backfill and Compaction	m³	923.00		
5	Hauling and disposal of excess materials	m³	539.00		
				Sub-Total	₱
6	Soil Treatment	m²	125.00	₱	₱
7	Gravel Bedding and Compaction (Ordinary Gravel)	m³	50.00		
				Materials Cost	₱
				Labor Cost	
				Sub-Total	₱
				Sub-Total A	₱
B	Demolition Works				
1	Removal of Actual Structure / Obstruction including hauling and disposal	l.s.	1.00	₱	₱
				Sub-Total B	₱
				Sub-Total II	**₱**

DETAILED COST ESTIMATE

ITEM NO.	WORK DESCRIPTION AND SCOPE OF WORKS	UNIT	QTY	UNIT COST	TOTAL COST
III	**CIVIL / STRUCTURAL WORKS**				
A	Concreting (Ready Mix Concrete @ 28 Days) including pumpcrete				
1	Footings, 5000 psi, 3/4" Gravel	m^3	162.00	₱	₱
2	Column, 5000 psi, 3/4" Gravel	m^3	226.00		
3	Beams, 5000 psi, 3/4" Gravel	m^3	703.00		
4	Suspended Slabs, 5000 psi, 3/4" Gravel	m^3	378.00		
5	Elevator Shear Walls, 5000 psi, 3/4" Gravel	m^3	62.00		
6	Wall Footings, 3000 psi, 3/4" Gravel	m^3	14.00		
7	Slabs-on-fill, 3000 psi, 3/4" Gravel	m^3	57.00		
8	Stairs 1, 3000 psi, 3/4" Gravel	m^3	27.00		
9	Stairs 2, 3000 psi, 3/4" Gravel	m^3	23.00		
10	Canopy / Ledge, 3000 psi, 3/4" Gravel	m^3	21.00		
11	STP, 3000 psi, 3/4" Gravel	m^3	50.00		
12	Cistern Tank & Fire Reserve Tank, 3000 psi, 3/4" Gravel	m^3	52.00		
13	Stiffener Column, 3000 psi, 3/4" Gravel	m^3	21.00		
14	Stiffener. Beam, 3000 psi, 3/4" Gravel	m^3	17.00		
15	Lean Concrete, 2500 psi, 3/4" Gravel	m^3	15.00		
				Materials Cost	₱
				Labor Cost	
				Sub-Total A	₱
B	Reinforcing Bars				
1	Grade 60				
	Footings	kgs	18,689.00	₱	₱
	Column & Stiffener Column	kgs	41,763.00		
	Beam & Stiffener Beam	kgs	90,718.00		
	STP	kgs	4,786.00		
	Cistern Tank & Fire Reserve Tank	kgs	6,552.00		
2	Grade 40				
	Column & Stiffener Column	kgs	37,524.00		
	Beam & Stiffener Beam	kgs	25,054.00		
	Wall Footings	kgs	413.00		
	Slabs-on-fill	kgs	1,474.00		
	Suspended Slab	kgs	60,922.00		
	Stairs 1	kgs	3,029.00		
	Stairs 2	kgs	2,763.00		
	Canopy / Ledge	kgs	1,253.00		
	Elevator Shear Walls	kgs	5,486.00		
	STP	kgs	1,214.00		
	Cistern Tank & Fire Reserve Tank	kgs	1,470.00		
3	G.I. Tie Wire	kgs	2,431.00		
				Materials Cost	₱
				Labor Cost	
				Sub-Total B	₱
C	Formworks & Scaffoldings				
1	Formworks & Shoring				
	Footings including lean concrete	m^2	188.00	₱	₱
	Column & Stiffener Column	m^2	1,550.00		
	Beam & Stiffener Beam	m^2	4,851.00		
	Suspended Slab	m^2	3,017.00		
	Slab-on-fill	m^2	246.00		
	Stairs 1	m^2	272.00		
	Stairs 2	m^2	246.00		
	Canopy / Ledge	m^2	265.00		
	Elevator Shear Walls	m^2	615.00		
	STP	m^2	341.00		
	Cistern Tank & Fire Reserve Tank	m^2	516.00		
2	Scaffoldings	m^2	1,041.00		
				Materials Cost	₱
				Labor Cost	
				Sub-Total C	₱

DETAILED COST ESTIMATE

ITEM NO.	WORK DESCRIPTION AND SCOPE OF WORKS	UNIT	QTY	UNIT COST	TOTAL COST
D	Miscellaneous Concrete Works				
	Concrete Service Entrance Column for Electrical and Auxiliary Works	units	2.00	₱	₱
				Materials Cost	₱
				Labor Cost	
				Sub-Total D	₱
E	Structural Steel Works				
1	Roof Framing				
	3 1/2" x 3 1/2" x 3/8" Angle Bar	kgs	6,947.00	₱	₱
	2 1/2" x 2 1/2" x 1/4" Angle Bar	kgs	2,602.00		
	2" x 8" x 3/8" thk. Metal Channel Rafter	kgs	258.00		
	2" x 2" x 1/4" Angle Bar	kgs	855.00		
	1 1/2" x 1 1/2" x 3/16" Angle Bar	kgs	425.00		
	2" x 6" Ga. 16 Metal "C" Purlins	kgs	2,334.00		
	20mm Ø Sag Rod	kgs	483.00		
	3/4" Ø Dyna Bolt	pcs	13.00		
2	Welding Rod	kgs	279.00		
3	Miscellaneous and Consumables	l.s.	1.00		
				Materials Cost	₱
				Labor Cost	
				Sub-Total E	₱
				Sub-Total III	**₱**
IV	**MASONRY WORKS**				
1	Laying of 150mm CHB, including mortar and reinforcement	m²	2,083.00	₱	₱
2	Laying of 100mm CHB, including mortar and and reinforcer	m²	3,654.00		
3	Plastering of CHB Walls (Smooth Finish)	m²	3,626.00		
3	Plastering of CHB Walls - Interior Units (Rough Finish)	m²	7,848.00		
4	Plastering of Door / and Window Openings (Smooth Finish)	m²	348.00		
5	Plastering of Cistern Tank and Fire Reserve Tank (Rough Finish)	m²	83.00		
				Materials Cost	₱
				Labor Cost	
				Sub-Total IV	**₱**
V	**THERMAL AND MOISTURE PROTECTION**				
A	Waterproofing Works				
	Cementitious Flexible Type				
	Toilets	m²	417.00	₱	₱
	Canopy / Ledge	m²	177.00		
	Decks (Lower and Upper)	m²	97.00		
	Elevator Pit	m²	32.00		
	Epoxy Tank Lining Food Grade				
	Cistern Tank & Fire Reserve Tank	m²	281.00		
B	Vapor Barrier, 8mil	m²	476.00		
				Materials Cost	₱
				Labor Cost	
				Sub-Total V	**₱**
VI	**ARCHITECTURAL WORKS**				
A	Floor Finishes				
1	600mm x 600mm Non Skid Ceramic Floor Tiles (Common Area)	m²	929.00	₱	₱
2	300mm x 300mm Non Skid Ceramic Floor Tiles (CR)	m²	295.00		
3	Rubberized Paint Finish (Deck)	m²	86.00		
4	Plain Cement Floor Finish	m²	2,481.00		
				Materials Cost	₱
				Labor Cost	
				Sub-Total A	₱

DETAILED COST ESTIMATE

ITEM NO.	WORK DESCRIPTION AND SCOPE OF WORKS	UNIT	QTY	UNIT COST	TOTAL COST
B	Wall Finishes				
1	300mm x 600mm Ceramic Wall Tiles (ht - 1.20m) (CR Admin)	m²	11.00	₱	₱
2	300mm x 300mm Ceramic Wall Tiles (ht - 1.20m) (CR Unit	m²	726.00		
3	25mm Ø Steel Ladder Rung, Painted Finish	l.s.	1.00		
4	Bricks Wall	m²	39.00		
5	Glass Blocks	m²	32.00		
				Materials Cost	₱
				Labor Cost	
				Sub-Total B	₱
C	Ceiling Finishes				
1	12mm Thk. MR Gypsum Board on light metal frame	m²	41.00	₱	₱
2	12mm Thk. Gypsum Board on light metal frame	m²	362.00		
3	6" Pre-Painted Metal Spandrel 0.40mm thk. on light metal frame	m²	73.20		
				Materials Cost	₱
				Labor Cost	
				Sub-Total C	₱
D	Roofing Works				
1	Rib Type Roofing Ga. 24, Pre-painted, Long Span with Insulation and Complete Accessories with Flashing	m²	480.00	₱	₱
2	Stainless Roof Gutter (G.a 24) including framing and accessories	lm	31.00		
3	12mm thk. Fascia Board including accessories, Painted Finish	lm	31.00		
				Materials Cost	₱
				Labor Cost	
				Sub-Total D	₱
E	Doors & Windows				
1	Doors including accessories				
	D1 - Panel Door	sets	73.00	₱	₱
	D2 - Flush Door	sets	72.00		
	D3 - PVC Door with Louver below	sets	72.00		
	D4 - Steel Door	sets	19.00		
	D5 - Metal Louvered Door	set	1.00		
	D6 - Metal Louvered Door	set	1.00		
	D7 - Flush Door with Louver Below	set	1.00		
	D8 - Metal Louvered Door	sets	3.00		
2	Windows including accessories				
	W1 - 6mm thk. Tempered Casement Window on Powder Coated Aluminum Frame	sets	91.00		
	W2 - Jalousie Window	sets	144.00		
	W3 - Jalousie Window	sets	72.00		
	W4 - 6mm thk. Tempered Glass Awning Window on Powder Coated Aluminum Frame	sets	73.00		
	W5 - Steel Louvered Window	sets	3.00		
3	Hardware accessories				
	Door Hinges	sets	968.00		
	Door Knob / Door Handle with Lockset	sets	237.00		
	Wooden Door Jamb	lm	716.00		
	Metal Door Jamb	lm	132.00		
	16mm Ø Barrel Bolt with Padlock Slot	sets	5.00		
				Materials Cost	₱
				Labor Cost	
				Sub-Total E	₱

