PHILIPPINE BIDDING DOCUMENTS

Procurement of INFRASTRUCTURE PROJECTS

Government of the Republic of the Philippines

PROPOSED CONSTRUCTION OF URBAN FARMING INNOVATION AND LEARNING CENTER

Project number:
23-00030

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.

TABLE OF CONTENTS

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 INFRASTRACTURE & CONSULTANCY
2nd floor, Finance Building, Procurement Department, Quezon City Hall Complex, Elliptical Road, Quezon City

March 29, 2023

Invitation to Bid

No.	Project No.	Project Name	Location	Amount	Duration Cal. Days	Office	Source Fund
Buildings – Small B							
1	23-00028	Proposed Rehabilitation of Police Station 15	Project 6	661,315.86	60	Department of Engineering	Engineering Department
2	23-00029	Proposed Rehabilitation of Quirino 2-A Fire Station	Quirino 2-A	2,929,713.65	90	Department of Engineering	Engineering Department
3	23-00030	Proposed Construction of Urban Farming Innovation and Learning Center	San Bartolome	9,494,989.10	150	Department of Engineering	Engineering Department
4	22-00107B	Proposed Upgrading of Electrical System at Apolonio Samson Elementary School	Apolonio Samson	5,114,276.17	90	Department of Engineering	Special Education Fund – Continuing Appropriation
5	22-00137B	Proposed Construction of Waiting Shed at Wayan Street	Mesambong	1,461,471.37	60	Department of Engineering	Engineering Department-Continuing Appropriation
6	22-00139B	Proposed Rehabilitation of San Bartolome Multi-Purpose Hall	San Bartolome	1,846,604.16	60	Department of Engineering	Engineering Department-Continuing Appropriation
Buildings – Medium A							
7	23-00031	Proposed Construction of Three (3) storey with Roof Deck Multi-Purpose Building	Krus Na Ligas	47,189,596.36	300	Department of Engineering	OCM-20% Community Development Fund
Roads – Small B							
8	23-00022	Proposed Rehabilitation (Surface Improvement) at San Lorenzo Ruiz Street	Talipapa	827,700.13	30	Department of Engineering	OCM-20% Community Development Fund
9	23-00032	Proposed Rehabilitation (Surface Improvement) at Sto. Niño Street	Tatalon	1,660,133.03	30	Department of Engineering	OCM-20% Community Development Fund
10	23-00033	Proposed Rehabilitation (Surface Improvement) at Candelaria Street	Greater Lagro	3,617,062.89	30	Department of Engineering	OCM-20% Community Development Fund
11	23-00034	Proposed Rehabilitation (Surface Improvement) of San Pablo Street	Bagumbayan	3,833,873.77	60	Department of Engineering	OCM-20% Community Development Fund

12	23-00035	Proposed Rehabilitation (Surface Improvement) at Columbia and Illinois Streets	Silangan	4,355,509.26	60	Department of Engineering	OCM-20% Community Development Fund
13	23-00036	Proposed Rehabilitation (Surface Improvement) of Buenamar and Panday Pira Streets	Novaliches Proper	6,406,477.33	90	Department of Engineering	OCM-20% Community Development Fund
14	23-00037	Proposed Rehabilitation (Surface Improvement) at Quirino High School	Duyan-Duyan	6,786,675.82	60	Department of Engineering	OCM-20% Community Development Fund
15	23-00038	Proposed Rehabilitation (Surface Improvement) at Robin, Eagle, Dove, Cardinal, Chickadee, Peacock, Pelican and Lovebird Streets	Kaligayahan	11,028,785.54	60	Department of Engineering	OCM-20% Community Development Fund
16	23-00039	Proposed Rehabilitation of Sidewalk and Drainage at Champaca Street	Roxas	14,222,091.36	90	Department of Engineering	OCM-20% Community Development Fund
17	23-00040	Proposed Rehabilitation (Surface Improvement) and Drainage at Matatag and Maunawain Streets	Pinyahan	15,124,446.43	120	Department of Engineering	OCM-20% Community Development Fund
18	23-00041	Proposed Rehabilitation (Surface Improvement) at Panay Avenue (Timog Avenue - EDSA)	South Triangle	23,692,572.05	60	Department of Engineering	OCM-20% Community Development Fund
19	22-00150B	Proposed Construction of Box Culvert at Road lot - 68	Marilag	2,123,619.82	60	Department of Engineering	Local Disaster Risk Reduction and Management Fund – Continuing Appropriation

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 **30 March 2023 (Thursday)** 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-Bid Conference[1] on **April 12, 2023** 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 **April 27, 2023 – 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.

9. Bid opening shall be on **April 27, 2023 - 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 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.

[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.

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:

ARCH. LUCILLE H. CHUA, fuap, piep
Chairperson, BAC-Infra and Consultancy

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 URBAN FARMING INNOVATION AND LEARNING CENTER,** with Project Identification Number **23-00030.**

[Note: The Project Identification Number is assigned by the Procuring Entity based on its own coding scheme and is not the same as the PhilGEPS reference number, which is 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 **2023** in the amount of **Nine Million Four Hundred Ninety-Four Thousand Nine Hundred Eighty-Nine Pesos and 10/100 Ctvs. (P 9,494,989.10).**

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 **April 12, 2023, 10:00 A.M. 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 - Small B</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-in-Charge</td><td>3 years</td><td>3 years</td></tr>
<tr><td>1</td><td>General Foreman</td><td>3 years</td><td>3 years</td></tr>
<tr><td>1</td><td>Trade Engineer/Leadman for civil works</td><td>3 years</td><td>3 years</td></tr>
<tr><td>1</td><td>Trade Engineer/Leadman for electrical works</td><td>3 years</td><td>3 years</td></tr>
<tr><td>1</td><td>Trade Engineer/Leadman for mechanical works</td><td>3 years</td><td>3 years</td></tr>
<tr><td>1</td><td>Safety Officer</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>
</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>Dumptruck</td><td></td><td>2</td></tr>
<tr><td>Jackhammer</td><td></td><td>1</td></tr>
<tr><td>Backhoe</td><td></td><td>1</td></tr>
</table>
</td></tr>
</table>

	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 189,899.78 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 474,749.46 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 150 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.

Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT
5TH 6TH, 7TH Floors, QC Civic Center Building "B"
Telephone Nos. 8988-4242 Local 8538

PROJECT TITLE : **PROPOSED CONSTRUCTION OF URBAN FARMING INNOVATION AND LEARNING CENTER**
LOCATION : **BARANGAY SAN BARTOLOME, DISTRICT 5, QUEZON CITY**

TECHNICAL SPECIFICATIONS

OGR. GENERAL REQUIREMENTS

A. Comply with the current and existing laws, ordinances and applicable codes, rules and regulations, and standards. Any works performed contrary to the existing laws, rules and regulations, ordinances and standards without notice shall bear all cost arising therefrom.

B. Drawings, specifications, codes and standards are minimum requirements. Where requirements differ, the more stringent apply.

C. Should there be any change(s) in drawings or specifications. It is required to comply with the governing regulations, notify the implementing agency

D. Photographs shall be taken as, when and where directed at intervals of not more than one month. The photographs shall be sufficient in number and location, to record the exact progress of the works. The photographs shall be retained and will become the property of the Government.

E. Site verification / inspection shall be conducted to validate the scope of works. No extra compensation and extension of time shall be given due to negligence or inadvertence.

F. The quality of materials shall be of the best grade of their respective kinds for the purpose. The work shall also be performed in the best and most capable manner in strict accordance with requirements of the plans and details. All materials not conforming to the requirements of these specifications shall be considered as defective.

G. All equipment and installations shall meet or exceed minimum requirements of the standards and codes.

H. Mobilization and Demobilization (if applicable)

1. Mobilization shall include all activities and related costs for transportation of personnel, equipment, and operating supplies to the site; establishment of offices, buildings, and other necessary general facilities for the operations at the site.

2. Demobilization shall include all activities and costs for transportation of personnel, equipment, and supplies not anymore required within the construction site including the disassembly, removal and site clean-up of offices and other facilities assembled on the site specifically for this contract.

I Execute work in strict accordance with the best practices of the trades in a thorough, substantial, workmanlike manner by competent workmen. Provide a competent, experienced, full-time supervisor who is authorized to make decisions on behalf of the Contractor.

J. Temporary Facilities and Utilities

1. All facilities shall be near the job site, where necessary and shall conform to the best standard for the required types.

2 Temporary facilities shall be provided and maintained including sanitary facilities and first aid stations

3 Temporary utilities shall be sufficiently provided until the completion of the project such as water, power and communication.

4. Temporary enclosure shall be provided around the construction site with adequate guard lights, railings and proper signage.

5 Temporary roadways shall be constructed and maintained to sustain loads to be carried on them during the entire construction period

6. Upon completion of the work, the temporary facilities shall be demolished, hauled-out and disposed properly.

K. Adequate construction safety and health protection shall be provided at all times during the execution of work to both workers and property

1 A fully-trained Medical Aide shall be employed permanently on the site who shall be engaged solely to medical duties

2 The medical room shall be provided with waterproofing. It could be a building or room designated and used exclusively for the purpose and have a floor area of at least 15 square meters and a glazed window area of at least 2 square meters

3 The location of the medical room and any other arrangements shall be made known to all employees by posting on prominent locations and suitable notices in the site.

4 Additional safety precautions shall be provided in the event of a pandemic. Protocols set forth by the government shall be strictly followed.

5. Construction safety shall consist construction canopy and safety net.

L. Necessary protections to the adjacent property shall be provided to avoid untoward incidents / accidents.

M. Final cleaning of the work shall be employed prior to the final inspection for the certification of final acceptance. Final cleaning shall be applied on each surface or unit of work and shall be of condition expected for a building cleaning and maintenance programs

SW. SITE WORKS

A. All grades, lines, levels and dimensions shall be verified as indicated on the plans and details Any discrepancies or inconsistencies shall be reported before commencing work.

B This item shall consist of the removal wholly or in part, and satisfactory disposal of all buildings, fences, structures, old pavements, abandoned pipe lines, and any other obstructions which are not designated or permitted to remain, except for the obstructions to be removed and disposed of under other items in the Contract. Removal and/or demolition of existing structures shall be done in accordance with safety procedures.

CWS. CIVIL / STRUCTURAL WORKS

A. CONCRETE WORKS

1. Delivery, Storage and Handling All materials shall be so delivered, stored, and handled as to prevent the inclusion of foreign materials and the damage of materials by water or breakage. Package materials shall be delivered and stored in original packages until ready to be used. Packages or materials showing evidence of water or other damage shall be rejected.

2. Unless otherwise specified herein, concrete works shall conform to the requirements of the ACI Building Code Full cooperation shall be given on 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 Materials

a) Cement for concrete shall conform to the requirements of specifications for Portland Cement (ASTM C – 150).

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

c) Fine aggregates shall be beach or river sand conforming to ASTM C33, "Specification for Concrete Aggregates". Sand particle shall be course, sharp, clean free from salt dust, loam, dirt and all foreign matters

d) Coarse aggregates shall be either natural gravel or crushed rock conforming to the "Specifications for Concrete Aggregates (ASTM C33). The minimum size of aggregates shall be larger than one fifth (1/5) of the narrowest dimensions between sides of the forms within which the concrete is to be cast nor larger than three fourths (3/4) of the minimum clear spacing between reinforcing bars or between reinforcing bars and forms.

4. Proportioning and Mixing

a) Proportioning and mixing of concrete shall conform to the requirements for Item 405 of the standard specification with the following proportions:

Cement Sand: Gravel
Class "A" - 1: 2: 3
Class "B" - 1: 2: 4
Class "C" - 1: 2 ½

b) Concrete mixture to be used for concrete shall conform with the structural requirements

c) Mixing – concrete shall be machine mixed. Mixing shall begin within 30 minutes after the cement has been added to the aggregates.

5. Forms

a) General – Forms shall be used whatever necessary to confine the concrete and shape it to the required lines, or to insure the concrete of 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 or mortar from the concrete Forms shall be ¼" (6mm) thick ordinary plywood and form lumber.

b) Cleaning of Forms - before placing the concrete, the contact surfaces of the formed hall be cleaned of encrustations of mortar, the grout or other foreign material.

c) Removal of Forms – forms shall be removed in a manner which will prevent damage to the concrete. Forms shell not be removed without approval. Any repairs of surface imperfections shall be formed at once and airing shall be started as soon as the surface is sufficienaly hard to permit it without further damage.

6. Placing Reinforcement:

Steel reinforcement shall be provided as indicated, together with all necessary tie wires, 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 used in such manner that they will not be exposed or contribute in any way, to the discoloration or deterioration of the concrete.

7. Conveying and Placing Concrete.

a) Conveying – concrete shall be conveyed from mixer to forms as rapidly as applicable, by methods which 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.

b) Placing – concrete shall be worked readily into the corners and angles of the forms and around all reinforcement and imbedded 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 consequently 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

c) 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. No concrete mix shall be placed before 60 complete revolutions of the machine mixer.

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

e) 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 ratios as used in concrete shall be first deposited to cover the surfaces.

8 Curing

a) 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.

b) 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 spraying or intermittent hosing.

9. Finishing

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

b) Concrete Slabs on Fill. The concrete slabs on fill shall be laid on a prepared foundation consisting of sub grade and granular fill with thickness equal to the thickness of the overlaying slab except when indicated.

B. ROOFING WORKS

1. Corrugated galvanized iron (G.I.) sheets, including plain aluminum sheets for roofing accessories shall be cold-rolled meeting ASTM A-153 and with spelter coating of zinc of not less than0.381 kg/sq.m. (1.25 ounce/sq.ft.) conforming to ASTM A-525 or pns 67:1985. Unless otherwise specified or shown on Plans, roofing sheets shall be gauge 26 (0.48mm thick) and provided in long span sizes to minimize end laps. Sheets shall weigh not less than 3.74 kg/sq.m. and shall be marked or stamped showing the gauge, size amount of zinc coating, brand and name of manufacturer. Test specimens shall stand being bent through 180 degrees flat on itself without fracture of the base metal and without flaking of the zinc coating.

2. Ridge/hip rolls, valleys, flashing and counter flashings, gutters and downspouts whenever required, shall be fabricated from plain G.I. sheets. Ridge/hip rolls, flashings and counter flashings shall be gauge 26. Valleys, gutters and downspouts shall be gauge 24 unless otherwise specified on Plans. Wire basket strainers shall be galvanized, gauge 24.

Roof ventilators, whenever required shall be fabricated from gauge 26 plain G.I. sheets and constructed to the dimensions and details shown on Plans.

3. The roofing shall be secured to the purlins with min. 2 ½" max. 3" long Tek screws. Provide all-purpose sealant under the fasteners. Ridge rolls, hip rolls and valleys to be used shall be those compatible with the Ga. 24 pre-painted G.I. rib-type roofing sheets. They shall lap the roofing sheets at least 250mm. The ridge rolls, hip rolls and valleys shall be riveted to the roofing sheets.

4. Polycarbonate roofing and sunbreakers shall be covered with 6mm thick Rib-type polycarbonate sheets as shown on the plans. The roofing shall be secured to the purlins with min. 2 ½" max. 3" long Tek screws. Provide all-purpose sealant under the fasteners. Ridge rolls, hip rolls and valleys to be used shall be those compatible with the 6mm thick solid polycarbonate sheets. They shall lap the roofing sheets at least 250mm. The ridge rolls, hip rolls and valleys shall be riveted to the roofing sheets.

5. All roofing sheets adjacent to concrete hollow block and other masonry walls such as property line firewalls, shall be provided with Gauge 26 pre-painted plain G.I. Flashing to extend to the top and over to the other side of the wall. All fasteners shall be placed at the top of the corrugations of the roofing sheets to prevent water from standing around the fasteners.

6 Provide 6mm thick thermal insulation with single-side aluminum foil prior to fastening of roofing sheets to serve as thermal protection

AW. ARCHITECTURAL WORKS

A. FLOOR FINISHES

1. **Ceramic Tiles.** Unglazed ceramic tiles shall be hard, dense tiles of homogeneous composition. Its color and characteristics area determined by the materials used in the body, the method of manufacture and the thermal treatment

Tile work shall not be started until roughing-ins for sanitary/plumbing, electrical and other trades have been completed and tested. The work of all other trades shall be protected from damage

2. **Vinyl Floor Tiles.** Vinyl tiles shall be of first grade quality. Fully homogeneous, flexible, resilient, and resistant to alkali moisture, grease and oil The color and design pattern of the vinyl tile shall be uniformly distributed throughout the thickness of the tile. Vinyl tiles shall be 2mm thick.

Installation of the tile shall not commence until the work of other trades, including painting has been completed. The Contractor shall carefully examine all surfaces over which the tiles are to be set. Floor surfaces that are to receive vinyl tile shall be clean thoroughly, dry, smooth, firm and sound and free from oil, paint, wax, dirt and any other damaging material.

3. **Cement Floor Finish.** Mortar topping shall be one part Portland cement and three parts fine aggregate by loose volume

Finish topping shall be pure Portland cement properly graded, mixed with water to approved consistency and plasticity. Where required to be colored cement floor finish, red or green oxide powder shall be premixed with Portland cement complying with finish topping requirements and the desired color intensity. Cement floor finish floor hardener shall be premixed as required and applied in accordance with the manufacturer's instruction manual.

4. **Pebble Washout Finish.** Pebble shall be well graded stones sized ranging from #4 to #10 rounded specie

All pebble washout finish shall be done by men experienced and qualified to do this particular type of trade. The Contractor shall submit at least two samples for each type of pebble washout finish to the Engineer/Architect for approval showing its color, texture and design patterns.

Pebble washout finish mix shall consist of one part Portland cement and two parts pebble measured by volume or a proportion equivalent to 1:2. Mixtures shall be in approved containers to ensure that the specified materials are controlled and accurately measured Mixtures measured by shovel or shovel counts will not be permitted Unless specified otherwise pebble washout mix shall be in the proportion by volume in approved mixing machines or mortar boxes. The aggregates introduced and mixed in such a manner that the materials will be uniformly distributed throughout the mass. A sufficient amount of water shall be added gradually and the mass further mixed until a mortar plasticity necessary for the purpose intended is obtained. Mortar boxes, pans etc where mixtures are mixed shall be keep clean and free from debris or dried mortar.

5. **Granite Tiles**
6. **Vinyl Roll**
7. **Anti-Microbial Tiles**
8. **Hardwood Tiles**

B CEILING FINISHES

1. **Fiber Cement Board on Metal Frame.** The ceiling materials to be used shall conform to the samples approved by the City Engineer. All ceiling works shall be done by men experienced and qualified to do this particular specialty trade. The installation of ceiling materials shall be in accordance with the detailed section and with the manufacturer's manual instructions. Ceiling materials shall be cut as required to fit the perpendicular condition and should be properly secured by anchorage and other accessories to complete the installation. No mechanical work shall be exposed on the finish work. All joints around electrical outlets, pipes and other works extending through materials shall be sealed with caulking.

2. **Moisture-Resistant Gypsum Board on Metal Frame.** The ceiling materials to be used shall conform to the samples approved by the City Engineer. All ceiling works shall be done by men experienced and qualified to do this particular specialty trade. The installation of ceiling materials shall be in accordance with the detailed section and with the manufacturer's manual instructions. Ceiling materials shall be cut as required to fit the perpendicular condition and should be properly secured by anchorage and other accessories to complete the installation. No mechanical work shall be exposed on the finish work. All joints around electrical outlets, pipes and other works extending through materials shall be sealed with caulking.

3. **Gypsum Board on Metal Frame.** The ceiling materials to be used shall conform to the samples approved by the City Engineer. All ceiling works shall be done by men experienced and qualified to do this particular specialty trade. The installation of ceiling materials shall be in accordance with the detailed section and with the manufacturer's manual instructions. Ceiling materials shall be cut as required to fit the perpendicular condition and should be properly secured by anchorage and other accessories to complete the installation. No mechanical work shall be exposed on the finish work. All joints around electrical outlets, pipes and other works extending through materials shall be sealed with caulking.

4. **Acoustic Board Ceiling on T-Runner Frame.** The ceiling materials to be used shall conform to the samples approved by the City Engineer. All ceiling works shall be done by men experienced and qualified to do this particular specialty trade. The installation of ceiling materials shall be in accordance with the detailed section and with the manufacturer's manual instructions. Ceiling materials shall be cut as required to fit the perpendicular condition and should be properly secured by anchorage and other accessories to complete the installation. No mechanical work shall be exposed on the finish work. All joints around electrical outlets, pipes and other works extending through materials shall be sealed with caulking.

5. Slab Soffit.

C. PAINTING WORKS

1 Paint Materials. All types of paint material and other related products shall be subject to test as to material composition by the Bureau of Research and Standard, DPWH or the National Institute of Science and Technology.

2. Tinting Colors. Tinting colors shall be first grade quality pigment ground in alkyd resin that disperses and mixes easily with paint to produce the color desired. Use the same brand of paint and tinting color to effect good paint body.

3. Skim coat. Skim coat shall be fine powder type material like kalsomine that can be mixed into putty consistency, with oil-based primers and paints to fill minor surface dents and imperfections.

4 Paint Schedule

a) Exterior Masonry Wall (plain cement plastered finish to be painted)

i. 1 coat skim coating, 1 coat primer, 2 coats elastomeric paint finish

b) Interior Masonry Wall (plain cement plastered finish to be painted)

i 1 coat skim coating, 1 coat primer, 2 coats latex paint finish

c) Interior Dry Wall

i 1 coat primer, 2 coats latex paint finish

d) Ceiling Boards

i 1 coat primer, 2 coats latex paint finish

e) Slab Soffit

i. 1 coat primer, 2 coats latex paint finish

f) Metal / Steel Surfaces

i 1 coat primer, 2 coats epoxy enamel finish

5. Surface Preparation All surfaces shall be in proper condition to receive the finish. Woodworks shall be hand-sanded smooth and dusted clean. All knot-holes pitch pockets or sappy portions shall be sealed with natural wood filler. Nail holes, cracks or defects shall be carefully putted after the first coat, matching the color of paint.

Interior woodworks shall be sandpapered between coats. Cracks, holes of imperfections in plaster shall be filled with patching compound and smoothed off to match adjoining surfaces

Concrete and masonry surfaces shall be coated with concrete neutralizer and allowed to dry before any painting primer coat is applied. When surface is dried apply first coating. Hairline cracks and unevenness shall be patched and sealed with approved putty or patching compound. After all defects are corrected apply the finish coats as specified on the Plans (color scheme approved)

Metal shall be clean, dry and free from mill scale and rust. Remove all grease and oil from surfaces. Wash, unprimed galvanized metal with etching solution and allow it to dry. Where required to prime coat surface with Red Lead Primer same shall be approved by the Engineer.

In addition, the Contractor shall undertake the following:

a. Voids, cracks, nick etc. will be repaired with proper patching material and finished flushed with surrounding surfaces

b. Marred or damaged shop coats on metal shall be spot primed with appropriate metal primer

c. Painting and varnishing works shall not be commenced when it is too hot or cold

d. Allow appropriate ventilation during application and drying period

e. All hardware will be fitted and removed or protected prior to painting and varnishing works.

6 Application Paints when applied by brush shall become non-fluid, thick enough to lay down as adequate film of wet paint Brush marks shall have flawed out after application of paint.

Paints made for application by roller must be similar to brushing paint. It must be non-sticky when thinned to spraying viscosity so that it will break up easily into droplets.

Paint is atomized by high pressure pumping rather than broken up by the large volume of air mixed with it. This procedure changes the required properties of the paint.

7. Application shall be as per paint Manufacturer's specification and recommendation.

8. Provide all drop cloth and other covering requisite for protection of floors, walls aluminum, glass, finishes and other works.

9. All applications and methods used shall strictly follow the Manufacturer's Instructions and Specifications.

10. All surfaces including masonry wall shall be thoroughly cleaned, puttied, sandpapered, rubbed and polished; masonry wall shall be treated with Neutralizer

11 All exposed finish hardware, lighting fixtures and accessories, glass and the like shall be adequately protected so that these are not stained with paint and other painting materials prior to painting works.

12. All other surfaces endangered by stains and paint marks should be taped and covered with craft paper

S/PW. SANITARY / PLUMBING WORKS

A. Comply with the current applicable codes, ordinances, and regulations of the authority or authorities having jurisdiction, the rules, regulations and requirements of the utility companies (as applicable).

B. Supply, installation and testing of the following:

1. Potable water supply system completes in all respects including but not limited to submittals, shop drawings, piping, water meters, valves, bibbs, insulation all accessories required for complete and operational of the system

2 Water service connections including but not limited to water meters, float valves. Any and all other works involve in providing the complete operation of the water supply system.

3 Soil waste and vent system complete in all respect including but not limited to connection to existing sewer, submittals, shop drawings, pipes, fittings, valves, cleanout, drains, etc Complete and operational

4 Storm drainage system complete in all respect including but not limited to connection to existing storm drainage, submittals, shop drawings, pipes, fittings, valves, cleanout, drains, etc Complete and operational

C. Workmanship and installation methods shall conform to the best modern practice. Employ skilled tradesmen to perform work under the direct supervision of fully qualified personnel.

D. All equipment and installations shall meet or exceed minimum requirements of the Standards and Codes as specified in plans and program of work

E. Install equipment in strict accordance with manufacturers written recommendations.

F Physical sizes of all plant and equipment are to be suitable for the space allocated for the accommodation of such plant and equipment, taking into account the requirement of access for maintenance purposes.

G. In selecting makes and types of equipment, the Contractor shall ascertain those facilities for proper maintenance, repair and replacement are provided.

H Where the Contractor proposes to use an item of equipment other than that specified or detailed in the drawing, which requires any redesign of the system, drawings showing the layout of the equipment and such redesign as required therefore shall be prepared by the Contractor at his own expenses. Where such approved deviation necessitates a different quantity and arrangement of materials and equipment's from that originally specified or indicated in the drawings, the Contractor shall furnish and install any such additional materials and equipment's required by the system at no additional cost.

I Equipment catalogue and manufacturer's specifications must be submitted for examination and details shall be submitted for approval before any equipment is to be ordered

J This shall include all information necessary to ascertain the equipment comply with this specification and drawings. Data and sales catalogue of a general nature will not be accepted

K. All materials, equipment, components and accessories shall be delivered to the Site in a new condition, properly packed and protected against damage or contamination or distortion, breakage or structural weakening due to handling, adverse weather or other circumstances and as far as practicable, they shall be kept in the packing cases or under approved protective coverings until required for use.

L. Any items suffering from damage during manufacture, or in transit, or on site whilst in storage or during erection shall be rejected and replaced without extra cost.

M. All sanitary fittings and pipework shall be cleaned after installation and keep them in a new condition.

N. All installed pipelines shall be flushed through with water, rodded when necessary to ensure clearance of debris.

O Cleaning and flushing shall be carried out in sections as the installation becomes completed.

P. The Contractor shall carry out hydraulic test on the complete plumbing systems and the drainage system to show that it is functioning satisfactorily within the requirements of this Specification and local regulations.

Q. The Contractor shall provide suitable test pumps and arrange for a supply of water required in connection with testing of pipework. The test pump shall be fitted with pressure gauges which shall be of suitable range for the pressure being applied

R. Hydraulic tests shall be carried out as the pipework is installed and shall be completed before chases in walls and ducts are closed. Also, test shall be carried out prior to false ceilings and other finishes are installed.

S Testing apparatus shall be provided by the Contractor. Where any section of pipework or equipment is unable to withstand the maximum pipework test pressure, it shall be isolated during the pipework test then that section of pipework or equipment shall be re-tested at the appropriate test pressure

T The Sanitary Contractor must carry out any additional tests required by the end-user and/or approving agency.

U Drainage pipe shall be tested by filling the pipe with 3m. of water higher than the test section and wait for 15 min, then check for leakage at every joints.

V. Testing of drainage systems shall be carried out in sections by dividing the system horizontally. Each section shall comprise pipework and fitting for three floors/storeys required for testing.

W Drainage pressure pipe shall be hydraulic tested at minimum pressure 50 psi

X. Hangers and supports for plumbing piping and equipment shall withstand the effects of gravity loads and stresses within limits and under conditions indicated according to ASCE/SEI 7.

Y. Install hangers and supports to allow controlled thermal and seismic movement of piping systems, to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops. expansion bends. and similar units.

Z Install lateral bracing with pipe hangers and supports to prevent swaying.

AA Install building attachments within concrete slabs or attach to structural steel. Install additional attachments at concentrated loads. including valves, flanges. and strainers, NPS 2-1/2 (DN 65) and larger and at changes in direction of piping. Install concrete inserts before concrete is placed; fasten inserts to forms and install reinforcing bars through openings at top of inserts.

BB Install hangers and supports so that piping live and dead loads and stresses from movement will not be transmitted to connected equipment

CC. Install hangers and supports to provide indicated pipe slopes and to not exceed maximum pipe deflections allowed by ASME B31.9 for building services piping.

EW. ELECTRICAL WORKS

A. CONDUITS, BOXES AND FITTINGS

1. This item shall consist of the furnishing and installation of the complete conduit work. consisting of electrical conduits; conduit boxes such as junction boxes, pull boxes. utility boxes, octagonal and square boxes conduit fittings, such as couplings locknuts and bushings and other electrical materials needed to complete the conduit roughing-in work of this project.

2 All materials shall be brand new and shall be of the approved type meeting all the requirements of the Philippine Electrical Code and bearing the Philippine Standard Agency (PSA) mark.

3. All works throughout shall be executed in the best practice in a workmanlike manner by qualified and experienced electricians under the immediate supervision of a duly licensed Electrical Engineer.

4. The work to be done under this division of specifications consists of the fabrication, furnishing, delivery and installation, complete in all details of the electrical work, at the subject premises and all work materials incidental to the proper completion of the installation, except those portions of the work which are expressly stated to be done by other fields. All works shall be done in accordance with the rules and regulations and with the specifications.

5. All lighting fixtures and lamps are as specified and listed on lighting fixture schedule.

6 All grounding system installation shall be executed in accordance with the approved plans. Grounding system shall include building perimeter ground wires, ground rods, clamps, connectors, ground wells and ground wire taps as shown in the approved design.

7. All auxiliary systems such as telephone and intercom system, time clock system, fire alarm system and public address/nurse's call/paging system installations shall be done in accordance with the approved design.

8 Upon completion of the electrical construction work, the contractor • shall provide all test equipment and personnel and to submit written copies of all test results

9 The contractor shall guarantee the electrical installation are done and in accordance with the approved plans and specifications. The contractor shall guarantee that the electrical systems are free from all grounds and from all defective workmanship and materials and will remain so for a period of one year from date and acceptance of works. Any defect shall be remedied by the Contractor at his own expense

B. WIRES AND WIRING DEVICES

1. This item shall consist of the furnishing and installation of all wires and wiring devices consisting of electric wires and cables, wall switches, convenience receptacles, heavy duty receptacles and other devices shown on the approved Plans but not mentioned in these specifications.

2. Wires and cables shall be of the approved type meeting all the requirements of the Philippine Electrical Code and bearing the Philippine Standard Agency (PSA) mark. Unless specified or indicated otherwise, all power and lighting conductors shall be insulated for 600 volts. All wires shall be copper, soft drawn and annealed, smooth and of cylindrical form and shall be centrally located inside the insulation

3. Conductors or wires shall not be drawn in conduits until after the cement plaster is dry and the conduits are thoroughly cleaned and free from dirt and moisture. In drawing wires into conduits, sufficient slack shall be allowed to permit easy connections for fixtures, switches, receptacles and other wiring devices without the use of additional splices.

4. All conductors of convenience outlets and lighting branch circuit homeruns shall be wired with a minimum of 3.5 mm in size. Circuit homeruns to panelboards shall not be smaller than 3.5 mm but all homeruns to panelboard more than 30 meters shall not be smaller than 5.5 mm. No conductor shall be less than 2 mm in size.

5 All wires of 14mm and larger in size shall be connected to panels and apparatus by means of approved type lugs or connectors of the solderless type, sufficiently large enough to enclose all strands of the conductors and securely fastened. They shall not loosen under vibration or normal strain.

6. All joints, taps and splices on wires larger than 14 mm shall be made of suitable solderless connectors of the approved type and size. They shall be taped with rubber and PVC tapes providing insulation not less than that of the conductors.

7. No splices or joints shall be permitted in either feeder or branch conductors except within outlet boxes or accessible junction boxes or pull boxes. All joints in branch circuit wiring shall be made mechanically and electrically secured by approved splicing

devices and taped with rubber and PVC tapes in a manner which will make their insulation as that of the conductor.

8 All wall switches and receptacles shall be fitted with standard Bakelite face plate covers. Device plates for flush mounting shall be installed with all four edges in continuous contact with finished wall surfaces without the use of coiled wire or similar devices. Plaster filling shall not be permitted. Plates installed in wet locations shall be gasketed.

9. When more than one switch or device is indicated in a single location, gang plate shall be used

C POWER LOAD CENTER, SWITCHGEAR AND PANELBOARDS

10. This item shall consist of the furnishing and installation of the power load center unit substation or low voltage switchgear and distribution panelboards at the location shown or the approved Plans complete with transformer, circuit breakers, cabinets and all accessories, completely wired and ready for service.

11 All materials shall be brand new and shall be of the approved type meeting all the requirements of the Philippine Electrical Code and bearing the Philippine Standard Agency (PSA) mark

12 Power Load Center Unit Substation. The Contractor shall furnish and install an indoor-type Power Load Center Unit Substation at the location shown on the approved Plans if required. It shall be totally metal-enclosed, dead front and shall consist of the following coordinated component parts

a High Voltage Primary Section. High voltage primary incoming line section consisting of the following parts and related accessories:

i. One (1) Air-filled Interrupter Switch, 2-position (open-close) installed in a suitable air filled metal enclosure and shall have sufficient interrupting capacity to carry the electrical load. It shall be provided with key interlock with the cubicle for the power fuses to prevent access to the fuses unless the switch is open

ii Three (3)-power fuses mounted in separate compartments within the switch housing and accessible by a hinged door.

iii. One 1) set of high voltage potheads or 3-conductor cables or three single conductor cables

iv Lightning arresters shall be installed at the high voltage cubicle if required

Items (i) and (iv) above could be substituted with a power circuit breaker with the correct rating and capacity

b. Transformer Section. The transformer section shall consist of a power transformer with ratings and capacities as shown on the plans. it shall be oil liquid-filled non-flammable type and designed in accordance with the latest applicable standards

The transformer shall be provided with four (4) approximately 2 1/2 % rated KVA taps on the primary winding in most cases one (1) above and three (3) below rated primary voltage and shall be changed by means of externally gang-operated manual tap changer only when the transformer is de-energized Tap changing under load is acceptable if transformer has been so designed

The following accessories shall be provided with the transformer, namely drain valve, sampling device, filling connection, oil liquid level gauge ground pad, top filter press connection, lifting lugs, diagrammatic nameplate, relief valve, thermometer and other necessary related accessories.

The high-voltage and low-voltage bushings and transition flange shall be properly coordinated for field connection to the incoming line section and low voltage switchboard section, respectively.

c. Low Voltage Switchboard Section. The low-voltage switchboard shall be standard modular-unitized units metal-built, dead front, safety type construction and shall consist of the following

i. Switchboard Housing. The housing shall be heavy gauge steel sheet, dead front type, gray enamel finish complete with frame supports, steel bracings, steel sheet panelboards, removable rear plates, copper busbars, and all other necessary accessories to insure sufficient mechanical strength and safety. It shall be provided with grounding bolts and clamps

ii. Secondary Metering Section. The secondary metering section shall consist of one (1) ammeter, AC, indicating type; one (1) voltmeter, AC, indicating type, one (1) ammeter transfer switch for 3-phase; one (1) voltmeter transfer switch for 3-phase; and current transformers of suitable rating and capacity

The above-mentioned instruments shall be installed in one compartment above the main breaker and shall be complete with all necessary accessories completely wired, ready for use.

iii. Main Circuit Breaker. The main circuit breaker shall be draw-out type, manually or electrically operated as required with ratings and capacity as shown on the approved Plans.

The main breaker shall include insulated control switch if electrically operated, manual trip button, magnetic tripping devices, adjustable time overcurrent protection and instantaneous short circuit trip and all necessary accessories to insure safe and efficient operation.

iv. Feeder Circuit Breakers. There shall be as many feeder breakers as are shown on the single line diagram or schematic riser diagram and schedule of loads and computations on the plans. The circuit breakers shall be drawout or molded case as required. The circuit breakers shall each have sufficient interrupting capacity and shall be manually operated complete with trip devices and all necessary accessories to insure safe and efficient operation. The number, ratings, capacities of the feeder branch circuit breakers shall be as shown on the approved Plans.

Circuit breakers shall each be of the indicating type, providing 'ON' - "OFF and "TRIP" positions of the operating handles and shall each be provided with nameplate for branch circuit designation. The circuit breaker shall be so designed that an overload or short on one pole automatically causes all poles to open.

d. Low Voltage Switchgear (For projects requiring low-voltage switchgear only). The Contractor shall furnish and install a low-voltage switchgear at the location shown on the plans. It shall be metal-clad, dead front, free standing, safety type construction and shall have copper busbars of sufficient size, braced to resist allowable root mean square (RMS) symmetrical short circuit stresses, and all necessary accessories. The low-voltage switchgear shall consist of the switchgear housing, secondary metering, main breaker and feeder branch circuit.

e. Grounding System. All non-current carrying metallic parts like conduits, cabinets and equipment frames shall be properly grounded in accordance with the Philippine Electrical Code, latest edition.

The size of the ground rods and ground wires shall be as shown on the approved Plans. The ground resistance shall not be more than 5 ohms

f. Panelboards and Cabinets. Panelboards shall conform to the schedule of panelboards as shown on the approved Plans with respect to supply characteristics, rating of main lugs or main circuit breaker, number and ratings and capacities of branch circuit breakers.

Panelboards shall consist of a factory completed; dead front assembly mounted in an enclosing flush type cabinet consisting of code gauge galvanized sheet steel box with trim and door. Each door shall be provided with catch lock and two (2)

keys. Panelboards shall be provided with directories and shall be printed to indicate load served by each circuit

Panelboard cabinets and trims shall be suitable for the type of mounting shown on the approved Plans. The inside and outside of panelboard cabinets and trims shall be factory painted with one rust-proofing primer coat and two finish shop coats of pearl gray enamel
paint.

Main and branch circuit breakers for panelboards shall have the rating, capacity and number of poles as shown on the approved Plans. Breakers shall be thermal magnetic type. Multiple breaker shall he of the common trip type having a single operating handle For 50-ampere breaker or less, it may consist of single-pole breaker permanently assembled at the factory into a multi-pole unit.

13 The Contractor shall install the Power Load Center Unit Substation or Low-Voltage Switchgear and Panelboards at the locations shown on the approved Plans

Standard panels and cabinets shall be used and assembled on the job. All panels shall be of dead front construction furnished with trims for flush or surface mounting as required

D. Comply with the current applicable codes, ordinances, and regulations of the authority or authorities having jurisdiction, the rules, regulations and requirements of the utility companies (as applicable).

E. Drawings, specifications, codes and standards are minimum requirements Where requirements differ, the more stringent apply.

F. All equipment and installations shall meet or exceed minimum requirements of the Standards and Codes

G. Execute work in strict accordance with the best practices of the trades in a thorough, substantial, workmanlike manner by competent workmen.

H. When the tests and inspections have been completed, a label shall be attached to all devices tested. The label shall provide the name of the testing company, the date the tests were completed, and the initials of the person who performed the tests.

I. PANELBOARDS

14. Fabricate and test panelboards according to IEEE 344 to withstand seismic forces defined in Division 16 Sections 16073 and 16074 "Hangers and Supports for Electrical Systems and Vibration and Seismic controls for Electrical Systems" respectively.

15 Enclosures: Flush, Surface, Flush- and surface-mounted cabinets.

a. Rated for environmental conditions at installed location.

i Indoor Dry and Clean Locations: NEMA, Type 1

ii. Outdoor Locations: NEMA, Type 3R.

iii. Kitchen and Wash-Down Areas: NEMA, Type 4X, stainless steel.

iv Indoor Locations Subject to Dust, Falling Dirt, and Dripping Noncorrosive Liquids: NEMA, Type 12

v Outdoor Locations Subject to Dust, Falling Dirt, and Dripping Noncorrosive Liquids: NEMA, Type 5R

b. Front. Secured to box with concealed trim clamps. For surface-mounted fronts, match box dimensions. for flush-mounted fronts, overlap box.

c. Hinged Front Cover: Entire front trim hinged to box and with standard door within hinged trim cover.

d Skirt for Surface-Mounted Panelboards Same gauge and finish as panelboard front with flanges for attachment to panelboard, wall, and ceiling or floor.

e. Gutter Extension and Barrier Same gage and finish as panelboard enclosure: integral with enclosure body. Arrange to isolate individual panel sections.

f. Finishes:

i Panels and Trim: Steel and galvanized steel, factory finished immediately after cleaning and pretreating with manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat.

ii. Back Boxes: Galvanized steel Same finish as panels and trim.

iii Fungus Proofing: Permanent fungicidal treatment for overcurrent protective devices and other components

g. Directory Card: Inside panelboard door, mounted in transparent card holder metal frame with transparent protective cover.

16. Incoming Mains Location: Top or Bottom.

17. Phase, Neutral, and Ground Buses.

a. Material: Hard-drawn copper 98 percent conductivity.

b Equipment Ground Bus: Adequate for feeder and branch-circuit equipment grounding conductors: bonded to box.

c Neutral Bus 100 percent of phase bus 4 Extra-Capacity Neutral Bus: Neutral bus rated 200 percent of phase bus and UL listed as suitable for nonlinear loads.

MECH. MECHANICAL WORKS

A. Air Conditioning and Refrigeration System

5. This item shall consist of furnishing and installation of air conditioning, refrigeration and ventilation systems, inclusive of necessary electrical connections, ductworks, grilles, pipes and condensate drains and all other necessary accessories ready for service in accordance with the Plans and Specifications

6. The types, sizes, capacities, quantities and power characteristics of the compressor, evaporator, condenser, chilled water pump and condenser water pump shall be specified or as shown on the Plans

7. The air conditioning system shall be entirely automatic in operation and shall not require the presence of an attendant except for periodic inspection for lubrication All equipment and materials shall be inspected upon delivery and shall be tested after installation Piping shall not be buried, concealed or insulated until it has been inspected, tested and approved. Walls, floors and other parts of the structure and equipment damaged by the Contractor in the prosecution of the work shall be replaced as shown on the Plans.

B Comply with the current applicable codes, ordinances, and regulations of the authority or authorities having jurisdiction, the rules, regulations and requirements of the utility companies (as applicable).

C. Drawings, specifications, codes and standards are minimum requirements. Where requirements differ, the more stringent apply.

D. All equipment and installations shall meet or exceed minimum requirements of the Standards and Codes.

E. Execute work in strict accordance with the best practices of the trades in a thorough, substantial, workmanlike manner by competent workmen.

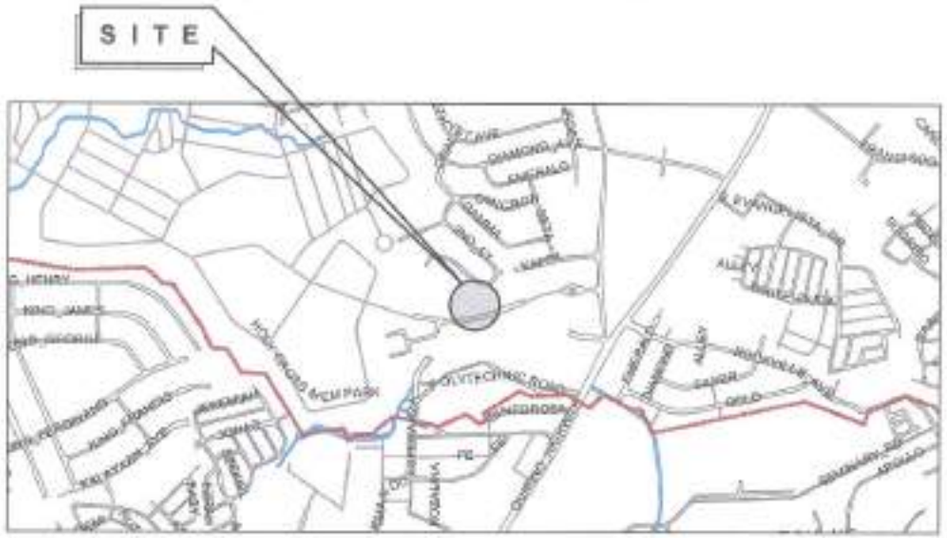
F. When the tests and inspections have been completed, a label shall be attached to all devices tested. The label shall provide the name of the testing company, the date the tests were completed, and the initials of the person who performed the tests.

ALVIN FRANCIS C. ABON
Planning and Programming Division

JOCELYN A. NAONG
Planning and Programming Division

Section VII. Drawings

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



1 VICINITY MAP

2 LOCATION PLAN

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Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

PROJECT TITLE:
URBAN FARMING INNOVATION AND LEARNING CENTER

LOCATION:
BRGY. SAN BARTOLOME, DISTRICT 5, QUEZON CITY

DRAWN BY:
DATE:
CHECKED BY:
REVISION NO:

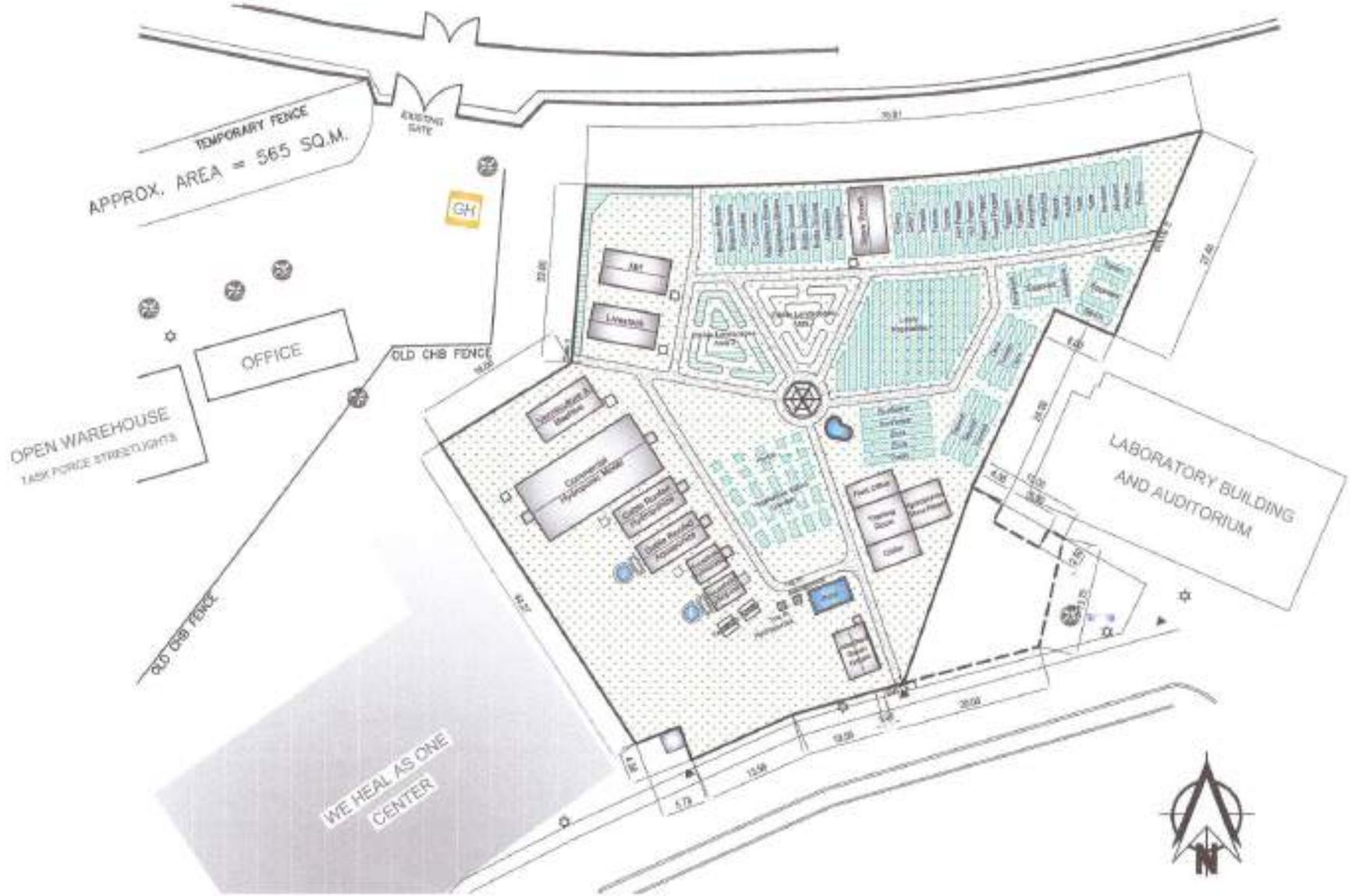
SUBMITTED BY:
ENGR. LEO S. DEL ROSARIO
HEAD - PLANNING & PROGRAMMING DIVISION

RECOMMENDING APPROVAL:
ENGR. ISAGANI R. VERZOSA, JR.
OIC, CITY ENGINEERING DEPARTMENT

APPROVED BY:
HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENT:
A-1 VERTICAL HYDROPONIC MODEL

SHEET NO:
LP
1/2 | 1/49



1 **NEW SITE DEV'T. PLAN (SKETCH ONLY)**

SCALE: NTS

Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

PROJECT TITLE:
URBAN FARMING INNOVATION AND LEARNING CENTER

LOCATION:
BRGY. SAN BARTOLOME, DISTRICT II, QUEZON CITY

DRAWN BY:

DATE:

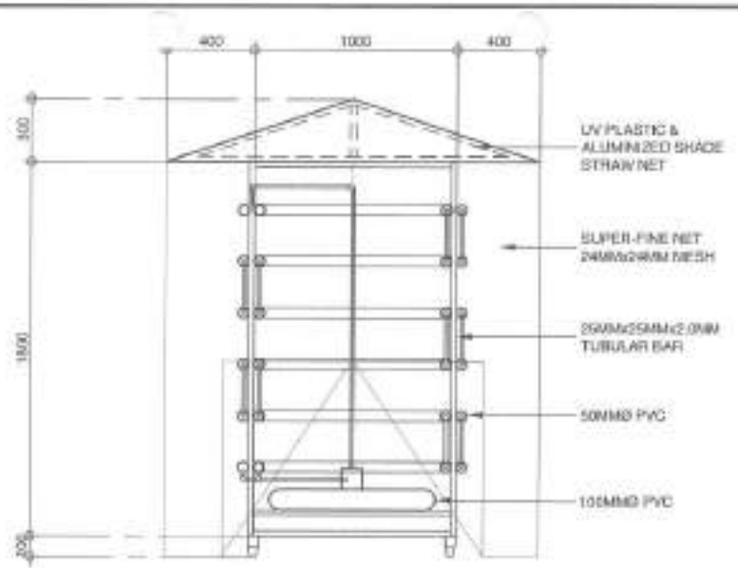
SUBMITTED BY:
ENGR. LEO S. DEL ROSARIO
HEAD - PLANNING & PROGRAMMING DIVISION

RECOMMENDING APPROVAL:
ENGR. [illegible] R. VERZOSA, JR.
OIC, CITY ENGINEERING DEPARTMENT

APPROVED BY:
HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENT:
SITE DEVELOPMENT PLAN

SHEET NO.
SDP
2/2 2/49



3 FRONT ELEVATION
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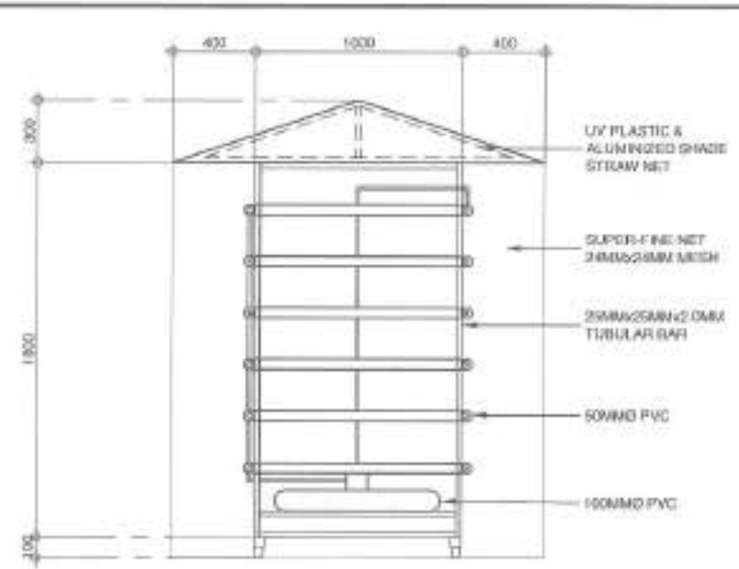
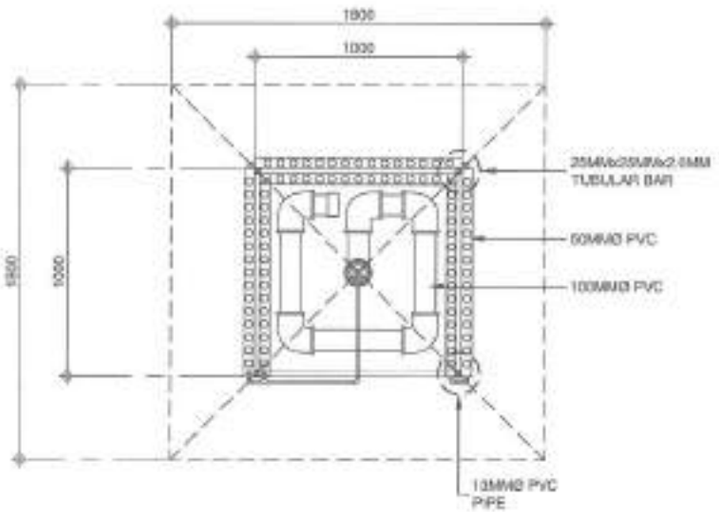


