

TERMS OF REFERENCE

MAINTENANCE OF PORT POLICE OFFICE BUILDING AND ELECTRICAL SYSTEM MEL LOPEZ BLVD., NORTH HARBOR, TONDO, MANILA (MPF-NCN-08-2026)

I. RATIONALE

Philippine Ports Authority-Port Management Office-NCR North aims to ensure that its port facilities are properly maintained to properly cater and provide efficient services that will meet the demands of its port users.

A well-maintained administrative building not only enhances the productivity of PMO employees but also reflects the Authority's standards and values to port users and visitors.

II. OBJECTIVE

PPA PMO-NCR North intends to perform preventive maintenance to the port facilities to preserve the facility asset. The project shall cover the surface preparation and repainting of various surfaces of the Port Police Office Building. This project also include the necessary repair and maintenance of the plumbing and electrical components of the building.

The procurement of the project shall be made through Alternative Mode of Procurement particularly Small Value Procurement in accordance with Section 34, of the implementing rules and regulations of the Republic Act No. 12009 or New Government Procurement Act.

III. SCOPE OF WORKS AND SERVICES

BILL NO. 1 GENERAL EXPENSES

- 1.1 Mobilization / Demobilization
- 1.2 Provide construction safety and health program in the execution of project

BILL NO. 2. MAINTENANCE OF PORT POLICE OFFICE BUILDING

- 2.1 Removal of obstructions, demolition and removal of existing floor and wall tiles and plumbing fixtures and doors at common comfort rooms
- 2.2 Supply and Install Water supply line at common comfort rooms
- 2.3 Supply and Installation of Floor and Wall tiles
- 2.4 Supply and Installation of plumbing fixtures and accessories
- 2.5 Supply and installation of 600mm PVC Door with louver & lockset
- 2.6 Supply and apply cement plaster on the rear side exterior wall of the office building
- 2.7 Surface preparation, application of fiber glass mesh tape on joints and skim coat on uneven surface and apply 1-coat primer and 2-coats flat latex paint
- 2.8 Surface preparation, application of skim coat on uneven surface and apply 1-coat primer and 2-coats gloss latex paint

BILL NO. 3. MAINTENANCE OF ELECTRICAL WORKS

- 3.1 Removal of old dilapidated panel board assembly and Supply and Install new Electrical Panel board assembly

IV. ELIGIBILITY OF THE SERVICE PROVIDER

The prospective contractor must submit the following equipment and documentary requirements:

A. Equipment Required:

Quantity	Description
20-sets	H Frame Scaffolding, Owned or Leased
1-unit	Power Unit for Chipping Hammer, Owned or Leased
1-unit	Chipping Hammer, Owned or Leased

B. Prospective bidders shall submit Quotation together with the herein documents:

1. PCAB License – At least Small “B” for Building
2. PhilGEPS Registration
3. BIR Certificate of Registration
4. Income/ Business Tax Return
5. Duly Notarized Omnibus Sworn Statement
6. Mayor’s Permit/Business Permit

V. APPROVED BUDGET CONTRACT

The Approved Budget for the Contract (ABC) shall be the amount **Seven Hundred Fifty-Two Thousand Thirty-Four Pesos (Php 752,034.00)** inclusive of 12% VAT.

VI. CONTRACT DURATION

The target number of days to complete the project is sixty (60) days reckoned upon receipt of by the winning bidder of the Notice to Proceed (NTP).

VII. TERMS OF PAYMENT

The payment shall be paid in full to the contractor upon completion and acceptance of the project by PPA PMO-NCR North subject to accounting and auditing rules and regulations.

VIII. PERFORMANCE SECURITY

To guarantee the faithful performance by the winning bidder of its obligations under the contract in accordance with the Bidding Documents, it shall post a performance

security prior to the signing of the contract. The winning bidder shall ensure that the performance security remains effective until the issuance of the Certificate of Final Acceptance.

The performance security shall be in the form chosen by the procuring entity and in the amount not less than the required percentage of the total contract price in accordance with the following schedule:

Form of Performance Security	Amount of Performance Security (Not less than the required percentage of the Total Contract)
a) Cash or cashier's or Manager's check issued by a bank	Ten percent (10%)
b) Bank draft or guarantee or irrevocable Letter or Credit issued by a bank. If issued by a foreign bank it shall be confirmed or authenticated by a local bank.	
c) Surety Bond callable upon demand issued by a surety or insurance company dully certified by the Insurance Commission as authorized to issue such security	Thirty percent (30%)

IX. LIQUIDATED DAMAGES

In case the prospective Contractor fails to perform satisfactorily the maintenance activities within the agreed contract period, the Contractor shall be held liable for damages for the delay and shall pay the Procuring Entity liquidated damages, an amount equal to one-tenth (1/10) of one-percent (1%) of the cost of the delayed project scheduled for completion, for every day of delay until such project is finally accomplished and accepted by the procuring entity concerned.

X. RESPONSIBILITY OF THE PROSPECTIVE CONTRACTOR

- a. The Contractor shall at all times utilize the most cost effective and widely accepted standards and practices in accomplishing the maintenance activities provided for in the Terms of Reference.
- b. The Contractor shall keep the PPA fully informed and updated on all matters relating to the maintenance activities accomplished.