DETAILED COST ESTIMATE

ITEM NO.	WORK DESCRIPTION AND SCOPE OF WORKS	UNIT	QTY	UNIT COST	TOTAL COST
F	Painting Works				
1	Quick Dry Enamel, Paint Finish (metal)	m²	1,080.00	₱	₱
2	Elastomeric Paint Finish (exterior concrete wall)	m²	2,035.00		
3	Semi-Gloss Latex Paint Finish (hallway / common area masonry walls, stairs)	m²	1,258.00		
4	Skim Coat in Flat Latext Paint Finish (interior units masonry walls - 1st Coat)	m²	7,848.00		
5	Flat Latex Paint Finish (concrete soffit - common area)	m²	362.00		
6	Flat Latex Paint Finish (ceiling boards - common area)	m²	79.00		
7	Semi Gloss Enamel Paint Finish (wood)	m²	431.00		
				Materials Cost	₱
				Labor Cost	
				Sub-Total F	₱
G	Miscellaneous / Specialty Works				
1	QC Logo	set	1.00	₱	₱
2	Stainless Steel Signage with neon backlights				
	"QCITIZENS HOMES SITIO KAWAYAN" (ht = 20 cm)	set	1.00		
3	Guard Railings at Stairs, Painted Finish	lm	152.00		
4	Hand Railings at Stairs, Painted Finish	lm	259.00		
5	Guard Railings at Hallway, Painted Finish, ht - 1.1m	set	74.00		
6	Guard Railings at Balcony, Painted Finish	set	121.00		
7	10cm thk. Concrete Kitchen Countertop, Plastered Finish	lm	114.00		
				Materials Cost	₱
				Labor Cost	
				Sub-Total G	₱
				Sub-Total VI	**₱**
VII	**ELECTRICAL WORKS**				
A	Roughing-ins				
	20mm Ø x 3m PVC Pipe	pcs	2,069.00	₱	₱
	20mm Ø PVC Adaptor	pcs	3,336.00		
	20mm Ø PVC Coupling	pcs	3,336.00		
	20mm Ø PVC Elbow	pcs	80.00		
	110mm Ø x 3m PVC Pipe	pcs	21.00		
	110mm Ø PVC Adaptor	pcs	9.00		
	110mm Ø PVC Locknut	pcs	9.00		
	20mm Ø x 3m IMC Pipe	pcs	1,601.00		
	20mm Ø IMC Elbow	pcs	350.00		
	20mm Ø IMC Coupling	pcs	1,598.00		
	20mm Ø IMC Locknut & Bushing	pcs	500.00		
	20mm Ø x 3" IMC Nipple	pcs	75.00		
	20mm Ø x 6" IMC Nipple	pcs	75.00		
	25mm Ø x 3m IMC Pipe	pcs	35.00		
	25mm Ø IMC Elbow	pcs	14.00		
	25mm Ø IMC Coupling	pcs	35.00		
	25mm Ø IMC Locknut & Bushing	pcs	22.00		
	40mm Ø x 3m IMC Pipe	pcs	3.00		
	40mm Ø IMC Elbow	pcs	5.00		
	40mm Ø IMC Coupling	pcs	3.00		
	40mm Ø IMC Locknut & Bushing	pcs	3.00		
	50mm Ø x 3m IMC Pipe	pcs	5.00		
	50mm Ø IMC Elbow	pcs	5.00		
	50mm Ø IMC Coupling	pcs	4.00		
	50mm Ø IMC Locknut & Bushing	pcs	3.00		
	100mm Ø x 3m IMC Pipe	pcs	27.00		
	100mm Ø IMC Elbow	pcs	13.00		
	100mm Ø IMC Coupling	pcs	27.00		
	100mm Ø IMC Locknut & Bushing	pcs	16.00		
	100mm Ø IMC Entrance Cap	pc	2.00		
	50mm x 100mm PVC Utility Box	pcs	668.00		
	100mm x 100mm PVC Junction Box with cover	pcs	641.00		
	4 11/16" Square Box with cover	pcs	3.00		
	15mm Ø Flexible Metallic Conduit	lm	944.00		
	15mm Ø Straight Connector	pcs	1,359.00		

DETAILED COST ESTIMATE

ITEM NO.	WORK DESCRIPTION AND SCOPE OF WORKS	UNIT	QTY	UNIT COST	TOTAL COST
	Horizontal Layout of Pipe	lm	30.00		
	Vertical Layout of Pipe	lm	40.00		
	Wire & Circuit Breaker Gutter (300mm x 300mm x 5850mm) Gauge 16	pcs	2.00		
B	Wires				
	2.0mm² THW Coppper Wire	rolls	24.00		
	3.5mm² THW Copper Wire	rolls	18.00		
	5.5mm² THW Copper Wire	rolls	32.00		
	8.0mm² THW Copper Wire	lm	111.00		
	14mm² THW Copper Wire	lm	15.00		
	22mm² THW CopperWire	lm	14.00		
	60mm² THW CopperWire	lm	142.00		
	3.5mm² THHN Copper Wire	rolls	31.00		
	8.0mm² THHN Copper Wire	rolls	65.00		
	30mm² THHN Copper Wire	lm	50.00		
	38mm² THHN Copper Wire	lm	281.00		
	50mm² THHN Copper Wire	lm	43.00		
	80mm² THHN Copper Wire	lm	40.00		
	250mm² THHN Copper Wire	lm	426.00		
C	Wiring Devices & Lighting Fixtures				
	Duplex Convenience Outlet, with Grounding and Cover	pcs	224.00		
	Outlet with Grounding, One Gang, for ACU, Heavy Duty	pcs	1.00		
	LED Exit Light Milled Aluminum Type Double sided Face,1.2V, 600mAh	pcs	16.00		
	Emergency Light, Twin Head	pcs	49.00		
	Outlet with Grounding, One Gang	pcs	49.00		
	4" Ø Keyless receptacle	pcs	360.00		
	50mmØ Plastic Receptacle w/ 10W LED Bulb	pcs	19.00		
	300mm x 1200mm Surface Mounted Box Type Lighting Fixture with 1 18W Daylight LED Tube	pcs	130.00		
	600mm x 600mm w/ 2 x 10w LED, Troffer Type, w/ complete accessories, recessed type	pcs	3.00		
	Switch with Plate and Cover, One Gang	pcs	316.00		
	Switch with Plate and Cover, Two Gang	pcs	9.00		
	Switch with Plate and Cover, Three Way	pcs	48.00		
D	Miscellaneous & Consumables				
	400cc PVC Solvent Cement	cans	20.00		
	Hacksaw Blade	pcs	20.00		
	Electrical Tape	rolls	250.00		
	Rubber Tape	rolls	20.00		
	G.I. Tie Wire #16	kgs	20.00		
	Eyebolt	pc	3.00		
	1/8"Ø x 1 1/2 Tox Screw	box	5.00		
	Concrete Nail, 3"	kgs	20.00		
	Epoxy Primer	ltr	20.00		
	Paint Thinner	gal	5.00		
	Paint Brush 2"	pcs	5.00		
	Copper Bonded Ground Rod 20mm x 3m	pcs	1.00		
				Material Cost	₱
				Labor Cost	
				Sub-Total A-D	₱
E	Panelboard				
1	MDPAD				
	Main : 400AT/400AF 3P 45 KAIC @240V MCCB	Assy	1.00	₱	₱
	Branches : 8				
	1 - 200AT 3P Bolt-On				
	1 - 150AT 3P Bolt-On				
	2 - 125AT 3P Bolt-On				
	1 - 100AT 3P Bolt-On				
	1 - 50AT 3P Bolt-On				
	2 - Space				
	Enclosure: NEMA 1 w/ metal deadfront				

DETAILED COST ESTIMATE

ITEM NO.	WORK DESCRIPTION AND SCOPE OF WORKS	UNIT	QTY	UNIT COST	TOTAL COST
2	MCB				
	Main : 1000AT/1000AF 3P 100 KAIC @240V MCCB	Assy	1.00		
	Enclosure: NEMA3R w/ Metal Deadfont				
3	ATS				
	Main :2 - 400AT, 400AF, 3P, 220V, 60 Hz	Assy	1.00		
	Enclosure: NEMA3R w/ Metal Deadfont (Free Standing)				
4	LPAD				
	Main : 100AT/100AF 3P 25 KAIC @240V MCCB	Assy	1.00		
	Branches : 14				
	12 - 20AT 2P Bolt-On				
	2- Spare				
	Enclosure: NEMA 1 w/ metal deadfront				
5	PPAD				
	Main : 150AT/200AF 3P 35 KAIC @240V MCCB	Assy	1.00		
	Branches : 20				
	2 - 50AT 3P Bolt-On				
	6 - 30AT 2P Bolt-On				
	10- 20AT 2P Bolt-On				
	2- Spare				
	Enclosure: NEMA 1 w/ metal deadfront				
6	METER CENTER				
	Main : 1000AT/1000AF 3P 100 KAIC @240V MCCB	Assy	1.00		
	Enclosure: NEMA 1 w/ Metal Deadfont				
7	LPP (TYPICAL TO ALL UNITS)				
	Main : 40AT/50AF 2P 18 KAIC @240V Bolt-On	Assy	72.00		
	Branches :				
	3 - 20AT 2P Bolt-On				
	1 - Spare				
	Enclosure: NEMA 1				
8	ENCLOSED CIRCUIT BREAKER				
	400AT, 3P, NEMA 3R	set	1.00		
	200AT, 3P, NEMA 3R	set	1.00		
	125AT, 3P, NEMA 3R	sets	2.00		
	50AT, 3P, NEMA 3R	sets	3.00		
	40AT, 2P, NEMA 3R	sets	2.00		
	30AT, 2P, NEMA 3R	sets	4.00		
				Material Cost	₱
				Labor Cost	
				Sub-Total E	₱
F	Grounding and Lighting Protection System				
	32mm Ø x 3m PVC Pipe	pcs	15.00	₱	₱
	32mm Ø PVC Adaptor	pcs	9.00		
	32mm Ø PVC Locknut	pcs	9.00		
	Lighting Arrester Dynasphere	pcs	1.00		
	Terminal Lug Coupling Connector	pcs	2.00		
	Terminal Lug One Hole Long Barrel 100mm²	pcs	1.00		
	Lighting Event Counter	pcs	1.00		
	Event Counter Enclosure	pcs	1.00		
	Steel Mast 50mm Dia x 6m	pcs	1.00		
	Base Plate For Steel Mast	pcs	1.00		
	Inline Coupling	pcs	1.00		
	Fiberglass Mast 3m	pcs	1.00		
	Lower Termination Kit	pcs	1.00		
	Ground Well/Pit 8" Dia Dept with S/S Cover	pcs	2.00		
	Copper Bonded Ground Rod 20mm x 3m	pcs	13.00		
	Cadweld Mold for GT Connection,	pcs	13.00		
	50mm² Cable to 20mm Rod				
	Powdered for GT Connection	tube	14.00		