4 TYPICAL SIDE ELEVATION
(A-1 VERTICAL HYDROPONIC MODEL)
SCALE: 1:25M



1 P L A N
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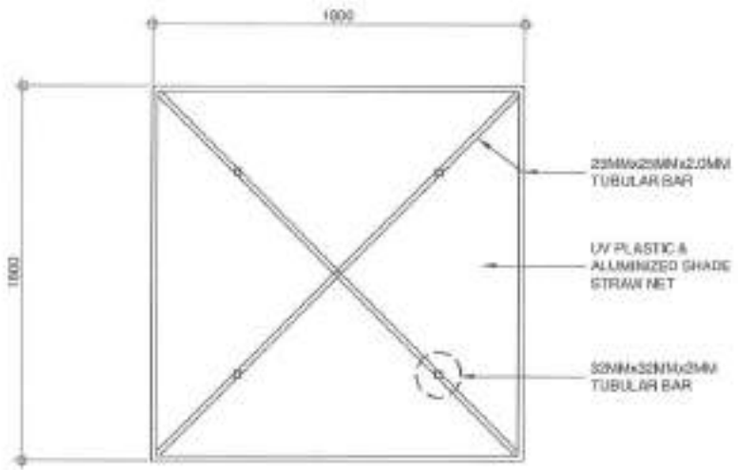


2 ROOF PLAN
(A-1 VERTICAL HYDROPONIC MODEL)
SCALE: 1:25M

Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

PROJECT TITLE:
URBAN FARMING INNOVATION AND LEARNING CENTER

LOCATION:
BRGY. SAN BARTOLOME, DISTRICT II, QUEZON CITY

DRAWN BY:
DATE:
CHECKED BY:
REVISION NO.:

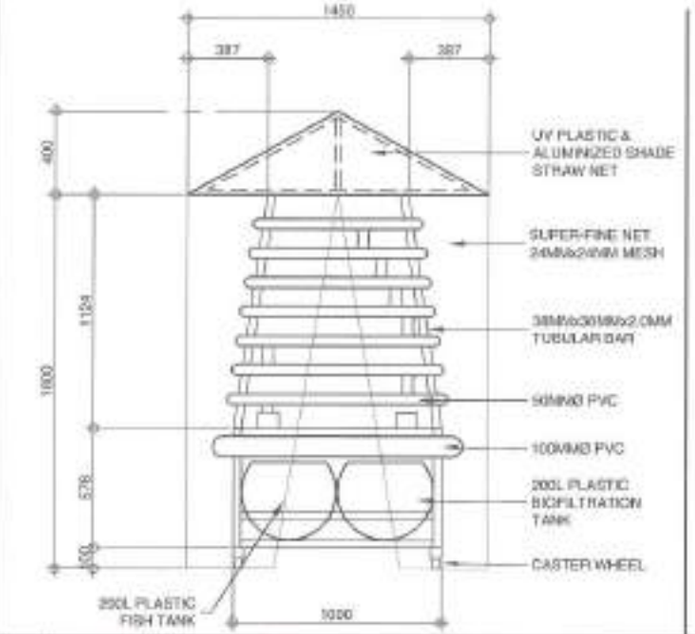
SUBMITTED BY:
ENGR. LEO S. DEL ROSARIO
HEAD - PLANNING & PROGRAMMING DIVISION

RECOMMENDING APPROVAL:
ENGR. ISAGANI R. VERZOSA, JR.
OIC, CITY ENGINEERING DEPARTMENT

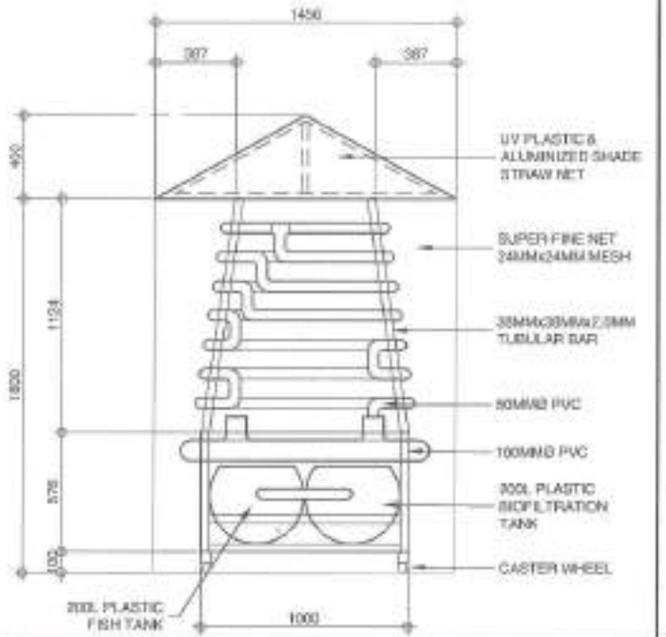
APPROVED BY:
HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENT:
A-1 VERTICAL HYDROPONIC MODEL

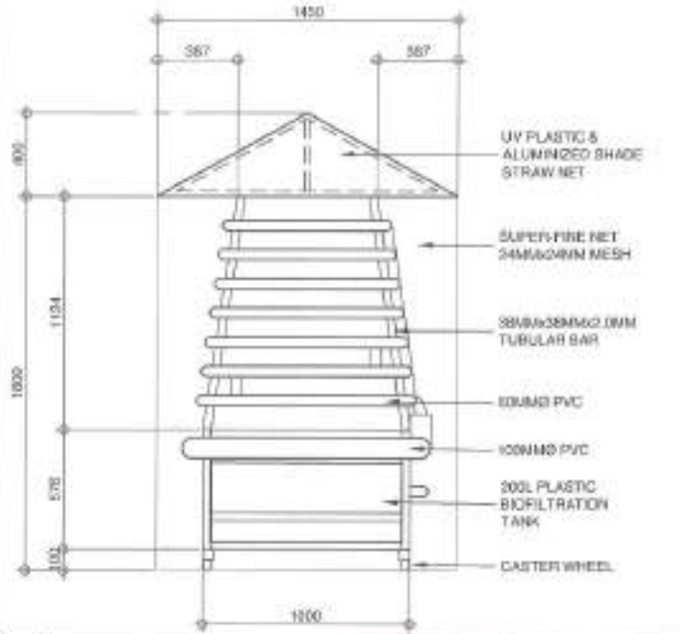
SHEET NO.
A-1
1 / 1 | 3 / 49



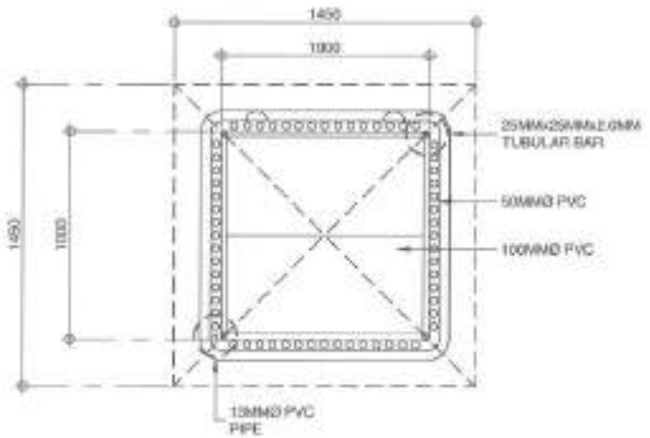
2 FRONT ELEVATION
(A-2 VERTICAL AQUAPONIC MODEL-1 SQ. M.) SCALE: 1:25M



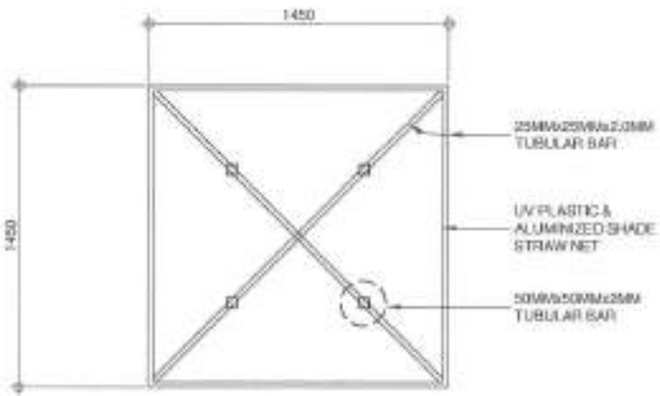
3 REAR ELEVATION
(A-2 VERTICAL AQUAPONIC MODEL-1 SQ. M.) SCALE: 1:25M



4 TYP. LEFT & RIGHT SIDE ELEVATION
(A-2 VERTICAL AQUAPONIC MODEL-1 SQ. M.) SCALE: 1:25M



1 P L A N
(A-2 VERTICAL AQUAPONIC MODEL-1 SQ. M.) SCALE: 1:25M



2 ROOF FRAMING PLAN
(A-2 VERTICAL AQUAPONIC MODEL-1 SQ. M.) SCALE: 1:25M

Republika ng Pilipinas
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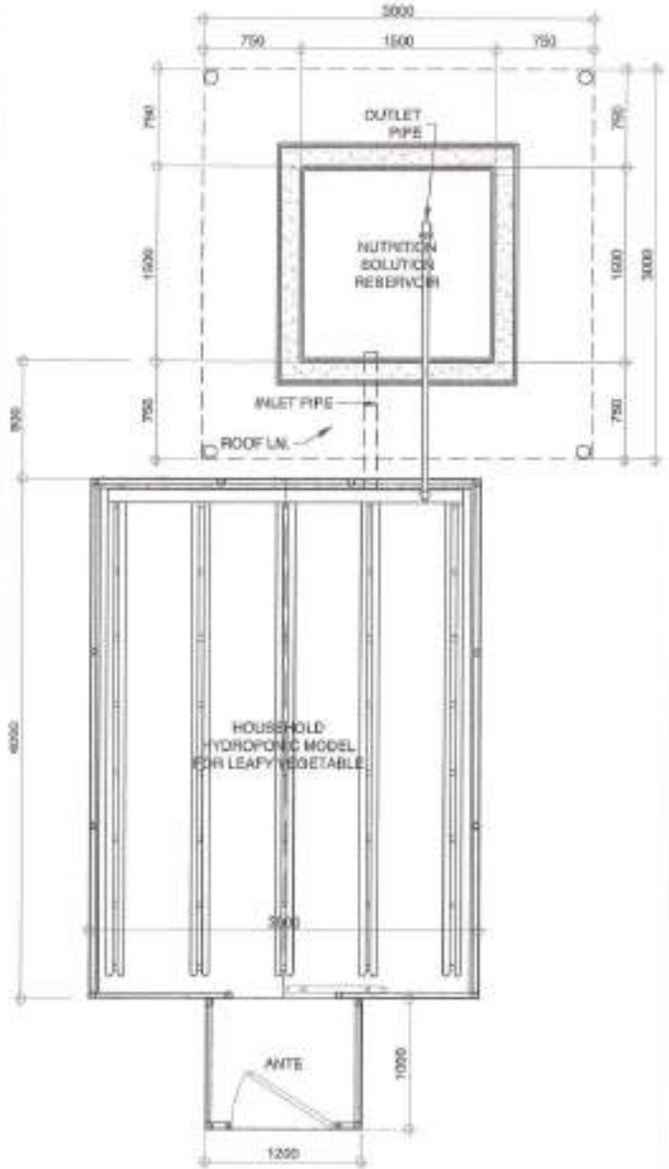
OIC, CITY ENGINEERING DEPARTMENT

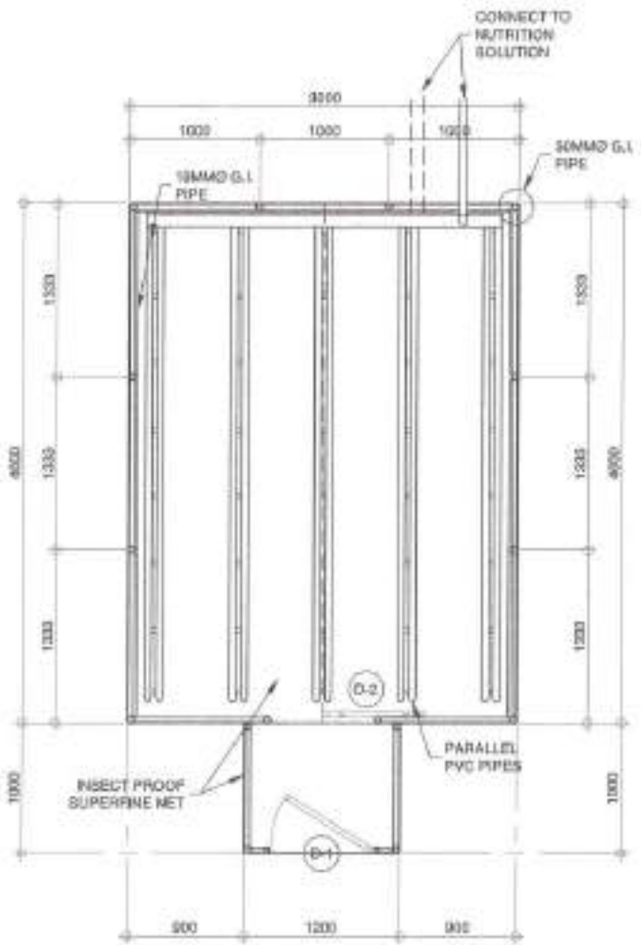
APPROVED BY:
HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENT:
A-2 VERTICAL AQUAPONIC MODEL-1 SQ. METER

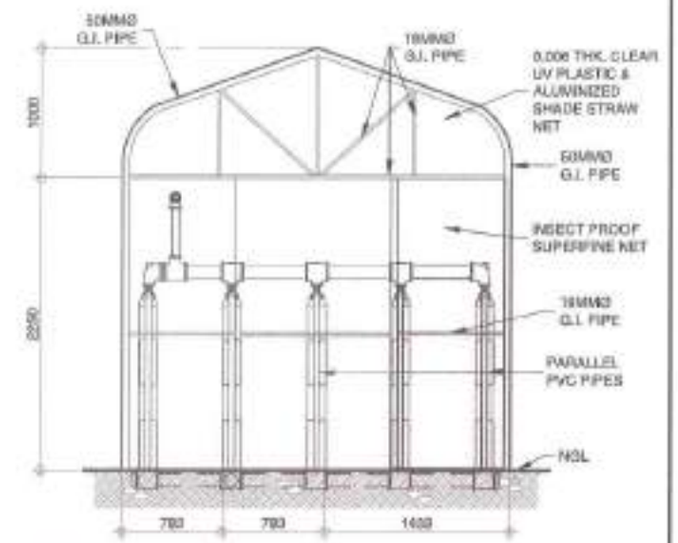
SHEET NO.
A-2
1/1 4/49



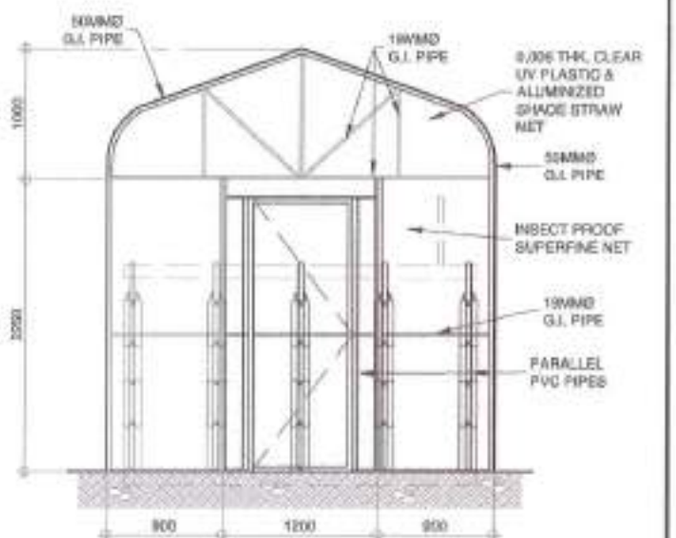
1 **LOCATION PLAN**
(A-3 HOUSEHOLD HYDROPONIC MODEL FOR LEAFY VEGETABLE) SCALE: 1:40M.



2 **P L A N**
(A-3 HOUSEHOLD HYDROPONIC MODEL FOR LEAFY VEGETABLE) SCALE: 1:40M.



3 **REAR ELEVATION**
(A-3 HOUSEHOLD HYDROPONIC MODEL FOR LEAFY VEGETABLE) SCALE: 1:40M.



3 **FRONT ELEVATION**
(A-3 HOUSEHOLD HYDROPONIC MODEL FOR LEAFY VEGETABLE) SCALE: 1:40M.

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HEAD - PLANNING & PROGRAMMING DIVISION

RECOMMENDING APPROVAL:
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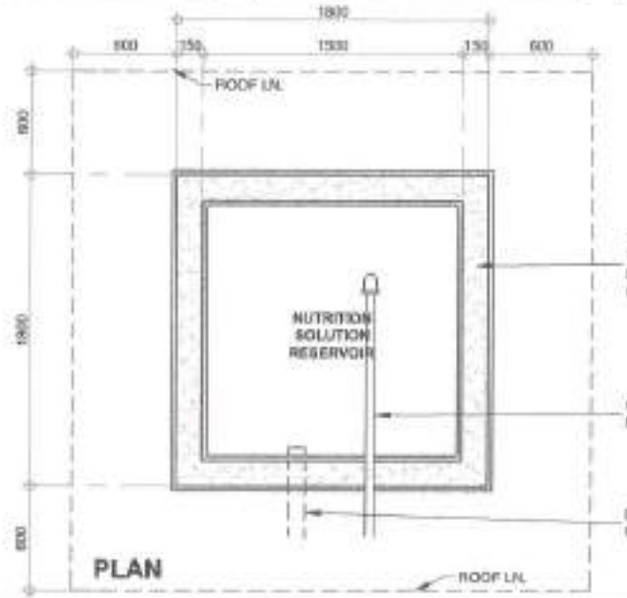
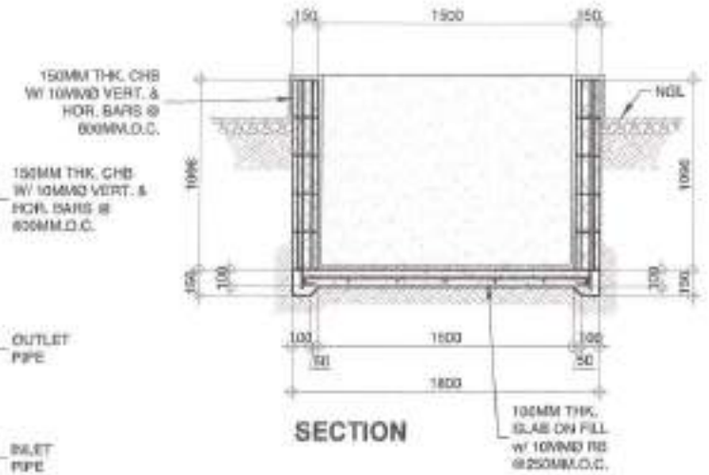
OIC, CITY ENGINEERING DEPARTMENT

APPROVED BY:
HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENT:
HOUSEHOLD HYDROPONIC MODEL FOR LEAFY VEGETABLE

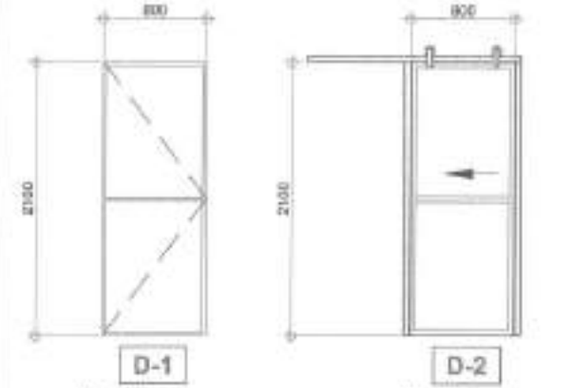
SHEET NO.
A-3
1 / 3
5 / 49





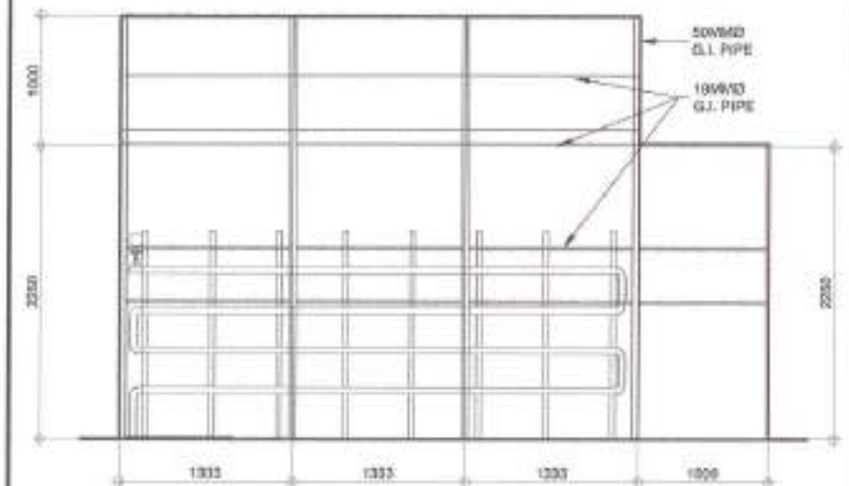
3 NUTRITION SOLUTION RESERVOIR
(A-3 HOUSEHOLD HYDROPONIC MODEL FOR LEAFY VEGETABLE)

SCALE: 1:30M.



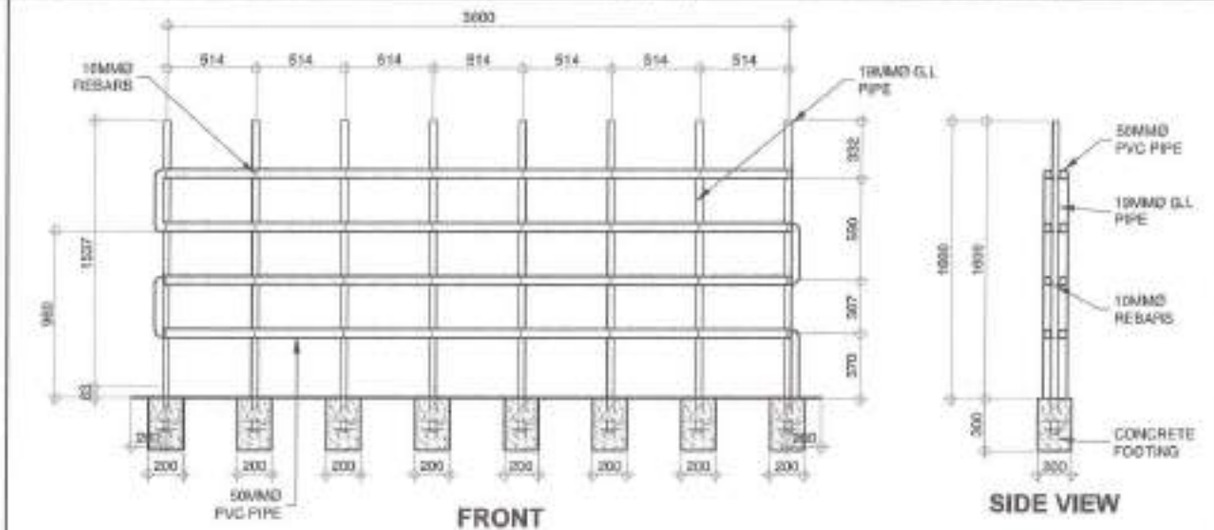
4 SCHEDULE OF DOORS
(A-3 HOUSEHOLD HYDROPONIC MODEL FOR LEAFY VEGETABLE)

SCALE: 1:40M.



1 TYPICAL SIDE ELEVATION
(A-3 HOUSEHOLD HYDROPONIC MODEL FOR LEAFY VEGETABLE)

SCALE: 1:40M.



2 RACKS OF PARALLEL 2-PVC PIPES
(A-3 HOUSEHOLD HYDROPONIC MODEL FOR LEAFY VEGETABLE)

SCALE: 1:30M.

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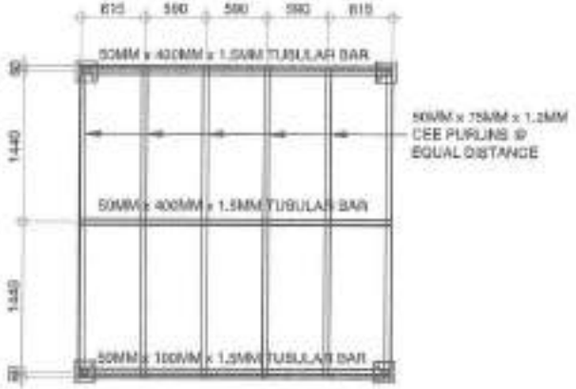
ENGR. LEO S. DEL ROSARIO
HEAD, PLANNING & PROGRAMMING DIVISION

RECOMMENDING APPROVAL:
ENGR. [illegible] R. VERZOSA, JR.
OIC, CITY ENGINEERING DEPARTMENT

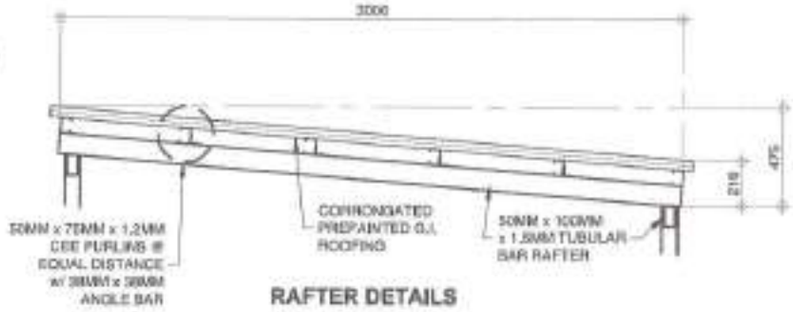
APPROVED BY:
HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENT:
HOUSEHOLD HYDROPONIC MODEL FOR LEAFY VEGETABLE NUTRITION SOLUTION RESERVOIR SCHEDULE OF DOORS RACKS OF PARALLEL 2-PVC PIPES

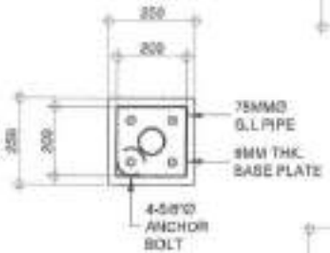
SHEET NO.
A-3
2 / 6
3 / 49



ROOF FRAMING PLAN

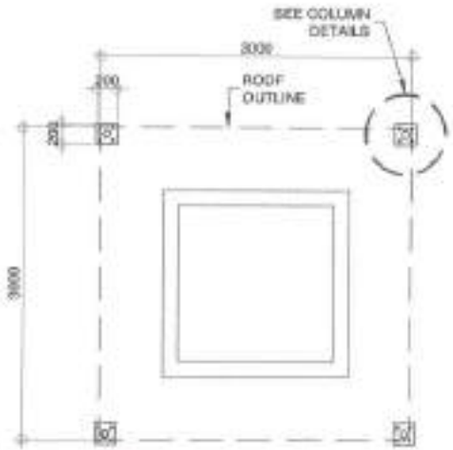


RAFTER DETAILS

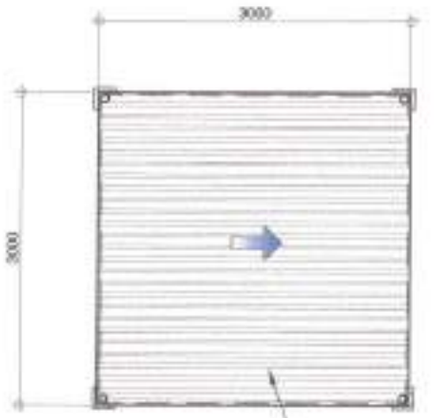


BASE PLATE DET.

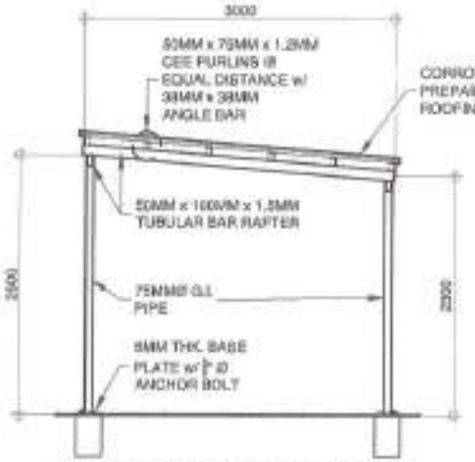
COLUMN PEDESTAL DETAIL



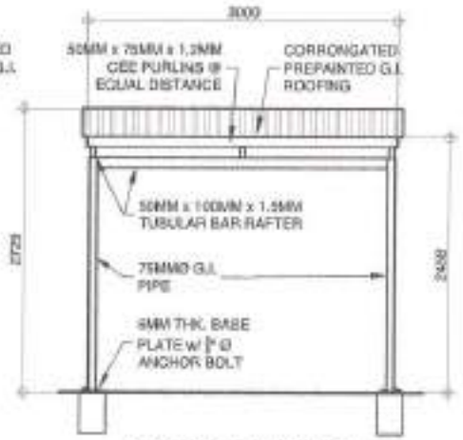
SHED PLAN



ROOF PLAN



TYP. FRONT & REAR ELEVATION



TYP. SIDE ELEVATION

1 ROOF SHED DETAILS

(A-3 HOUSEHOLD HYDROPONIC MODEL FOR LEAFY VEGETABLE)

SCALE: 1:50/1:25/1:15M.

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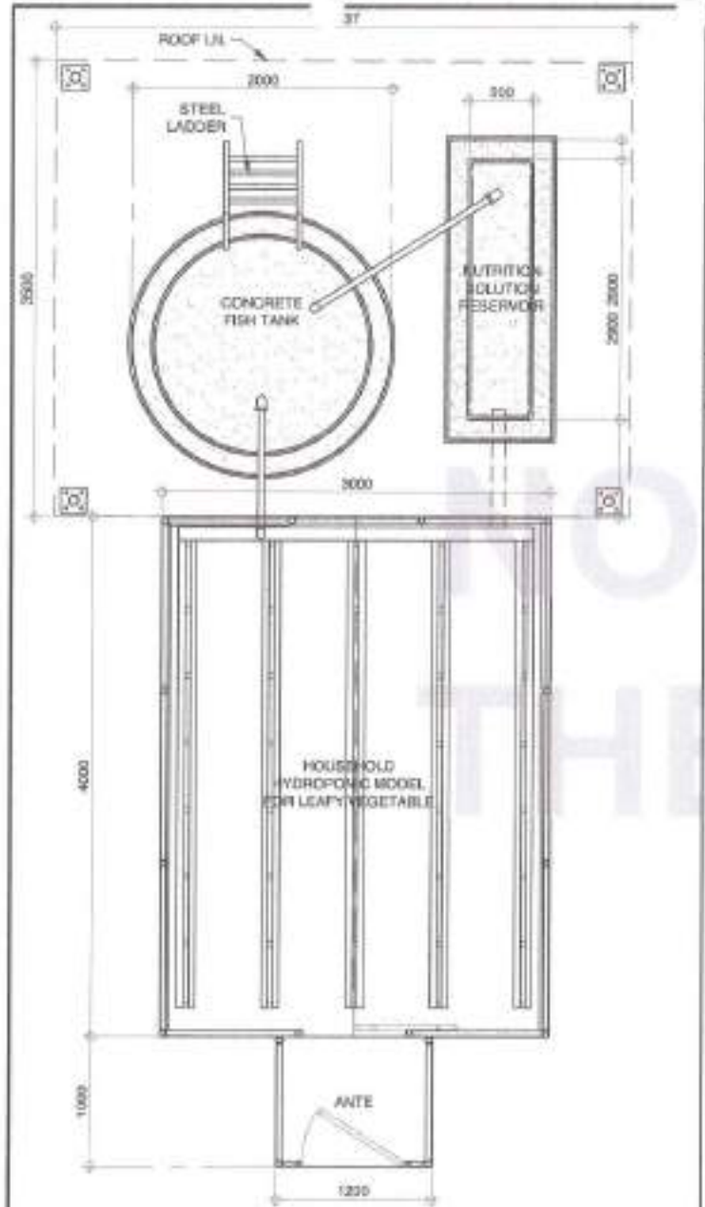
RECOMMENDING APPROVAL:
ENGR. ISAGANI R. VERZOSA, JR.
OIC, CITY ENGINEERING DEPARTMENT

APPROVED BY:
HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

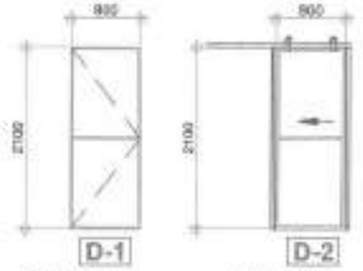
SHEET CONTENT:
ROOF SHED DETAILS

SHEET NO.
A-3
3/3 7/49

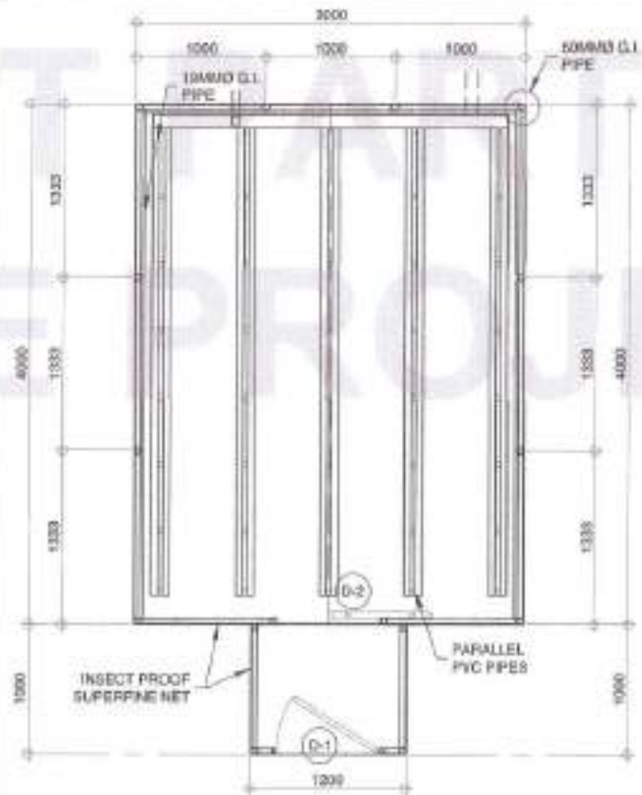
DED2022_0368



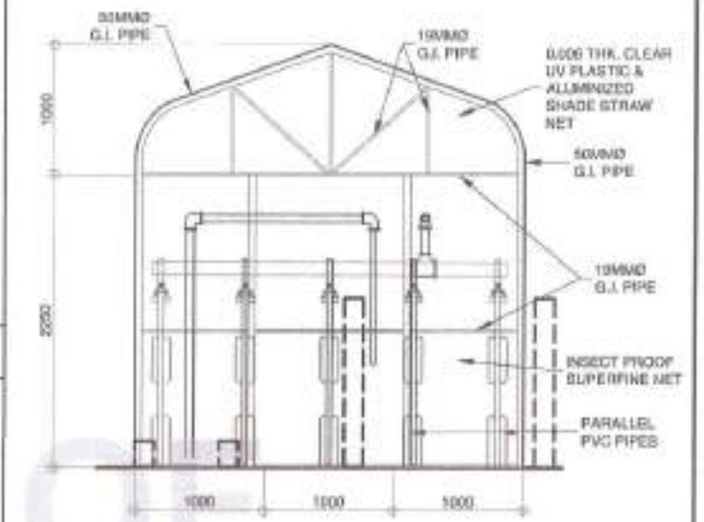
1 LOCATION PLAN
(A-4 HOUSEHOLD AQUAPONIC MODEL FOR LEAFY VEGETABLE) SCALE: 1:40M.



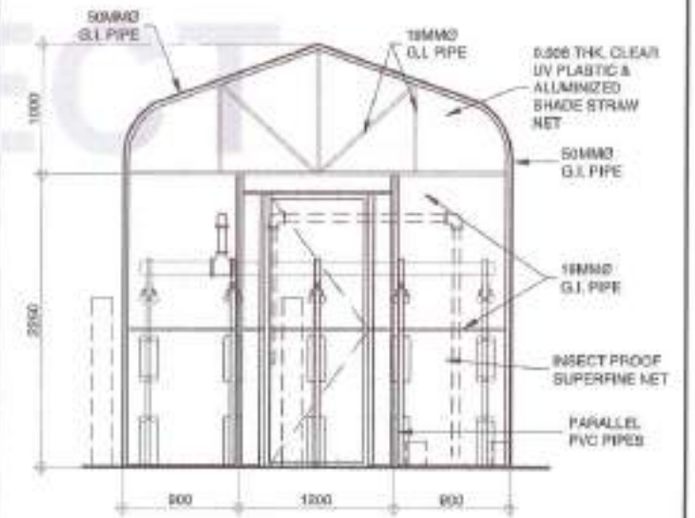
5 SCHEDULE OF DOORS
(A-4 HOUSEHOLD AQUAPONIC MODEL FOR LEAFY VEGETABLE) SCALE: 1:60M.



2 P L A N
(A-4 HOUSEHOLD AQUAPONIC MODEL FOR LEAFY VEGETABLE) SCALE: 1:40M.



4 REAR ELEVATION
(A-4 HOUSEHOLD AQUAPONIC MODEL FOR LEAFY VEGETABLE) SCALE: 1:40M.



3 FRONT ELEVATION
(A-4 HOUSEHOLD AQUAPONIC MODEL FOR LEAFY VEGETABLE) SCALE: 1:40M.

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Lungsod ng Quezon
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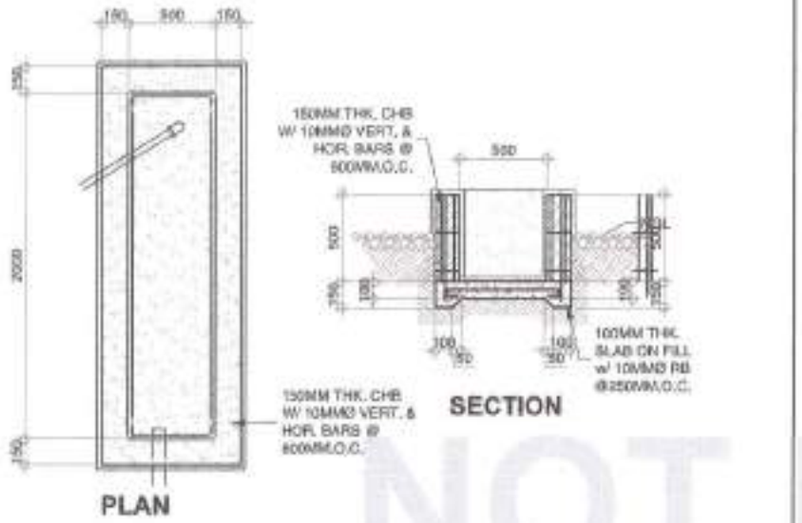
HEAD - PLANNING & PROGRAMMING DIVISION

RECOMMENDING APPROVAL:
ENGR. ISIDRO R. VERZOSA, JR.
OIC, CITY ENGINEERING DEPARTMENT

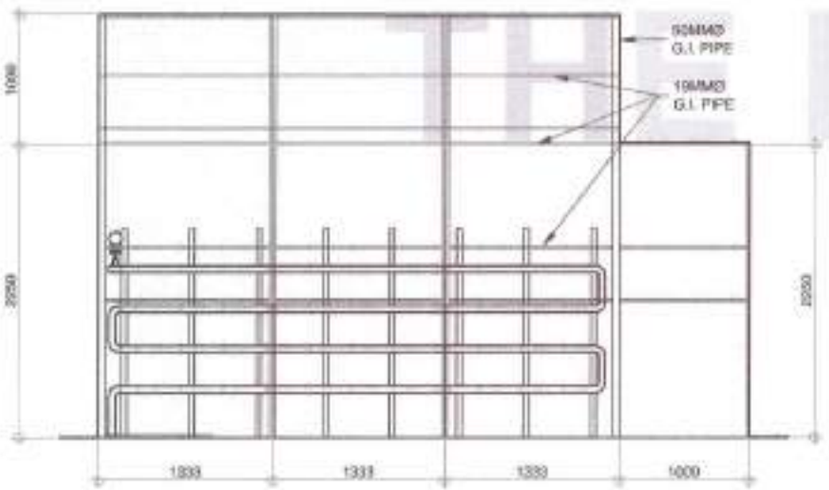
APPROVED BY:
HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENT:
HOUSEHOLD AQUAPONICS MODEL FOR LEAFY VEGETABLE PLAN ELEVATIONS SCHEDULE OF DOORS

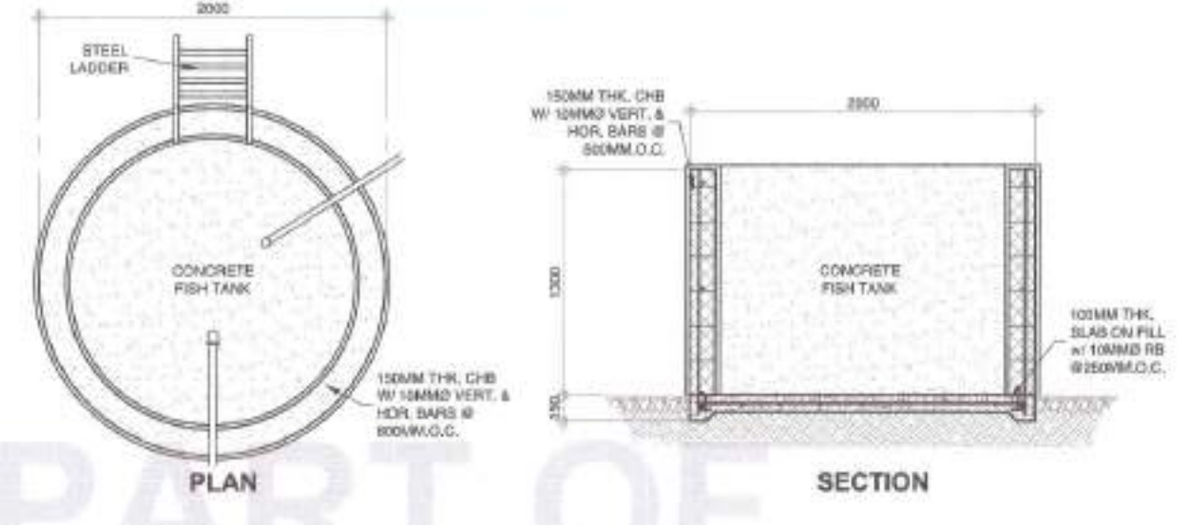
SHEET NO.
A-4
1 / 3
8 / 49



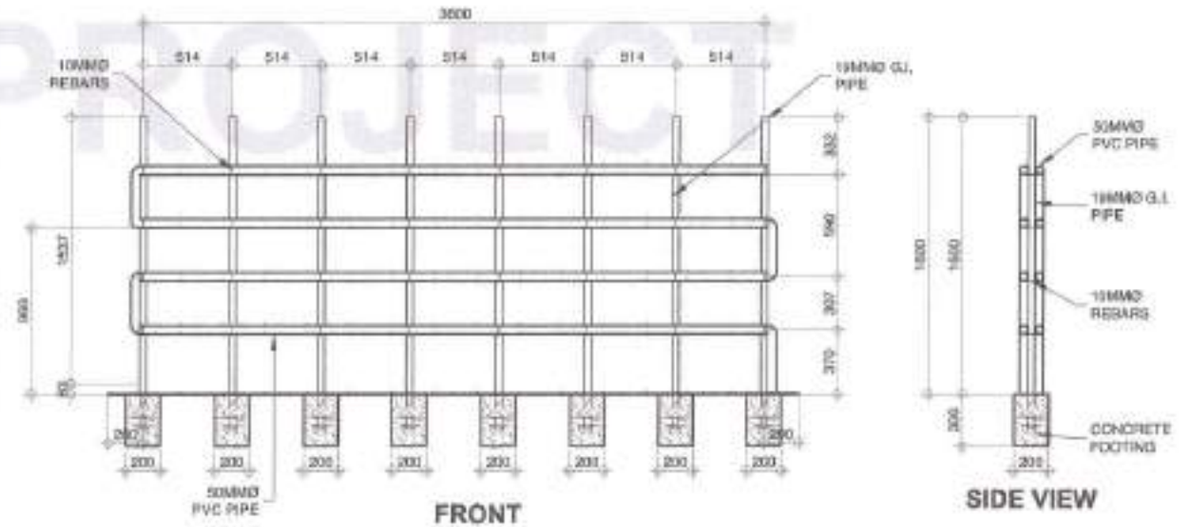
3 NUTRITION SOLUTION RESERVOIR
(A-4 HOUSEHOLD AQUAPONIC MODEL FOR LEAFY VEGETABLE) SCALE: 1:40M.



1 TYPICAL SIDE ELEVATION
(A-4 HOUSEHOLD AQUAPONIC MODEL FOR LEAFY VEGETABLE) SCALE: 1:40M.



4 CONCRETE FISH TANKS
(A-4 HOUSEHOLD AQUAPONIC MODEL FOR LEAFY VEGETABLE) SCALE: 1:20M.



2 RACKS OF PARALLEL 2-PVC PIPES
(A-4 HOUSEHOLD AQUAPONIC MODEL FOR LEAFY VEGETABLE) SCALE: 1:30M.

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SUBMITTED BY: ENGR. LEO S. DEL ROSARIO

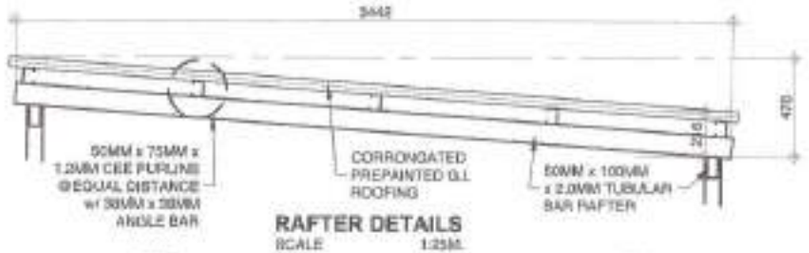
RECOMMENDING APPROVAL: ENGR. ISAGANI R. VERZOSA, JR.

APPROVED BY: HON. MA. JOSEFINA G. BELMONTE

SHEET CONTENT: HOUSEHOLD AQUAPONIC MODEL FOR LEAFY VEGETABLE- RACKS OF PARALLEL 2-PVC PIPES NUTRITION SOLUTION RESERVOIR CONCRETE FISH TANK

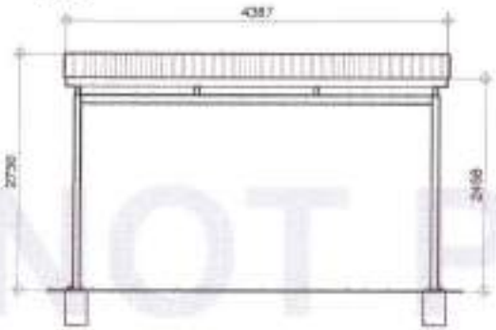
SHEET NO. A-4

2 / 3 | 9 / 49

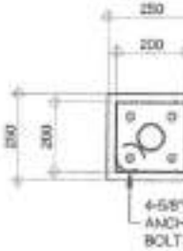


RAFTER DETAILS
SCALE 1:25M.

ELEVATION 'A'
SCALE 1:60M.

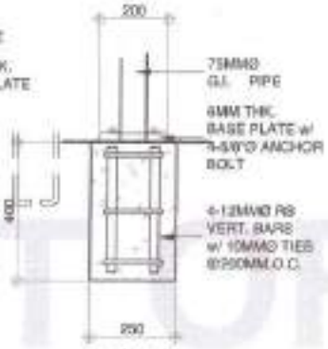


ELEVATION 'B'
SCALE 1:60M.



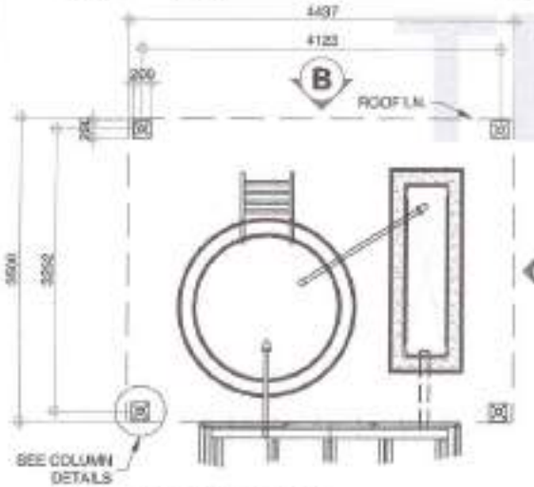
BASE PLATE DET.

PLAN

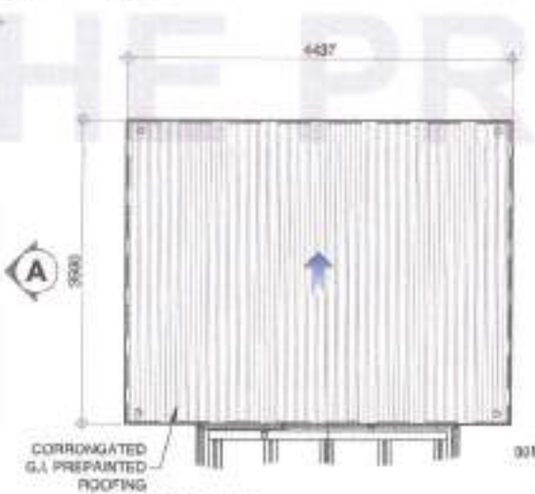


SECTION

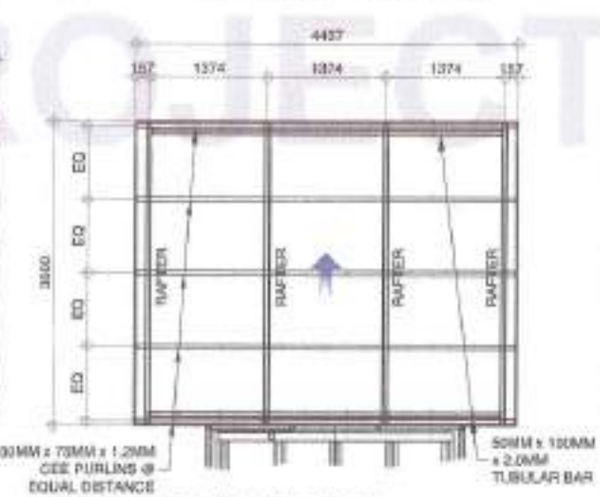
COLUMN PEDESTAL DETAIL



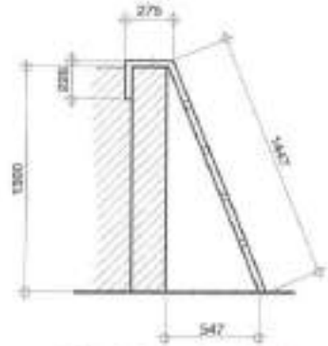
ROOF SHED PLAN
SCALE 1:60M.



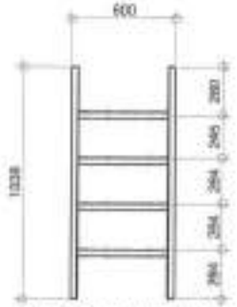
ROOF PLAN
SCALE 1:60M.



ROOF FRAMING PLAN
SCALE 1:60M.



TYP. SIDE ELEVATION
USE 38MM x 38MMØ G.I. PIPE



FRONT ELEVATION
USE 38MM x 38MMØ G.I. PIPE

PLAN
USE 38MM x 38MMØ G.I. PIPE

1 **ROOF SHED DETAILS**
(A-4 HOUSEHOLD AQUAPONIC MODEL FOR LEAFY VEGETABLE)

SCALE: 1:60/1:25/1:10M.