XI. RESPONSIBILITY OF THE PHILIPPINE PORTS AUTHORITY

- a. For and in consideration of full, satisfactory and full performance by the Contractor of all maintenance activities provided for in the Terms of Reference (TOR), PPA shall pay the full amount considered to the Lowest Calculated Responsive Bid of all the bid proposals submitted.
- b. PPA shall assign a qualified engineering personnel to monitor, supervise and oversee the work direction of the maintenance activities being implemented by the Contractor to determine the actual progress and accomplishments of the project.

X. GENERAL REQUIREMENTS AND TECHNICAL SPECIFICATIONS OF PROJECT

ITEM 01 : DEMOLITION AND REMOVAL WORKS

A. DESCRIPTION OF THE PROJECT ITEM

- The work includes the furnishing of all labor, materials and equipment required to carry out the demolition and removal of old structures, port accessories and obstructions including demolition of miscellaneous concrete curbs etc., as required for the execution of the Contract.
- The Contractor shall submit the proposed methodology or procedure of demolition work with detailed drawings and calculations if necessary, to the PPA Engineer for approval, before the execution of the Works.
- The Contractor shall keep all pavements and landing areas to and from the site of the disposal area clean and free of mud, dirt and debris during and after the execution of disposal. Disposal of debris and materials shall be as directed by the PPA Engineer.

B. GENERAL PROVISIONS

- The Contractor shall be deemed to have satisfied himself of the site conditions, and to have included in his unit prices provision for all risks that may arise during or in connection with the work.
- The demolition shall be carried out by approved methods and equipment such as concrete breakers, gas-cutters, hydraulic jacks, compressed air disintegrators, etc., however, no blasting shall be used unless approved in writing by the PPA Engineer and after obtaining the written permission of the concerned authorities.
- The Contractor shall provide suitable equipment, skilled labor and appropriate temporary works such as scaffoldings to ensure safety in his demolition works as well as in the adjacent area.
- Contractor shall demolish all the structural members above the level on which the subsequent and permanent works under this Contract will begin. To this end, the

temporary construction works such as excavation shall be conducted by the Contractor.

- Materials coming from the demolition works, except general earth, shall remain the property of the Procuring Entity, the designated part of which shall be stored by the Contractor at places specified by the PPA Engineer/ Accepting authority. Receiving copy of Turn-Over Report shall be provided.
- In case of demolition of wharf deck and platform, the contractor shall ensure that no debris will be remained/deposited at seabed.

C. INTERFERENCE WITH PORT OPERATIONS

- During the execution of the work, the Contractor shall not interfere with the shipping, navigation and other traffic in the port.
- The Contractor shall coordinate with the concerned office regarding the schedule of demolition and other related works to ensure port operations remain uninterrupted at all times.
- Prior to commencement of the demolition works, the Contractor shall inform/announce to port users the schedule of disconnection of utilities.

D. STORAGE AND DUMPING

- Prior to the commencement of the demolition work, the PPA Engineer shall submit to the Contractor a list in which all the materials to be salvaged and overhauled, as property of PPA, and the description of the location of their storage. Materials embedded in concrete units shall not be salvaged.
- The Contractor shall separate materials to be salvaged from debris. Salvaged materials shall be loaded, transported and unloaded by the Contractor at the specified locations.
- The Contractor may dump debris or extracted rocks on land areas but out of the site, which areas shall be procured and prepared at his own expense. In this case, safety measures shall be undertaken in the transporting, unloading, covering and others as requested by the PPA Engineer.
- The approximate distance of the disposal site from the project site is about five (5) kms., as designated by the PMO thru the implementing office.

E. EXECUTION OF THE PROJECT ITEM

- Prior to the commencement of demolition works, the alignment of new construction works to existing structure shall be checked.
- The width and alignment of portion of existing structure to be demolished shall be marked by paint.

- With these lines as guides, concrete shall be broken and reinforcing bars cut, such that panels or portions of the structure can be lifted out for disposal elsewhere outside of the operational work area.
- Rocks removed from existing slope protection shall be stored for re-use in new construction.
- Demolish pavements, curbs, fences, utilities, services, navigation aids and the likes as determined in the field for each project and as shown on the drawings or as directed by the PPA Engineer.
- Materials coming from the demolition works shall be properly disposed by the Contractor.

F. SAFETY

- During the course of survey and clearing, any obstacles which are recognized and seemed to be explosive or hazardous to workers shall be removed from the site by the proper Authority.
- At the end of each day's work, the Contractor shall keep the workplace in safe condition and clean so that no part is in danger of falling or creating hazard to personnel or equipment.

ITEM 02 : PAINTING WORKS

A. GENERAL REQUIREMENTS

The work shall include all labor, materials, equipment, plant and other facilities and the satisfactory performance of all works necessary to complete all field painting and as specified herein. All paints and coatings shall be applied by painting subcontractors and workmen approved by the PPA Engineer.

B. SCOPE

The following surfaces to be painted except where otherwise specified or shown:

1. Above ground piping and other metal surfaces.
2. All exposed concrete.
3. All structural and miscellaneous metal
4. All equipment furnished without factory finished surfaces.
5. All exposed steel mullions, tubular frames, door frames, steel sash, and metal windows.
6. All sheet metal and ferrous metal trim.
7. Interior and exterior surfaces of the building including all concrete block masonry.

The following surfaces are not to be painted:

1. Ferrous metal having approved plating or factory paint finishes.

2. Non-ferrous metals, unless otherwise noted or indicated; galvanized metal shall not be considered a non-ferrous metal.
3. Equipment with factory finished surfaces unless otherwise noted.