DETAILED COST ESTIMATE

ITEM NO.	WORK DESCRIPTION AND SCOPE OF WORKS	UNIT	QTY	UNIT COST	TOTAL COST
	Powdered for VB Connection	tube	14.00		
	Powdered for GR Connection	tube	14.00		
	Handle Clamp Mold	pcs	2.00		
	Flint Igniter	pcs	2.00		
	50mm² Bare Copper Wire (uncut)	lm	160.00		
				Material Cost	₱
				Labor Cost	
				Sub-Total F	₱
G	Solar Power System				
1	Roughing-ins				
	20mm Ø x 3m IMC Pipe	pcs	4.00	₱	₱
	20mm Ø IMC Elbow	pcs	4.00		
	20mm Ø IMC Coupling	pcs	4.00		
	20mm Ø IMC Locknut & Bushing	pcs	14.00		
	25mm Ø x 3m IMC Pipe	pcs	5.00		
	25mm Ø IMC Elbow	pcs	4.00		
	25mm Ø IMC Coupling	pcs	5.00		
	25mm Ø IMC Locknut & Bushing	pcs	14.00		
	50mm Ø x 3m IMC Pipe	pcs	8.00		
	50mm Ø IMC Elbow	pcs	4.00		
	50mm Ø IMC Coupling	pcs	8.00		
	50mm Ø IMC Locknut & Bushing	pcs	8.00		
	80mm Ø x 3m IMC Pipe	pcs	22.00		
	80mm Ø IMC Elbow	pcs	4.00		
	80mm Ø IMC Coupling	pcs	22.00		
	80mm Ø IMC Locknut & Bushing	pcs	8.00		
2	Wires				
	8.0mm² THW Copper Wire	lm	22.00		
	22mm² THW Copper Wire	lm	20.00		
	38mm² THW Copper Wire	lm	60.00		
	14mm² THHN Copper Wire	lm	40.00		
	30mm² THHN Copper Wire	lm	48.00		
	80mm² THHN Copper Wire	lm	80.00		
	150mm² THHN Copper Wire	lm	180.00		
	6mm² PV Cable (100m per roll)	rolls	7.00		
3	Devices and Fixtures				
	PV Modules (720W) tier 1 monocrystalline panels	pcs	92.00		
	PV Inverter (40kW)	pcs	1.00		
	PV Inverter (50kW)	pcs	1.00		
	DC Optimizer	pcs	46.00		
	DC Combiner Box with Fuse	pcs	2.00		
	DC Rapid Shutdown	pcs	2.00		
	AC Rapid Shutdown	pcs	1.00		
	REC Meter	pcs	1.00		
	WIFI Module	pcs	1.00		
	200KVA Transformer	pcs	1.00		
4	Miscellaneous & Consumables				
	Electrical tape	rolls	97.00		
	Rubber Tape	rolls	5.00		
	G.I. Tie Wire	kgs	11.00		
	Connectors	pcs	97.00		
	Mounting Brackets (Aluminum Rail) @ 20' L	pcs	65.00		
	End Clamp	pcs	194.00		
	Hot Dip Galvanized Steel Ground	pcs	119.00		
	Splice Kit	pcs	193.20		
	Bolts and Screw	pcs	386.40		
				Material Cost	₱
				Labor Cost	
				Sub-Total 1-4	₱

DETAILED COST ESTIMATE

ITEM NO.	WORK DESCRIPTION AND SCOPE OF WORKS	UNIT	QTY	UNIT COST	TOTAL COST
5	Solar Panel				
	AC COMBINER				
	Main : 200AT/200AF 3P 35 KAIC @240V MCCB	Assy	1.00	₱	₱
	Branches : 2				
	1 - 100AT 3P Bolt-On				
	1 - 70AT 3P Bolt-On				
	Enclosure: NEMA 1 w/ metal deadfront				
	ENCLOSED CIRCUIT BREAKER				
	150AT 3P, NEMA 3R	set	1.00		
				Material Cost	₱
				Labor Cost	
				Sub-Total 5	₱
6	Testing and Commissioning including Net Metering Application	lot	1.00	₱	₱
				Sub-Total 6	₱
				Sub-Total G	₱
H	Generator Set				
	1 - 150 KVA 3P 220V 60 HZ Standby Generator Set	unit	1.00	₱	₱
	1800 rpm w/ 0.8 Pf, Diesel Engine Driven Electronic Governor				
	Dimension: 3520mm x 1120mm x 2080mm				
				Sub-Total H	₱
				Sub-Total VII	**₱**
VIII	**AUXILIARY WORKS**				
A	Fire Detection and Alarm System (FDAS)				
1	Roughing-ins				
	15mmØ x 3m EMT Pipe	pcs	480.00	₱	₱
	25mmØ x 3m EMT Pipe	pcs	7.00		
	32mmØ x 3m EMT Pipe	pcs	7.00		
	40mmØ x 3m EMT Pipe	pcs	6.00		
	15mmØ Flexible Metal Conduit	lm	318.00		
2	Pullbox, Jumction Box and Utility Box				
	50mm x 100mm Metallic Utility Box	pcs	48.00		
	100mm x 100mm Metallic Junction Box with cover	pcs	226.00		
	Fabricated Pull Box, 8" x 8" x 6" Gauge #16 (0.20m x 0.20m x 0.15m)	pcs	9.00		
3	Fittings and Accessories				
	15mmØ EMT Connector, Compression Type	pcs	842.00		
	15mmØ EMT Coupling, CompressionType	pcs	433.00		
	25mmØ EMT Connector, Compression Type	pcs	9.00		
	25mmØ EMT Coupling, CompressionType	pcs	6.00		
	32mmØ EMT Connector, Compression Type	pcs	9.00		
	32mmØ EMT Coupling, CompressionType	pcs	6.00		
	40mmØ EMT Connector, Compression Type	pcs	3.00		
	40mmØ EMT Coupling, CompressionType	pcs	6.00		
	15mmØ Straight Connector	pcs	318.00		
4	Wires & Cables				
	1.25mm² TF Wire	rolls	80.00		
5	Devices and Equipment				
	Smoke Detector, Addressable Photoelectric	pcs	79.00		
	Heat Detector, Addressable	pcs	73.00		
	Fire Alarm Manual Pull Station	pcs	24.00		
	Alarm Bell 6" Ø / Horn with Strobe Light	sets	24.00		
	Addressable Input Module	pcs	28.00		
	Addressable Output Module	pcs	3.00		
	Fire Alarm Annunciator, 80 Character LCD	pcs	19.00		
	Fire Alarm Control Panel (FACP), Intelligent Fully Addressable	units	1.00		
	Back- Up Baterry Pack (Lead-Acid) with Charger, 24 VDC with Ampere-Hour rating to operate the whole system as set by NFPA72	units	1.00		