2 **LADDER DETAILS** SCALE: 1:20M.
(A-4 HOUSEHOLD AQUAPONIC MODEL FOR LEAFY VEGETABLE)

Republika ng Pilipinas
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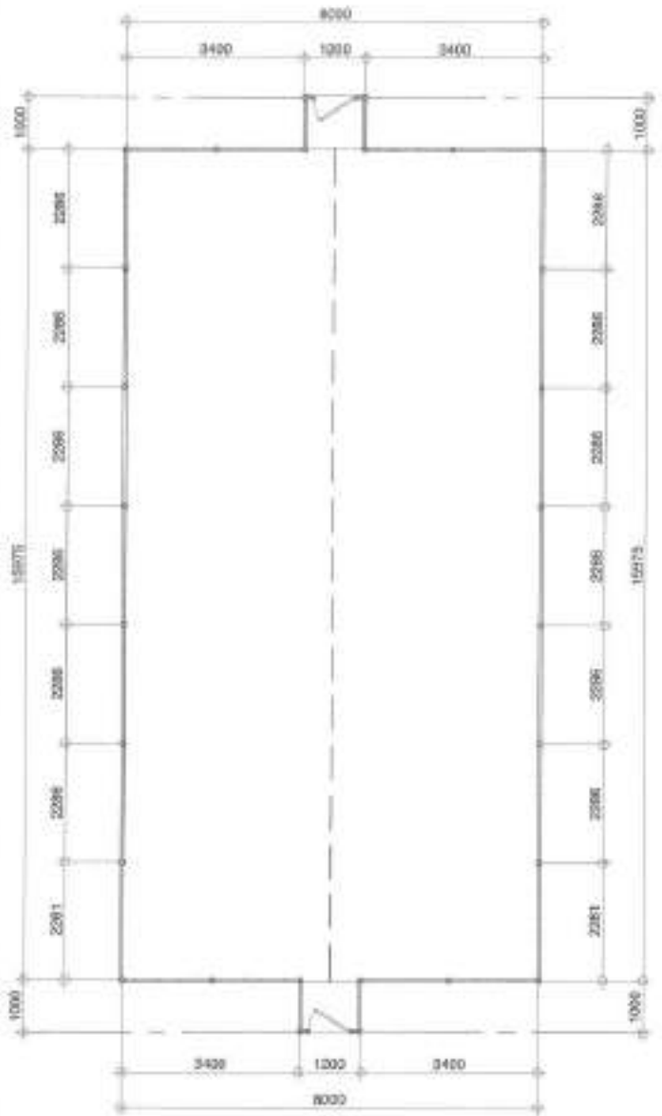
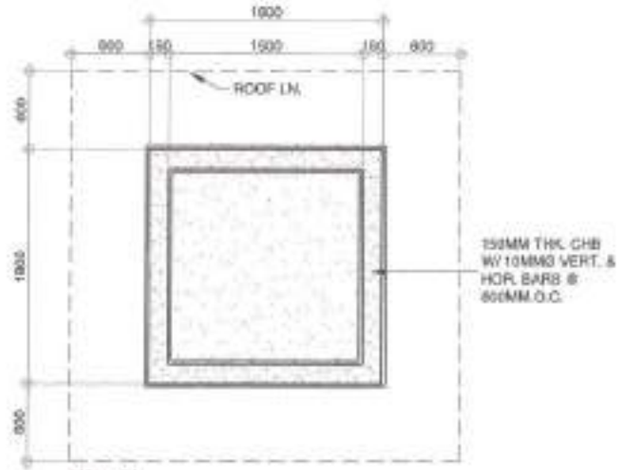
CITY ENGINEERING DEPARTMENT

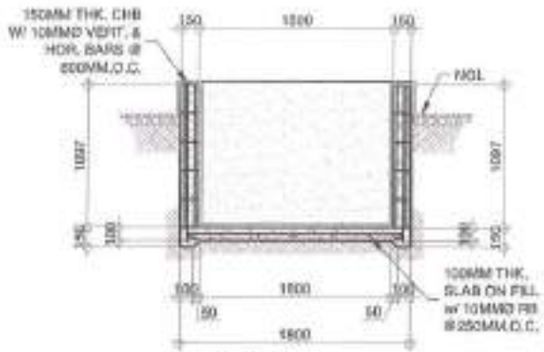
PROJECT TITLE: URBAN FARMING INNOVATION AND LEARNING CENTER	DRAWN BY:	SUBMITTED BY: ENGR. LEO S. DEL ROSARIO, HEAD, PLANNING & PROGRAMMING DIVISION	RECOMMENDING APPROVAL: ENGR. JESSAN R. VERZOSA, JR., OIC, CITY ENGINEERING DEPARTMENT	APPROVED BY: HON. MA. JOSEFINA G. BELMONTE, CITY MAYOR, QUEZON CITY	SHEET CONTENT: ROOF SHED DETAILS, LADDER DETAILS
LOCATION: BRGY. SAN BARTOLOME, DISTRICT 6, QUEZON CITY	DATE:				SHEET NO.: A-4
	CHECKED BY:				3/3 10/49
	REVISION NO.				



1 PLAN
(A-5 COMMERCIAL HYDROPONIC MODEL FOR LEAFY VEGETABLE) SCALE: 1:100M.

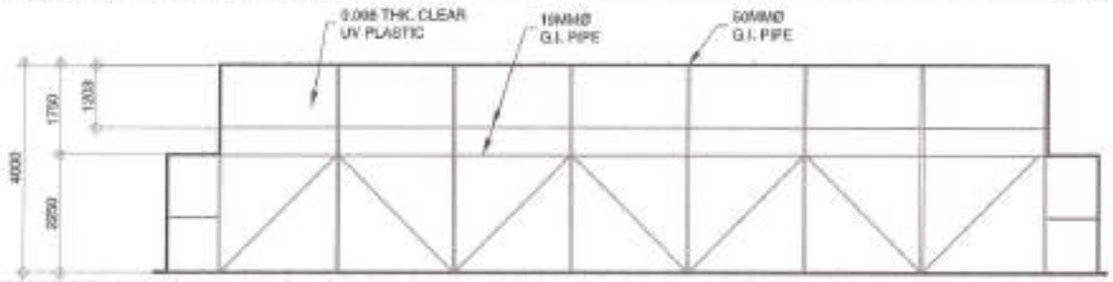


PLAN

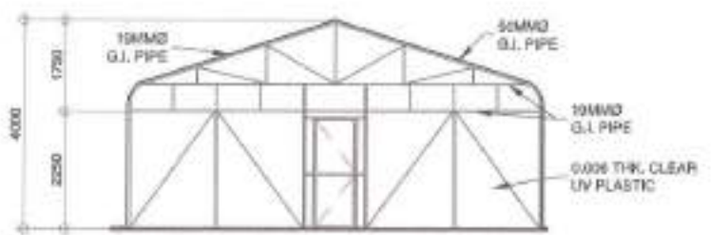


SECTION

4 NUTRITION SOLUTION RESERVOIR
(A-5 COMMERCIAL HYDROPONIC MODEL FOR LEAFY VEGETABLE) SCALE: 1:40M.



3 TYPICAL LEFT & RIGHT SIDE ELEVATION
(A-5 COMMERCIAL HYDROPONIC MODEL FOR LEAFY VEGETABLE) SCALE: 1:100M.



TYPICAL FRONT & REAR ELEVATION

2 TYPICAL FRONT & REAR ELEVATION
(A-5 COMMERCIAL HYDROPONIC MODEL FOR LEAFY VEGETABLE) SCALE: 1:100M.

5 SCHEDULE OF DOOR
(A-5 COMMERCIAL HYDROPONIC MODEL FOR LEAFY VEGETABLE) SCALE: 1:50M.

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CITY ENGINEERING DEPARTMENT

PROJECT TITLE: URBAN FARMING INNOVATION AND LEARNING CENTER

LOCATION: BRGY. SAN BARTOLOME, DISTRICT II, QUEZON CITY

DRAWN BY:
DATE:
CHECKED BY:
REVISION NO.:

SUBMITTED BY: ENGR. LEO S. DEL ROSARIO, HEAD - PLANNING & PROGRAMMING DIVISION

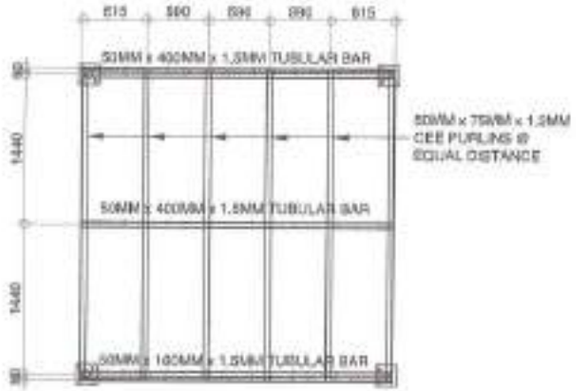
RECOMMENDING APPROVAL: ENGR. ISAGANI R. VERZOSA, JR., OIC, CITY ENGINEERING DEPARTMENT

APPROVED BY: HON. MA. JOSEFINA G. BELMONTE, CITY MAYOR, QUEZON CITY

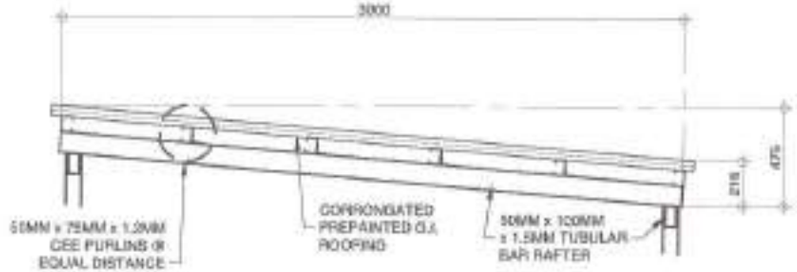
SHEET CONTENT: COMMERCIAL HYDROPONIC MODEL FOR LEAFY VEGETABLE NUTRITION SOLUTION RESERVOIR SCHEDULE OF DOORS

SHEET NO.: A-5

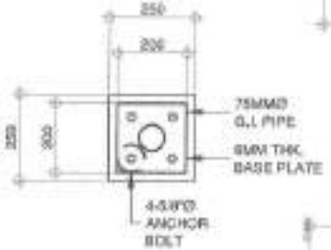
1/2 11/49



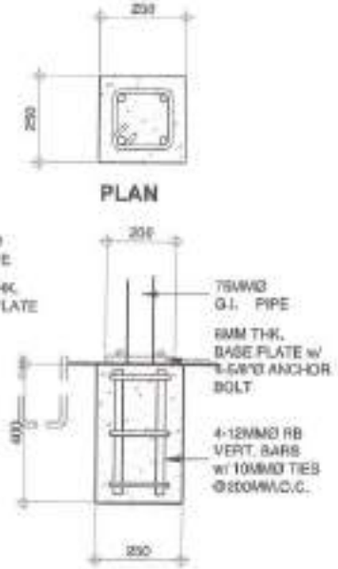
ROOF FRAMING PLAN



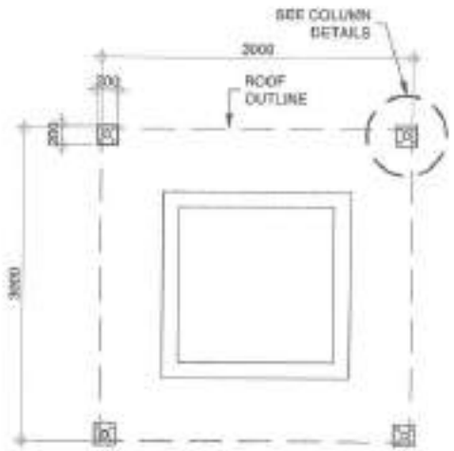
RAFTER DETAILS



BASE PLATE DET.

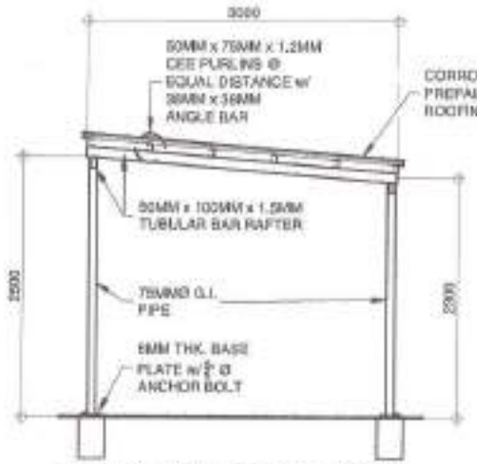


COLUMN PEDESTAL DETAIL

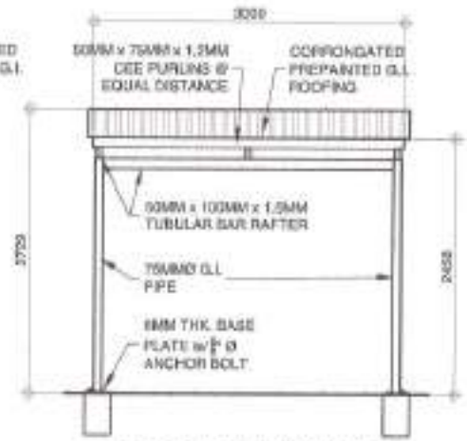


SHED PLAN

ROOF PLAN



TYP. FRONT & REAR ELEVATION



TYP. SIDE ELEVATION

1 ROOF SHED DETAILS

(A-3 HOUSEHOLD HYDROPONIC MODEL FOR LEAFY VEGETABLE)

SCALE: 1:50/1:25/1:15M

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CITY ENGINEERING DEPARTMENT

PROJECT TITLE: URBAN FARMING INNOVATION AND LEARNING CENTER

LOCATION: BRGY. SAN BARTOLOME, DISTRICT 5, QUEZON CITY

DRAWN BY:

DATE:

CHECKED BY:

PROVISION NO.:

SUBMITTED BY: ENGR. LEO S. DEL ROSARIO, HEAD - PLANNING & PROGRAMMING DIVISION

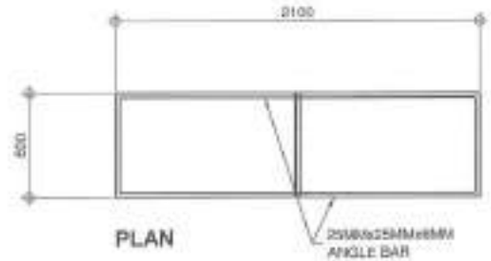
RECOMMENDING APPROVAL: ENGR. ISAGANI R. VERZOSA, JR., DIC, CITY ENGINEERING DEPARTMENT

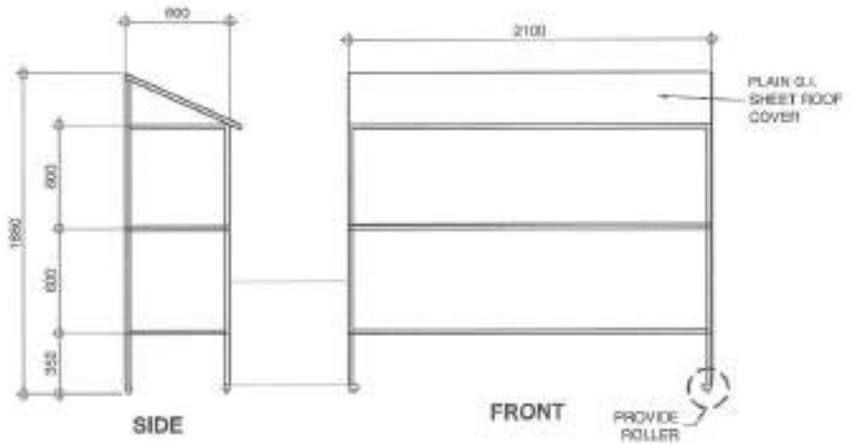
APPROVED BY: HON. MA. JOSEFINA G. BELMONTE, CITY MAYOR, QUEZON CITY

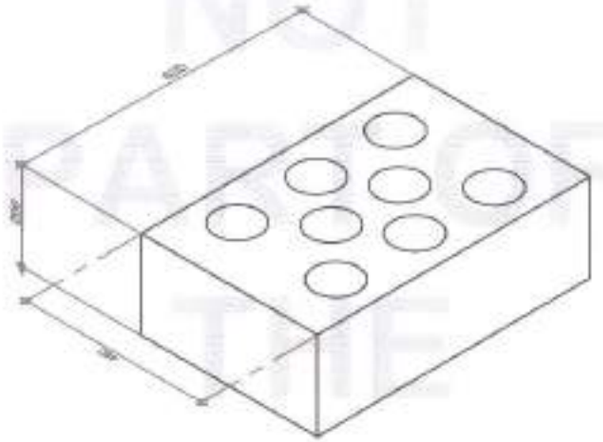
SHEET CONTENT: ROOF SHED DETAILS

SHEET NO.: A-5

2 / 2 | 12 / 49







1 **STEEL RACK**
(A-6 KRATKY HYDROPONICS SYSTEM)
SCALE: 1:30M

2 **STYRO BOX**
(A-6 KRATKY HYDROPONICS SYSTEM)
SCALE: 1:30M

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CITY ENGINEERING DEPARTMENT

PROJECT TITLE:
URBAN FARMING INNOVATION AND LEARNING CENTER

LOCATION:
BRGY. SAN BARTOLOME, ESTRELLA, QUEZON CITY

DRAWN BY:
DATE:
CHECKED BY:
REVISION NO.:

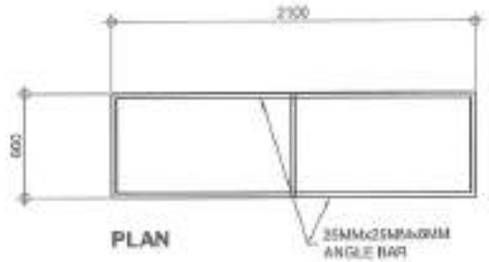
SUBMITTED BY:
ENGR. LEO S. DEL ROSARIO
HEAD, PLANNING & PROGRAMMING DIVISION

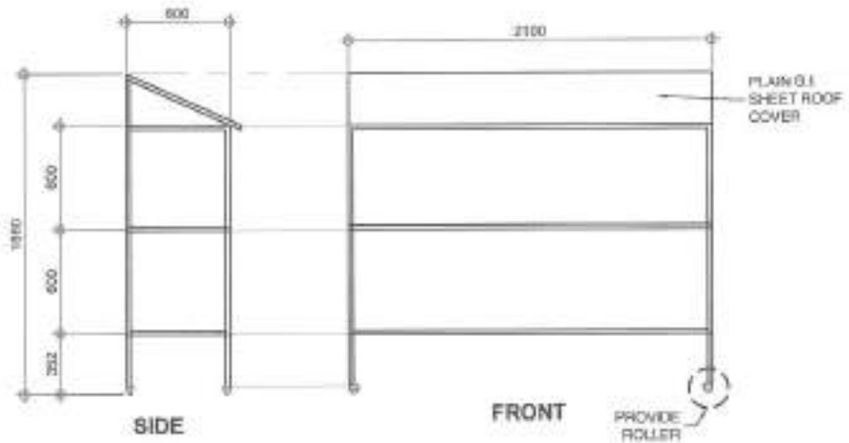
RECOMMENDING APPROVAL:
ENGR. ISAGANI R. VERZOSA, JR.
OIC, CITY ENGINEERING DEPARTMENT

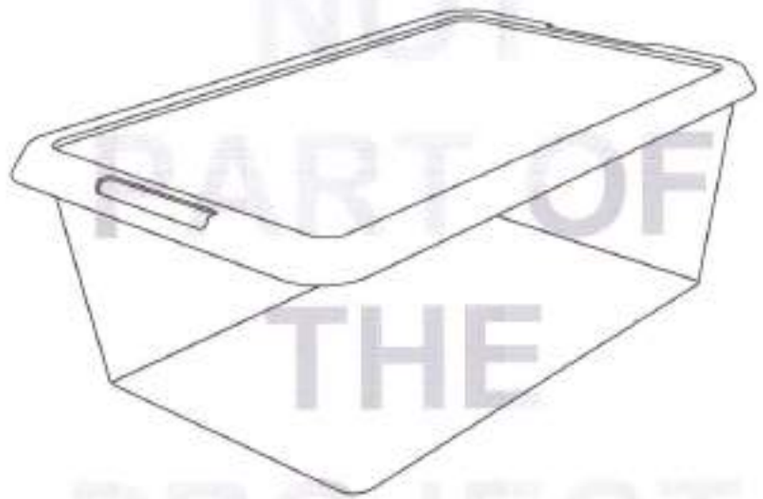
APPROVED BY:
HON. MA. JOSERINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENT:
KRATKY HYDROPONICS SYSTEM
STEEL RACK
STYRO BOX

SHEET NO.
A-6
1/1 13/49







1 STEEL RACK
(A-7 TERRARIUM VEGETABLE BOX FOR LEAFY VEGETABLE)
SCALE: 1:30M.

2 TERRARIUM VEGETABLE BOX
(A-7 TERRARIUM VEGETABLE BOX FOR LEAFY VEGETABLE)
SCALE: NTS

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CITY ENGINEERING DEPARTMENT

PROJECT TITLE:
URBAN FARMING INNOVATION AND LEARNING CENTER

LOCATION:
BRGY. SAN BARTOLOME, DISTRICT II, QUEZON CITY

DRAWN BY:
DATE:
CHECKED BY:
PERMISSION NO:

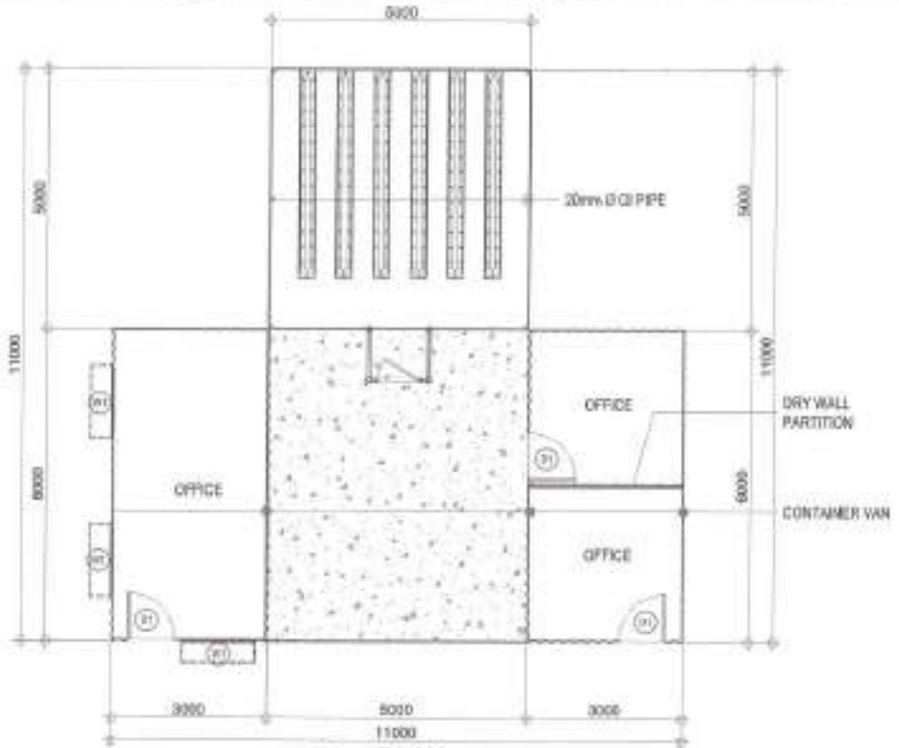
SUBMITTED BY:
ENGR. LEO S. DELROSARIO
HEAD, PLANNING AND PROGRAMMING DIVISION

RECOMMENDING APPROVAL:
ENGR. ISAGANI R. VERZOSA, JR.
OIC, CITY ENGINEERING DEPARTMENT

APPROVED BY:
HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

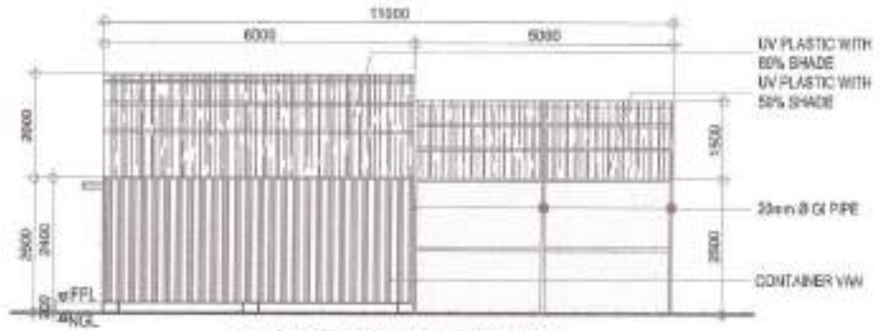
SHEET CONTENT:
TERRARIUM VEGETABLE BOX PER LEAFY VEGETABLE STEEL RACK TERRARIUM VEGETABLE BOX

SHEET NO.
A-7
1/1 14/49

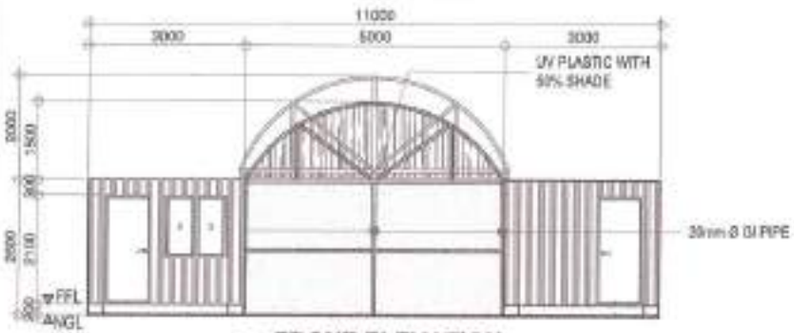


PLAN
SCALE: 1:100m

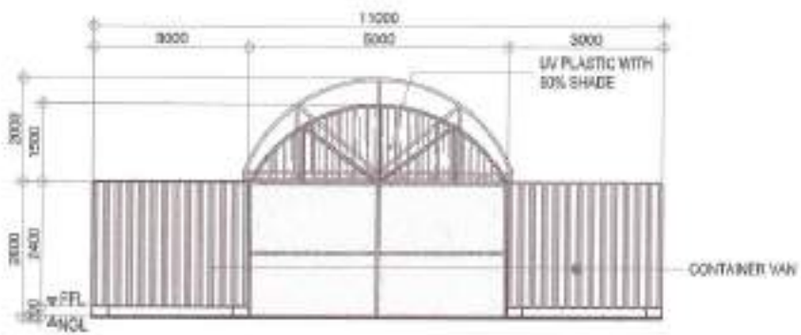
LEFT SIDE ELEVATION
SCALE: 1:100m



RIGHT SIDE ELEVATION
SCALE: 1:100m



FRONT ELEVATION
SCALE: 1:100m



RIGHT SIDE ELEVATION
SCALE: 1:100m

DESIGNATION	(W)	(W)
LOCATION	FIELD OFFICE	FIELD OFFICE
SPECIFICATIONS	PANEL WOOD DOOR COMPLETE ACCESSORIES	GLAZING WINDOW WITH COMPLETE ACCESSORIES
NO. OF SETS	1	1

SCHEDULE OF DOORS AND WINDOWS
SCALE: 1:100m

1 **A-8 FIELD OFFICE/TRAINING ROOM/CHILLER/HYDROPONIC SHOWROOM**

NOT TO SCALE

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Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

PROJECT TITLE: **URBAN FARMING INNOVATION AND LEARNING CENTER**	DRAWN BY:	SUBMITTED BY: ENGR. LEO S. DEL ROSARIO, HEAD - PLANNING & PROGRAMMING DIVISION	RECOMMENDING APPROVAL: ENGR. EDGAR R. VERZOSA, JR., OIC-CITY ENGINEERING DEPARTMENT	APPROVED BY: HON. MA. JOSEFINA G. BELMONTE, CITY MAYOR, QUEZON CITY	SHEET CONTENT: FLOOR PLAN (FIELD OFFICE), FRONT ELEVATION (FIELD OFFICE), LEFT SIDE (FIELD OFFICE), RIGHT SIDE (FIELD OFFICE), SCHEDULE OF DOORS AND WINDOWS	SHEET NO. A-8
	DATE:					1 / 15
LOCATION: BRGY. SAN BARTOLOME, DISTRICT II, QUEZON CITY	CHECKED BY:					5 / 49
	REVISION NO.:					

1. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM WITH THE LATEST BUILDING CODE OF AMERICAN CONCRETE INSTITUTE (ACI 318).
2. ALL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH AT THE END OF TWENTY EIGHT (28) DAYS WITH CORRESPONDING MAXIMUM SIZE AGGREGATES AND SLUMPS AS FOLLOWS:

LOCATION	STRENGTH	MAX. SIZE OF AGGREGATES	MAX SLUMP
ABOVE GRADE: CURBS, PAVEMENTS, WALL FOOTING	3000 Psi (20.685 MPa)	1 in (25 mm)	4 in (100mm)
LIBRARY COLUMNS, FOOTINGS & SUSPENDED SLAB	3500 Psi (24.665 MPa)	¾ in (19mm)	5 in (125mm)

3. ALL REINFORCING BARS SHALL CONFORM TO PHILIPPINE GRADE 275 FOR 12MM AND SMALLER BARS AND GRADE 415 FOR 16mm AND LARGER BARS.
4. IN GENERAL THE LATEST EDITION OF AISMC MANUAL OF STANDARD PRACTICE DETAILING REINFORCED CONCRETE STRUCTURES SHALL BE ADHERED TO UNLESS OTHERWISE SHOWN OR NOTED.
5. MAINTAIN MINIMUM CONCRETE COVER FOR REINFORCING STEEL AS FOLLOWS:

CONCRETE DEPOSITED DIRECTLY AGAINST GROUND	75mm
SUSPENDED SLABS	20mm
BAS ON GRADE	40 mm
WALLS ABOVE GRADE	38 mm
BEAMS & COLUMNS	40mm

6. SPLICES SHALL BE SECURELY WIRED TOGETHER AND SHALL LAP OR EXTEND IN ACCORDANCE WITH TABLE 1 (YIELD OF LAP SPLICE AND ANCHORAGE LENGTH UNLESS OTHERWISE SHOWN ON DRAWINGS SPICES SHALL BE STAGGERED WHENEVER POSSIBLE.)
7. ALL ANCHOR BOLTS, SLEEVES AND OTHER INSERTS SHALL BE PROPERLY POSITIONED AND SECURED IN PLACE PRIOR TO PLACING OF CONCRETE.
8. CONTRACTOR SHALL NOTE AND PROVIDE ALL OPENINGS, CURBS, SLAB STOOLS, EQUIPMENTS, AND MECHANICAL SHAFTS THAT ARE REQUIRED BY THE ARCHITECTURAL, ELECTRICAL, AND MECHANICAL DRAWINGS.
9. ALL CONCRETE SHALL BE KEPT MOIST FOR A MINIMUM OF SEVEN (7) CONSECUTIVE DAYS IMMEDIATELY AFTER POURING BY THE USE OF WET BURLAP, POLYETHYLENE, CURING MIX COMPOUNDS OR OTHER APPROVED METHODS.
10. STRIPPING OF FORMS AND SHORES:

FOUNDATION	24 HRS.
SUSPENDED SLAB OR DEPTH WHEN ADDITIONAL LOADS ARE IMPOSED	8 DAYS
WALL	2 DAYS
BEAMS	14 DAYS
COLUMNS	21 DAYS

11. DEVELOPMENT LENGTH FOR ALL BARS SHALL BE A MINIMUM OF 50 BAR DIAMETER UNLESS OTHERWISE NOTED.
STRUCTURAL STEEL AND PLATES
12. ALL STRUCTURAL STEEL SHALL CONFORM TO ASTM (A-36) SPECIFICATIONS WITH MINIMUM YIELD STRENGTH fy= 220 MPa
13. ANCHOR & FASTENER BOLTS: ALL BOLTS SHALL CONFORM TO ASTM (A-307) SPECIFICATIONS
14. WELDING RODS: ALL WELDING RODS SHALL BE MILD STEEL, ELECTRODE, LOW HYDROGEN (7018) WITH MINIMUM YIELD STRENGTH = 420 MPa

FOUNDATION

11. FOUNDATION IS DESIGNED BASED ON NATIONAL BUILDING CODE OF THE PHILIPPINES FOR AN ALLOWABLE SOIL BEARING CAPACITY OF 60KPA
12. FOUNDATION SHALL REST ON NATURAL SOIL UNLESS OTHERWISE NOTED BY THE ENGINEER, NO PART OF THE FOUNDATION SHALL REST ON FILL
13. THE CONTRACTOR SHALL NOTIFY THE ENGINEER UPON COMPLETION OF FOUNDATION EXCAVATION FOR ACTUAL SOIL CONDITIONS WHICH DO NOT CONFORM TO THE SOIL BEARING CAPACITY FOR PROPER REVISION.

NOTES ON MASONRY WALLS

1. ALL MATERIALS, WORKMANSHIP SHALL BE IN ACCORDANCE W THE APPLICABLE STANDARD & SPECIFICATIONS OF THE STRUCTURAL CODE OF THE PHILIPPINES & UNIFORM BUILDING CODE.
2. MORTAR & GROUT FOR ALL CONCRETE MASONRY SHALL CONFORM TO ASTM C5 – TYPE M & SHALL HAVE A MINIMUM OF 28 DAYS STANDARD CYLINDER COMPRESSIVE STRENGTH OF 17.2MPA (2500 PSI).
3. ALL CMU SHALL BE LAID UP WITH CELLS IN UNOBSTRUCTED VERTICAL CONTINUITY.
4. ALL CELLS ESPECIALLY THOSE WITH REINFORCEMENT SHALL BE FILLED WITH MORTAR.
REINFORCEMENT, AS TABULATED BELOW TO ALL BE PROVIDED UNLESS OTHERWISE SPECIFIED IN THE PLAN
5. ALL MASONRY WALLS SHALL BE PROVIDED W/ STIFFENER BEAM BLOCK & STIFFENER AS REQUIRED
5a. FOR HIGH WALLS (EVERY 3000MM & COLUMN (BOTH) AT 1800 mm ON CENTER
5b. FOR DOORS & WINDOWS OPENINGS PROVIDE U-METAL BEAM (SAME AS STIFFENER BEAM BLOCK.
6. UNLESS OTHERWISE SHOWN IN PLANS, ALL CONCRETE HOLLOW BLOCK AND CERAMIC BLOCK SHALL BE REINFORCED AS SHOWN IN THE SCHEDULE OF CONCRETE HOLLOW BLOCKS AND CERAMIC BLOCK REINFORCEMENT.

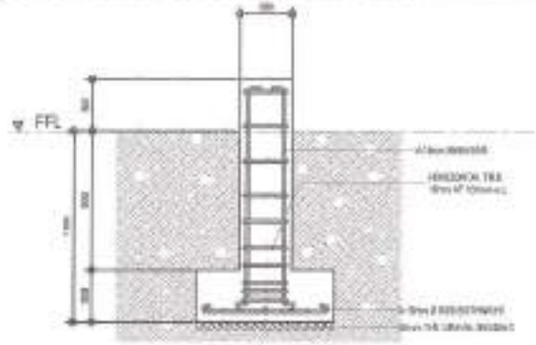
SCHEDULE OF CONCRETE HOLLOW BLOCK AND CERAMIC BLOCK REINFORCEMENT

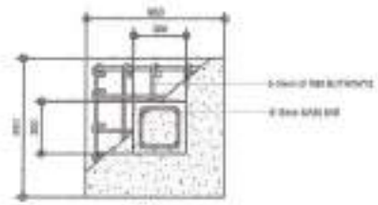
WALL THICKNESS	REINFORCEMENT		NOTES
	HORIZONTAL	VERTICAL	A. MINIMUM LAP SPLICE = 0.40m B. PROVIDE RIGHT ANGLED REINFORCEMENT AT CORNERS 0.60m LONG C. WHERE CMU OR CERAMIC BLOCK WALL ADJOINS ADJACENT CONCRETE, R.C. BEAMS ARE WALL DOWELS WITH THE SAME SIZE AS VERT. OR HOR. REINFORCEMENTS SHALL BE PROVIDED.
100 mm	10mm Ø @ 400mm O.C.	10mm Ø @ 600mm O.C.	
150 mm	10mm Ø @ 400 mm O.C.	10mm Ø @ 600mm O.C.	

TESTING & COMMISSIONING WORKS:

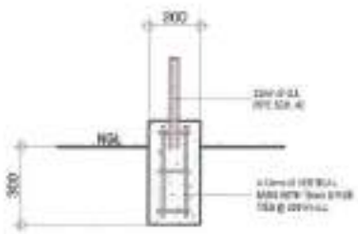
1. ALL NECESSARY TESTING OF MATERIALS AND COMMISSIONING WORKS MUST BE PERFORMED AS PER STANDARD PROCEDURE.

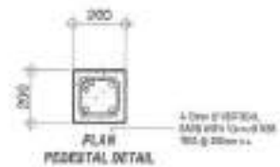
GENERAL NOTES
N T S



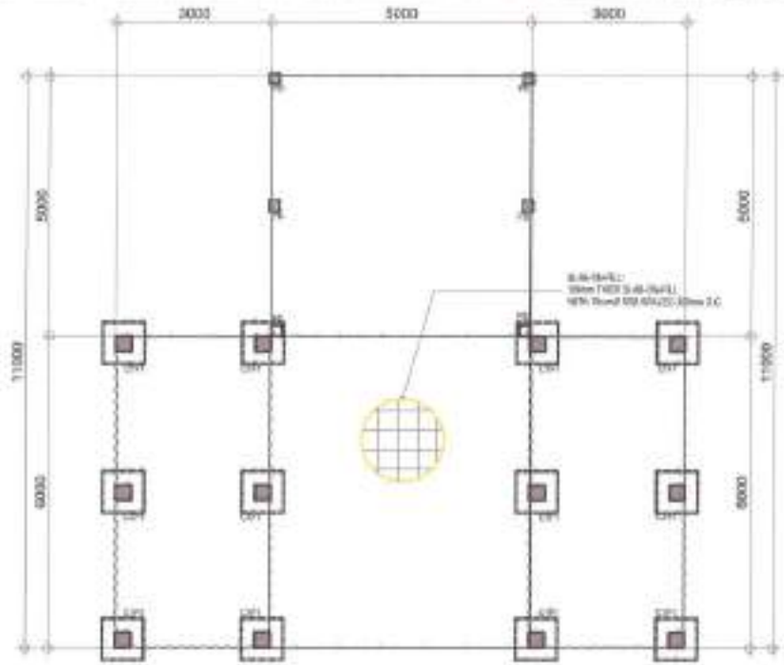


COLUMN FOOTING DETAIL
N T S

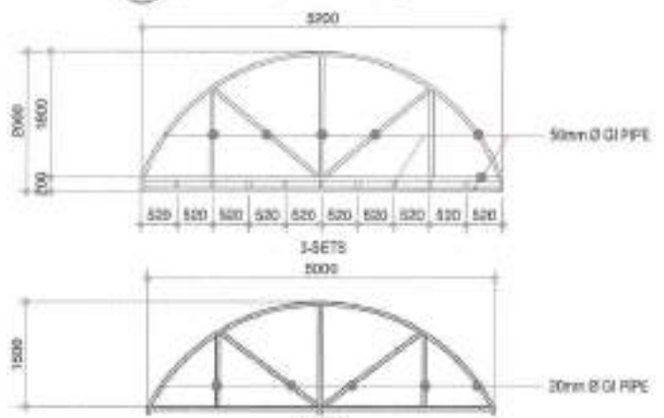




PEDESTAL DETAIL
N T S



FOUNDATION PLAN
N T S



TRUSS DETAIL
N T S

1 A-8 FIELD OFFICE/TRAINING ROOM/CHILLER/HYDROPONIC SHOWROOM

Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

PROJECT TITLE: URBAN FARMING INNOVATION AND LEARNING CENTER	DRAWN BY:
LOCATION: BRGY. SAN BARTOLOME, DISTRICT 5, QUEZON CITY	DATE:
	CHECKED BY:
	REVISION NO.:

SUBMITTED BY:
ENGR. LEO S. DEL ROSARIO
HEAD - PLANNING & PROGRAMMING DIVISION

RECOMMENDING APPROVAL:
ENGR. ISAGUANI A. VERZOSA, JR.
OIC, CITY ENGINEERING DEPARTMENT

APPROVED BY:
HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENT: GENERAL NOTES, COLUMN FOOTING DETAIL, PEDESTAL DETAIL, FOUNDATION PLAN, TRUSS DETAIL

SHEET NO.: A-8

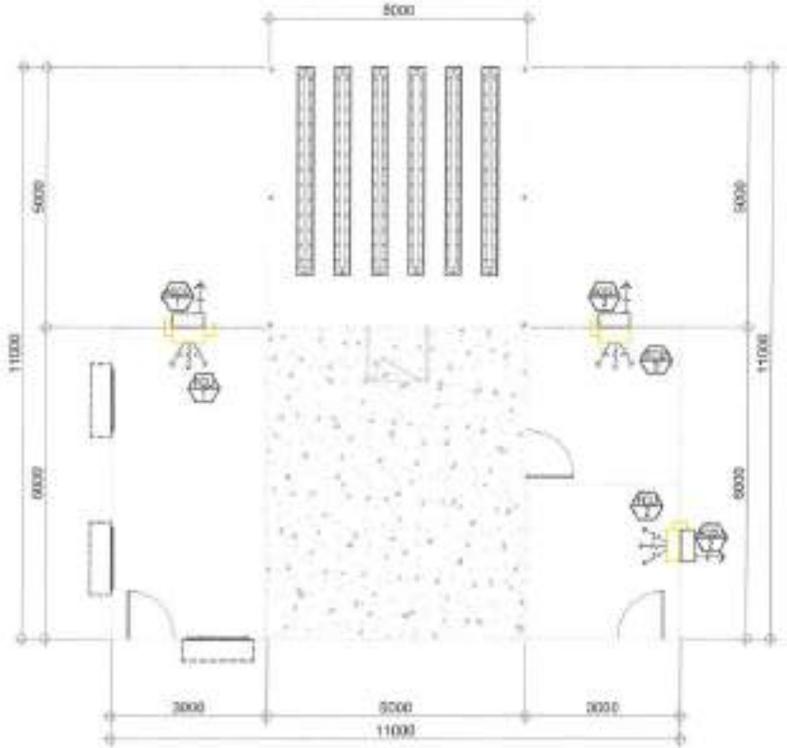
2 / 5 / 16 / 49

1. ALL WORKS SHALL BE EXECUTED IN ACCORDANCE TO THE PHILIPPINE SOCIETY OF MECHANICAL ENGINEERS CODE, THE NATIONAL BUILDING CODE OF THE PHILIPPINES AND OTHER RELATED LAWS AND ORDINANCES OF THIS CITY.
2. ALL WORKS SHALL BE SUPERVISED BY A REGISTERED PROFESSIONAL RELATED TO THE ACTIVITIES BEING UNDERTAKEN
3. ALL WORKS SHALL BE COORDINATED WITH THE RESPECTIVE TRADES IN ORDER TO AVOID CONFLICTS DURING EXECUTION OF ACTIVITIES
4. ALL NECESSARY PERMITS SHALL BE SECURED AND TURNED-OVER TO THE CITY
5. ALL DRAWINGS AND SPECIFICATIONS SHALL BE CORRECTLY REVIEWED BY THE CONTRACTOR AND SHALL IMMEDIATELY BE INFORMED IF DISCREPANCY (IES) FOUND HEREIN.
6. ALL DIMENSIONS, ELEVATIONS AND REFERENCES SHALL BE VERIFIED WITH THE ACTUAL CONDITION PRIOR TO EXECUTION.
7. SHOP DRAWINGS SHALL BE PROVIDED AS NECESSARY PRIOR TO THE EXECUTION.
8. ALL WORKS SHALL BE TESTED AND COMMISSIONED AS INDICATED IN THE SPECIFICATION WITH THE PRESENCE OF ALL PARTIES INVOLVE. RESULT SHALL BE DOCUMENTED PROPERLY.
9. READ THE DRAWINGS IN CONNECTION WITH OTHER RELATED DRAWINGS AND SPECIFICATIONS. THE ARCHITECT AND ENGINEER SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES FOUND THERE IN.
10. THE SCOPE OF WORKS SHALL INCLUDE ALL WORKS DESCRIBED IN PLANS.
11. AIR CONDITIONED SPACES SHALL BE MAINTAINED AT 24° C DRY BULB AND 50% RELATIVE HUMIDITY.
12. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS, MANUFACTURER'S CATALOGUE, SPECIFICATIONS, SAMPLES INCLUDING VIBRATION ISOLATORS BEFORE EXECUTION OF WORK.
13. ALL FLOOR SLAB-MOUNTED VIBRATING EQUIPMENT SHALL BE PROVIDED WITH VIBRATION ISOLATORS TO PREVENT VIBRATION AND NOISE TRANSMISSION.
14. EXHAUST FANS SHALL BE PROVIDED WITH SUITABLE FLEXIBLE CONNECTIONS TO DISCHARGE DUCT.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TESTING AND COMMISSIONING OF THE WHOLE VENTILATION AND AIR CONDITIONING SYSTEM.
16. ALL POWER WIRING SHALL BE ELECTRICAL AND TERMINATION TO EQUIPMENT SHALL BE MECHANICAL.
17. PROVIDE CONTROL WIRING FOR AIR CONDITIONING EQUIPENT.
18. PROVIDE THERMOSTAT FOR ALL INDOOR UNITS OR FAN COIL UNITS.
19. VERIFY LOCATION OF CONTROLLERS AND SWITCHES ON ELECTRICAL PLANS.
20. ALL CONDENSATE WATER DRAIN PIPES SHALL BE CONNECTED TO THE NEAREST FLOOR DRAIN, AREA DRAIN OR CATCH BASIN.
21. PROVIDE GUIDES, HANGERS AND SUPPLEMENTAL STEEL SUPPORTS FOR ALL PIPING, DUCTING AND EQUIPMENT.
22. PROVIDE PIPE SLEEVES FOR ALL PIPES PASSING THRU/ BUILDING STRUCTURE.
23. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

GENERAL NOTES

- EQUIPMENT DESIGNATION
- WALL MOUNTED INDOOR UNIT
- AIR COOLED CONDENSING UNIT

LEGEND AND SYMBOL



GROUND FLOOR AIRCONDITION SYSTEM LAYOUT

DESIGNATION		LOCATION	QUANTITY	COOLING CAPACITY BTUH	AIR CIRCULATION		MOTOR INPUT KW	CURRENT A	ELECTRICAL SUPPLY			REFRIGERANT PIPE		DRAIN PIPE mm	REMARKS
OUTDOOR	INDOOR				INDOOR,cmm	OUTDOOR,cmm			VOLTS	PHASE	HERTZ	GAS, dmm	LIQUID, dmm		
ACCU 1	FCU 1	FIELD OFFICE	1SET	10,000	4.5- 9.0	30	1.07	6.5	220	1Ø	60	0.52	6.35	20	FAN COIL UNIT SHALL BE WALL MOUNTED TYPE. INVERTER MOTOR WITH REMOTE CONTROL
ACCU 2	FCU 2	FIELD OFFICE	2 SETS	8,000	4.0- 13.0	30	0.74	5.0	220	1Ø	60	0.52	6.35	20	FAN COIL UNIT SHALL BE WALL MOUNTED TYPE. INVERTER MOTOR WITH REMOTE CONTROL

EQUIPMENT SCHEDULE

1 A-8 FIELD OFFICE/TRAINING ROOM/CHILLER/HYDROPONIC SHOWROOM

Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

PROJECT TITLE: URBAN FARMING INNOVATION AND LEARNING CENTER
LOCATION: BRGY. SAN BARTOLOME, DISTRICT 5, QUEZON CITY
DRAWN BY:
DATE:
CHECKED BY:
REVISION NO.:

SUBMITTED BY: ENGR. LEO S. DEL ROSARIO, HEAD - PLANNING & PROGRAMMING DIVISION

RECOMMENDING APPROVAL: ENGR. ISAGANI R. VERZOSA, JR., DEPARTMENT

APPROVED BY: HON. MA. JOSEFINA G. BELMONTE, CITY MAYOR, QUEZON CITY

SHEET CONTENT: GENERAL NOTES; LEGEND AND SYMBOLS; GROUND FLOOR AIRCONDITION SYSTEM LAYOUT

SHEET NO.: A-8

3 / 5 | 17 / 49

1 GENERAL NOTES

SCALE :NTS

1. ALL WORKS SHALL BE EXECUTED IN ACCORDANCE TO THE LATEST EDITION OF THE PHILIPPINE ELECTRICAL CODE, PHILIPPINE ELECTRONICS CODE, THE NATIONAL BUILDING CODE OF THE PHILIPPINES AND OTHER RELATED LAWS AND ORDINANCES OF THIS CITY.
2. ALL WORKS SHALL BE SUPERVISED BY A REGISTERED PROFESSIONAL RELATED TO THE ACTIVITIES BEING UNDERTAKEN.
3. ALL WORKS SHALL BE COORDINATED WITH THE RESPECTIVE TRADES SO TO AVOID CONFLICTS DURING EXECUTION OF ACTIVITIES.
4. ALL NECESSARY PERMITS SHALL BE SECURED AND TURNED-OVER TO THE CITY.
5. ALL DRAWINGS AND SPECIFICATIONS SHALL BE CORRECTLY REVIEWED BY THE CONTRACTOR AND SHALL IMMEDIATELY BE INFORMED IF DISCREPANCY WERE FOUND HEREIN.
6. ALL DIMENSIONS, ELEVATIONS AND REFERENCES, SHALL BE VERIFIED WITH THE ACTUAL CONDITION PRIOR TO EXECUTION.
7. SHOP DRAWINGS SHALL BE PROVIDED AS NECESSARY PRIOR TO THEIR EXECUTION.
8. ALL WORKS SHALL BE TESTED AND COMMISSIONED AS INDICATED IN THE SPECIFICATIONS WITH THE PRESENCE OF ALL PARTIES INVOLVED. RESULTS SHALL BE DOCUMENTED PROPERLY.
9. ALL PIPES AND LAYOUT ARE ONLY DIAGRAMMATIC. ACTUAL LAYOUT OF PIPES AND FITTINGS, UNLESS OTHERWISE INDICATED, SHALL BE PROPERLY CONCEALED.
10. NO PIPES SHALL BE ALLOWED TO BE EMBEDDED IN STRUCTURAL MEMBERS, UNLESS OTHERWISE APPROVED.
11. ALL PIPES, FITTINGS, EQUIPMENT AND FIXTURES SHALL BE INSTALLED IN ACCORDANCE TO MANUFACTURER'S SPECIFICATIONS AND INSTRUCTIONS.
12. SUPPORTS AND HANGERS SHALL BE PROVIDED ACCORDINGLY.
13. ALL EQUIPMENTS AND FIXTURES SHALL BE ENVIRONMENTAL FRIENDLY.
14. INSTALLATION OF SERVICE ENTRANCE
    - 14.1. THE TYPE OF SERVICE ENTRANCE SHALL BE SINGLE-PHASE, TWO-WIRE PLUS GROUND, 60 HERTZ, 230V AC NOMINAL.
    - 14.2. THE SERVICE ENTRANCE EQUIPMENT SHALL BE PROPERLY GROUNDED IN ACCORDANCE WITH THE PHILIPPINE ELECTRICAL CODE.
    - 14.3. THE MAIN OVERCURRENT PROTECTION DEVICE SHALL BE OF THERMAL MAGNETIC MOLDED HOUSING OR MEATHERPROOF ENCLOSURE.
15. INSTALLATION OF LIGHTING AND POWER SYSTEM
    - 15.1. ALL LIGHTING AND CONVENIENCE OUTLET CIRCUITS SHALL BE 3.5 SQ. MM. THHN/THWN COPPER WIRE UNLESS OTHERWISE NOTED, MINIMUM SIZE OF WIRE SHALL BE 3.5 SQ. MM. COPPER WIRE. ALL WIRES AND CABLES SHALL BE COLOR CODED AS FOLLOWS:
      - LINE 1 - RED
      - LINE 2 - BLACK
      - NEUTRAL - WHITE
      - GROUND - GREEN
    - 15.2. ALL EMBEDDED BRANCH CIRCUITS SHALL BE PVC CONDUITS AND FOR EXPOSED INSTALLATION SHALL BE SIZE SUPPORTED BY CONDUIT CLAMPS EVERY 150 MILIMETERS AND/OR CONDUIT HANGER SUPPORTS EVERY 1500 MILIMETERS.
    - 15.3. CONDUITS IN NO CASE SHALL NOT BE MORE THAN THE EQUIVALENT OF FOUR QUARTER BENDS IN ANY ONE RUN. ALL CONDUIT BENDS SHALL BE FIELD MADE BY USING HYDRAULIC BENDERS. MINIMUM BENDING RADIUS MUST BE IN ACCORDANCE TO THE CODE REQUIREMENTS.
    - 15.4. ALL POWER OUTLETS AND SWITCHES SHALL BE GROUNDING TYPE WITH PARALLEL SLOTS FOR 220 V.
    - 15.5. PROVIDE GROUND FAULT CURRENT INTERRUPTOR CIRCUIT BREAKER FOR LOADS MARKED "GFCI" ON THE PLAN.
    - 15.6. ALL METALLIC CONDUITS, SWITCHES, LIGHTING FIXTURES, PANELBOARDS, EQUIPMENTS AND NON-CURRENT CARRYING METAL PARTS SHALL BE PROPERLY GROUNDED AND BONDED.
    - 15.7. THE GROUND RESISTANCE SHALL NOT BE MORE THAN 5 OHMS.
    - 15.8. ALL MOUNTING HEIGHTS FOR WALL MOUNTED DEVICES SHALL BE AS FOLLOWS:
      - A. LIGHTING SWITCH - 1400 MM ABOVE FLOOR FINISH
      - B. CONVENIENCE OUTLET - 300 MM ABOVE FLOOR FINISH
        - 150MM ABOVE WORKING COUNTER.
      - C. PANELBOARD AND CABINETS - 1400 MM ABOVE FLOOR FINISH
      - D. EXIT LIGHT - 150 MM TOP OF DOOR JAMB
      - E. EMERGENCY LIGHT - 2000 ABOVE FLOOR EMERGENCY
    - 15.1. PULL BOXES SHALL BE PROVIDED WHENEVER NECESSARY TO FACILITATE WIRE PULLING EVEN IF THESE ARE NOT INDICATED ON PLANS.
    - 15.2. FOR EACH SPARE BRANCH CIRCUIT IN PANELBOARD, PROVIDE ONE 25MM DIAMETER EMPTY CONDUIT TERMINATED TO 100MM OCTAGONAL BOX ABOVE CEILING. MINIMUM SIZE OF PULLBOX SHALL BE 150MM X THEMM X 100MM.
    - 15.3. ALL CIRCUIT BREAKERS SHALL BE BOLT-ON TYPE WITH INTERRUPTING CAPACITY AS INDICATED IN THE PLANS. PANELBOARDS SHALL BE GALVANIZED SHEET POWDER COATED, GAUGE 16 MINIMUM.
    - 15.4. FEEDER AND BRANCH CIRCUIT CONDUCTORS IN CABLE TRAYS SHALL BE GROUPED, BONDED AND TAGGED TO INDICATE CLEARLY THE ELECTRICAL CHARACTERISTICS SUCH AS CIRCUIT NUMBER AND PANEL DESIGNATION.
    - 15.5. REFER TO MECHANICAL, PLUMBING AND FIRE PROTECTION DRAWINGS FOR RATINGS AND LOCATIONS OF EQUIPMENT AS WELL AS THEIR CONTROL REQUIREMENTS AS SPECIFIED AND OR SHOWN UNDER THEIR RESPECTIVE SECTIONS.
    - 15.6. ALL MATERIALS TO BE USED AND THE EQUIPMENT TO BE INSTALLED SHALL BE OF THE BEST QUALITY, BRAND NEW AS SPECIFIED, IT MUST BE APPROVED TYPE FOR THE PARTICULAR LOCATION AND PURPOSE INTENDED.
16. INSTALLATION OF NECESSARY SYSTEM (VOLTAGE SYSTEM, CLOSED CIRCUIT TELEVISION SYSTEM AND FIRE DETECTION ALARM SYSTEM)
    - 16.1. ALL AUXILIARY WIRINGS MUST REFER TO WIRE SCHEDULE AS INDICATED ON PLANS.
    - 16.2. MINIMUM SIZE AND TYPE OF CONDUIT SHALL BE AS FOLLOWS:
      - A. VOICE DATA SYSTEM - 25MM Ø PVC
      - B. CCTV SYTEM - 25MM Ø PVC
      - C. FDAS SYSTEM - 19MM Ø EMT/IMC
    - 16.1. ALL EMBEDDED CIRCUITS SHALL BE PVC CONDUITS AND FOR EXPOSED INSTALLATION SHALL BE ENTIRELY SUPPORTED BY CONDUIT CLAMPS EVERY 150 MILIMETERS AND/OR CONDUIT HANGER SUPPORTS EVERY 1500 MILIMETERS.
    - 16.3. ALL MOUNTING HEIGHTS FOR WALL MOUNTED DEVICES SHALL BE AS FOLLOWS:
      - A. TELEPHONE OUTLET - 300 MM ABOVE FLOOR FINISH
      - B. CATV OUTLET - 300 MM ABOVE FLOOR FINISH
      - C. DATA OUTLET - 300MM ABOVE WORKING COUNTER.
      - D. CABINETS - 1400 MM ABOVE FLOOR FINISH
    - 16.1. BOXES, WIRE, GUTTERS, ENCLOSURE SHALL BE FABRICATED FROM STEEL WITH THICKNESS AS FOLLOWS:

MAX. WIDTH OF THE WIDEST SURFACE STEEL	GA
UP TO INCLUDING 152.40 MM	GA 18 PAINTED WITH METAL PRIMER EPOXY AND TOPCOAT
OVER 152.40 MM BUT NOT OVER 457.20	GA 14 PAINTED WITH METAL PRIMER EPOXY AND TOPCOAT
OVER 457.20 MM BUT NOT OVER 762 MM	GA 12 PAINTED WITH METAL PRIMER EPOXY AND TOPCOAT
OVER 762 MM	GA 10 PAINTED WITH METAL PRIMER EPOXY AND TOPCOAT

    - 16.1. THE COMMUNICATION GROUND WILL BE MADE SHALL NOT EXCEED 2 OHMS.
    - 16.2. ALL MATERIALS TO BE USED AND THE EQUIPMENT TO BE INSTALLED SHALL BE OF THE BEST QUALITY, BRAND NEW AS SPECIFIED, IT MUST BE APPROVED TYPE FOR THE PARTICULAR LOCATION AND PURPOSE INTENDED.

