



Republika ng Pilipinas
Lungsod Quezon
BIDS AND AWARDS COMMITTEE FOR INFRASTRUCTURE & CONSULTANCY
2nd Floor, Finance Building, Procurement Department, Quezon City Hall Complex, Elliptical Road, Quezon City



REQUEST FOR QUOTATION / PROPOSAL
(Negotiated Procurement 53.9)

The Quezon City Government through its Bids and Awards Committee – Infra and Consultancy undertake an Small Value Procurement for the **PROPOSED REHABILITATION OF ELECTRICAL SYSTEM AT BAYANIHAN ELEMENTARY SCHOOL, Barangay Paltok, Quezon City (Project No. 21-004N)** in accordance with **Section 53.9 of the Revised Implementing Rules and Regulations of Republic Act No. 9184**.

Name of Project : **PROPOSED REHABILITATION OF ELECTRICAL SYSTEM AT BAYANIHAN ELEMENTARY SCHOOL, Barangay Paltok, Quezon City (Project No. 21-004N)**

Approved Budget: **NINE HUNDRED TWO THOUSAND EIGHT HUNDRED FORTY FIVE PESOS & 72/100 CTVS.**

for the Contract **(Php 902,845.72)**

Description : **Program of Work**

- I. General Requirements
- II. Site Works
- III. Civil Works / Structural Works
- IV. Electrical Works

Completion of the Works is required within **Thirty (30)** calendar days from receipt of Notice to Proceed.

Please see attached:
Detailed Proposal Form
Plan
Technical Specification

Please quote your best offer for the project/s described below, subject to the Terms and Conditions provided. Submit your proposal/price quotation duly signed by you or your duly authorized representative not later than **7 May 2021** on or before **1:00 P.M.**, Philippine Standard Time, together with the following documents:

1. PhilGEPS Platinum Certificate
2. DTI or SEC Registration Certificate
3. Mayor's Permit
4. Tax Clearance
5. PCAB License (Bidders with valid Philippine Contractors Accreditation Board (PCAB) Building-Small B)
6. Audited Financial Statements
7. Net Financial Contracting Capacity (NFCC)
8. Income/Business Tax Returns
9. Omnibus Sworn Statement prescribed by the Government Procurement Policy Board (GPPB) duly notarized with attached Secretary's Certificate (*If a partnership, corporation, cooperative, or joint venture*). The authorized representative as identified in the Omnibus Sworn Statement shall be the signatory in the proposal/price quotation form.

Opening of Quotations/Proposals will be on **7 May 2021** at exactly **2:00 P.M.**

in a **SEALED LONG BROWN ENVELOPE** shall:

1. Contain the Name of Project of the contract to be quoted in capital letters;
2. Bear the name and address of the Contractor in capital letters;
3. Be addressed to the Procuring Entity's BAC.

Name of Project: **Proposed Rehabilitation of Electrical System at Bayanihan Elementary School, Barangay Paltok, District 1, Quezon City (Project No. 21-004N)**

Quezon City Local Government
BIDS AND AWARDS COMMITTEE (INFRA & CONSULTANCY)
2/F Procurement Department, Finance Building
Quezon City Hall Compound

For any clarification you may contact us at 89884242 loc. 8505/8709.

ATTY. MARK DALE DIAMOND P. PERRAL
Chairman, BAC Infra and Consultancy

TERMS AND CONDITIONS

1. Contractor shall **provide correct and accurate** information required in this form.
2. Price quotation/proposal must be valid for a period of thirty (30) calendar days from the date of submission.
3. Price quotation/proposal, to be denominated in Philippine Peso shall include all taxes, duties and/or levies payable.
4. Quotation/Proposal **exceeding** the Approved Budget for the Contract (ABC) shall be **rejected**.
5. Award of contract shall be made to the lowest quotation/proposal (for infra) which complies with the minimum technical specifications and other terms and conditions stated herein.
6. Any interlineations, erasures or overwriting shall be valid only if they are signed or initialed by the contractor or his/her duly authorized representative/s.
7. The Engineering Department shall have the right to inspect and monitor the construction projects
8. Non-submission of eligibility documents shall mean disqualification of Quotation/Proposal.
9. Liquidated damages equivalent to one tenth (1/10) of one percent (1%) of the cost of the unperformed portion for every day of delay, Engineering Department shall rescind the contract once the cumulative amount of liquidated damages reaches ten percent (10%) of the amount of the contract, without prejudice to other courses of action and remedies open to it.
10. Failure to follow these instructions will disqualify your entire quotation/proposal.

ATTY. MARK DALE DIAMOND P. PERRAL
Chairman, BAC Infra and Consultancy

BILL OF QUANTITIES
(Building Construction/Rehabilitation Project)

PROJECT TITLE : PROPOSED REHABILITATION OF ELECTRICAL SYSTEM AT BAYANIHAN ELEMENTARY SCHOOL

LOCATION : BARANGAY PALTOK, DISTRICT 1, QUEZON CITY

PROJECT NO. : 21 - 004N

DURATION : Thirty (30) Calendar Days

SCOPE OF WORKS:

- 1 General Requirements including temporary facilities and utilities, billboard, scaffolding and construction safety and health equipment.
- 2 Excavation for earth pit for electrical grounding system
- 3 Hauling and disposal of construction debris
- 4 Civil works include concreting, reinforcements and formworks for earth pit for electrical grounding system
- 5 Roughing-ins and installation of pipelines, wiring, devices and fixtures.
- 6 Installation of Panel board and upgrading of service entrance
- 7 All necessary testing of materials and commissioning works must be performed as per standard procedure.

ITEM	WORK DESCRIPTION AND SCOPE OF WORKS	UNIT	QTY	UNIT COST	TOTAL COST
I	GENERAL REQUIREMENTS				
A	Temporary lighting & water facilities	days	30	₱	₱
B	Billboard	pc	1		
C	Construction Safety and Health	unit	1		
D	Scaffolding (Rental)	sq.m	20		
				Direct Cost I	₱
II	SITE WORKS				
	Excavation for Structures				
	Earth Pit for Electrical Grounding system	cu.m	1	₱	₱
	Hauling and Disposal of Construction Debris	t.l	1		
				Direct Cost II	₱
III	CIVIL WORKS / STRUCTURAL WORKS				
A	Concrete Works				
	On Site Mix Concrete				
	Earth Pit for Electrical Grounding system	cu.m	1	₱	₱
B	Reinforcing Steel Bars				
	Grade 40				
	Earth Pit for Electrical Grounding system	kg	12		
	G.I. Tie Wire	kg	1		
C	Formworks				
	Earth Pit for Electrical Grounding system	sq.m	2		
				Materials Cost III	₱

ITEM	WORK DESCRIPTION AND SCOPE OF WORKS	UNIT	QTY	UNIT COST	TOTAL COST
				Labor Cost III	
				Direct Cost III	P
IV	ELECTRICAL WORKS				
A	Rehabilitation of Mathay Building and Mathat Building Extension				
1	Roughing-ins				
	1/2" dia Flexible Tube	rolls	3		
	3/4"Ø PVC Moulding	pc	106		
	3/4"Ø x 3m PVC Pipe	pc	10		

ITEM	WORK DESCRIPTION AND SCOPE OF WORKS	UNIT	QTY	UNIT COST	TOTAL COST
2	Fittings and Accessories				
	3/8"Ø MicaTube	lm	50		
	Square Box with cover	box	20		
	Utility Box with cover	pcs	11		
	Pull Box, 8" x 8" x 6", Ga. 16	assy	1		
3	Wires and Cables				
	3.5mm² TW Wire	rolls	2		
	8.0mm² TW Wire	lm	15		
	22mm² TW Wire	lm	10		
	3.5mm² THHN Wire	rolls	5		
	14mm² THHN Wire	lm	20		
	30mm² THHN Wire	lm	10		
	60mm² THHN Wire	lm	20		
4	Wiring Devices				
	T8, 18w LED Tube light	pc	60		
	Emergency Light, Twinhead	pc	6		
	Outlet, One-gang, with Grounding	pc	8		
	Outlet, Two-gang, with Grounding	pc	5		
	Orbit Fan, Heavy duty	set	18		
	Selector Switch	pc	12		
	Wall Fan, Heavy duty	set	18		
5	Panelboard				
	MDP				
	Main: 175AT, 200AF, 2P, 240V, 10 KAIC, MCCB	assy	1		
	Branches: 3-60 AT, 100AF, 2P, 230V, 10 KAIC, MCCB				
	1-100 AT, 100AF, 2P, 230V, 10 KAIC, MCCB				
	Enclosure: NEMA 1 with Ground Terminals				
	LPP 1				
	Main: 100 AT, 100AF, 2P, 240V, 10 KAIC, MCCB	assy	1		
	Branches: 6-20 AT, 100AF, 2P, 230V, 10 KAIC, MCCB				
	4-30 AT, 100AF, 2P, 230V, 10 KAIC, MCCB				
	Enclosure: NEMA 1 with Ground Terminals				
6	Pipe Hangers & Supports				
	Malleable Iron Clamp 1/2"	pcs	200		
7	Miscellaneous & Consumables				
	All around Sealant	qrt	1		
	Concrete Nails, 3"	kg	1		
	Electrical Tape	pc	10		
	Hacksaw Blade	pc	4		
	Masking Tape	pc	2		
	Paint Brush	pc	4		
	Pulling Lubricant	can	2		
	Rubber Tape	pc	2		

ITEM	WORK DESCRIPTION AND SCOPE OF WORKS	UNIT	QTY	UNIT COST	TOTAL COST
	Rugs	pc	5		
	Tie Wire, Ga.16	kg	1		
				Materials Cost A	₱
				Labor Cost A	
				Sub-Total A	₱