DETAILED COST ESTIMATE

ITEM NO.	WORK DESCRIPTION AND SCOPE OF WORKS	UNIT	QTY	UNIT COST	TOTAL COST
6	Pipe Hangers and Supports				
	Horizontal Layout of Pipes	lm	859.00		
	Vertical Layout of Pipes	lm	188.00		
7	Miscellaneous & Consumables				
	Hacksaw Blade	pcs	15.00		
	Assorted Tox with Screw	boxes	9.00		
	Concrete Nail, 3"	kgs	2.00		
	Rubber Tape	rolls	5.00		
	Electrical tape	rolls	30.00		
	Masking tape	rolls	15.00		
	Paint Brush, 2"	pcs	5.00		
	Red Oxide Primer	ltrs	16.00		
	Paint Thinner	gal	2.00		
	Waste Cloth	kgs	12.00		
	Pulling Lubricant (Clear, Gel Type)	gal	1.00		
	GI Tie Wire, #16	kgs	10.00		
				Material Cost	₱
				Labor Cost	
				Sub-Total 1-7	₱
8	Testing and Commissioning	lot	1.00	₱	₱
				Sub-Total 8	₱
				Sub-Total A	₱
B	Closed Circuit Television (CCTV) System				
1	Roughing-ins				
	25mmØ x 3m PVC Pipe	pcs	161.00	₱	₱
	40mmØ x 3m EMT Pipe	pcs	5.00		
	50mmØ x 3m EMT Pipe	pcs	12.00		
	20mmØ Flexible Metal Conduit	lm	68.00		
	Cable Tray, 50mm x 50mm x 2400mm, with nuts and bolt	unit	9.00		
2	Pullbox, Junction Box and Utility Box				
	100mm x 100mm Metallic Junction Box with cover	pcs	21.00		
	Fabricated Pull Box, 8" x 8" x 6" Gauge #16 (0.20m x 0.20m x 0.15m)	pcs	9.00		
3	Fittings and Accessories				
	25mmØ PVC Adaptor	pcs	95.00		
	25mmØ PVC Locknut and Bushing	pair	95.00		
	40mmØ EMT Connector, Compression Type	pcs	7.00		
	40mmØ EMT Coupling, CompressionType	pcs	5.00		
	50mmØ EMT Connector, Compression Type	pcs	17.00		
	50mmØ EMT Coupling, CompressionType	pcs	11.00		
	20mmØ Straight Connector	pcs	68.00		
4	Wires & Cables				
	UTP Cable Cat 6, 4- pairs	rolls	14.00		
5	Devices & Equipment				
	Network Video Recorder (NVR), 16 Channel	units	3.00		
	Rackmounted UPS, 4000VA with AVR and Graphic LCD	units	1.00		
	Rack PDU, 12- Universal CO, (1U)	units	1.00		
	48-port PoE+ Switch with (2 x 10GigE SFP+), (1U) "PoE"	units	1.00		
	12 Bay Rackmounted Storage Expansion Unit	units	1.00		
	Rackmounted Surge Suppressor	units	1.00		
	Cable Manager (1U)	units	1.00		
	Small Form- Factor Pluggable (SFP) Module, 10G-SR	units	6.00		
	Small Form- Factor Pluggable (SFP) Module, 10G-LR	units	2.00		
	32- in LED Display	units	2.00		
	Multi- Function Keyboard and Mouse	units	1.00		
	Full HD IR Dome IP/Network Camera	pcs	29.00		
	Full HD IR WDR Bullet IP/Network Camera, IP66	pcs	3.00		
6	Pipe Hangers and Supports				
	Horizontal Layout of Pipes	lm	395.00		
	Vertical Layout of Pipes	lm	32.00		

DETAILED COST ESTIMATE

ITEM NO.	WORK DESCRIPTION AND SCOPE OF WORKS	UNIT	QTY	UNIT COST	TOTAL COST
7	Miscellaneous & Consumables				
	Wall Mounting Support	pcs	3.00		
	Hacksaw Blade	pcs	6.00		
	Assorted Tox with Screw	boxes	6.00		
	Concrete Nail, 3"	kgs	3.00		
	Rubber Tape	rolls	3.00		
	Electrical tape	rolls	6.00		
	Masking tape	rolls	15.00		
	Waste Cloth	kgs	10.00		
	Paint Brush, 2"	pc	2.00		
	Solvent Cement, 200cc	can	1.00		
	Universal RJ45 Connector 100pcs	boxes	1.00		
	Red Oxide Primer	ltrs	1.00		
	Pulling Lubricant (Clear, Gel Type)	quart	1.00		
	GI Tie Wire, #16	kgs	8.00		
	Metallic Cabinet/Enclosures/Racks and Electronic Equipn	pcs	2.00		
	Threaded Rod, 1/2"Ø x 4 ft.	pcs	9.00		
	Expansion Bolt with Shield, 1/2" Ø x 2"	pcs	18.00		
	1" x 3/16" 20ft Flat Bar	pcs	1.00		
	1" x 1" x 1/8" x 20ft Angle Bar	pcs	1.00		
				Material Cost	₱
				Labor Cost	
				Sub-Total 1-7	₱
8	Testing and Commissioning	lot	1.00	₱	₱
				Sub-Total 8	₱
				Sub-Total B	₱
C	Structured Cabling System (Voice, Data and Wifi Access)				
1	Roughing-ins				
	25mmØ x 3m PVC Pipe	pcs	523.00	₱	₱
	40mmØ x 3m EMT Pipe	pcs	59.00		
	50mmØ x 3m PVC Pipe	pcs	13.00		
	63mmØ x 3m PVC Pipe	pcs	19.00		
2	Pullbox, Jumction Box and Utility Box				
	50mm x 100mm PVC Utility Box	pcs	8.00		
	100mm x 100mm PVC Junction Box with cover	pcs	2.00		
	Concealed G.I Sheet Metal Box, Gauge #16 (79mm x 99mm x 46mm) with 3-Gang Aluminum Plate (No Device)	pcs	72.00		
3	Fittings and Accessories				
	25mmØ PVC Adaptor	pcs	175.00		
	25mmØ PVC Locknut and Bushing	pair	175.00		
	40mmØ EMT Connector, Compression Type	pcs	17.00		
	40mmØ EMT Coupling, CompressionType	pcs	54.00		
	40mmØ EMT Elbow	pcs	17.00		
	50mmØ PVC Adaptor	pcs	5.00		
	50mmØ PVC Locknut and Bushing	pair	5.00		
	50mmØ PVC Elbow	pcs	5.00		
	50mmØ Weatherproof Entrance Cap	pcs	2.00		
	63mmØ PVC Adaptor	pcs	9.00		
	63mmØ PVC Locknut and Bushing	pair	9.00		
	63mmØ PVC Elbow	pcs	3.00		
4	Wires & Cables				
	3.5mm² THHN Wire	lm	26.00		
	UTP Cable Cat 6, 4- pairs	rolls	1.00		
	GI Tie Wire, #16 (Pull wires)	kgs	33.00		
5	Devices, Equipment & Enclosures				
	Single Convenience Outlet, Simplex (1- Device)	pcs	2.00		
	Universal Data Outlet, Simplex (1- Device)	pcs	2.00		
	Universal Data Outlet, Duplex (2- Device)	pcs	2.00		
	Universal Voice and Data Outlet, Duplex (2- Device)	pcs	2.00		
	CCTV-DF CABINET	assy	1.00		

DETAILED COST ESTIMATE

ITEM NO.	WORK DESCRIPTION AND SCOPE OF WORKS	UNIT	QTY	UNIT COST	TOTAL COST
6	Pipe Hangers and Supports				
	Vertical Layout of Riser Pipes	lm	168.00		
	Underground Layout of Service Conduit	lm	10.00		
7	Miscellaneous & Consumables				
	Hacksaw Blade	pcs	10.00		
	Assorted Tox with Screw	boxes	6.00		
	Concrete Nail, 3"	kgs	3.00		
	Rubber Tape	rolls	2.00		
	Electrical tape	rolls	5.00		
	Masking tape	rolls	15.00		
	Waste Cloth	kgs	10.00		
	Paint Brush, 2"	pcs	3.00		
	Red Oxide Primer	ltrs	2.00		
	Solvent Cement, 400cc	cans	4.00		
	Universal RJ45 Connector	pcs	20.00		
	Metallic Cabinet/Enclosures/Racks and Electronic Equipn	pcs	2.00		
	16mm Ø x 3000mm Grounding Rod (Copper Clad) with Ground Clamp	set	1.00		
				Material Cost	₱
				Labor Cost	
				Sub-Total 1-7	₱
8	Testing and Commissioning	lot	1.00	₱	₱
				Sub-Total 8	₱
				Sub-Total C	₱
				Sub-Total VIII	**₱**
IX	**PLUMBING AND SANITARY WORKS**				
A	Drain, Waste & Vent				
1	PVC Pipe, S-1000				
	PVC Pipe, 200 Ø x 3 mts	pcs	20.00	₱	₱
	PVC Pipe, 150 Ø x 3 mts	pcs	88.00		
	PVC Pipe, 100 Ø x 3 mts	pcs	228.00		
	PVC Pipe, 75 Ø x 3 mts	pcs	161.00		
	PVC Pipe, 50 Ø x 3 mts	pcs	407.00		
2	PVC Fittings				
2.1	Wye				
	Wye, 250 Ø x 150 Ø	pcs	3.00		
	Wye, 200 Ø x 200 Ø	pcs	12.00		
	Wye, 200 Ø x 150 Ø	pcs	3.00		
	Wye, 150 Ø x 150 Ø	pcs	10.00		
	Wye, 150 Ø x 100 Ø	pcs	8.00		
	Wye, 150 Ø x 50 Ø	pcs	4.00		
	Wye, 100 Ø x 100 Ø	pcs	135.00		
	Wye, 100 Ø x 50 Ø	pcs	387.00		
	Wye, 75 Ø x 50 Ø	pcs	59.00		
	Wye, 50 Ø x 50 Ø	pcs	15.00		
2.2	Tee				
	Tee, 200 Ø x 200 Ø	pcs	12.00		
	Tee, 150 Ø x 150 Ø	pcs	10.00		
	Tee, 150 Ø x 50 Ø	pcs	7.00		
	Tee, 100 Ø x 100 Ø	pcs	135.00		
	Tee, 100 Ø x 50 Ø	pcs	387.00		
	Tee, 75 Ø x 50 Ø	pcs	59.00		
	Tee, 50 Ø x 50 Ø	pcs	15.00		
2.3	1/4 Bend				
	1/4 Bend 200 Ø	pcs	8.00		
	1/4 Bend 150 Ø	pcs	7.00		
	1/4 Bend 100 Ø	pcs	126.00		
	1/4 Bend 75 Ø	pcs	11.00		
	1/4 Bend 50 Ø	pcs	327.00		