2 LEGEND AND SYMBOLS

SCALE :NTS

- CIRCUIT LINE
- DUPLEX OUTLET
- 40A OUTLET
- S — SINGLE GANG SWITCH
- 2 — TWO GANG SWITCH
- 3 — THREE GANG SWITCH
- LED SINGLE TROFFER LIGHTING, 600x1200mm, FLUSH MOUNTED
- 12MM BLIND PROOF COVER WITH HANGER AND SUPPORT
- CIRCUIT HOMERUN
- PANELBOARD
- ENCLOSED CIRCUIT BREAKER

SPOT DETAIL OF CONDUIT RUN AND BOX

BENDING RADIUS DETAIL

PROPER CONDUIT LAYOUT at PULL BOX

BOARDED RACEWAY TERMINATION FOR SHEET METAL

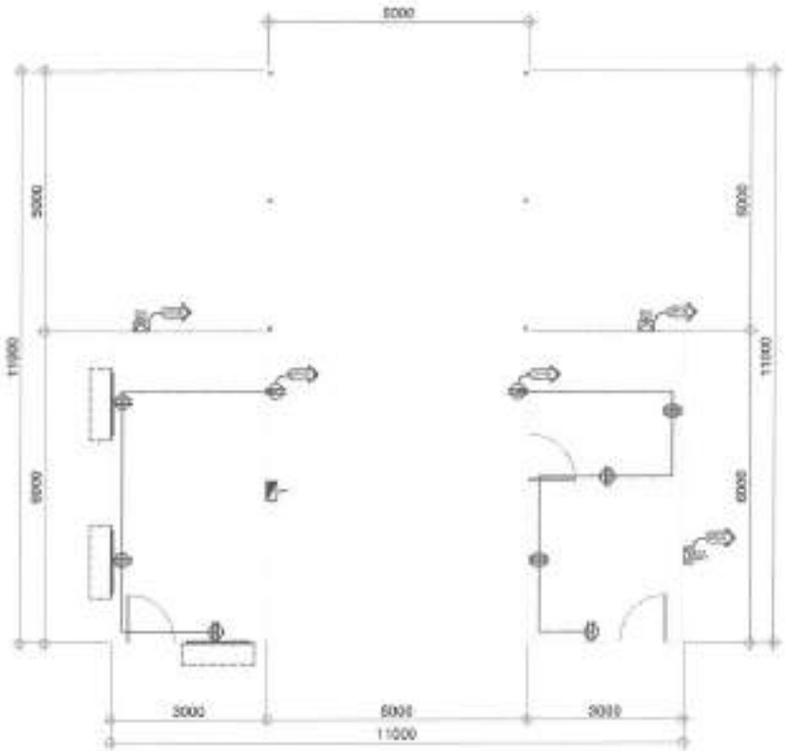
CONDUIT RUN FOR LIGHTING DISTRIBUTION IN ONE CIRCUIT
(FOR EXPOSED OR INSIDE DROP-CEILING INSTALLATION)

3 MISCELLANEOUS DETAILS

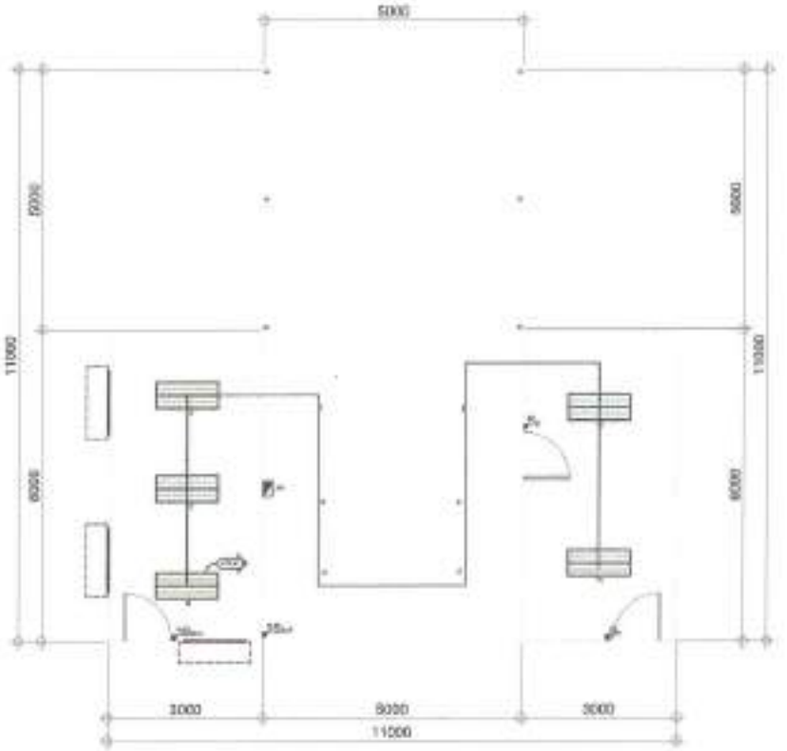
SCALE :NTS

Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

PROJECT TITLE: URBAN FARMING INNOVATION AND LEARNING CENTER	DRAWN BY:	SUBMITTED BY: ENGR. LEO S. DEL ROSARIO, HEAD, PLANNING & PROGRAMMING DIVISION	RECOMMENDING APPROVAL: ENGR. ISAGANI R. VERZOSA, JR., OIC, CITY ENGINEERING DEPARTMENT	APPROVED BY: HON. MA. JOSEFINA G. BELMONTE, CITY MAYOR, QUEZON CITY	SHEET CONTENT: GENERAL NOTES, LEGENDS AND SYMBOLS, MISCELLANEOUS DETAILS	SHEET NO: A-8
LOCATION: BRGY. SAN BARTOLOME, DISTRICT II, QUEZON CITY	DATE:					4 / 5 / 18 / 49
	CHECKED BY:					
	REVISION NO.:					



POWER LAYOUT
SCALE: 1:100m



LIGHTING LAYOUT
SCALE: 1:100m

1 A-8 FIELD OFFICE/TRAINING ROOM/CHILLER/HYDROPONIC SHOWROOM

SCALE : 1:200 METERS

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Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

PROJECT TITLE :
URBAN FARMING INNOVATION AND LEARNING CENTER

LOCATION :
BRGY. SAN BARTOLOME, DISTRICT 5, QUEZON CITY

DRAWN BY :
DATE :
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REVISION NO. :

SUBMITTED BY :
ENGR. LEO S. DEL ROSARIO
HEAD , PLANNING &PROGRAMMING DIVISION

RECOMMENDING APPROVAL :
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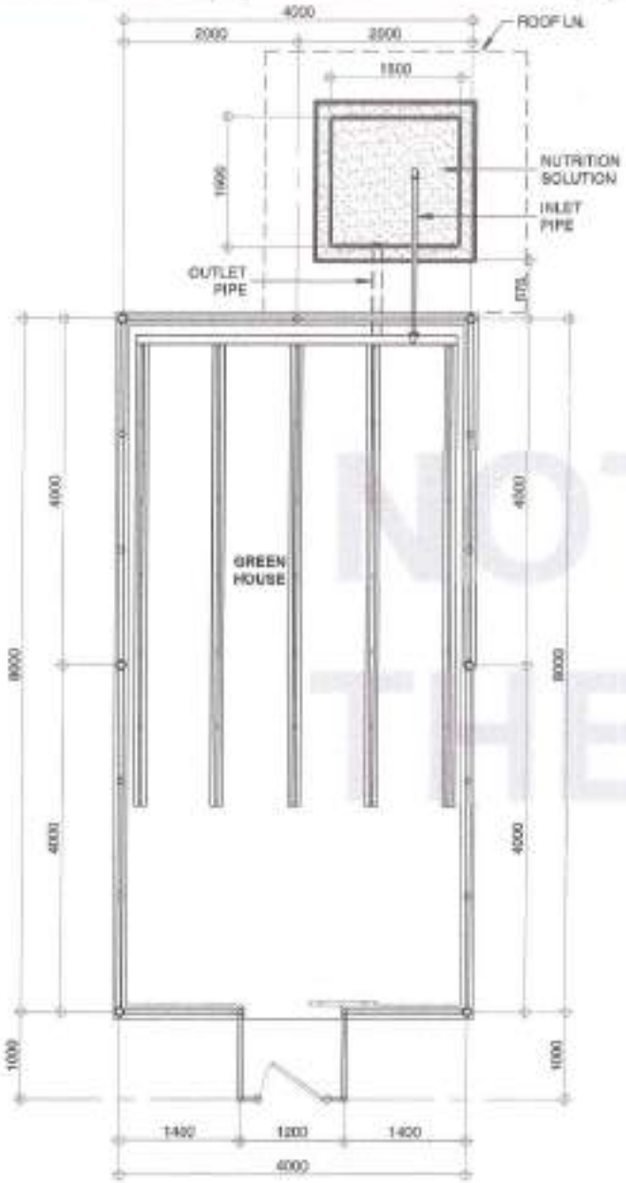
OIC, CITY ENGINEERING DEPARTMENT

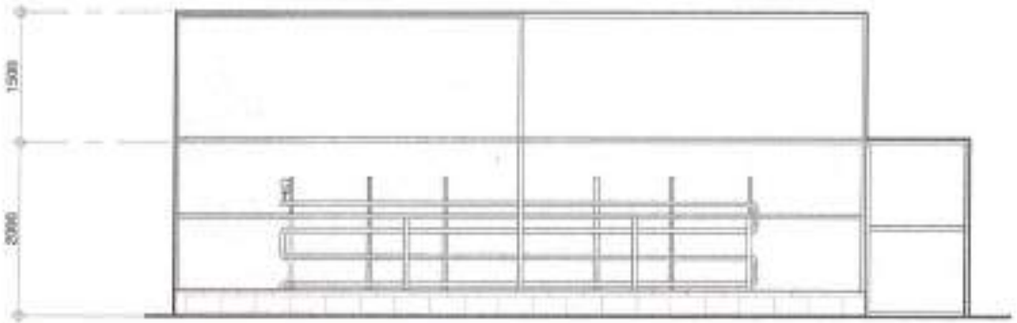
APPROVED BY :
HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENT :
POWER LAYOUT
LIGHTING LAYOUT

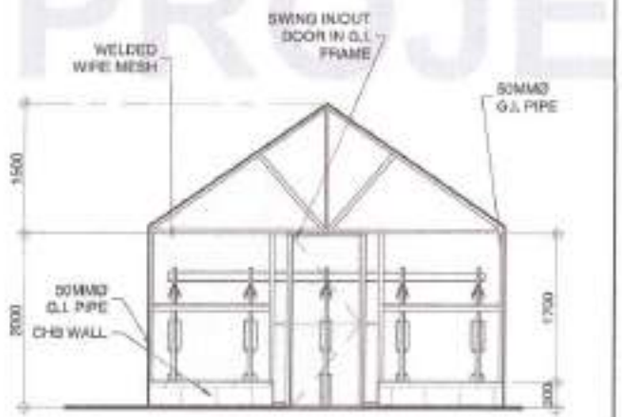
SHEET NO. :
A-8
5 / 5 | 19 / 49



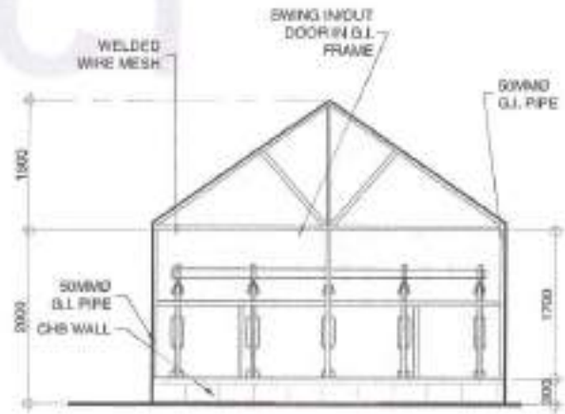
1 PLAN
(B-1 GABLE ROOF GREENHOUSE W/ HYDROPONICS SYSTEM) SCALE: 1:60M.



4 TYPICAL LEFT & RIGHT SIDE ELEVATION
(B-1 GABLE ROOF GREENHOUSE W/ HYDROPONICS SYSTEM) SCALE: 1:60M.



2 FRONT ELEVATION
(B-1 GABLE ROOF GREENHOUSE W/ HYDROPONICS SYSTEM) SCALE: 1:60M.



3 REAR ELEVATION
(B-1 GABLE ROOF GREENHOUSE W/ HYDROPONICS SYSTEM) SCALE: 1:60M.

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CITY ENGINEERING DEPARTMENT

PROJECT TITLE:
URBAN FARMING INNOVATION AND LEARNING CENTER

LOCATION:
BRGY. SAN BARTOLOME, DISTRICT 5, QUEZON CITY

DRAWN BY:
DATE:
CHECKED BY:
REVISION NO.:

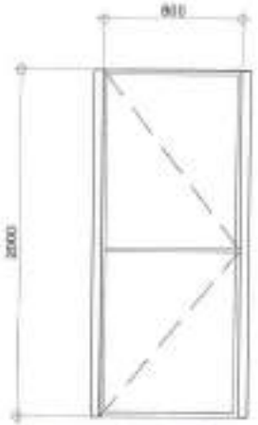
SUBMITTED BY:
ENGR. LEO S. DEL ROSARIO
HEAD - PLANNING & PROGRAMMING DIVISION

RECOMMENDING APPROVAL:
ENGR. ISIDRO R. VERZOSA, JR.
OIC, CITY ENGINEERING DEPARTMENT

APPROVED BY:
HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENT:
GABLE ROOF GREEN HOUSE W/ HYDROPONICS SYSTEM PLAN ELEVATIONS

SHEET NO.
B-1
1 / 3 | 20 / 49



D-1

SET: 1 SET
LOCATION: GREENHOUSE
TYPE: SWING-IN/OUT TYPE DOOR
IN G.I. PIPE FRAMING

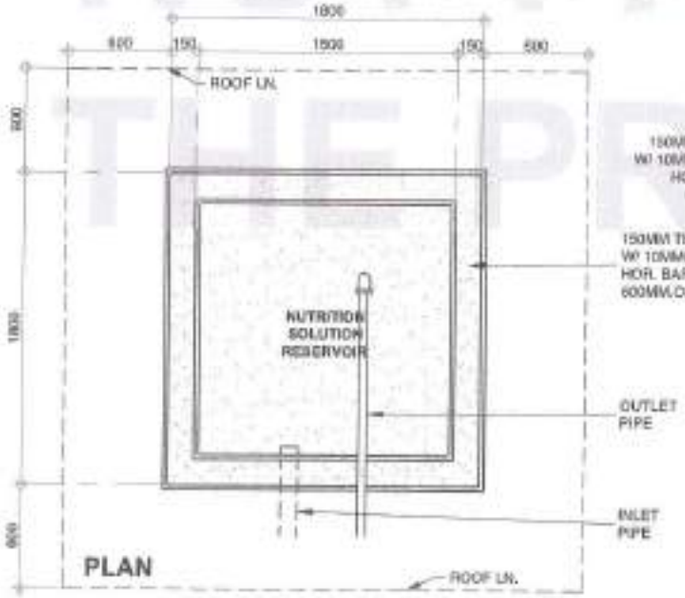
D-2

SET: 1 SET
LOCATION: GREENHOUSE
TYPE: SLIDING TYPE DOOR IN G.I.
FRAME DOOR TYPE

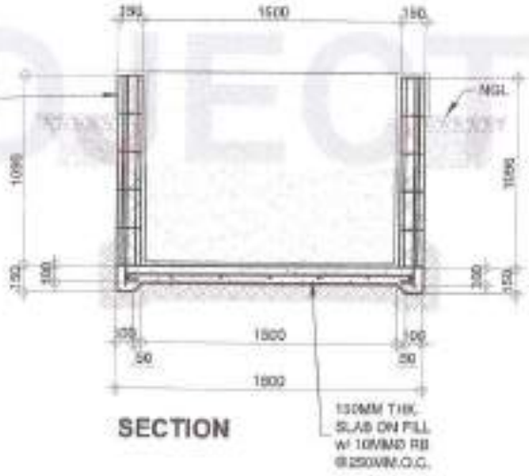
2 SCHEDULE OF DOORS

(B-1 GABLE ROOF GREENHOUSE W/ HYDROPONICS SYSTEM)

SCALE: 1:30M.



PLAN



SECTION

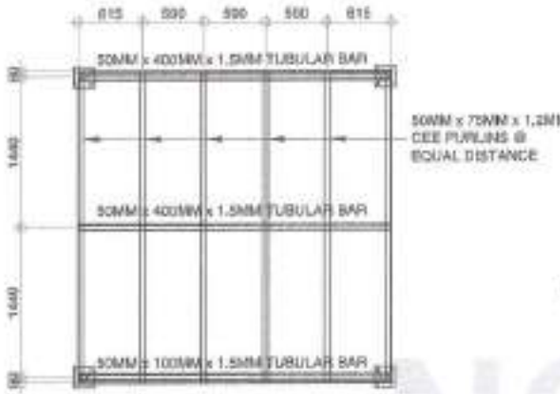
1 NUTRITION SOLUTION RESERVOIR

(B-1 GABLE ROOF GREENHOUSE W/ HYDROPONICS SYSTEM)

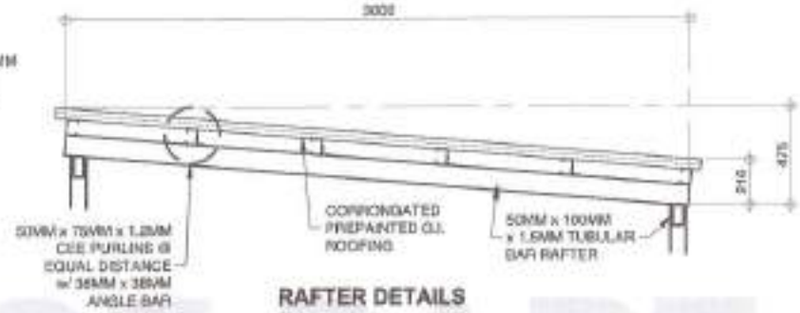
SCALE: 1:30M.

Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

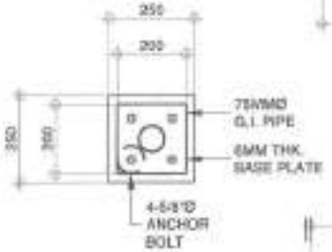
PROJECT TITLE: URBAN FARMING INNOVATION AND LEARNING CENTER	DRAWN BY:	SUBMITTED BY: ENGR. LEO S. DEL ROSARIO, HEAD, PLANNING & PROGRAMMING DIVISION	RECOMMENDING APPROVAL: ENGR. ISAGANI R. VERZOSA, JR., OIC-CITY ENGINEERING DEPARTMENT	APPROVED BY: HON. MA. JOSEFINA G. BELMONTE, CITY MAYOR, QUEZON CITY	SHEET CONTENT: GABLE ROOF GREEN HOUSE W/ HYDROPONICS SYSTEM SCHEDULE OF DOORS NUTRITION SOLUTION RESERVOIR	SHEET NO.: B-1
LOCATION: BRGY. SAN BARTOLOME, DISTRICT V, QUEZON CITY	DATE:					2 / 3 / 21 / 49
	CHECKED BY:					
	REVISION NO.:					



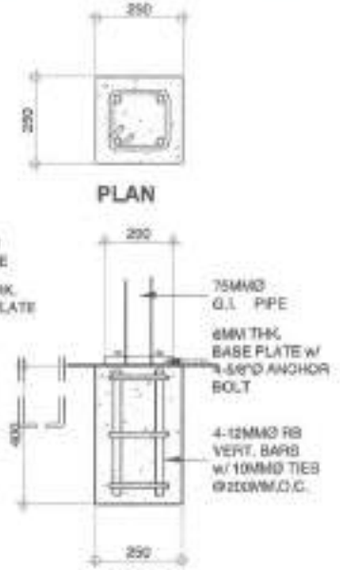
ROOF FRAMING PLAN



RAFTER DETAILS



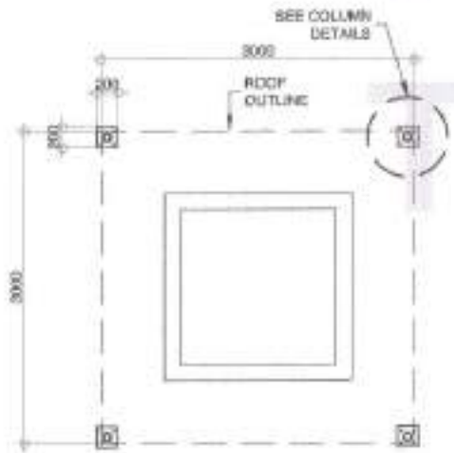
BASE PLATE DET.



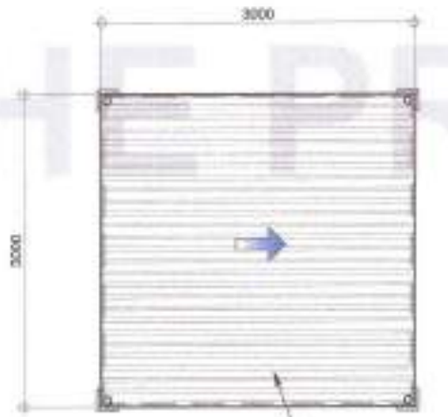
PLAN

SECTION

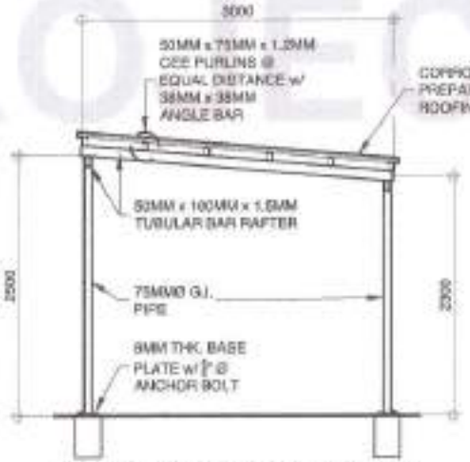
COLUMN PEDESTAL DETAIL



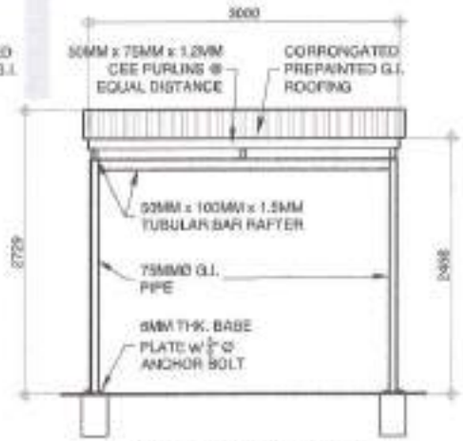
SHED PLAN



ROOF PLAN



TYP. FRONT & REAR ELEVATION



TYP. SIDE ELEVATION

1 **ROOF SHED DETAILS**
(B-1 GABLE ROOF GREENHOUSE W/ HYDROPONICS SYSTEM)

SCALE: 1:50/1:25/1:15M

Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

PROJECT TITLE:
URBAN FARMING INNOVATION AND LEARNING CENTER

LOCATION:
BRGY. SAN BARTOLOME, DISTRICT II, QUEZON CITY

DRAWN BY:
DATE:
CHECKED BY:
PROVISION NO.:

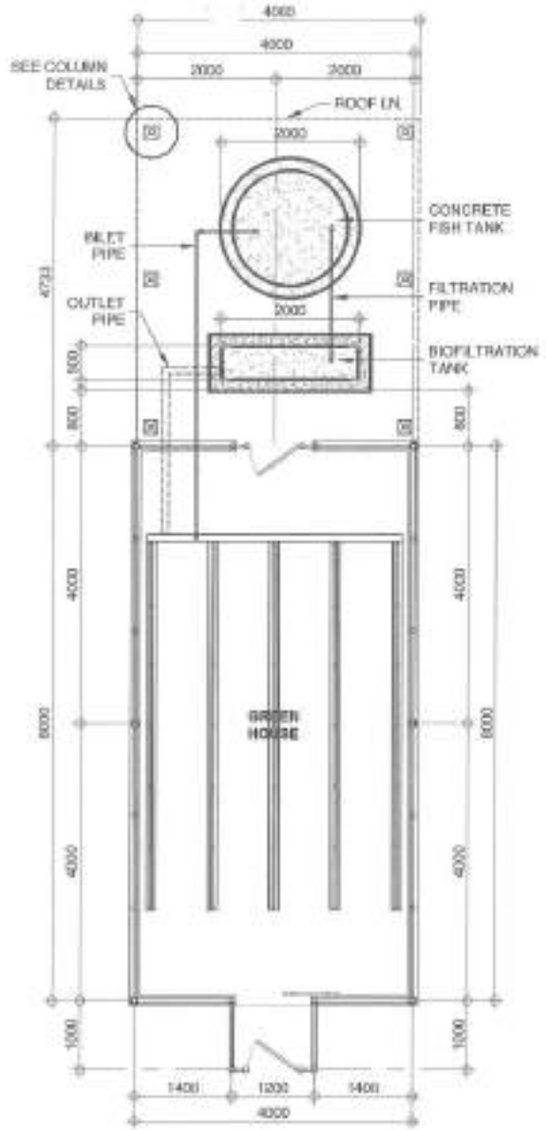
SUBMITTED BY:
ENGR. LEO S. DEL ROSARIO
HEAD, PLANNING & PROGRAMMING DIVISION

RECOMMENDING APPROVAL:
ENGR. ISAGANI R. VERZOSA, JR.
OIC-CITY ENGINEERING DEPARTMENT

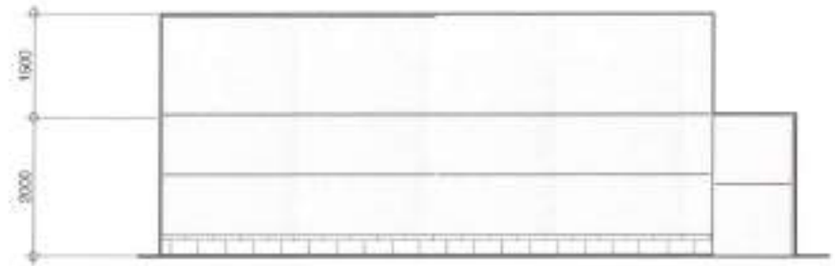
APPROVED BY:
HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENT:
ROOF SHED DETAILS

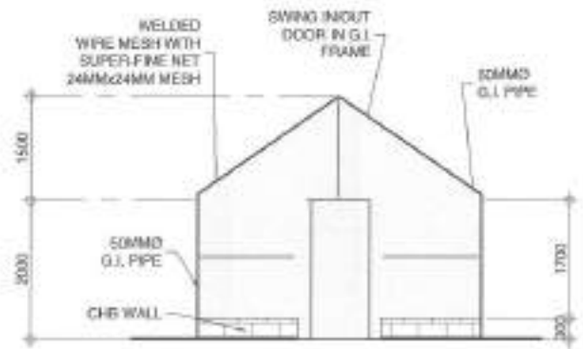
SHEET NO.
B-1
3/3 22/49



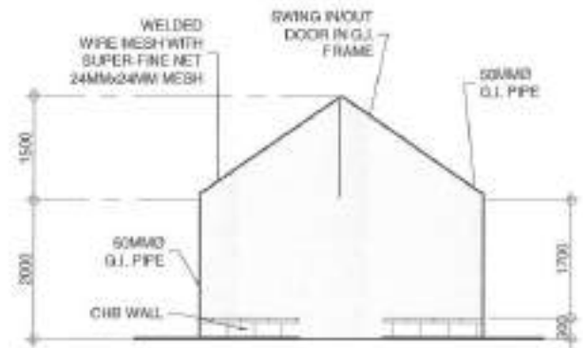
1 P L A N
(B-2 GABLE ROOF GREEN HOUSE W/ AQUAPONICS SYSTEM) SCALE: 1:75M.



4 TYPICAL LEFT & RIGHT SIDE ELEVATION
(B-2 GABLE ROOF GREEN HOUSE W/ AQUAPONICS SYSTEM) SCALE: 1:75M.



2 FRONT ELEVATION
(B-2 GABLE ROOF GREEN HOUSE W/ AQUAPONICS SYSTEM) SCALE: 1:75M.



3 REAR ELEVATION
(B-2 GABLE ROOF GREEN HOUSE W/ AQUAPONICS SYSTEM) SCALE: 1:75M.

Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

PROJECT TITLE:
URBAN FARMING INNOVATION AND LEARNING CENTER

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BRGY. SAN BARTOLOME, DISTRICT II, QUEZON CITY

DRAWN BY:

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REVISION NO.:

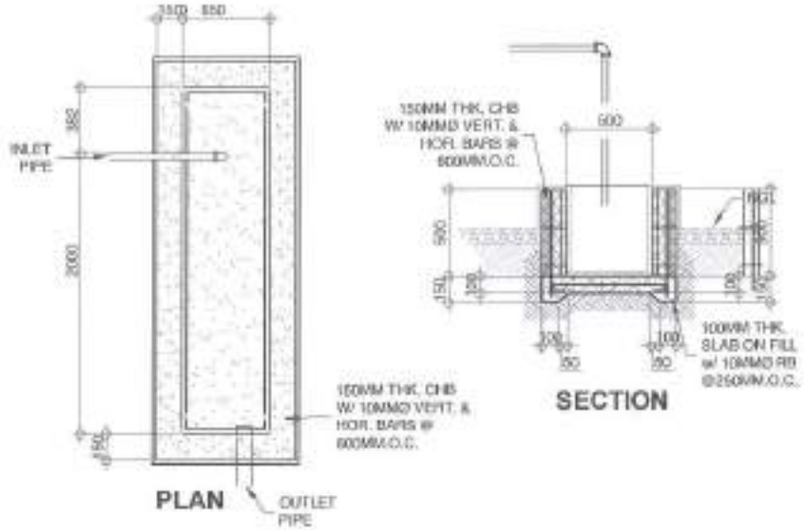
SUBMITTED BY:
ENGR. LEO S. DEL ROSARIO
HEAD, PLANNING & PROGRAMMING DIVISION

RECOMMENDING APPROVAL:
ENGR. ISAGANI R. VERZOSA, JR.
OIC, CITY ENGINEERING DEPARTMENT

APPROVED BY:
HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

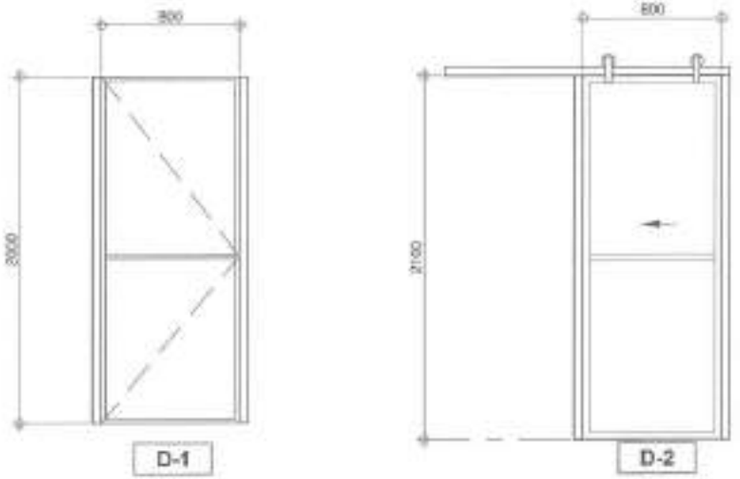
SHEET CONTENT:
GABLE ROOF GREEN HOUSE W/ AQUAPONICS SYSTEM PLAN ELEVATIONS

SHEET NO.
B-2
1 / 3
23 / 49



3 NUTRITION SOLUTION RESERVOIR
(B-2 GABLE ROOF GREEN HOUSE W/ AQUAPONICS SYSTEM)

SCALE: 1:30M.

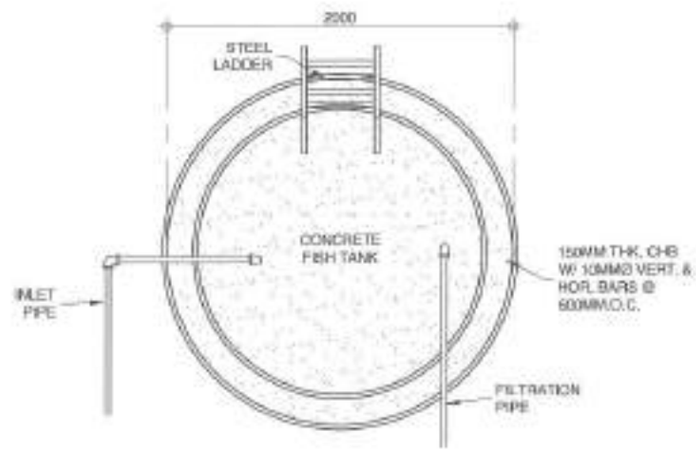


D-1
SET: 1 SET
LOCATION: GREENHOUSE
TYPE: SWING-IN/OUT TYPE DOOR IN G.I. PIPE FRAMING

D-2
SET: 1 SET
LOCATION: GREENHOUSE
TYPE: SLIDING TYPE DOOR IN G.I. FRAME DOOR TYPE

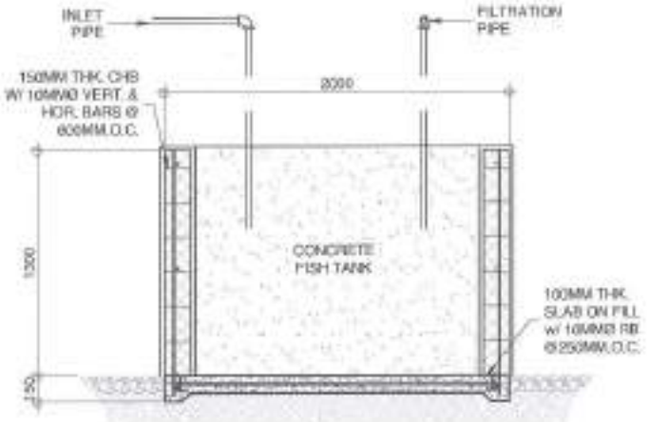
4 SCHEDULE OF DOORS
(B-2 GABLE ROOF GREEN HOUSE W/ AQUAPONICS SYSTEM)

SCALE: 1:30M.



1 CONCRETE FISH TANK-PLAN
(B-2 GABLE ROOF GREEN HOUSE W/ AQUAPONICS SYSTEM)

SCALE: 1:30M.



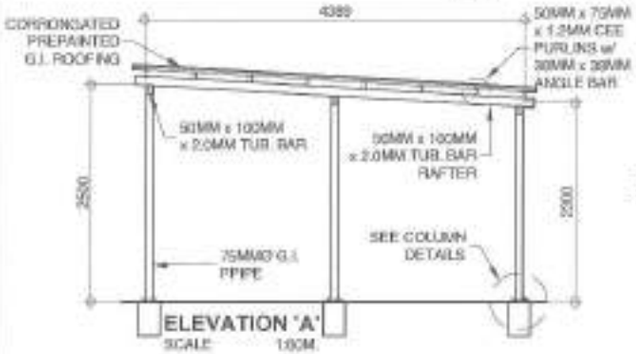
2 CONCRETE FISH TANK-SECTION
(B-2 GABLE ROOF GREEN HOUSE W/ AQUAPONICS SYSTEM)

SCALE: 1:30M.

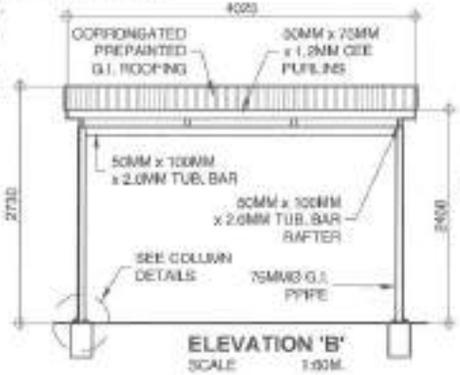
Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

PROJECT TITLE:	URBAN FARMING INNOVATION AND LEARNING CENTER
LOCATION:	BRGY. SAN BARTOLOME, DISTRICT 5, QUEZON CITY
DRAWN BY:	
DATE:	
CHECKED BY:	
REVISION NO.:	
SUBMITTED BY:	ENGR. LEO S. DEL ROSARIO, HEAD, PLANNING & PROGRAMMING DIVISION
RECOMMENDING APPROVAL:	ENGR. ISAGANI R. VERZOSA, JR., DEPARTMENT
APPROVED BY:	HON. MA. JOSEFINA G. BELMONTE, CITY MAYOR, QUEZON CITY
SHEET CONTENT:	GABLE ROOF GREEN HOUSE W/ AQUAPONICS SYSTEM NUTRITION SOLUTION RESERVOIR, CONCRETE FISH TANK SCHEDULE OF DOORS
SHEET NO.:	B-2
	2 / 24
	3 / 49

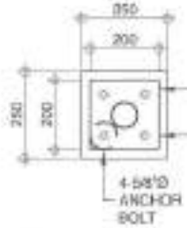
RAFTER DETAILS
SCALE 1:25M.



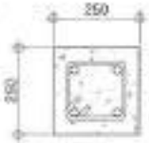
ELEVATION 'A'
SCALE 1:60M.



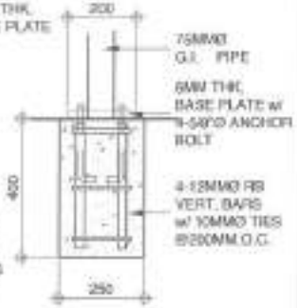
ELEVATION 'B'
SCALE 1:60M.



BASE PLATE DET.

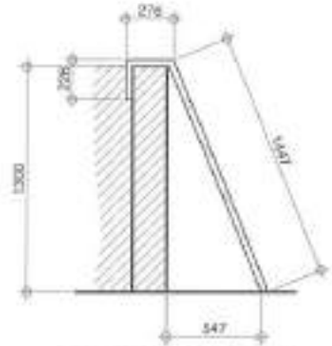


PLAN

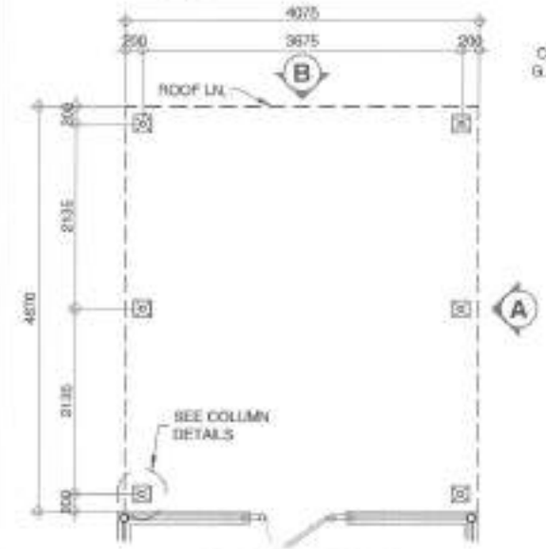


SECTION

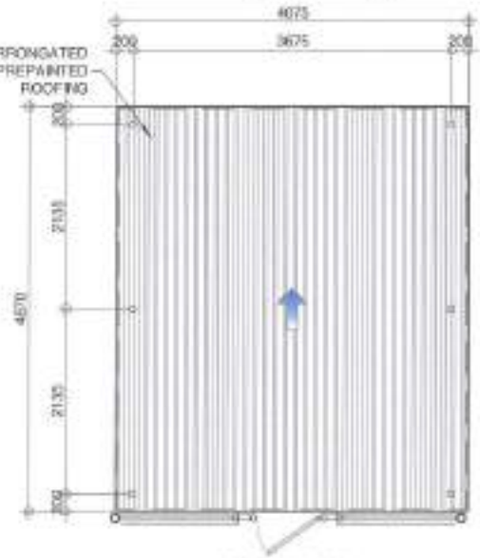
COLUMN PEDESTAL DETAIL



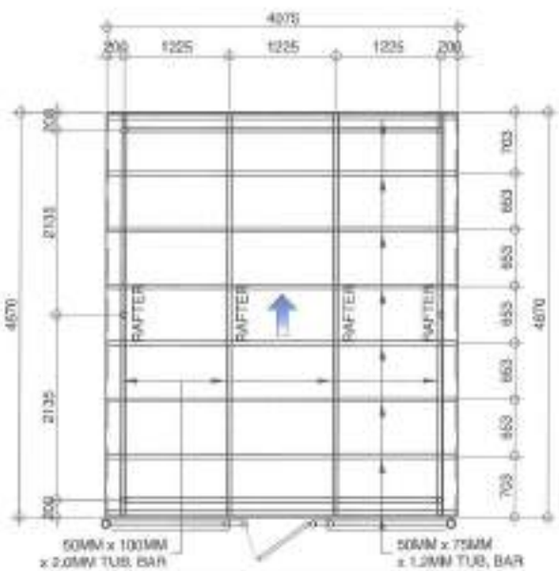
TYP. SIDE ELEVATION
USE 38MM x 38MMØ G.I. PIPE



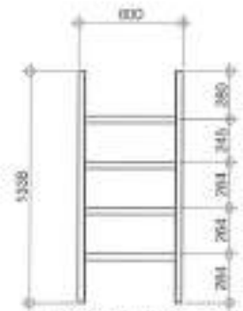
ROOF SHED PLAN
SCALE 1:60M.



ROOF PLAN
SCALE 1:60M.



ROOF FRAMING PLAN
SCALE 1:60M.



FRONT ELEVATION
USE 38MM x 38MMØ G.I. PIPE

PLAN
USE 38MM x 38MMØ G.I. PIPE

1 **ROOF SHED DETAILS**
(B-2 GABLE ROOF GREEN HOUSE W/ AQUAPONICS SYSTEM)

SCALE: 1:60/1:25/1:10M.

2 **LADDER DETAILS** SCALE: 1:30M
(B-2 GABLE ROOF GREEN HOUSE W/ AQUAPONICS SYSTEM)

Republika ng Pilipinas
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CITY ENGINEERING DEPARTMENT

PROJECT TITLE:
URBAN FARMING INNOVATION AND LEARNING CENTER

LOCATION:
BRGY. SAN BARTOLOME, DISTRICT 5, QUEZON CITY

DRAWN BY:
DATE:
CHECKED BY:
DRAWING NO.:

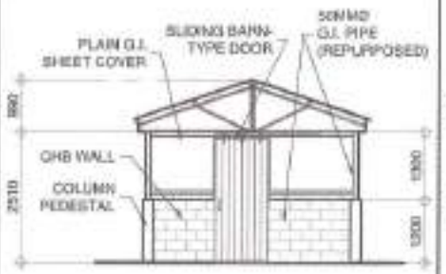
SUBMITTED BY:
ENGR. LEO S. DEL ROSARIO
HEAD, PLANNING & PROGRAMMING DIVISION

RECOMMENDING APPROVAL:
ENGR. ISAGANI R. VERZOSA, JR.
OIC, CITY ENGINEERING DEPARTMENT

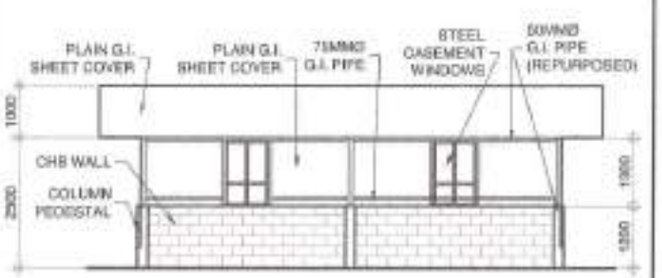
APPROVED BY:
HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENT:
ROOF SHED DETAILS
LADDER DETAILS

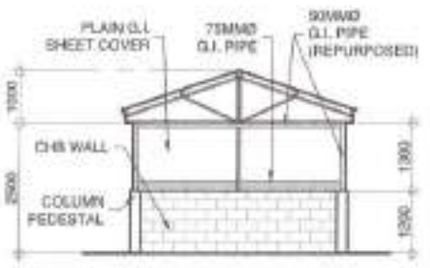
SHEET NO.
B-2
3/3
25/49



2 **FRONT ELEVATION**
(B-3 SHED FOR STORE ROOM) SCL: 1:100M.

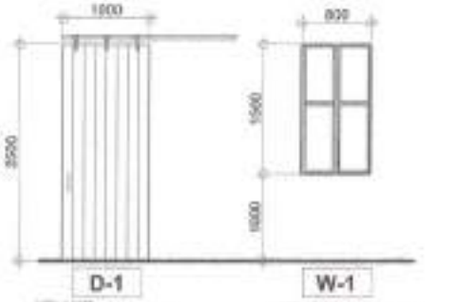


3 **TYP. SIDE ELEVATION**
(B-3 SHED FOR STORE ROOM) SCALE: 1:100M.

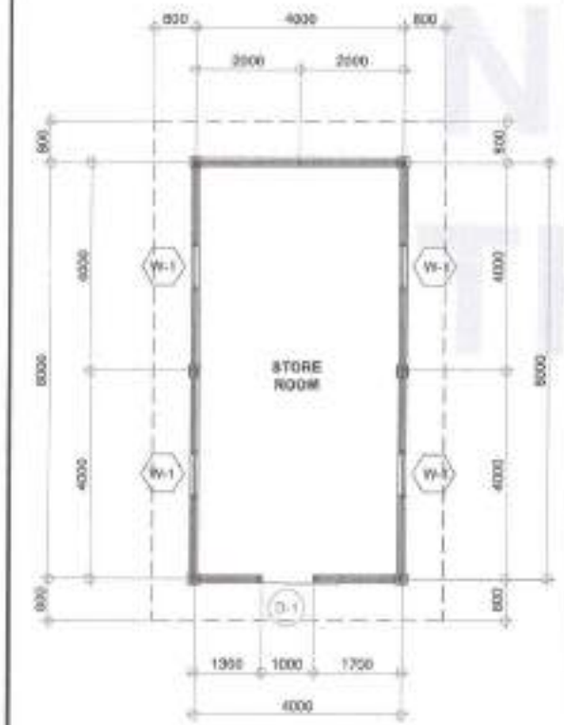


REAR ELEVATION

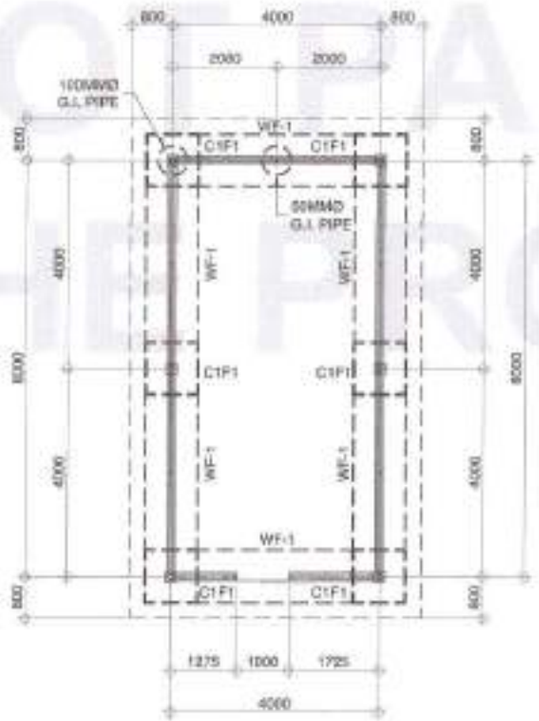
4 **REAR ELEVATION**
(B-3 SHED FOR STORE ROOM) SCL: 1:100M.