ITEM	WORK DESCRIPTION AND SCOPE OF WORKS	UNIT	QTY	UNIT COST	TOTAL COST
B	Upgrading of Main Electrical Service Entrance				
1	Roughing-ins				
	1 1/2"Ø x 3m PVC Pipe	pc	14		
	1 1/2"Ø x 3m IMC Pipe	pc	2		
2	Fittings and Accessories				
	1 1/2"Ø PVC Adaptor	pc	2		
	1 1/2"Ø PVC Locknut & Bushing	pair	4		
	1 1/2"Ø PVC Elbow	pc	1		
	1 1/2"Ø IMC Locknut & Bushing	pair	4		
	1 1/2"Ø IMC Coupling	pc	2		
	1 1/2"Ø IMC Elbow	pc	1		
	1 1/2"Ø Weatherproof Entrance Cap	pc	1		
3	Wires and Cables				
	22mm² TW Wire	lm	50		
	60mm² THHN Wire	lm	100		
5	Panelboard				
	MCB				
	Main: 175AT, 200AF, 2P, 240V, 10 KAIC, MCCB	assy	1		
	Enclosure: NEMA 3R with Ground Terminals				
6	Pipe Hangers & Supports				
	60mm² Ø Solderless Connector w/ Two-bolt	pcs	2		
	20mm Ø x 3000mm Grounding Rod w/ Ground Clamp	set	1		
	Malleable Iron Clamp 1 1/2"	pcs	20		
	Secondary Rack, Two Spool Insulators, Heavy duty BETA	assy	2		
7	Miscellaneous & Consumables				
	Electrical Tape	pc	10		
	Hacksaw Blade	pc	4		
				Materials Cost B	₱
				Labor Cost B	
				Sub-Total B	₱
				Direct Cost IV	₱
TOTAL DIRECT COST Overhead, Contingencies, and Miscellaneous Expenses (OCM) PROFIT VAT					₱
TOTAL ESTIMATED COST					₱

Omnibus Sworn Statement (Revised)

[shall be submitted with the Bid]

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

AFFIDAVIT

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

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

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

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

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

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

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

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

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

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

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

[If a sole proprietorship:] The owner or sole proprietor is not related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical

Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

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

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

7. *[Name of Bidder]* complies with existing labor laws and standards; and
8. *[Name of Bidder]* is aware of and has undertaken the responsibilities as a Bidder in compliance with the Philippine Bidding Documents, which includes:
 - a. Carefully examining all of the Bidding Documents;
 - b. Acknowledging all conditions, local or otherwise, affecting the implementation of the Contract;
 - c. Making an estimate of the facilities available and needed for the contract to be bid, if any; and
 - d. Inquiring or securing Supplemental/Bid Bulletin(s) issued for the *[Name of the Project]*.
9. *[Name of Bidder]* did not give or pay directly or indirectly, any commission, amount, fee, or any form of consideration, pecuniary or otherwise, to any person or official, personnel or representative of the government in relation to any procurement project or activity.
10. **In case advance payment was made or given, failure to perform or deliver any of the obligations and undertakings in the contract shall be sufficient grounds to constitute criminal liability for Swindling (Estafa) or the commission of fraud with unfaithfulness or abuse of confidence through misappropriating or converting any payment received by a person or entity under an obligation involving the duty to deliver certain goods or services, to the prejudice of the public and the government of the Philippines pursuant to Article 315 of Act No. 3815 s. 1930, as amended, or the Revised Penal Code.**

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

[Insert NAME OF BIDDER OR ITS AUTHORIZED REPRESENTATIVE]

[Insert signatory's legal capacity]

Affiant

[Jurat]

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



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 REHABILITATION OF ELECTRICAL SYSTEM AT BAYANIHAN ELEMENTARY SCHOOL

LOCATION: BARANGAY PALTOK, DISTRICT 1, QUEZON CITY

21-004N


LIST OF EQUIPMENT

NO	EQUIPMENT	QTY
1	Scaffolding	1
2	Power Tools	2
3	Minor Tools	5
4	Welding Machine	1
5	Insulation Resistance Tester	1
6	Cut Off Machine	1
7	Elf Truck	1

Prepared by:


STEPHANIE B. OVIEDO
Planning & Programming Division

Checked by:


SO A. CHAN, JR.
Planning & Programming Division



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




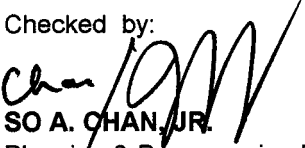
PROJECT TITLE: PROPOSED REHABILITATION OF ELECTRICAL SYSTEM AT BAYANIHAN ELEMENTARY SCHOOL
LOCATION: BARANGAY PALTOK, DISTRICT 1, QUEZON CITY

21-004N

LIST OF PERSONNEL

NO	PERSONNEL	QTY
1	Project Engineer	1
2	Materials Engineer	1
3	Foreman	1
4	Skilled Worker	2
5	Driver	1
6	Laborer/Helper	5

Prepared by:

STEPHANIE D. OVIEDO
Planning & Programming Division

Checked by:

SO A. CHAN, JR.
Planning & Programming Division



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



NAME OF THE PROJECT: **PROPOSED REHABILITATION OF ELECTRICAL SYSTEM OF BAYANIHAN ELEMENTARY SCHOOL**

LOCATION: **BARANGAY PALTOK, DISTRICT 1, QUEZON CITY**

21 - 004N

TECHNICAL SPECIFICATIONS

PART 1 – GENERAL

1.1 GENERAL REQUIREMENTS

These supplemental items consist of temporary lighting & water facilities, billboard, construction safety net and health. Personnel Protective Equipment (PPE) should be used by the construction personnel or manpower at all times.

1.2 SITE WORKS

This item consists of disposal of material that has been and replaced.

1.3 REFERENCE

The publications listed below form a part of his specification to the extent referenced. the publications are referred to in the text by the basic designation only.

1.3.1 American Society for Testing and Materials (ASTM)

- ASTM A123/A123M (2000) Zinc (Hot-dip Galvanized) Coatings On Iron and Steel Products
- ASTM B1 (1995) Hard – Drawn Copper Wire
- ASTM BB (1999) Concentric-Lay-Stranded Copper Conductor, Hard, Medium – Hard or Soft

1.3.2 National Electrical Manufacturers Association (NEMA)

- NEMA C80.3 (1994) Electrical Metallic Tubing – zinc Coated (EMT)
- NEMA c57.12.28 (1999) Pad mounted equipment-Enclosure Integrity
- NEMA TC 2 (1998) Electrical Polyvinyl Chloride (PVC) Tubing (EPT) and Conduit (EPC- 40)
- NEMA TC3 (1999) PVC Fittings for Use with Rigid PVC Conduit ant Tubing
- NEMA WD 1 (1999) General requirements for Wiring Devices

1.3.3 National Fire Protection Association (NFPA)

- NFPA 70 (2002) National Electrical Code

1.3.4 Underwriters Laboratories Inc. (UL)

UL 1242	(1996; Mar 1998) Intermediate Metal Conduit
UL 467	(1993; Rev Apr 1999) Grounding & Bonding Equipment
UL 486A	(1997; Rev Dec 1998) Wire Connection & Soldering Legs for Use with Copper Conductors
UL 486C	(1997; Rev Aug 1998) Splicing Wire Connectors
UL 489	(1996; Rev thru Dec 1998) Molded-Case Circuit Breakers
UL 50	(1995; R 1999, Bul. 1999) Safety Enclosures for Electrical Equipment
UL510	(1994; R Apr 1998) Poly Vinyl Chloride Polyethylene & Rubber Insulating Tape
UL 514A	(1996; Rev Dec 1999) Metallic Outlet Boxes
UL 797	(1993; R1997) Electrical Metallic Tubing
UL 83	(1998; R 1999, Bul. 1999 & 2000) Thermoplastic-Insulated Wires & Cables
UL 869A	(1998) Service Equipment

21 - 004N

1.3.5 Institute of Integrated Electrical Engineer (IIEE)

PEC	(2017) Philippine Electrical Code
-----	-----------------------------------

1.3.6 Philippine National Standard (PNS)

BS	(2002) Bureau of Standard
----	---------------------------

1.4 SUBMITTALS

Submit the following:

1.4.1 Shop Drawings

Panelboards

1.4.2 Product Data

Receptacles
Circuit breakers
Switches
Enclosed Circuit breakers

1.4.3 Test Reports

Insulation Resistance & Continuity test
Grounding system test

1.5 MAINTENANCE**1.5.1 Electrical Systems****21 - 004N**

Submit operation and maintenance manuals for electrical systems that provide basic data relating to the design, operation, and maintenance of the electrical distribution system for the building.

This shall include:

- a. Single line diagram of the "as-built" building electrical system.
- b. Manufacturers' operating and maintenance manuals on active electrical equipment.

PART 2 – PRODUCTS**2.1 MATERIALS AND EQUIPMENT**

Materials, equipment, and devices shall, as a minimum, meet requirements of UL, where UL standards are established for those items, and requirements of NFPA 70 and PEC.

2.2 CONDUIT AND FITTINGS

Shall conform to the following:

2.2.1 Rigid Nonmetallic Conduit

PVC Type EPC-40, in accordance with NEMA TC 2 and UL 651.

2.2.2 Intermediate Metal Conduit (IMC)

UL 1242, zinc-coated steel only.

2.2.3 Fittings for IMC threaded-type, Split couplings unacceptable.**2.2.4 Fittings for Rigid Nonmetallic Conduit**

NEMA TC 3.

2.3 WIRE AND CABLES

Wires and cables shall meet applicable requirements of NFPA 70, PEC and PNS and UL for type of Insulation, jacket, and conductor specified or indicated. Wires and cables manufactured more than 12 months prior to date of delivery shall not be used.

2.3.1 Conductors, shall be stranded unless specifically indicated otherwise. Conductor sizes and ampacities shown are based on copper, unless indicated otherwise. All conductors shall be copper.

2.3.1.1 Equipment Manufacturer Requirements

When manufacturer's equipment requires copper conductors at the terminations or requires copper conductors to be provided between components, of equipment, provide copper conductors or splices, splice boxes, and other work required to satisfy manufacturer's requirements.

2.3.2 Color Coding

21 - 004 N

Provide for service, feeder, branch, control, and signalling circuit conductors. Color shall be green for grounding conductors. Color of ungrounded conductors in different voltage systems shall be as follows;

- a. 240 volt, single phase: black and red

2.3.3 Insulation

Unless specified or indicated otherwise or required by NFPA 70, PEC and PNS, power and lighting wires shall be 600-volt. Type THW or THHN conforming to UL 83 except that grounding wire may be type TW conforming to UL 83, Where lighting fixtures require 90-degree Centigrade (C) conductors, provide only conductors with 90-degree C insulation or better.

2.3.4 Bonding Conductors

ASTM B1, Solid bare copper wire for sizes 8mm² and smaller diameter, ASTM B8, Class B, stranded bare copper wire for sizes 14mm² and larger diameter.