No concrete, wood, metal or any other surfaces requiring protection shall be left unpainted even though not specifically defined herein.

Loose paints and rust on spiral steel stair, handrails, railing, antenna mast, exhaust hoods, steel doors, window grills and G.I. pipe fence frames shall be removed and repainted.

C. RIGHT OF REJECTION

Exterior painting or interior finishing shall be done under conditions which shall not jeopardize the appearance or quality of the painting or finishing in any way. The PPA Engineer shall have the right to reject all material or work that is unsatisfactory, and require the replacement of either or both at the expense of the Contractor.

D. PROTECTION OF THE WORK

The Contractor shall endeavor to protect the work of others during the time painting work is in progress. The Contractor shall be responsible for any and all damage to any other work in the course of his painting job.

Protective coverings shall be used to protect floors, fixtures, and equipment while painting, care shall be exercised to prevent paint being spattered unto surfaces which are not to be painted.

E. WORKMANSHIP

All painting work shall be first class and in accordance with the best standard practices of the trade.

The Contractor shall examine carefully all surfaces to be painted and before beginning any of his work shall make sure that the work of other trades has been installed in a workman like condition ready to receive paint. Metal surfaces shall be clean, dry and free from mill scale, rust, grease, oil or any other substance which could affect the quality of the painting.

Paint shall be applied at the proper consistency and each coat shall be brushed evenly free of brush marks, sags, and runs. Care shall be exercised to avoid lapping of paint on glass or hardwares. Paint shall be sharply applied to required lines. Finished paint surfaces shall be free from defects or blemishes. Surfaces from which such paint cannot be removed satisfactorily shall be painted or repainted, as required to produce a finish satisfactory to the PPA Engineer.

Succeeding paint coatings shall be applied only when the previous coat is hard and dry.

All painting materials shall be used in strict accordance with manufacturers directions, spread or flowed on smoothly with proper film thickness and without runs, sags, skips or other defects.

F. STORAGE OF MATERIALS

All painting materials and equipment not for immediate use shall be stored in a room approved by the PPA Engineer for that purpose. The receiving, opening and mixing of all paint shall be removed from the premises at the end of each day's work, or stored in metal containers with metal covers.

G. PREPARATION OF PAINT

Paint containers shall be delivered to the job site in manufacturer's unopened containers and shall be opened only when required for use. Paint shall be mixed only in the designated room or space in the presence of the PPA Engineer or his representative. Paint shall be thoroughly stirred or agitated to uniformly smooth consistency suitable for proper application. Unless otherwise specified or approved, no materials shall be reduced, changed, or used except in accordance with manufacturer's label or tag on container. In all cases, paint shall be prepared and handled in a manner to prevent deterioration and inclusion of foreign matter.

H. CLEAN-UP

Upon completion of his work, the Contractor shall remove all surplus materials. All paint spills shall be removed and the entire premises shall be cleaned of all rubbish, and debris, caused by his work. He shall present the work clean and free from blemishes so that it is acceptable in every way. All glass, fixtures and doors shall be cleaned of paint spots and polished, and the job made for occupancy by the owner.

I. MATERIALS

1. **Materials** – The Contractor may substitute other paint materials provided he first receives written approval from the PPA Engineer stating that said proposed substituted materials are equal to that specified and are approved for use. The painting material shall be delivered to job site in original containers properly labeled without evidence of tampering, substitution of contents, or of deterioration. A complete list of materials proposed for use shall be submitted for the PPA Engineer's approval.
2. **Colors and Samples** – All finish colors shall be as selected by the Owner. In multicoat work using color pigmented paints, each coat shall have sufficient variation of color to easily distinguish it from preceding coat.

Using specified or approved materials, 3 sample panels of each finish, including all coats thereof shall be prepared and submitted for the Owner's approval. Completion work shall match approved colors and samples.

J. PREPARATION OF SURFACES

1. **General Scope** – Except as otherwise specified, surfaces to be painted shall be clean, smooth and dry. The Contractor shall report to the PPA Engineer in writing any surface which cannot be properly prepared for painting. If work is commenced before defects have been reported and corrected, any resulting unsatisfactory finish shall be rectified at no cost to the PPA.

2. Concrete and Masonry – all concrete and masonry surfaces shall be cured thirty days prior to painting. Dirt, dust, oil, grease, efflorescences, loose cement, chalk and other deleterious matter shall be removed and surface roughened when necessary to insure good paint adhesion. the method of surface preparation shall be left to the discretion of the contractor, but results obtained shall be satisfactory to the PPA Engineer. Before application of resin emulsion paint, surfaces shall be prepared in accordance with manufacturer's directions. Before application of oil base or latex paints, surfaces shall be tested for presence of alkali; if alkali is present, neutralized as recommended by the manufacturer of the paint materials to be applied.
3. Plaster – Dirt, dust, loose plaster and other deleterious matter which would prevent good paint adhesion shall be removed. All holes, cracks and depression shall be neatly filled with patching plaster, missed and applied to match existing plaster. Patches shall be sanded flush and smooth and properly sealed before applying prime coat. After priming surfaces, suction spots shall be touched up with additional prime coat material until surfaces evidence a uniform coating. Enamel undercoats on smooth plaster shall be sandpapered by hand (with No. 00 sandpaper) and dusted clean before applying succeeding coat.
4. Metal – Dirt, weld, splatter, rust, scale and other contaminants shall be removed by scrapping, wire brushing and sanding or sandblasting as required. Oil and grease shall be removed with mineral spirits or appropriate solvent. Before painting ferrous metal surfaces, including galvanized ferrous metal, surfaces shall be pretreated with approved phosphoric acid etching cleaner in accordance with manufacturer's directions to produce a chemically clean surface. Unless already performed in accordance with specifications of other sections, abrasions and bare spots in shop prime coatings shall be touched up with metal primer matching the shop coatings. Enamel undercoats shall be sandpapered by hand (with No. 00 sandpaper) and dusted clean before applying succeeding coat.
5. Woodwork – Unless already properly sanded, woodwork shall be sandpapered smooth by hand. Before priming surfaces, knots, pitch pockets and sap streaks shall be thoroughly cleaned of residue and touched up with shellac varnish coating. After priming surface, nail holes, cracks and depressions shall be neatly filled with putty or other approved filler, colored to match required finish. Enamel undercoats shall be sanded by hand (with No. 00 sandpaper) and dusted clean before applying succeeding coat.