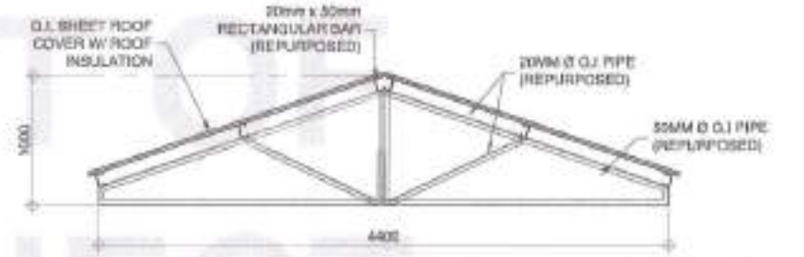
5 **SCH. OF DOOR**
(B-3 SHED FOR STORE ROOM) SCL: 1:50M.



1 **P L A N**
(B-3 SHED FOR STORE ROOM) SCALE: 1:100M.



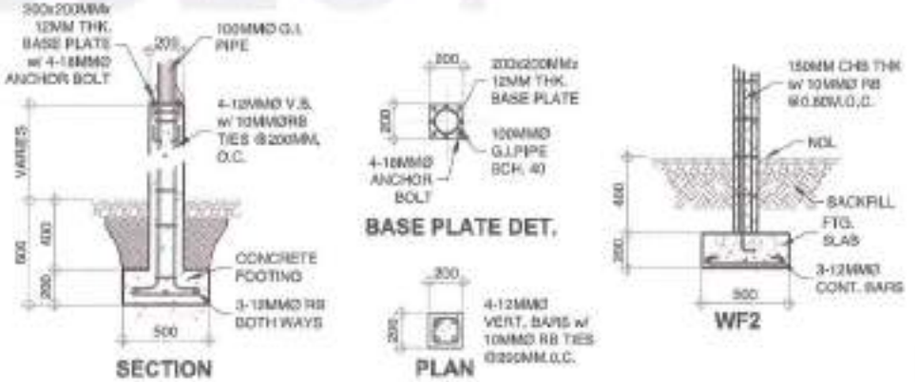
6 **FOUNDATION PLAN**
(B-3 SHED FOR STORE ROOM) SCALE: 1:100M.



8 **TRUSS DETAIL**
(B-4 SHED FOR LIVESTOCK)

TRUSS DETAILS

SCALE: 1:40M.



7 **COLUMN & FOOTING DETAILS**
(B-3 SHED FOR STORE ROOM) SCALE: 1:30M.

Republika ng Pilipinas
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CITY ENGINEERING DEPARTMENT

PROJECT TITLE: URBAN FARMING INNOVATION AND LEARNING CENTER

LOCATION: BRGY. SAN BARTOLOME, DISTRICT II, QUEZON CITY

DRAWN BY: JSM
DATE:
CHECKED BY: HGR
REVISION NO.:

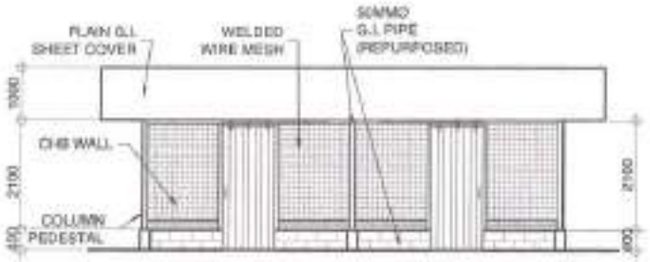
SUBMITTED BY:
ENGR. LEO S. DEL ROSARIO
HEAD, PLANNING & PROGRAMMING DIVISION

RECOMMENDING APPROVAL:
ENGR. ISAGANI R. VERZOSA, JR.
OIC, CITY ENGINEERING DEPARTMENT

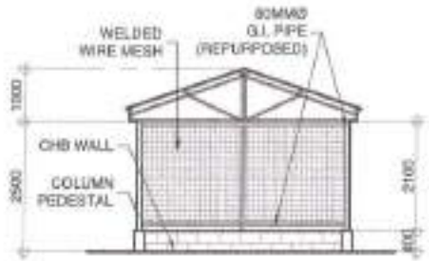
APPROVED BY:
HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENT: B-3 SHED FOR STOREROOM PLAN ELEVATIONS REMOVAL OF DOORS FOUNDATION PLAN COLUMN & FOOTING DET. TRUSS DETAILS

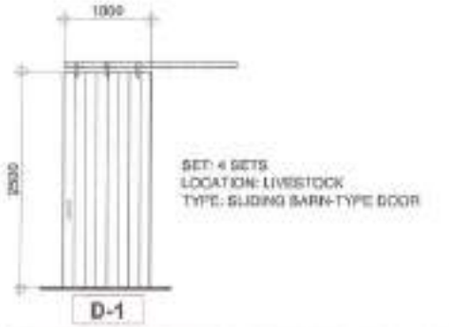
SHEET NO.: B-3
1 / 1 | 26 / 49



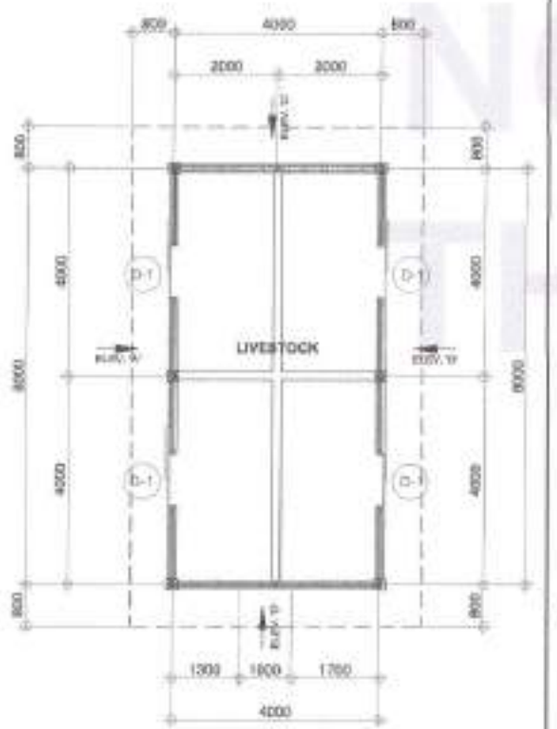
2 FRONT ELEVATION
(B-4 SHED FOR LIVESTOCK)
SCALE: 1:100ML



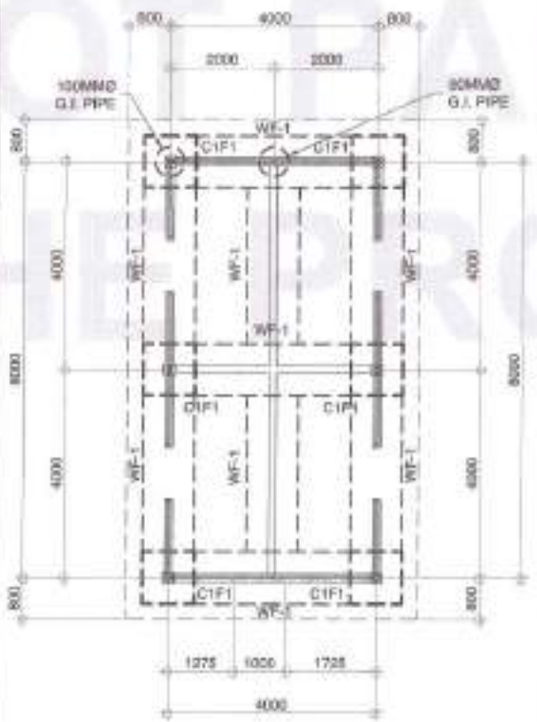
3 TYP. SIDE ELEVATION
(B-4 SHED FOR LIVESTOCK)
SCALE: 1:100ML



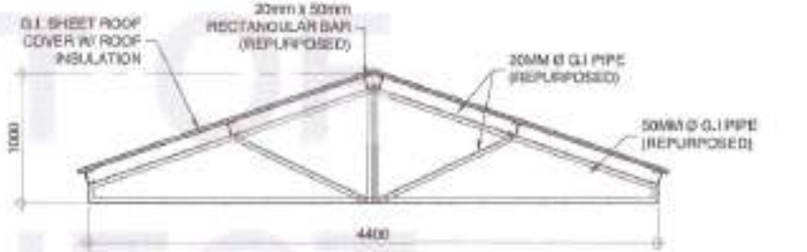
4 SCH. OF DOOR
(B-4 SHED FOR LIVESTOCK)
SCL:1:80M.



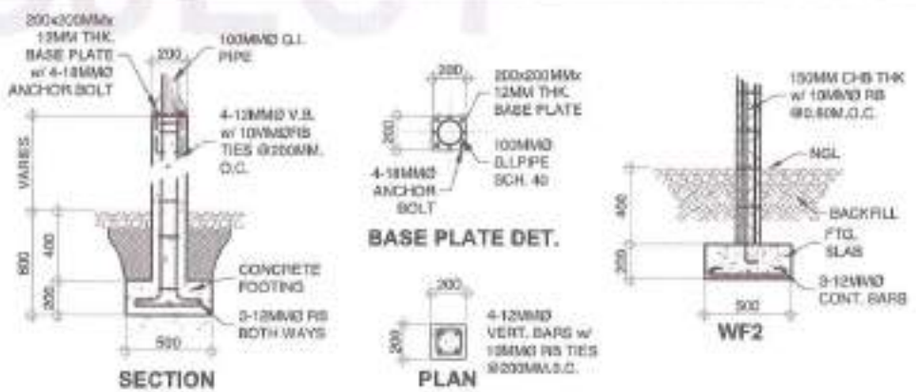
1 P L A N
(B-4 SHED FOR LIVESTOCK)
SCALE: 1:100ML



5 FOUNDATION PLAN
(B-4 SHED FOR LIVESTOCK)
SCALE: 1:100M.



7 TRUSS DETAIL
(B-4 SHED FOR LIVESTOCK)
SCALE: 1:40M.



6 COLUMN & FOOTING DETAILS
(B-4 SHED FOR LIVESTOCK)
SCALE: NTS
SCALE: 1:50M.

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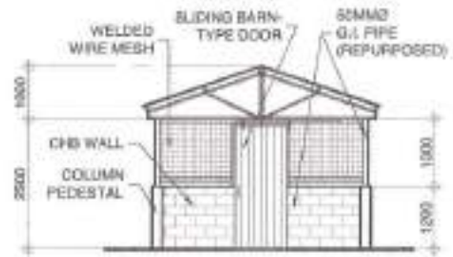
ENGR. LEO S. DEL ROSARIO
HEAD, PLANNING & PROJ MONITORING DIVISION

RECOMMENDING APPROVAL:
ENGR. ISAGANI R. VERZOSA, JR.
OIC, CITY ENGINEERING DEPARTMENT

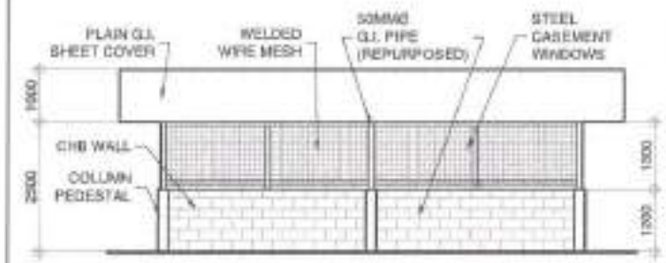
APPROVED BY:
HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENT:
B-4 SHED FOR LIVESTOCK
PLAN
ELEVATIONS
SCHEDULE OF DOORS
FOUNDATION PLAN
COLUMN & FOOTING DET.
TRUSS DETAILS

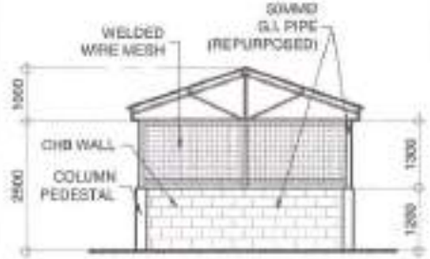
SHEET NO.
B-4
1 / 27
1 / 49



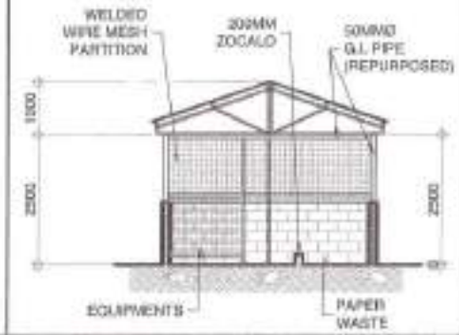
2 FRONT ELEVATION (B-5 MATERIAL RECOVERY FACILITY) SCALE: 1:100M.



3 TYP. SIDE ELEVATION (B-5 MATERIAL RECOVERY FACILITY) SCALE: 1:100M.



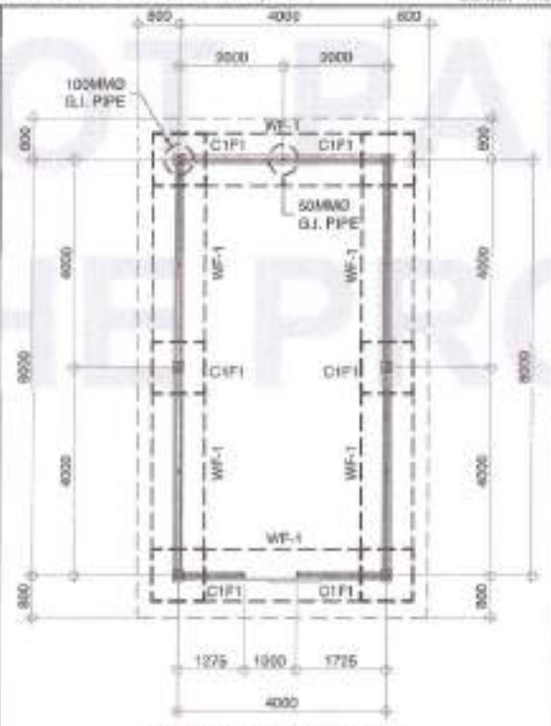
4 REAR ELEVATION (B-5 MATERIAL RECOVERY FACILITY) SCL: 1:100M.



5 SECTION 'A' (B-5 MATERIAL RECOVERY FACILITY) SCL: 1:100M.

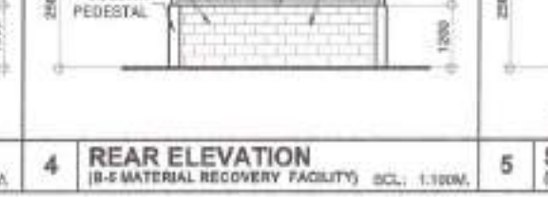
FLOOR PLAN

1 P L A N (B-5 MATERIAL RECOVERY FACILITY) SCALE: 1:100M.

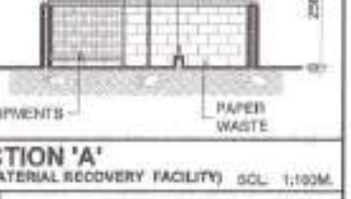


FOUNDATION PLAN

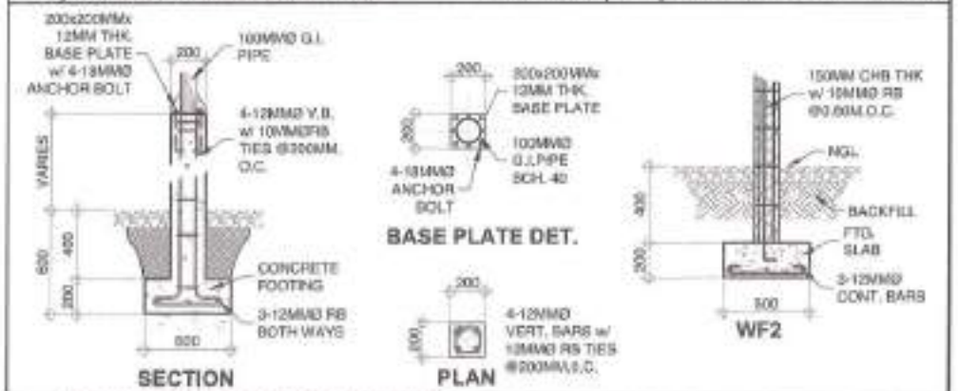
6 FOUNDATION PLAN (B-5 MATERIAL RECOVERY FACILITY) SCALE: 1:100M.



8 TRUSS DETAIL (B-5 SHED FOR VERMICULTURE & BEEHIVE) SCALE: 1:40M.



5 SCH. OF DOOR (B-5 MATERIAL RECOVERY FACILITY) SCL:1:50M.



7 COLUMN & FOOTING DETAILS (B-5 MATERIAL RECOVERY FACILITY) SCALE: 1:30M.

Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

PROJECT TITLE: URBAN FARMING INNOVATION AND LEARNING CENTER

LOCATION: BRGY. SAN BARTOLOME, DISTRICT 5, QUEZON CITY

DRAWN BY:

DATE:

CHECKED BY:

REVISION NO.:

SUBMITTED BY: ENGR. LEO S. DEL ROSARIO, HEAD - PLANNING AND PROGRAMMING DIVISION

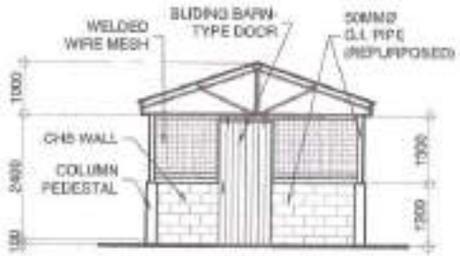
RECOMMENDING APPROVAL: ENGR. ISAGANI R. VERZOSA, JR., OIC, CITY ENGINEERING DEPARTMENT

APPROVED BY: HON. MA. JOSEFINA G. BELMONTE, CITY MAYOR, QUEZON CITY

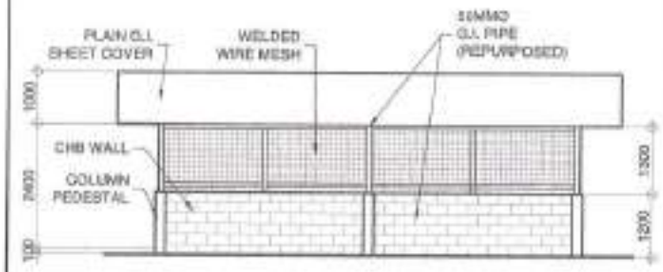
SHEET CONTENT: B-5 MATERIAL RECOVERY FACILITY PLAN; ELEVATIONS; SCHEDULE OF DOORS; FOUNDATION PLAN; COLUMN & FOOTING DET; TRUSS DETAILS

SHEET NO. B-5

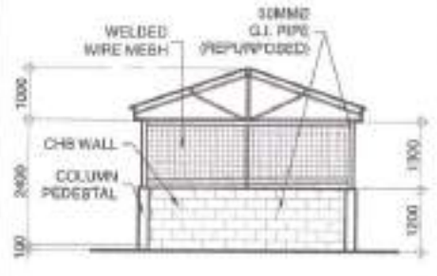
1 / 1 | 28 / 49



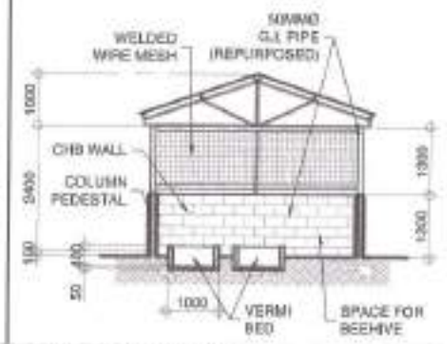
2 FRONT ELEVATION (B-6 SHED FOR VERMICULTURE & BEEHIVE) SCL: 1:100M.



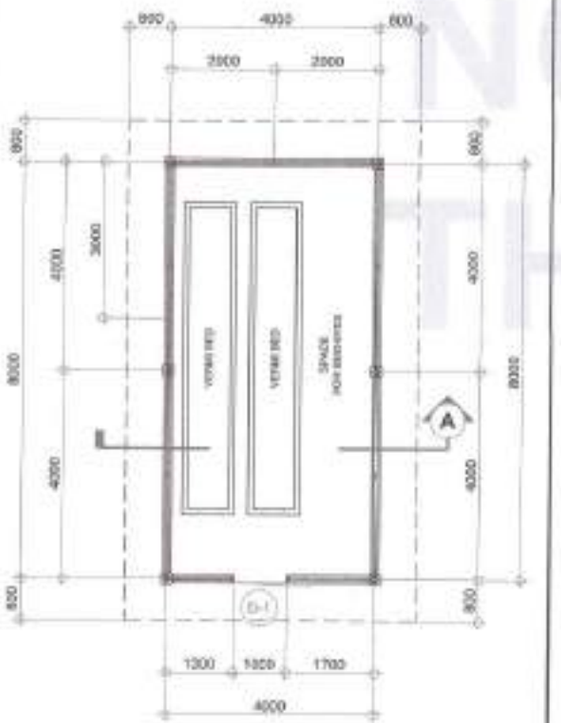
3 TYP. SIDE ELEVATION (B-6 SHED FOR VERMICULTURE & BEEHIVE) SCALE: 1:100M.



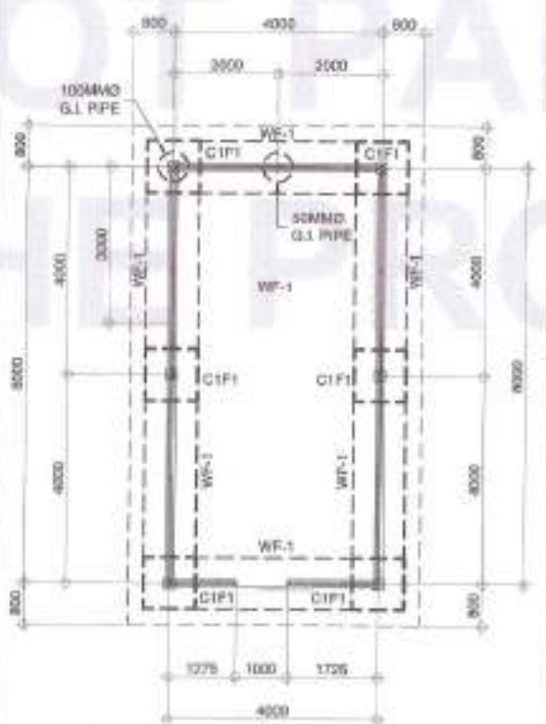
4 REAR ELEVATION (B-6 SHED FOR VERMICULTURE & BEEHIVE) SCL: 1:100M.



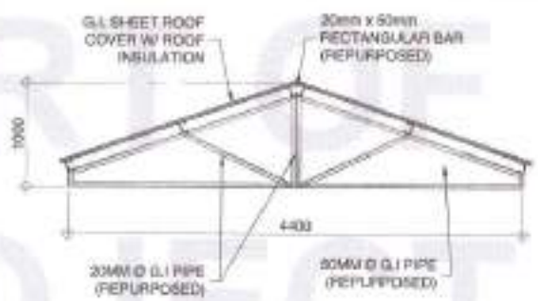
5 SECTION 'A' (B-6 SHED FOR VERMICULTURE & BEEHIVE) SCL: 1:100M.



1 P L A N (B-6 SHED FOR VERMICULTURE & BEEHIVE) SCALE: 1:100M.

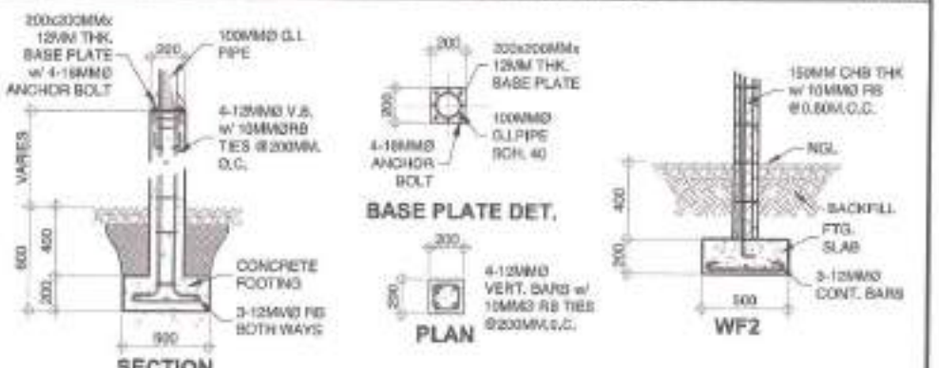


6 FOUNDATION PLAN (B-6 SHED FOR VERMICULTURE & BEEHIVE) SCALE: 1:100M.



8 TRUSS DETAIL (B-6 SHED FOR VERMICULTURE & BEEHIVE) SCALE: 1:40M.

5 SCH. OF DOOR (B-6 MATERIAL RECOVERY FACILITY) SCL:1:50M.



7 COLUMN & FOOTING DETAILS (B-6 SHED FOR VERMICULTURE & BEEHIVE) SCALE: 1:30M.

Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

PROJECT TITLE: URBAN FARMING INNOVATION AND LEARNING CENTER

LOCATION: BRGY. SAN BARTOLOME, DISTRICT 5, QUEZON CITY

DRAWN BY:

DATE:

CHECKED BY:

REVISION NO.:

SUBMITTED BY: ENGR. LEO S. DEL ROSARIO

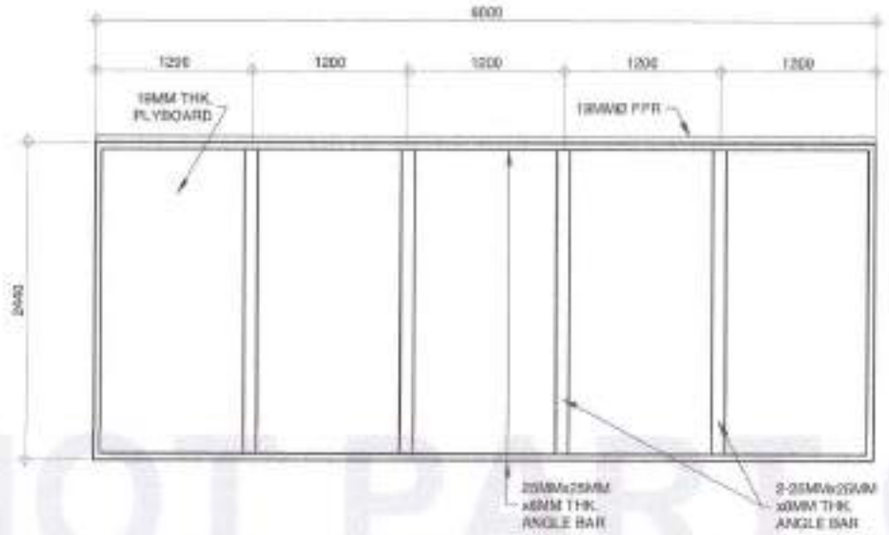
RECOMMENDING APPROVAL: ENGR. RAGNAR R. VERZOSA, JR.

APPROVED BY: HON. MA. JOSEFINA G. BELMONTE

SHEET CONTENT: B-6 SHED FOR VERMICULTURE & BEEHIVE ELEVATIONS; SCHEDULE OF DOORS; FOUNDATION PLAN; COLUMN & FOOTING DET.; TRUSS DETAIL

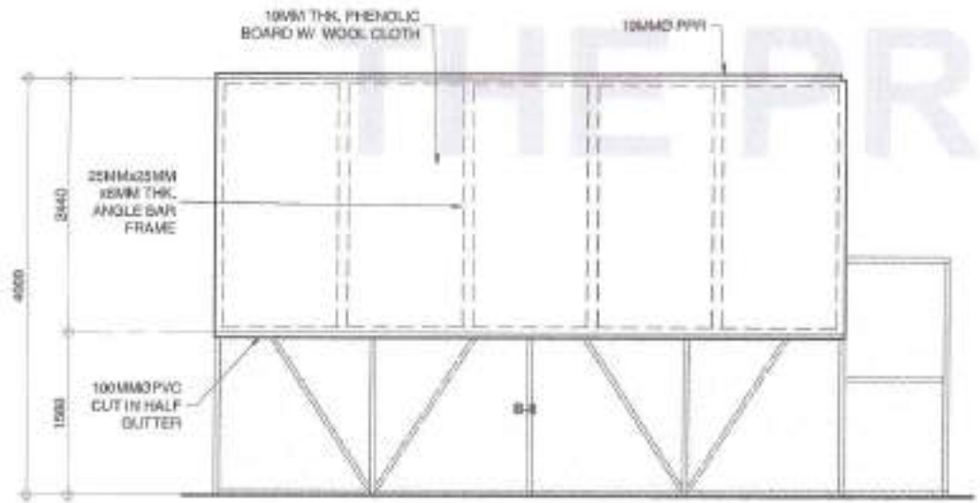
SHEET NO. B-6

1 / 1 / 29 / 49



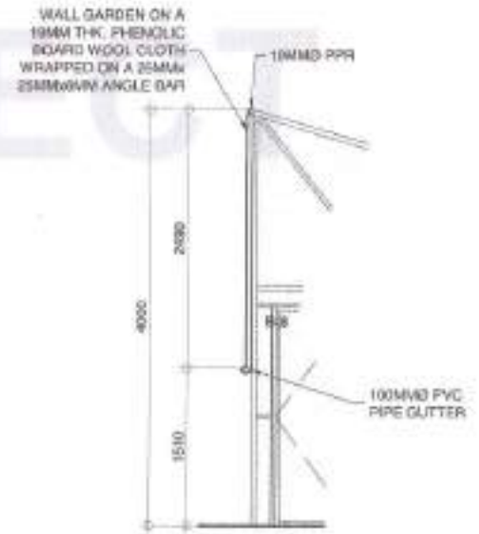
3 WALL GARDEN FRAME
(B-7 WALL GARDEN)

SCALE: 1:40M.



1 ELEVATION 'A'
(B-7 WALL GARDEN)

SCALE: 1:50M.



2 ELEVATION 'B'
(B-7 WALL GARDEN)

SCALE: 1:50M.

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REVISION NO.:

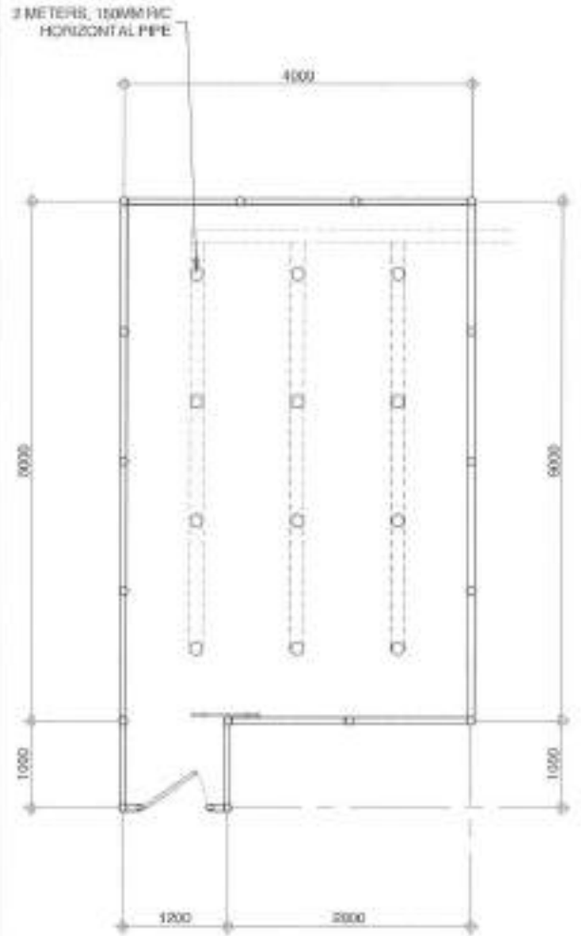
SUBMITTED BY:
ENGR. LEO S. DEL ROSARIO
HEAD - PLANNING & PROGRAMMING DIVISION

RECOMMENDING APPROVAL:
ENGR. ISAGANI R. VERZOSA, JR.
OIC, CITY ENGINEERING DEPARTMENT

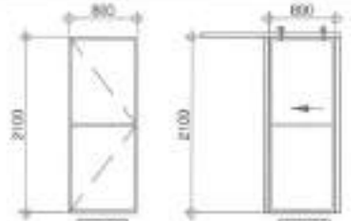
APPROVED BY:
HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENT:
B-7 WALL GARDEN ELEVATIONS WALL GARDEN FRAME

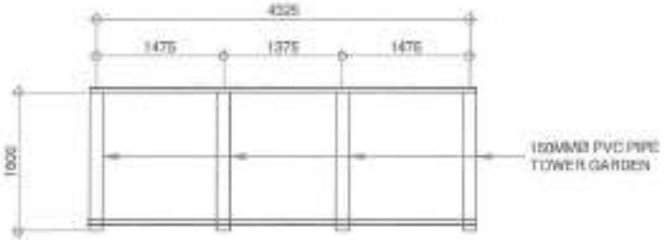
SHEET NO.
B-7
1 / 1
30 / 49



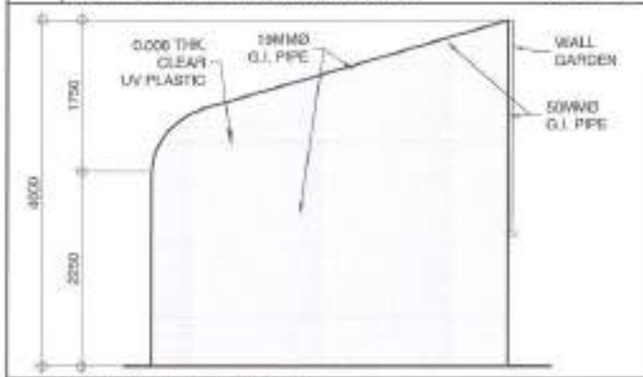
1 PLAN
(B-8 GREENHOUSE W/ HYDROPONICS TOWER) SCALE: 1:50M.



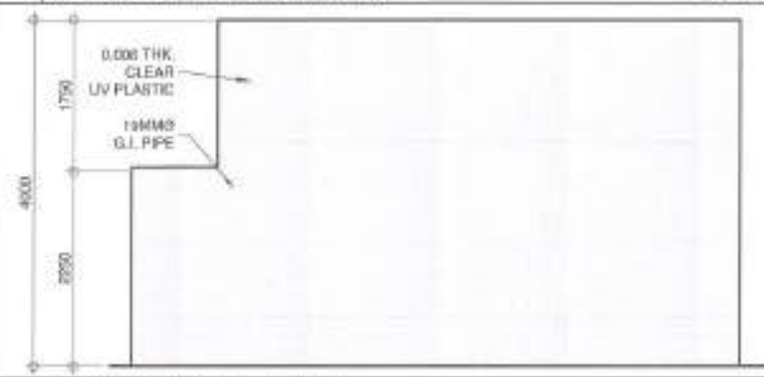
6 SCHEDULE OF DOORS
(B-8 GREENHOUSE W/ HYDROPONICS TOWER) SCALE: 1:50M



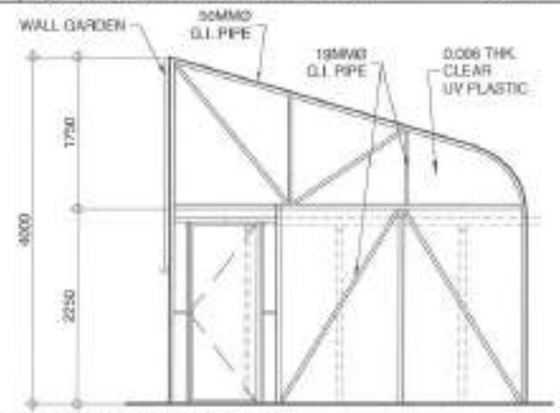
7 TOWER GARDEN DETAIL
(B-8 GREENHOUSE W/ HYDROPONICS TOWER) SCALE: 1:50M



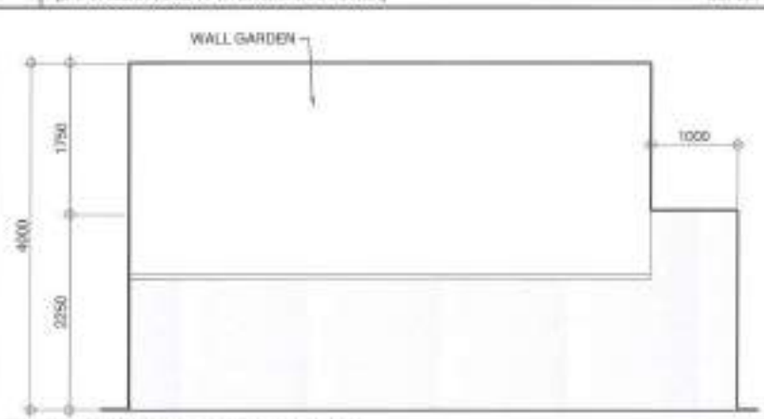
4 REAR ELEVATION
(B-8 GREENHOUSE W/ HYDROPONICS TOWER) SCALE: 1:50M



5 LEFT SIDE ELEVATION
(B-8 GREENHOUSE W/ HYDROPONICS TOWER) SCALE: 1:50M.



2 FRONT ELEVATION
(B-8 GREENHOUSE W/ HYDROPONICS TOWER) SCALE: 1:50M.



3 RIGHT SIDE ELEVATION
(B-8 GREENHOUSE W/ HYDROPONICS TOWER) SCALE: 1:50M.

Republika ng Pilipinas
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PROJECT TITLE:
URBAN FARMING INNOVATION AND LEARNING CENTER

LOCATION:
BRGY. SAN GABRIEL, DISTRICT 5, QUEZON CITY

DRAWN BY: TAM
DATE:
CHECKED BY:
REVISION NO.:

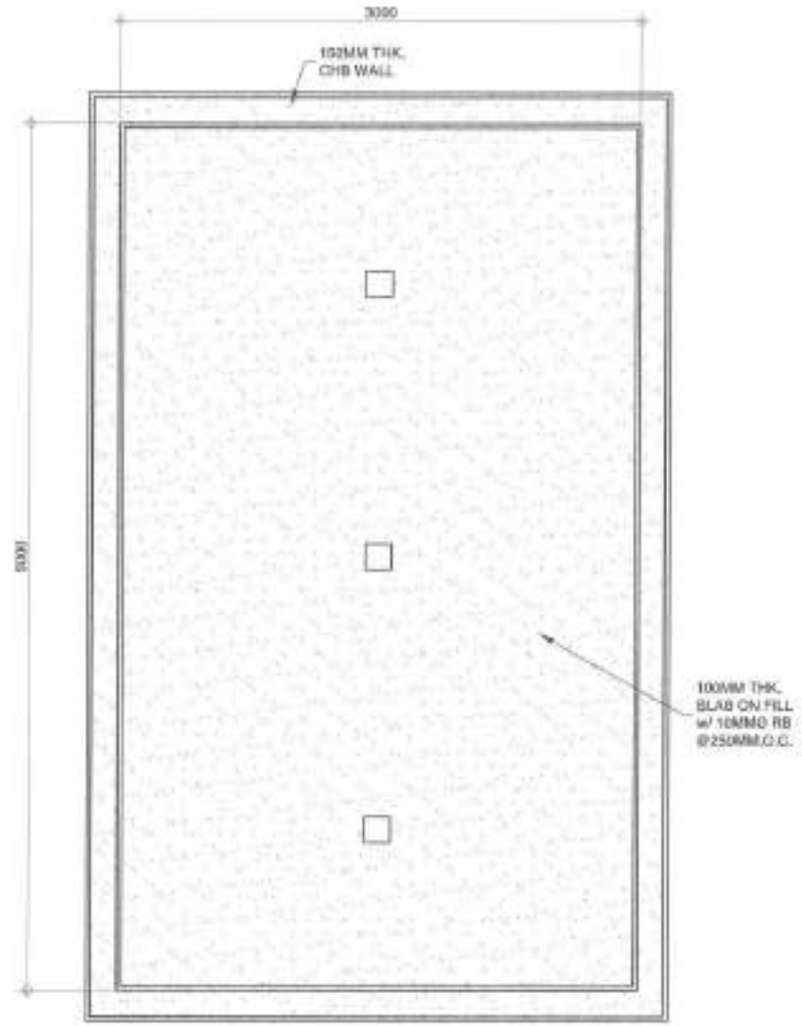
SUBMITTED BY:
ENGR. LEO S. DEL ROSARIO
HEAD, PLANNING PROGRAMMING DIVISION

RECOMMENDING APPROVAL:
ENGR. ISIDRO R. VERZOSA, JR.
OIC, CITY ENGINEERING DEPARTMENT

APPROVED BY:
HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

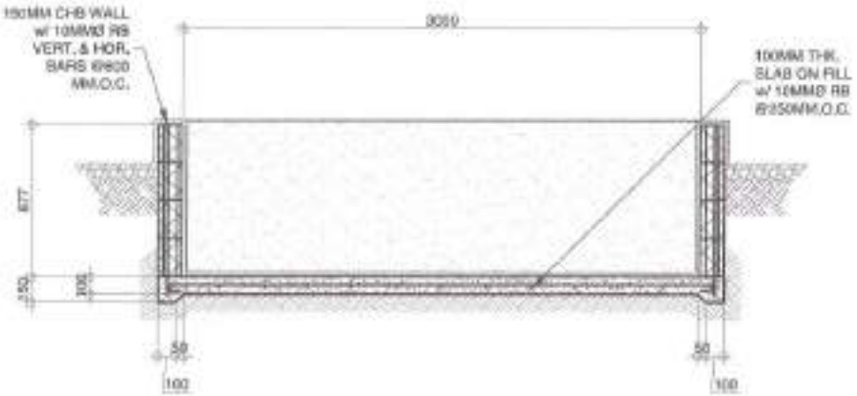
SHEET CONTENT:
B-8 GREENHOUSE W/ HYDROPONICS TOWER
PLAN
ELEVATIONS
SCHEDULE OF DOORS
TOWER GARDEN DETAIL

SHEET NO.
B-8
1/1 | 31/49



1 **P L A N**
(B-9 POND)

SCALE: 1:30M

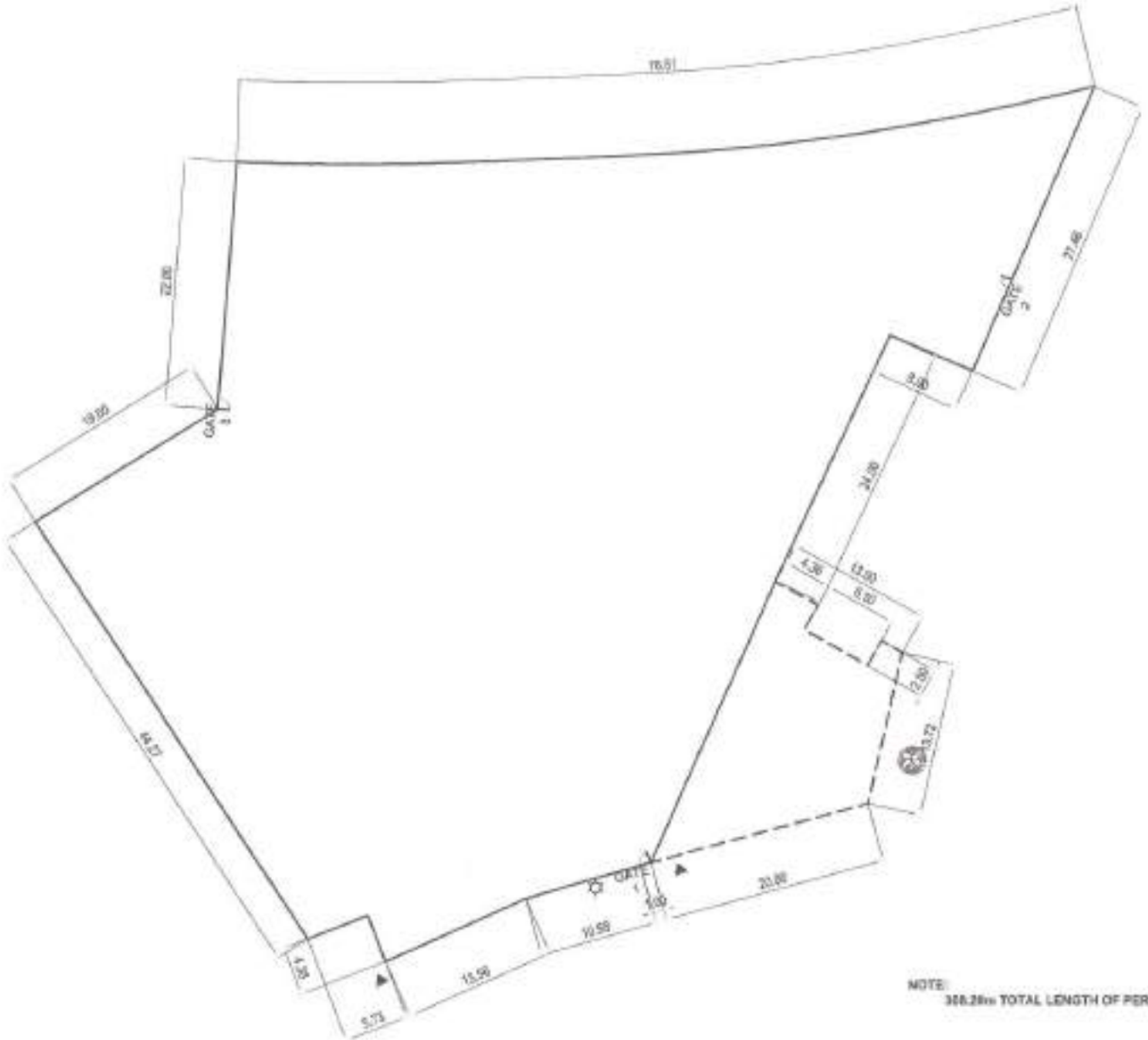


2 **SECTION**
(B-9 POND)

SCALE: 1:30M

Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

PROJECT TITLE: URBAN FARMING INNOVATION AND LEARNING CENTER	DRAWN BY:	SUBMITTED BY: ENGR. LEO S. DEL ROSARIO, HEAD, PLANNING & PROGRAMMING DIVISION	RECOMMENDING APPROVAL: ENGR. ISAGANI R. VERZOSA, JR., OIC, CITY ENGINEERING DEPARTMENT	APPROVED BY: HON. MA. JOSEFINA G. BELMONTE, CITY MAYOR, QUEZON CITY	SHEET CONTENT: B-9 POND PLAN SECTION	SHEET NO.: B-9
LOCATION: BRGY. SAN BARTOLOME, DISTRICT II, QUEZON CITY	DATE: CHECKED BY: PERSON INC.:					1 / 32 / 1 / 49



NOTE:
308.28m TOTAL LENGTH OF PERIMETER FENCE

1 **P L A N**
(B-10 PERIPHERAL FENCE)

NOT TO SCALE

Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

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BRGY. SAN BARTOLOME, DISTRICT II, QUEZON CITY

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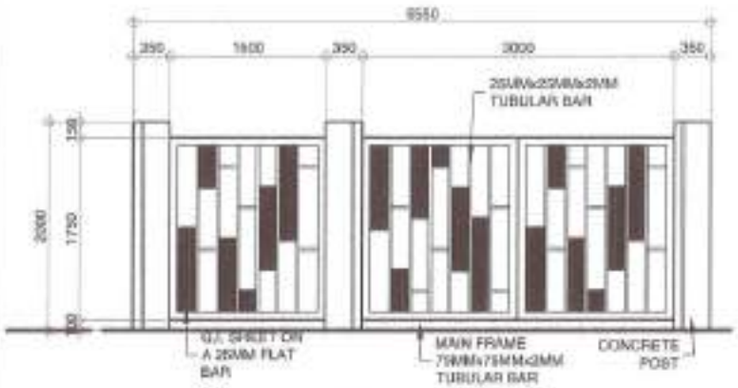
SUBMITTED BY:
ENGR. LEO S. DEL ROSARIO
HEAD - PLANNING & PROGRAMMING DIVISION

RECOMMENDING APPROVAL:
ENGR. ISAGANI R. VERZOSA, JR.
OIC, CITY ENGINEERING DEPARTMENT

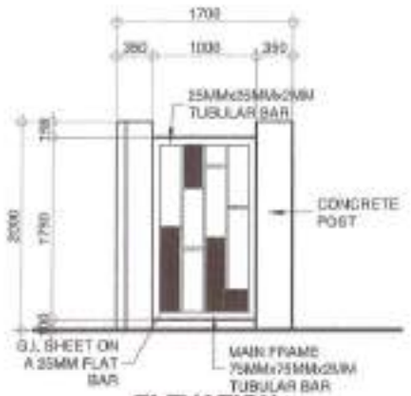
APPROVED BY:
HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENT:
PERIPHERAL FENCE PLAN

SHEET NO.:
B-10
1/2 | 33/49



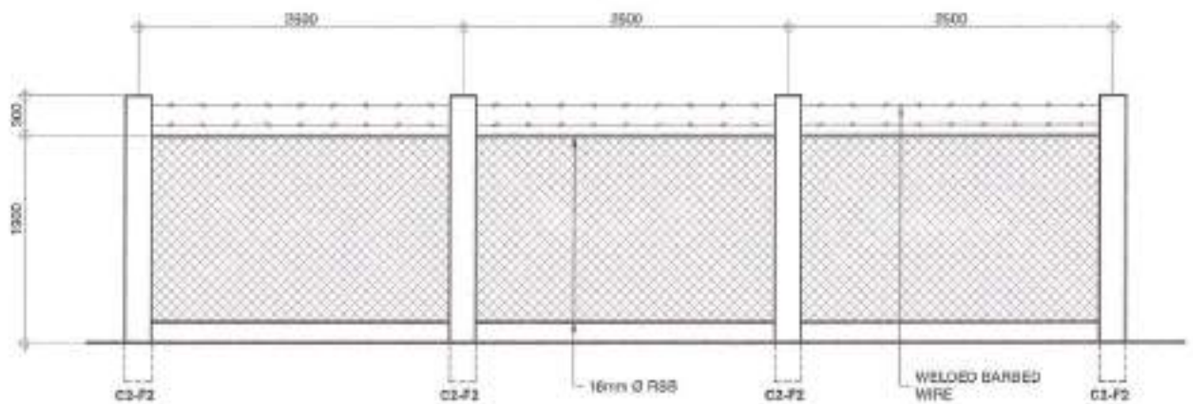
ELEVATION (GATE 1)



ELEVATION
(GATE 2 AND GATE 3)

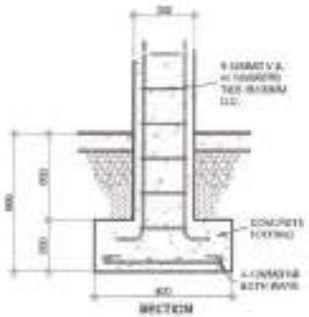
2 B-10a PERIPHERAL GATE

SCALE: 1:40M.



ELEVATION

1 ELEVATION
(B-10 PERIPHERAL FENCE)

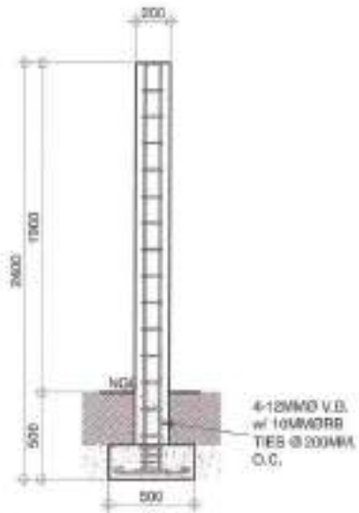


PLAN

SECTION

C1-F1 DETAILS

PLAN



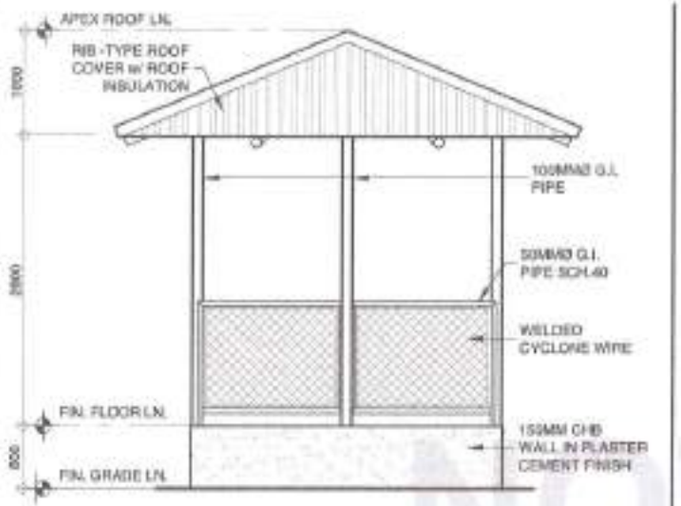
SECTION

C2-F2 DETAIL

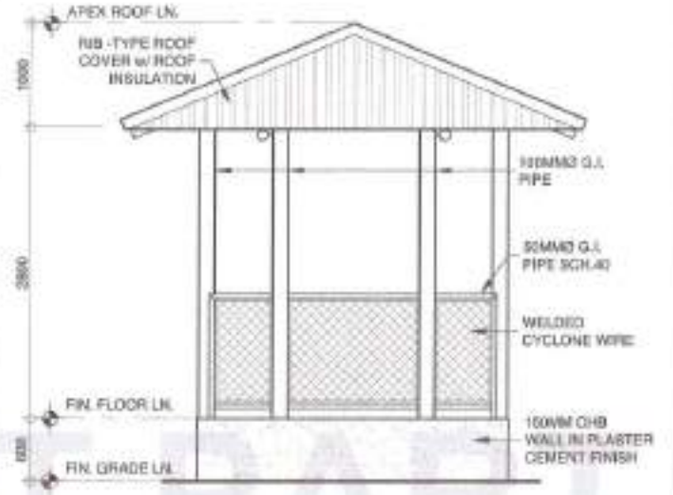
3 COLUMN & FOOTING DETAIL
(B-10 PERIPHERAL FENCE)

SCALE: 1:40/1:20M.