2.4 SPLICES AND TERMINATION COMPONENTS

UL 486A for wire connectors and UL 510 for Insulating tapes, Connectors for 5.5 mm² and smaller diameter wires shall be insulated, pressure-type in accordance with UL 486A or UL 486C (twist-on splicing connector). Provide solderless terminal lugs on stranded conductors.

2.5 PANELBOARDS

UL 67 and UL 50 having a short-circuit current rating of 10,000 amperes symmetrical minimum, Panelboards for use as service disconnecting means shall additionally conform to UL 869A, Panelboards shall be circuit breaker-equipped. Design shall be such that individual breakers can be removed without disturbing adjacent units or without loosening or removing supplemental insulation supplied as means of obtaining clearances as required by UL "Specific breaker placement" is required in panelboards to match the breaker placement indicated in the panelboard schedule on the drawings, Use of *Subfeed Breakers* is not acceptable unless specifically indicated otherwise, Main breaker shall be *Separated* mounted *above* branch breakers, Circuit breakers shall be bolt-on type, Where *space only* is indicated, make provisions for future installation of breakers. Panelboard locks shall be keyed same. Directories shall indicate load served by each circuit in panelboard, Directories shall also indicate source of service to panelboard (e.g. Panel PA served from Panel MDP), Type directories and mount in holder behind

transparent protective covering. Panel boards shall be listed and labelled for their intended use, Enclosure shall be galvanized steel gauge 14. Paint coating system shall comply with NEMA C57.12.28 for galvanized steel.

2.5.1 Panelboard Buses

Support copper bus bars on bases independent of circuit breakers. Main buses and back pans shall be designed so that breakers may be changed without machining, drilling, or tapping. Provide separate ground bus identified as equipment grounding bus per UL 67 for connecting conducting bus per UL 67 form connecting grounding conductors, bond steel cabinet.

21 - 004N

2.5.2 Circuit Breakers

UL 489, thermal magnetic-type having a minimum short-circuit current rating equal to the short-circuit current rating of the panel board in which the circuit breaker shall be mounted. Breaker terminals shall be UL listed as suitable for type of conductor provided. Series rated circuit breakers and plug-in circuit breakers without a self-contained bracket and not secured by a positive locking device requiring mechanical release for removal are unacceptable. Series rated circuit breakers and plug-in circuit breakers are unacceptable.

2.5.2.1 Multipole Breakers

Provide common trip-type with single operating handle. Breaker design shall be such that overload in one pole automatically causes all poles to open. Maintain phase sequence throughout each panel so that three adjacent breaker poles are connected to Phases A, B, and C, respectively.

2.6 ENCLOSED CIRCUIT BREAKERS

UL 489, Individual moulded case circuit breakers with voltage and continuous current ratings, number of poles, overload trip setting, and short circuit current interrupting rating as indicated. Enclosure type as indicated.

2.7 GROUNDING AND BONDING EQUIPMENT

UL 467, Ground rods shall be copper-clad steel, with minimum diameter of 20 mm and minimum length of 3050 mm.

PART 3 – EXECUTION

3.1 INSTALLATION

Electrical installations shall conform to requirements of NFPA 70 and PEC and to requirements specified herein.

3.1.1 Wiring Methods

Provide insulated conductors installed in IMC, and rigid non-metallic conduit except where specifically indicated or specified otherwise or required by NFPA 70 and PEC to be installed. Otherwise, provide insulated green equipment grounding conductor for circuit(S) installed in conduit and raceways. Minimum conduit size shall be 15mm nominal inside diameter for low voltage lighting and power circuits.

3.1.1.2 Non-metallic Conduit

a. Restrictions applicable to PVC Schedule 40

(1) Do not use in areas where subject to severe physical damage

(2) Do not use above grade

21 - 004N

3.1.1.3 Service Entrance Conduit, Underground

PVC, type-EPC 40, underground portion shall be encased in minimum of 75 mm of concrete and shall be installed minimum 460 mm below slab or grade.

3.1.2 Conduit Installation

Unless indicated otherwise, conceal conduit under floor slabs and within finished walls, ceilings, and floors, install conduit parallel with or at right angles to ceilings, walls, and structural members where located above accessible ceilings and where conduit will be visible after completion of project.

3.1.2.1 Conduit through Floor Slabs

Where conduits rise through floor slabs. Curved portion of bends shall not be visible above finished slab.

3.1.2.2 Conduit Support

Support conduit by pipe straps, wall brackets, hangers, or ceiling trapeze. Fasten by concrete inserts or expansion bolts on concrete and by machine screws, welded threaded studs, or spring-tension clamps on steel work. Threaded C-Clamps may be used on IMC conduit only. Do not weld conduits of pipe straps to steel structures, Load applied to fasteners shall not exceed one-fourth proof test load. Fasteners attached to concrete ceiling shall be vibration resistant and shock-resistant. Holes cut to depth of more than 40 mm in reinforced concrete beams or to depth of more than 20 mm in concrete joints shall not cut main reinforcing bars. Fill unused holes. In partitions of light steel construction, use sheet metal screws. In suspended-ceiling construction, run conduit above ceiling. Do not support conduit by ceiling support system. Conduit and box systems shall be supported independently of both (a) tie wires supporting ceiling grid system, and (b) ceiling grid system into which ceiling panels are placed. Supporting means shall not be shared between electrical raceways and mechanical piping or ducts. Installation shall be coordinated with above-ceiling mechanical systems to assure maximum accessibility to all systems. Spring-steel fasteners may be used for lighting branch circuit conduit supports in suspended ceilings in dry locations.

3.1.2.3 Directional Changes in Conduit Runs

Make Changes in direction of runs with symmetrical bends or cast-metal fittings. Make field-made bends and offsets with hickey or conduit-bending machine. Do not install crushed or deformed conduits. Avoid trapped conduits. Prevent plaster, dirt, or trash

from lodging in conduits, boxes, fittings, and equipment during construction. Free clogged conduits of obstructions.

3.1.2.4 Pull Wire

21 - 004N

Install pull wires in empty conduits, Pull wire shall be plastic having minimum 890-N tensile strength. Leave minimum 915 mm of slack at each end of pull wire.

3.1.2.5 Conduit Installed in Concrete Floor Slabs

Locate so as not to adversely affect structural strength of slabs. Install conduit within middle one-third of concrete slab. Do not stack conduits. Space conduits horizontally not closer than three diameters, except at cabinet locations. Curved portions of bends shall not be visible above finish slab. Increase slab thickness as necessary to provide minimum 25 mm cover over conduit. Where embedded conduits cross building and/or expansion joints, provide suitable watertight expansion/deflection fittings and bonding jumpers. Expansion/deflection fittings shall allow horizontal and vertical movements of raceway. Conduit larger than 22 mm trade size shall be parallel with or at right angles to main reinforcement, when at right angles to reinforcement, conduit shall be close to one of supports of slab.

3.1.2.6 Locknuts and Bushings

Fasten conduits to sheet metal boxes and cabinets with two locknuts where required by NFPA 70 and NEC where insulated bushings are used, and where bushings cannot be brought into firm contact with the box; otherwise, use at least minimum single locknut and bushing. Locknuts shall have sharp edges for digging into wall of metal enclosures. Install bushing on ends of conduits, and provide insulating type where required by NFPA 70 and NEC.

3.1.3 Boxes, Outlets, and Supports

Provide boxes in wiring and raceway systems wherever required for pulling of wires, making connections, and mounting of devices or fixtures. Boxes for metallic raceways shall be cast-metal, except that non-metallic boxes may be used with non-metallic conduit system. Each box shall have volume required by NFPA 70 and NEC for number of conductors enclosed in box. Boxes for mounting lighting fixtures shall be minimum 100 mm square, or octagonal, except that smaller boxes may be installed as required by fixture configurations, as approved. Provide separate boxes for flush or recessed fixtures when required by fixture terminal operating temperature; fixtures shall be readily removable for access to boxes unless ceiling access panels are provided. Support boxes and pendants for surface-mounted fixtures on suspended ceilings independently of ceiling supports, or make adequate provisions for distributing load over ceiling support members in an approved manner. Fasten boxes and supports with wood screws on wood. With bolts and expansion shields on concrete, with toggle bolts on hollow masonry units, and with machine screws or welded studs on steel.

3.1.4 Conductor Identification

Provide conductor identification within each enclosure where tap, splice, or termination is made. For conductor's 14mm² and smaller diameter, color coding shall be by factory applied, color-impregnated insulation. For conductors 22mm² and larger diameter, color coding shall be by plastic-coated, self-sticking markers, colored nylon cable ties and plates; or heat shrink-type sleeves.

3.1.5 Splices

21 - 004N

Make splices in accessible locations, make splices in conductors 5.5mm² and smaller diameter with insulated, pressure-type connector, make splices in conductors 22mm² and larger diameter with solderless connector, and cover with insulation material equipment to conductor insulation.

Seal openings around electrical penetrations through fire resistance-rated walls, partitions, floor, or ceilings.

3.1.6 Grounding and Bonding

In accordance with NFPA 70 and PEC. Ground exposed non-current-carrying metallic parts of electrical equipment, metallic raceway systems, grounding conductor in metallic and nonmetallic raceways, telephone system grounds. Make ground connection to driven ground rods on exterior of building. Interconnect all grounding media in or on the structure to provide a common ground potential.

3.1.6.1 Resistance

Maximum resistance-to-ground of grounding system shall not exceeds 5 ohms, contact Engineer for further instructions.

3.1.6.2 Equipment Connections

Provide power wiring for the connection of motors and control equipment under this section of the specification. Except as otherwise specifically noted or specified, automatic control wiring, control devices, and protective devices within the control circuitry are not included in the section of the specifications but shall be provided under the section specifying the associated equipment.

3.2 FIELD QUALITY CONTROL

Furnish test equipment and personnel and submit written copies of test result. Give the engineer five (5) working days' notice prior to each test.

3.2.1 Insulation Resistance and Continuity Test

Upon completion of wiring installations, test wiring rated 600 volt and less to verify that no short circuits or accidental grounds exist. Perform insulation resistance test on wiring

14 mm² and larger diameter using insulation resistance test instrument which applies voltage of approximately 500 volts on provide direct reading of resistance, Minimum

resistance shall be 250,000 ohms. This shall be well documented as test forms supervised by a licensed electrical practitioner with valid Professional Regulation Commission ID. Attached in this test form is a certificate of calibration.