K. APPLICATION OF PAINT

1. General Scope – All painting and finishing shall be performed by skilled craftsmen. Each coat of paint shall be applied with proper consistency, evenly, free of laps, sags and runs and cut sharply to required lines. Paint shall be applied only under dry and dust free conditions that will ensure properly finished surfaces, free of defects and blemishes unless otherwise directed by the PPA Engineer. Paint shall not be applied when temperature is likely to be above 90°F. Sufficient time shall be allowed between application of coats to ensure proper drying of the preceding coat. All primer and intermediate coats shall be unscarred and completely integral at time of

application of each succeeding coat. The PPA Engineer shall be notified when each coat has been applied and is ready for inspection; until coat is inspected and approved by the PPA Engineer, no succeeding coats shall be applied. Whenever two coats of a dark colored paint are specified the first coat shall contain sufficient powdered aluminum to act as an indicator for proper coverage when applying the second coat.

2. Method of Application – Paint should be applied by brush, spray, or other application method approved by the PPA Engineer.
3. Priming and Back Painting
 - a. Priming – Before installation, all surfaces of millwork which are to be painted shall be primed giving particular attention to sealing of cross-grained surfaces. In all cases, all work shall be primed as soon as possible after delivery to buildings, before or after installation, as required, or in case prefabricated items, at fabricator's shop or mill before shipment, if practicable. Except as otherwise specified, primings shall consists of first coat herein after specified under "Finishes".
 - b. Back-Painting – Woodwork, millwork and casework to be installed against concrete, masonry or plaster shall be back painted with one coat of exterior oil paint.

L. PAINTING SCHEDULE

Paint manufacturers shall be BOYSEN, DAVIES or an approved equivalent.

INTERIOR WALLS / EXTERIOR WALLS

1. Concrete Acrylic Concrete Primer and Sealer
2. Concrete Putty
3. Acrylic water based, odor less, semi-gloss latex paint

STAIR AND HANDRAILS

1. Epoxy Primer
2. Epoxy Enamel (2 coats)

GENERATOR ROOM FLOORING

1. Chlorinated Rubber Base Paint Finish

ITEM 03 : PLUMBING WORKS

SCOPE OF WORK

The work shall include furnishing of all materials and equipment and perform all labor necessary to complete installation, testing and operation of the plumbing system in accordance with the applicable drawings and this specification.

It is not intended that the drawings shall show every pipe, fittings, valves and appliances. All such items, whether specifically mentioned or not, or indicated on the drawings, shall be furnished and installed if necessary to complete the system in

accordance with the best practice of the plumbing trade and to the satisfaction of the Owner.

REQUIREMENTS ON PERMITS

Execute the work in full accordance with the requirements of all governmental agencies having jurisdiction thereof as well as with the requirements and/or recommendation of the National Plumbing Code of the Philippines and all applicable laws, codes and ordinances.

Secure and pay for all necessary approvals, permits, inspection, royalties for the use of any patented devices or systems, and other similar obligations before starting work, and turn over the official records of the granting permits to the Owner without additional cost.

MATERIAL

Plumbing Fixtures – Toilet and bath accessories shall be as manufactures or distributed by “American Standard”. Model shall be as specified herein and shall be provided with bone white color or as approved by the Architect.

ITEM 04 : CERAMIC TILEWORK

SCOPE OF WORK

This item shall include all ceramic tiles, vitrified tiles and marble tile work, complete. Mariwasa or equivalent for ceramic tiles. Granitogres or equivalent fro vitrified tiles.

The work shall not be started until the roughing-in for plumbing and electrical work has been completed and tested.

MATERIALS REQUIREMENTS

Tiles shall be standard grade glazed, semi-glazed and vitrified tiles as shown on the drawings. Dimension shall be as indicated in the drawings.

Portland cement shall be gray color for mortar setting bed and scratch coat. White Portland cement for grouting and pointing shall have early high-strength characteristics. Sand for mortar setting beds shall conform to the requirement of ASTM C44. Hydrated lime shall of the same good quality as that used for masonry work. Water shall be potable.

