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Philippine Economic Zone Authority PERFORMANCE SPECIFICATIONS AND PARAMETERS Proposed Design and Build of MEZ Administration Office Building



I. BACKGROUND AND OBJECTIVE

Part of the Philippine Economic Zone Authority's COB for 2022 is the Design and Build of a (4) Four-Storey Administration Building with Roof Deck located at Mactan Economic Zone, Ibo Lapu-Lapu City.

II. PROJECT DESCRIPTION

The project involves the Design and Build of (4) Four-Storey Administration Building with Roof Deck which will house the following offices but not limited to:

- Office of the Zone Administrator
- DG's Office
- Administrative Services Division
- Engineering and Maintenance Division
- Environment and Health Services Division
- Enterprise Assistance Division
- Finance Services Division
- Management Information System
- One-Stop-Shop for other Agencies (BFP, JPCO, TESDA)
- Room Accommodations
- Others

III. PROJECT SITE

1. General

The proposed four (4)-story building with roof deck is to be constructed at the Mactan Economic Zone, Brgy. Ibo, Lapu-Lapu City. The building will be built on the same site where the old administration building stood.

2. Preliminary Survey and Mapping

The Contractor shall establish construction control points in any preferred number and location to be used during construction. All construction alignment, vertical or horizontal, shall be referred to the established control points.

The Contractor shall be responsible for verifying the property boundaries on the approved technical description of the lot provided by the Owner.

b) Existing Terrain, Line, and Grade

The Contractor shall conduct actual field surveys as the basis for designing the required lines and grades.

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c) Setback Requirements

Property setback requirements shall be compliant with the provision of the National Building Code of the Philippines and other governing codes.

3. Preliminary Investigations

Soil and Geotechnical

For buildings two-story and higher should conduct foundation investigation.
(per NSCP 2015 Section 303.1)

Hydrology

The Rainfall Intensity-Duration-Frequency (RIDF) of the nearest synoptic station of PAG-ASA may guide hydraulic calculations. The Contractor is responsible for gathering and securing such hydrologic information in his design—considerations concerning the dramatic weather changes of the past few years attributed to climate change.

Hydraulic

The Contractor shall conduct an actual site inspection and undertake a survey of the existing drainage system in the vicinity of the project site.

Seismic

The designer shall refer to the latest edition of the National Structural Code of the Philippines Volume One for complete seismic design parameters.

Environmental Conditions

Wind - The proposed building falls under Building Category IV of the NSCP 2015, where Lapu-Lapu City has a wind speed of 270kph (See NSCP 2015 Figure 207A-5-1C).

IV. PROJECT DEFINITION

1. General Requirement

The Owner/Procuring Entity does not guarantee that the preliminary data provided are entirely correct, up to date, and applicable to the project. The Contractor shall be solely responsible for the accuracy and applicability of all data used in its design and build proposal and services. It shall also be responsible for the integrity of the detailed engineering design and the performance of the structure irrespective of the approval of the Owner/Procuring Entity. It shall also be solely responsible for the design and be liable for the completed project's structural defects and / or failures.

Areas for consideration are as follows:

Total Floor Area (TFA): $\pm 6,000 \text{ m}^2$

Area Per Floor: $1,500 \text{ m}^2$

2. Exterior Perspective (annex 1)

3. Existing Lot Plan/ Area for Development (annex 2)



4. General Concept

B.1 Architectural Design Concept

The design shall consider utilizing natural lighting and highly efficient materials, reducing energy costs. In addition, the plan shall have features that will help reduce greenhouse gas emissions and urban heat and help improve stormwater management as it delays run-off into the storm drainage system and be disaster-ready.

As specified in the DBM and DPWH Joint Circular No. 1, the design proposal shall comply with the revised space allocation standards for the construction and acquisition of office building/space, as well as the National Building Code of the Philippines and its referral codes, Accessibility Law, and other related rules and standards.

B.2 Structural Design Concept

Structural framing shall be composed of reinforced concrete. Structural materials shall be locally available and accessible to avoid inconvenience and delay. Likewise, adopt economical design without compromising the allowable safety factor for structural design.

B.3 Electrical Design Concept

Electrical major load and general lighting design shall be adequate for offices. It is recommended to use energy-efficient lighting systems. Electrical distribution design systems shall also consider provisions for future electrical expansions and developments. Green energy shall also be regarded as a secondary source of energy. The major electrical design system must be in conformance with the latest Philippine Electrical Codes (PEC), its implementing rules and regulation, and other internationally accepted standards.

B.4 Mechanical Design Concept

An elevator system shall be provided for the employees of PEZA and the public. The elevator shall be designed to carry at least 20 people. Design speed shall be set accordingly for efficient operation.

Fire protection and fire suppression systems shall be provided with wet and dry standpipes, fire hose cabinets, and sprinkle systems, among others.

Air-conditioning system shall be provided using energy-saving and cost-saving technology.

B.5 Electronics Design Concept

Together with the mechanical fire protection and fire suppression systems, a fire alarm system and smoke detectors shall be provided.

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Offices shall have ready-provision for data and voice systems and other rooms that may require the provision. Telephone system design shall suit the building's function with easy and quick communication links. The provisions for LAN and telephone system expansion and development shall be considered. The whole building shall be provided with a ready WIFI connection for all rooms and facilities.

The security monitoring system shall be provided, including all the necessary devices, wirings, and accessories for the CCTV system to be located on strategic locations or as specified elsewhere in these specifications.

B.6 Sanitary and Plumbing Design Concept

Plumbing and sanitary systems shall use low-flow plumbing fixtures that use less water. Rooftop downspouts shall be directed to the rain catcher system. The rain catcher system shall serve as a retention pond to delay surface run-off in the street drainage. It shall be designed to infiltrate the rainwater into the ground while the excess is discharged to the drainage. The sewerage system shall be considered in the design.

Another consideration is the provision for future plumbing and sanitary expansions and development.

V. GENERAL CODE AND STANDARDS

The design and specifications shall conform to, but shall not be limited to the following standards set by the:

- National Building Code of the Philippines (NBCP), latest edition
- National Structural Code of the Philippines (NSCP), latest edition
- Fire Code of the Philippines (PD 1185)
- Uniform Building Code
- Accessibility Law (BP 344)
- Philippine Electrical Code (RA 184)
- New Electrical Engineering Law (RA 7920)
- Philippine Mechanical Code
- Revised National Plumbing Code of the Philippines (RA 1378)
- Code on Sanitation of the Philippines (PD 856)
- Philippine Green Building Code
- Ecological Solid Waste Management Act (RA 9003)
- Applicable Local Regulations and Ordinances

For the actual construction, applicable rules and regulations prescribed by the following agencies shall be observed:

- Department of Public Works and Highways
- Department of Health
- National Pollution Control Commission

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- Department of Environment and Natural Resources
- Bureau of Fire Protection
- Applicable Building Laws/Ordinances in Lapu-Lapu City
- Civil Aviation Authority of the Philippines

VI. SCOPE OF WORK

The Contractor is required to perform the following scope of work:

1. **Review of Existing Information**
Review the basic design parameters, affected facilities, and detailed scope of works.
2. **Field Survey and Site Inspection**
The Contractor shall conduct a site survey including staking, horizontal and vertical control points, benchmarks, and topographic surveys (should he deem necessary).

The Contractor shall have inspected the site of Works and its surrounding and orient himself about the project - location and nature of work; climatic conditions; nature and condition of the terrain; geological conditions at the site; transportation and communication facilities; availability of construction materials, labor, water, electric power and roads; the locations and extent of aggregate sources, and other factors that may affect the cost, duration, and execution of the work.

3. **Soils and Materials Investigations**
The Contractor shall conduct a thorough soil investigation. Analyses and testing will be carried out as required by the latest ASTM Standards.
4. **Architectural Works**
The architectural layout of the proposed building shall align with the development of the institution and its environs. The architectural features shall address the need of the institution and its clientele. The design shall respond to the foot traffic and activity within and proximate to the project site.

Partitions shall be designed appropriately for an office. Flooring finishes shall combine homogeneous tiles, ceramic tiles, and carpet tiles. The ceiling shall be a combination of acoustic board, gypsum/ficem board, and aluminum composite. The architectural design shall address all the requirements in the specifications. It shall be compliant with the National Building Code of the Philippines and all other relevant codes and standards.

5. **Structural Works**
The Contractor shall prepare the necessary structural analyses, calculations, and design of structural members, including foundations, columns, rafters, beams, and shear walls per the National Building Code of the Philippines, National Structural Code of the Philippines, and other relevant codes. In addition, the structure's design shall consider the seismic and wind requirements of the area to attain the optimum safety of the whole structure and minimize possible earthquake/typhoon damage.

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The foundation shall be designed for a four (4)-story roof deck building. The Contractor shall prepare the structural design of the building based on the data obtained from site investigations and survey of existing site conditions, soil/geotechnical survey, foundation investigation, material testing, the seismic requirement of the area, and other investigations necessary in standard engineering practice to ensure the safety of the structure. Design loads shall be derived based on applicable provisions of the 2015 National Structural Code of the Philippines, Volume 1 – Buildings, Towers, and Other Vertical Structures. At the end of the design stage, the Contractor is expected to develop all the required design construction plans.

6. Mechanical Works

The Contractor shall design all mechanical works according to the Philippine Mechanical Code, Fire Code of the Philippines, and other relevant codes, laws, and ordinances. The scope of work of the Contractor consists of performing all operations involved in the detailed design and partial supply, installation, balancing, and testing of the HVAC system and fire protection and suppression systems, all in compliance with the codes, laws, ordinances, and regulations and to the satisfaction of the Owner.

The design of the air-conditioning system shall be per the latest air conditioning technology, either for centralized air conditioning or for a segregated air conditioning system. The Contractor shall supply and furnish all new materials of superior quality.