3.2.2 Grounding Resistance Test

21-004N

Upon completion of main service entrance, test grounding system to ensure continuity, and that resistance to ground is not excessive. Test each ground rod for resistance to ground before making connections to rod; tie grounding system together and test for resistance to ground. Make resistance measurements in dry weather, not earlier than 48 hours after rainfall. Submit written results of each test to Engineer, and indicate location of rods as well as resistance and soil conditions at time measurements were made. Minimum resistance shall be 5 ohms. This shall be well documented as test forms supervised by a licensed electrical practitioner with valid Professional Regulation Commission ID. Attached in this test form is a certificate of calibration.

3.2.3 Functionality Test

This shall be performed after completion of installation of wiring devices and lighting fixture/s. Wiring devices shall provide appropriate voltage for its respective equipment or appliance as detailed in the schedule of loads. All Lighting Fixtures shall provide appropriate color temperature and illumination as required. The switch/es nomenclature shall be able to control the fixture/s as referred by the 'as-built' plan. This shall be well documented as test forms supervised by a licensed electrical practitioner with valid Professional Regulation Commission ID. Attached in this test form is a certificate of calibration.

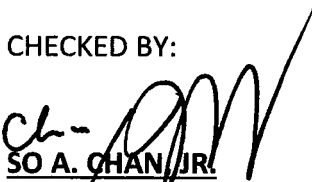
PREPARED BY:



STEPHANIE D. OVIEDO

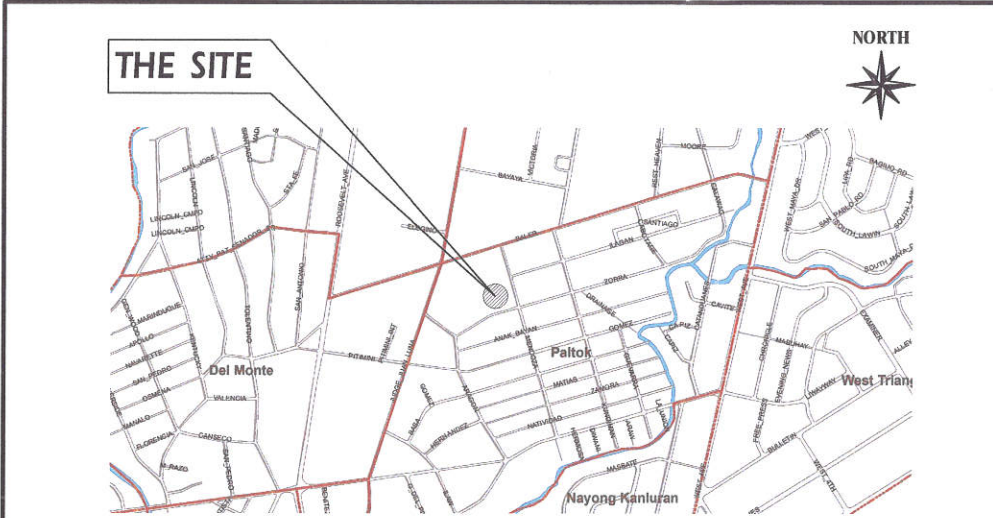
Planning and Programming Division

CHECKED BY:



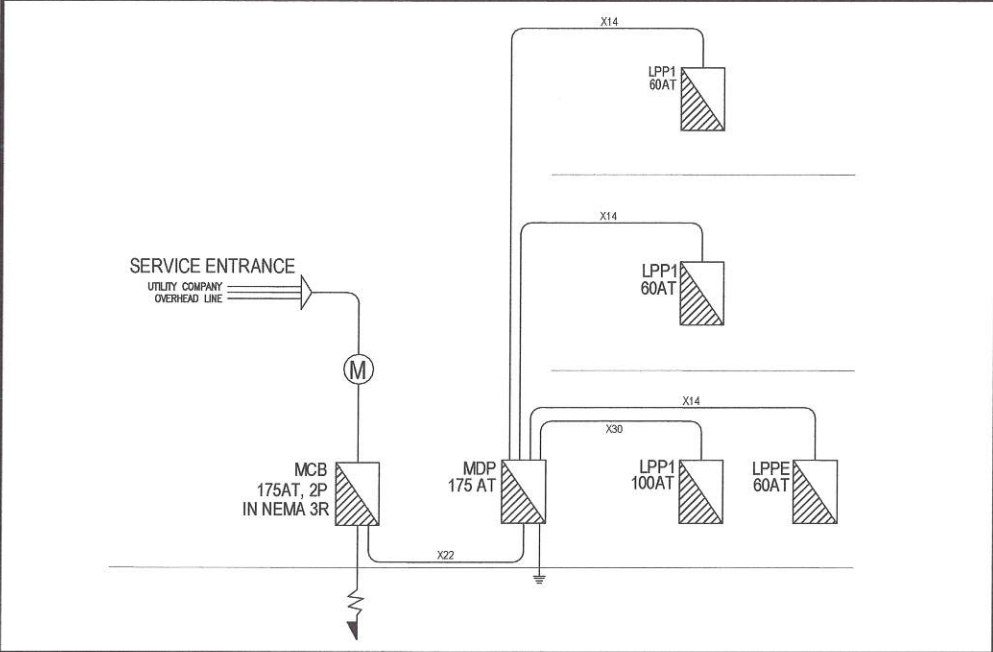
SO A. CHAN, JR.

Planning and Programming Division



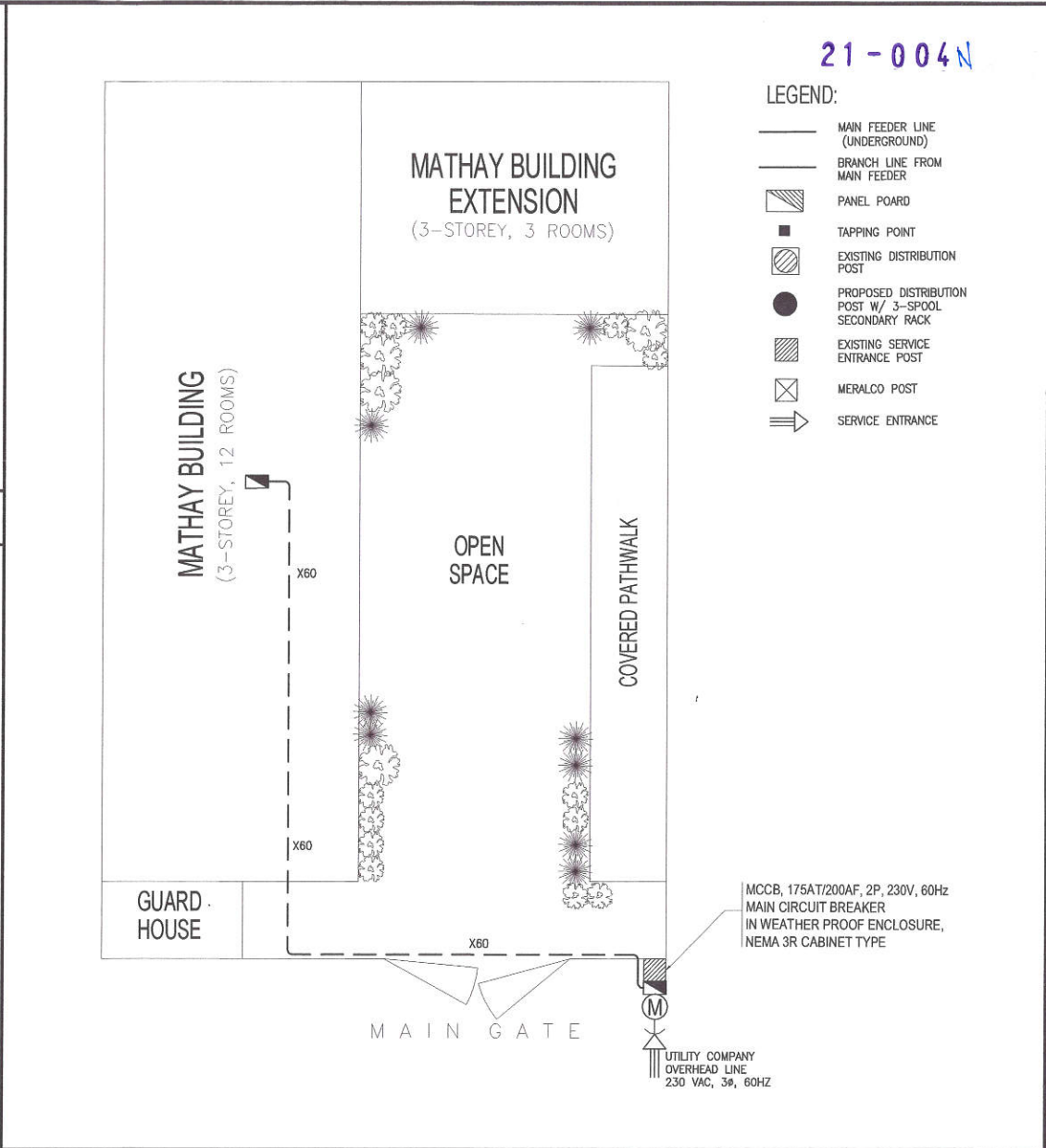
1 VICINITY MAP

NOT TO SCALE






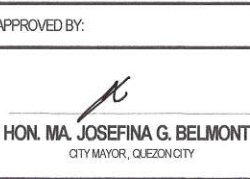

2 RISER DIAGRAM

NOT TO SCALE



3 SITE DEVELOPMENT PLAN

NOT TO SCALE

 <p>Republika ng Pilipinas Lungsod ng Quezon CITY ENGINEERING DEPARTMENT</p>	PROJECT TITLE:	DRAWN BY: SDO	SUBMITTED BY:	RECOMMENDING APPROVAL:	APPROVED BY:	SHEET CONTENT	SHEET NO.
	PROPOSED REHABILITATION OF ELECTRICAL SYSTEM AT BAYANIHAN ELEMENTARY SCHOOL	DATE: 09/08/2020	 <p>ENGR. LEO S. DEL ROSARIO HEAD, PLANNING & PROGRAMMING DIVISION</p>	 <p>ENGR. J. RAGANI R. VERZOSA, JR. CITY ENGINEERING DEPARTMENT</p>	 <p>HON. MA. JOSEFINA G. BELMONTE CITY MAYOR, QUEZON CITY</p>	VICINITY MAP RISER DIAGRAM SITE DEVELOPMENT PLAN	
	LOCATION: BARANGAY COMMONWEALTH, DISTRICT 2, QUEZON CITY	CHECKED BY: SDO					
		REVISION:					