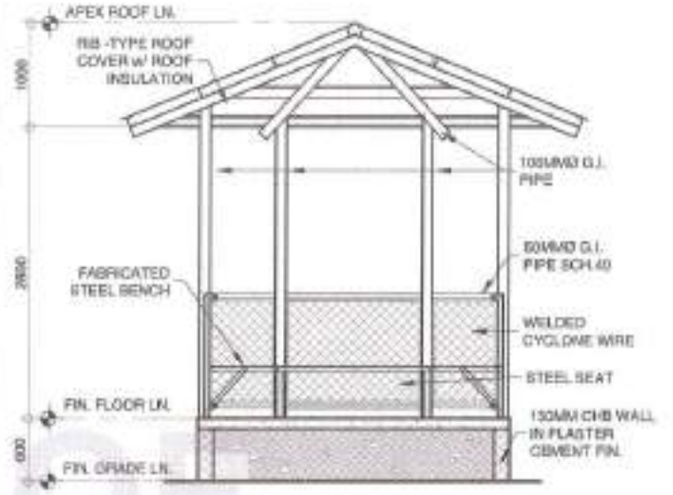
Republika ng Pilipinas Lungsod ng Quezon CITY ENGINEERING DEPARTMENT	PROJECT TITLE: URBAN FARMING INNOVATION AND LEARNING CENTER LOCATION: BRGY. SAN BARTOLOME, DISTRICT 5, QUEZON CITY	DRAWN BY: DATE: CHECKED BY: PERSON NO.:	SUBMITTED BY: ENGR. LEO S. DEL ROSARIO HEAD, PLANNING PROGRAMMING DIVISION	RECOMMENDING APPROVAL: ENGR. ISAGANI R. VERZOSA, JR. OIC, ADMINISTRATIVE DEPARTMENT	APPROVED BY: HON. MA. JOSEFINA G. BELMONTE CITY MAYOR, QUEZON CITY	SHEET CONTENT: B10 PERIPHERAL FENCE & GATE, COLUMN & FOOTING DET.	SHEET NO.: B-10 2/2 | 34/49



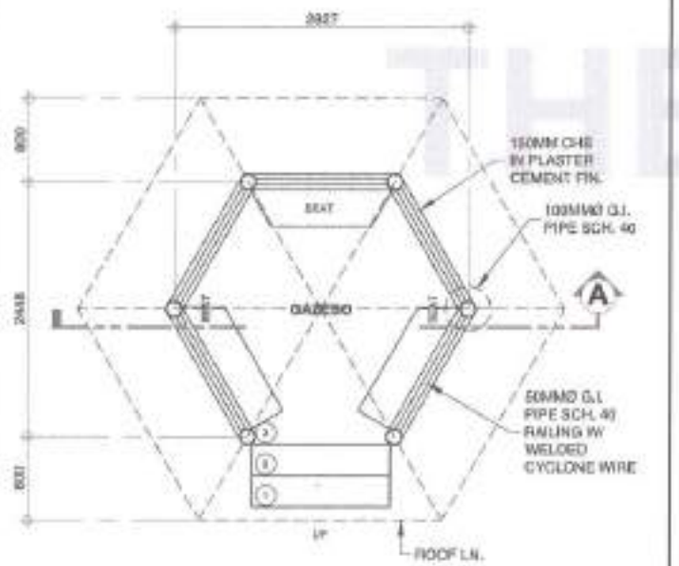
4 TYPICAL SIDE ELEVATION
(B-11a VERTICAL HYDROPONIC MODEL GAZEBO) SCALE: 1:50M.



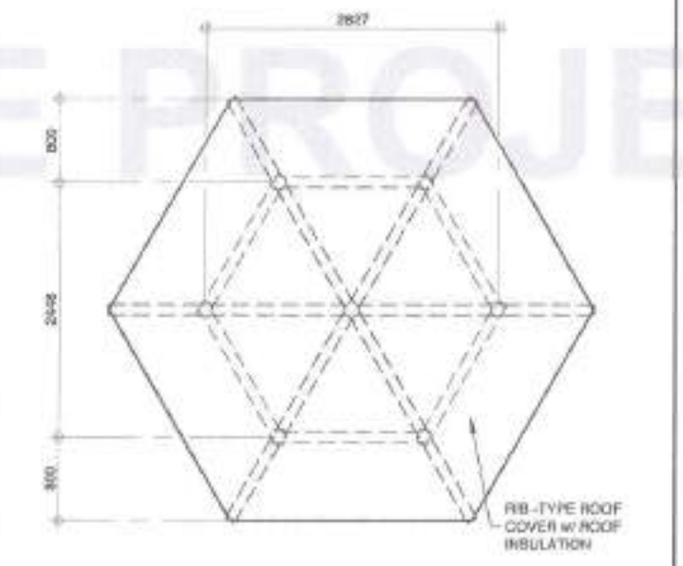
5 REAR ELEVATION
(B-11a VERTICAL HYDROPONIC MODEL GAZEBO) SCALE: 1:50M.



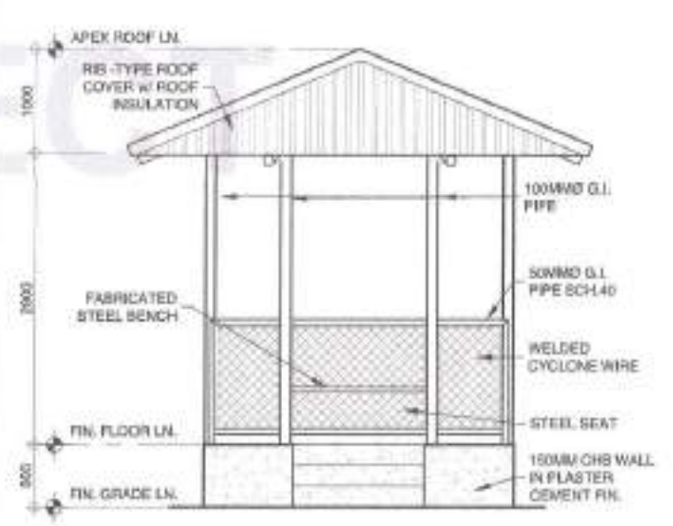
6 SECTION
(B-11a VERTICAL HYDROPONIC MODEL GAZEBO) SCALE: 1:50M.



1 P L A N
(B-11a VERTICAL HYDROPONIC MODEL GAZEBO) SCALE: 1:50M.



2 ROOF PLAN
(B-11a VERTICAL HYDROPONIC MODEL GAZEBO) SCALE: 1:50M.



3 FRONT ELEVATION
(B-11a VERTICAL HYDROPONIC MODEL GAZEBO) SCALE: 1:50M.

Republika ng Pilipinas
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CITY ENGINEERING DEPARTMENT

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SUBMITTED BY: ENGR. LEO S. DEL ROSARIO, HEAD - PLANNING & PROGRAMMING DIVISION

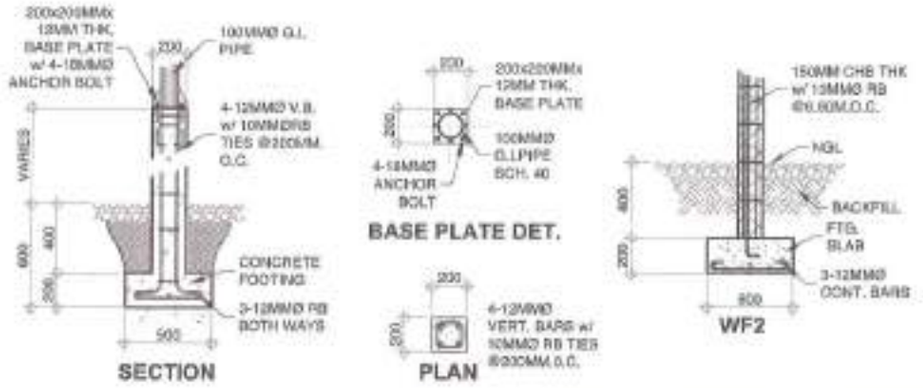
RECOMMENDING APPROVAL: ENGR. ISAGANI R. VERZOSA, JR., OIC, CITY ENGINEERING DEPARTMENT

APPROVED BY: HON. MA. JOSEFINA G. BELMONTE, CITY MAYOR, QUEZON CITY

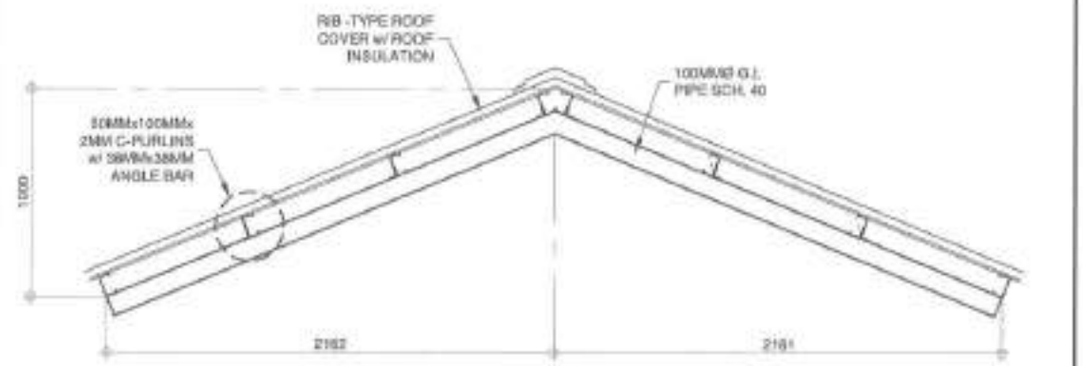
SHEET CONTENT: B-11 VERTICAL HYDROPONIC MODEL GAZEBO (ARCHITECTURAL)

SHEET NO.: B-11

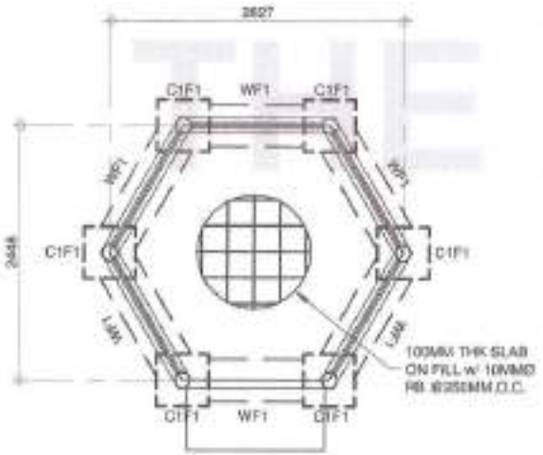
1 / 3 | 35 / 49



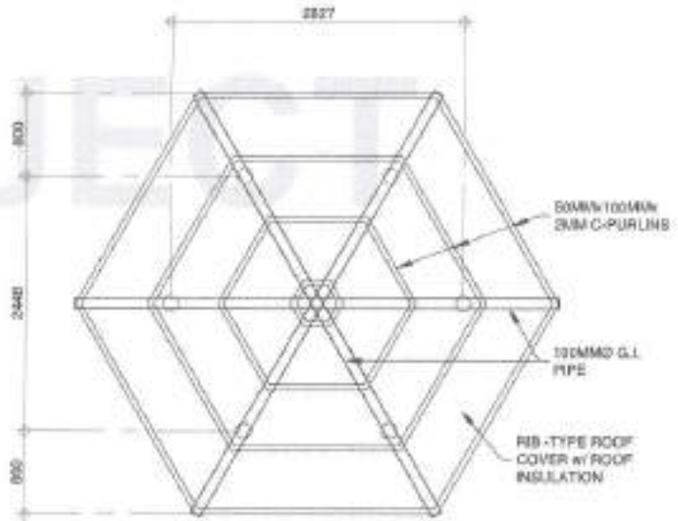
3 **COLUMN & FOOTING DETAILS**
(B-11a VERTICAL HYDROPONIC MODEL GAZEBO) SCALE: 1:50M.



4 **RAFTER DETAILS**
(B-11a VERTICAL HYDROPONIC MODEL GAZEBO) SCALE: 1:25M.



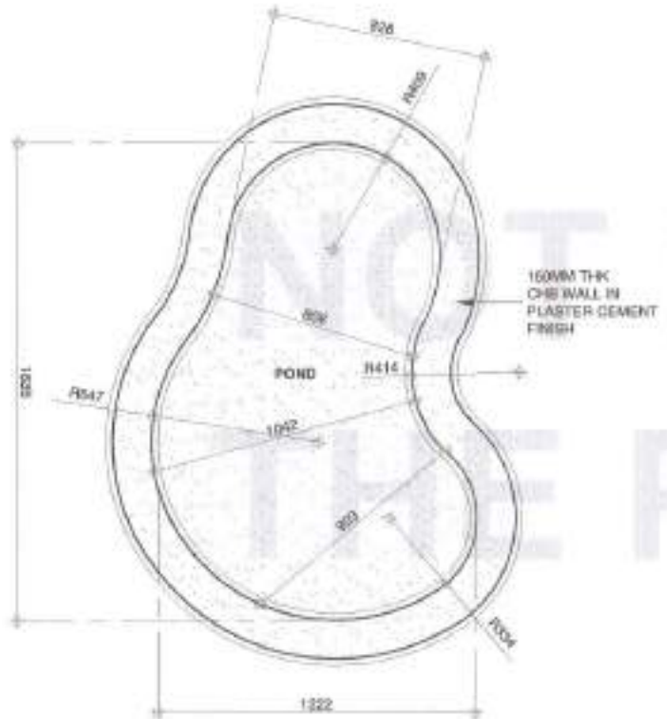
1 **FOUNDATION PLAN**
(B-11a VERTICAL HYDROPONIC MODEL GAZEBO) SCALE: 1:50M.



2 **ROOF FRAMING PLAN**
(B-11a VERTICAL HYDROPONIC MODEL GAZEBO) SCALE: 1:50M.

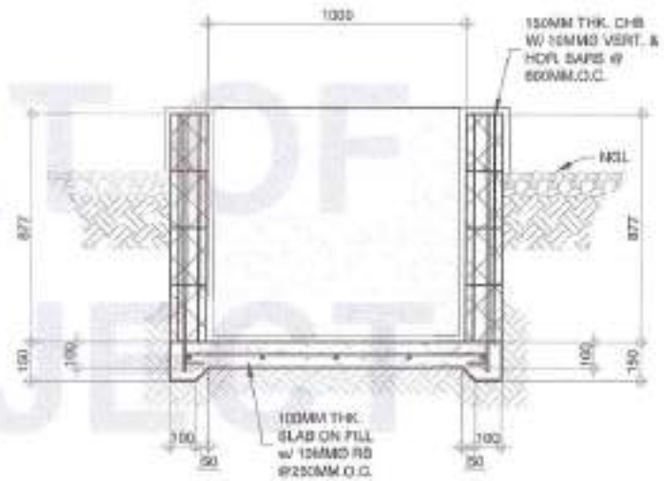
Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

PROJECT TITLE:	URBAN FARMING INNOVATION AND LEARNING CENTER
LOCATION:	BRGY. SAN BARTOLOME, DISTRICT 5, QUEZON CITY
DRAWN BY:	
DATE:	
CHECKED BY:	
REVISION NO.:	
SUBMITTED BY:	ENGR. LEO S. DEL ROSARIO, HEAD - PLANNING & PROGRAMMING DIVISION
RECOMMENDING APPROVAL:	ENGR. ISAGANI R. VERZOSA, JR., OIC, CITY ENGINEERING DEPARTMENT
APPROVED BY:	HON. MA. JOSEFINA G. BELMONTE, CITY MAYOR, QUEZON CITY
SHEET CONTENT:	B-11 VERTICAL HYDROPONIC MODEL GAZEBO (STRUCTURAL)
SHEET NO.	B-11
	2 / 3 / 36 / 49



1 **PLAN**
B-11b POND

SCALE: 1:20M.



2 **SECTION**
B-11b POND

SCALE: 1:20M.

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CITY ENGINEERING DEPARTMENT

PROJECT TITLE:
URBAN FARMING INNOVATION AND LEARNING CENTER

LOCATION:
BRGY. SAN BARTOLOME, DISTRICT II, QUEZON CITY

DRAWN BY: Elr
DATE:
CHECKED BY:
REVISION NO.:

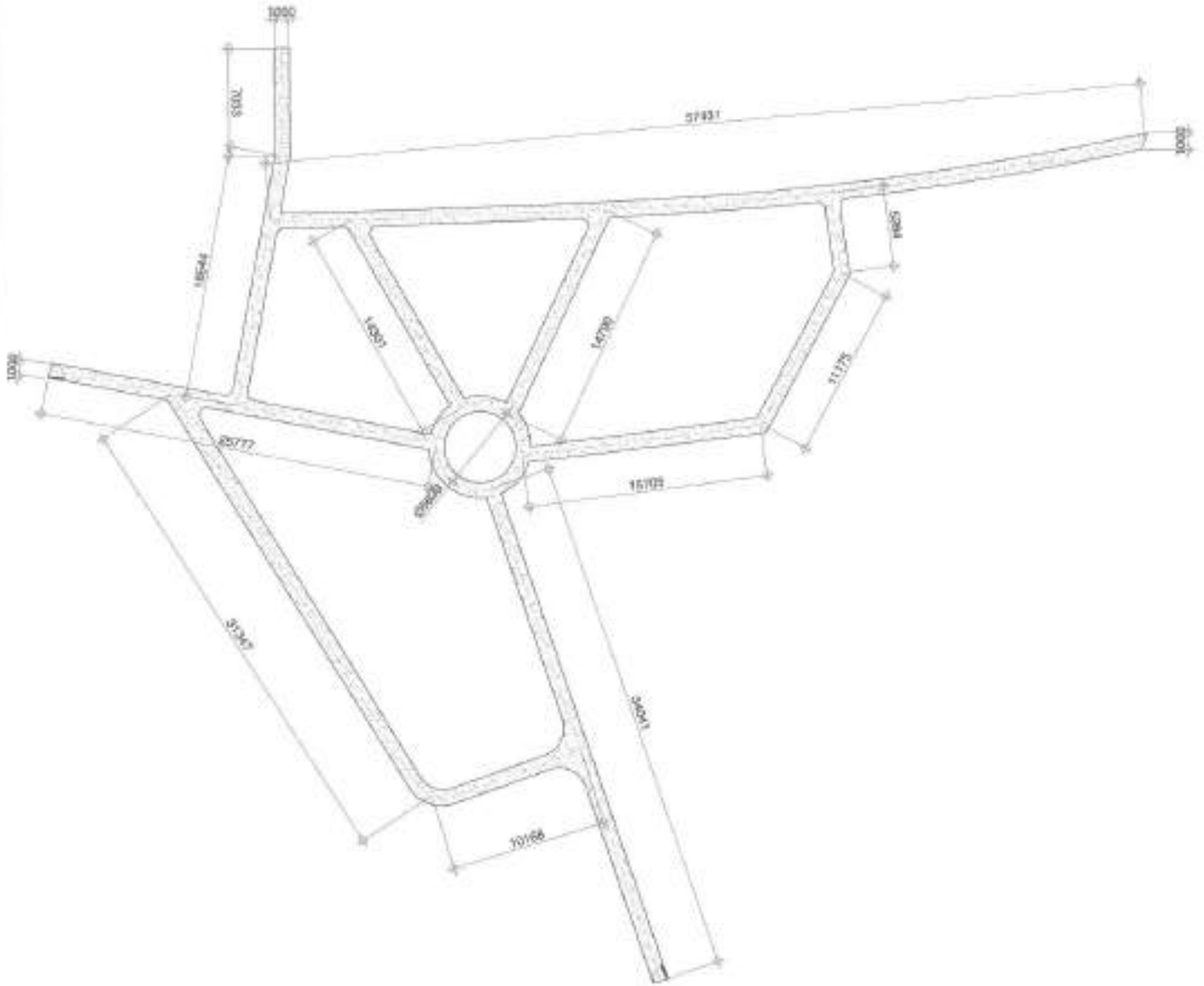
SUBMITTED BY:
ENGR. LEO S. DEL ROSARIO
HEAD, PLANNING & PROGRAMMING DIVISION

RECOMMENDING APPROVAL:
ENGR. RAGAN R. VERZOSA, JR.
OIC, CITY ENGINEER'S DEPARTMENT

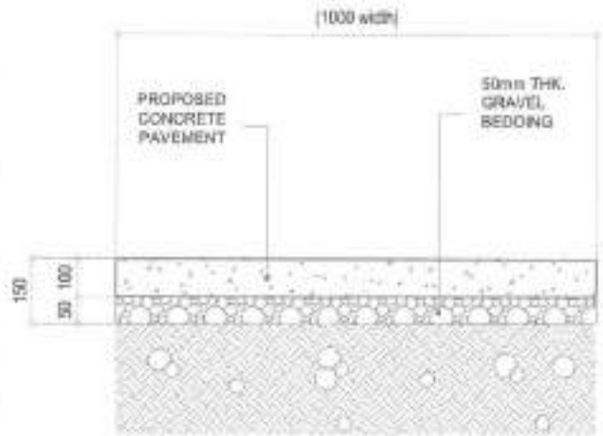
APPROVED BY:
HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENT:
B-11a POND PLAN
SECTION

SHEET NO.
B-11
3 / 3 / 37 / 49



1 **PROPOSED CONCRETE PAVEMENT** SCALE: NTS



2 **SECTION** SCALE: NTS

SECTION

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CITY ENGINEERING DEPARTMENT

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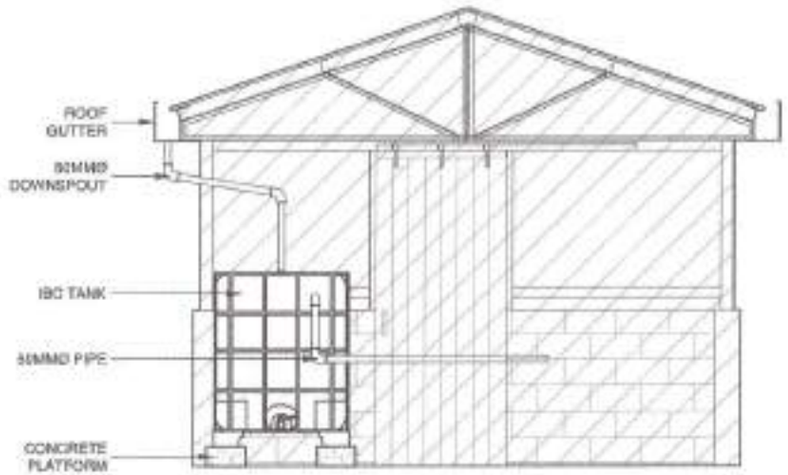
RECOMMENDING APPROVAL:
ENGR. BAGANI R. VERZOSA, JR.
OIC, CITY ENGINEERING DEPARTMENT

APPROVED BY:
HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENT:
PROPOSED CONCRETE PAVEMENT

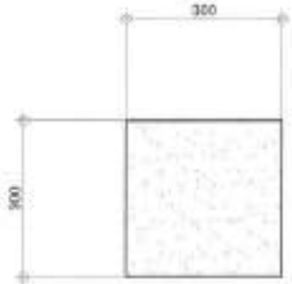
SHEET NO.
C-2

1 / 38
1 / 49

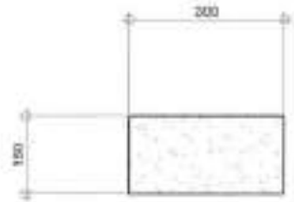


2 ELEVATION
(WATER HARVESTING FACILITY)

SCALE: 1:40M.



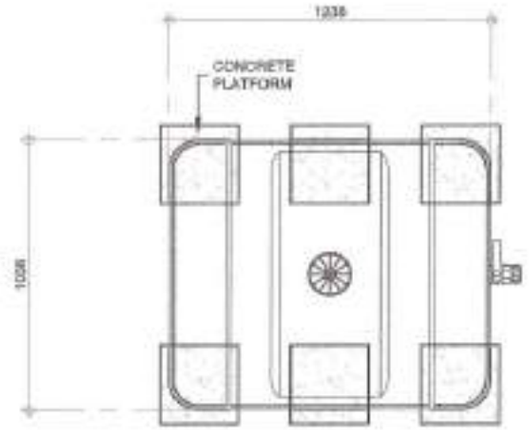
PLAN

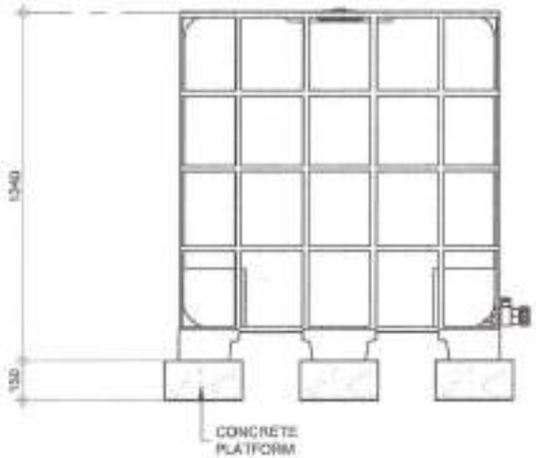


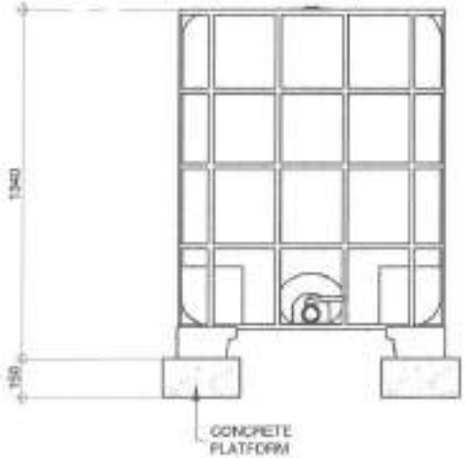
ELEVATION

3 CONCRETE PLATFORM
(WATER HARVESTING FACILITY)

SCALE: 1:10M.







1 IBC TANK
(WATER HARVESTING FACILITY)

SCALE: 1:20M.

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HEAD - PLANNING & PROGRAMMING DIVISION

RECOMMENDING APPROVAL:
ENGR. ISAIAS R. VERZOSA, JR.
OIC, CITY [illegible]

APPROVED BY:
HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENT:
C-3 WATER HARVESTING FACILITY

SHEET NO.:
C-3
1/1 39/49

1. ALL WORKS SHALL BE EXECUTED IN ACCORDANCE TO THE LATEST EDITION OF THE PHILIPPINE ELECTRICAL CODE, PHILIPPINE ELECTRONICS CODE, THE NATIONAL BUILDING CODE OF THE PHILIPPINES AND OTHER RELATED LAWS AND ORDINANCES OF THIS CITY.

2. ALL WORKS SHALL BE SUPERVISED BY A REGISTERED PROFESSIONAL RELATED TO THE ACTIVITIES BEING UNDERTAKEN.

3. ALL WORKS SHALL BE COORDINATED WITH THE RESPECTIVE TRADES SO TO AVOID CONFLICTS DURING EXECUTION OF ACTIVITIES.

4. ALL NECESSARY PERMITS SHALL BE SECURED AND TURNED-OVER TO THE CITY.

5. ALL DRAWINGS AND SPECIFICATIONS SHALL BE CORRECTLY REVIEWED BY THE CONTRACTOR AND SHALL IMMEDIATELY BE INFORMED IF DISCREPANCY (IES) FOUND HEREIN.

6. ALL DIMENSIONS, ELEVATIONS AND REFERENCES, SHALL BE VERIFIED WITH THE ACTUAL CONDITION PRIOR TO EXECUTION.

7. SHOP DRAWINGS SHALL BE PROVIDED AS NECESSARY PRIOR TO THE EXECUTION.

8. ALL WORKS SHALL BE TESTED AND COMMISSIONED AS INDICATED IN THE SPECIFICATIONS WITH THE PRESENCE OF ALL PARTIES INVOLVED. RESULTS SHALL BE DOCUMENTED PROPERLY.

9. ALL PIPES AND LAYOUT ARE ONLY DIAGRAMMATIC. ACTUAL LAYOUT OF PIPES AND FITTINGS, UNLESS OTHERWISE REQUIRED, SHALL BE PROPERLY CONCEALED.

10. NO PIPES SHALL BE ALLOWED TO BE EMBEDDED IN STRUCTURAL MEMBERS, UNLESS OTHERWISE APPROVED.

11. ALL PIPES, FITTINGS, EQUIPMENT AND FIXTURES SHALL BE INSTALLED IN ACCORDANCE TO MANUFACTURER'S SPECIFICATIONS AND INSTRUCTIONS.

12. SUPPORTS AND HANGERS SHALL BE PROVIDED ACCORDINGLY.

13. ALL EQUIPMENTS AND FIXTURES SHALL BE ENVIRONMENTAL FRIENDLY.

14. INSTALLATION OF SERVICE ENTRANCE

14.1. THE TYPE OF SERVICE ENTRANCE SHALL BE SINGLE-PHASE, TWO-WIRE PLUS GROUND, 60 HERTZ, 230V AC NOMINAL.

14.2. THE SERVICE ENTRANCE EQUIPMENT SHALL BE PROPERLY GROUNDED IN ACCORDANCE WITH THE PHILIPPINE ELECTRICAL CODE.

14.3. THE MAIN OVERCURRENT PROTECTION DEVICE SHALL BE OF THERMAL MAGNETIC MCCB IN NEMA 3R WEATHERPROOF ENCLOSURE.

15. INSTALLATION OF LIGHTING AND POWER SYSTEM

15.1.1 ALL LIGHTING AND CONVENIENCE OUTLET CIRCUITS SHALL BE 3.5 SQ. MM. TRINITHAN COPPER WIRE UNLESS OTHERWISE NOTED. MINIMUM SIZE OF WIRE SHALL BE 3.5 SQ. MM. COPPER WIRE. ALL WIRES AND CABLES SHALL BE COLOR CODED AS FOLLOWS:

LINE 1	- RED
LINE 2	- BLACK
NEUTRAL	- WHITE
GROUND	- GREEN

15.1. ALL EMBEDDED BRANCH CIRCUITS SHALL BE PVC CONDUITS AND FOR EXPOSED INSTALLATION SHALL BE IMC SUPPORTED BY CONDUIT CLAMPS EVERY 700 MILIMETERS AND/OR CONDUIT HANGER SUPPORTS EVERY 1500 MILIMETERS.

15.2. CONDUITS IN NO CASE SHALL NOT BE MORE THAN THE EQUIVALENT OF FOUR QUARTER BENDS IN ANY ONE RUN. ALL CONDUIT BENDS SHALL BE FIELD MADE BY USING HYDRAULIC BENDERS. MINIMUM BENDING RADIUS MUST BE IN ACCORDANCE TO THE CODE REQUIREMENTS.

15.3. ALL POWER OUTLETS AND SWITCHES SHALL BE GROUNDING TYPE WITH PARALLEL SLOTS FOR 230 V.

15.4. PROVIDE GROUND FAULT CURRENT INTERRUPTER CIRCUIT BREAKER FOR LOADS MARKED "GFCI" ON THE PLAN.

15.5. ALL METALLIC CONDUITS, SWITCHES, LIGHTING FIXTURES, PANELBOARDS, EQUIPMENTS AND NON-CURRENT CARRYING METAL PARTS SHALL BE PROPERLY GROUNDED AND BONDED.

15.6. THE GROUND RESISTANCE SHALL NOT BE MORE THAN 5 OHMS.

15.8. ALL MOUNTING HEIGHTS FOR WALL MOUNTED DEVICES SHALL BE AS FOLLOWS:

A.	LIGHTING SWITCH	- 1400 MM ABOVE FLOOR FINISH
B.	CONVENIENCE OUTLET	- 300 MM ABOVE FLOOR FINISH - 150MM ABOVE WORKING COUNTER
C.	PANELBOARD AND CABINETS	- 1400 MM ABOVE FLOOR FINISH
D.	EXIT LIGHT	- 150 MM TOP OF DOOR JAMB
E.	EMERGENCY LIGHT	- 2300 ABOVE FLOOR EMERGENCY

15.9. PULL BOXES SHALL BE WHENEVER NECESSARY TO FACILITATE WIRE PULLING EVEN IF THESE ARE NOT INDICATED ON PLANS.

15.0. FOR EACH SPARE BRANCH CIRCUIT IN PANELBOARD, PROVIDE ONE 20MM DIAMETER EMPTY CONDUIT TERMINATED TO 100MM OCTAGONAL BOX ABOVE CEILING. MINIMUM SIZE OF PULLBOX SHALL BE 150MM X150MM X 100MM.

15.1. ALL CIRCUIT BREAKERS SHALL BE BOLT-ON TYPE WITH INTERRUPTING CAPACITY AS INDICATED IN THE PLANS. PANELBOARDS SHALL BE GALVANIZED SHEET POWDER COATED OVER 16 MINIMUM.

15.2. FEEDER AND BRANCH CIRCUIT CONDUCTORS IN CABLE TRAYS SHALL BE GROUPED, BONDED AND TAGGED TO INDICATE CLEARLY THE ELECTRICAL CHARACTERISTICS SUCH AS CIRCUIT NUMBER AND PANEL DESIGNATION.

15.3. REFER TO MECHANICAL, PLUMBING AND FIRE PROTECTION DRAWINGS FOR RATINGS AND LOCATIONS OF EQUIPMENT AS WELL AS THEIR CONTROL SEQUENCES AS SPECIFIED AND OR SHOWN UNDER THEIR RESPECTIVE SECTIONS.

15.4. ALL MATERIALS TO BE USED AND THE EQUIPMENT TO BE INSTALLED SHALL BE OF THE BEST QUALITY, BRAND NEW AS SPECIFIED. IT MUST BE APPROVED TYPE FOR THE PARTICULAR LOCATION AND PURPOSE INTENDED.

16. INSTALLATION OF AUXILIARY SYSTEM (VOICE/DATA SYSTEM, CLOSED CIRCUIT TELEVISION SYSTEM AND FIRE DETECTION ALARM SYSTEM)

16.1. ALL AUXILIARY WIRINGS MUST REFER TO WIRE SCHEDULE AS INDICATED ON PLANS.

16.2. MINIMUM SIZE AND TYPE OF CONDUIT SHALL BE AS FOLLOWS:

A.	VOICE DATA SYSTEM	- 20MM Ø PVC
B.	CCTV SYTEM	- 20MM Ø PVC
C.	FDAS SYSTEM	- 15MM Ø EMT/IMC

16.1. ALL EMBEDDED CIRCUITS SHALL BE PVC CONDUITS AND FOR EXPOSED INSTALLATION SHALL BE EMT/IMC SUPPORTED BY CONDUIT CLAMPS EVERY 700 MILIMETERS AND/OR CONDUIT HANGER SUPPORTS EVERY 1500 MILIMETERS.

16.2. ALL MOUNTING HEIGHTS FOR WALL MOUNTED DEVICES SHALL BE AS FOLLOWS:

A.	TELEPHONE OUTLET	- 300 MM ABOVE FLOOR FINISH
B.	CATV OUTLET	- 300 MM ABOVE FLOOR FINISH
C.	DATA OUTLET	- 300MM ABOVE WORKING COUNTER
D.	CABINETS	- 1400 MM ABOVE FLOOR FINISH

16.1. BOXES, WIRE GUTTERS, ENCLOSURE SHALL BE FABRICATED FROM STEEL WITH THICKNESS AS FOLLOWS:

MAX. WIDTH OF THE WIDEST SURFACE STEEL	GA
UP TO INCLUDING 152.40 MM	GA 16 PAINTED WITH METAL PRIMER EPOXY AND TOPCOAT
OVER 152.40 MM BUT NOT OVER 457.20	GA 14 PAINTED WITH METAL PRIMER EPOXY AND TOPCOAT
OVER 457.20 MM BUT NOT OVER 762 MM	GA 12 PAINTED WITH METAL PRIMER EPOXY AND TOPCOAT
OVER 762 MM	GA 10 PAINTED WITH METAL PRIMER EPOXY AND TOPCOAT

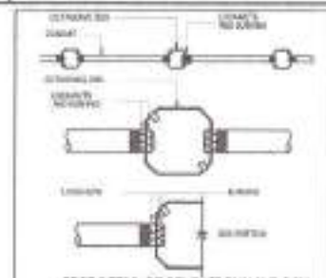
16.1. THE COMMUNICATION GROUND RESISTANCE SHALL NOT EXCEED 2 OHMS.

16.2. ALL MATERIALS TO BE USED AND THE EQUIPMENT TO BE INSTALLED SHALL BE OF THE BEST QUALITY, BRAND NEW AS SPECIFIED. IT MUST BE APPROVED TYPE FOR THE PARTICULAR LOCATION AND PURPOSE INTENDED.

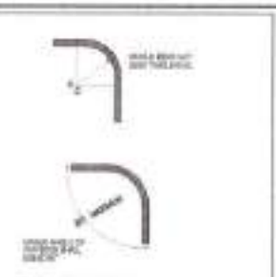
1 IBC TANK
(WATER HARVESTING FACILITY)

CIRCUIT LINE	20/18W TROPPER LIGHTING, 600x1200mm, SURFACED MOUNTED
DUPLEX OUTLET	
ORBIT FAN	LED HIGHBAY LIGHTING FIXTURES
S_3 SELECTOR SWITCH	CIRCUIT HOMERUN
S_1 ONE GANG SWITCH	PANELBOARD
$3S_{abc}$ THREE GANG SWITCH	ENCLOSED CIRCUIT BREAKER

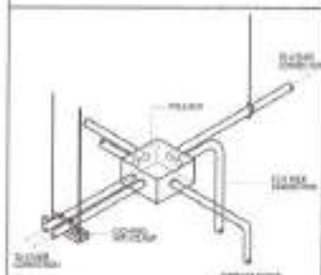
2 LEGEND & SYMBOLS



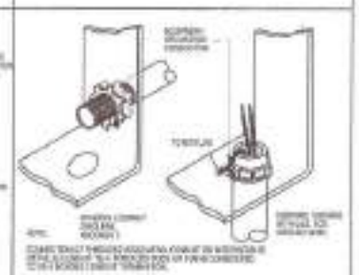
SPOT DETAIL OF CONDUIT RUN AND BOX



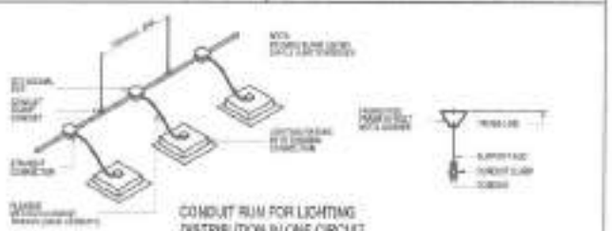
BENDING RADIUS DETAIL



PROPER CONDUIT LAYOUT at PULL BOX



BONDED RACEWAY TERMINATION FOR SHEET METAL



CONDUIT RUN FOR LIGHTING DISTRIBUTION IN ONE CIRCUIT
(FOR EXPOSED OR INSIDE DROP CEILING INSTALLATION)

3 MISCELLANEOUS DETAILS

SCALE: NTS

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BRGY. SAN BARTOLOME, DISTRICT 1, QUEZON CITY

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REVISION NO.:

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ENGR. LEO S. DELOSARIO
HEAD, PLANNING & PROGRAMMING DIVISION

RECOMMENDING APPROVAL:
ENGR. [illegible] R. VERZOSA, JR.

APPROVED BY:
HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENT:
GENERAL NOTES
LEGENDS & SYMBOLS
MISCELLANEOUS DETAILS

SHEET NO.
EL-01
1 / 10 | 40 / 49

1 FEEDER LAYOUT

SCALE: NTS

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URBAN FARMING INNOVATION AND LEARNING CENTER

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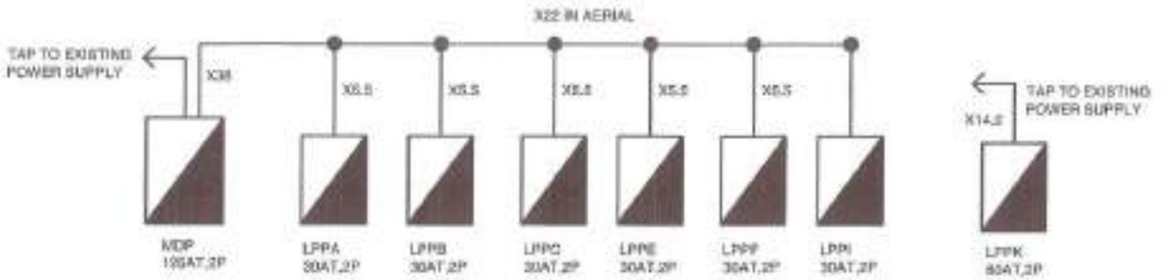
HEAD, PLANNING & PROGRAMMING DIVISION

RECOMMENDING APPROVAL:
ENGR. GAUDENCIO R. VERZOSA, JR.
OIC, CITY ENGINEERING DEPARTMENT

APPROVED BY:
HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENT:
FEEDER LAYOUT

SHEET NO.
EL-02
2 / 41
10 / 49



1 RISER DIAGRAM

MAIN DISTRIBUTION PANEL

CKT NO.	LOAD DESCRIPTION	VOLTS	VA	AMP	AT	SIZE OF WIRES	SIZE OF CONDUITS
1	VERTICAL HYDROPONIC MODEL	230	2,424	10.54	30	2-5.5mm² THHN COPPER WIRE 1-5.5mm² TW GROUND WIRE	1in 32mm∅ PVC PIPE
2	VERTICAL AQUAPONIC MODEL	230	2,424	10.54	30	2-5.5mm² THHN COPPER WIRE 1-5.5mm² TW GROUND WIRE	1in 32mm∅ PVC PIPE
3	HOUSEHOLD HYDROPONIC MODEL	230	2,714	11.80	30	2-5.5mm² THHN COPPER WIRE 1-5.5mm² TW GROUND WIRE	1in 32mm∅ PVC PIPE
4	HOUSEHOLD AQUAPONIC MODEL	230	2,714	11.80	30	2-5.5mm² THHN COPPER WIRE 1-5.5mm² TW GROUND WIRE	1in 32mm∅ PVC PIPE
5	COMMERCIAL HYDROPONIC MODEL	230	3,880	16.78	30	2-5.5mm² THHN COPPER WIRE 1-5.5mm² TW GROUND WIRE	1in 32mm∅ PVC PIPE
6	SPARE	230	—	—	30	——	——
7	LIVESTOCK	230	3,220	14.00	20	2-3.5mm² THHN COPPER WIRE 1-3.5mm² TW GROUND WIRE	1in 32mm∅ PVC PIPE
8	ATTACHED GREENHOUSE	230	2,351	10.35	30	2-5.5mm² THHN COPPER WIRE 1-5.5mm² TW GROUND WIRE	1in 32mm∅ PVC PIPE
9	SPARE	230	—	—	30	——	——
10	OMBEC ROOF GREEN HOUSE	230	3,888	11.68	20	2-5.5mm² THHN COPPER WIRE 1-5.5mm² TW GROUND WIRE	1in 32mm∅ PVC PIPE
11	VERMICULTURE AND BEDDING	230	460	2.57	20	2-5.5mm² THHN COPPER WIRE 1-5.5mm² TW GROUND WIRE	1in 32mm∅ PVC PIPE
12	SPARE	230	—	—	20	——	——
			27,885	92.50			

COMPUTATION :

IT = (92.50 AMPERES x 25%) + 92.50

IT = 101.50 AMPERES

OVER CURRENT PROTECTION
USE : 125AT, 3P, 230V MOLDED CASE CIRCUIT BREAKER IN NEMA 1

MAIN FEEDER :
USE : 2 - 38.0mm² THHN & 1-14.0mm² TW GROUND WIRE IN 40mm∅ PVC PIPE/50mm∅ IMC PIPE

FIELD OFFICE/TRAINING ROOM/CHILLER/HYDROPONICS
LPPK - LIGHTING AND POWER PANEL

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP	AT	SIZE OF WIRES	SIZE OF CONDUITS
1	11 – LIGHTING FIXTURES 2 – CEILING FAN	230	853	3.69	20	2-3.5mm² THHN COPPER WIRE 1-3.5mm² TW GROUND WIRE	IN 32mm∅ PVC PIPE
2	5 – CONVENIENCE OUTLET	230	900	3.91	20	2-3.5mm² THHN COPPER WIRE 1-3.5mm² TW GROUND WIRE	IN 32mm∅ PVC PIPE
3	4 – CONVENIENCE OUTLET	230	720	3.13	20	3-3.5mm² THHN COPPER WIRE 1-3.5mm² TW GROUND WIRE	IN 32mm∅ PVC PIPE
4	ACU SPLIT TYPE	230	2,300	10.0	30	2-5.5mm² THHN COPPER WIRE 1-3.5mm² TW GROUND WIRE	AI 32mm∅ PVC PIPE
5	ACU SPLIT TYPE	230	2,300	10.0	30	2-5.5mm² THHN COPPER WIRE 1-3.5mm² TW GROUND WIRE	AI 32mm∅ PVC PIPE
6	ACU SPLIT TYPE	230	2,300	10.0	30	2-5.5mm² THHN COPPER WIRE 1-3.5mm² TW GROUND WIRE	IN 32mm∅ PVC PIPE
			9,070	39.44			

COMPUTATION :

IT = DEMAND (39.44 x 25%) + 39.44

IT = 49.30 AMPERES

OVER CURRENT PROTECTION
USE : 60AT, 3P, 230V MOLDED CASE CIRCUIT BREAKER IN NEMA 1

MAIN FEEDER :
USE : 2 - 14.0mm² THHN & 1-8.0mm² TW GROUND WIRE IN 32mm∅ PVC PIPE/50mm∅ IMC PIPE

2 SCHEDULE OF LOADS
(MAIN DISTRIBUTION PANEL/FIELD OFFICE)

SCALE: NTS

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SUBMITTED BY:
ENGR. LEO S. DELROSARIO
HEAD, PLANNING & PROGRAMMING DIVISION

RECOMMENDING APPROVAL :
ENGR. ISAGANI R. VERZOSA, JR.
OIC, CITY ENGINEERING DEPARTMENT

APPROVED BY :
HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENT
SCHEDULE OF LOADS

SHEET NO.
EL-03
3 / 10
42 / 49

VERTICAL HYDROPONIC MODEL
LPPA - LIGHTING AND POWER PANEL

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP	AT	SIZE OF	
						WIRES	CONDUITS
1	1– CONVENIENCE OUTLET	230	180	0.78	20	2–3.5mm² THHN COPPER WIRE 1–3.5mm² TW GROUND WIRE	IN 25mmø PVC PIPE
2	1 – PUMP	230	1,127	4.90	30	2–5.5mm² THHN COPPER WIRE 1–3.5mm² TW GROUND WIRE	IN 25mmø PVC PIPE
3	1 – PUMP	230	1,127	4.90	30	2–5.5mm² THHN COPPER WIRE 1–3.5mm² TW GROUND WIRE	IN 25mmø PVC PIPE
			2,434	10.58			

COMPUTATION :

I = (0.80x2.30 x 240)

I = 11.01 AMPERES

OVER CURRENT PROTECTION
USE : 30AT, 2P, 230V MOLDED CASE CIRCUIT BREAKER IN NEMA 1

MAIN FEEDER :
USE : 2 - 8.0mm² THHN & 1-3.5mm² TW GROUND WIRE IN 25mmø PVC PIPE/25mmø IMC PIPE

HOUSEHOLD HYDROPONIC MODEL
LPPC - LIGHTING AND POWER PANEL

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP	AT	SIZE OF	
						WIRES	CONDUITS
1	2 – LIGHTING FIXTURES	230	100	1.00	20	2–3.5mm² THHN COPPER WIRE 1–3.5mm² TW GROUND WIRE	IN 20mmø PVC PIPE
2	2 – CONVENIENCE OUTLET	230	360	1.31	20	2–3.5mm² THHN COPPER WIRE 1–3.5mm² TW GROUND WIRE	IN 20mmø PVC PIPE
3	SUBMERSIBLE PUMP	230	1,127	4.90	30	2–5.5mm² THHN COPPER WIRE 1–3.5mm² TW GROUND WIRE	IN 20mmø PVC PIPE
4	SUBMERSIBLE PUMP	230	1,127	4.90	30	2–5.5mm² THHN COPPER WIRE 1–3.5mm² TW GROUND WIRE	IN 20mmø PVC PIPE
			2,714	11.80			

COMPUTATION :

I = (2.1.80)+(4.90 x 20%)

I = 13.33 AMPERES

OVER CURRENT PROTECTION
USE : 30AT, 2P, 230V MCO, DED CASE CIRCUIT BREAKER IN NEMA 1

MAIN FEEDER :
USE : 2 - 8.0mm² THHN & 1-3.5mm² TW GROUND WIRE IN 25mmø PVC PIPE/25mmø IMC PIPE

VERTICAL AQUAPONIC MODEL
LPPB - LIGHTING AND POWER PANEL

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP	AT	SIZE OF	
						WIRES	CONDUITS
1	1– CONVENIENCE OUTLET	230	180	0.78	20	2–3.5mm² THHN COPPER WIRE 1–3.5mm² TW GROUND WIRE	IN 25mmø PVC PIPE
2	1 – PUMP	230	1,127	4.90	30	2–5.5mm² THHN COPPER WIRE 1–3.5mm² TW GROUND WIRE	IN 25mmø PVC PIPE
3	1 – PUMP	230	1,127	4.90	30	2–5.5mm² THHN COPPER WIRE 1–3.5mm² TW GROUND WIRE	IN 25mmø PVC PIPE
			2,434	10.58			

COMPUTATION :

I = (0.80x2.30 x 240)

I = 11.01 AMPERES

OVER CURRENT PROTECTION
USE : 30AT, 2P, 230V MOLDED CASE CIRCUIT BREAKER IN NEMA 1

MAIN FEEDER :
USE : 2 - 8.0mm² THHN & 1-3.5mm² TW GROUND WIRE IN 25mmø PVC PIPE/25mmø IMC PIPE

COMMERCIAL HYDROPONIC MODEL
LPPE - LIGHTING AND POWER PANEL

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP	AT	SIZE OF	
						WIRES	CONDUITS
1	1– CONVENIENCE OUTLET	230	180	0.78	20	2–3.5mm² THHN COPPER WIRE 1–3.5mm² TW GROUND WIRE	IN 25mmø PVC PIPE
2	1HP – PUMP	230	1,840	8.00	30	2–5.5mm² THHN COPPER WIRE 1–3.5mm² TW GROUND WIRE	IN 25mmø PVC PIPE
3	1HP – PUMP	230	1,840	8.00	30	2–5.5mm² THHN COPPER WIRE 1–3.5mm² TW GROUND WIRE	IN 25mmø PVC PIPE
			3,860	16.78			

COMPUTATION :

I = (16.78x1.25)

I = 20.98 AMPERES

OVER CURRENT PROTECTION
USE : 30AT, 2P, 230V MOLDED CASE CIRCUIT BREAKER IN NEMA 1

MAIN FEEDER :
USE : 2 - 8.0mm² THHN & 1-3.5mm² TW GROUND WIRE IN 25mmø PVC PIPE/25mmø IMC PIPE

2 SCHEDULE OF LOADS
(VERTICAL HYDROPONIC/AQUAPONIC MODEL,N HOUSEHOLD HYDROPONIC MODEL & COMMERCIAL HYDROPONIC MODEL)

SCALE: NTS

Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

PROJECT TITLE:
URBAN FARMING INNOVATION AND LEARNING CENTER

LOCATION:
BRGY. SAN BARTOLOME, DISTRICT II, QUEZON CITY

DRAWN BY:
DATE:
CHECKED BY:
REVISION NO.:

SUBMITTED BY:
ENGR. LEO S. DEL ROSARIO
HEAD - PLANNING & PROGRAMMING DIVISION

RECOMMENDING APPROVAL:
ENGR. ISAGANI R. VERZOSA, JR.
OIC, CITY ENGINEERING DEPARTMENT

APPROVED BY:
HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENT:
SCHEDULE OF LOADS

SHEET NO.
EL-04
4 / 10 | 43 / 49

GABLE ROOF GREEN HOUSE
LPPF - LIGHTING AND POWER PANEL

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP	AT	SIZE OF WIRES	SIZE OF CONDUITS
1	1 – PUMP (GABLE ROOF WITH HYDROPONIC)	230	667	2.90	30	2–5.5mm² THHN COPPER WIRE 1–3.5mm² TW GROUND WIRE	IN 25mmø PVC PIPE
2	1 – PUMP (GABLE ROOF WITH HYDROPONIC)	230	667	2.90	30	2–5.5mm² THHN COPPER WIRE 1–3.5mm² TW GROUND WIRE	IN 25mmø PVC PIPE
3	1 – PUMP (GABLE ROOF WITH AQUAPONIC)	230	667	2.90	30	2–5.5mm² THHN COPPER WIRE 1–3.5mm² TW GROUND WIRE	IN 25mmø PVC PIPE
4	1 – PUMP (GABLE ROOF WITH AQUAPONIC)	230	667	2.90	30	2–5.5mm² THHN COPPER WIRE 1–3.5mm² TW GROUND WIRE	IN 25mmø PVC PIPE
			2,668	11.60			

COMPUTATION :

IT = (11.60)(1.25) x 25%)

IT = 72.50 AMPERES

OVER CURRENT PROTECTION
USE : 3OAT, 3P, 230V MOLDED CASE CIRCUIT BREAKER IN NEMA 1

MAIN FEEDER :
USE : 2 - 5.5mm² THHN & 1-3.5mm² TW GROUND WIRE IN 25mmø PVC PIPE/50mmø IMC PIPE

ATTACHED GREENHOUSE
LPPI - LIGHTING AND POWER PANEL

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP	AT	SIZE OF WIRES	SIZE OF CONDUITS
1	1 – PUMP	230	667	2.90	30	2–5.5mm² THHN COPPER WIRE 1–3.5mm² TW GROUND WIRE	IN 25mmø PVC PIPE
2	1 – PUMP (POND)	230	667	2.90	30	2–5.5mm² THHN COPPER WIRE 1–3.5mm² TW GROUND WIRE	IN 25mmø PVC PIPE
3	1 – PUMP (POND)	230	667	2.90	30	2–5.5mm² THHN COPPER WIRE 1–3.5mm² TW GROUND WIRE	IN 25mmø PVC PIPE
4	4 – LIGHTING FIXTURES (WALL GARDEN)	230	200	0.87	20	2–3.5mm² THHN COPPER WIRE 1–3.5mm² TW GROUND WIRE	IN 20mmø PVC PIPE
5	1 – CONVENIENCE OUTLET (WALL GARDEN)	230	180	0.78	20	2–3.5mm² THHN COPPER WIRE 1–3.5mm² TW GROUND WIRE	IN 20mmø PVC PIPE
6	SPARE	230	—	—	30	—	—
			2,381	10.35			

COMPUTATION :

IT = (10.35)(1.25 x 25%)

IT = 11.25 AMPERES

OVER CURRENT PROTECTION
USE : 30AT, 3P, 230V MOLDED CASE CIRCUIT BREAKER IN NEMA 1

MAIN FEEDER :
USE : 2 -5.5mm² THHN & 1-3.5mm² TW GROUND WIRE IN 25mmø PVC PIPE/50mmø IMC PIPE

2 SCHEDULE OF LOADS
(GABLE ROOF/ATTACHED GREEN HOUSE)

SCALE: NTS

Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

PROJECT TITLE :
URBAN FARMING INNOVATION AND LEARNING CENTER

LOCATION:
BRGY. SAN BARTOLOME, DISTRICT 5, QUEZON CITY

DRAWN BY :

DATE :

CHECKED BY :

REVISION NO.:

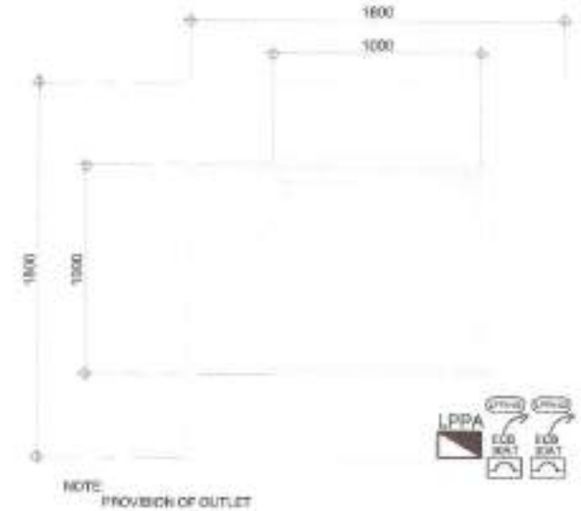
SUBMITTED BY:
ENGR. LEO S. DEL ROSARIO
HEAD, PLANNING & PROGRAMMING DIVISION

RECOMMENDING APPROVAL :
ENGR. JERGAMI R. VERZOSA, JR.
OIC, CITY ENGINEERING'S DEPARTMENT

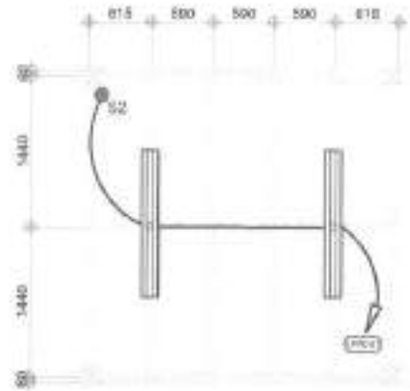
APPROVED BY :
HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENT
SCHEDULE OF LOADS

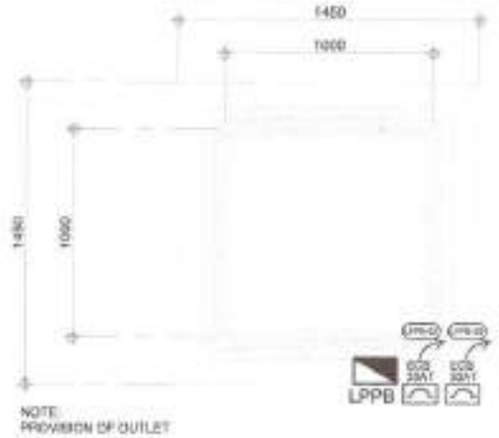
SHEET NO.
EL-05
5 / 10
44 / 49



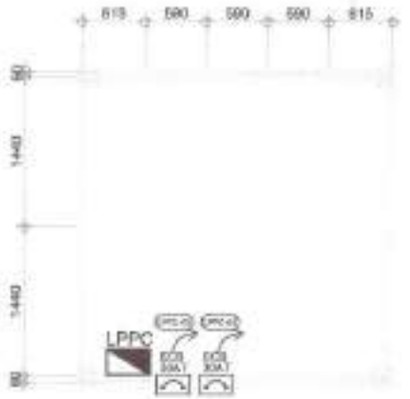
1 POWER LAYOUT
(VERTICAL HYDROPONIC MODEL) SCALE: 1:50M.