In general, the work shall include, but not limited to, the design, supply, installation, and putting the system into satisfactory operation of the following principal items:

1. Air-conditioning system, including controls, related accessories, and piping;
2. Air distribution ductwork, plenums, grilles, dampers, and related accessories;
3. Exhausts systems, including fans and ductwork.
4. Local ventilation system for transformer rooms, emergency, generator rooms, electrical rooms, and any other areas that require mechanical ventilation;
5. Automatic control system and other devices;
6. Thermal insulation for refrigerant piping, air-conditioning, and exhausts ductworks;
7. Noise and vibration control materials and devices;
8. Fuel oil system for the emergency generators complete with storage and auxiliary tanks, pumps, and piping, including generator flue gas exhaust and radiator discharge ductwork;
9. Life safety system and smoke evacuation/extraction systems;
10. Motor controllers, including variable frequency, drive as required, and motors, controllers, and control devices as needed and motor control centers;
11. Electrical wiring interconnection between motors, controllers, and control devices as required for the proper operation of the systems;
12. Testing, adjustments, balancing, and commissioning of all systems;
13. Painting and labeling of all equipment and accessories.

The design and provision of the HVAC system shall comply with the following codes and standards:

Code

1. Philippine Society Mechanical Code (PSME Code)
2. Uniform Mechanical Code
3. Fire Code of the Philippines

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4. National Building Code of the Philippines
5. Philippine Electrical Code
6. Revised National Plumbing Code of the Philippines
7. Uniform Building Code

Standards

1. American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE), current editions
2. American Society of Mechanical Engineers (ASME)
3. National Fire Protection Association (NFPA)
4. American Society of Testing Materials (ASTM)
5. Air Moving and Conditioning Association (AMCA)
6. Air Diffusion Council (ADC)
7. American National Standard Institute (ANSI)
8. American Refrigeration Institute (ARI)
9. Sheet Metal and Air Conditioning Contractor's National Association, Inc. (SMACNA)
10. National Electrical Manufacturer's Association (NEMA)
11. Underwriters Laboratory (UL)
12. Factory Mutual (FM)
13. Deutsh Industrie Norm (DIN)
14. Japanese Industrial Standards (JIS)
15. British Standards (BS)

6.1 Description of System

Air-Conditioning System. The air-conditioning requirement of the building shall be served by a direct-expansion, Variable Refrigerant Flow (VRF) units. Air-conditioned areas shall be provided with combined ceiling-concealed fan coil units, and split-type wall mounted Fan Coil Units. Outdoor units (ACCU) shall be located at each respective floor level. The condensing units can be installed and hung with brackets or floor-mounted.

Ventilating System. All toilets, pantries, and active storage rooms shall be provided with local mechanical exhaust fans. Air ventilation shall be through galvanized steel ductwork.

Air Pressurization and Smoke Venting System. The stairwells are pressurized in the event of fire through the automatic operation of the pressurization fans. Pressurization air will be injected at every other floor. In the event of a fire, the floor on fire shall be subjected to smoke evacuation, while the floors above and below it shall be pressurized. The vestibule of the floor on fire shall be kept under neutral pressure. Fire mode operation of both stairwell pressurization and smoke evacuation fans shall be at the activation of the smoke detection system. The overhead water tank and cistern shall be designed, including its water pumping system.

6.2 Equipment Specification Guideline

1. Variable Refrigerant Flow (VRF) Units

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a. General

a.1 Unit shall be air-cooled, split-type, multi-system air conditioner consisting of one outdoor unit and indoor plural units, each having capability to cool independently for the requirements of the rooms. Up to 8 different types and capacities, indoor units can be connected to one refrigerant circuit and controlled individually.

a.2 Inverter-controlled compressor shall be capable of changing the speed linearly to follow variations in cooling and heating load. Outdoor unit shall be suitable for mix-match connection of the following models: (1) Ceiling concealed type; (2) Wall mounted type.

a.3 The refrigerant piping can be extended up to 100m with a 50m level difference without any oil traps. The 50m level difference is based on the outdoor unit's location above the indoor unit. Where the outdoor unit is located under the indoor unit, the difference is at a maximum of 40m. Therefore, the level difference between indoor units in one refrigerant circuit shall be 15m. Both indoor and outdoor units are assembled, tested, and charged with refrigerant at the factory.

b. Capacity

Unit shall have a total capacity as shown on the equipment schedule on the plans.

c. Refrigerant Circuit

c.1 The refrigerant circuit shall include an accumulator, plural electronic expansion valves, one or two oil separators, a receiver, and liquid and gas shutoff valves. In addition, a filter drier and crankcase heaters shall be furnished.

c.2 The outdoor unit shall have one scroll type or two reciprocating or scroll compressors. The indoor unit shall be equipped with an electronic control valve to control refrigerant flow individually.

d. Safety Devices

The following safety devices shall be part of the outdoor unit; high-pressure switch, fused crankcase heater, fusible plug, thermal protectors for compressor and fan motor, over current protection for inverter, short recycling protection timer.

e. Oil Recovery System

Unit shall be equipped with an oil recovery system to ensure a stable operation with long refrigerant piping.

f. Oil Equalizer System

The outdoor unit with two compressors shall be equipped with an oil equalizer system to avoid imbalance between the two compressors.



g. Controls

g.1 Outdoor unit shall have a minimum of 12 capacity steps to meet load fluctuation, and indoor unit individual control in the case of inverter series.

g.2 Computerized Proportional - Integral Derivative (PID) control shall be used to maintain a correct room temperature.

g.3 Unit shall be equipped with a self-diagnosis circuit for easy maintenance and service.

g.4 The indoor unit shall be operated individually. Each has a remote controller with an ON/OFF switch, a fan speed selector, a timer, a thermostat setting button, an LCD that indicates temperature setting, operation mode, malfunction code, filter cleaning timing, etc.

g.5 The remote controller shall store the latest malfunction code for easy maintenance.

g.6 Up to 16 indoor units can be controlled by one remote controller in case of group control operation.

h. Related Accessories

h.1 The following accessories shall be provided:

Piping branches and headers with insulation for quick work and smooth refrigerant flow; Remote control devices for operation and monitoring of indoor unit from remote; Multi-function centralized controller.

h.2 The monitoring function shall be capable of indicating operation and trouble signals of the indoor and outdoor unit to the remote.

h.3 Outdoor unit shall be provided with anti-corrosion treatment.

At the end of the design stage, the Contractor is expected to develop the design construction plans. The work also includes testing, adjustments, balancing, and commissioning systems installed. All furnishings required in the scope of work shall be to the satisfaction and approval of the Owner.

7. Electrical and IT Works

The Contractor shall design for the electrical and power supply system of the building following the Philippine Electrical Code, Philippine Mechanical Code, Fire Code of the Philippines, International Life Safety Code (NFPA 101), National Electrical Code (NFPA 70), Philippines Electronics Code Book # 1, National Building Code of the Philippines and other relevant codes, laws, and ordinances.

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The Contractor shall supply and install a complete lighting and convenience outlet system including all lighting fixtures, conduits, fittings, wires and wiring devices, bonding, grounding system and lightning arrester protection. The use of energy-efficient lights is mandatory. The Contractor shall likewise furnish and install a complete electrical power system including all feeders, sub-feeder, branches, circuits, wires/cable, and wiring devices. The Contractor shall supply and provide all new materials of superior quality. All cables must be rated standard sized to accommodate load demand or peak load hours and have provision ready for future installation of additional electrical-power equipment and machineries

The Contractor shall likewise supply and install local area network (LAN) wiring, structured cabling, and other accessories suited for fiber optic connection for an automatic link to the main office. In addition, the provision shall be made for the voice and data system. The Contractor shall coordinate with the DOJICT personnel and its voice and data service providers for the configuration of the communications system. The Contractor shall supply and furnish all new materials of superior quality. All wirings and accessories must be appropriately sized suited for the operation of an office.

The Contractor shall supply and install: (1) Multi-Media Conference System (2) Audio/Video System at appropriate locations including all wiring, connectors, and interfaces of Audio & Video devices, (3) WIFI systems across all locations in the building and other accessories necessary for its function and operation. The Contractor shall supply and furnish all new materials and of superior quality.

In general, electrical and IT works shall consist of the following:

1. Electrical layout plan showing the system of wiring/raceway, power source, distribution, riser diagrams, panel boxes, switches, and all other pertinent material required by approving agencies.
2. A stand-by Generator Set, equipped with an Automatic Transfer Switch (ATS), shall be provided as an alternative power source to supply the entire building during power interruptions. Gen-set room shall be strategically located and designed as part of the site development.
3. The Contractor shall provide power provision; however, the demand load, power supply, and distribution line shall be coordinated with the local utility provider, assisted by the Owner. Application for a new power meter and load deposit fee for the power transformer shall be facilitated by the Owner. Still, the required documentary requirements such as load computation, electrical plans, single line/riser diagram, design analysis (fault/short circuits & voltage drop), arc flash level, protection coordination, color coding of conductors/cable, application of GFCI protection for damp or wet location, circuit directory, identification, labeling shall be provided by the Contractor. Powerhouse/mechanical room where distribution transformer pad shall be strategically located and designed as part of the site development.

Electrical wirings and accessories shall be:

- i. Service Entrance – All wirings shall be THHN, IMC conduit, UL listed, or approved equal. For multiple bundles of conductor/wire cable raceways must be required

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- ii. Interior Wiring – All wirings shall be THHN, 3.5mm² minimum sizes in PVC, sch. 40 conduit
- iii. Devices – All switches and receptacles shall be flush mounted, 15 amperes, grounding-type for convenience outlet.
- iv. Lighting Fixtures – Use power-saving type fixtures or LED lighting fixtures, use three-way switches every level/stairway and lobby area.
- v. Circuit Breaker – Bolt-on type, 10 kaic minimum. (Note: Use circuit breaker with Ground Fault Circuit Interrupter (GFCI). Feeding circuit with devices expose to wet location).
- vi. Panel Board – Ga. 16 GI sheet powder coated finish.
- vii. Separate circuit power line provision for emergency light/fixture.
- viii. Philippine Distribution Code 2016 Edition: Requirements for distribution users.
 - Sec. 4.10.1.4 The connection point shall be controlled by a Circuit Breaker that is Capable of interrupting the maximum short circuit current at the point of connection.
 - Sec.4.10.1.5 Disconnect switches, or other isolation means, shall also be provided and arranged to isolate the Circuit Breaker for maintenance purposes.