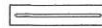
- ALL ELECTRICAL WORKS SHALL BE DONE IN ACCORDANCE WITH THE PROVISIONS OF THE LATEST EDITION OF THE PHILIPPINE ELECTRICAL CODE, THE LAWS AND ORDINANCES OF THE LOCAL CODE ENFORCING AUTHORITIES AND THE REQUIREMENTS OF THE LOCAL POWER AND TELEPHONE UTILITY COMPANY.
- THE CONTRACTOR SHALL SECURE ALL PERMITS AND PAY ALL FEES REQUIRED FOR THE WORK AND SHALL FURNISH THE OWNER THROUGH THE ENGINEERS, FINAL CERTIFICATES OF ELECTRICAL INSPECTION AND APPROVAL FROM PROPER GOVERNMENT AUTHORITIES FOR COMPLETION OF WORK.
- ALL EMBEDDED BRANCH CIRCUITS SHALL BE PVC CONDUITS AND FOR EXPOSED INSTALLATION SHALL BE IMC SUPPORTED BY CONDUIT CLAMPS EVERY 700 MILLIMETERS
- PULL BOXES SHALL BE PROVIDED BY THE CONTRACTOR WHENEVER NECESSARY TO FACILITATE WIRE PULLING EVEN IF THESE ARE NOT INDICATED ON THE PLANS. SIZING OF ALL PULLBOXES SHALL BE COMPUTED BASED ON THE CODE REQUIREMENTS. SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATION. LOCATION OF PULLBOXES SHALL BE APPROVED BY THE ARCHITECT/ENGINEER AND MUST BE REFLECTED ON THE "AS-BUILT" PLAN.
- ALL POWER OUTLETS AND SWITCHES SHALL BE GROUNDING TYPE WITH PARALLEL SLOTS FOR 230 V.
- PROVIDE GROUND FAULT CURRENT INTERRUPTER CIRCUIT BREAKER FOR LOADS MARKED "GFCI" ON THE PLAN.
- ALL METALLIC CONDUITS, CABINETS AND EQUIPMENT SHALL BE PROPERLY GROUNDED AND BONDED.
- UNLESS OTHERWISE NOTED, MOUNTING HEIGHT FOR WALL MOUNTED DEVICES SHALL BE AS FOLLOWS:

RECEPTACLE OUTLET - 300 MM AFF, 150MM ABOVE WORKING COUNTER.
TELEPHONE OUTLET - 300 MM AFF
CATV OUTLET - 300 MM AFF
LIGHTING SWITCH - 1400 MM AFF
PANELBOARD - 1600 MM AFF

- ALL MATERIALS TO BE USED SHALL BE OF THE BEST QUALITY, BRAND NEW AS SPECIFIED.
- THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO PRESENT GENERAL LAYOUT AND BROAD OUTLINE/DESCRIPTION OF THE PROJECT BUT DO NOT NECESSARILY INDICATE/DESCRIBED ACTUAL LOCATIONS, LEVEL AND DISTANCES OF THE EQUIPMENT. THE CONTRACTOR IS HEREBY REQUIRED TO MAKE SUCH ADJUSTMENT AT THE JOBSITE AS LOCATION, DISTANCES AND LEVELS ARE GOVERNED BY ACTUAL FIELD CONDITIONS.
- ANY DISCREPANCY BETWEEN THE PLANS AND SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR CLARIFICATION DECISION.
- ALL LIGHTING AND CONVENIENCE OUTLET CIRCUITS SHALL BE 3.5 SQ. MM. THWN-2 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 - YELLOW
NEUTRAL - WHITE
GROUND - GREEN

- BOXES, WIRE, GUTTERS, ENCLOSURE SHALL BE FABRICATED FROM STEEL WITH THICKNESS AS FOLLOWS:
MAXIMUM WIDTH OF THE WIDEST SURFACE STEEL
UP TO INCLUDING 152.40 MM
OVER 152.40 MM BUT NOT OVER 457.30
OVER 457.30 MM BUT NOT OVER 762 MM
OVER 762 MM
- ALL ELECTRICAL WORKS HEREIN SHALL BE EXECUTED BY EXPERIENCED MEN UNDER THE DIRECT SUPERVISION OF A FULL-TIME LICENSED ELECTRICAL ENGINEER AND A DULY ACCREDITED ELECTRICAL CONTRACTOR BY PCAB. WORKS SHALL BE NEATLY PLACED, SECURELY FASTENED AND PROPERLY FINISHED.
- TYPE OF SERVICE ENTRANCE SHALL BE SINGLE-PHASE, TWO-WIRE PLUS GROUND, 60 HERTZ, 230V AC NOMINAL.
- CONDUITS IN NO CASE SHALL THERE 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.
- UPON COMPLETION OF ELECTRICAL CONSTRUCTION WORK, INSULATION RESISTANCE TEST AND FUNCTIONALITY TEST SHALL BE PERFORMED BY THE CONTRACTOR INCLUSIVE OF THE INSTALLATION TO BE REPORTED IN DETAILS ON FORMS APPROVED BY THE QUEZON CITY ENGINEERING DEPARTMENT REPRESENTATIVE. THE GROUND RESISTANCE FOR ELECTRICAL SYSTEMS SHALL NOT BE MORE THAN 5 OHMS. COMMUNICATION GROUNDING RESISTANCE SHALL NOT EXCEED 2 OHMS.



1x18W LED, BOX TYPE



600mm X 1200mm, 2x18W LED, TROFFER FIXTURE



DUPLEX CONVENIENCE OUTLET, 3-WIRE GROUNDING TYPE, 250 VAC



SPECIAL PURPOSE OUTLET, 20 A, 250 V, 3-WIRE GROUNDING TYPE, PRONG CONFIGURATION TO MATCH EQUIPMENT PLUG. DEVICE TO BE INSTALLED ADJACENT TO UNIT TO BE SERVED (AIRCONE OUTLET)



ORBIT FAN



EMERGENCY LIGHT



WALL FAN



CIRCUIT LINE



SWITCH LINE



CIRCUIT HOMERUN



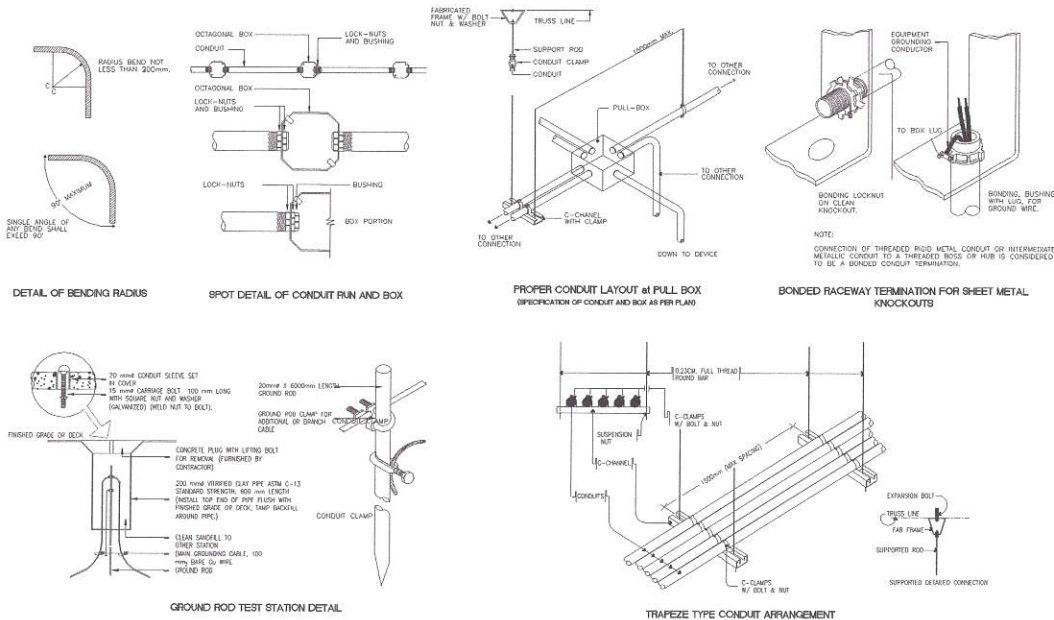
PANEL BOARD



KILOWATT-HOUR METER

2 LEGEND & SYMBOLS

NOT TO SCALE



1 GENERAL NOTES & SPECIFICATIONS

NOT TO SCALE

3 MISCELLANEOUS DETAILS

NOT TO SCALE



Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

PROJECT TITLE:

PROPOSED REHABILITATION OF ELECTRICAL
SYSTEM AT BAYANIHAN ELEMENTARY SCHOOL

LOCATION:

BARANGAY COMMONWEALTH, DISTRICT 2,
QUEZON CITY

DRAWN BY: SDO

DATE: 09/09/2020

CHECKED BY: [Signature]

REVISION NO. [Signature]

SUBMITTED BY:

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

RECOMMENDING APPROVAL:

ENGR. ISAGAN R. VERZOSA, JR.
CITY ENGINEERING DEPARTMENT

APPROVED BY:

HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

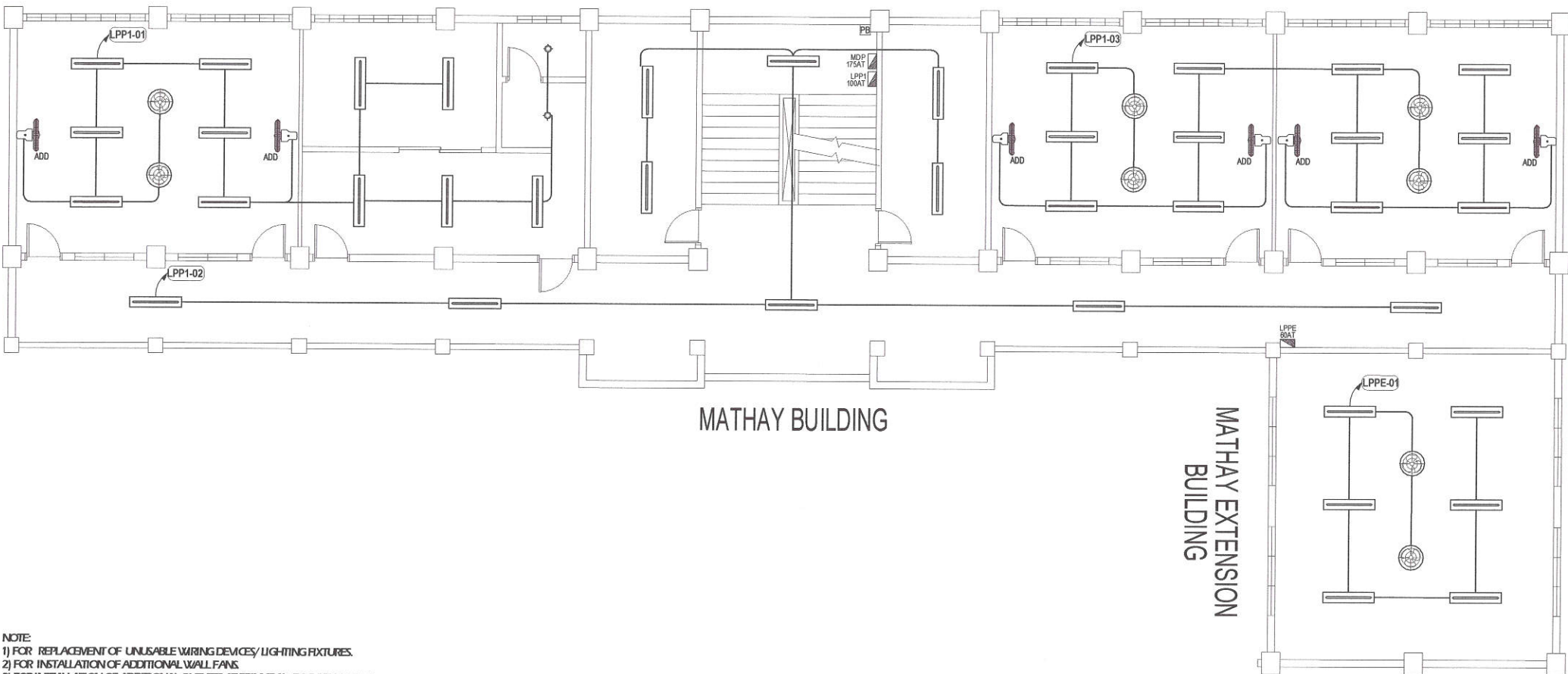
SHEET CONTENT

GENERAL NOTES &
SPECIFICATIONS
LEGEND & SYMBOLS
MISCELLANEOUS DETAILS

SHEET NO.


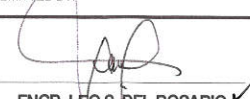

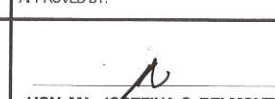


EL
02

21-004N

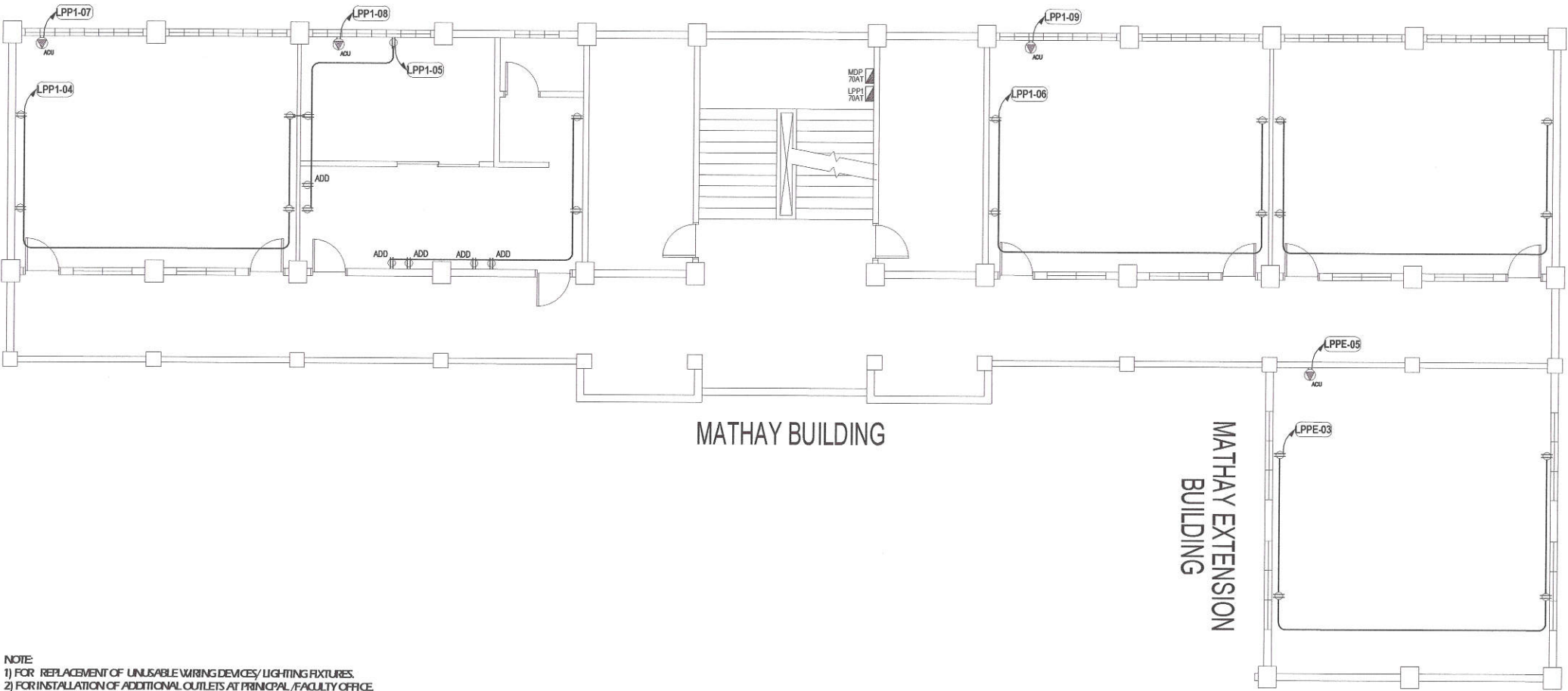


NOTE:
1) FOR REPLACEMENT OF UNUSABLE WIRING DEVICES/ LIGHTING FIXTURES.
2) FOR INSTALLATION OF ADDITIONAL WALL FANS.
3) FOR INSTALLATION OF ADDITIONAL OUTLETS AT PRINCIPAL/FACULTY OFFICE.
4) FOR REPLACEMENT AND UPGRADING OF LPP1 & MDP.


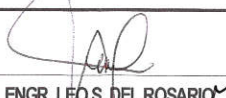



1 GROUND FLOOR LIGHTING LAYOUT (MATHAY BUILDING & MATHAY EXTENSION BUILDING) NOT TO SCALE

 <div>Republika ng Pilipinas Lungsod ng Quezon CITY ENGINEERING DEPARTMENT</div>	PROJECT TITLE :	DRAWN BY: SDO	SUBMITTED BY:	RECOMMENDING APPROVAL:	APPROVED BY:	SHEET CONTENT	SHEET NO.
	PROPOSED REHABILITATION OF ELECTRICAL SYSTEM AT BAYANIHAN ELEMENTARY SCHOOL	DATE: 09/09/2020	 ENGR. LEO S. DEL ROSARIO HEAD, PLANNING & PROGRAMMING DIVISION	 ENGR. JAGAN R. VERZOSA, JR. OIC, CITY ENGINEERING DEPARTMENT	 HON. MA. JOSEFINA G. BELMONTE CITY MAYOR, QUEZON CITY	GROUND FLOOR LIGHTING LAYOUT (MATHAY BUILDING & MATHAY EXTENSION BUILDING)	
	LOCATION: BARANGAY COMMONWEALTH, DISTRICT 2, QUEZON CITY	CHECKED BY: 					
	REVISION NO.						

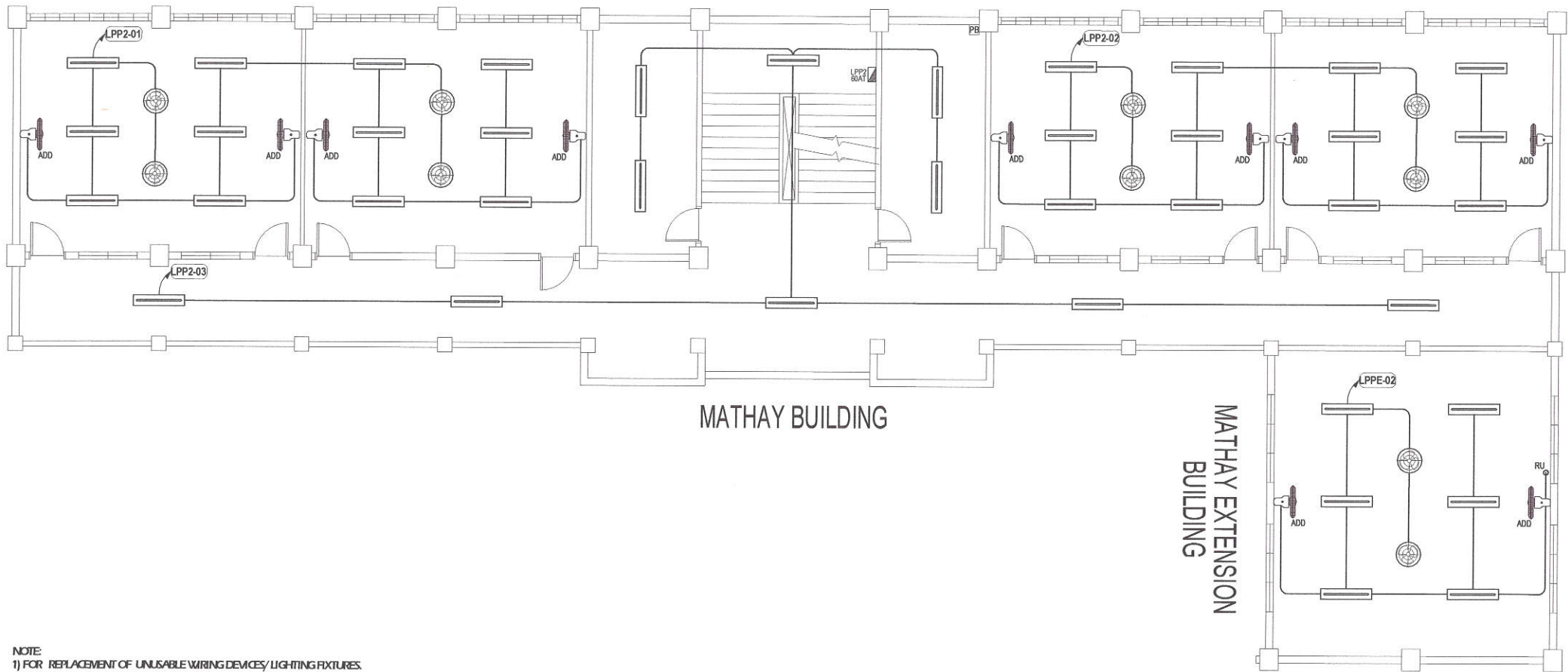
21-004N



- NOTE:
- 1) FOR REPLACEMENT OF UNUSABLE WIRING DEVICES/ LIGHTING FIXTURES.
 - 2) FOR INSTALLATION OF ADDITIONAL OUTLETS AT PRINCIPAL/FACULTY OFFICE
 - 3) FOR REPLACEMENT AND UPGRADE OF LPP1 & MDP.