INSTALLATION

Surface to receive tiles shall be thoroughly tested for levelness or uniformity and wetted prior to application of setting bed. All tiles shall be soaked in clean water to minimum of one (1) hour before installation. The setting bed, as far as can be covered with the tile before the mortar reached its initial set, shall be placed in one (1) operation, and in the event that more setting mortar has been placed that can be covered, the unfinished portion shall be removed and cut back to a clean leveled edge. Before the initial set has taken place in the setting bed, a skim coat of Portland

cement shall be hand-dusted uniformly and worked lightly with a trowel or brush until thoroughly damp. The tiles shall then be pressed firmly and tapped until flush true and even with other tiles. Tapping and leveling shall be completed within one (1) hour after placing the tiles. Where drain is provided, the tiles shall be sloped properly towards the drain. Tiles shall be secured firmly in place, and loose tiles or tiles sounding hollow shall be properly removed and replaced to the satisfaction of the PPA Engineer. Joints shall be parallel and uniform in width, plumb, level and alignment. End joints in broken joint shall be made, as far as practicable, on the center line of the adjoining tiles. Joint widths shall be uniform and measured to accommodate the tiles in the given space with a minimum cutting. Cutting of tiles, where necessary, shall be done along the outer edges of tile against trim, base, thresholds, pipes, built-in fixtures and other similar surfaces, and shall be geared and joined carefully.

Grouting shall be done as soon as the mortar beds have sufficiently set. Tile work shall be adequately protected from damage, and shall be closed to traffic of other work until the tiles has firmly set.

ITEM 05 : DOORS AND WINDOWS

SCOPE OF WORK

The work shall include the supply and installation of all doors and windows as indicated in the drawings.

MATERIALS REQUIREMENTS

a. Doors

- 1) Flush doors shall be hollow core from tanguile kiln-dried frames with 6mm thick marine plywood as indicated. Other flush doors shall have a tanguile kiln-dried wood louver for ventilation purposes.
- 2) Swing type metal door shall be guage 20 metal door with mineral core, as indicated in the drawings.
- 3) Gage 20 metal door with baked enamel finish and stainless steel trim and fitting shall be used for toilets. It shall be connected to a cubicle type partitions as indicated in the drawing.
- 4) Wood door frames shall be of the design, size and thickness as indicated. This shall be set plumb and true, and well-braced to prevent distortions. Frames in masonry or concrete walls shall be secured as indicated, and shall be Guijo or Yakal, good grade

- #### **b. Windows**
- All windows shall be of polyester powder coated frame (exterior use) or epoxy/polyester powder coated (interior) aluminum window frame. It shall be of fixed window, half-fixed and half-open sliding window, half-fixed and half-open sliding window below a fixed window as indicated in the drawings.

- c. Glass – Glass shall be provided in locations as indicated and the corresponding type specified on architectural drawings. Each glass have the manufacturer's label showing the type, thickness, and quality of glass. Labels shall not be removed until the glazing has been approved.
- 1) Clear glass shall be 6.35 mm thick for doors and 5.50 mm thick for windows. It shall be heat-strengthened for fixed window panes with a clear rubber sealant nearly and properly installed.
 - 2) Reflective type glass shall be 6.35 mm thk for doors and windows and shall be heat strengthened tempered glass.
 - 3) Wired glass or fire-rated glass shall be 6.30 mm thick.
 - 4) Glazing metals materials and accessories such as weather-stripping, glazing sealant, gasket, channel, beads, clips, primer, making tape, edge spacer and other shall comply with all pertinent codes and regulations and shall be as recommended by the glass manufacturer as approved by the PPA Engineer.
- d. Hardware – All items of finish hardwares shall be furnished, packaged and labeled in sets. All items of finish hardwares of like kind and purpose shall be the same manufacturer and shall be made of 630 Stainless steel.

INSTALLATION

All doors and windows shall be leveled, hung plumb and fitted accurately. It shall be installed without forcing or distortion so that sills and heads are level and jambs are plumb. Frames shall be securely anchored into the supporting construction.

Apply hardwares with fastenings of the size, quality, quantity and finish to provide workable system. After installation, protect hardware from paint, stains, blemishes and other damages until acceptance of the work. After hardware is checked. Keys shall be tagged, identified and deliver to the Owner. All errors in cutting and fittings, and all damages to adjoining work shall be corrected, repaired and finished as directed.

Work instruction on glass fittings and installation should strictly follow a standard precautionary measure to avoid damage or breakage on glass and to secure total work safety. Glass shall be provided with caution stickers to call attention. Upon completion of the building, cracked, broken or imperfect glass or glass which has been set improperly shall be replaced. Glass surface shall be thoroughly cleaned, with labels, paint spots, putty, and other defacements removed, and shall be clean at the time the work is accepted.

ITEM 06 : ELECTRICAL WORKS

A. SCOPE OF WORK

The Contractor shall provide all materials and equipment and perform all the works necessary for the complete execution of all the electrical plans as shown on the

Electrical Drawings, and as herein specified, or both, except as otherwise excluded and which, without excluding the generality of the foregoing shall include but not limited to the following principal items of work:

- a. Supply and installation of complete electrical conduit and wiring for light and power.
- b. Supply and installation of lighting fixtures, outlets and wiring devices;
- c. Supply and installation of electrical panels;
- d. Complete testing and commissioning of all electrical and auxiliary works; and
- e. If anything has been omitted for any item of work or materials usually furnished which are necessary for the completion of the entire work as outlined herein before, then such items must be and hereon included in this division of work.

B. EXECUTION AND INSTALLATION OF WORKS

The work under this contract shall be in accordance with the provisions of the latest edition of the Philippine Electrical Code and in compliance with the requirements of the local utility company.