4. Security Monitoring System

- The intent of this specification is to provide a complete Data/Voice Communication. All equipment and installation materials required to fulfill the above shall be furnished whether or not specifically enumerated herein or on the drawings. The specification covers minimum requirements and is not intended to preclude provision of equipment or methods that exceeds the requirements.
- The systems installation shall comply with the local and national building code and applicable standards and governed by existing rules and regulations of the locality and concerned agencies.
- The contractor or installer shall be responsible for the technical supervision, testing and commissioning of the a foresaid systems. All work shall be done under direct or immediate supervision of a duly-licensed Electronics Engineer.
- The contractor or installer shall furnish and install the systems as shown in the plans and drawings.
- The contractor shall provide the necessary devices, including wiring, accessories, and equipment.

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- The Contractor/System shall have provide at least 62-inch television High Definition TV
- All materials and equipment to be furnished shall be the standard products of a manufacturer regularly engaged in the production of such equipment and shall be listed by Underwriter’s Laboratory, Inc., CE, or shall be in conformance to established standards.
- Equipment lists presented here shall summarize the main content of the above mentioned systems. The contractor shall be responsible for ensuring that a complete, satisfactory and working system are provided.

5. Fire Detection and Alarm System

General Requirements:

The work includes furnishing of labor materials tools and equipment necessary for and incidental to the installation of a complete for operation and usable standard system conforming to the applicable requirements of NFPA except as modified herein. Materials and equipment to, be furnished under this Contract shall be essentially the current design products of one manufacturer regularly engaged in the production of such equipment.

- The system shall be a programmable addressable closed circuit, electronically-supervised, non- coded, Fire Detection and Alarm System capable of control and monitoring 1500 minimum addressable points.
- The system shall include but not limited to Fire Alarm Control Panel (FACP) with trouble buzzer and lights, manual stations, alarm speaker with strobe light. automatic detectors, interface addressable modules, stand-by batteries, telephone and emergency voice evacuation system.
- The system shall be wired as Class **A** System throughout. Wiring between Automatic Detectors, Manual Station and FACP shall be zone addressable via a Class A loop wiring with two (2) pairs of wires.
- The System shall have a Positive Alarm Sequence features and that complies with the NFPA 72 clause 23.8.1.3. The System shall provide means for bypassing the positive alarm sequence.
- Every enclosed room shall have detection devices installed except for areas where detection is not required as per Philippine Electronics Code Book #2 Chapter 1, subclause 1.8.

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- The Detectors shall be based on actual site conditions, site requirements, and ambient conditions. However, the System shall include protection from nuisance alarms.
- The Detectors shall be located with at least 1 meter radial distance to air blowers or air diffusers.
- All designated fire exit doors shall have Manual Pull Station within 1.2 meters from the fire exit door.
- The system shall comply with the applicable provisions of the Philippine Electronics Book # 2, NFPA 72, Philippine Electrical Code, and meet all the requirements of the local code enforcing authorities. The system shall be listed, labeled or approved by Underwriter's Laboratories, Inc.
- Installation of the system shall be governed by the provisions of the latest edition of the Philippine Electronics Code Book # 2, Philippine Electrical Code and existing rules and regulations of the locality and other governing agencies.
- All system equipment shall be approved and listed by institutions recognized by the relevant authority, and suitable for use in the Philippines, considering ambient conditions such as temperature and relative humidity, and electricity supply of 220VAC 60Hz.

6. Paging System

GENERAL REQUIREMENTS

- The intent of this specification is to provide a complete Paging System. All equipment and installation materials required to fulfill the above shall be furnished whether or not specifically enumerated herein or the drawings. The specification covers minimum requirements and is not intended to preclude provision of equipment or methods that exceeds the requirements.
- The systems installation shall comply with the local and national building code and applicable standards and governed by existing rules and regulations of the locality and concerned agencies.
- The contractor or installer shall be responsible for the technical supervision, testing and commissioning of the foresaid systems. All work shall be done under direct or immediate supervision of a duly-licensed Electronics Engineer.
- The contractor or installer shall furnish and install the systems as shown in the plans and drawings.
- All materials and equipment to be furnished shall be the standard products of a manufacturer regularly engaged in the production of such equipment and shall be listed by Underwriter's Laboratory, Inc., CE, or shall be in conformance to establish standards.
- Equipment lists presented here shall summarize the main content of the above mentioned systems. The contractor shall be responsible for ensuring that a complete, satisfactory and

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working system are provided.

SUBMITTAL

SHOP DRAWINGS

- System Schematic wiring diagram
- Drawing of device and equipment enclosure
- Mounting/installation details
- Plan layout of all device and equipment
- Single-line diagram

SAMPLE

- Cables and conduit
- Brackets, mounting and enclosure
- Catalogues of products equipment and devices

STANDARDS

- European Telephone Standards ETS 300 133-1
- EMC (Emission and immunity)
- FCC Part 15b, Class A: Conducted and Radiated Emissions
 - EN50130-4 (1996): Immunity Requirements for Components of Fire, Intruder and Social Alarm Systems
 - EN 55022 (1995): Conducted and Radiated Emissions
 - EN61000-3-2 (1995): Power Line Harmonics
 - EN61000-3-3 (1995): Power Line Flicker
- Safety – UL 1950, CUL1950, CUL1950 3rd edition; EN60950 (1992), Amendments 1, 2, and 3
- PEC, NEC and other applicable code standards.
- NEC Article 640 – Audio Signal Processing, Amplification, and Reproduction Equipment

PRODUCTS

All electronic devices installed shall be within the specific requirements of all offices in Group Buildings and will meet the electronic standard requirements of paging system.

EXECUTION

PRE-ASSEMBLY AND TESTING

All equipment is to be pre-built and tested at the contractor's premises before being delivered to site. All equipment function herein, recording equipment, controls etc., are to be assembled and proved to the satisfaction of the client's representative before being delivered to site.

TESTING AND COMMISSIONING

Practice Completion

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When the contract is considered to be complete, Practical Completion will be effective after thirty consecutive days of uninterrupted, fault free operation

6. Telephone

- i. Service Entrance Provision – Shall be provided by the local utility provider.
- ii. Location of Service Entrance – Shall coordinate up to the building’s Main Distribution Frame (MDF).
- iii. Provide 1-50mm diameter PVC conduit spare for future expansion.
- iv. Main Distribution Frame (MDF) – Size up to 30% spare provision for future expansion, use Ga. 16 GI sheet in a powder-coated finish.
- v. Telephone Terminal Connection (TTC) – Shall be provided for every floor level.
- vi. Telephone system design shall suit the building’s function.

7. Data

- i. Main Tapping Hub – Shall be provided inside the IT/EDP room or electrical room.
- ii. Local Area Network (LAN) shall be provided, including LAN wiring using fiber optic cabling and LAN expansion and development provisions.
- iii. Wide Area Network
- iv. Where necessary, rooms and offices shall be provided with a data point. Size and type shall correspond to the need of every office.
- v. Shall be compliant with the requirement of establishing a Data Center.
- vi. Design shall be coordinated with the Owner’s IT personnel and the Owner’s intranet/internet service provider.

8. Structured Cabling

General Requirements

- A. This document describes the cabling system and general requirements to be met in the proposal of the cabling system installer or contractor. The communications infrastructure project requires a Structured Cabling System backed by a 25-year system warranty. The structured cabling system shall support voice data, video and related applications within the customer premises. The system warranty shall be facilitated by the contractor and be established between the Customer and cabling system Manufacturer.
- B. The intent of this document is to provide a standard specification that will be used for the Structured Cabling System of the building. This document provides the minimum performance

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criteria for the components and sub-systems comprising a complete cabling system that shall fit and accommodate the Owner's requirements.

- C. Product specifications, general design considerations, and installation guidelines are provided in this written document. Description and technical specifications of cross-connect hardware and distribution racks or frames, cable routing and installation practices for *Structured Cabling System* is contained in this document.
- D. The *Customer's* cable infrastructure project requires a Category 6 *Structured Cabling System*, equivalent single manufacturer solution or *End-to-End* solution. The enhanced Category 5e portion of the cabling system shall comply with the link and channel performance requirements of ANSI/TIA/EIA.
- E. The *Structured Cabling System* shall support Local Area Network (LAN) 10/100/1000 BASE-T Ethernet applications capable of supporting the provision of power to the Data Terminal Equipment via the electrically conductive Media Dependent Interfaces as specified in the latest IEEE 802.3af "Power over Ethernet" (PoE) standard.
- F. The *Contractor* is required to furnish all labor, supervision, tooling, miscellaneous mounting hardware and consumables for each cabling system installed. The *Contractor* shall maintain current status with the warranting manufacturer, including all training requirements, for the duration and completion of the *Structured Cabling System* or Cable Infrastructure Project.
- G. The Contractor shall staff each installation crew with the appropriate number of certified installer or trained personnel, in accordance with their manufacturer warranty contract agreement, to support the 25-year *System Warranty* requirements. After installation, the Contractor shall submit all documentation to support the warranty in accordance with the manufacturer's warranty requirements, and to apply for said warranty on behalf of the customer.
- H. The system warranty will cover the components and labor associated with the repair/replacement of any failed link as a result of a defective product when a valid warranty claim is submitted within the warranty period.