DETAILED COST ESTIMATE

ITEM NO.	WORK DESCRIPTION AND SCOPE OF WORKS	UNIT	QTY	UNIT COST	TOTAL COST
2.4	1/8 Bend				
	1/8 Bend 200 Ø	pcs	8.00		
	1/8 Bend 150 Ø	pcs	69.00		
	1/8 Bend 100 Ø	pcs	257.00		
	1/8 Bend 75 Ø	pcs	11.00		
	1/8 Bend 50 Ø	pcs	658.00		
2.5	Reducer				
	Reducer, 200 Ø x 100 Ø	pcs	2.00		
	Reducer, 150 Ø x 100 Ø	pcs	3.00		
	Reducer, 150 Ø x 75 Ø	pcs	7.00		
2.6	Tap Tee				
	Tap Tee, 50 Ø x 40 Ø	pcs	76.00		
	Tap Tee, 50 Ø x 32 Ø	pcs	77.00		
2.7	Cleanout with Adapter				
	Cleanout 200 Ø	pcs	14.00		
	Cleanout 150 Ø	pcs	6.00		
	Cleanout 100 Ø	pcs	55.00		
2.8	P-Trap				
	P-Trap, 50 Ø	pcs	422.00		
2.9	Coupling				
	Coupling, 200Ø	pcs	19.00		
	Coupling, 150Ø	pcs	87.00		
	Coupling, 100Ø	pcs	227.00		
	Coupling, 75Ø	pcs	160.00		
	Coupling, 50Ø	pcs	406.00		
B	Waterline				
1	PPR Pipe, PN 16				
	PPR Pipe, 110 Ø x 4m	pcs	5.00		
	PPR Pipe, 90 Ø x 4m	pcs	4.00		
	PPR Pipe, 75 Ø x 4m	pcs	30.00		
	PPR Pipe, 65 Ø x 4m	pcs	21.00		
	PPR Pipe, 50 Ø x 4m	pcs	7.00		
	PPR Pipe, 40 Ø x 4m	pcs	22.00		
	PPR Pipe, 32 Ø x 4m	pcs	2.00		
	PPR Pipe, 25 Ø x 4m	pcs	123.00		
	PPR Pipe, 20 Ø x 4m	pcs	281.00		
2	PPR Fittings				
2.1	Tee Equal				
	Tee Equal, 110 Ø x 110 Ø	pcs	3.00		
	Tee Equal, 75 Ø x 75 Ø	pcs	6.00		
	Tee Equal, 40 Ø x 40 Ø	pcs	2.00		
	Tee Equal, 32 Ø x 32 Ø	pcs	3.00		
	Tee Equal, 20 Ø x 20 Ø	pcs	308.00		
2.2	Unequal Tee				
	Unequal Tee, 65 Ø x 25 Ø	pcs	16.00		
	Unequal Tee, 65 Ø x 20 Ø	pcs	9.00		
	Unequal Tee, 50 Ø x 25 Ø	pcs	9.00		
	Unequal Tee, 40 Ø x 25 Ø	pcs	15.00		
	Unequal Tee, 32 Ø x 20 Ø	pcs	2.00		
2.3	Reducer				
	Reducer, 65Ø x 50Ø	pcs	8.00		
	Reducer, 50Ø x 40Ø	pcs	9.00		
	Reducer, 40Ø x 32Ø	pcs	2.00		
	Reducer, 40Ø x 25Ø	pcs	9.00		
	Reducer, 32Ø x 20Ø	pcs	3.00		
	Reducer, 25Ø x 20Ø	pcs	90.00		
2.4	End Cap				
	End Cap, 20 Ø	pcs	309.00		
2.5	90° Elbow				
	90° Elbow, 110 Ø	pcs	7.00		
	90° Elbow, 75 Ø	pcs	20.00		
	90° Elbow, 65 Ø	pcs	10.00		
	90° Elbow, 40 Ø	pcs	2.00		
	90° Elbow, 32 Ø	pcs	4.00		
	90° Elbow, 25 Ø	pcs	162.00		
	90° Elbow, 20 Ø	pcs	309.00		

DETAILED COST ESTIMATE

ITEM NO.	WORK DESCRIPTION AND SCOPE OF WORKS	UNIT	QTY	UNIT COST	TOTAL COST
2.6	Union Patent				
	Union Patent, 65 Ø	pcs	7.00		
	Union Patent, 40 Ø	pcs	1.00		
	Union Patent, 20 Ø	pcs	1.00		
2.7	Female Threaded Tee				
	Female Threaded Tee, 20 Ø x 1/2" Ø	pcs	309.00		
2.8	Coupling				
	Coupling, 110 Ø	pcs	4.00		
	Coupling, 90 Ø	pcs	3.00		
	Coupling, 75 Ø	pcs	29.00		
	Coupling, 65 Ø	pcs	20.00		
	Coupling, 50 Ø	pcs	6.00		
	Coupling, 40 Ø	pcs	21.00		
	Coupling, 32 Ø	pcs	1.00		
	Coupling, 25 Ø	pcs	122.00		
	Coupling, 20 Ø	pcs	280.00		
3	Valves & Appurtenances				
3.1	Gate Valve, PPR Type				
	Gate Valve PPR, 110 Ø	pcs	2.00		
	Gate Valve PPR, 75Ø	pcs	3.00		
	Gate Valve PPR, 65Ø	pcs	7.00		
	Gate Valve PPR, 40 Ø	pcs	1.00		
	Gate Valve PPR, 25 Ø	pcs	63.00		
	Gate Valve PPR, 20 Ø	pcs	1.00		
3.2	Check Valve, 75 Ø	pc	3.00		
3.3	Float Valve, 75 Ø	pc	4.00		
3.4	Water Meter, 65 Ø	pc	1.00		
3.5	Water Meter, 25 Ø	pcs	63.00		
3.6	Angle Valve 2-way	pcs	73.00		
3.7	Angle Valve 3-way	pcs	145.00		
				Material Cost	₱
				Labor Cost	
				Sub-Total A-B	₱
C	Plumbing Fixtures				
1	Transfer Pump	units	2.00	₱	₱
	Centrifugally end-suction, cast-iron casing,				
	hard plastic impeller, Stainless steel shaft, mechanical				
	seal with a capacity of 170 GPM against 152 ft total				
	total dynamic hea, 220 V, 3Ø, 60Hz high effiencient				
	motor. Complete with electrodes, control panel &				
	other accessories needed for and or alternate operation				
2	Overhead Tank	units	2.00		
	Stainless steel construction, ga #14 vertically installed				
	capaticy of 1875 gals capacity, complete with manhole				
	inlet port, outlet port, outlet port, airvent ladder ring and				
	Steel Stand drain port, it shall be factory tested at 150 psi max				
	pressure.				
3	Elevator Pit Pump	unit	1.00		
	Submersible type, stainless steel construction, designd				
	to pump waste water. Pump shall have a capacity of				
	26.42 GPM against 20 FT and driven by 560 watts				
	submersible motor complete with float switches				
				Material Cost	₱
				Labor Cost	
				Sub-Total C	₱
D	Plumbing Fixtures				
1	Water Closet, Tank Type with accessories	sets	73.00	₱	₱
2	Lavatory Wall Hung	sets	73.00		
3	Lavatory Faucet	pcs	73.00		
4	Kitchen Sink, Single	set	72.00		
5	Kirchen Sink Faucet	pcs	72.00		
6	Shower	sets	73.00		

DETAILED COST ESTIMATE

ITEM NO.	WORK DESCRIPTION AND SCOPE OF WORKS	UNIT	QTY	UNIT COST	TOTAL COST
7	Floor Drain, 50Ø	pcs	229.00		
8	Deck Drain, 150Ø	sets	3.00		
9	Deck Drain, 75Ø	sets	6.00		
10	Deck Drain, 50Ø	sets	8.00		
11	Roof Drain, 100Ø	sets	14.00		
12	Bidet Spray	pcs	73.00		
13	Hose Bibb	pcs	75.00		
E	Miscellaneous & Consumables				
1	Solvent Cement, 400ml	cans	50.00		
2	Waste Cloth	kgs	8.00		
3	Hacksaw Blade	pcs	30.00		
4	Epoxy A & B, 1 gal.	set	12.00		
5	Flat Bar, 1 1/2" x 1/8" thick x 20 ft.	pcs	20.00		
6	Round Bar, 1/2" Ø x 20 ft.	pcs	10.00		
7	Expansion Bolt with Shield, 1/2" Ø x 2"	sets	500.00		
8	Metal Drill Bit, 1/2" Ø	pcs	20.00		
9	Concrete Drill Bit, 1/2" Ø	pcs	30.00		
10	Red Oxide Primer	gal	10.00		
11	Paint Thinner	gal	10.00		
12	Paint Brush 1"	pcs	15.00		
13	Paint Brush 2"	pcs	15.00		
14	Teflon Tape	rolls	60.00		
15	Angle Bar, 2" x 2" x 1/8" thick x 20 ft.	pcs	5.00		
16	Black Iron Pipe, 50 mmØ x 6 mts	pcs	1.00		
17	Epoxy Primer	gal	5.00		
18	Welding Rod	kgs	5.00		
19	Threaded Rod, 1/2"Ø x 8 ft.	pcs	20.00		
				Material Cost	₱
				Labor Cost	
				Sub-Total D - E	₱
F	Storm Drainage System				
1	Excavation for Drainage Pipes (manual)	m3	173.00	₱	₱
2	Backfill and Compaction for Drainage	m3	35.00		
3	Hauling and Disposal of Excess Materials	m3	104.00		
4	Trench	lm	1.00		
5	Area Drain/Catch Basin, 610 Ø	units	3.00		
6	Area Drain/Catch Basin, 460 Ø	units	1.00		
7	Manhole, 1200 Ø	units	1.00		
8	Manhole, 900 Ø	units	1.00		
9	Manhole, 610 Ø	units	2.00		
10	Reinforced Concrete Pipe, 910 Ø	lm	20.00		
11	Reinforced Concrete Pipe, 610 Ø	lm	69.00		
12	Reinforced Concrete Pipe, 460 Ø	lm	5.00		
				Sub-Total F	₱
				Sub-Total IX	**₱**
X	**MECHANICAL WORKS**				
A	Fire Protection Works				
1	Pipes & Fittings				
1.1	B.I. Pipe Sch. 40				
	B.I. Pipe, 150 mmØ x 6 mts	pcs	21.00	₱	₱
	B.I. Pipe, 65 mmØ x 6 mts	pcs	35.00		
	B.I. Pipe, 50 mmØ x 6 mts	pcs	18.00		
	B.I. Pipe, 40 mmØ x 6 mts	pcs	35.00		
	B.I. Pipe, 32 mmØ x 6 mts	pcs	61.00		
	B.I. Pipe, 25 mmØ x 6 mts	pcs	207.00		
1.2	Weldable Fittings				
1.2.1	Tee, Welded				
	Tee, 150 Ø x 150 Ø	pcs	3.00		
	Tee, 150 Ø x 65 Ø	pcs	10.00		
	Tee 65 Ø x 65 Ø	pcs	10.00		
	Tee 65 Ø x 50 Ø	pcs	1.00		
	Tee 65 Ø x 40 Ø	pcs	1.00		
1.2.2	Elbow, Welded				
	90 deg. Elbow, 150 Ø	pcs	14.00		