1 GROUND FLOOR POWER LAYOUT (MATHAY BUILDING & MATHAY EXTENSION BUILDING)							
 <div>Republika ng Pilipinas Lungsod ng Quezon CITY ENGINEERING DEPARTMENT</div>	PROJECT TITLE:	DRAWN BY: SDO	SUBMITTED BY:	RECOMMENDING APPROVAL:	APPROVED BY:	SHEET CONTENT	SHEET NO.
	PROPOSED REHABILITATION OF ELECTRICAL SYSTEM AT BAYANIHAN ELEMENTARY SCHOOL	DATE: 09/09/2020	 ENGR. LEO S. DEL ROSARIO HEAD, PLANNING & PROGRAMMING DIVISION	 ENGR. ISAGANI R. VERZOSA, JR. CIC, CITY ENGINEERING DEPARTMENT	 HON. MA. JOSEFINA G. BELMONTE CITY MAYOR, QUEZON CITY	GROUND FLOOR POWER LAYOUT (MATHAY BUILDING & MATHAY EXTENSION BUILDING)	
	CHECKED BY: SAC						
	LOCATION: BARANGAY COMMONWEALTH, DISTRICT 2, QUEZON CITY	REVISION NO.:					

21-004N



NOTE:
1) FOR REPLACEMENT OF UNUSABLE WIRING DEVICES/ LIGHTING FIXTURES.
2) FOR INSTALLATION OF ADDITIONAL WALL FANS.

1 SECOND FLOOR LIGHTING LAYOUT TYPICAL TO THIRD FLOOR (MATHAY BUILDING & MATHAY EXTENSION BUILDING)

NOT TO SCALE



Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

PROJECT TITLE:
**PROPOSED REHABILITATION OF ELECTRICAL
SYSTEM AT BAYANIHAN ELEMENTARY SCHOOL**

LOCATION: BARANGAY COMMONWEALTH, DISTRICT 2,
QUEZON CITY

DRAWN BY: SDO
DATE: 09/09/2020
CHECKED BY:
REVISION NO.:

SUBMITTED BY:

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

RECOMMENDING APPROVAL:

ENGR. ISAGANI R. VERZOSA, JR.
CITY ENGINEERING DEPARTMENT

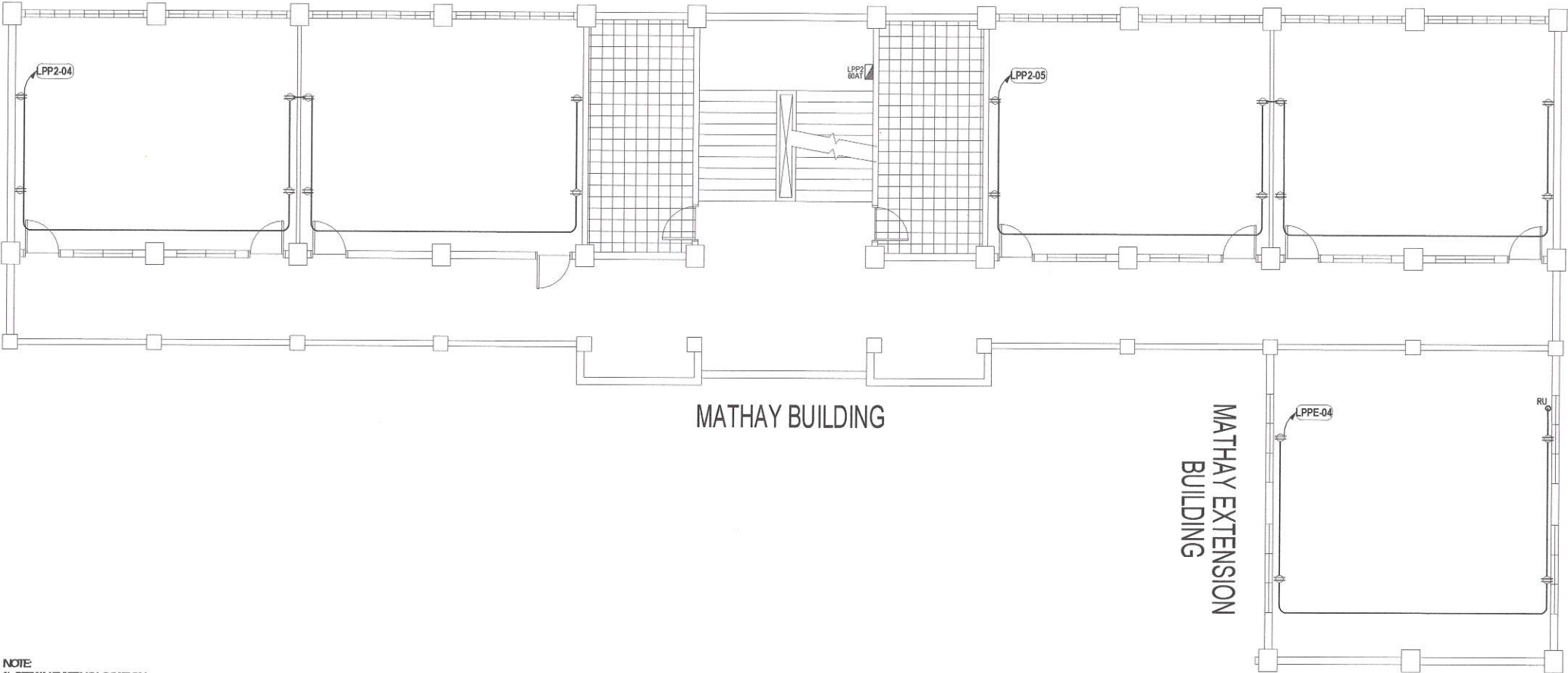
APPROVED BY:

HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENT
SECOND FLOOR LIGHTING
LAYOUT TYPICAL TO THIRD
FLOOR (MATHAY BUILDING &
MATHAY EXTENSION
BUILDING)


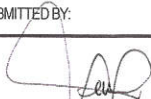
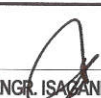




SHEET NO.
**EL
05**

21-004N



NOTE:
1) RETAIN EXISTING LOCATION

1 SECOND FLOOR POWER LAYOUT TYPICAL TO THIRD FLOOR (MATHAY BUILDING & MATHAY EXTENSION BUILDING)

 <div>Republika ng Pilipinas Lungsod ng Quezon CITY ENGINEERING DEPARTMENT</div>	PROJECT TITLE:	DRAWN BY: SDO	SUBMITTED BY:	RECOMMENDING APPROVAL:	APPROVED BY:	SHEET CONTENT	SHEET NO.
	PROPOSED REHABILITATION OF ELECTRICAL SYSTEM AT BAYANIHAN ELEMENTARY SCHOOL	DATE: 09/09/2020	 ENGR. LEO S. DEL ROSARIO HEAD, PLANNING & PROGRAMMING DIVISION	 ENGR. ISAGANI R. VERZOSA, JR. OIC, CITY ENGINEERING DEPARTMENT	 HON. MA. JOSEFINA G. BELMONTE CITY MAYOR, QUEZON CITY	SECOND FLOOR POWER LAYOUT TYPICAL TO THIRD FLOOR (MATHAY BUILDING & MATHAY EXTENSION BUILDING)	
	LOCATION: BARANGAY COMMONWEALTH, DISTRICT 2, QUEZON CITY	CHECKED BY: 					
	REVISION NO:						

21-004N




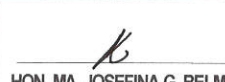


MDP (MAIN DISTRIBUTION PANEL)							MOUNTING: NEMA 1, FLUSH MOUNTED WITH GRAY POWDERED COATED FINISH WITH MULTI-TERMINAL BLOCK FOR SOLID GROUND BUS.	
LOCATION: STAIRS - GROUND FLOOR								
CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP.	AT	SIZE OF		
						WIRES	CONDUITS	
1	LPP1	230	14450	65.83	100	2-30mm ² THHN COPPER WIRE 1-8.0mm ² TW GROUND WIRE	IN 32mm ^ø PVC PIPE	
2	LPP2	230	7780	33.83	60	2-14mm ² THHN COPPER WIRE 1-8.0mm ² TW GROUND WIRE	IN 25mm ^ø PVC PIPE	
3	LPP3	230	7780	33.83	60	2-14mm ² THHN COPPER WIRE 1-8.0mm ² TW GROUND WIRE	IN 25mm ^ø PVC PIPE	
4	LPPE	230	7300	33.74	60	2-14mm ² THHN COPPER WIRE 1-8.0mm ² TW GROUND WIRE	IN 25mm ^ø PVC PIPE	
TOTAL			37310	240.30				
COMPUTATION:							OVER CURRENT PROTECTION	
IT = $\frac{37310 VA + (0.25 \times 2760 VA)}{230 V}$							USE : 175AT, 200AF, 2P, 230V, MCCB IN NEMA 1	
IT = 165.22 AMP.							MAIN FEEDER:	
							USE : 2 - 60mm ² THHN & 1-22.0mm ² TW GROUND WIRE / X60 IN 40mm ^ø (1 1/2") IMC PIPE	