8.1 STANDARDS/CODES AND REFERENCES

The cabling system described in this specification is derived in part from the recommendations made in industry standard documents. The documents below are incorporated by reference.

- A. Technical Specification and Associated Drawings
- B. ANSI/TIA-568-C.O, *Generic Telecommunications Cabling for Customer Premises*
- C. ANSI/TIA -568-C.1, *Commercial Building Telecommunications Cabling Standard*
- D. ANSI/TIA -568-C.2, *Copper Cabling Components Standard*
- E. ANSI/TIA -568-C.3, *Optical Fiber Cabling Components Standard*
- F. ANSI/TIA/EIA-569-B, *Commercial Building Standard for Telecommunications Pathways and Spaces*
- G. ANSI/TIA/EIA-606-A, *Administration Standard for the Telecommunications Infrastructure of Commercial Buildings*
- H. ANSI/J-STD-607-A, *Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications*
- I. Building Industries Consulting Services International (BICSI) *Telecommunications Distribution Methods Manual (TDMM)* - 12th edition
- J. Philippine Electronics Code

If this document and any of the documents listed above are in conflict, then the more stringent requirement shall apply. All documents listed are believed to be the most current releases of the

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documents; the vendor is responsible to determine and adhere to the most recent release when developing the proposal for installation.

8.2 SCOPE OF WORK

The scope of work shall be based on the plans and documents provided by the *Owner*. The project must be based on the documents, materials and information contained herein as well as any addenda if required or issued by customer. The project must be based on the information and data contained herein as well as any addenda if required or issued by the customer.

Examples include but are not limited to:

- Building size and layout
- Telecoms riser
- Telecoms room and locations
- Pathway types location and layout
- Number of work area drop locations

The project shall be accompanied by a warranty commitment binding the awarded contractor and manufacturer to the customer selected for the period of 25 years.

8.3 CONTRACTOR QUALIFICATIONS AND TRAINING

The Contractor shall at a minimum possess the following qualifications:

- A. Contractor shall submit Letter of Authorization and Certificate of Approval from the cabling system manufacturer stating that the installer/contractor is an authorized business partner and certified installer.
- B. Contractor shall submit letter of warranty support from the cabling system manufacturer stating that the cabling installation of the contractor shall be supported by 25-years System Warranty to be issued by the cabling system manufacturer which would cover products, cables, labor and application.
- C. The Contractor/installer shall submit a certification or proof of training on structured cabling system design and installation. Personnel or technical staff shall be trained and certified in the installation of the cabling system by the cable manufacturer.

8.4 SUBMITTALS

- A. Proof of End-to-End Solution - Submit Letter from Cabling System Manufacturer
- B. Submit samples and brochures of the materials or product to be used in the project such as telecom outlet, faceplate, connecting block/wiring module, patch panel, patch cord and other related cross-connect hardware.
- C. Shop drawings shall include but not limited to the following:
 - Horizontal Distribution Layout (actual layout including pull-box)
 - Backbone Cabling Layout
 - FD/IDF Room Layout
 - BD/MDF Room Layout
- D. Submit sample or detail drawing of distribution racks and frames
- E. As-built drawings shall be submitted by the contractor showing the locations of and identifiers for all:
 - Horizontal cable routing and terminations
 - Cable tray and conduit layout.

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- Pull-box and entranceways(FD/BD and Work Area)

F. Submit Operation and Maintenance Manual or administration manual including summary test data on each cable run, label for each pair utilized in the backbone riser and all drawings required in the as-built package.

8.5 CLOSE-OUT SUBMITTALS

A. Test and Evaluation Reports

1. Provide test documentation in a three-ring binder(s) after the completion of the project.

The binder(s) shall be clearly marked on the outside front cover and spine with the words "Test Results", the project name, and the date of completion (month and year). The binder shall be divided by major heading tabs: Horizontal and Backbone. Each major heading shall be further sectioned by test type. Within the horizontal and backbone sections, test results (Category6). Test data within each section shall be presented in the sequence listed in the administration records. The test equipment name, manufacturer, model number, and last calibration date will also be provided at the end of the document. The test document shall detail the test method used and the specific settings of the equipment during the test.

2. When repairs and re-tests are performed, the problem and corrective action taken shall be noted, and both the failed and passed test data shall be collocated in the binder.

B. Warranty Documentation

1. Facilitate a 25-yr. system performance warranty between the Structured Cabling System manufacturer and the owner.

8.6 STRUCTURED CABLING SYSTEM

All products supplied under this tender shall be genuine and RoHS compliant products. Online resource must be available for the verification of the products proposed. The communications channel shall be fully standard compliant and is capable of supporting 1 GBE (1 OOBASE-T) Ethernet to the desktop. This shall be supported by a copy of the certificate from an independent 3rd party test laboratory during document submission for the tender.

All copper products in the communications channel shall be from a single-manufacturer solution capable of supporting the provision of power to the Data Terminal Equipment via the electrically conductive Media Dependent Interfaces as specified in the latest IEEE 802.3at and IEEE 802.3af "Power over Ethernet standard.

A. Work Area Subsystem

Class 6 interconnections shall be installed to connect active terminal devices to the telecommunication outlets. This includes patch cords, connectors, faceplates, as well as the work area patch cords (equipment cord) needed to make connections.

Faceplate Specifications

The faceplate for TO installation shall include the following features:

- A choice of 1,2,3,4 outlets
- A clear label for application of circuit identification
- shutter door for dust and contaminants protection
- Accepts RJ45 jacks

Telecommunication Outlets (TO) Specifications

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The telecommunication outlet shall include the following features:

- Modular jacks shall be un-keyed, unshielded, 4-pair, RJ-45, and shall fit in a standard utility box or modular system furniture raceway.
- The 11 O-style insulation displacement connectors shall be capable of terminating solid cable conductors from \varnothing 0.5mm to 0.65mm 22-24 AWG or stranded conductors from \varnothing 0.4mm to 0.5mm (22 to 24 AWG).

Work area Patch Cords Specifications

The patch cords for the work area shall include the following features:

- RJ-45 Cat 6 patch cords with boots shall be installed for the user work area.
- Patch cords shall be factory terminated with 4-pair UTP stranded cable.
- Patch cords shall be available with lengths of 2, 3, or 5 meters.
- Patch cords jacket shall be available in white, blue, grey, red, green color.

Horizontal Distribution Subsystem

The size, location and provisioning of services and facilities in the (FD) should be in accordance with ISO/IEC 11801. The FD also house the rack mounted copper and fiber termination units or patch panels defined in the drawings. All internal horizontal and/or backbone cables shall be terminated on a patch panels or distribution frame.

Patch cords shall be provided when patching of voice and/or data circuits is required at the cross-connections to facilitate Moves, Adds and Changes (MAC's). The patch cords supplied shall be able to support the designed applications.

All cabinets and racks shall be augmented with horizontal and vertical management hardware, allowing excess patch cord lengths to be stored in the sides of the cabinet, both front and rear, to properly dress horizontal cables and patch cords.

Category 6 horizontal 4 pair solid cable shall be install to connect each telecommunication outlet (TO) to the floor distributor (FD).

1. Horizontal Distribution Cable Specifications

The patch panel shall include the following features:

- Category 6 patch panels shall be 1 U high and support 24 modular jack ports or 2U high and support 48 modular jack ports, wired to T5688, and shall accept RJ-45, 8- Position modular plugs.
- Patch panel design shall have 6-port modules with individually replaceable jacks.
- The front of each module shall be capable of accepting 9mm to 12mm labels.
- Each port shall be capable of accepting an icon to indicate its function.
- Patch panels shall terminate the building cabling on 110-style insulation displacement connectors.
- Patch panels shall be supplied unloaded with jacks bagged separately.
- The Cat 6 UTP modular jack insulation displacement contacts shall be capable of terminating solid cable conductors from \varnothing 0.5mm to 0.65mm (24 to 22 AWG) or stranded conductors from 0.4mm to 0.5mm (26 to 24 AWG).

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- The insulation displacement contacts of the shielded modular jack shall be paired with additional space between pairs to improve crosstalk performance.
- Termination of UTP modular jacks on the patch panel shall be completed using a hand tool which employs a fully repeatable, non-impact mechanical termination process. This process shall simultaneously cut and terminate all 8 conductors to the modular jack.
- A cable centering plastic strain relief shall be installed on the terminated jack.
- Patch panels shall be UL listed and be made by an ISO certified manufacturer.

2. Equipment Patch Cords

The patch panel shall include the following features:

- RJ-45 Cat 6 patch cords with transparent boots shall be installed for equipment.
- Patch cords shall be factory terminated with 4-pair UTP stranded cable.
- Patch cords shall be available with lengths of 2, 3, 5, 10, 15 m.
- Patch cords jacket shall be available in white, blue, grey, red, green color, fitted with colored strain relief boot at each end of the patch cord.

Backbone Cabling Subsystem

The cable route within a building, connecting telecommunications rooms to the equipment room is called the Backbone Cabling. It links the equipment room to Horizontal Cross- connects (HC) in the Telecoms Room (TR). It consists of the backbone transmission media between these locations and the associated connecting hardware terminating this media. The Floor Distributor (FD) unless otherwise noted, shall house both voice and data backbone cabling and active equipment to support networking requirements.