3 LIGHTING LAYOUT
(HOUSEHOLD HYDROPONIC MODEL FOR LEAFY VEGETABLE) SCALE: 1:50M.



2 POWER LAYOUT
(VERTICAL AQUAPONIC MODEL) SCALE: 1:50M.



4 POWER LAYOUT
(HOUSEHOLD HYDROPONIC MODEL FOR LEAFY VEGETABLE) SCALE: 1:50M.

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Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

PROJECT TITLE:
URBAN FARMING INNOVATION AND LEARNING CENTER

LOCATION:
BRGY. SAN BARTOLOME, DISTRICT 5, QUEZON CITY

DRAWN BY:
DATE:
CHECKED BY:
REVISION NO.:

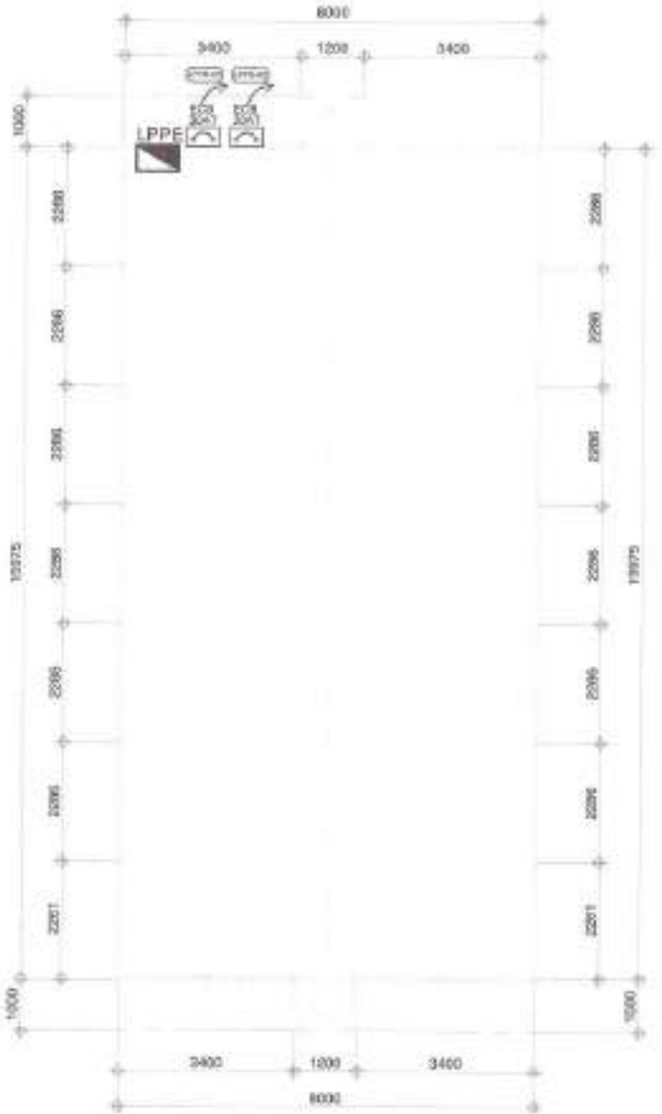
SUBMITTED BY:
ENGR. LEO S. DEL ROSARIO
HEAD - PLANNING & PROGRAMMING DIVISION

RECOMMENDING APPROVAL:
ENGR. ISAGANI R. VERZOSA, JR.
OIC, CITY ENGINEERING DEPARTMENT

APPROVED BY:
HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENT:
POWER LAYOUT (VERT. HYDROPONIC MODEL)
POWER LAYOUT (VERT. AQUAPONIC MODEL)
POWER LAYOUT (HOUSEHOLD HYDROPONIC MODEL FOR LEAFY VEGETABLE)

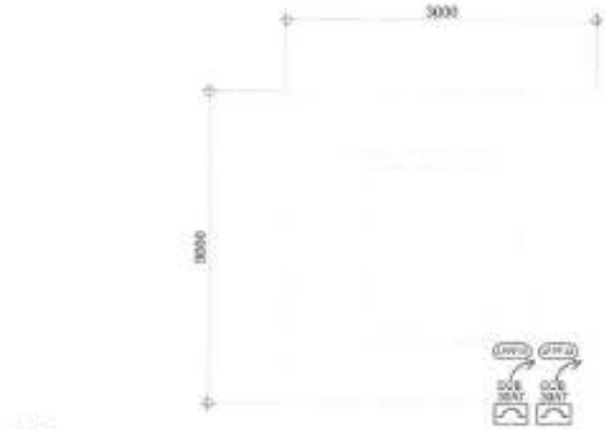
SHEET NO.:
EL-06
6/10 45/49



NOTE:
PROVISION OF OUTLET

1 POWER LAYOUT
(COMMERCIAL HYDROPONIC MODEL FOR LEAFY VEGETABLE)

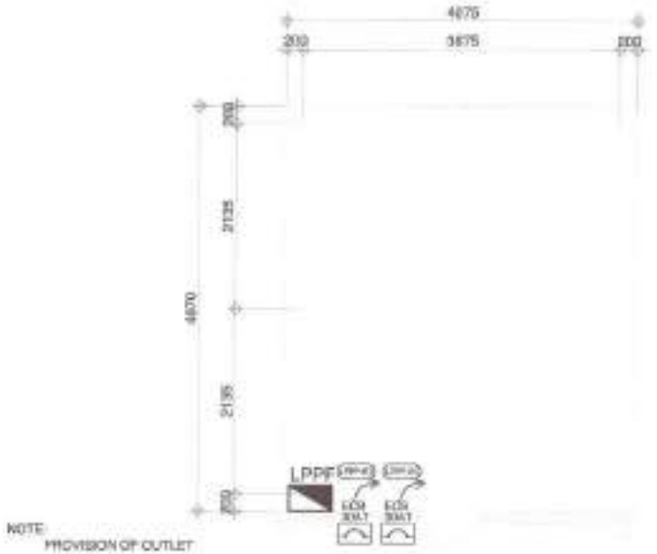
SCALE: 1:50M.



NOTE:
PROVISION OF OUTLET

2 POWER LAYOUT
(GABLE ROOF GREEN HOUSE w/ HYDROPONIC SYSTEM)

SCALE: 1:50M.



NOTE:
PROVISION OF OUTLET

3 POWER LAYOUT
(GABLE ROOF GREEN HOUSE w/ AQUAPONIC SYSTEM)

SCALE: 1:50M.

Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

PROJECT TITLE:
URBAN FARMING INNOVATION AND LEARNING CENTER

LOCATION:
BRGY. SAN BARTOLOME, DISTRICT II, QUEZON CITY

DRAWN BY:
DATE:
CHECKED BY:
REVISION NO.:

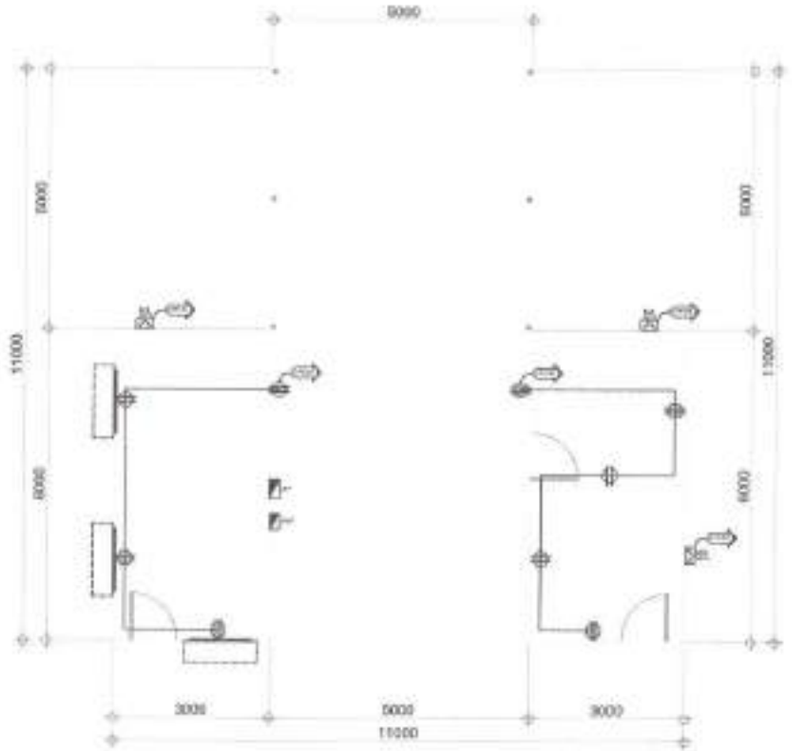
SUBMITTED BY:
ENGR. LEO S. DEL ROSARIO
HEAD, PLANNING & PROGRAMMING DIVISION

RECOMMENDING APPROVAL:
ENGR. ISARANI R. VERZOSA, JR.
OIC, CITY ENGINEERING DEPARTMENT

APPROVED BY:
HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

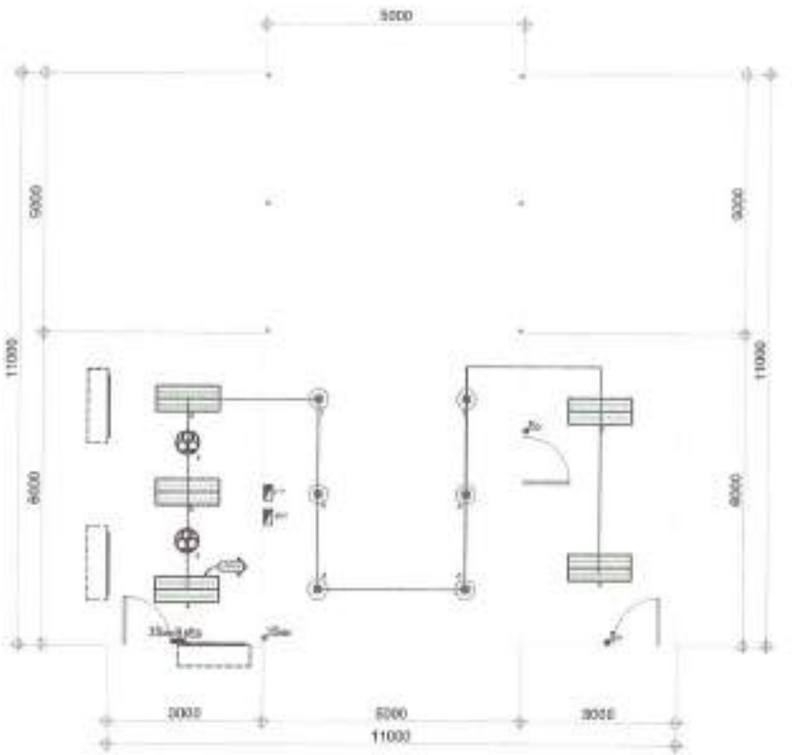
SHEET CONTENT:
POWER LAYOUT (COMM'L. HYDROPONIC MODEL) POWER LAYOUT (GABLE ROOF GREEN HOUSE w/ HYDROPONIC SYSTEM) POWER LAYOUT (GABLE ROOF GREEN HOUSE w/ AQUAPONIC SYSTEM)

SHEET NO.
EL-07
7/10
46/49



1 **POWER LAYOUT**
(FIELD OFFICE)

SCALE: 1:100M.



2 **LIGHTING LAYOUT**
(FIELD OFFICE)

SCALE: 1:100M.

Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

PROJECT TITLE:
URBAN FARMING INNOVATION AND LEARNING CENTER

LOCATION:
BRGY. SAN BARTOLOME, DISTRICT 5, QUEZON CITY

DRAWN BY:

DATE:

CHECKED BY:

REVISION NO.:

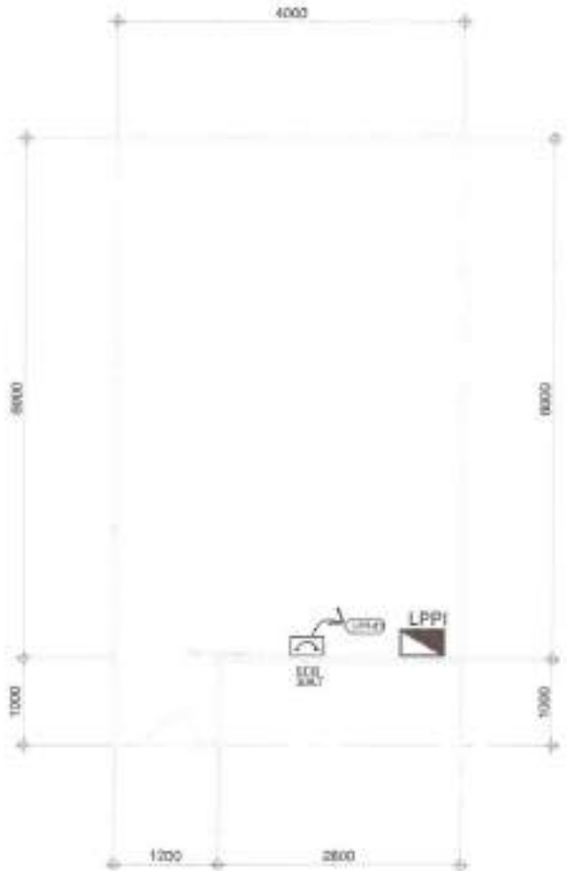
SUBMITTED BY:
ENGR. LEO S. DEL ROSARIO
HEAD, PLANNING & PROGRAMMING DIVISION

RECOMMENDING APPROVAL:
ENGR. ISAGANI R. VERZOSA, JR.
DEC, CITY ENGINEERING DEPARTMENT

APPROVED BY:
HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENT:
POWER LAYOUT (FIELD OFFICE)
LIGHTING LAYOUT (FIELD OFFICE)

SHEET NO.
EL-08
8 / 47
10 / 49



1 POWER LAYOUT
(ATTACHED GREENHOUSE)

SCALE: 1:50M.

2 POWER LAYOUT
(POND)

SCALE: 1:50M.

Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

PROJECT TITLE: URBAN FARMING INNOVATION AND LEARNING CENTER LOCATION: BRGY. SAN BARTOLOME, DISTRICT II, QUEZON CITY	DRAWN BY: DATE: CHECKED BY: REVISION NO.:	SUBMITTED BY: ENGR. LEO S. DEL ROSARIO HEAD I, PLANNING & PROGRAMMING DIVISION	RECOMMENDING APPROVAL: ENGR. ISAGANI R. VERZOSA, JR. OIC, CITY ENGINEERING DEPARTMENT	APPROVED BY: HON. MA. JOSEFINA G. BELMONTE CITY MAYOR, QUEZON CITY	SHEET CONTENT: POWER LAYOUT (ATTACHED GREENHOUSE) POWER LAYOUT (POND)	SHEET NO. EL-09 9 / 48 9 / 49

EQUIPMENT SCHEDULE

MODEL / DESCRIPTION	LOCATION /COUNT	SPECIFICATIONS			REMARKS
		VOLTS	PHASE	HERTZ	
750W SUBMERSIBLE PUMP	1 UNIT COMMERCIAL HYDROPONIC MODEL (A6)	220	1Ø	60HZ	PUMP SHALL BE SUBMERSIBLE CONTRACTOR SUPPLIED AND INSTALLED
400W SUBMERSIBLE PUMP	2 UNITS HOUSEHOLD HYDROPONIC MODEL (A5)	220	1Ø	60HZ	PUMP SHALL BE SUBMERSIBLE CONTRACTOR SUPPLIED AND INSTALLED
100W SUBMERSIBLE PUMP	2 UNITS HOUSEHOLD AQUAPONIC MODEL (A4)	220	1Ø	60HZ	PUMP SHALL BE SUBMERSIBLE CONTRACTOR SUPPLIED AND INSTALLED
	2 UNITS FIELD OFFICE/TRAINING ROOM/CHILLER/SHOWROOM (A8)				
	2 UNITS GABLE ROOF GREENHOUSE W/ HYDROPONICS SYSTEM (B1)				
	2 UNITS GABLE ROOF GREENHOUSE w/ AQUAPONICS SYSTEM (B2)				
	1 UNIT WALL GARDEN (B7)				
	2 UNITS GREENHOUSE w/ HYDROPONIC TOWER (B8)				
	2 UNITS POND (ATTACHED GREENHOUSE) (B9)				
60W SUBMERSIBLE PUMP	2 UNITS VERTICAL HYDROPONIC MODEL (A1)	220	1Ø	60HZ	PUMP SHALL BE SUBMERSIBLE CONTRACTOR SUPPLIED AND INSTALLED
	2 UNITS VERTICAL AQUAPONIC MODEL (A3)				

1 EQUIPMENT SCHEDULE

SCALE: NTS

Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

PROJECT TITLE:
URBAN FARMING INNOVATION AND LEARNING CENTER

LOCATION:
BRGY. SAN BARTOLOME, DISTRICT II, QUEZON CITY

DRAWN BY:
DATE:
CHECKED BY:
REVISION NO.:

SUBMITTED BY:
ENGR. LEO S. DEL ROSARIO
HEAD - PLANNING AND PROGRAMMING DIVISION

RECOMMENDING APPROVAL:
ENGR. EUGENE R. VERZOSA, JR.
DEPARTMENT

APPROVED BY:
HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENT:
EQUIPMENT SCHEDULE

SHEET NO.
PL-01
1/1 49/49

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.

PROJECT TITLE: **PROPOSED CONSTRUCTION OF URBAN FARMING INNOVATION AND LEARNING CENTER**

LOCATION : BARANGAY SAN BARTOLOME, DISTRICT 5, QUEZON CITY

PROJECT NO. : 23 - 00030

DURATION : One Hundred Fifty (150) Calendar Days

BREAKDOWN OF COST

ITEM CODE	ITEM OF WORK (Description)	MATERIALS COST	LABOR COST	INDIRECT COST	AGGREGATE COST
GR	GENERAL REQUIREMENTS				
OGR	OTHER GENERAL REQUIREMENTS				
I	VERTICAL HYDROPONIC MODEL				
II	VERTICAL AQUAPONIC MODEL				
III	HOUSEHOLD HYDROPONIC MODEL FOR LEAFY VEGETABLES				
IV	COMMERCIAL HYDROPONIC MODEL				
V	KRATKY HYDROPONICS SYSTEM				
VI	TERRARIUM VEGETABLE BOX				
VII	FIELD OFFICE				
VIII	GABLE ROOF GREENHOUSE WITH AQUAPONICS SYSTEM				
IX	GREENHOUSE WITH HYDROPONIC TOWER				
X	B-9b POND				
XI	PERIPHERAL GATE AND FENCE				
XII	CONCRETE PAVEMENT				
XIII	WATER HARVESTING FACILITY				
XIV	UTILITY AND ANCILLARY				

TOTAL COST ₱ _____

LUMP SUM BID IN WORDS : _____

_____

Contractor : _____

BILL OF QUANTITIES
(Building Construction/Rehabilitation Project)

PROJECT TITLE : PROPOSED CONSTRUCTION OF URBAN FARMING INNOVATION AND LEARNING CENTER

LOCATION : BARANGAY SAN BARTOLOME, DISTRICT 5, QUEZON CITY

PROJECT NO. : 23 - 00030

DURATION : One Hundred Fifty (150) Calendar Days

SCOPE OF WORKS :

GR	**General Requirements** include billboard(s).
OGR	**Other General Requirements** (NON-O.C.M.) include, but not limited to:
1	Temporary enclosure around the construction area.
2	Temporary water system including water meter/sub-meter and connections.
3	Temporary electrical system including electric meter/sub-meter and connections.
4	Scaffolding for general use (rental).
5	Clearing, hauling and disposal for construction Materials and debris.
I	**VERTICAL HYDROPONIC MODEL**
I-CWS	Civil / Structural Works:
1	Roofing works includes installation of roofing and accessories.
2	Metal works include fabrication of metal structures.
I-AW	Architectural Works:
1	Wall finishes include UV-Resistant plastic enclosure insect proof.
2	Painting Works include painting of exterior walls and metal surfaces.
I-S/PW	Sanitary/Plumbing Works:
1	Installation of roughing-ins, valves, appurtenances and supports for sewer/storm line.
2	Installation of submersible pumps.
I-EW	Electrical Works:
1	Installation of roughing-ins and wirings.
2	Installation of system devices, energy efficient lighting fixtures and components,
II	**VERTICAL AQUAPONIC MODEL**
II-CWS	Civil / Structural Works:
1	Roofing works includes installation of roofing and accessories.
2	Metal works include fabrication of metal structures.
II-AW	Architectural Works:
1	Wall finishes include UV-Resistant plastic enclosure insect proof.
2	Painting Works include painting of exterior walls and metal surfaces.
II-S/PW	Sanitary/Plumbing Works:
1	Installation of roughing-ins, valves, appurtenances and supports for sewer/storm line.
2	Installation of submersible pumps and blue tank.
II-EW	Electrical Works:
1	Installation of roughing-ins and wirings.
2	Installation of system devices, energy efficient lighting fixtures and components,
III	**HOUSEHOLD HYDROPONIC MODEL FOR LEAFY VEGETABLES**
III-SW	Site Works:
1	Earthworks include excavation for structures.

2	Layout and staking.
3	Site clearing and preparation.
III-CWS	Civil / Structural Works:
1	Concrete works includes concreting, installation of reinforcing steel bars and formworks.
2	Moisture protection include waterproofing works.
3	Masonry works include installation of laying of CHB and plastering works.
4	Metal works include fabrication of metal structures.
5	Roofing works includes installation of roofing and accessories.

III-AW	Architectural Works:
1	Wall finishes include insect proof superfine net.
2	Painting Works include painting of metal surfaces.
3	Fabricated Materials include installation of doors and accessories.
III-S/PW	Sanitary/Plumbing Works:
1	Installation of roughing-ins, valves, appurtenances and supports for sewer/storm drainage/waterline.
2	Installation of IBC tank and pumps.
III-EW	Electrical Works:
1	Installation of roughing-ins and wirings.
2	Installation of system devices, energy efficient lighting fixtures and components,
IV	**COMMERCIAL HYDROPONIC MODEL**
IV-SW	Site Works:
1	Earthworks include excavation for structures
2	Layout and staking.
3	Site clearing and preparation.
IV-CWS	Civil / Structural Works:
1	Concrete works includes concreting, installation of reinforcing steel bars and formworks.
2	Moisture protection include waterproofing works.
3	Masonry works include installation of laying of CHB and plastering works.
4	Metal works include fabrication of metal structures.
5	Roofing works includes installation of roofing and accessories.
IV-AW	Architectural Works:
1	Wall finishes include UV-Resistant plastic net enclosure insect proof.
2	Painting Works include painting of metal surfaces.
3	Fabricated Materials include installation of door and accessories.
IV-S/PW	Sanitary/Plumbing Works:
1	Installation of roughing-ins, valves, appurtenances and supports for sewer/storm/waterline.
2	Installation of pumps and blue drum for water tank.
IV-EW	Electrical Works:
1	Installation of roughing-ins and wirings.
2	Installation of system devices, energy efficient lighting fixtures and components, panelboards, switchgears and accessories.
V	**KRATKY HYDROPONICS SYSTEM**
IV-CWS	Civil / Structural Works:
1	Metal works include fabrication of metal structures.
2	Roofing works includes installation of roofing and accessories.
IV-AW	Architectural Works:
1	Painting Works include painting of metal surfaces.
MC/HA	Miscellaneous and Consumables of Hydroponics/Aquaponics:
1	Installation of Rock Wool Block.
VI	**TERRARIUM VEGETABLE BOX**
IV-CWS	Civil / Structural Works:
1	Metal works include fabrication of metal structures.
2	Roofing works includes installation of roofing and accessories.
IV-AW	Architectural Works:
1	Painting Works include painting of metal surfaces.
MC/HA	Miscellaneous and Consumables of Hydroponics/Aquaponics:

1	Installation of Rock Wool Block.
VII	**FIELD OFFICE**
VII-SW	Site Works:
1	Layout and staking.
2	Site clearing and preparation.
3	Earthworks include excavation for structures, backfilling and compaction.

VII-CWS	Civil / Structural Works:
1	Moisture protection include soil treatment.
2	Concrete works includes concreting, installation of reinforcing steel bars and formworks.
3	Metal works include fabrication of metal structures.
VII-AW	Architectural Works:
1	Wall finishes include fiber cement board on metal studs and other wall finishes.
2	Fabricated Materials include installation of doors, windows and accessories.
VII-S/PW	Sanitary/Plumbing Works:
1	Installation of roughing-ins, valves, appurtenances and supports for sewer/storm drainage/waterline.
2	Installation of pumps.
VII-EW	Electrical Works:
1	Installation of roughing-ins and wirings.
2	Installation of system devices, energy efficient lighting fixtures and components, panelboards, switchgears and accessories.
VII-MECH	Mechanical Works:
1	Installation of air-conditioning system includes roughing-ins, equipment and accessories.
VII-UTI	Utility and Ancillary Works:
1	Installation of Container Van.
VIII	**GABLE ROOF GREEN HOUSE AQUAPONICS**
VIII-SW	Site Works:
1	Layout and staking.
2	Site clearing and preparation.
3	Earthworks include excavation for structures, backfilling and compaction.
VIII-CWS	Civil / Structural Works:
1	Concrete works includes concreting, installation of reinforcing steel bars and formworks.
2	Moisture protection include waterproofing works and soilt treatment.
3	Masonry works include installation of laying of CHB and plastering works.
4	Metal works include fabrication of metal structures.
5	Roofing works includes installation of roofing and accessories.
VIII-AW	Architectural Works:
1	Fabricated Materials include installation of doors and and accessories and welded wire mesh.
VIII-S/PW	Sanitary/Plumbing Works:
1	Installation of roughing-ins, valves, appurtenances and supports for sewer/storm/waterline.
2	Installation of pumps.
VIII-EW	Electrical Works:
1	Installation of roughing-ins and wirings.
2	Installation of system devices, energy efficient lighting fixtures and components, panelboards, switchgears and accessories.
IX	**GREENHOUSE WITH HYDROPONIC TOWER**
IX-SW	Site Works:
1	Layout and staking.
2	Site clearing and preparation.
IX-CWS	Civil / Structural Works:
1	Metal works include fabrication of metal structures.
IX-AW	Architectural Works:
1	Wall finishes include UV-Resistant plastic enclosure insect proof.
2	Painting Works include painting of metal surfaces.
3	Fabricated Materials include installation of doors and accessories.

IX-S/PW	Sanitary/Plumbing Works:
1	Installation of roughing-ins, valves, appurtenances and supports for sewer/storm/waterline.
2	Installation of pumps.
IX-EW	Electrical Works:
1	Installation of roughing-ins and wirings.
2	Installation of system devices, energy efficient lighting fixtures and components, panelboards, switchgears and accessories.

X	**B-9b POND**
X-SW	Site Works:
1	Layout and staking.
2	Site clearing and preparation.
3	Earthworks include excavation for structures, backfilling and compaction.
X-CWS	Civil / Structural Works:
1	Concrete works includes concreting, installation of reinforcing steel bars and formworks.
2	Moisture protection include waterproofing works and soil treatment.
3	Masonry works include installation of laying of CHB and plastering works.
X-S/PW	Sanitary/Plumbing Works:
1	Installation of roughing-ins, valves, appurtenances and supports.
2	Installation of pumps.
X-EW	Electrical Works:
1	Installation of roughing-ins and wirings.
2	Installation of system devices, energy efficient lighting fixtures and components,
XI	**PERIPHERAL GATE AND FENCE**
XI-SW	Site Works:
1	Earthworks include excavation for structures.
2	Layout and staking.
3	Site clearing and preparation.
XI-CWS	Civil / Structural Works:
1	Concrete works includes concreting, installation of reinforcing steel bars and formworks.
2	Metal works include fabrication of metal surfaces.
XI-AW	Architectural Works:
1	Fabricated Materials include painting works and installation of welded wire mesh.
XII	**CONCRETE PAVEMENT**
XII-SW	Site Works:
1	Earthworks include excavation for roadway.
2	Layout and staking.
3	Site clearing and preparation.
XII-CWS	Civil / Structural Works:
1	Earthworks include gravel bedding.
2	Concrete works includes construction of concrete pavement.
XIII	**WATER HARVESTING FACILITY**
XIII-SW	Site Works:
1	Layout and staking.
2	Site clearing and preparation.
XIII-CWS	Civil / Structural Works:
1	Concrete works includes concreting, installation of reinforcing steel bars and formworks.
2	Masonry works include installation of laying of CHB and plastering works.
3	Roofing works includes installation of roofing and accessories.
XIII-S/PW	Sanitary/Plumbing Works:
1	Installation of roughing-ins, valves, appurtenances and supports for sewer/storm line.
2	Installation of IBC tank.
XIV	**UTILITY AND ANCILLARY WORKS:**
1	Construction of electrical utilities include distribution posts.
XV	**OTHERS** included in O.C.M.

1 Preparation of shop drawings, as necessary.

2 Preparation of as-built plans (signed and sealed by the respective professional(s)).

3 Testing and commissioning works shall be performed as per standard procedures.

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
GR	**GENERAL REQUIREMENTS**				
SPL7	Billboard (1.20 x 2.40 in Plywood)	1	piece	₱	₱
				MATERIALS COST GR	₱
				LABOR COST GR	
				DIRECT COST GR	₱
OGR	**OTHER GENERAL REQUIREMENTS**				
OGR02C	Temporary Enclosure at the Construction Area (Coveraged Length; H=2.4m).	309	l.m.	₱	₱
OGR0301	Temporary Water Facility (For Construction)	1	unit		
OGR0302	Temporary Electrical Facility (Construction)	1	unit		
OGR05	Scaffolding (Rental)	80	sq.m.		
				Subtotal OGR02C - OGR0302	₱
OGR01	Clearing, Hauling and Disposal of Construction Materials and Debris	6	t.l.	₱	₱
				Subtotal OGR01	₱
				MATERIALS COST OGR	₱
				LABOR COST OGR	
				DIRECT COST OGR	₱
I	**VERTICAL HYDROPONIC MODEL**				
I-CWS	Civil/Structural Works				
CWSPRW	Roofing Works				
CWSPRW01401	Aluminized Shade Straw Net	4	sq.m.	₱	₱
AW0343	UV Plastic with 50% Shade	4	sq.m.		
CWSME	Metal Works				
CWSME0714	Tubular Bar	19	kg		
CWSME0812	Caster Wheel	4	piece		
MC	Miscellaneous and Consumables				
MC/G24	Cutting Disc, 14"	2	piece		
MC/G36	Welding Rod (Steel)	2	kg		
				Materials Cost I-CWS	₱
				Labor Cost I-CWS	
				Subtotal I-CWS	₱
I-AW	Architectural Works				
AW03	Wall Finishes/Partitions				
AW0342	Super-fine Net 24 x 24 Mesh	14	sq.m.	₱	₱
AWP	Painting Works				
AWP0102	Elastomeric Paint Finish (Exterior Wall - 3 Coats)	10	sqm		

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
AWP0106	Epoxy Enamel Paint Finish (Steel Member - 3 Coats)	3	sqm		
				Materials Cost I-AW	₱
				Labor Cost I-AW	
				Subtotal I-AW	₱

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
I-S/PW	Sanitary/ Plumbing Works				
S/PW01	Sewer Line / Storm Drainage System				
S/PW0101	Roughing-Ins				
S/PW010102	50mm Ø, PVC Pipe with Hub	16	piece	₱	₱
S/PW010104	100mm Ø, PVC Pipe with Hub	5	piece		
S/PW010114	50mmØ 1/4 Bend	25	piece		
S/PW010116	100mm Ø, 1/4 Bend	5	piece		
S/PW010184	100mmØ Cleanout	3	piece		
S/PW090120	13mm Ø, Blue uPVC Pipe with Hub	3	piece		
S/PW090121	13mmØ 90° Elbow, Blue uPVC	27	piece		
S/PW0202	Valves and Appurtenances				
S/PW020245	13mmØ Ball Valve	3	piece		
S/PW0802	Submersible Pumps with Inverter as Solar Pumps				
S/PW080201	PUMPS - 220VAC/1-PHASE (including installation)				
S/PW080201f	60W	2	unit		
MC	Miscellaneous and Consumables				
MC/G	Common Items				
MC/G04	Cable tie #8 (50 pieces)	2	pack		
MC/G14	Solvent Cement, 400cc	5	can		
MC/G15	Teflon Tape	4	roll		
MC/G18	Waste Cloth	2	kg		
MC/HA	Hydroponics/ Aquaponics				
MC/HA02	Hydroponic Solution (1L)	1	can		
				Materials Cost I-S/PW	₱
				Labor Cost I-S/PW	
				Subtotal I-S/PW	₱
I-EW	Electrical Works				
EW01	Pipes				
EW0101	20mmØ PVC Pipe	7	piece	₱	₱
EW0111	20mmØ IMC Pipe	1	piece		
EW05	Fittings and Accessories				
EW05001	20mmØ PVC Elbow	12	piece		
EW05010	20mmØ PVC Adaptor	6	piece		
EW05022	20mmØ PVC Locknut and Bushing	6	pair		
EW05032	20mmØ IMC Elbow	1	piece		
EW05042	20mmØ IMC Locknut and Bushing	1	pair		
EW05052	20mmØ IMC Coupling	1	piece		
EW05154	20mmØ Weatherproof Entrance Cap	1	piece		
EW05138	22mm² Ø Solderless Connector	2	piece		
EW06	Boxes and Fabricated Pullbox				
EW0601	50mm x 100mm PVC Utility Box	1	piece		
EW09	Wires and Cables				
EW0901	THHN Wires				

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
EW090102b	3.5mm² THHN Wire	12	l.m.		
EW090103b	5.5mm² THHN Wire	68	l.m.		
EW0903	TW Wires				
EW090302b	3.5mm² TW Wire	20	l.m.		
EW10	Wiring Devices and Other Fixtures				
EW1002	Convenience Outlet with Grounding, Two-Gang	1	piece		

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
EW12	Grounding System				
EW1201	16mm Ø x 3000mm Grounding Rod (Copper	1	set		
EW13	Panel Board				
ASSY	LPPA	1	assy		
	Main: 30AT, 2P Branches: 1- 20 AT, 2P, Bolt-On 2- 30 AT, 2P, Bolt-On Enclosure: NEMA 3R Enclosure				
EW1303	Enclosed Circuit Breaker (ECB)				
EW130304	30AT, 2P , Bolt-On	2	assy		
EW16	Pipe Hangers and Supports				
EW1601	Horizontal Layout of Pipe	10	l.m.		
MC	Miscellaneous and Consumables				
MC/G37	G.I. Tie Wire, Ga.16 (for Wire / Cable Pulling)	2	kg		
MC/E01	Electrical Tape	2	roll		
				Materials Cost I-EW	₱
				Labor Cost I-EW	
				Subtotal I-EW	₱
				MATERIALS COST I	₱
				LABOR COST I	
				DIRECT COST I	₱
II	**VERTICAL AQUAPONIC MODEL**				
II-CWS	Civil/Structural Works				
CWSPRW	Roofing Works				
CWSPRW01401	Aluminized shade straw net	3	sq.m.	₱	₱
AW0343	UV Plastic with 50% Shade	3	sq.m.		
CWSME	Metal Works				
CWSME0714	Tubular Bar	20	kg		
CWSME0812	Caster Wheel	4	piece		
MC	Miscellaneous and Consumables				
MC/G24	Cutting Disc, 14"	2	piece		
MC/G36	Welding Rod (Steel)	2	kg		
				Materials Cost II-CWS	₱
				Labor Cost II-CWS	
				Subtotal II-CWS	₱
II-AW	Architectural Works				
AW03	Wall Finishes/ Partition				
AW0342	Super-fine Net 24 x 24 Mesh	14	sq.m.	₱	₱
AWP	Painting Works				
AWP0102	Elastomeric Paint Finish (Exterior Wall - 3 Coats)	8	sqm		

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
AWP0106	Epoxy Enamel Paint Finish (Steel Member - 3 Coats)	3	sqm		
				Materials Cost II-AW	₱
				Labor Cost II-AW	
				Subtotal II-AW	₱

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
II-S/PW	Sanitary/ Plumbing Works				
S/PW01	Sewer Line / Storm Drainage System				
S/PW0101	Roughing-Ins				
S/PW010102	50mm Ø, PVC Pipe with Hub	10	piece	₱	₱
S/PW010104	100mm Ø, PVC Pipe with Hub	3	piece		
S/PW010114	50mmØ 1/4 Bend	43	piece		
S/PW010116	100mm Ø, 1/4 Bend	4	piece		
S/PW010184	100mmØ Cleanout	2	piece		
S/PW090120	13mm Ø, Blue uPVC Pipe with Hub	2	piece		
S/PW090121	13mmØ 90° Elbow, Blue uPVC	6	piece		
S/PW090122	13mmØ Tee Equal, Blue uPVC	1	piece		
S/PW0202	Valves and Appurtenances				
S/PW020245	13mmØ Ball Valve	5	piece		
S/PW0811	Water Tank				
S/PW081103	Blue Drum, 200L	2	unit		
S/PW0802	Submersible Pumps with Inverter as Solar Pumps				
S/PW080201	PUMPS - 220VAC/1-PHASE (including installation)				
S/PW080201h	60W	2	unit		
MC	Miscellaneous and Consumables				
MC/G	Common Items				
MC/G04	Cable tie #8 (50 pieces)	1	pack		
MC/G14	Solvent Cement, 400cc	7	can		
MC/G15	Teflon Tape	3	roll		
MC/G18	Waste Cloth	1	kg		
				Materials Cost II-S/PW	₱
				Labor Cost II-S/PW	
				Subtotal II-S/PW	₱
II-EW	Electrical Works				
EW01	Pipes				
EW0101	20mmØ PVC Pipe	7	piece	₱	₱
EW0111	20mmØ IMC Pipe	1	piece		
EW05	Fittings and Accessories				
EW05001	20mmØ PVC Elbow	12	piece		
EW05010	20mmØ PVC Adaptor	6	piece		
EW05022	20mmØ PVC Locknut and Bushing	6	pair		
EW05032	20mmØ IMC Elbow	1	piece		
EW05042	20mmØ IMC Locknut and Bushing	1	pair		
EW05052	20mmØ IMC Coupling	1	piece		
EW05154	20mmØ Weatherproof Entrance Cap	1	piece		
EW05138	22mm² Ø Solderless Connector	2	piece		
EW06	Boxes and Fabricated Pullbox				
EW0601	50mm x 100mm PVC Utility Box	1	piece		

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
EW09	Wires and Cables				
EW0901	THHN Wires				
EW090102b	3.5mm² THHN Wire	12	l.m.		
EW090103b	5.5mm² THHN Wire	68	l.m.		
EW0903	TW Wires				
EW090302b	3.5mm² TW Wire	20	l.m.		

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
EW10	Wiring Devices and Other Fixtures				
EW1002	Convenience Outlet with Grounding, Two-Gang	1	piece		
EW12	Grounding System				
EW1201	16mm Ø x 3000mm Grounding Rod (Copper Clad) with Ground	1	set		
EW13	Panel Board				
ASSY	LPPA	1	assy		
	Main: 30AT, 2P Branches: 1- 20 AT, 2P, Bolt-On 2- 30 AT, 2P, Bolt-On Enclosure: NEMA 3R Enclosure				
EW1303	Enclosed Circuit Breaker (ECB)				
EW130304	30AT, 2P , Bolt-On	2	assy		
EW16	Pipe Hangers and Supports				
EW1601	Horizontal Layout of Pipe	10	l.m.		
MC	Miscellaneous and Consumables				
MC/G37	G.I. Tie Wire, Ga.16 (for Wire / Cable Pulling)	2	kg		
MC/E01	Electrical Tape	2	roll		
				Materials Cost II-EW	₱
				Labor Cost II-EW	
				Subtotal II-EW	₱
				MATERIALS COST II	₱
				LABOR COST II	
				DIRECT COST II	₱
III	**HOUSEHOLD HYDROPONIC MODEL FOR LEAFY**				
III-SW	Site Works				
106	Excavation for Structures	8	cu.m.	₱	₱
SW01	Layout and Staking	23	sq.m.		
SW02	Site Clearing and Preparation	23	sq.m.		
				Subtotal III-SW (Labor)	₱
III-CWS	Civil / Structural Works				
CWSC	Concrete Works				
CWSCO	On-Site Mix Concrete, (21MPa, 3/4" Gravel @ 28 days)				
CWSCO04	Short Column / Pedestal	1	cu.m.	₱	₱
CWSCO04	Reservoir	1	cu.m.		
CWSCO04	Slab on Fill	1	cu.m.		
CWSRB	Reinforcing Steel Bar including G.I. Tie Wire # 16				
CWSRB40	Grade 40 Reinforcing Steel Bar including G.I. Tie Wire # 16				
CWSRB4001	10mm Ø Reservoir	25	kg		

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
CWSRB4001	10mm Ø Slab on Fill	20	kg		
CWSRB4001	10mm Ø Concrete Footing	2	kg		
CWSRB4001	10mm Ø Racks	6	kg		
CWSRB4002	12mm Ø Short Column / Pedestal	6	kg		
CWSF	Formworks and Shoring				
CWSF03	Short Column / Pedestal	8	sq.m.		