C. GUARANTEE

The Contractor shall guarantee that electrical system are free from all grounds and from all defective workmanship and materials and will remain so for a period of one year from the date of acceptance of the work. Any defects, appearing within the aforesaid period, shall be remedied by the Contractor at his own expense.

D. WORKMANSHIP

The work thorough shall be executed in the best and most thorough manner under the direction of and to the satisfaction of the Architect who will interpret the meaning of the Drawings and Specifications and shall have the power to reject any work and materials which in his judgment, are not in full accordance therewith.

E. STANDARD OF MATERIALS

All materials shall be new and shall conform with the standards of Underwriter's Laboratories, Inc., IEEE, NEMA and Philippine Standard Agency (PSA) for every case where such a standard has been established for the particular type of materials in question.

All materials on all system shall comply with the specifications, unless specially excepted and all materials where not specified shall be of the best of their respective kind.

F. APPROVAL OF MATERIALS

All electrical materials shall be new and shall meet the requirements and shall bear the inspection label wherever standards have been established. Before any materials or equipment are ordered, the Contractor shall submit to the PPA Engineer for approval, a complete list of the materials, apparatus, and equipment, in triplicate, giving the manufacturer's name, address, descriptive data, trade name of item, rated capacities, certified analysis, catalogue numbers, etc., and when called upon to do so, complete specifications and cut or drawings of each item, of whole or portion of list, as required by the Engineer which he proposed to use and install.

G. LIGHTING SYSTEM

The Contractor shall provide labor and materials for the installation of lighting systems to be included but not limited to the following:

- a. A system of exterior and interior lighting including all feeders, branch circuits and connections to all lighting outlets and fixtures.
- b. All distribution and lighting panels completed.
- c. If anything has been omitted in any item of work or material usually furnished which are necessary for the completion of the lighting system work as outlined hereunder, then such items must be and hereby included in this section of the work.
- d. The Contractor shall provide and install all lighting fixtures of the size and type as indicated in the drawings.
- e. All fixtures shall be wired and installed completely including all lamps and/or tubes, transformers, ballasts, supports, brackets, canopies, globes, and other parts and devices necessary for the complete installation and operation.

H. WALL SWITCHES

Wall switches shall be rated at 10 amperes, 250 volts, one-way or three-way as required. The type of switch shall be tumbler or snap on as required. National brand or equivalent. Where switches are installed surface mounted, they shall be installed in type FS conduit fittings and provided with surface mounting covers. Switches shall not be during switching operations. Wall switches shall be mounted 1400 mm. from finish floor.

I. OUTLET AND SWITCH BOXES

At all outlets or whatever kind of all systems, there shall be provided suitable outlet boxes or other fittings specially designed to receive the type of devices to be mounted thereon.

All outlet boxes shall be pressed metal boxes with metal thickness not less than gauge 18.

All metal parts of outlet boxes shall be galvanized and shall have covers having thickness as the box with screws attached.

Boxes installed in damp or wet locations shall be specifically approved for the purpose and shall be so placed and constructed as to prevent moisture from entering or accumulating within the box.

In walls or ceiling constructed of wood, concrete or other similar materials, boxes and covers shall be flush with finished surfaces. Number of wires and devices contained in the box shall be in accordance with the Code. Where necessary flush square outlet boxes shall be fitted with extension rings or raised coverlets.

Boxes shall be securely and rigidly fastened to surface upon which they are mounted, or embedded in concrete or masonry, and shall be supported from a structural member or building either directly or by using substantial and approved metal braces.

Outlet boxes installed exposed other than in wet location shall have thickness not less than gauge 16 while boxes concealed above closed ceiling and those embedded in masonry shall have a thickness of gauge 18, hot dipped galvanized.

Standard outlet boxes shall be of the octagonal, square or rectangular shapes and only deep types no less than 54 mm. depth shall be used for installation.

J. CONDUITS

Unplasticized Polyvinyl Chloride (PVC) conduit shall be schedule 40, uniform thickness. It shall be compression and impact resistant, non corrosive, weatherproof as manufactured by Emerald or equivalent. The material shall not deteriorate when exposed to sunlight, rain and other elements.

Liquid-tight flexible materials metallic conduit shall be raintight suitable for wet and damp locations complete with special fittings and connectors approved for the purpose.

K. INSTALLATION OF CONDUIT SYSTEM

Conduit shall be installed and supported in a rigid and satisfactory manner.

No conduit shall be used in any system smaller than 15 mm. (1/2 inch.) diameter trade size, nor shall have more than four quarter bends in any one run between outlets and/or fittings. When necessary, pullboxes shall be provided as directed by the PPA Engineer

All cut ends of conduit shall be reamed to remove rough edges. Where a conduit enters a box or fitting, bushing shall be provided to protect wire from abrasion, unless design of box or fittings is such as to afford equivalent protections.

Raceways shall be installed at right angles or parallel to building lines. Conduit shall be firmly fastened within 0.3m. of each outlet box fitting or cabinet by means of standard lumps and intermediately spaced not more than 1.0 meter. All clamps, bolts, straps, etc. shall be galvanized and painted metal.

Support and braces may be welded to structural steel after specific approval by the PPA Engineer. When running over concrete surfaces, the screws shall be held in place by expansion sleeves.

L. WIRES AND CABLES

600 volt grade wire shall be copper, hard drawn and annealed and shall be 98% conductivity.