DETAILED COST ESTIMATE

ITEM NO.	WORK DESCRIPTION AND SCOPE OF WORKS	UNIT	QTY	UNIT COST	TOTAL COST
1.2.3	Slip-on-Flange ,				
	Slip-on-Flange , 150Ø	pcs	125.00		
	Slip-on-Flange , 65Ø	pcs	100.00		
1.2.4	Reducer, Welded				
	Reducer, 65 Ø x 50 Ø	pcs	10.00		
	Reducer, 65 Ø x 40 Ø	pcs	10.00		
1.3	Threaded Fittings				
1.3.1	Tee, Threaded				
	Tee, 50 Ø x 50 Ø	pcs	10.00		
	Tee, 50 Ø x 25 Ø	pcs	10.00		
	Tee, 40 Ø x 40 Ø	pcs	39.00		
	Tee, 40 Ø x 25 Ø	pcs	20.00		
	Tee, 32 Ø x 32 Ø	pcs	54.00		
	Tee, 32 Ø x 25 Ø	pcs	225.00		
	Tee, 25 Ø x 25 Ø	pcs	186.00		
1.3.2	Elbow, Threaded				
	90 deg. Elbow, 40 Ø	pcs	60.00		
	90 deg. Elbow, 32 Ø	pcs	16.00		
	90 deg. Elbow, 25 Ø	pcs	1,385.00		
1.3.3	Reducer, Threaded				
	Reducer, 50 Ø x 40 Ø	pcs	10.00		
	Reducer, 50 Ø x 25 Ø	pcs	6.00		
	Reducer, 40 Ø x 32 Ø	pcs	92.00		
	Reducer, 40 Ø x 25 Ø	pcs	1.00		
	Reducer, 32Ø x 25 Ø	pcs	203.00		
	Reducer, 25Ø x 13 Ø	pcs	605.00		
1.3.4	Thread-O-Let				
	Thread-O-Let, 40 Ø	pcs	96.00		
	Thread-O-Let, 32 Ø	pcs	22.00		
	Thread-O-Let, 25 Ø	pcs	1.00		
1.3.5	Union Patent				
	Union Patent, 50 Ø	pcs	1.00		
	Union Patent, 25 Ø	pcs	9.00		
1.3.6	End Cap				
	End Cap, 40 Ø	pcs	18.00		
1.3.7	Plug				
	Plug, 13 Ø	pcs	548.00		
				Materials Cost	₱
				Labor Cost	
				Sub-Total 1	₱
2	Imported Materials				
2.1	Sprinkler Heads				
	Pendent w/ escutcheon plate, 1/2"Ø, 57°C to 77°C	pcs	366.00	P	₱
	Sidewall, 1/2"Ø, 57°C to 77°C	pcs	34.00		
	Upright, 1/2"Ø, 57°C to 77°C	pcs	148.00		
2.20	Fire Hose Cabinet with accessories	sets	18.00		
2.30	Butterfly Valve w/ Tamper Switch, 65mm Ø	pcs	9.00		
2.40	Flow Switch, 65 Ø	pcs	9.00		
2.50	Sight Glass, 25 Ø	pcs	9.00		
2.60	Inspector Test Connection, 25 Ø	pcs	9.00		
2.70	Globe Valve, 25 Ø	pcs	27.00		
2.80	Globe Valve, 50 Ø	pcs	1.00		
2.90	Check Valve, 150 Ø	pcs	1.00		
2.10	Check Valve, 50 Ø	pcs	1.00		
2.11	Victualic Coupling 150 Ø	pcs	9.00		
2.12	Relief Valve 75 Ø	pcs	1.00		
2.13	Pressure Gauge, 0 -300 psi	pcs	11.00		
2.14	Alarm Check Valve, vertical, 150 Ø	Assy	1.00		
2.15	Flow Meter, 0 - 750 GPM	pcs	1.00		
2.16	Fire Extinguisher, HfC 236FA, 10 lbs	pcs	4.00		
2.17	Roof Manifold, 150 Ø x 65 Ø x 65 Ø	pcs	1.00		

DETAILED COST ESTIMATE

ITEM NO.	WORK DESCRIPTION AND SCOPE OF WORKS	UNIT	QTY	UNIT COST	TOTAL COST
2.18	Fire Department Siamese Connection, 150 Ø x 65 Ø x 65 Ø	pc	1.00		
2.19	Automatic				
				Materials Cost	₱
				Labor Cost	
				Sub-Total 2	₱
3	Equipment				
3.1	Fire Pump, vertical turbine, 750 GPM vs 110PSI 75HP, 220V, 3Ø, 60 Hz (Non-UL /FM)	unit	1.00	₱	₱
3.2	Jockey Pump, submersible, 25 GPM vs 110PSI, 5 HP, 220V, 3Ø, 60 Hz	unit	1.00		
				Sub-Total 3	₱
4	Miscellaneous & Consumables				
	Welding Rod	boxes	20.00	₱	₱
	Teflon Tape	rolls	2,370.00		
	Threading Oil	gals	25.00		
	Hacksaw Blade	pcs	30.00		
	Flat Bar, 1 1/2" x 1/8" thick x 20 ft.	pcs	36.00		
	Round Bar, 3/4" Ø x 20 ft.	pcs	36.00		
	Expansion Bolt with Shield, 3/4" Ø x 2"	sets	375.00		
	Metal Drill Bit, 3/4" Ø	pcs	40.00		
	Concrete Drill Bit, 3/4" Ø	pcs	10.00		
	Bolts, Nuts & Washer, 3/4"Ø x 3"	pcs	375.00		
	Bolts, Nuts & Washer, 1/2"Ø x 3"	pcs	300.00		
	Red Oxide Primer	gals	44.00		
	Paint Thinner	gals	12.00		
	Fire Red Paint	gals	44.00		
	Paint Brush 1 1/2"	pcs	60.00		
	Paint Brush 2"	pcs	40.00		
	Waste Cloth	kgs	20.00		
	Gasket Marker	tubes	60.00		
	Rubber Gasket	lm	5.00		
				Materials Cost	₱
				Labor Cost	
				Sub-Total 3	₱
				Sub-Total A	₱
B	Ventilation and Airconditioning System				
1	Window Type Air-Conditioner, Inverter Motor w/ Remote Control & High Purity Anti-Bacterial Filter				
	1.5 HP Rating (3.33 kW Cooling Capacity), 0.98 kW Power Input, 230 V / 1 Ph / 60 Hz Power Supply	unit	1.00	₱	₱
				Sub-Total 1	₱
2	Ventilation System				
2.1	Roof Mounted Axial Fan, 35,052 CMH, 4.0 kW Power Input, 230V/3PH/60Hz Power Supply w/ motor control panel	assy	2.00	₱	₱
2.2	Exhaust Fan, Duct Mounted Cassette Type, 330-340 CMH air volume, 35 W Power Input, 230V/1PH/60Hz Power Supply	pcs	73.00		
2.3	Exhaust Fan, Wall Mounted Axial type, 1260 CMH air volume, 46-52 W Power Input, 230V/1PH/60Hz	pcs	2.00		
				Materials Cost	₱
				Labor Cost	
				Sub-Total 2	₱
3	Miscellaneous & Consumables				
3.1	Angle Bar				
	50mm x 50mm x 3mm x 6m	pcs	48.00	₱	₱

DETAILED COST ESTIMATE

ITEM NO.	WORK DESCRIPTION AND SCOPE OF WORKS	UNIT	QTY	UNIT COST	TOTAL COST
3.2	PVC Pipes and Fittings				
	1/4 Bend 150 Ø	pcs	73.00		
	150 Ø x 3 mts	pcs	60.00		
3.3	Duct Cap, Stainless Steel				
	150 mm dia.	pcs	73.00		
3.4	Flat Bar, 1 1/2" x 1/8" thick x 20 ft.	pcs	10.00		
3.5	Threaded Rod, 1/2"Ø x 4 ft.	pcs	438.00		
3.6	Welding Rod	boxes	10.00		
3.7	Hacksaw Blade	pcs	20.00		
3.8	Blind Rivets #16	boxes	1.00		
3.9	Expansion Bolt with Shield, 1/2" Ø x 2"	sets	438.00		
3.10	Bolts, Nuts & Washer, 1/2"Ø x 3"	pcs	438.00		
3.11	Waste Cloth	kgs	10.00		
3.12	Red Oxide Primer	gals	12.00		
3.13	Metal Drill Bit, 1/2" Ø	pcs	8.00		
3.14	Concrete Drill Bit, 1/2" Ø	pcs	8.00		
3.15	Paint Thinner	gals	12.00		
3.16	Paint Brush 1 1/2"	pcs	10.00		
				Materials Cost	₱
				Labor Cost	
				Sub-Total 3-4	₱
				Sub-Total B	₱
C	Supply and Installation of Freight Elevator				
1	P.E. 1, 1,050 Kgs, 9-Stops, 9-Openings	unit	1.00	₱	₱
2	P.E. 2, 1,050 Kgs, 9-Stops, 9-Openings	unit	1.00		
				Sub-Total C	₱
				Sub-Total X	**₱**

Section IX. Checklist of Technical and Financial Documents

Notes on the Checklist of Technical and Financial Documents

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

a. GPPB Resolution No. 09-2020 on the efficient procurement measures during a State of Calamity or other similar issuances that shall allow the use of alternate documents in lieu of the mandated requirements; or

b. any subsequent GPPB issuances adjusting the documentary requirements after the effectivity of the adoption of the PBDs.