LPP1 (LIGHTING & POWER PANEL)							MOUNTING: NEMA 1, FLUSH MOUNTED WITH GRAY POWDERED COATED FINISH WITH MULTI-TERMINAL BLOCK FOR SOLID GROUND BUS.	
LOCATION: STAIRS - GROUND FLOOR								
CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP.	AT	SIZE OF		
						WIRES	CONDUITS	
1	13-LIGHTING OUTLET 2-WALL FAN, 2-ORBIT FAN	230	1450	6.30	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE	
2	10-LIGHTING OUTLET	230	500	2.17	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE	
3	12-LIGHTING OUTLET 4-WALL FAN, 4-ORBIT FAN	230	2200	9.57	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE	
4	8-CONVENIENCE OUTLET	230	1440	6.26	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE	
5	6-CONVENIENCE OUTLET	230	1080	4.70	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE	
6	8-CONVENIENCE OUTLET	230	1440	6.26	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE	
7	1-1HP ACU (WINDOW TYPE)	230	1840	8.0	30	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE	
8	1-2HP ACU (SPLIT TYPE)	230	2760	12.0	30	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE	
9	1-1HP ACU (WINDOW TYPE)	230	1840	8.0	30	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE	
10	S P A R E	230	-	-	30	EMPTY	EMPTY	
TOTAL			14450	65.83				
COMPUTATION:							OVER CURRENT PROTECTION	
IT = $\frac{14450 VA + (0.25 \times 2760 VA)}{230 V}$							USE : 100AT, 100AF, 2P, 230V, MCCB IN NEMA 1	
IT = 65.83 AMP.							MAIN FEEDER:	
							USE : 2 - 30mm ² THHN & 1-8.0mm ² TW GROUND WIRE / X30 IN 32mm ^ø (1") PVC PIPE	

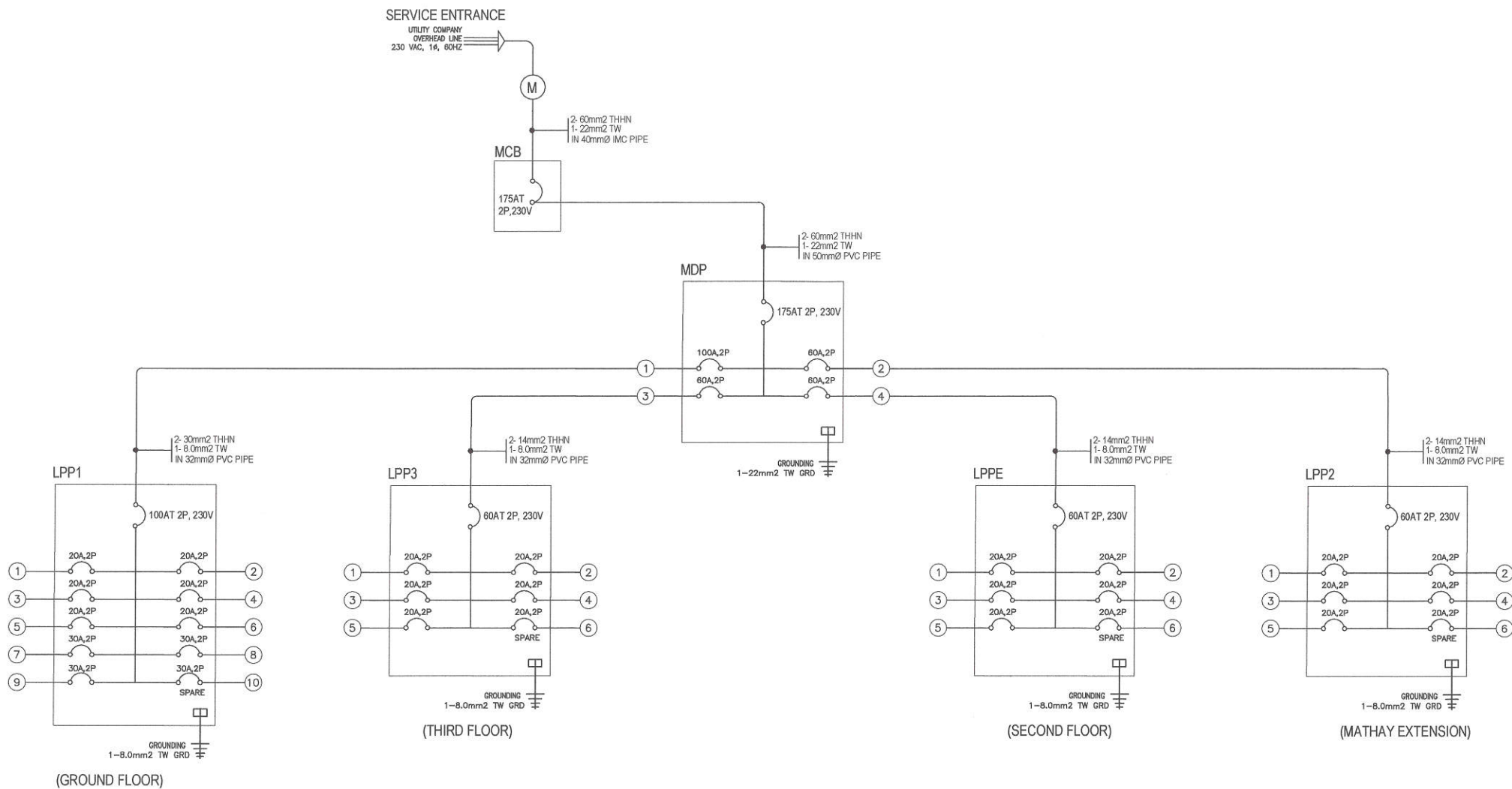
LPP2 (TYPICAL TO LPP3)							MOUNTING: NEMA 1, FLUSH MOUNTED WITH GRAY POWDERED COATED FINISH WITH MULTI-TERMINAL BLOCK FOR SOLID GROUND BUS.	
LOCATION: SECOND & THIRD FLOOR								
CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP.	AT	SIZE OF		
						WIRES	CONDUITS	
1	12-LIGHTING OUTLET 4-WALL FAN, 4-ORBIT FAN	230	2200	9.57	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE	
2	12-LIGHTING OUTLET 4-WALL FAN, 4-ORBIT FAN	230	2200	9.57	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE	
3	10-LIGHTING OUTLET	230	500	2.17	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE	
4	8-CONVENIENCE OUTLET	230	1440	6.26	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE	
5	8-CONVENIENCE OUTLET	230	1440	6.26	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE	
6	S P A R E		-	-	20	EMPTY	EMPTY	
TOTAL			7780	33.83				
COMPUTATION:							OVER CURRENT PROTECTION	
IT = $\frac{7780 VA}{230 V}$							USE : 60AT, 100AF, 2P, 230V, MCCB IN NEMA 1	
IT = 33.83 AMP.							MAIN FEEDER:	
							USE : 2 - 14mm ² THHN & 1-8.0mm ² TW GROUND WIRE / X14 IN 25mm ^ø (3/4") PVC PIPE	

LPP-E (MATHAY EXTENSION BLDG)							MOUNTING: NEMA 1, FLUSH MOUNTED WITH GRAY POWDERED COATED FINISH WITH MULTI-TERMINAL BLOCK FOR SOLID GROUND BUS.	
LOCATION: GROUND FLOOR								
CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP.	AT	SIZE OF		
						WIRES	CONDUITS	
1	6-LIGHTING OUTLET 2-WALL FAN, 2-ORBIT FAN	230	1100	4.78	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE	
2	12-LIGHTING OUTLET 4-WALL FAN, 4-ORBIT FAN	230	2200	9.57	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE	
3	4-CONVENIENCE OUTLET	230	720	3.13	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE	
4	8-CONVENIENCE OUTLET	230	1440	6.26	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE	
5	1-1HP ACU (WINDOW TYPE)	230	1840	8.0	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE	
6	S P A R E		-	-	20	EMPTY	EMPTY	
TOTAL			7300	33.74				
COMPUTATION:							OVER CURRENT PROTECTION	
IT = $\frac{7300 VA + (0.25 \times 1840 VA)}{230 V}$							USE : 60AT, 100AF, 2P, 230V, MCCB IN NEMA 1	
IT = 33.74 AMP.							MAIN FEEDER:	
							USE : 2 - 14mm ² THHN & 1-8.0mm ² TW GROUND WIRE / X14 IN 25mm ^ø (3/4") PVC PIPE	

1 SCHEDULE OF LOADS

 <div>Republika ng Pilipinas Lungsod ng Quezon CITY ENGINEERING DEPARTMENT</div>	PROJECT TITLE:	DRAWN BY: SDO	SUBMITTED BY:	RECOMMENDING APPROVAL:	APPROVED BY:	SHEET CONTENT	SHEET NO.
	PROPOSED REHABILITATION OF ELECTRICAL SYSTEM AT BAYANIHAN ELEMENTARY SCHOOL	DATE: 09/09/2020	 ENGR. LEO S. DEL ROSARIO HEAD, PLANNING & PROGRAMMING DIVISION	 ENGR. ISAAC R. VERZOSA, JR. CIC, CITY ENGINEERING DEPARTMENT	 HON. MA. JOSEFINA G. BELMONTE CITY MAYOR, QUEZON CITY	SCHEDULE OF LOADS	
	LOCATION: BARANGAY COMMONWEALTH, DISTRICT 2, QUEZON CITY	CHECKED BY: 					

21-004



1 PANEL BOARD DETAILS/ SINGLE-LINE DIAGRAM



Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

PROJECT TITLE:
**PROPOSED REHABILITATION OF ELECTRICAL
SYSTEM AT BAYANIHAN ELEMENTARY SCHOOL**

LOCATION: BARANGAY COMMONWEALTH, DISTRICT 2,
QUEZON CITY

DRAWN BY: SDO
DATE: 09/09/2020
CHECKED BY: SDO
REVISION NO.:

SUBMITTED BY:
ENGR. LEQ.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
PANEL BOARD DETAILS /
SINGLE-LINE DIAGRAM

SHEET NO.
**EL
08**