Wire or cable for lighting and power systems shall be plastic insulated type TW, THW or THHN as note on plans or as specified. All wires 3.5 sq.mm. and larger shall be stranded unless noted on plans.

No wire smaller than 3.5 sq.mm. shall be used except where otherwise specified. Control leads for motors shall be type THW, unless otherwise indicated.

All wires shall be color coded (Black, Red, Yellow, Green) wires and cables shall be as manufactured by Phelps Dodge, Philflex or equivalent.

Underground conductors shall have distinct insulation color from grounded and grounding wires. Grounding wires and cables shall be colored green or white or as

M. LIGHTING AND POWER PANELS

Electrical panels and cabinets shall be dead front construction furnished with trim flush or surface mounting as required. Cabinet and panels shall be of code gauge steel with gutters at least 100 mm wide. Doors shall be swing type and shall have latches and locks.

All protective devices shall meet NEMA and Underwriter Laboratories Inc. specifications. In multiple circuit breaker, all poles shall be interrupted simultaneously during fault conditions.

All busbars and current carrying parts shall be high conductivity copper and shall have current density not more than 1.5 amperes per sq.mm. of cross-sectional area and shall be heavier where for mechanical strength. Supply with non-ferrous or galvanized bolts, nuts, washers and other required attachment devices.

Each and every panel shall be provided on the inside of the door, with directory frame protected by a transparent plastic window, containing typed card indicating the member and designation of the circuits.

All panels and switchboard shall have grounding bus or lugs with pressure type terminals of sufficient quantity and size and so located inside as to permit easy termination of cables.

Panels, switchboards and MCC's shall be painted with coat of antitrust primer and finish coat of baking enamel paint preferably colored gray.

N. CIRCUIT BREAKERS

Circuit breakers shall consist of quick-make, quick break operating mechanism, thermal magnetic trip unit on each pole and enclosed in a molded phenolic case. The

thermal magnetic trip unit shall provide time delay overload and instantaneous trip short circuit in any one pole.

Rating of circuit breaker shall be suitable for each service application shall be specified as to rated voltage, current, type, frame, size and frequency as manufactured by Westinghouse or equivalent.

O. INSPECTION TESTS

Inspection and tests shall be conducted by the Contractor in the presence of the PPA Engineer or the Owner's representative. These tests shall be for the normal operation of the entire electrical system of the project. The decision made by the PPA Engineer for correction on any item or work, alteration of incorrect installation, or replacement of defective materials, or any other defects as found by him shall be final and must be complied by the Contractor within forty-eight (48) hours after receipt of the official written communication before final acceptance can be made.

P. TEMPORARY LIGHT AND POWER

The Contractor shall provide, install and maintain adequate incoming service transformer, light feeders, branch circuits, outlets, lamps and fixtures, as required for performance of the work by all trades engaged in the construction of the building structures and installation.