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

Checklist of Technical and Financial Documents

I. TECHNICAL COMPONENT ENVELOPE

Class "A" Documents

Legal Documents

☐ (a) Valid PhilGEPS Registration Certificate (Platinum Membership) (all pages);
and

☐ (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 *(please see attached prescribed forms required by the QC – BAC for Infrastructure and Consultancy)*; **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 with an attached Notice of Award, Notice to Proceed, Contract and Certificate of Acceptance *(please see attached prescribed form required by the QC – BAC for Infrastructure and Consultancy)*; **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; **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 *(please see attached prescribed form required by the QC – BAC for Infrastructure and Consultancy)*;

☐ 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 *(please see attached prescribed form required by the QC – BAC for Infrastructure and Consultancy)*; **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.

Additional Technical Requirements:

- ☐ Certificate of Site Inspection or Affidavit of Site Inspection as part of Omnibus Sworn Statement
- ☐ Affidavit of Undertaking for Key Personnel and Equipment *(please see attached prescribed form required by the QC – BAC for Infrastructure and Consultancy)*
- ☐ Equipment Utilization Schedule
- ☐ Manpower Schedule
- ☐ Construction Schedule and S-Curve
- ☐ PERT-CMP
- ☐ Construction Methods

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) *(please see attached prescribed form required by the QC – BAC for Infrastructure and Consultancy)*.

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.

Bid Form for the Procurement of Infrastructure Projects

[shall be submitted with the Bid]

BID FORM

Date : _____
Project Identification No. : _____

To: [name and address of Procuring Entity]

Having examined the Philippine Bidding Documents (PBDs) including the Supplemental or Bid Bulletin Numbers *[insert numbers],* the receipt of which is hereby duly acknowledged, we, the undersigned, declare that:

a. We have no reservation to the PBDs, including the Supplemental or Bid Bulletins, for the Procurement Project: *[insert name of contract];*

b. We offer to execute the Works for this Contract in accordance with the PBDs;

c. The total price of our Bid in words and figures, excluding any discounts offered below is: *[insert information]*;

d. The discounts offered and the methodology for their application are: *[insert information]*;

e. The total bid price includes the cost of all taxes, such as, but not limited to: *[specify the applicable taxes, e.g. (i) value added tax (VAT), (ii) income tax, (iii) local taxes, and (iv) other fiscal levies and duties],* which are itemized herein and reflected in the detailed estimates,

f. Our Bid shall be valid within the a period stated in the PBDs, and it shall remain binding upon us at any time before the expiration of that period;

g. If our Bid is accepted, we commit to obtain a Performance Security in the amount of *[insert percentage amount]* percent of the Contract Price for the due performance of the Contract, or a Performance Securing Declaration in lieu of the the allowable forms of Performance Security, subject to the terms and conditions of issued GPPB guidelines[1] for this purpose;

h. We are not participating, as Bidders, in more than one Bid in this bidding process, other than alternative offers in accordance with the Bidding Documents;

i. We understand that this Bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal Contract is prepared and executed; and

j. We understand that you are not bound to accept the Lowest Calculated Bid or any other Bid that you may receive.

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[1] currently based on GPPB Resolution No. 09-2020

k. We likewise certify/confirm that the undersigned, is the duly authorized representative of the bidder, and granted full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for the [Name of Project] of the [Name of the Procuring Entity*].*

l. We acknowledge that failure to sign each and every page of this Bid Form, including the Bill of Quantities, shall be a ground for the rejection of our bid.

Name: _____

Legal Capacity: _____

Signature: _____

Duly authorized to sign the Bid for and behalf of: _____

Date: _____

Bid Securing Declaration Form

[shall be submitted with the Bid if bidder opts to provide this form of bid security]

REPUBLIC OF THE PHILIPPINES)
CITY OF _____) S.S.

BID SECURING DECLARATION
Project Identification No.: *[Insert number]*

To: *[Insert name and address of the Procuring Entity]*

I/We, the undersigned, declare that:

1. I/We understand that, according to your conditions, bids must be supported by a Bid Security, which may be in the form of a Bid Securing Declaration.

2. I/We accept that: (a) I/we will be automatically disqualified from bidding for any procurement contract with any procuring entity for a period of two (2) years upon receipt of your Blacklisting Order; and, (b) I/we will pay the applicable fine provided under Section 6 of the Guidelines on the Use of Bid Securing Declaration, within fifteen (15) days from receipt of the written demand by the procuring entity for the commission of acts resulting to the enforcement of the bid securing declaration under Sections 23.1(b), 34.2, 40.1 and 69.1, except 69.1(f),of the IRR of RA No. 9184; without prejudice to other legal action the government may undertake.

3. I/We understand that this Bid Securing Declaration shall cease to be valid on the following circumstances:

    a. Upon expiration of the bid validity period, or any extension thereof pursuant to your request;
    b. I am/we are declared ineligible or post-disqualified upon receipt of your notice to such effect, and (i) I/we failed to timely file a request for reconsideration or (ii) I/we filed a waiver to avail of said right; and
    c. I am/we are declared the bidder with the Lowest Calculated Responsive Bid, and I/we have furnished the performance security and signed the Contract.

IN WITNESS WHEREOF, I/We have hereunto set my/our hand/s this ____ day of *[month] [year]* at *[place of execution]*.

[Insert NAME OF BIDDER OR ITS AUTHORIZED REPRESENTATIVE]
[Insert signatory's legal capacity]
Affiant

[Jurat]
[Format shall be based on the latest Rules on Notarial Practice]

GPPB Resolution No. 16-2020, dated 16 September 2020

Omnibus Sworn Statement (Revised)

[shall be submitted with the Bid]

REPUBLIC OF THE PHILIPPINES)
CITY/MUNICIPALITY OF _____) S.S.

AFFIDAVIT

I, [Name of Affiant], of legal age, [Civil Status], [Nationality], and residing at [Address of Affiant], after having been duly sworn in accordance with law, do hereby depose and state that:

1. *[Select one, delete the other:]*

   [If a sole proprietorship:] I am the sole proprietor or authorized representative of [Name of Bidder] with office address at [address of Bidder];

   [If a partnership, corporation, cooperative, or joint venture:] I am the duly authorized and designated representative of [Name of Bidder] with office address at [address of Bidder];

2. *[Select one, delete the other:]*

   [If a sole proprietorship:] As the owner and sole proprietor, or authorized representative of [Name of Bidder], I have full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for [Name of the Project] of the [Name of the Procuring Entity], as shown in the attached duly notarized Special Power of Attorney;

   [If a partnership, corporation, cooperative, or joint venture:] I am granted full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for [Name of the Project] of the [Name of the Procuring Entity], as shown in the attached [state title of attached document showing proof of authorization (e.g., duly notarized Secretary's Certificate, Board/Partnership Resolution, or Special Power of Attorney, whichever is applicable;)];

3. [Name of Bidder] is not "blacklisted" or barred from bidding by the Government of the Philippines or any of its agencies, offices, corporations, or Local Government Units, foreign government/foreign or international financing institution whose blacklisting rules have been recognized by the Government Procurement Policy Board, **by itself or by relation, membership, association, affiliation, or controlling interest with another blacklisted person or entity as defined and provided for in the Uniform Guidelines on Blacklisting;**

4. Each of the documents submitted in satisfaction of the bidding requirements is an authentic copy of the original, complete, and all statements and information provided therein are true and correct;

5. [Name of Bidder] is authorizing the Head of the Procuring Entity or its duly authorized representative(s) to verify all the documents submitted;

6. *[Select one, delete the rest:]*

[If a sole proprietorship:] The owner or sole proprietor is not related to the Head of the Procuring Entity, Procurement Agent if engaged, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

[If a partnership or cooperative:] None of the officers and members of *[Name of Bidder]* is related to the Head of the Procuring Entity, Procurement Agent if engaged, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

[If a corporation or joint venture:] None of the officers, directors, and controlling stockholders of *[Name of Bidder]* is related to the Head of the Procuring Entity, Procurement Agent if engaged, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

7. *[Name of Bidder]* complies with existing labor laws and standards; and

8. *[Name of Bidder]* is aware of and has undertaken the responsibilities as a Bidder in compliance with the Philippine Bidding Documents, which includes:

    a. Carefully examining all of the Bidding Documents;
    b. Acknowledging all conditions, local or otherwise, affecting the implementation of the Contract;
    c. Making an estimate of the facilities available and needed for the contract to be bid, if any; and
    d. Inquiring or securing Supplemental/Bid Bulletin(s) issued for the *[Name of the Project]*.