1. UTP CAT5e CABLE (25 PAIRS MULTI-PAIR CABLE)

The voice backbone cable shall be 100 ohms balanced UTP multi-pair cable in 25-pair cable configuration. It shall be Category 5e compliant and shall meet the following specifications:

- shall comply to the following standards: ANSI/TIA/EIA-568 C. (Category 5e) ISO/IEC 11801: (Class D) UL CMR or UL CMP
- be 0.50mm (24AWG) solid bare copper
- the maximum jacket diameter shall not exceed 13.0 mm., Non-Plenum PVC
- shall have sequential length (meter) number markings on jacket.
- be UL listed and made by an ISO 9001 and 9002 Certified Manufacturer

2. IDC WIRING BLOCK/CONNECTION MODULE

All multi-pair voice backbone cable shall be terminated on a 10-pair or 25-pair insulation displacement connection (IDC) module or wiring block and shall:

- be made of flame-retardant thermoplastic, with the base consisting of horizontal index strips for terminating UTP cable conductors
- have bases available in rack or frame configurations and for rack mounting with cable management hardware
- shall comply to the following standards:
ANSI/TIA/EIA-568 C. (Category 5e) ISO/IEC 11801: (Class D)
- be UL listed and made by an ISO 9001 and 9002 Certified Manufacturer

3. CROSS-CONNECT CABLE / JUMPER WIRE

The cross-connect cable or jumper wire shall be 1-pair or 2-pair cable. It shall be Category 5e compliant and shall meet the following specifications:

- shall comply to the following standards: ANSI/TIA/EIA-568 C.

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(Category 5e) ISO/IEC 11801: (Class D) UL CMR or UL CMP

- be 0.50mm (24AWG) solid bare copper
- be UL listed and made by an ISO 9001 and 9002 Certified Manufacturer

8.7 INSTALLATION

A. Install all system components and cross-connect hardware according to manufacturer's specifications and instruction as well as all applicable local codes and standards. All horizontal and backbone cables shall be installed in the following manner:

1. Cables shall be installed in continuous lengths from origin to destination (no splices) unless specifically addressed in this document.
2. The cable's minimum bend radius of 4 times the cable diameter and maximum pulling tension of 25 pounds shall not be exceeded.
3. All horizontal cables shall not exceed 90 m (295 ft.) from the telecommunications outlets in the work area to the horizontal cross connect.
4. Cable shall be installed above fire-sprinkler and systems and shall not be attached to the system or any ancillary equipment or hardware
5. The cabling system and support hardware shall be installed so that it does not obscure any valves, fire alarm conduit, boxes, or other control devices
6. Cables shall not be attached to ceiling grid or lighting support wires
7. Where light support for drop cable legs is required, install clips to support the cabling
8. Any cable damaged or exceeding recommended installation parameters during installation shall be replaced prior to final acceptance at no cost to the Owner
9. Cables shall be identified by a self-adhesive label
10. The cable label shall be applied to the cable behind the faceplate on a section of cable that can be accessed by removing the cover plate.
11. Cables shall be dressed and terminated in accordance with the recommendations in ANSI/TIA-568-C standards, manufacturer's recommendations, and best industry practices.
12. Pair untwist at the termination shall not exceed 0.25 inch for connecting hardware.
13. Cables shall be neatly bundled and dressed to their respective panels or blocks.
14. Each panel or block shall be fed by an individual bundle separated and dressed back to the point of cable entrance into the rack or frame.
15. The cable jacket shall be maintained as close as possible to the termination point.
16. Each cable shall be clearly labeled on the cable jacket behind the patch panel at a location that can be viewed without removing the bundle support ties.
17. Maximum conduit and pathways capacity shall not exceed a 40% fill. However, perimeter and furniture fill is limited to 60% fill for move and changes.

8.7.1 LABELLING

A. Each piece patch panel and outgoing cable from the patch panels shall be labelled. Corresponding labelling and numbering shall also be provided on the telecoms outlets.

1. Cables - Horizontal and backbone cables shall be labeled at each end.
2. Faceplates - A unique identifier shall be marked on each faceplate.
3. Racks, Panels, wiring modules - A unique identifier shall be marked on the connecting hardware.



8.7.2 GROUNDING AND BONDING

Communications grounding and bonding shall be in accordance with the requirements of ANSI/TIA/EIA-607-A Telecommunications Bonding and Grounding Standard and shall be observed throughout the entire cabling system.

- A. Equipment racks or frames and metallic pathways shall be earthed or connected to the Telecommunications Bonding Backbone (TBB) of the building located at Telecommunications Room (TR). This TBB backbone shall be used to ground all telecommunications cable shields, equipment, racks, cabinets, raceways, and other associated hardware that has the potential for acting as a current carrying conductor.
- B. Each Telecommunications Closet (TC) or Telecommunications Room (TR) is provided with a telecommunications ground bus bar (TGB) that is connected to the building electrical entrance grounding facility. Use this to provide telecommunications grounding system for Structured Cabling System.

8.7.3 FIRESTOPPING

All firestop systems shall be installed in accordance with the manufacturer's recommendations and shall be completely installed and available for inspection by the local inspection authorities prior to cabling system acceptance.

- A. Apply fire-rated materials into penetrations in fire rated barriers such as penetrations to floor slabs in the telecommunication riser/chase to establish the fire-resistance rating and also to avoid fumes or gases from escaping or penetrating thru the barrier.
- B. All penetrations through fire-rated building structures (walls and floors) shall be sealed with an appropriate firestop system. This requirement applies to "through" penetrations (complete penetration) and "membrane" penetrations (through one side of a hollow, fire-rated structure). Any penetrating items (i.e., riser slots and sleeves, cables, conduit, cable tray, raceways, etc.) shall be properly firestopped.

8.7.4 GROUNDING AND BONDING

Communications grounding and bonding shall be in accordance with the requirements of ANSI/TIA/EIA-607-A Telecommunications Bonding and Grounding Standard and shall be observed throughout the entire cabling system.

Equipment racks or frames and metallic pathways shall be earthed or connected to the Telecommunications Bonding Backbone (TBB) of the building located at Telecommunications Room (TR). This TBB backbone shall be used to ground all telecommunications cable shield, equipment, racks, cabinets, raceways, and other associated hardware that has the potential for acting as a current carrying conductor.

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Each Telecommunications Closet (TC) or Telecommunications Room (TR) is provided with a telecommunications ground bus bar (TGB) that is connected to the building electrical entrance grounding facility. Use this to provide telecommunications grounding system for Structured Cabling System.

9. Plumbing and Sanitary Works

The design of the water distribution system and facilities, sewer and waste disposal system, and storm drainage system, among others, shall conform to the following codes and standards:

- i. Revised National Plumbing Code of the Philippines
- ii. Uniform Plumbing Code
- iii. Sanitation Code of the Philippines
- iv. Uniform Building Code
- v. American Society of Plumbing Engineers Handbook
- vi. American Society of Sanitary Engineers Handbook
- vii. ASHRAE Handbook

All design considerations/assumptions shall be based on the technical and detailed analyses and design computations.

The Contractor shall supply and install complete plumbing and sanitary systems, including fixtures, fittings, appurtenances, and piping systems, among others. The use of low-flow fixtures is recommended. Complete installation shall mean not only the major equipment and apparatus conveyed in these specifications but all the sundry incidental components necessary for the entire execution of the works and for the proper operation of the installation, whether or not these supply components are not mentioned in detail in these specifications. The Contractor shall supply and furnish all new materials of superior quality.

All fixtures must be sized according to use and their projected number of users.

The technical drawings and specifications shall indicate all the details required to ascertain the care and thoroughness devoted to the preparation of the drawing.

9.1 Design criteria

1. Sanitary Drainage and Sewerage

1.1 Sanitary waste generated shall be drained by gravity to the existing sewer line at ground level.

1.2 Drainage and sewerage shall be underground and covered type system.

1.3 The drainage layout shall show all the required information such as the direction of flow, manhole-to manhole distances, and sizes of lines, invert elevation of manholes/catch basins/canals, location of outfalls, grits, grease traps, etc.

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1.4 Septic vaults, sewer pipes, waste pipes, and vent pipes shall be provided and designed at the appropriate size to manage sanitary wastes.

1.5 Sewer line shall be connected to the sewerage system before discharging to the nearest city drainage system.

1.6 Waste from the kitchen sink shall be provided with a grease trap under the sink.

1.7 All sewer and waste lines shall be declog and leak tested.

1.8 All fixtures shall be individually vented.

1.9 Cleanouts shall not exceed 15m apart for the straight horizontal run sewer line.

1.10 Provide secured and isolated storage within the laboratory premises for toxic heavy metals that are due for disposal.

1.11 Provide a sewage treatment plant (STP) where the general sanitary waste exceeds 15m/day.

2. Storm Drainage System

2.1 Storm drainage shall be designed for an average rainfall intensity of 12 inches per hour, 15-minute duration, based on a 10-year precipitation curve.

2.2 Minimum slope for pipes shall not be lesser than ½%.

2.3 Storm drainage shall be by gravity collection system.

2.4 Roofs, decks, ledges, and areas exposed to weather shall be provided with the appropriate type of drains and be connected into the downspouts or leaders for disposal at the grade level into the rain catcher system.

2.5 Storm drainage system for floors above grade level shall be drained by gravity to the drainage line at ground level.

2.6 Drainage shall be provided for machine rooms, air handling unit (AHU) rooms, pump room, Genset room, transformer pad, aircon units, and other utilities where needed.

2.7 All gutter/roof drains shall be provided with a strainer.

2.8 Final disposal point shall be into the drainage line at ground level.

3. Cold Water Distribution System



3.1 Metering – main water meter for the building.

3.2 Hose bibb shall be provided for the machine rooms, Genset rooms, pump rooms, parking areas, and other utility rooms which require water supply.

3.3 Group fixtures shall be provided with an isolation valve (IV) per toilet area supplied. Irrigation supply stubouts or hose bibb shall be supplied in all planter's sites.

3.4 Water tank shall be clean, disinfected, and leak-tested.

3.5 Booster pump and pressure tank, if any, shall be provided to meet the required minimum pressure.

3.6 Pressure reducing valve shall be provided on floors where pressure exceeds 80 psi.

3.7 Operating pressures of toilet/bathroom fixtures shall be considered.

3.8 Occupant water demand as per code requirement.

4. Water Supply and Distribution System

The design shall be based on the source and volume of water supply, water consumption, piping network, and conveyance following the applicable laws, rules, and regulations governing health, safety, and sanitation.