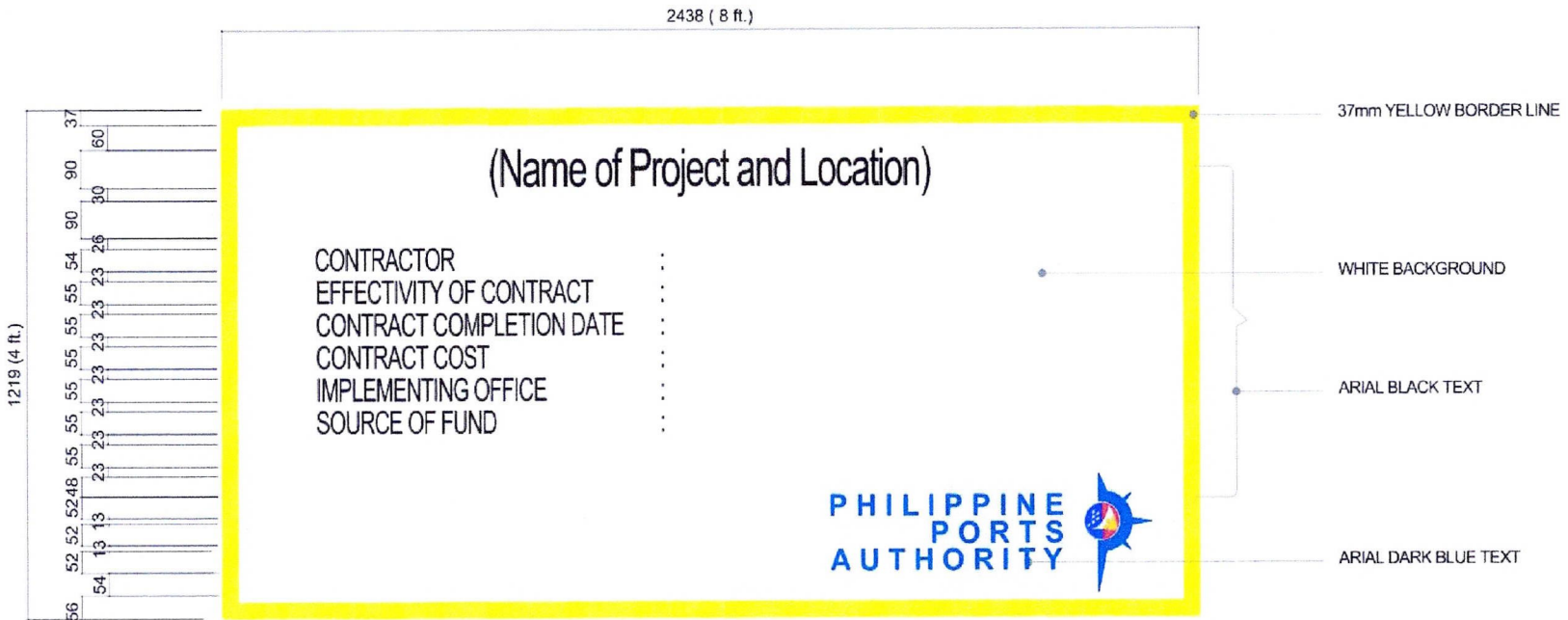
ITEM 07 : PROJECT BILLBOARD

A. SPECIFICATION

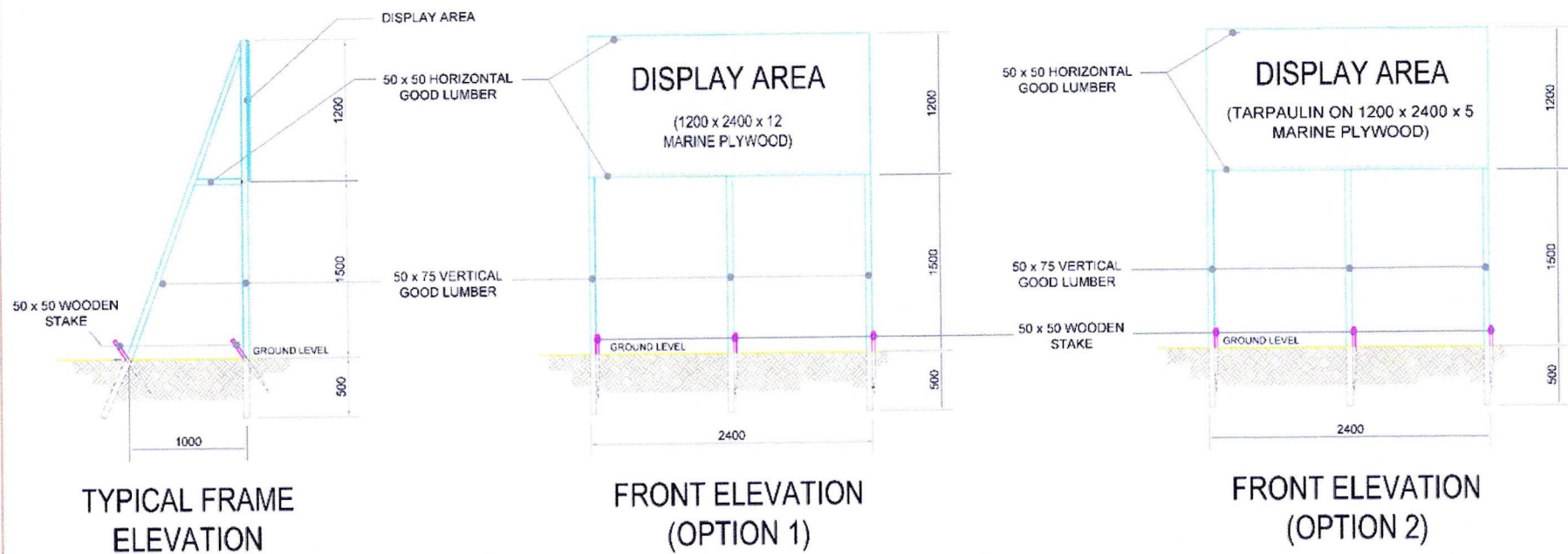
The Project Billboard shall be installed at location(s) designated by the PPA Engineer. (for reference, **Annex A** is attached herein)

The size and specifications of materials for the standard billboard shall be 4ft. x 8ft. (1,200mm x 2,400mm) using ½ inch (12mm) marine plywood or tarpaulin poster on 3/16 inch (5mm) marine plywood.

Project billboards shall not contain Name(s) and/or picture(s) of any personages.



STANDARD PROJECT BILLBOARD



BILLBOARD FRAME

(NOT TO SCALE, ALL DIMENSIONS ARE IN MILLIMETERS)

ITEM 08 : SAFETY SIGNAGES AND BARRICADES

A. DESCRIPTION

This work includes the furnishing and installing of safety signages and barricades in accordance with the specifications and to the details shown below in the drawings, or as directed by the PPA Engineer.

B. SPECIFICATION

The Signage's and Barricades shall be installed at location(s) designated by the PPA Engineer.

The sizes of the standard signages shall be 2-2/3ft x 4ft (800mm X 1,200mm) for fixed type and 2ft x 2-2/3ft (600mm x 800mm) for mobile type. For barricade standard 2ft x 2-2/3ft (600mm x 800mm) shall be provided.

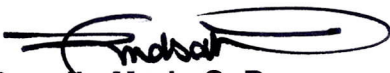
The materials to be used for signages and barricades are ½ inch (12mm) marine plywood or tarpaulin poster on 2" x 2" (50mm x 50mm) good lumber frame (see drawing below).

The printing or painting shall be the discretion of the PPA Engineer.

XI. RESERVATION CLAUSE

The employees of the Contractor are not employees of the PPA, and thus, the latter shall not in any way be responsible for any liability resulting or arising from the conduct of activities of the former, in whatever kind or nature.

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