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
CWSMP	Moisture Protection				
CWSMPW	Waterproofing Works				
CWSMPW04	Tank Lining Food Grade (for Reservoir)	4	sq.m.		
CWSMA	Masonry Works				
CWSMA04	150mm CHB Wall Laying, including Mortar, Reinforcement and Two-Face Plastering	5	sq.m.		
CWSME	Metal Works				
CWSME0710	20mm Ø G.I. Pipe	34	kg		
CWSPRW0202	Plain Sheet 0.30mm with Connection	4	sq.m.		
CWSME07	Structural Steel				
CWSME0704	6mm Thick Base Plate	8	kg		
CWSME0710	19mm Ø G.I. Pipe	125	kg		
CWSME0710	50mm Ø G.I. Pipe	1,082	kg		
CWSME0710	75mm Ø G.I. Pipe	38	kg		
CWSME0714	50mm x 100mm x 1.5mm Tubular Bar	67	kg		
CWSME0708	50mm x 75mm 1.2mm C-Purlins	201	kg		
CWSPRW	Roofing Works				
CWSPRW0105	Plain Sheet 0.30mm with Connection	10	sq.m.		
CI/S02	Bolts and Nuts				
CI/S02005	16mm Ø x 200mm Anchor Bolt	16	piece		
MC	Miscellaneous and Consumables				
MC/G	(Common Items)				
MC/G05	Grinding Disc, 4"	4	piece		
MC/G06	Hacksaw Blade	3	piece		
MC/G19	Acetylene Tank (Refill)	2	tank		
MC/G23	Cut off Blade / Wheel	3	piece		
MC/G24	Cutting Disc, 14"	3	piece		
MC/G26	Drill Bit, 20mm Ø (Concrete)	3	piece		
MC/G29	Oxygen Tank (Refill)	2	tank		
MC/G36	Welding Rod (Steel)	5	kg		
				Materials Cost III-CWS	₱
				Labor Cost III-CWS	
				Subtotal III-CWS	₱
III-AW	Architectural Works				
AW03	Wall Finishes				
CWSPRW01401	Aluminized Shade Straw Net	54	sq.m.	₱	₱
AW0343	UV Plastic with 50% Shade	54	sq.m.		
AWP	Painting Works				
AWP0106	Epoxy Enamel Paint Finish (Steel Member - 3 Coats)	10	sq.m.		
				Materials Cost AW03-AWP	₱
				Labor Cost AW03-AWP	
				Subtotal AW03-AWP	₱

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
AW01	Fabricated Materials				
AWD01	Installation of Doors				
AWD0326	Barn Door Mechanism	1	set	₱	₱
AWD0310	Door Hinges, 3" x 3" (Butt Hinge)	3	piece		
				Materials Cost AW01	₱
				Labor Cost AW01	
				Subtotal AW01	₱

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
				Materials Cost III-AW	₱
				Labor Cost III-AW	
				Subtotal III-AW	₱
III-S/PW	Sanitary/ Plumbing Works				
S/PW01	Sewer Line / Storm Drainage System				
S/PW0101	Roughing-Ins				
S/PW010102	50mm Ø, PVC Pipe with Hub	69	piece	₱	₱
S/PW010114	50mmØ 1/4 Bend	40	piece		
S/PW010163	50mmØ x 50mmØ Tee	40	piece		
S/PW09	Blue uPVC				
S/PW090120	13mmØ, Blue uPVC Pipe with Hub	12	piece		
S/PW090121	13mmØ 90° Elbow, Blue uPVC Pipe	50	piece		
S/PW090122	13mmØ Tee Equal, Blue uPVC	25	piece		
S/PW090123	20mm Ø, Blue uPVC Pipe with Hub	12	piece		
S/PW090124	20mmØ Tee Equal, Blue uPVC Pipe	5	piece		
S/PW090125	25mmØ x 13mmØ Unequal Tee, Blue uPVC Pipe	20	piece		
S/PW090126	50mmØ 90° Elbow, Blue uPVC Pipe	25	piece		
S/PW090127	25mmØ Blue uPVC Male Adaptor	20	piece		
S/PW090128	25mmØ Blue uPVC Female Adaptor	20	piece		
S/PW0202	Valves and Appurtenances				
S/PW020245	13mmØ Ball Valve	30	piece		
S/PW020246	20mmØ Ball Valve	6	piece		
S/PW020247	20mmØ Check Valve	2	piece		
S/PW0811	Water Tank				
S/PW081103	IBC Tank, 1000 L	1	unit		
S/PW080201	PUMPS - 220VAC/1-PHASE (including installation)				
S/PW080201g	400W	2	unit		
MC	Miscellaneous and Consumables				
MC/G	(Common Items)				
MC/G14	Solvent Cement, 400cc	10	can		
MC/G15	Teflon Tape	15	roll		
MC/G18	Waste Cloth	2	kg		
				Materials Cost III-S/PW	₱
				Labor Cost III-S/PW	
				Subtotal III-S/PW	₱
III-EW	Electrical Works				
EW01	Pipes				
EW0101	20mmØ PVC Pipe	8	piece	₱	₱
EW0111	20mmØ IMC Pipe	1	piece		
EW05	Fittings and Accessories				
EW05001	20mmØ PVC Elbow	14	piece		

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
EW05010	20mmØ PVC Adaptor	10	piece		
EW05022	20mmØ PVC Locknut and Bushing	10	pair		
EW05032	20mmØ IMC Elbow	1	piece		
EW05042	20mmØ IMC Locknut and Bushing	1	pair		
EW05052	20mmØ IMC Coupling	1	piece		
EW05154	20mmØ Weatherproof Entrance Cap	1	piece		
EW05138	22mm² Ø Solderless Connector	2	piece		

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
EW06	Boxes and Fabricated Pullbox				
EW0601	50mm x 100mm PVC Utility Box	2	piece		
EW0602	100mm x 100mm PVC Junction Box with Cover	1	piece		
EW09	Wires and Cables				
EW0901	THHN Wires				
EW090102b	3.5mm² THHN Wire	30	l.m.		
EW090103b	5.5mm² THHN Wire	70	l.m.		
EW0903	TW Wires				
EW090302b	3.5mm² TW Wire	24	l.m.		
EW12	Grounding System				
EW1201	16mm Ø x 3000mm Grounding Rod (Copper Clad) with Ground	1	set		
EW13	Panel Board				
ASSY	LPP	1	assy		
2282 1408 1443 3210	Main: 30AT, 2P Branches: 2- 20 AT, 2P, Bolt-On 2- 30 AT, 2P, Bolt-On Enclosure: NEMA 3R Enclosure				
EW1303	Enclosed Circuit Breaker (ECB)				
EW130304	30AT, 2P , Bolt-On	2	assy		
EW10	Wiring Devices and Other Fixtures				
EW1016	Switch with Plate and Cover, Two-Gang	1	piece		
EW1028	Convenience Outlet with Grounding, Three-Gang	2	piece		
EW11	Lighting Fixtures (Energy Efficient)				
EW11072	1 x 18w LED, Dust Proof Cover, with Complete Accessories, Surface Mounted Type	2	set		
EW16	Pipe Hangers and Supports				
EW1601	Horizontal Layout of Pipe	15	l.m.		
MC	Miscellaneous and Consumables				
MC/G06	Hacksaw Blade	1	piece		
MC/G13	All Around Sealant	1	tube		
MC/G14	Solvent Cement, 400cc	1	can		
MC/G17	Torch with Butane	1	set		
MC/G18	Rugs	1	kg		
MC/G37	G.I. Tie Wire, Ga.16 (for Wire / Cable Pulling)	1	kg		
MC/E01	Electrical Tape	2	roll		
MC/E04	Rubber Tape	2	roll		
				Materials Cost III-EW	₱
				Labor Cost III-EW	
				Subtotal III-EW	₱
				MATERIALS COST III	₱
				LABOR COST III	

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
				DIRECT COST III	₱
IV	**COMMERCIAL HYDROPONIC MODEL**				
IV-SW	Site Works				
106	Excavation for Structures	7	cu.m.	₱	₱
SW01	Layout and Staking	124	sq.m.		
SW02	Site Clearing and Preparation	124	sq.m.		
				Subtotal IV-SW (Labor)	₱

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
IV-CWS	Civil / Structural Works				
CWSC	Concrete Works				
CWSCO	On-Site Mix Concrete, (21MPa, 3/4" Gravel @ 28 days)				
CWSCO04	Short Column / Pedestal	1	cu.m.	₱	₱
CWSCO04	Reservoir	2	cu.m.		
CWSCO04	Slab on Fill	1	cu.m.		
CWSRB	Reinforcing Steel Bar including G.I. Tie Wire # 16				
CWSRB40	Grade 40 Reinforcing Steel Bar including G.I. Tie Wire # 16				
CWSRB4001	10mm Ø Reservoir	25	kg		
CWSRB4001	10mm Ø Slab on Fill	20	kg		
CWSRB4001	10mm Ø Concrete Footing	2	kg		
CWSRB4002	12mm Ø Short Column / Pedestal	6	kg		
CWSF	Formworks and Shoring				
CWSF03	Short Column / Pedestal	1	sq.m.		
CWSMP	Moisture Protection				
CWSMPW	Waterproofing Works				
CWSMPW04	Tank Lining Food Grade (for Reservoir)	4	sq.m.		
CWSMA	Masonry Works				
CWSMA04	150mm CHB Wall Laying, including Mortar, Reinforcement and Two-Face Plastering	5	sq.m.		
CWSME	Metal Works				
CWSME0710	20mm Ø G.I. Pipe	17	kg		
CWSPRW0202	Plain Sheet 0.30mm with Connection	2	sq.m.		
CWSME07	Structural Steel				
CWSME0704	6mm Thick Base Plate	8	kg		
CWSME0710	19mm Ø G.I. Pipe	267	kg		
CWSME0710	50mm Ø G.I. Pipe	138	kg		
CWSME0710	75mm Ø G.I. Pipe	38	kg		
CWSME0714	50mm x 100mm x 1.5mm Tubular Bar	34	kg		
CWSME0708	50mm x 75mm 1.2mm C-Purlins	32	kg		
CWSPRW	Roofing Works				
CWSPRW0105	Plain Sheet 0.30mm with Connection	10	sq.m.		
CI/S02	Bolts and Nuts				
CI/S02005	16mm Ø x 200mm Anchor Bolt	16	piece		
MC	Miscellaneous and Consumables				
MC/G	(Common Items)				
MC/G05	Grinding Disc, 4"	5	piece		
MC/G06	Hacksaw Blade	3	piece		
MC/G19	Acetylene Tank (Refill)	2	tank		
MC/G23	Cut off Blade / Wheel	3	piece		
MC/G24	Cutting Disc, 14"	3	piece		
MC/G26	Drill Bit, 20mm Ø (Concrete)	4	piece		
MC/G29	Oxygen Tank (Refill)	2	tank		
MC/G36	Welding Rod (Steel)	6	kg		
				Materials Cost IV-CWS	₱

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
				Labor Cost IV-CWS	
				Subtotal IV-CWS	₱

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
IV-AW	Architectural Works				
AW03	Wall Finishes				
	UV-Resistant Plastic Enclosure Insect Proof Net	382	sq.m.	₱	₱
AWP	Painting Works				
AWP0106	Epoxy Enamel Paint Finish (Steel Member - 3 Coats)	19	sq.m.		
				Materials Cost AW03-AWP	₱
				Labor Cost AW03-AWP	
				Subtotal AW03-AWP	₱
AW01	Fabricated Materials				
AWD01	Installation of Doors				
AWD0310	Door Hinges, 3" x 3" (Butt Hinge)	3	piece	₱	₱
				Materials Cost AW01	₱
				Labor Cost AW01	
				Subtotal AW01	₱
				Materials Cost IV-AW	₱
				Labor Cost IV-AW	
				Subtotal IV-AW	₱
IV-S/PW	Sanitary/ Plumbing Works				
S/PW01	Sewer Line / Storm Drainage System				
S/PW0101	Roughing-Ins				
S/PW010101	25mm Ø, PVC Pipe with Hub	5	piece	₱	₱
S/PW010102	50mm Ø, PVC Pipe with Hub	5	piece		
S/PW010103	75mm Ø, PVC Pipe with Hub	5	piece		
S/PW010114	50mmØ 1/4 Bend	10	piece		
S/PW010166	75mmØ x 75mmØ Tee	10	piece		
S/PW010183	75mmØ Cleanout	5	piece		
S/PW010195	25mmØ 1/4 Bend	6	piece		
S/PW0109	Blue uPVC				
S/PW090121	13mmØ 90° Elbow, Blue uPVC Pipe	20	piece		
S/PW090122	13mmØ Tee Equal, Blue uPVC	10	piece		
S/PW090131	25mmØ , Blue uPVC Pipe with Hub	22	piece		
S/PW090132	25mmØ Tee Equal, Blue uPVC	10	piece		
S/PW090133	25mmØ 90° Elbow, Blue uPVC Pipe	25	piece		
S/PW090134	25mmØ x 13mmØ Unequal Tee, Blue uPVC Pipe	10	piece		
S/PW0202	Valves and Appurtenances				
S/PW020246	25mmØ Ball Valve	14	piece		
S/PW0811	Water Tank				
S/PW081104	Blue drum - 200L	1	piece		

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
S/PW080201	PUMPS - 220VAC/1-PHASE (including installation)				
S/PW080201a	0.75 KW	2	unit		
MC	Miscellaneous and Consumables				
MC/G	Common Items				
MC/G14	Solvent Cement, 400cc	7	can		
MC/G15	Teflon Tape	10	roll		

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
MC/G18	Waste Cloth	2	kg		
MC/PL02	Screen Filter 25mm	2	piece		
				Materials Cost IV-S/PW	₱
				Labor Cost IV-S/PW	
				Subtotal IV-S/PW	₱
IV-EW	Electrical Works				
EW01	Pipes				
EW0101	20mmØ PVC Pipe	10	piece	₱	₱
EW0111	20mmØ IMC Pipe	1	piece		
EW05	Fittings and Accessories				
EW05001	20mmØ PVC Elbow	12	piece		
EW05010	20mmØ PVC Adaptor	6	piece		
EW05022	20mmØ PVC Locknut and Bushing	6	pair		
EW05032	20mmØ IMC Elbow	1	piece		
EW05042	20mmØ IMC Locknut and Bushing	1	pair		
EW05052	20mmØ IMC Coupling	1	piece		
EW05154	20mmØ Weatherproof Entrance Cap	1	piece		
EW05138	22mm² Ø Solderless Connector	2	piece		
EW06	Boxes and Fabricated Pullbox				
EW0601	50mm x 100mm PVC Utility Box	1	piece		
EW09	Wires and Cables				
EW0901	THHN Wires				
EW090102b	3.5mm² THHN Wire	20	l.m.		
EW090103b	5.5mm² THHN Wire	80	l.m.		
EW0903	TW Wires				
EW090302b	3.5mm² TW Wire	30	l.m.		
EW12	Grounding System				
EW1201	16mm Ø x 3000mm Grounding Rod (Copper Clad) with Ground	1	set		
EW13	Panel Board				
ASSY	LPPA	1	assy		
	Main: 30AT, 2P Branches: 1- 20 AT, 2P, Bolt-On 2- 30 AT, 2P, Bolt-On Enclosure: NEMA 3R Enclosure				
EW1303	Enclosed Circuit Breaker (ECB)				
EW130304	30AT, 2P , Bolt-On	2	assy		
EW1029	Safety Breaker DPST 30A	2	assy		
EW10	Wiring Devices and Other Fixtures				
EW1002	Convenience Outlet with Grounding, Two-Gang	1	piece		
EW16	Pipe Hangers and Supports				
EW1601	Horizontal Layout of Pipe	15	l.m.		
MC	Miscellaneous and Consumables				
MC/G06	Hacksaw Blade	1	piece		

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
MC/G13	All Around Sealant	1	tube		
MC/G14	Solvent Cement, 400cc	1	can		
MC/G17	Torch with Butane	1	set		
MC/G18	Rugs	1	kg		
MC/G37	G.I. Tie Wire, Ga.16 (for Wire / Cable Pulling)	1	kg		
MC/E01	Electrical Tape	2	roll		

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
MC/E04	Rubber Tape	1	roll		
				Materials Cost IV-EW	₱
				Labor Cost IV-EW	
				Subtotal IV-EW	₱
				MATERIALS COST IV	₱
				LABOR COST IV	
				DIRECT COST IV	₱
V	**Kratky Hydroponics System**				
V-CWS	Civil / Structural Works				
CWSME	Metal Works				
CWSME0703	25mm x 25mm x 6mm Angle Bar	50	kg	₱	₱
CWSPRW	Roofing Works				
CWSPRW0202	Plain Sheet 0.30mm with Connection Accessories (Any Color)	2	sq.m.		
MC	Miscellaneous & Consumables				
MC/G05	Grinding Disc for Metal	2	piece		
MC/G19	Acetylene Tank (refill)	1	tank		
MC/G23	Cut Off Blade	1	piece		
MC/G29	Oxygen Tank (refill)	1	tank		
MC/G36	Welding Rod	2	kg		
				Materials Cost V-CWS	₱
				Labor Cost V-CWS	
				Subtotal V-CWS	₱
V-AW	Architectural Works				
AWP	Painting Works				
AWP0106	Epoxy Enamel Paint Finish (Steel Member - 3 Coats)	3	sqm	₱	₱
				Materials Cost V-AW	₱
				Labor Cost V-AW	
				Subtotal V-AW	₱
				MATERIALS COST V	₱
				LABOR COST V	
				DIRECT COST V	₱
VI	**Terrarium Vegetable Box**				
V-CWS	Civil / Structural Works				
CWSME	Metal Works				
CWSME0703	25mm x 25mm x 6mm Angle Bar	50	kg	₱	₱
CWSPRW	Roofing Works				

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
CWSPRW0202	Plain Sheet 0.30mm with Connection Accessories (Any Color)	0.4656	sq.m.		
MC	Miscellaneous & Consumables				
MC/G05	Grinding Disc for Metal	2	piece		
MC/G19	Acetylene Tank (refill)	1	tank		
MC/G23	Cut Off Blade	1	piece		

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
MC/G29	Oxygen Tank (refill)	1	tank		
MC/G36	Welding Rod	2	kg		
				Materials Cost V-CWS	₱
				Labor Cost V-CWS	
				Subtotal V-CWS	₱
V-AW	Architectural Works				
AWP	Painting Works				
AWP0106	Epoxy Enamel Paint Finish (Steel Member - 3 Coats)	3	sqm	₱	₱
				Materials Cost V-AW	₱
				Labor Cost V-AW	
				Subtotal V-AW	₱
				MATERIALS COST VI	₱
				LABOR COST VI	
				DIRECT COST VI	₱
VII	**FIELD OFFICE**				
VII-SW	Site Works				
SW01	Layout and Staking	91	sq.m.	₱	₱
SW02	Site Clearing and Preparation	91	sq.m.		
106	Excavation for Structures	4	cu.m.		
SW04	Backfill	4	cu.m.		
				Subtotal VII-SW (Labor Cost)	₱
VII-CWS	Civil / Structural Works				
CWSC	Concrete Works				
CWSCO	Site Mix Concrete, 21MPa, 3/4" Gravel @ 28 days				
CWSCO04	Slab on Fill	13	cu.m.	₱	₱
CWSCO04	Column/Pedestal	2	cu.m.		
CWSCO04	Column Footing	3	cu.m.		
CWSRB	Reinforcing Steel Bars				
CWSRB40	Grade 40 Reinforcing Steel Bar including G.I. Tie Wire # 16				
CWSRB4001	10mm Ø Concrete Pedestal	7	kg		
CWSRB4001	10mm Ø Column Footing	627	kg		
CWSRB4002	12mm Ø Column Footing	8	kg		
CWSRB60	Grade 60 Reinforcing Steel Bar including G.I. Tie Wire # 16				
CWSRB6001	16mm Ø Column Footing	271	kg		
CWSF	Formworks and Shoring				
CWSF03	Column/Pedestal	18	sq.m.		
CWSME	Metal Works				

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
CWSME0710	20mm Ø G.I. Pipe	132	kg		
CWSME0710	32mm Ø G.I. Pipe	30	kg		
CWSME0710	50mm Ø G.I. Pipe	1,435	kg		
MC	Miscellaneous & Consumables				
MC/G05	Grinding Disc for Metal	4	piece		
MC/G19	Acetylene Tank (refill)	1	tank		
MC/G23	Cut Off Blade	4	piece		

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
MC/G27	Assorted Metal Drill Bit	4	piece		
MC/G29	Oxygen Tank (refill)	2	tank		
MC/G36	Welding Rod	5	kg		
				Materials Cost VII-CWS	₱
				Labor Cost VII-CWS	
				Subtotal VII-CWS	₱
VII-AW	Architectural Works				
AW03	Wall Finishes				
AW0314	4.5mm Thick Fiber Cement Board on Metal Studs (Double Wall)	9	sq.m.	₱	₱
AW0343	UV Plastic with 50% Shade	87	sq.m.		
AW0344	UV Plastic with 80% Shade	40	sq.m.		
				Materials Cost AW03	₱
				Labor Cost AW03	
				Subtotal AW03	₱
AW01	Fabricated Materials				
AWD01	Installation of Doors				
AWD010148	D1 - (0.90m x 2.10m) Panel Door with Complete Accessories	3	set	₱	₱
AWW	Installation of windows				
AWW01	W1 - (1.00m x 2.50m) Sliding Window with Complete Accessories	3	set		
				Materials Cost AW01	₱
				Labor Cost AW01	
				Subtotal AW01	₱
				Materials Cost VII-AW	₱
				Labor Cost VII-AW	
				Subtotal VII-AW	₱
VII-S/PW	Sanitary/ Plumbing Works				
S/PW01	Sewer Line / Storm Drainage System				
S/PW0101	Roughing-Ins				
S/PW010102	50mm Ø, PVC Pipe with Hub	68	piece	₱	₱
S/PW010104	100mm Ø, PVC Pipe with Hub	10	piece		
S/PW010114	50mmØ 1/4 Bend	40	piece		
S/PW010116	100mm Ø, 1/4 Bend	10	piece		
S/PW010151	75mmØ x 50mmØ Reducer	20	piece		
S/PW010163	50mmØ x 50mmØ Tee	6	piece		
S/PW010170	100mmØ x 100mmØ Tee	40	piece		
S/PW09	Blue uPVC				
S/PW090101	50mmØ , Blue uPVC Pipe with Hub	69	piece		

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
S/PW090120	13mmØ, Blue uPVC Pipe with Hub	12	piece		
S/PW090122	13mmØ Tee Equal, Blue uPVC	25	piece		
S/PW090126	50mmØ 90° Elbow, Blue uPVC Pipe	40	piece		
S/PW090127	25mmØ Blue uPVC Male Adaptor	20	piece		
S/PW090128	25mmØ Blue uPVC Female Adaptor	20	piece		
S/PW090129	50mmØ Blue uPVC Cleanout	40	piece		
S/PW090130	50mmØ Tee Equal, Blue uPVC	40	piece		

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
S/PW090131	25mmØ , Blue uPVC Pipe with Hub	12	piece		
S/PW090132	25mmØ Tee Equal, Blue uPVC	5	piece		
S/PW090133	25mmØ 90° Elbow, Blue uPVC Pipe	25	piece		
S/PW090134	25mmØ x 13mmØ Unequal Tee, Blue uPVC Pipe	20	piece		
S/PW0202	Valves and Appurtenances				
S/PW020210	25mmØ Check Valve	2	piece		
S/PW020245	13mmØ Ball Valve	12	piece		
S/PW020246	25mmØ Ball Valve	16	piece		
S/PW080201	PUMPS - 220VAC/1-PHASE (including				
S/PW080201f	100W	2	unit		
MC	Miscellaneous and Consumables				
MC/G	Common Items				
MC/G14	Solvent Cement, 400cc	10	can		
MC/G15	Teflon Tape	15	roll		
MC/G18	Waste Cloth	5	kg		
				Materials Cost VII-S/PW	₱
				Labor Cost VII-S/PW	
				Subtotal VII-S/PW	₱
VII-EW	Electrical Works				
EW01	Pipes				
EW0101	20mmØ PVC Pipe	80	piece	₱	₱
EW0103	32mmØ PVC Pipe	25	piece		
EW0104	40mmØ PVC Pipe	25	piece		
EW0112	25mmØ IMC Pipe	1	piece		
EW0113	32mmØ IMC Pipe	1	piece		
EW05	Fittings and Accessories				
EW05001	20mmØ PVC Elbow	45	piece		
EW05003	32mmØ PVC Elbow	5	piece		
EW05004	40mmØ PVC Elbow	5	piece		
EW05010	20mmØ PVC Adaptor	30	piece		
EW05012	32mmØ PVC Adaptor	2	piece		
EW05013	40mmØ PVC Adaptor	2	piece		
EW05022	20mmØ PVC Locknut and Bushing	30	pair		
EW05024	32mmØ PVC Locknut and Bushing	2	pair		
EW05025	40mmØ PVC Locknut and Bushing	2	pair		
EW05033	25mmØ IMC Elbow	1	piece		
EW05043	25mmØ IMC Locknut and Bushing	1	pair		
EW05053	25mmØ IMC Coupling	1	piece		
EW05034	32mmØ IMC Elbow	1	piece		
EW05044	32mmØ IMC Locknut and Bushing	1	pair		
EW05054	32mmØ IMC Coupling	1	piece		
EW05155	25mmØ Weatherproof Entrance Cap	1	piece		
EW05156	32mmØ Weatherproof Entrance Cap	1	piece		

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
EW05166	Secondary Rack, Heavy Duty, 2-Spool	6	set		
EW06	Boxes and Fabricated Pullbox				
EW0601	50mm x 100mm PVC Utility Box	15	piece		
EW0602	100mm x 100mm PVC Junction Box with Cover	15	piece		

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
EW09	Wires and Cables				
EW0901	THHN Wires				
EW090102a	3.5mm² THHN Wire	3	roll		
EW090103a	5.5mm² THHN Wire	1	roll		
EW090105a	14.0mm² THHN Wire	1	roll		
EW090108	38.0mm² THHN Wire	150	l.m.		
EW0902	THW Wires				
EW090206a	22.0mm² THW Wire	270	l.m.		
EW0903	TW Wires				
EW090302a	3.5mm² TW Wire	2	roll		
EW090304a	8.0mm² TW Wire	1	roll		
EW10	Wiring Devices and Other Fixtures				
EW1015	Switch with Plate and Cover, One-Gang	2	piece		
EW1017	Switch with Plate and Cover, Three-Gang	2	piece		
EW1002	Convenience Outlet with Grounding, Two-Gang	9	piece		
EW11	Lighting Fixtures (Energy Efficient)				
EW11153	LED Highbay Lighting Fixture	6	set		
EW11040	600mm x 1200mm, 2 x 18w LED, Troffer Type, with Complete Accessories, Surface Mounted Type	5	set		
EW12	Grounding System				
EW1201	16mm Ø x 3000mm Grounding Rod (Copper Clad) with Ground	2	set		
EW13	Panel Board				
ASSY	MDP	1	assy		
2493 1443 6156	Main: 60AT, 2P Branches: 12- 30 AT, 2P, Bolt-On Enclosure: NEMA 1 with Ground Terminals and Terminal Lugs				
ASSY	LPP	1	assy		
	Main: 60AT, 2P Branches: 3- 20 AT, 2P, Bolt-On 3- 30 AT, 2P, Bolt-On Enclosure: NEMA 1 with Ground Terminals and Terminal Lugs				
EW1303	Enclosed Circuit Breaker (ECB)				
EW130304	30AT, 2P , Bolt-On	3	assy		
EW16	Pipe Hangers and Supports				
EW1601	Horizontal Layout of Pipe	100	l.m.		
EW1602	Vertical Layout of Pipe	10	l.m.		
MC	Miscellaneous and Consumables				
MC/G06	Hacksaw Blade	3	piece		
MC/G13	All Around Sealant	5	tube		
MC/G14	Solvent Cement, 400cc	5	can		
MC/G17	Torch with Butane	2	set		
MC/G18	Rugs	2	kg		

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
MC/G37	G.I. Tie Wire, Ga.16 (for Wire / Cable Pulling)	7	kg		
MC/E01	Electrical Tape	8	roll		
MC/E03	Pulling Lubricant	1	gal		
MC/E04	Rubber Tape	5	roll		
				Materials Cost VII-EW	₱
				Labor Cost VII-EW	
				Subtotal VII-EW	₱

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
VII-MECH	Mechanical Works				
MECH01	Airconditioning System				
MECH0101	Refrigant Pipe System (Roughing-ins)				
MECH010101	6.35mm Ø Copper Coil Tubing	4	l.m.	₱	₱
MECH010102	9.52mm Ø Copper Coil Tubing	4	l.m.		
MECH0102	Refrigant Pipe System (Insulations)				
MECH010201	6.35mm Ø x 20mm thick Rubber Foam Insulation	4	l.m.		
MECH010202	9.52mm Ø x 20mm thick Rubber Foam Insulation	4	l.m.		
MECH0103	Condensate Water Drainage System (Roughing-				
MECH010301	20mm Ø uPVC Elbow	6	piece		
MECH010303	20mm Ø X 3m uPVC Pipe	5	piece		
MC	Miscellaneous and Consumables				
MC/G18	Waste Cloth	10	kg		
MC/MECH	Mechanical Works				
MC/MECH01	50mm x 10m Duct Tape	3	roll		
MC/MECH02	Brazing Rod (10pcs/box)	1	box		
MC/MECH03	25mm Wide x 50m Long Polyethylene Tape	1	roll		
				Materials Cost MECH01	₱
				Labor Cost MECH01	
				Subtotal MECH01	₱
MECH0105	Equipment and Accessories				
MECH010502	Split Type Air Conditioning Unit				
MECH01050217	Wall Mounted Split Type Air Conditioning Unit 10,900BTU/hr, 8.90cmm, 6.35mm Ø L, 9.52mm Ø G 1070W, 230V / 1ϕ / 60Hz	1	unit	₱	₱
MECH01050218	Wall Mounted Split Type Air Conditioning Unit 8,600BTU/hr, 9.60cfm, 6.35mm Ø L, 9.53mm Ø G	2	unit		
				Materials Cost MECH0105	₱
				Labor Cost MECH0105	
				Subtotal MECH0105	₱
				Materials Cost VII-MECH	₱
				Labor Cost VII-MECH	
				Subtotal VII-MECH	₱
VII-UTI	UTILITY AND ANCILLARY WORKS				
UT011501	20Ft Container Van	2	unit	₱	₱
				Materials Cost VII-UTI	₱
				Labor Cost VII-UTI	
				Subtotal VII-UTI	₱

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
			MATERIALS COST VII		₱
			LABOR COST VII		
			DIRECT COST VII		₱

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
VIII	**GABLE ROOF GREEN HOUSE WITH**				
VIII-SW	Site Works				
SW01	Layout and Staking	38	sq.m.	₱	₱
SW02	Site Clearing and Preparation	40	sq.m.		
106	Excavation for Structures	6	cu.m.		
SW04	Backfill	2	cu.m.		
			Subtotal VIII-SW (Labor)		₱
VIII-CWS	Civil / Structural Works				
CWSC	Concrete Works				
CWSCO	Site Mix Concrete, 21MPa, 3/4" Gravel @ 28 days				
CWSCO04	Slab on Grade	4	cu.m.	₱	₱
CWSCO04	Slab on Fill	1	cu.m.		
CWSCO04	Concrete Footing	1	cu.m.		
CWSCO04	Pedestal	1	cu.m.		
CWSRB	Reinforcing Steel Bars				
CWSRB40	Grade 40 Reinforcing Steel Bar including G.I. Tie Wire # 16				
CWSRB4001	10mm Ø Reservoir	12	kg		
CWSRB4001	10mm Ø Slab on Fill	31	kg		
CWSRB4001	10mm Ø Slab on Grade	166	kg		
CWSRB4001	10mm Ø Concrete Pedestal	53	kg		
CWSRB4002	12mm Ø Column Pedestal	9	kg		
CWSF	Formworks				
CWSF03	Pedestal	3	sq.m.		
CWSMP	Moisture Protection				
CWSMPW	Waterproofing Works				
CWSMPW04	Tank Lining Food Grade (for Reservoir)	17	sq.m.		
CWSMA	Masonry Works				
CWSMA04	150mm CHB Wall Laying, including Mortar, Reinforcement and Two-Face Plastering	48	sq.m.		
CWSME	Metal Works				
CWSME0704	Base Plate	12	kg		
CWSME0708	C-Purlin	41	kg		
CWSME0710	35mm Ø G.I. Pipe	59	kg		
CWSME0710	50mm Ø G.I. Pipe	1,505	kg		
CWSME0710	75mm Ø G.I. Pipe	364	kg		
CWSME0710	20mm Ø G.I. Pipe	34	kg		
CWSPRW0202	Plain Sheet 0.30mm with Connection Accessories (Any Color)	4	sq.m.		
CWSME0714	Tubular Bar	153	kg		
CWSPRW	Roofing Works				
CWSPRW0105	Plain Sheet 0.30mm with Connection Accessories (Any Color)	21	sq.m.		
MC	Miscellaneous & Consumables				
MC/G05	Grinding Disc for Metal	2	piece		
MC/G19	Acetylene Tank (refill)	3	tank		

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
MC/G23	Cut Off Blade	2	piece		
MC/G27	Assorted Metal Drill Bit	2	piece		
MC/G29	Oxygen Tank (refill)	6	tank		
MC/G36	Welding Rod	10	kg		
			Materials Cost VIII-CWS		₱
			Labor Cost VIII-CWS		
			Subtotal VIII-CWS		₱

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
VIII-AW	Architectural Works				
AW03	Wall Finishes				
AWCM0405	Welded Wire Mesh, 2" x 2" x 2mm Thick.	121	sq.m.	₱	₱
AW0342	Super-fine Net 24 x 24 Mesh	121	sq.m.		
				Materials Cost AW03	₱
				Labor Cost AW03	
				Subtotal AW03	₱
AW01	Fabricated Materials				
AWD01	Installation of Doors				
AWD0326	Barn Door Mechanism	1	set	₱	₱
AWD0310	Door Hinges, 3" x 3" (Butt Hinge)	3	piece		
				Materials Cost AW01	₱
				Labor Cost AW01	
				Subtotal AW01	₱
				Materials Cost VIII-AW	₱
				Labor Cost VIII-AW	
				Subtotal VIII-AW	₱
VIII-S/PW	Sanitary/ Plumbing Works				
S/PW01	Sewer Line / Storm Drainage System				
S/PW0101	Roughing-Ins				
S/PW010102	50mm Ø, PVC Pipe with Hub	68	piece	₱	₱
S/PW010104	100mm Ø, PVC Pipe with Hub	10	piece		
S/PW010114	50mmØ 1/4 Bend	40	piece		
S/PW010116	100mm Ø, 1/4 Bend	10	piece		
S/PW010151	75mmØ x 50mmØ Reducer	20	piece		
S/PW010163	50mmØ x 50mmØ Tee	6	piece		
S/PW010170	100mmØ x 100mmØ Tee	40	piece		
S/PW09	Blue uPVC				
S/PW090101	50mmØ , Blue uPVC Pipe with Hub	69	piece		
S/PW090120	13mmØ, Blue uPVC Pipe with Hub	12	piece		
S/PW090122	13mmØ Tee Equal, Blue uPVC	25	piece		
S/PW090126	50mmØ 90° Elbow, Blue uPVC Pipe	40	piece		
S/PW090127	25mmØ Blue uPVC Male Adaptor	20	piece		
S/PW090128	25mmØ Blue uPVC Female Adaptor	20	piece		
S/PW090129	50mmØ Blue uPVC Cleanout	40	piece		
S/PW090130	50mmØ Tee Equal, Blue uPVC	40	piece		
S/PW090131	25mmØ , Blue uPVC Pipe with Hub	12	piece		
S/PW090132	25mmØ Tee Equal, Blue uPVC	5	piece		
S/PW090133	25mmØ 90° Elbow, Blue uPVC Pipe	25	piece		
S/PW090134	25mmØ x 13mmØ Unequal Tee, Blue uPVC Pipe	20	piece		

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
S/PW0202	Valves and Appurtenances				
S/PW020246	25mmØ Ball Valve	16	piece		
S/PW020245	13mmØ Ball Valve	12	piece		
S/PW020210	25mmØ Check Valve	2	piece		
S/PW080201	PUMPS - 220VAC/1-PHASE (including installation)				
S/PW080201f	100W	2	unit		

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
MC	Miscellaneous and Consumables				
MC/G	(Common Items)				
MC/G14	Solvent Cement, 400cc	10	can		
MC/G15	Teflon Tape	5	roll		
MC/G18	Waste Cloth	2	kg		
				Materials Cost VIII-S/PW	₱
				Labor Cost VIII-S/PW	
				Subtotal VIII-S/PW	₱
VIII-EW	Electrical Works				
EW01	Pipes				
EW0101	20mmØ PVC Pipe	10	piece	₱	₱
EW0111	20mmØ IMC Pipe	1	piece		
EW05	Fittings and Accessories				
EW05001	20mmØ PVC Elbow	12	piece		
EW05010	20mmØ PVC Adaptor	6	piece		
EW05022	20mmØ PVC Locknut and Bushing	6	pair		
EW05032	20mmØ IMC Elbow	1	piece		
EW05042	20mmØ IMC Locknut and Bushing	1	pair		
EW05052	20mmØ IMC Coupling	1	piece		
EW05154	20mmØ Weatherproof Entrance Cap	1	piece		
EW05138	22mm² Ø Solderless Connector	2	piece		
EW06	Boxes and Fabricated Pullbox				
EW0601	50mm x 100mm PVC Utility Box	1	piece		
EW09	Wires and Cables				
EW0901	THHN Wires				
EW090102b	3.5mm² THHN Wire	20	l.m.		
EW090103b	5.5mm² THHN Wire	86	l.m.		
EW0903	TW Wires				
EW090302b	3.5mm² TW Wire	33	l.m.		
EW10	Wiring Devices and Other Fixtures				
EW1002	Convenience Outlet with Grounding, Two-Gang	1	piece		
EW12	Grounding System				
EW1201	16mm Ø x 3000mm Grounding Rod (Copper Clad) with Ground	1	set		
EW13	Panel Board				
ASSY	LPP	1	assy		
2282	Main: 30AT, 2P				
1443	Branches: 4- 30 AT, 2P, Bolt-On				
3210	Enclosure: NEMA 3R Enclosure				
EW1303	Enclosed Circuit Breaker (ECB)				
EW130304	30AT, 2P , Bolt-On	2	assy		
EW16	Pipe Hangers and Supports				
EW1601	Horizontal Layout of Pipe	15	l.m.		

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
MC	Miscellaneous and Consumables				
MC/G37	G.I. Tie Wire, Ga.16 (for Wire / Cable Pulling)	2	kg		
MC/E01	Electrical Tape	2	roll		
				Materials Cost VIII-EW	₱
				Labor Cost VIII-EW	
				Subtotal VIII-EW	₱

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
				MATERIALS COST VIII	₱
				LABOR COST VIII	
				DIRECT COST VIII	₱
IX	**GREENHOUSE WITH HYDROPONIC TOWER**				
IX-SW	Site Works				
SW01	Layout and Staking	26	sq.m.	₱	₱
SW02	Site Clearing and Preparation	26	sq.m.		
				Subtotal IX-SW (Labor)	₱
IX-CWS	Civil / Structural Works				
CWSME	Metal Works				
CWSME0710	20mm Ø G.I. Pipe	17	kg	₱	₱
CWSPRW0202	Plain Sheet 0.30mm with Connection Accessories (Any Color)	2	sq.m.		
CWSME0703	25mm x 25mm x 6mm Thick Angle Bar	66	kg		
CWSME0710	50mm Ø G.I. Pipe Sch. 40	53	kg		
CWSME0710	19mm Ø G.I. Pipe Sch. 40	79	kg		
MC	Miscellaneous and Consumables				
MC/G	(Common Items)				
MC/G05	Grinding Disc, 4"	5	piece		
MC/G06	Hacksaw Blade	3	piece		
MC/G19	Acetylene Tank (Refill)	2	tank		
MC/G23	Cut off Blade / Wheel	3	piece		
MC/G24	Cutting Disc, 14"	3	piece		
MC/G26	Drill Bit, 20mm Ø (Concrete)	3	piece		
MC/G29	Oxygen Tank (Refill)	2	tank		
MC/G36	Welding Rod (Steel)	3	kg		
				Materials Cost IX-CWS	₱
				Labor Cost IX-CWS	
				Subtotal IX-CWS	₱
IX-AW	Architectural Works				
AW03	Wall Finishes				
AW0342	Super-fine Net 24 x 24 Mesh	92	sq.m.	₱	₱
AWP	Painting Works				
AWP0106	Epoxy Enamel Paint Finish (Steel Member - 3 Coats)	9	sq.m.		
				Materials Cost IX-AW	₱
				Labor Cost IX-AW	
				Subtotal IX-AW	₱

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
AW01	Fabricated Materials				
AWD01	Installation of Doors				
AWD0326	Barn Door Mechanism	1	set	₱	₱
AWD0310	Door Hinges, 3" x 3" (Butt Hinge)	3	piece		
				Materials Cost AW01	₱
				Labor Cost AW01	
				Subtotal AW01	₱

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
				Materials Cost III-AW	₱
				Labor Cost III-AW	
				Subtotal III-AW	₱
IX-S/PW	Sanitary/ Plumbing Works				
S/PW01	Sewer Line / Storm Drainage System				
S/PW0101	Roughing-Ins				
S/PW010105	150mm Ø, PVC Pipe with Hub	68	piece	₱	₱
S/PW010104	100mm Ø, PVC Pipe with Hub	10	piece		
S/PW010117	150mmØ 1/4 Bend	40	piece		
S/PW010116	100mm Ø, 1/4 Bend	10	piece		
S/PW010151	75mmØ x 50mmØ Reducer	20	piece		
S/PW010171	150mmØ x 50mmØ Tee	6	piece		
S/PW010170	100mmØ x 100mmØ Tee	40	piece		
S/PW09	Blue uPVC				
S/PW090101	50mmØ , Blue uPVC Pipe with Hub	69	piece		
S/PW090120	13mmØ, Blue uPVC Pipe with Hub	12	piece		
S/PW090122	13mmØ Tee Equal, Blue uPVC	25	piece		
S/PW090126	50mmØ 90° Elbow, Blue uPVC Pipe	40	piece		
S/PW090127	25mmØ Blue uPVC Male Adaptor	20	piece		
S/PW090128	25mmØ Blue uPVC Female Adaptor	20	piece		
S/PW090129	50mmØ Blue uPVC Cleanout	40	piece		
S/PW090130	50mmØ Tee Equal, Blue uPVC	40	piece		
S/PW090131	25mmØ , Blue uPVC Pipe with Hub	12	piece		
S/PW090132	25mmØ Tee Equal, Blue uPVC	5	piece		
S/PW090133	25mmØ 90° Elbow, Blue uPVC Pipe	25	piece		
S/PW090134	25mmØ x 13mmØ Unequal Tee, Blue uPVC Pipe	20	piece		
S/PW0202	Valves and Appurtenances				
S/PW020246	25mmØ Ball Valve	16	piece		
S/PW020245	13mmØ Ball Valve	12	piece		
S/PW020210	25mmØ Check Valve	2	piece		
S/PW080201	PUMPS - 220VAC/1-PHASE (including installation)				
S/PW080201f	100W	2	unit		
MC	Miscellaneous and Consumables				
MC/G	(Common Items)				
MC/G14	Solvent Cement, 400cc	10	can		
MC/G15	Teflon Tape	15	roll		
MC/G18	Waste Cloth	2	kg		
				Materials Cost IX-S/PW	₱
				Labor Cost IX-S/PW	
				Subtotal IX-S/PW	₱
IX-EW	Electrical Works				

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
EW01	Pipes				
EW0101	20mmØ PVC Pipe	10	piece	₱	₱
EW0111	20mmØ IMC Pipe	1	piece		
EW05	Fittings and Accessories				
EW05001	20mmØ PVC Elbow	12	piece		
EW05010	20mmØ PVC Adaptor	6	piece		

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
EW05022	20mmØ PVC Locknut and Bushing	6	pair		
EW05032	20mmØ IMC Elbow	1	piece		
EW05042	20mmØ IMC Locknut and Bushing	1	pair		
EW05052	20mmØ IMC Coupling	1	piece		
EW05154	20mmØ Weatherproof Entrance Cap	1	piece		
EW05138	22mm² Ø Solderless Connector	2	piece		
EW06	Boxes and Fabricated Pullbox				
EW0601	50mm x 100mm PVC Utility Box	1	piece		
EW09	Wires and Cables				
EW0901	THHN Wires				
EW090102b	3.5mm² THHN Wire	20	l.m.		
EW090103b	5.5mm² THHN Wire	86	l.m.		
EW0903	TW Wires				
EW090302b	3.5mm² TW Wire	33	l.m.		
EW10	Wiring Devices and Other Fixtures				
EW1002	Convenience Outlet with Grounding, Two-Gang	1	piece		
EW12	Grounding System				
EW1201	16mm Ø x 3000mm Grounding Rod (Copper Clad) with Ground	1	set		
EW13	Panel Board				
ASSY	LPP	1	assy		
2282 1443 3210	Main: 30AT, 2P Branches: 4- 30 AT, 2P, Bolt-On Enclosure: NEMA 3R Enclosure				
EW1303	Enclosed Circuit Breaker (ECB)				
EW130304	30AT, 2P , Bolt-On	2	assy		
EW16	Pipe Hangers and Supports				
EW1601	Horizontal Layout of Pipe	15	l.m.		
MC	Miscellaneous and Consumables				
MC/G37	G.I. Tie Wire, Ga.16 (for Wire / Cable Pulling)	2	kg		
MC/E01	Electrical Tape	2	roll		
				Materials Cost IX-EW	₱
				Labor Cost IX-EW	
				Subtotal IX-EW	₱
				MATERIALS COST IX	₱
				LABOR COST IX	
				DIRECT COST IX	₱
X	**B-9b POND**				
X-SW	Site Works				
SW01	Layout and Staking	15	sq.m.	₱	₱
SW02	Site Clearing and Preparation	15	sq.m.		
106	Excavation for Structures	14	cu.m.		

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
		Subtotal X-SW (Labor Cost)			₱
X-CWS	Civil / Structural Works				
CWSC	Concrete Works				
CWSCO	Site Mix Concrete, 21MPa, 3/4" Gravel @ 28 days				

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
CWSCO04	Slab on Fill	1	cu.m.	₱	₱
CWSRB	Reinforcing Steel Bars				
CWSRB40	Grade 40 Reinforcing Steel Bar including G.I. Tie Wire # 16				
CWSRB4001	10mm Ø Wall	7	kg		
CWSRB4001	10mm Ø Slab on Fill	78	kg		
CWSF	Formworks				
CWSF03	Column/Pedestal	3	sq.m.		
CWSMP	Moisture Protection				
CWSMPW	Waterproofing Works				
CWSMPW04	Tank Lining Food Grade (for Reservoir)	16	sq.m.		
CWSMA	Masonry Works				
CWSMA04	150mm CHB Wall Laying, including Mortar, Reinforcement and Two-Face Plastering	17	sq.m.		
				Materials Cost X-CWS	₱
				Labor Cost X-CWS	
				Subtotal X-CWS	₱
X-S/PW	Sanitary/ Plumbing Works				
S/PW09	Blue uPVC				
S/PW090101	50mmØ , Blue uPVC Pipe with Hub	5	piece	₱	₱
S/PW090126	50mmØ 90° Elbow, Blue uPVC Pipe	5	piece		
S/PW0202	Valves and Appurtenances				
S/PW020205	50mmØ Gate Valve	1	piece		
S/PW080201	PUMPS - 220VAC/1-PHASE (including installation)				
S/PW080201f	100W	2	unit		
MC	Miscellaneous and Consumables				
MC/G	Common Items				
MC/G14	Solvent Cement, 400cc	3	can		
MC/G15	Teflon Tape	1	roll		
MC/G18	Waste Cloth	2	kg		
				Materials Cost X-CWS	₱
				Labor Cost X-CWS	
				Subtotal X-CWS	₱
X-EW	Electrical Works				
EW01	Pipes				
EW0101	20mmØ PVC Pipe	10	piece	₱	₱
EW05	Fittings and Accessories				
EW05001	20mmØ PVC Elbow	4	piece		
EW05010	20mmØ PVC Adaptor	4	piece		
EW05022	20mmØ PVC Locknut and Bushing	4	pair		
EW09	Wires and Cables				
EW0901	THHN Wires				
EW090102b	3.5mm² THHN Wire	65	l.m.		

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
EW0903	TW Wires				
EW090302b	3.5mm² TW Wire	30	l.m.		
EW1303	Enclosed Circuit Breaker (ECB)				
EW130304	30AT, 2P , Bolt-On	2	assy		
EW16	Pipe Hangers and Supports				
EW1601	Horizontal Layout of Pipe	15	l.m.		

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
MC	Miscellaneous and Consumables				
MC/G37	G.I. Tie Wire, Ga.16 (for Wire / Cable Pulling)	1	kg		
MC/E01	Electrical Tape	1	roll		
				Materials Cost X-EW	₱
				Labor Cost X-EW	
				Subtotal X-EW	₱
				MATERIALS COST X	**₱**
				LABOR COST X	
				DIRECT COST X	**₱**
XI	**PERIPHERAL GATE AND FENCE**				
XI-SW	Site Works				
106	Excavation for Structures	26	cu.m.	₱	₱
SW01	Layout and Staking	618	sq.m.		
SW02	Site Clearing and Preparation	618	sq.m.		
				Subtotal XI-SW (Labor)	₱
XI-CWS	Civil / Structural Works				
CWSC	Concrete Works				
CWSCO	On-Site Mix Concrete, (21MPa, 3/4" Gravel @ 28 days)				
CWSCO04	Concrete Footing	4	cu.m.		
CWSCO04	Concrete Post	2	cu.m.		
CWSCR1	Ready Mix Concrete (21MPa, 3/4" Gravel @ 28 days; Pumpcrete Design)				
CWSCR104	Column Footing	17	cu.m.		
CWSCR104	Column	13	cu.m.		
CWSRB	Reinforcing Steel Bar including G.I. Tie Wire # 16				
CWSRB40	Grade 40 Reinforcing Steel Bar including G.I. Tie Wire # 16				
CWSRB4001	10mm Ø Column	777	kg		
CWSRB4001	10mm Ø Concrete Post	127	kg		
CWSRB4002	12mm Ø Column Footing	466	kg		
CWSRB4002	12mm Ø Column	1,119	kg		
CWSRB4002	12mm Ø Concrete Footing	30	kg		
CWSRB4002	12mm Ø Concrete Post	53	kg		
CWSRB 60	Grade 60 Reinforcing Steel Bar including G.I. Tie Wire # 16				
CWSRB 6001	16mm Ø Column	1,024	kg		
CWSF	Formworks and Shoring				
CWSF03	Column	276	sq.m.		
CWSF03	Concrete Post	16	sq.m.		
CWSME	Metal Works				
CWSME0830	Barbed Wire in Steel Framing	620	l.m.		
CWSME0714	25mm x 25mm x 2mm Tubular Bar	60	kg		
CWSME0714	75mm x 75mm x 2mm Tubular Bar	161	kg		

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
CWSME0709	25mm Flat Bar	2,226	kg		
MC	Miscellaneous and Consumables				
MC/G	(Common Items)				
MC/G05	Grinding Disc, 4"	3	piece		
MC/G06	Hacksaw Blade	3	piece		
MC/G18	Waste Cloth	3	kg		
MC/G19	Acetylene Tank (Refill)	2	tank		

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
MC/G23	Cut off Blade / Wheel	5	piece		
MC/G26	Drill Bit, 20mm Ø (concrete)	3	piece		
MC/G29	Oxygen Tank (Refill)	2	tank		
MC/G36	Welding Rod (for Steel)	2	kg		
				Materials Cost XI-CWS	₱
				Labor Cost XI-CWS	
				SubtotalXI-CWS	₱
XI-AW	Architectural Works				
AWCM04	Wire Mesh / Screens				
AWCM0404	Welded Wire Mesh, 2" x 2" x 3mm Thick.	651	sq.m.	₱	₱
AWP	Painting Works				
AWP0106	Epoxy Enamel Paint Finish (Steel Member - 3 Coats)	26	sq.m.		
				Materials Cost XI-AW	₱
				Labor Cost XI-AW	
				Subtotal XI-AW	₱
				MATERIALS COST XI	₱
				LABOR COST XI	
				DIRECT COST XI	₱
XII	**CONCRETE PAVEMENT**				
XII-SW	Site Works				
106	Roadway Excavation	42	cu.m.	₱	₱
SW01	Layout and Staking	263	sq.m.		
SW02	Site Clearing and Preparation	263	sq.m.		
				Subtotal XII-SW (Labor)	₱
XII-CWS	Civil / Structural Works				
CWSE	Earthworks				
CWSE01	Gravel Bedding	139	cu.m.	₱	₱
CWSPCCP	Portland Cement Concrete Pavement				
316g	P.C.C.P.,0.15m. Thick., 550 F, 28 days	277	sq.m.		
				Materials Cost XII-CWS	₱
				Labor Cost XII-CWS	
				Subtotal XII-CWS	₱
				MATERIALS COST XII	₱
				LABOR COST XII	
				DIRECT COST XII	₱

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
XIII	**WATER HARVESTING FACILITY**				
XIII-SW	Site Works				
SW01	Layout and Staking	2	sq.m.	₱	₱
SW02	Site Clearing and Preparation	2	sq.m.		
				Subtotal XIII-SW	₱

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
XIII-CWS	Civil / Structural Works				
CWSC	Concrete Works				
CWSCO	Site Mix Concrete, 21MPa, 3/4" Gravel @ 28 days				
CWSCO04	Slab on Fill	1	cu.m.	₱	₱
CWSRB	Reinforcing Steel Bars				
CWSRB40	Grade 40 Reinforcing Steel Bar including G.I. Tie Wire # 16				
CWSRB4001	10mm Ø Slab on Fill	2	kg		
CWSRB4002	12mm Ø Slab on Fill	2	kg		
CWSMA	Masonry Works				
CWSMA04	150mm CHB Wall Laying, including Mortar, Reinforcement and Two-Face Plastering	17	sq.m.		
CWSPRW	Roofing Works				
CWSPRW0601	Stainless Roof Gutter (0.40mm x 24")	2	l.m.		
				Materials Cost XIII-CWS	₱
				Labor Cost XIII-CWS	
				Subtotal XIII-CWS	₱
XIII-S/PW	Sanitary/ Plumbing Works				
S/PW01	Sewer Line / Storm Drainage System				
S/PW0101	Roughing-Ins				
S/PW010103	75mm Ø, PVC Pipe with Hub	19	piece	₱	₱
S/PW0811	Water Tank				
S/PW081103	IBC Tank, 1000 L	5	unit		
MC	Miscellaneous and Consumables				
MC/G	Common Items				
MC/G14	Solvent Cement, 400cc	2	can		
MC/G18	Waste Cloth	2	kg		
				Materials Cost XIII-S/PW	₱
				Labor Cost XIII-S/PW	
				Subtotal XIII-S/PW	₱
				MATERIALS COST XIII	₱
				LABOR COST XIII	
				DIRECT COST XIII	₱
XIV	**Utility and Ancillary Works**				
UT0104	Distribution Post				
UT010401	Distribution Post (0.40m x 0.40m x 6.0m)	6	unit	₱	₱
				MATERIALS COST XIV	₱
				LABOR COST XIV	
				DIRECT COST XIV	₱

ITEM CODE	WORK DESCRIPTION & SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST

SUMMARY

ITEM CODE	WORK DESCRIPTION AND SCOPE OF WORKS	AMOUNT
OGR	OTHER GENERAL REQUIREMENTS	₱
	TOTAL ESTIMATED COST A	₱
GR	GENERAL REQUIREMENTS	₱
I	VERTICAL HYDROPONIC MODEL	
II	VERTICAL AQUAPONIC MODEL	
III	HOUSEHOLD HYDROPONIC MODEL FOR LEAFY VEGETABLES	
IV	COMMERCIAL HYDROPONIC MODEL	
V	KRATKY HYDROPONICS SYSTEM	
VI	TERRARIUM VEGETABLE BOX	
VII	FIELD OFFICE	
VIII	GABLE ROOF GREENHOUSE WITH AQUAPONICS SYSTEM	
IX	GREENHOUSE WITH HYDROPONIC TOWER	
X	B-9b POND	
XI	PERIPHERAL GATE AND FENCE	
XII	CONCRETE PAVEMENT	
XIII	WATER HARVESTING FACILITY	
XIV	UTILITY AND ANCILLARY	

Note: Strictly enforce health protocol relative to the latest applicable DPWH Memorandum.	**TOTAL DIRECT COST B** Overhead, Contingencies and Miscellaneous Expenses (OCM) Profit	₱
	TOTAL ESTIMATED COST B	₱
	TOTAL ESTIMATED COST A TOTAL ESTIMATED COST B	₱
	TOTAL ESTIMATED COST	₱
	VAT	
	TOTAL APPROVED BUDGET FOR THE CONTRACT	₱

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 shee indicating the unit prices of construction materials, labor rates, and equipmen 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.

---

[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]

Omnibus Sworn Statement (Revised)

[shall be submitted with the Bid]

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

AFFIDAVIT

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

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

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

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

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

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

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

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

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

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

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

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

   [If a partnership or cooperative:] None of the officers and members of *[Name of Bidder]* is related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project

Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

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

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

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

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

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

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

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, 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	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 said 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