4.1 Potable water supply will be sourced from the existing water mains in the area.

4.2 Water storage tank/cistern shall be designed to accommodate fire and domestic uses where the number and size shall be supported with design computations.

4.3 Rainwater storage tank/cistern shall be considered in the design. Water from this storage/cistern will be used in flushing toilet urinals in the watering plants. Provision shall be made for connection in the water distribution system.

9.2 Material Specification Guideline

1. Sewer and Vent System

1.a Sewer Lines – Lateral pipes shall be Polyvinyl Chloride (PVC) Pipes (Series 1000) and Fittings, series 1000, locally manufactured.

1.b Kitchen Waste Lines – PVC waste pipes and fittings, imported, locally available.

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1.c Vent Lines - Polyvinyl Chloride (PVC) Pipes and Fittings, series 600, locally manufactured.

1.d Branch Vent - Polyvinyl Chloride (PVC) Pipes and Fittings, series 600, locally manufactured.

2. Storm Drainage System

2.a Roof Drains – Dome type strainer brass metal body, locally manufactured.

2.b Floor Drains – Square type with brass metal body, locally manufactured.

2.c Downspouts – Polyvinyl Chloride (PVC) Pipes or HDE Pipes and Fittings, series 1000, locally manufactured.

2.d Collectors – Polyvinyl Chloride (PVC) Pipes or HDE Pipes and Fittings, series 1000, locally manufactured.

3. Water Distribution System

3.a Cold Water Lines (potable & non-potable) – For risers and down-feeds: Polypropylene Random Copolymer (PPRC) Type 3, PN 20 pipes and fittings, imported, locally available. For roughing-in of toilets: Polypropylene (PPRC) pipes and fittings, imported, locally available.

3.b Hot Water Lines – Shall be a copper pipe, locally available.

3.c Fire Line – Shall be Galvanized Iron (G.I.) pipe, sch. 40, locally manufactured; fittings shall be malleable steel, imported, locally available.

4. Plumbing Fixtures

4.a Water Closet – flush valve or tank type, siphon jet, floor or wall outlets, floor mounted, locally available. Consider sensor type fixtures.

4.b Lavatory – counter-top or wall-hung or under-the-counter model, locally available. Consider sensor type fixtures.

4.c Urinal – flush valve, locally available. Consider sensor type fixtures.

4.d Kitchen sink – locally available.

4.e Utility sink – locally available.

At the end of the design stage, the Contractor is expected to come up with the design construction plans at a suitable scale.

All furnishings required in the scope of work shall be to the satisfaction and approval by the Owner.



10. Fire Protection and Suppression Systems

The fire prevention requirements, automatic fire sprinkler, fire hydrants, and fire hoses shall be provided on locations as specified in the codes, standards, and local building laws, as applicable.

The work shall consider the design of fire hose cabinets, wet and dry stand pipe system, provision of fire hose cabinets and wet and dry stand pipe system, and design/layout of automatic fire sprinkler system. The fire suppression system shall be the addressable type.

10.1 Codes and Standards

- a. ASHRAE Handbook
- b. NFPA 101 – Life Safety Code
- c. NFPA 10 – Portable Fire Extinguishers
- d. NFPA 14 – Standard for the Installation of Standpipe and Hose System

10.2 Design Criteria

- a. Portable Fire Extinguishers – shall be strategically located and shall conform to NFPA 10 with maximum travel distance equal to 75 ft.
- b. For the hydraulic analysis, hose allowance shall be 2-50GPM.
- c. Drain line shall be provided with individual remotest test connections for each zone served.
- d. Special extinguishing system shall be provided in areas where expensive/or electronic equipment are stored.
- e. Generator room to be provided with portable fire extinguishers.
- f. Electrical room to be provided with portable fire extinguishers, CO2 or FE-36 type.
- g. Transformer vault/pad shall be provided with 100lbs. wheeled type CO2 or FE-36 type fire extinguishers.
- h. Fire Hose and Wet & Dry Stand Pipe
 - i. The fire hose cabinet shall be installed to extinguish fire in its incipient stage. Standpipe system shall be meeting Class II requirements.
 - ii. The fire hose cabinet shall be located at the prominent and accessible position on each floor, and the place shall be near exits in the corridor.
 - iii. The number of fire hose cabinets in each section of the building is within 30 ft (9.20m) of a nozzle attached to not more than 100 ft (30.50m) hose.

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iv. The hose cabinets shall be made of sheet steel and consist of a hose valve, discharge nozzle, and hose for easy handling. The label of “HYDRANT” shall be affixed to the front of the cabinets.

v. Each discharge nozzle shall discharge water at more than 50GPM (189.40 L/min).

vi. Hose length shall be 1-1/2” \varnothing x 100 ft. (40mm \varnothing x 30m) hose.

vii. The pump shall start automatically.

viii. The wet and dry stand pipe shall be located in noncombustible fire-rated stair enclosures.

ix. The capacity of the fire hose valve in the dry stand pipe system shall be more than 100GPM (379 L/min), and the discharge pressure shall not be less than 65 psi.

i. The portable and mobile type fire extinguishers of required number and type shall be installed.

j. The portable ABC powder type fire extinguishers shall be installed in the other areas (mechanical rooms, storage rooms).

k. For flammable liquid, use an Aqueous Film Foam System (AFFF) to prevent pre-ignition. The maximum travel distance is 75 ft.

l. Use a 1230 fire protection fluid fire suppression system for server room/data center.

10.3 Material Specification Guideline

1. Fire Hose Cabinet

1.a Cabinet – Gauge #18, M.I. Steel, locally manufactured.

1.b Hose – Imported, UL listed rubber-lined gasket hose.

1.c Fog Nozzle – Imported, UL listed, combination fog/nozzle stream.

1.d Rack Pin – Locally manufactured.

2. Portable Fire Extinguisher – UL listed/FM approved, conforming to NFPA 10.

3. Signs – Locally manufactured, samples for approval.

10.4 Pump and Motor System

The Contractor shall design, supply, and install a fire suppression pumping and motor system that can accommodate the minimum requirements in the operation of the system. All fire pumps, jockey pumps, motors, sprinkler heads, alarm assembly, and alarm supervision systems shall be UL listed, and FM approved.

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At the end of the design stage, the Contractor is expected to come up with the design construction plans.

All furnishings required in the scope of work shall be to the satisfaction and approval of the Owner.

11. Permits

The Contractor shall process and secure all the necessary permits as required by authorities for the preparation, execution, and completion of the contract. The Contractor shall coordinate with other government/private agencies and pay “ALL FEES” relative to acquiring the required permits.

Such documents include construction permits but are not necessarily limited to the following documents:

1. Appropriate Certificate from DENR
2. Occupational Safety and Health Program
3. Excavation Permit
4. Fencing Permit
5. Building Permit
6. Fire Clearance Certificate
7. Occupancy Permit

12. Construction Works

Buildings proposed for construction shall comply with all the regulations and specifications herein, governing quality, characteristics and properties of materials, methods of design and construction, type of occupancy, and classification. All other matters relative to the design and construction of the building and other structures not provided for in these specifications shall conform to the provisions of the Fire Code of the Philippines and National Structural Code of the Philippines, as adopted and promulgated by the Board of Civil Engineering according to Republic Act Number 544, as amended, otherwise known as the “Civil Engineering Law.”

The Contractor shall perform the construction activities, but not limited to the following:

Mobilization/Demobilization

The Contractor shall mobilize and bring out into work all personnel, plant, and equipment, following his approved construction program, equipment moving and utilization schedule, and manpower schedule, from its regular place of business to the site to undertake the contract.

Mobilization shall include the obtaining and transporting to job sites of equipment, materials, tools, personnel, constructional plant, and all necessary items for the execution and completion of the work and shall also include the setting up and the verification of all equipment, instrument, and all other plants until it is rendered operable. It shall also include a sufficient supply of spare parts for the construction plant. Breakdowns are to be repaired on-site by the most expeditious method possible at no cost to the Owner. In the event repairs being beyond the personnel or tools at the site to effect repairs in a reasonable time, such

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that the construction plant has to be removed from the site, then a replacement of machine or plant or equipment of a similar capacity shall be provided by the Contractor at no additional mobilization costs to the Owner nor extension of completion of works.

Construction equipment once moved into the project site checked and accounted for by the Owner shall not be permitted, before the completion of the contract, to be moved out or transferred by the Contractor to another project site without the written approval of PEZA. Periodic check-up of the Contractor's equipment moved-in for the contract shall be conducted by the Owner. The Contractor will pay the Owner the amount equivalent to the rental rates of any equipment not accounted for during check-up for the number of calendar days the equipment has been removed (without the written consent of the PEZA) from the project site until the said equipment have been returned. Such cases are grounds for disapproval of claims for time extensions of the Contractor. Demobilization shall include dismantlement and removal from the Contractor's plant, materials and equipment, and all temporary facilities. Demobilization shall also have clean-up of the site after completing the contract as approved by the Project Manager and transportation from the site of the Contractor's personnel.

Site Clearing & Proper Waste Disposal

General site clearing operations include removing demolished materials and objectionable matter, protecting existing structures/facilities left functional, and clearing to allow for new construction. Provide barricades, coverings, or other types of protection necessary to prevent damage to existing structures/facilities not indicated to be removed.

Clearing work shall be restricted to the area within rights-of-way or easement or within construction limits as indicated on the drawings. The work includes cleaning up debris resulting from site clearing operations continue with the progress of the work. Remove debris from the site in such a manner as to prevent spillage. Keep pavement and area adjacent to site clean and free from mud, dirt, and debris at all times. Remove all waste material from the site.