9. *[Name of Bidder]* did not give or pay directly or indirectly, any commission, amount, fee, or any form of consideration, pecuniary or otherwise, to any person or official, personnel or representative of the government in relation to any procurement project or activity.

10. <u>In case advance payment was made or given, failure to perform or deliver any of the obligations and undertakings in the contract shall be sufficient grounds to constitute criminal liability for Swindling (Estafa) or the commission of fraud with unfaithfulness or abuse of confidence through misappropriating or converting any payment received by a person or entity under an obligation involving the duty to deliver certain goods or services, to the prejudice of the public and the government of the Philippines pursuant to Article 315 of Act No. 3815 s. 1930, as amended, or the Revised Penal Code.</u>

11. We pledge that the project will be completed in accordance and congruency with the approved plans and programs.

IN WITNESS WHEREOF, I have hereunto set my hand this __ day of ___, 20__ at _____, Philippines.

[Insert NAME OF BIDDER OR ITS AUTHORIZED REPRESENTATIVE]
[Insert signatory's legal capacity]
Affiant

[Jurat]

[Format shall be based on the latest Rules on Notarial Practice]

Contract Agreement Form for the Procurement of Infrastructure Projects (Revised)

[not required to be submitted with the Bid, but it shall be submitted within ten (10) days after receiving the Notice of Award]

CONTRACT AGREEMENT

THIS AGREEMENT, made this *[insert date]* day of *[insert month]*, *[insert year]* between *[name and address of PROCURING ENTITY]* (hereinafter called the "Entity") and *[name and address of Contractor]* (hereinafter called the "Contractor").

WHEREAS, the Entity is desirous that the Contractor execute *[name and identification number of contract]* (hereinafter called "the Works") and the Entity has accepted the Bid for *[contract price in words and figures in specified currency]* by the Contractor for the execution and completion of such Works and the remedying of any defects therein.

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. In this Agreement, words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to.

2. The following documents as required by the 2016 revised Implementing Rules and Regulations of Republic Act No. 9184 shall be deemed to form and be read and construed as part of this Agreement, *viz*.:

   a. Philippine Bidding Documents (PBDs);
      i. Drawings/Plans;
      ii. Specifications;
      iii. Bill of Quantities;
      iv. General and Special Conditions of Contract;
      v. Supplemental or Bid Bulletins, if any;

   b. Winning bidder's bid, including the Eligibility requirements, Technical and Financial Proposals, and all other documents or statements submitted;

   Bid form, including all the documents/statements contained in the Bidder's bidding envelopes, as annexes, and all other documents submitted (*e.g.*, Bidder's response to request for clarifications on the bid), including corrections to the bid, if any, resulting from the Procuring Entity's bid evaluation;

   c. Performance Security;

   d. Notice of Award of Contract and the Bidder's conforme thereto; and

   e. Other contract documents that may be required by existing laws and/or the Procuring Entity concerned in the PBDs. **Winning bidder agrees that additional contract documents or information prescribed by the GPPB that are subsequently required for submission after the contract execution, such as the Notice to Proceed, Variation Orders, and Warranty Security, shall likewise form part of the Contract.**

3. In consideration for the sum of *[total contract price in words and figures]* or such other sums as may be ascertained, *[Named of the bidder]* agrees to *[state the object of the contract]* in accordance with his/her/its Bid.

4. The *[Name of the procuring entity]* agrees to pay the above-mentioned sum in accordance with the terms of the Bidding.

IN WITNESS whereof the parties thereto have caused this Agreement to be executed the day and year first before written.

[Insert Name and Signature]	*[Insert Name and Signature]*
[Insert Signatory's Legal Capacity]	*[Insert Signatory's Legal Capacity]*
for:	*for:*
[Insert Procuring Entity]	*[Insert Name of Supplier]*

Acknowledgment

[Format shall be based on the latest Rules on Notarial Practice]

LIST OF ALL ON-GOING GOVERNMENT AND PRIVATE CONTRACTS

NAME OF CONTRACTOR: _____

PROJECT TITLE (Name of the Contract) & EXACT PROJECT LOCATION	DATE OF CONTRACT	CONTRACT DURATION	PROJECT OWNER & POSTAL ADDRESS	NATURE OF WORK	CONTRACTOR'S ROLE (SOLE CONTRACTOR, SUBCONTRACTOR, PARTHNER IN A JV) and PERCENTAGE OF PARTICIPATION	TOTAL CONTRACT VALUE AT AWARD	DATE OF COMPLETION or ESTIMATED COMPLETION TIME	TOTAL CONTRACT VALUE AT COMPLETION *IF APPLICABLE*	PERCENTAGE		VALUE OF OUTSTANDING WORKS (IN PHP)
									ACTUAL ACCOMPLISHMENT	PLANNED ACCOMPLISHMENT	
									TOTAL AMOUNT (Php) OF OUTSTANDING WORKS		

PHOTOCOPY ADDITIONAL FORMS, IF NECESSARY

LIST OF ALL AWARDED BUT NOT YET STARTED GOVERNMENT AND PRIVATE CONTRACTS OF THE BIDDER

NAME OF CONTRACTOR: _____

PROJECT TITLE: _____

PROJECT TITLE & EXACT LOCATION	MAJOR SCOPE OF WORKS & DATE STARTED	NAME AND ADDRESS OF PROJECT OWNER	CONTRACT PRICE (PHP) AS AWARDED	DATE OF SCHEDULED COMPLETION	ROLE OF BIDDER IN THE CONTRACT SOLE CONTRACTOR / SUB-CONTRACTOR/PARTNER IN A
		TOTAL AMOUNT OF CONTRACT (Php)			

PHOTOCOPY ADDITIONAL FORMS, IF NECESSARY

SINGLE LARGEST COMPLETED CONTRACT SIMILAR TO THE CONTRACT TO BE BID

NAME OF CONTRACTOR: _____

PROJECT TITLE: _____

PROJECT TITLE (Name of the Contract) & EXACT PROJECT LOCATION	DATE OF CONTRACT	CONTRACT DURATION	PROJECT OWNER & POSTAL ADDRESS	NATURE OF WORK	CONTRACTOR'S ROLE (SOLE CONTRACTOR, SUBCONTRACTOR, PARTNER IN A JV) and PERCENTAGE OF PARTICIPATION	TOTAL CONTRACT VALUE AT AWARD	DATE OF COMPLETION or ESTIMATED COMPLETION TIME	TOTAL CONTRACT VALUE AT COMPLETION IF APPLICABLE

PHOTOCOPY ADDITIONAL FORMS, IF NECESSARY

LIST OF MAJOR EQUIPMENT TO BE USED FOR THE PROJECT

NAME OF CONTRACTOR: _____

PROJECT TITLE: _____

TYPE	DESCRIPTION / CAPACITY	SERIAL NO.	YEAR ACQUIRED	PRESENT LOCATION (SPECIFIC ADDRESS)	STATUS OF AVAILABILITY (OWNED/LEASED)

PHOTOCOPY ADDITIONAL FORMS, IF NECESSARY

A. LIST OF KEY CONSTRUCTION PERSONNEL TO BE ASSIGNED TO THE PROJECT

NAME OF CONTRACTOR: _____

PROJECT TITLE: _____

NAME	POSITION	AGE	EDUCATIONAL ATTAINMENT	TYPE OF CONSTRUCTION EXPERIENCE	NO.OF YEARS WITH THE CONTRACTOR	PROFESSION	PRC NO.

PHOTOCOPY ADDITIONAL FORMS, IF NECESSARY

COMPUTATION OF NET FINANCIAL CONTRACTING CAPACITY (NFCC)

NAME OF BIDDER: _____

CURRENT ASSETS*		PHP	
(LESS) CURRENT LIABILITIES*	(LESS)	PHP	
NETWORTH		PHP	
NETWORTH x 15	x 15	PHP	
(LESS) VALUE OF ALL OUTSTANDING ON-GOING CONTRACTS**	(LESS)	PHP	
(LESS) VALUE OF ALL AWARDED BUT NOT YET STARTED CONTRACTS AS OF DATE**	(LESS)	PHP	
NET FINANCIAL CONTRACTING CAPACITY		PHP	

NOTES: * CURRENT ASSETS AND LIABILITIES BASED ON AUDITED FINANCIAL STATEMENT FOR THE PRECEDING CALENDAR YEAR SUBMITTED TO B.I.R.

** BASED ON LIST OF ON-GOING AND AWRDED BUT NOT YEY STARTED CONTRACTS SUBMITTED

REPUBLIC OF THE PHILIPPINES)
_____) S. S.

AFFIDAVIT OF UNDERTAKING

I, _____, of legal age, Filipino, __**[*OFFICER OR REPRESENTATIVE*]**
____

with office address at _____ after having been duly sworn to in accordance with law, hereby voluntary depose and state:

That I am duly authorized representative of the **[Name of Bidder** to execute this undertaking as evidenced by Secretary's Certificate and Board Resolution.

That ___**[Name of Bidder]**___bidding for the (Name of Project)

That relative to the aforementioned Project, the ___[Name of Bidder]___hereby undertake that the equipment to be use and the key personnel to be assign shall exclusively be used and will only perform to the project until its completion.

That I am executing this affidavit to attest to the truth of the foregoing and in compliance with the submission of the technical requirements for the public bidding of the said project.

IN WITNESS HEREOF, I have hereunto signed my name below this _____day of_____, _____at _____.

AFFIANT FURTHER SAYETH NAUGHT.

_____
Affiant

SUBSCRIBED AND SWORN TO BEFORE ME this ___ day of _____, _____in _____,
affiant exhibiting to me his/her _____ issued at _____on _____.

Doc. No. ;
Page No. ;
Book No. ;
Series of 2020

_____
Notary Public


Republic of the Philippines
gppb
Government Procurement Policy Board