Dispose of materials, waste including toxic materials, trash, and debris in a safe, acceptable manner following applicable laws and ordinances. Burying and burning trash and debris at the site will not be permitted. Remove waste and debris from the site at frequent intervals so its presence will not delay the progress of the work or cause hazardous conditions to workers and the public. Removed materials and debris that can be reused or recycled shall be disposed of properly to a site designated by the Owner. However, waste and trash that could no longer be reused or recycled shall be removed from the PEZA property and disposed of legally to a site preferred by the Contractor and agreed upon by the Owner. Location of the former's disposal site and length of haul shall be for the Contractor's responsibility.

Site works

1. Excavation, Footings, and Foundations

Subject to the provisions of Articles 684 to 686 of the Civil Code of the Philippines on lateral and subjacent support, the design and quality of materials used structurally in excavation, footings, and foundations shall conform to accepted engineering practices. Footings and foundations shall be of the appropriate type, of adequate size,

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and capacity to safely sustain the superimposed loads under seismic or any condition of external forces that may affect the stability of the structure. The Contractor shall employ a construction methodology of minimal impact to its immediate environs during foundations works. Such methods shall be approved by the Owner before commencing any foundation works.

2. Excavation and Fill

Excavation or fills for buildings or structures shall be constructed or protected to not endanger life or property.

Whenever the depth of excavation for any construction is such that the lateral and subjacent support of the adjoining property or existing structure thereon would be affected in a manner that the stability or safety of the same is endangered, the Contractor undertaking or causing the excavation to be undertaken shall be responsible for the expense of underpinning or extending the foundation or footings of the property mentioned above or structure.

Excavation and other similar disturbances made on public property shall, unless otherwise excluded by the Building Official, be restored immediately by the Contractor to its former condition within 48 hours from the start of such excavation and disturbances.

3. Floor Construction

All floors shall be so framed and secured into the framework and supporting walls to form an integral part of the whole building. The types of floor construction used shall provide means to keep the beam and girders from lateral buckling.

4. Roof Construction and Covering

All roof coverings shall be framed and tied into the framework and supporting walls to form an integral part of the whole structure.

Other General Requirements

The Contractor shall carry out and complete all work items within the scope of work following the approved plans and specifications.

The Contractor shall supply all construction materials, labor, tools, equipment, and machinery necessary for the construction and commissioning of the building.

All furnishings required in the scope of work shall be to the satisfaction and approval of the Owner.

1. Contractor's Temporary Facilities

The Contractor shall provide and maintain field offices, including all the necessary utilities such as electricity, water, drainage, security, safety requirements, and other

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temporary works necessary to successfully complete the work. The Contractor shall bear the cost for all the utilities.

The Contractor's temporary facilities shall have sufficient area to accommodate the offices for the Contractor and Owner's representative, storage area, complete with toilet fixtures and interior finishes. Plans and details shall be approved by the Project Manager before installation and / or construction. The Contractor's temporary facilities shall include a stockpile area for bulky construction materials. The ground area shall be appropriately maintained, improved, and leveled to provide mobility and easy access for identification and inspection of materials.

The facilities shall conform to the best standard for the required types. They shall include office equipment, apparatus, pieces of furniture, and other tools necessary for the prosecution of the work.

The Contractor shall provide all necessary safety tools, identifications, uniforms, and equipment for the workers and his staff following the Safety Standard. The Contractor shall provide construction safety barricades along the perimeter of and / or within the project site. The type and material of these barricades shall be subject to the approval of the PEZA.

The Contractor's temporary facilities shall be dismantled and removed from the site after completing the contract.

2. Field Office Equipment, Furniture, and Office Supplies

The Contractor shall likewise provide field office equipment for DPWH field personnel's use, such as desktops and printer/scanner/copier, subject to turn-over to the Owner at the end of the Contract. The cost of such equipment shall be borne by the Contractor. In addition, office furniture such as tables and chairs and office supplies shall be adequately provided.

3. Engineering Support Services

The Contractor shall submit additional detailed plans and analyses as required, necessary for the accurate completion of the works.

4. Progress Reports

The Contractor shall prepare a daily accomplishment report, supported with progress photographs and S-curves to monitor the actual progress status report and be used as a basis for progress billing.

13. Post Construction Works Including Testing & Commissioning

This work includes the testing and commissioning of all mechanical, electrical, IT, and plumbing/sanitary systems installed to provide the Owner a high level of assurance that all equipment and machinery are installed in a prescribed manner.

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Commissioning also includes construction observation, spot testing, verification, and functional performance testing, and providing performance and operating information to the Owner. Problems observed shall be addressed immediately by the Contractor. In addition, the Contractor shall submit a schedule for the commissioning process which is integrated with the construction schedule.

The Contractor shall furnish the Owner the Operation & Maintenance (O&M) Manuals of all equipment and machinery installed, incorporating the technical literature as designed and as actually installed, together with brochures and warranty certificates. The O&M information shall be system-specific, concise, to the point, and tailored specifically to the facility.

The water tank/cistern shall be designed and constructed leak-free. As such, the water tank/cistern shall be tested for hydrostatic and pressure leak tests for 30 calendar days. Disinfection shall follow after passing the hydrostatic and pressure leak test according to the Philippine National Standard for Drinking Water (PNSDW) standards.

VII. DESIGN AND CONSTRUCTION SCHEDULE

The project shall be carried out within the duration herein specified:

a. Design Phase

Preparation of Architectural and Detailed Engineering (including presentation and approvals), and Permit Acquisition: 90 CDs

b. Construction Phase (including post construction evaluation, testing and commissioning): 630 CDs

Total Contract Duration: 720 CDs

VIII. MINIMUM REQUIREMENTS FOR A CONSTRUCTION SAFETY AND HEALTH PROGRAM

Every construction project shall have a suitable Construction Safety and Health Program, which must be in accordance with these rules, and other orders and issuances issued by the DOLE. The Construction-in-Charge, or an equally responsible officer, shall be responsible for compliance with this Section.

a. Construction Safety and Health Committee

(a.1) Composition:

- (i) Construction-in-Charge or his representative as chairperson ex-officio
- (ii) General Construction Safety and Health Officer
- (iii) Construction Safety and Health Officers
- (iv) Safety Representative/Officer
- (v) Doctors, nurses, and other health personnel pursuant to the requirements stated in Rule 1042 of the Occupational Safety and Health Services (OSHS)



(vi) Workers' Representative

(a.2) Duties and Responsibilities:

- (i) The Construction-in-Charge or his representative shall act as the Chairperson of the committee.
- (ii) The committee shall conduct safety meetings at least once a month.
- (iii) The persons constituting the Safety and Health Committee shall, as far as practicable, be at the construction site whenever construction work is being undertaken.
- (iv) The committee shall continually plan and develop accident prevention programs.
- (v) The committee shall review reports of inspection accident investigation and monitor implementation of the safety program.
- (vi) The committee shall provide necessary assistance to government authorities authorized to conduct an inspection in the proper conduct of their activities.
- (vii) The committee shall initiate and supervise safety training for its employees.
- (viii) The committee shall develop a disaster contingency plan and organize such emergency service units as may be necessary to handle disaster situations.
- (ix) The committee shall conduct safety inspection at least once a month shall conduct an investigation of work accidents, and shall submit a regular report to DOLE.
- (x) The committee shall initiate and supervise the conduct of daily brief safety meetings or toolbox meetings.
- (xi) The committee shall prepare and submit to DOLE reports on said committee meetings.

b. General Safety within Construction Premises

(b.1) The provision for personal protective equipment, danger signs, barricades, and safety instructions for workers, employees, public, and visitors, such as housekeeping, walkway surfaces, means of access, i.e., stairs, ramps, floor openings, elevated walkways, runways, platforms, and light.

(b.2) Personal Protective Equipment

- (i) The Contractor shall provide adequate and approved protective equipment (hard hats, safety glasses with side-shields, rubber boots). Workers within the construction project site shall be required to wear the necessary Personal Protective Equipment (PPE) at all times.
- (ii) Construction workers working from unguarded surfaced six (6) meters or more above grade, temporary or permanent floor platform, scaffold or where they are exposed to the possibility of falls hazardous to life or limb must be provided with safety harnesses and lifelines.

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(iii) Specialty construction workers must be provided with special equipment, such as specialized goggles or respirators for welders and painters or paint applicators, and workers who work in confined and enclosed spaces.

(iv) All other persons who are either authorized or allowed to be at the construction site shall wear appropriate PPE.

(b.3) Safety Personnel

(i) The Contractor shall provide for a full-time officer, who shall be assigned as the general construction safety and health officer to oversee full time the overall management of the Construction Safety and Health Program.

(ii) The general construction safety and health officer shall frequently monitor and inspect any health and safety aspects of the undertaken construction. He shall also assist government inspectors in the conduct of safety and health inspection whenever work is being performed or during the conduct of accident investigation.

(b.4) Emergency Occupational Health Personnel and Facilities

(i) The Contractor shall provide a competent emergency health officer within the worksite duly complemented by adequate medical supplies, equipment, and facilities. The services of a full-time registered nurse shall be required when the total number of workers exceeds 50 but not more than 200.

(ii) Where the Contractor provides only a treatment room, he shall provide for his workers in case of emergency, access to the nearest medical clinic or a medical clinic located within 5-kilometer radius from the workplace. He can be reached within 25 minutes of travel. Such access shall include the necessary transportation facilities. In such a situation, there shall be a written contract with the medical clinic to attend to such workplace emergencies.

(iii) The engagement of an Emergency Health Provider for the construction project site shall be considered as having complied with the requirement of accessibility to the nearest hospital facilities.

(ix) The Contractor shall always have in the construction site the required minimum inventory of medicines, supplies, and equipment.

(b.5) Construction Safety Signages and Barricades

(i) Construction Safety Signages shall be provided as a precaution and advisory to workers and the general public about the hazards in the worksite.

(ii) Signage Procedure – the signages shall be:

1. Posted in prominent positions and at strategic locations.



2. As far as practicable, be in the language understandable to most of the workers employed in the site.
3. For non-raised floor areas, the attached yellow CAUTION sign shall be used when using yellow CAUTION tape.
4. For non-raised floor areas, the attached red DANGER sign shall be used when using the red DANGER tape.
5. Placed in designated areas at 1.2 meters from ground level if there is no other more practicable height for placement.
6. Regularly inspected and maintained in good condition to achieve its purpose.
7. Signages that are damaged, illegible, those no longer apply as to purpose, site, or language, shall be removed or be replaced by the safety officer when needed.
8. Removed after the hazard is eliminated. If upon work completion the risk is still present, the signage shall remain in place.
9. Designed and constructed following the Overall Dimensions of Safety Signs Formula as required by the Occupational Safety and Health Services (OSHS).
10. Specific with the type of hazard and should indicate the name of the contaminant/substance involved (for chemical hazards) and the type of PPE or respiratory equipment to be worn.

(iii) Posting of Signages shall include, but not limited to the following places:

1. Areas where there are risks of falling objects.
2. Areas with risks of falling, slipping, tripping among workers and the public.
3. Before entry into project sites, locations, and their perimeter.
4. Where there is a mandatory requirement on the usage of PPEs.
5. Areas where explosives and flammable substances are used or stored.
6. Approaches to working areas where danger from toxic or irritant airborne contaminants/substances may exist.

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7. All places where contact with or proximity to electrical facility/equipment can cause danger.

8. All places where workers may contact dangerous parts of machinery or equipment.

9. Locations of fire alarms and fire-fighting equipment.

10. Locations for instructions on the proper usage of specific construction equipment tools.

(iv) Barricading Procedures – the following shall apply:

1. The Contractor shall provide all necessary barricades, safety tapes, safety cones, or safety lines as required in isolating or protecting an unsafe work area from other workers, pedestrians, or vehicular traffic.

2. Barricades shall completely enclose the hazardous area and limit unintentional or casual entry effectively.

3. Barricades shall be three (3) feet vertical from the ground, when no more practical height specification is available.

4. Barricades shall be maintained in good condition to achieve their purpose.

5. Barricades that are damaged, faded, or no longer apply to purpose, site or meaning shall be removed or replaced by the safety officer.

6. Barricade tape shall not be used on the floor as this presents a slipping hazard of its own.

7. In addition to using the proper warning tape, the Contractor shall use the appropriate safety signage when barricading an area.

8. All barricades shall be removed after the hazard is eliminated.

9. Upon work completion, the barricade shall remain in place if the hazard is still present.

(v) Installation of barricades shall include, but not limited to the conditions of the following worksite:

1. hazardous areas
2. trip hazard
3. robotic movement
4. energized electrical works
5. overhead suspended load test
6. critical high-pressure test

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7. chemical introduction
8. fall exposure
9. emergency response zone
10. unsafe condition zone
11. danger zone
12. confined and enclosed space

(b.6) Safety on Construction Heavy Equipment

About heavy equipment operation in all construction sites, the following are required in the different phases of the project.

(i) Pre-Construction

The Contractor must ensure that appropriate certification is obtained from DOLE duly accredited organizations for the following:

1. All heavy equipment operators assigned at the project site must be tested and certified in accordance with a standard test prescribed by Technical Education and Skills Development Authority (TESDA) in coordination with its accredited organizations.
2. All heavy equipment must be tested and certified according to the standards prepared by DOLE or its recognized organizations prior to commissioning said equipment.

(ii) During Construction to Post Construction

The Contractor must ensure that the following conditions are met or complied with:

1. Load restriction of trailers carrying such heavy equipment shall be observed, the height and width clearances imposed by the DPWH.
2. Only duly certified operators can operate their designated heavy equipment and must wear personal protective equipment.

(b.7) Safety and Health Information

(i) Workers shall be adequately and suitably:

1. Informed of potential safety and health hazards to which they may be exposed at their workplace.
2. Instructed and trained on the measures available for the prevention, control, and protection against those hazards.

(ii) Every worker shall receive instruction and training regarding general safety and health common to construction sites which shall include, but not limited to the following:



1. The basic rights and duties of the workers at the construction site.
2. Normal work and in emergency situations.
3. The measures for good housekeeping.
4. The location and proper use of welfare and first-aid facilities.
5. The proper care and use of the items or personal protective equipment and protective clothing provided to the workers.
6. The general measures for personal hygiene and health protection.
7. The fire precautions to be taken.
8. The action to be taken in case of any emergency.
9. The requirements of relevant health and safety rules and regulations.

(iii) The instruction, training, and information materials provided shall be given in a language or dialect understood by the worker.

1. Written, oral, visual, and participative approaches shall ensure that the worker has understood and assimilated the information.
2. Each supervisor or any person, e.g., Foreman, lead man, and other similar personnel, shall conduct daily toolbox or similar meetings before the start of the operations for the day to discuss with the workers and to anticipate safety and health problems related.
3. No person shall be deployed in a construction site unless he has undergone a safety and health awareness seminar conducted by safety professionals, accredited organizations, or other institutions recognized by DOLE.

(b.8) Construction Safety and Health Reports

(i) The Construction Safety and Health Report shall include:

1. Monthly summary of all safety and health committee meetings
2. Summary of all accident investigations /reports
3. Corrective/Preventive measures/action for each hazard
4. Periodic hazards assessment with corresponding remedial measures for new hazards
5. Safety promotions and training conducted/attended

(ii) Submission of Reports:

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1. The Contractor shall be required to submit a monthly construction safety, and health report to the Bureau of Working Conditions (BWC) copy furnished by the DOLE Regional Office concerned.

2. In case of any dangerous occurrence or major accident resulting in death or permanent total disability, the concerned Contractor shall notify the appropriate DOLE Regional Office within twenty-four (24) hours from the occurrence.

3. After the investigation by the concerned construction safety and health officer, the Contractor shall report all disabling injuries to the DOLE Regional Office on or before the 20th of the month following the date of occurrence of the accident using the prescribed forms of the DOLE/BWC.

(b.9) Workers' Welfare Facilities

(i) Adequate supply of safe drinking water:

1. If the water is used in common drinking areas, it shall be stored in closed containers from which the water is dispensed through taps or cocks. Such containers shall be cleaned and disinfected at regular intervals, not exceeding fifteen (15) days.

2. Notices shall be posted conspicuously in locations where there is a water supply that is not for drinking purposes.

(ii) Adequate sanitary and washing facilities

1. Adequate facilities for changing, storing, and drying work clothes.

2. Adequate accommodation for taking meals and shelter.

3. Separate sanitary, washing, and sleeping facilities for men and women workers.

(iii) Violations and Penalties

1. Under the provisions of D.O. 13 and as circumstances may warrant, the DOLE shall refer to the Philippine Contractors Accreditation Board (PCAB) its findings, after due process, on any act or omission committed by construction contractors in violation of this rule, labor standards, safety rules and regulations, and other pertinent policies. Any such violation committed by construction contractors, whether general contractors or subcontractors, shall constitute a prima facie case of a construction mal performance of grave consequence due to negligence, incompetence, or malpractice contemplated under RA 4566 (Constructors' Licensing Law), as amended, and its Implementing Rules and Regulations.

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2. In imminent danger situations, the DOLE Regional Director shall issue a stoppage order under the provisions of Rule 1012.02 of the Occupational Safety and Health Services (OSHS) and other pertinent issuances for stoppage of operation or for other appropriate action to abate danger.
3. Pending the issuance of the order, the Contractor shall take appropriate measures to protect his workers.
4. The stoppage order shall remain in effect until the danger is removed or corrected permanently.
5. Non-compliance with the order shall be penalized under existing provisions of labor laws.
6. All processes and / or procedures in the conduct of General Labor Standards inspection, including General Occupational Safety and Health/Technical Safety Inspection shall be governed by Department Order No. 57-04 and its corresponding Manuals of Instructions.

IX. STAFF REQUIREMENT

The Contractor shall provide adequate and qualified staff to perform the services required as per Section 12.2(d)(2) of the Bid Data Sheet.

The Design & Build contractor may, as needed and at its own expense, add additional professionals and / or support personnel for the optimal performance of all Construction Services, as stipulated herein. Prospective bidders shall attach each individual's resume and PRC license of the (professional) staff, proof of qualifications, and related documents as necessary.

X. REPORTORIAL REQUIREMENT

The Contractor shall present (in powerpoint format or equivalent) to the Owner his Detailed Architectural Concept within five calendar days upon receipt of Notice to Proceed/Contract effectivity, but not necessarily limited to the following:

1. Site Development Plans
2. Exterior Perspectives
3. Interior Perspectives
4. Axonometric Plans with Outline Materials Specifications provided per Department
5. Floor Plans with Furniture Layout and Outline Intent Perspective Architectural Dimensional Floor Plans
6. Building Elevations (on all four sides)
7. Building Sections (minimum of 2 sections)
8. Reflected Ceiling Plans
9. Schedule of Finishes, Doors, and Windows

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10. Architectural Interior Plans (Detailed Floor Plan, Reflected Ceiling Plan and Interior Elevations) for the Main Lobby, Hallways, Elevator Lobby

XI. SUBMITTALS, STAGES, AND DELIVERY

Submission by the Contractor of approved plans shall be under Terms of Reference. The number of copies of approved plans for distribution shall be as required for obtaining the building permit and for construction.

XII. TEST REQUIREMENTS

The Contractor shall undertake tests during construction following the schedule of minimum testing requirements for items of work and materials covered by the DPWH Blue Book relative to building construction.

XIII. PROJECT COMPLETION

The Contractor shall complete the DB Project within 720 calendar days.

XIV. WARRANTY

The Contractor shall guarantee the completed structure against structural defects and failure for its satisfactory performance vis-a-vis the prescribed MPSS during the structure's lifetime. For this purpose, the Contractor shall post a Warranty Security in the form of surety bond, callable on demand issued by a reputable institution.